Guide to valuation and depreciation under the international accounting standards for the public sector

[ Draft for comment ]
Foreword

Include notes –

- This relates to IFRS and IPSAS only
- Recognise that some jurisdictions are on cash accounting or may use accrual based with requirements other than IFRS/IPSAS

Acknowledgements

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Overarching framework and considerations
Why fair value and depreciation are important

Those public sector jurisdictions that use accrual accounting often require the financial statements to bring their assets to account in the financial statements at fair value, as defined by the accounting standards.

These types of entities typically control vast portfolios of physical assets which they use to deliver services to the community. They may include land and buildings, miscellaneous plant and equipment and infrastructure such as roads, footpaths, drainage, bridges, water infrastructure, sewerage infrastructure, marine assets and airports.

The fair value method provides significant advantages over historical cost accounting for this sector as the information provided in the financial statements provides the users of the financial statements with a greater understanding of the value of assets controlled by the entity and performance of the entity.

The use of fair value in the public sector is critical to assessing the real performance of the entity and to providing meaningful key performance indicators (KPIs) about important matters such as sustainability and asset management performance. However, it is critical that such figures reflect the reality of where assets are within their lifecycles and the rate at which the asset’s service potential is being consumed. Otherwise, the resulting KPIs will be meaningless and may misstate the true position.

The purpose of general purpose financial statements is to provide information useful to users for making and evaluating decisions about the allocation of scarce resources. They are essentially a mechanism that enables any interested person or entity to gather information so that they can assess the performance of the entity.

General purpose financial statements focus on providing information to meet the common information needs of users who are unable to command the preparation of reports tailored to their particular information needs. These users rely on the information communicated to them by the reporting entity.

In short, the financial statements provide the general community with an understanding of the financial position and performance of the entity. By analysis of the financial statements the general community and/or other users should be able to assess whether the entity has exercised good financial management. This, clearly, is also very important for the entity itself.

In relation to physical assets, the financial statements provide the users with specific information about the overall movement in the underlying wealth of the entity. This includes the value of assets held by the entity; their relative condition; and the rate at which they are being consumed. For example:

- Whether the entity has maintained, increased or decreased the level of remaining service potential embodied in the assets used to provide services and outcomes for the community (fair value as a percentage of gross current replacement cost (GCRC)).
- The rate in which the entity is consuming the assets (depreciation expense as a percentage of gross current replacement cost).

Example: Impact of asset management performance on the financial statements.

Impact of asset management performance on the financial statements

The following example demonstrates how the valuation and depreciation figures are central to understanding the true performance of an entity. It shows how the information provides users with an understanding of the financial and asset management performance of the entity and provides some insight into the long-term financial sustainability of the entity.

Valuation

We will assume that our entity has a large portfolio of assets, and that since inception it has followed good asset management principles and maintained its assets in good condition. If a valuation was undertaken at fair value you would expect the fair value to be quite high with the written-down value (WDV) expressed as a percentage of the gross value to also be quite high. For example this ratio might be 80 per cent or, in layman’s terms, could be roughly interpreted as a condition score of eight out of 10.

In contrast, however, if the entity had not followed good asset management practices you would expect the condition of the assets to be much worse. Accordingly this should translate into a lower fair value. As the gross value would remain the same this would mean the ratio of WDV to gross value would be much lower. For example 60 per cent or, in layman’s terms, a condition score of 6 out of 10.

If the change in this ratio was then mapped over a five-year period you would quickly gain an appreciation of whether the entity was losing, maintaining or gaining relative value. A constant decrease would indicate that the amount of wealth being consumed was greater than the amount being replaced through renewal or new investment. This, in turn, would raise concerns about the quality of the ability and performance of management and the quality of the asset.
management plan and maintenance regime. It would also raise concerns about the entity’s longer term sustainability.

**Depreciation**

While fair value and its relationship to gross value is important, the amount of depreciation expense in relation to the value of the portfolio is just as important.

Under the accounting standards, depreciation expense is an estimate of the amount of future economic benefit (or service potential) that is expected to be consumed during the next 12 months. It is charged to the profit and loss account over an asset’s life and is calculated in a manner that reflects the pattern by which the entity is expected to use the asset’s future economic benefits.

When an entity practises good asset management over time the general condition of the assets should be better and therefore the WDV should be higher, than under poor asset management. Accumulated depreciation should be lower. As a result an entity that practises good asset management should also report a lower rate of depreciation expense than an entity that practises poor asset management.

**Asset management performance**

The above highlights one of the problems of adopting approaches that over-simplify or ignore key aspects of the accounting standards. For example, it is not uncommon for entities to adopt policies that assume the pattern of consumption is constant (a straight line) despite the real pattern of consumption being other than straight line. Entities say this is done for simplicity, reduced costs and to limit the variability in results from year to year.

Another example is the assumption that all assets (such as buildings) have the same defined and consistent useful life, resulting in a constant rate of depreciation expense. In reality, each asset is affected by several consumption drivers, and each consists of a range of different components which in turn create varied consumption patterns and, ultimately, different valuations and depreciation calculations.

Simplified approaches have the benefit of clarity, but over time they risk producing materially incorrect results. They tend to produce consistent results from year to year rather than measure the actual performance of the organisation.

Compared to an entity that is not managing its assets well, an entity that maintains its assets in good condition should be disclosing a higher relative value and lower rate of depreciation. This information enables the readers of the entity’s financial statements to make informed decisions about the performance and sustainability of the entity.

![Figure 1: Impact of asset management performance on depreciation expense](image-url)
Asset accounting, asset management and financial management focus on three key financial aspects:

- The cost to deliver the service. This includes the full lifecycle cost, which includes the costs of:
  - acquisition;
  - maintenance;
  - operation;
  - renewal;
  - upgrade; and
  - disposal.

- The source of funding (revenue). Examples include:
  - grants;
  - rates and taxes;
  - fees and charges; and
  - internal reserves.

- Accountability and performance measurement. These are provided via the financial statements as:
  - valuation;
  - depreciation; and
  - disclosures.

Each of these categories, even if they relate to the same asset portfolio and may use similar or the same terminology such as depreciation or current replacement cost, are calculated for different purposes and are based on different assumptions. Accordingly care is needed to ensure that the various concepts and figures are not confused or used for the incorrect purpose.

This is particularly so for those assets commonly termed cyclical maintenance assets. Typically they are long-lived assets whose future economic benefits (also known as service potential) are continuously restored or renewed through ongoing cyclical maintenance on the various components that together comprise the parent asset. The asset management strategy of these types of assets can be graphically represented as follows.

![Figure 2: Typical asset management strategy of a cyclical maintenance asset](image)

As a consequence of cyclical maintenance, the total asset lifecycle may be continuously extended. Changes to the levels of maintenance and renewal also results in changes to future funding needs. Some assets will wear out or be consumed quicker than other similar assets, depending on the environment, maintenance effectiveness, the availability of funding and other local factors. Likewise the asset may become obsolete despite being maintained in a good physical condition.

**Good governance**

Corporate governance is defined as everything that you do in order to achieve your objectives. Typically this includes such things as policies, procedures, processes, organisational structure and plans.

To provide good corporate governance it is important that the funds used to deliver services are invested wisely and in a way that provides an appropriate level of service for the community in the long term in the most cost effective way. This should be done in such a way as to achieve sustainability and to allow interested parties to be able to assess the performance and ensure accountability. Part of the challenge is integrating the various financial categories.

The financial statements are the primary mechanism used by entities to provide accountability and allow the public to assess their overall financial performance. The financial statements are designed to provide a snapshot of the actual wealth (the statement of financial position) and performance (the statement of comprehensive income) of an entity. They are a record of what has transpired during the year. Asset-intensive entities in particular should reflect their asset management reality.

In order to fully satisfy their objective of financial reporting, it is a prerequisite that asset accounting and asset
management be integrated. In order to do this the asset accounting must be driven by an assessment of the asset’s lifecycle and condition, taking into account both holistic and physical factors such as functionality, capacity, utilisation and obsolescence.

Integrating asset accounting and asset management

Over the past two decades, in many countries, and especially in Australia, there has been a continued call for the integration of asset accounting and asset management. To some extent this has been based on a desire for both accountants and engineers to speak the same language, reduce confusion and produce efficiencies from using the same information.

The integration of asset accounting and asset management however is not achieved by substituting figures produced for one purpose with figures required for another. The valuation/depreciation, asset management planning and pricing decisions should be based on a consistent understanding of the asset lifecycle and asset condition.

The valuation and depreciation figures should be based on the lifecycle, condition and factors driving the consumption of the asset. The replacement cost used to determine fair value is to be based on the cost to replace the service potential delivered by the existing asset.

The asset management plan should also be based on these same aspects in conjunction with an understanding of alternative capital expenditure treatments, maintenance and operational costs as well as differing levels of service. However for this purpose the replacement costs are an estimate of the future funding needs (lifecycle costs) which typically bear little or no relationship to the fair value or depreciation expense.

The amount an entity charges to supply a service also needs to take into account the asset lifecycle, condition and factors driving the consumption of the asset. It should also take into account the likely future funding requirements sourced from the asset management plan.

Price setting in the public sector may also be based on a regulatory pricing regime where pricing is based on a depreciated optimised replacement cost (DORC), modern equivalent asset (MEA), economic value in use or renewal annuity model. These approaches differ in some aspects but are closely aligned in that calculation of replacement cost and depreciation is based on an assumption of efficiency rather than what actually exists, and it excludes the value of additional service potential delivered by the asset which is surplus to the needs of an efficient business. In some cases the valuation may be based on a purely hypothetical asset that exists in a completely different location.

The aim is to force entities under these regimes to limit their revenue generation capability so that inefficiency in their operations is not rewarded with higher prices. The depreciation method applied under these regimes delivers a consistent and low variation in price over an extended period (in order to ensure inter-generation equity), whereas fair value is aimed at reporting the actual loss of future economic benefit over the financial year.

The following example demonstrates that the figures produced for these different purposes are quite different and care needs to be taken to ensure they are not confused with each other or used for the wrong purpose.

Example: Valuation and asset management of a residential property

Valuation and asset management of a residential property

Background information

Public sector entities sometimes control a range of residential properties. They may be used to provide accommodation to staff, or the purpose of the entity may be to provide public housing to the community at large. When valued at fair value the valuation approach is no different than if the property were held by an individual.

In this example the entity provides subsidised housing to a family. The family consists of a couple who both have children from previous marriages. In total they have six children and due to the size of the family need a large house. The entity has difficulty finding a house near where they work with enough bedrooms to accommodate the large family. However, the entity finds two flats (each with 4 bedrooms) which share a common entrance and are within easy walking distance from the family’s work and schools. The entity allocates them both flats and make a number of new passages between the two flats in order to convert them into one extra-large flat.

They live in this extra-large flat for twenty years and eventually the last child leaves home. As a result there are only two people left in the residence of 8 bedrooms. Despite the lack of need to provide such a large residence the entity continues to house them in the same residence.

Fair value (financial reporting)

For financial reporting purposes the asset is to be valued at market value. From recent sales the valuer makes the
following determinations.

- If sold as one title the potential market would be limited and potential market price would be between $530,000 and $570,000.
- However if the property were converted back to two flats, at an estimated cost of $15,000, the market value of each flat based on current condition would be very similar to a range of other flats that have recently been sold in the area. The valuer estimates that each flat, at market value, is worth between $280,000 and $310,000.
- At highest and best use the best value would be to reconfigure the property as two flats and sell independently. The combined market value is subsequently assessed as $600,000. The valuer also estimates annual depreciation to be $15,000 per year.

**Asset management planning**

Because the house is now too large for the needs of a couple the entity decide that within five years it will relocate the couple to a smaller property. However, having been the family home for six children the house needs some major maintenance and repairs and they decide to convert the large flat back into two separate flats.

The entity decides on a five-year timeframe to complete all the work. They create a plan and a budget (asset management plan). In the plan they list all the major jobs that need to be done (capital expenditure) as well as general maintenance (maintenance) that will also need to be done on a regular basis. They also take into account day-to-day operational costs.

This plan shows that over the next five years the entity will need to invest $150,000 at an average cost of $30,000 per year.

**Pricing**

The asset is owned by public housing and rented. Rentals are based on the income earned by the couple with the difference between market rental value and the amount actually paid recorded as a subsidy.

In this situation the market rental is assessed at $600 per week but because the couple only earn a low income and only require a one-bedroom flat the rent charged is only $100 per week.

In some jurisdictions these types of assets would be valued on the basis of value to the business rather than as fair value as defined by IAS 16 Property, Plant and Equipment. At value to the business, the value of the property would be assessed as being the value of a property that returns a rental stream of $100 per week. This is estimated at $120,000. However, fair value would be $600,000 based on its market value.

**Comparison**

The figures produced for these three different purposes are often all referred to as replacement cost, depreciation and fair value. The above example however highlights that the replacement cost and depreciation calculated for financial reporting is significantly different than the replacement cost and depreciation calculated for asset management planning. Likewise the value calculated on an efficient pricing model is significantly different than fair value as defined under the International Accounting Standards. This is because under the International Accounting Standards you value the service potential of what you actually have (a large eight-bedroom flat) rather than what you would have if you were efficient (a one-bedroom flat).

This example used an asset valued at market value. However the same applies to assets also valued at depreciated current replacement cost.

- For financial reporting purposes you value the service potential of what you have and report the amount of service potential you expect to be consumed over the next 12 months as a depreciation expense.
- For asset management planning you calculate the replacement cost of your future funding needs (lifecycle costs) and covert them to an annual figure. This figure may also be referred to as depreciation despite being different from that calculated in accordance with the International Accounting Standards.
- For pricing purposes, especially in a regulated pricing environment, the pricing and associated value of the asset is based on delivering the asset efficiently with no excess capacity. Accordingly you value and price on what you would have if to you were efficient rather than what you actual have.

**Valuation and depreciation**

The financial statements are designed to provide users with information that enables them to make informed decisions. Fair value reflects the value of the remaining level of service potential and depreciation expense of the value expected to be consumed during the next twelve months.

It is therefore critical that the fair value and depreciation
expense figures reflect the reality of managing the asset. If the assets have been maintained well, are in good condition and there are no concerns over future obsolescence, the fair value should reflect a high written-down value (WDV) as a percentage of the gross current replacement cost (GCRC).

The financial statement results are an output of the asset management performance. They do not drive asset management.

Depreciation expense measures the value of service potential expected to be consumed during the next twelve months. It has no relationship to the amount of future funding required to meet changing community needs and expectations.

Depreciation is not a cost of providing a service. It is a measure of the expected amount of service potential to be consumed during the next twelve months. The cost to provide the service includes the lifecycle costs: costs to acquire, maintain, operate, renew and dispose of the asset. Irrespective of the depreciation methodology adopted the actual cost to deliver the service will not change as a result of changing the depreciation methodology. The cost to deliver the service will only change as a consequence of changes in the lifecycle costs.

Asset management

Asset management is the process of organising, planning, designing and controlling the acquisition, care, refurbishment, and disposal of infrastructure and engineering assets to support the delivery of services. It is a systematic, structured process covering the whole life of physical assets.

The objective of asset management is to optimise the service delivery potential of assets and to minimise related risks and costs and ensure positive enhancement of natural and social capital over an asset lifecycle. Good governance and the intelligent deployment of business systems, processes and human resources are key aspects of this endeavour.

In practical terms the goal of asset management is to provide an appropriate (not necessarily the best) level of service in the long term in the most cost effective way. This includes consideration of all service level aspects including financial, environmental, social and governance. By definition it involves analysis of alternative asset management and maintenance regimes incorporating different intervention points, treatments that in turn deliver different levels of service and whole of lifecycle costs.

If an entity chooses to intervene at a different phase of the asset lifecycle, this in turn results in a different level of service, future capital expenditure and maintenance costs. In order to find the strategy that returns an appropriate level of service with the best whole of lifecycle cost, detailed analysis needs to be conducted. This should take into account the asset lifecycle, the factors that drive decisions, alternative treatments and maintenance costs. There is no correlation between the strategy’s future funding needs, fair value or depreciation.

Strategic modelling and asset management planning

There are many elements to strategic asset management and due consideration needs to be given to the following elements.

- **Environmental**: Greater appreciation of the interaction between built assets and the natural environment.
- **Sustainability**: Ensures that the social, economic and environmental needs of a community are met and kept healthy for future generations (Sustainability Victoria, 2010)
- **Resilience**: Increased emphasis on the asset, environment and the community to respond to and recover from external impacts.
- **Whole of life asset management**: Requires that decisions and actions across the entire lifecycle of the asset from design to disposal be considered.
- **Increased community demands**: Information and communication technology (ICT) advances have led to higher citizen expectations for immediate and localised services. Closer alignment of policies, resources and projects will deliver better quality, more efficient and timely built assets.
- **Information management**: Information needs and capabilities are more demanding and complex.
- **Expanded governance arrangements**: Assets are now owned, governed and operated by an expanded set of decision-makers. Thus alongside conventional governance forms, there is now an array of hybrid models such as public-private partnerships, alliance and relational contracts. More innovative and variable governance approaches are required for these different models to manage the unique risks and opportunities associated with them.

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The product of taking all these factors into account is the production of an asset management plan which includes the development of a long-term financial plan (LTFP). Ideally the LTFP should be developed using an optimised decision model that incorporates the following:

- The factors that the community uses (consciously and sub-consciously) to assess the level of service that they are receiving from the asset;
- The asset lifecycle (including degradation and economic consumption);
- What assets you have and what condition they are in (including component specific and holistic); (This information should be provided as an output of the valuation exercise.)
- The community’s and the organisation’s preferred levels of service. Using strategic modelling these will need to be negotiated via community consultation;
- What types of renewal treatments are undertaken (capital) and their costs;
- The types of maintenance activities are undertaken (maintenance) and their costs;
- Reasons why you undertake the treatments (that is, the factors that drive asset management decisions – such as overall condition, cracking, rutting, aesthetics, capacity, functionality, complaints, breakages, blockages, etc);
- When is the optimum time to undertake the various maintenance and renewal treatments;
- Operating and any other costs (such as employees, running costs, carbon credits or sustainability costs);
- Future funding sources and availability (including rates, grants and fees and charges); and
- Likely future context including drivers (such as demographics, climate change) that will impact on aspects now and into the future including financial, environmental, social and governance.

Having modelled a range of scenarios via an optimised decision engine you will be in a position to make an informed decision (taking onto account future predictions) that weighs up the full lifecycle cost of delivering the service against the resulting level of service delivered by the selected strategy. Typically, the final agreed strategy is negotiated with the community via a formal community consultation process.
Overview

The fundamentals of modern government include the need to be transparent and accountable to the community. The community provides the funds (tax, rates, fees and charges, donations) to enable public sector entities to provide services to the community.

Central to this concept is the requirement to produce annually a set of financial statements based on prescribed requirements (including accounting standards) and for these financial statements to be independently audited by an external auditor. The audit provides assurance to the community that those who have been entrusted with their funds have exercised their responsibilities diligently and in full accordance with the relevant legislation.

The objective of financial statements is to provide information about the financial position, performance and changes in financial position of an entity that is useful to a wide range of users in making economic decisions.

Financial statements prepared for this purpose meet the common needs of most users. However, financial statements do not provide all the information that users may need to make economic decisions since they largely portray the financial effects of past events and do not necessarily provide non-financial information.

Financial statements also show the results of the stewardship of management, or the accountability of management for the resources entrusted to it. Those users who wish to assess the stewardship or accountability of management do so in order that they may make economic decisions; these decisions may include, for example, whether to hold or sell their investment in the entity or whether to reappoint or replace the management.3

Each jurisdiction has its own financial reporting framework. Some are cash-based and some accrual-based with many currently in the process of moving to the adoption of the accrual-based International Financial Reporting Standards (IFRS) or International Public Sector Accounting Standards (IPSAS). The Australian accounting standards are accrual-based, and commonly referred to as the Australian equivalent IFRS or AeIFRS.

Some jurisdictions also adopt an accrual base but only apply certain aspects of the IFRS or IPSAS. It is therefore important to identify the main prescribed requirements and ensure the various financial statement disclosures accurately reflect the standards and requirements actually applied.

This guide covers valuation and depreciation under the IFRS and IPSAS. In respect to valuation and depreciation the requirements under either standards base are essentially the same. All use the same (or very similar) definitions, concepts and requirements. Many countries currently in the process of making the transition from cash accounting to accrual accounting are adopting either an IFRS-based or IPSAS-based accounting framework.

Other prescribed requirements

While each jurisdiction refers to its own accounting standards there may be other overriding prescribed requirements. Typically these may be specific legislation or guidelines issued by Treasury or its equivalent. These are usually consistent with accounting standards but provide for different treatments for specific situations.

Such prescribed requirements will normally take precedence over the accounting standards and the auditors will audit to the prescribed requirements. However any departure from the accounting standards should only occur where there is such a variation and it should be clearly disclosed in the notes.

Preparation of financial statements

The financial statements are prepared using a range of accounting standards or specific prescribed requirements. Their role is to set the rules over the form and content of the financial statements and in particular to set rules regarding the accounting treatment and disclosure for particular types of transactions.

From time to time the accounting standards are reviewed and enhanced to reflect treatments for emerging issues. This may include the development of new standards, changes to existing standards or the issue of guidance.

Setting these rules and having compliance certified by an external auditor provides a mechanism to ensure compatibility and consistency across the financial statements of different periods and entities.

Attachment A: Cross reference between IFRS, IPSAS and Australian accounting standards provides a quick reference guide to the various accounting standards (Australian Accounting Standards Board).

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3 IFRS Framework paragraphs 12 - 14
Valuation and depreciation requirements

Globally, there is a wide range of prescribed requirements in relation to how public sector entities need to account for and value their assets, with some requirements prescribed by legislation or specific guides. Some jurisdictions can choose either cost or fair value. However, most require fair value as it is considered that this is most appropriate and provides the users with more useful information.

As a general rule, in the accrual accounting environment, the public sector values material assets (land, buildings, roads, water, sewerage, community and miscellaneous infrastructure) at fair value in accordance with the IFRS or IPSAS. Those in a cash or a quasi-cash accounting environment usually do not value the assets and hence do not disclose to the community the extent of assets controlled by the entity.

The IFRS and IPSAS have a range of standards, and while the concepts and requirements are consistent there is not a one-to-one relationship between the IFRS and IPSAS standards. Refer to Attachment A for the comparison between IFRS, IPSAS and Australian accounting standards.

Attachment B: Inter-relationship of the accounting standards provides an overview of the key asset valuation-related accounting standards and their inter-relationship.

To assist users of this guide a number of decision trees have been developed to provide a quick overview of key aspects of the valuation and depreciation of physical assets. They are included as Attachment C: Overview of specific accounting standards.

The key common aspects are as follows.

• **Assets valued on the fair value basis.** Typically this is done on the depreciated current replacement cost basis unless there is an active and liquid market in which case the valuation basis would be market value. The income approach is usually only used with for-profit entities where the asset generates profits such as government commercialised business units.

• **Componentisation.** Assets which are made of significant parts which in turn have different lifecycles must be depreciated separately. This is also critical for asset management planning. All assets that are capitalised need to be componentised.

• **Annual assessment for revaluation and/or depreciation changes.** At the end of each year the entity needs to assess whether the carrying amount differs significantly from the fair value. This is done by consideration of changes to aspects such as functionality, capacity, utilisation, obsolescence and the assessment of unit rates, pattern of consumption, residual value, useful life, condition and as a result remaining useful life. Based on this assessment, the assets may need to be revalued and/or depreciation rates changed prospectively.

• **Revaluation of entire class.** If an asset is revalued all assets within the class must also be revalued. However there are some exceptions allowed in practice when applying materiality considerations. Further guidance on this is provided in the section on year-end requirements.

• **Depreciation requirements.** The method used to determine the amount of accumulated depreciation and depreciation expense must:
  - **Match the pattern of consumption.** Straight-line cannot be used as a default as there is a mandatory requirement to use a method that matches the pattern of consumption.
  - **Be based on the relevant factors** which provide sufficient and appropriate audit evidence to determining the level of remaining service potential and how it is consumed. This needs to take into account utilisation, wear and tear, obsolescence, legal and other limits.
  - **Only depreciate the depreciable amount.** This requires determination of the non-depreciable component or residual value.
  - **Depreciate the depreciable amount in a systematic way over the asset’s useful life.**

**Auditing**

To provide reasonable assurance regarding the accuracy and completeness of the financial statements they are audited by an independent external auditor. The actual opinion provided varies from jurisdiction to jurisdiction, however typically requires the auditor to certify that the statements comply with the prescribed requirements (including accounting standards) and present a true and fair view.

This in turn requires the auditor to conduct tests to confirm that fair value, depreciation expense and disclosures have been prepared in accordance with the relevant requirement. The results are based on a sound approach, can be supported by appropriate evidence and are materially correct.
An inability to provide sufficient and appropriate audit evidence to support the valuation would normally result in the auditor issuing a modified or disclaimer opinion.

**Financial indicators**

Good use of accrual accounting can tell an accurate picture about infrastructure condition and performance. Soundly based assumptions regarding an asset’s useful life and rate of depreciation, and regularly reviewing asset service performance and written-down recorded value, will mean that financial statements reliably reflect asset values and rates of consumption. This is essential in order to determine affordability of current and proposed service levels and to equitably generate revenue from service recipients over time.\(^4\)

The practice note also states that “…in preparing and adopting long term financial plans, organisations need to specify the financial measures that are to be used to monitor and assess financial performance over the planning period.” It recommends the following measures to be used as KPIs. These indicators are sourced from the Australian Infrastructure Financial Management Guidelines but can also be used globally.

**Operating surplus**
The operating surplus (or deficit) before amounts received specifically for new or upgraded assets and physical resources received free of charge.

**Operating surplus ratio**
1. The percentage by which the operating surplus or deficit as defined above varies from the major controllable income source (for example, rate income).
2. The percentage by which the operating surplus or deficit as defined above varies from the major controllable income source plus predictable operating grants.

**Net financial liabilities**
What is owed to others, less money held, invested or owed to the entity.

**Net financial liabilities ratio**
The significance of net amount owed compared with the period’s income.

**Interest cover ratio**
The proportion of day-to-day income (that is, operating income) used to pay interest on loans net of interest income.

**Asset sustainability ratio**
The ratio of asset replacement expenditure relative to depreciation for a period. It measures whether assets are being replaced at the rate they are wearing out.

**Asset consumption ratio**
The average proportion of as-new condition left in assets.

**Asset renewal funding ratio**
The ratio of the net present value (NPV) of asset replacement funding accommodated over a 10-year period in a long-term financial plan relative to the net present value of projected capital renewal expenditures identified in an asset management plan for the same period. It assesses the entity’s financial capacity to fund asset renewal.

With respect to asset management performance, the following KPIs are considered most appropriate and should be monitored for trends over a number of years.

**Asset consumption ratio**. This is calculated by comparing (by asset class and in total) the fair value to the gross value.

**Rate of consumption ratio**. This is calculated by comparing the total amount of depreciation (by asset class and in total) to the corresponding gross value. This can then be compared over time as well as against other benchmark entities.

**Asset sustainability ratio**. This ratio indicates whether the amount of replacement exceeds or is less than the amount of depreciation.

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\(^4\) IPWEA / ACELG Long Term Financial Planning Practice Note 6 (www.ipwea.org.au/practicenotes)
Implementation and delivery options

Alternative strategies

It should be remembered that the primary purpose of undertaking the fair value exercise is usually to provide values to be reported in the entity’s financial statements. These in turn are usually audited by an external auditor. This process demonstrates accountability and stewardship and in turn allows those outside the organisation to judge the performance of the entity.

The goal is much more than simply to undertake some calculations. It is about developing and delivering a robust methodology and associated calculations that can withstand a rigorous external audit process and provide meaningful indicators of the entity’s performance. If done properly the process also provides key information critical to the development of a robust asset management framework.

By design it includes:

• developing an appropriate non-current assets policy;
• developing an appropriate valuation and depreciation methodology that fully complies with all key aspects of IAS 16 and other relevant IFRS and IPSAS standards;
• ensuring your asset register is complete, accurate and the assets exist;
• creating a data hierarchy and table of assumptions that can be applied against the asset and components of each asset and that take into account the asset management reality for each individual asset;
• determining the method and templates to undertake the actual calculations;
• gathering and documenting sufficient and appropriate evidence to support the underlying assumptions;
• implementation of internal quality assurance;
• production and sign-off of final reports and methodologies;
• ability to quickly respond to any audit queries; and
• the implementation of an annual process to assess and adjust for any changes in condition, unit rates, pattern of consumption, useful life, residual value.

Ultimately it is up to the organisation how they will implement and deliver the fair value process. The following table summarises these approaches based on typical cost structure. Consideration needs to be given to the associated risks, best use of resources and associated costs.
Table 1: Alternative valuation delivery options

<table>
<thead>
<tr>
<th>Cost</th>
<th>Option</th>
</tr>
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<tbody>
<tr>
<td>Highest</td>
<td><strong>Do-it-yourself and learning from your mistakes as you go.</strong> While the amount of funds spent directly on the valuation process may appear to be low (with no or limited budget impact) the actual cost is typically extremely high. The costs are hidden in general salaries and time spent on the project not recorded or costed. It will take staff a long time to research and develop capability; and it includes a high risk of implementing poor methodology and ultimately not passing audit. This option includes a very high hidden cost and in the following years there is the additional risk of key staff moving on resulting in the entire process needing to be re-invented and databases recreated or reconciled.</td>
</tr>
<tr>
<td>High</td>
<td><strong>Appointing external consultants to undertake the entire process.</strong> This is a good option for those with no or limited in-house expertise. However as well as cost, another drawback may be that the entity will not have control over the data. Additionally, the consultants may not be experienced in fair value or may not have a fully compliant methodology. The issue with data control is extremely important if you wish to change valuation firms in future years. There is also a risk that additional fees may be required for the consultant to respond to audit queries. To those considering this option, it is recommended that you undertake extensive due diligence to ensure that the methodology is fully compliant and determine whether the consultant is prepared to guarantee the valuation will pass audit. In assessing alternative quotes the importance of high quality output and a fully compliant methodology is far more important than the cheapest price. A product that does not satisfy the requirements or not does not meet your needs will be a waste of money irrespective of the price.</td>
</tr>
<tr>
<td>Moderate</td>
<td><strong>Partnering with an external consultant using a collaborative approach.</strong> With the right consultant who has a good methodology and experience with fair value this could be a good option. The risk is that they may lack the actual capability to deliver and you will essentially be paying them to learn as they go at your expense. You may also find it difficult to find a consultant willing to share their intellectual property. One way to entice potential suppliers into this arrangement is to offer to engage with them in a long-term strategic relationship.</td>
</tr>
<tr>
<td>Lowest</td>
<td><strong>Using specialised valuation software.</strong> This approach ensures you maintain total control over your data and it can be used for future valuations. Care needs to be taken when selecting an appropriate system to ensure the system can handle the range of assets you have, to ensure the system is supported with good documentation and processes, to ensure the methodology fully complies with all aspects of the standards and that the outputs include all relevant reports, and methodology documents. Essentially this software provides the capability and methodology upfront rather than entities having to re-invent the wheel from scratch.</td>
</tr>
</tbody>
</table>

The initial valuation is the start of an ongoing annual process. It is therefore important that entities take the time to ensure they put the right processes, procedures and methodologies in place to ensure public monies are not wasted.

If done correctly the valuation process provides core input to the asset management framework by capturing essential data such as asset location, components and condition. By adopting an asset management approach, the valuation exercise becomes an ongoing operational requirement, feeds directly into the asset management plan and adds value rather than being seen as a compliance cost.

Engaging a valuer

If the entity decides to engage an external expert to undertake the valuation or provide some form of assistance consideration needs to be given to a range of issues. These include the following questions.

- What type of expert should I engage?
- What qualifications do they need?
- How do I assess their capability to undertake the project?
- What factors should I use to assess one potential supplier against another?
- How do I ensure I am going to get value for money?
- What will be my role?
How do I put together a tender proposal and what needs to be included?

These are all difficult questions and there is no one right answer. However, the following will provide some guidance.

In most jurisdictions, there is legislation requiring a person who values land to be a registered valuer or surveyor with formal tertiary and professional qualifications. Examples include holding RICS or equivalent registration.

As land and buildings are fundamentally linked and the accounting standards require the land to be separated out into a different asset class, it is normal practice for a registered valuer to undertake the valuation and land, buildings and any associated other structures as one project. This may include valuing the associated hardstand, fences, retaining walls, and swimming pools.

Infrastructure, on the other hand, would typically be valued by engineers, possibly with assistance provided by accountants. They may be either in-house or external engineers employed by either a valuation firm or an engineering firm. Care does need to be taken to ensure the engineer has a high level of understanding and experience with both the accounting standards and valuation methodology. If not, the underlying valuation and depreciation methodology may be materially flawed.

Specialist assets, such as art work, should be valued by a valuer with the appropriate specialist valuation qualifications.

How do I assess their capability to undertake the project?

There is a range of factors that you may choose to assess the relative value for money offered by the various potential suppliers. Price is of course important but when engaging professionals to provide a professional service (such as valuation) it is normal practice to evaluate potential suppliers using a quality price model.

The factors often considered for evaluation include are listed below. Of course it is up to the entity to determine what is important to them.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Aspects</th>
</tr>
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</table>
| Methodology                      | • Is the methodology sound and logical, and does it comply with all aspects of the IFRS/IPSAS and other prescribed requirements? In particular: residual value; patterns of consumption based on key drivers; and scoring methodology.  
  • Can the project be delivered on time?  
  • Will the data gathered also benefit the entity through improved asset management planning?  
  • Do they understand what is required?  
  • Will the outputs include all necessary documentation to satisfy the audit process? This includes an extensive detailed methodology document. |
| Relevant skills                  | • Do the relevant staff have the proper qualifications?  
  • What is their public profile?  
  • Are they recognised as leaders in this field? |
| Relevant experience              | • How many valuations of this type have they done before?  
  • Are they experienced in this sector and type of asset?  
  • What is their knowledge and experience with valuations under the accounting standards? |
| Track record                     | • Have they ever been qualified?  
  • What do their referees say about their performance?  
  • What do they do to ensure a clean audit certificate? |
| Ability and willingness to add value | • Can they form a strategic relationship and work with the entity to provide added value?  
  • Do they possess additional skills that can be leveraged?  
  • What do their referees say about their performance? |
| Quality assurance                | • Do they have ISO:9001 certification?  
  • If not, what processes do they have in place to ensure quality management? |
How do I ensure I am going to get value for money?

The New Zealand Transport Authority Procurement Policy is commonly considered to be a leading best practice procurement model. This model focuses on obtaining value for money, and states its purpose as follows.

The purpose of procurement is to:

- maintain the value for money outcomes identified by ensuring that the expected value is delivered, the expected quality is provided and the expected cost and time is not exceeded
- where possible, enhance the value for money outcomes identified by enabling the identification of a solution with more value (e.g. higher quality), or at a lower whole-of-life cost than anticipated in the initial value for money evaluation.

In the context of procurement, value for money has been defined as:

- ‘the best available outcome for the money spent in procuring the agency’s needs’ (Australia New Zealand Government Procurement Agreement)
- the ‘best possible outcome for the total cost of ownership’ (the guidance provided by the OAG)
- ‘the optimum combination of whole-of-life costs and quality (or fitness for purpose) of the good or service to meet the user’s requirement’ (HM Treasury, United Kingdom).

The above definitions are underpinned by a number of common concepts:

- Benefits derived from procurement-related activities can be maintained or enhanced through the procurement process.
- Cost alone is not a reliable indicator of value for money.
- Economic, social and environmental costs and benefits inform the procurement whole-of-life value assessment.

The whole-of-life assessment within the procurement process requires less focus on the upfront price and more recognition that best value is obtained by looking at the overall value associated with the asset or service over its life.

This highlights that value for money does not necessarily mean lowest price. It involves finding the optimal outcome when taking into account:

- Quality
- Time
- Cost

The manual lists the following supplier selection methods.

- Direct appointment
- Lowest price conforming
- Purchaser nominated price
- Price quality
- Quality-based

Depending upon the strategic procurement approach adopted by the entity it may be appropriate to use a direct appointment method. This would be done in situations where there is long-term agreement or arrangement in place and where the valuer provides a range of value-added activities in addition to the delivery of specific projects or where there is a standing offer arrangement in place. This enables the entity to work with a specific supplier and build a long-term relationship which benefits both organisations.

If it is necessary to go to a quotation or tender process, while there are a range of approaches which may be used to appoint a valuer, the price quality method is usually considered the most appropriate method when engaging a supplier of professional services.

Methods such as the lowest conforming tender priced should only be used in situations where the products purchased are homogenous with no difference in the quality that will be delivered by alternative suppliers.

Professional services are often very difficult to precisely describe and therefore any price competition has to be carefully managed. The NZTA expects that use of the lowest price conforming supplier selection method to select a professional services supplier will be rare. The price quality method of supplier selection is better suited to the purchase of professional services because the purchaser can distinguish between suppliers on the basis of their quality attributes, including their experience, skills, track record and their understanding of what the purchaser requires, but again the outputs which suppliers must price have to be specified precisely.
The quality price method involves consideration of non-price attributes and the price.

The non-price attributes include (but are not limited to):

- relevant experience – the supplier’s previous experience in technical areas relevant to the outputs being purchased;
- relevant skills – the competence of the personnel that the supplier proposes to use, with particular regard to their skills and experience in areas relevant to the outputs being purchased;
- methodology – the procedures the supplier proposes to use to achieve the specified end result;
- track record – the supplier’s record of delivering works or services to the quality standards required, on time and within budget;
- resources – the equipment, including facilities and intellectual property, that the supplier proposes to use to deliver the outputs; and
- financial viability – the supplier’s ability to access the financial resources required to deliver the outputs to be purchased.\(^9\)

The process is relatively simple. It involves grading of the non-price attributes with no consideration given to the price. If a supplier’s tender does not comply with every requirement of the non-price criteria it is excluded from further evaluation on that basis that they do not deliver the minimum level of quality or satisfy time restrictions.

A mathematical weighting system is then generally used to weight the difference in quality which is then used to adjust the submitted prices. The tender with the lowest adjusted price is then selected as the winning tender, provided the overall price remains acceptable.

Details of this process and an example calculation are included in Attachment F: NZTA Quality Price Model.

**What will be my role?**

Irrespective of whether an external valuer is appointed to complete the project, responsibility for the valuation rests with management.

This means that the entity must put appropriate governance processes in place to ensure the valuation is delivered to the appropriate quality and on time.

This may include:

- meeting regularly with the valuer and obtaining updates on progress;
- establishing a process to ensure all communications between the entity, valuer and auditor are directed to the correct people and in a timely manner;
- establishing a range of policies that will feed directly into the valuation process. These may include thresholds, assumptions and method of depreciation;
- liaising with both the valuer and auditor to ensure a consistent understanding of the methodology and process and addressing any audit issues as a matter of priority;
- providing essential data to the valuer or ensuring the data provided by other sections of the entity is complete and accurate;
- reviewing the underlying methodology and assumptions for reasonableness and documenting the results of the review; and
- reviewing the final valuation report and results for reasonableness and obvious errors. This process also needs to be documented for audit evidence.

**How do I put together a tender proposal and what needs to be included?**

The public sector in particular is often regarded as being highly bureaucratic with vast levels of red tape. This can especially be seen in common tender approaches. While there are reasons why organisations may choose to use the same tender documentation across all contracts, irrespective of the likely quantum of the contract price and associated work and risks, the use of extensive tender documentation can be quite counter-productive to receiving value for money. Often these processes are driven around internal efficiencies rather than ensuring the process gets a good result.

Anecdotally many suppliers assess the size and complexity of the tender documentation against relative size of the likely contract price and choose not to submit tenders. If the work involved in putting a quote together is significant and there is a low chance of winning the tender they make a business decision that the cost and associated risk exceeds the potential benefit and therefore choose not to submit a price.

It is therefore important that if you wish to receive the best value for money that the quotation or tender process reflects the relative size, price and risk of the job. For example requiring the completion of a 100-page document for a likely small or moderate fee will result in a low number of proposals. Likewise including a very large professional

\(^9\) New Zealand Transport Agency’s Procurement Manual
indemnity insurance requirement is counter-productive if it rules out the firms best able to deliver the service, especially given the generally low risk associated with financial statement valuations. The net result is that only very large firms can satisfy the tender specification and their fees by nature include a margin to cover the unnecessary level of additional public liability insurance cover.

For contracts with a low or moderate fee consideration should be given to using a direct appointment process based on existing standard offer arrangements or a strategic procurement strategy.

If it necessary to go to a process involving the submission of proposals, care should be taken to ensure the cost of the process does not exceed the potential benefit to be gained from a quotation process. For a small or moderate estimated contract price the process should be limited to a quotation process with minimal specification and process. A more formal tender process should only be used for very large projects.

An sample quotation specification has been included as Attachment E: Pro forma tender specification and instructions to valuers. It is recommended that such quotation specifications focus on the outcomes to be achieved, key criteria and the requirements to be complied with, rather than set out the entity’s own views of how every aspect should be completed.

While in some circumstances the entity’s own methodology may be appropriate it provides a limitation on how a potential supplier may be able to undertake the project more efficiently or using a better approach. It also creates a risk that the specification may not comply with the prescribed requirements.

**Working with the tenderers to get the best outcome**

While you are looking for the best outcome for your organisation it is also important to appreciate that potential suppliers are also looking for the best outcome for their own organisation. They will not bother providing a quote if:

- the process is too difficult;
- there are too many unknowns; or
- the timeframes or other requirements are unrealistic.

When putting together the information to be supplied as part for the tender or quotation process or engaging in discussions consider the following.
Table 3: Tender specification considerations

<table>
<thead>
<tr>
<th>Consideration</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Format and content of data supplied to the potential</td>
<td>Supplying asset registers in PDF form, or not supplying sufficient data, limits the ability of potential suppliers to analyse the data and develop the most efficient strategy. Either supply the data in Excel format or provide summary level data and an example of what will be supplied to the winning tenderer.</td>
</tr>
<tr>
<td>suppliers</td>
<td></td>
</tr>
<tr>
<td>Use and design of tender templates</td>
<td>While entity-developed templates that ensure consistency for every tender within your own organisation looks great they generally create a huge problem for tenderers. They sometimes:</td>
</tr>
<tr>
<td></td>
<td>• are supplied in PDF format (so they can’t be edited) resulting in the tenderer needing to re-create the form;</td>
</tr>
<tr>
<td></td>
<td>• include the same assessment criteria applied to every potential contract instead of what is relevant to a valuation project;</td>
</tr>
<tr>
<td></td>
<td>• include the same level of insurance cover, irrespective of whether the risk is low (such as for valuation) or relates to the construction of a multi-million dollar high risk project. As the cost of professional indemnity insurance is particularly high, a limit set too high will limit the firms who will apply, and limit the selection to firms to have a high overhead which they need to recover through their fees;</td>
</tr>
<tr>
<td></td>
<td>• include text boxes and other formatting requirements that impede the ability for the supplier to adequately address the criteria. It is important to make the process of completing the documentation as efficient as possible for the tenderers; and</td>
</tr>
<tr>
<td></td>
<td>• are overly complex and large given the potential size of the contract price. The greater the amount of information sought and complexity of the document, the more time it takes for a tender to complete your document. Unless the contract is expected to be considerable it may be more appropriate to let the tenderers use their own templates with a proviso that they address your specific evaluation criteria.</td>
</tr>
<tr>
<td>Timeframes for tender process and scheduling of work</td>
<td>The timeframe is critical and many organisations place unrealistic timeframes on potential tenderers. Recognise that the valuers also work in a busy industry and need to schedule their work to meet the financial reporting timeframes of all their clients. As a consequence they experience peaks and troughs in their workload. To ensure you get the best outcome it is advisable to go to market at least nine months before financial year end with an aim of appointing within two months of the tender release. This enables the valuers to schedule their workload, provide you with a better price, and ensure the final report is delivered on time for you to meet your financial reporting deadlines.</td>
</tr>
<tr>
<td>Setting out the scope of work</td>
<td>Specifying exactly how you think the valuation should be conducted and calculated may be counter-productive and may lead to a limitation of the scope of the work. Recognise that you are engaging professionals to undertake a project that requires specialised expertise. As experts they should be able to suggest the option that provides the best value for money. Consider limiting the scope of works to the outcomes required and allow the tender to specify the best way to achieve the outcome.</td>
</tr>
<tr>
<td>Handling questions and respecting the intellectual</td>
<td>The potential suppliers may want to ask questions to ensure they fully understand the requirements. It is therefore important that an officer is made available to answer questions. This person needs to understand what is required as an output of the project (as opposed to the tender process). Likewise it is important to recognise that the discussions may include a mix of clarification of the requirements as well as discussion on particular approaches or about aspects relating to the intellectual property of the supplier. Care needs to be taken to ensure the rights of the potential supplier are not abused by disclosing to other suppliers confidential or sensitive information resulting from those discussions. Information distributed to other potential suppliers should be limited to clarification of the requirements.</td>
</tr>
<tr>
<td>property rights of tenderers</td>
<td></td>
</tr>
</tbody>
</table>

Final thoughts on procurement

In the public sector value for money is and always must be a contributing factor. However, it must be well understood that value for money does not mean lowest price. Price should only be a determining factor once it has been established that all of the following factors are fully satisfied. Otherwise you will have paid money to get something that did not meet your needs and that will always be poor value for money.
Key issues to consider when evaluating potential suppliers include the following.

- Does the methodology fully comply with all aspects of the accounting standards?
  - All assets above the revaluation threshold must be componentised.
  - Appropriate patterns of consumption must be used.
  - It is sound, logical and reflects the asset management lifecycle of the entity.
  - Must be based on the factors that drive the consumption.
  - All key assumptions are stated and can be supported by sufficient and appropriate audit evidence.
  - Will the valuer guarantee full compliance and work closely with audit to ensure safe passage (at no extra cost)? Will the valuer provide the data and audit evidence in correct and agreed format?

- The data gathered is useful and adds value to the organisation. For example, the data includes condition assessments based on the asset management framework and can be used to feed directly into the asset management planning process.

- Are the professional reputation, experience and skills of the valuer to undertake the specialist work beyond reproach? In particular:
  - registered valuers are used for land and buildings;
  - engineers are used for infrastructure (appropriate experience and skills);
  - the valuer has a sound record with no history of audit qualifications;
  - the valuer can clearly demonstrate their methodology, compliance with the prescribed requirements and general credibility (they know what they are talking about);
  - the valuer can clearly demonstrate an understanding of the accounting standards, other prescribed requirements and the audit process;
  - the valuer asks the right questions to understand the nature and scope of the work rather than just putting a price in;
  - the valuer will continue to support and add value to the entity and develop the client relationship well after delivery of the project; and
  - they are easy to work with and respond to queries in a timely manner.
Technical section
Accounting standards

Please note that for the purposes of consistency throughout this document reference is always made to the appropriate IFRS standard. Except where specifically noted, the requirements of the International Public Sector Accounting Standards (IPSAS) and Australian Accounting Standards Board (AASB) mirror the IFRS requirements.

Type of assets

The public sector controls a diversity of asset types and range from land and specialised buildings through to infrastructure and community assets. Due to the nature of the assets and restrictions placed over them these assets are more often than not valued at depreciated current replacement cost.

There are of course some assets valued at market value (such as residential and commercial properties) and some assets relate to their income-generating capability and are valued using the income approach. However the bulk of assets, due to their specialised nature, are constructed by the entity to meet their specific needs and generally are not sold either at all, or in an open and liquid market.

Valuation and depreciation accounting standards

There is a range of accounting standards that need to be considered when valuing and deprecating assets in the public sector. Depending upon your jurisdiction and overriding prescribed requirements, this may include:

- The International Financial Reporting Standards (IFRS);
- The International Public Sector Accounting Standards (IPSAS); or
- Jurisdiction-specific equivalent of one of the above. For example the Australian Accounting Standards (AASBs).

There is also a range of countries which are moving to one of these bases but are still adopting alternative practices either across the entire public sector or within specific sectors. For example the UK government has adopted IFRS for whole of government reporting, but the local government sector is still transitioning from UK-GAAP to IFRS. Likewise, some jurisdictions are using cash accounting at present but are transitioning to the accrual basis and have indicated they intend to adopt either IFRS or IPSAS-based standards.

The IFRS and IPSAS have a range of standards and while the concepts and requirements are consistent there is not a one-to-one relationship between the IFRS and IPSAS standards. Refer to Attachment A for the comparison between IFRS, IPSAS and Australian accounting standards.

The following table identifies the relevant standards. For consistency throughout this guide reference will be made to the equivalent IFRS standard. Practitioners should always make reference back to the specific accounting standard relevant to their jurisdiction in case there are specific issues identified or alternative requirements.

<table>
<thead>
<tr>
<th>IFRS Standard</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>IAS 2</td>
<td>Inventories</td>
</tr>
<tr>
<td>IAS 9</td>
<td>Financial Instruments</td>
</tr>
<tr>
<td>IFRS 5</td>
<td>Non-Current Assets Held For Sale and Discontinued Operations</td>
</tr>
<tr>
<td>IFRS 13</td>
<td>Fair value Measurement</td>
</tr>
<tr>
<td>IAS 16</td>
<td>Property, Plant And Equipment</td>
</tr>
<tr>
<td>IAS 17</td>
<td>Leases</td>
</tr>
<tr>
<td>IAS 23</td>
<td>Borrowing Costs</td>
</tr>
<tr>
<td>IAS 36</td>
<td>Impairment of Assets</td>
</tr>
<tr>
<td>IAS 38</td>
<td>Intangible Assets</td>
</tr>
<tr>
<td>IAS 40</td>
<td>Investment Property</td>
</tr>
<tr>
<td>IAS 41</td>
<td>Agriculture</td>
</tr>
<tr>
<td></td>
<td>Land under Roads (Australia only)</td>
</tr>
</tbody>
</table>

This guide does not cover financial instruments nor does it cover in detail the use of the income approach.

In 2011 a new accounting standard (IFRS 13 Fair Value) was issued with application mandatory for all accounting periods beginning on or after 1 January 2013. It changes the definition of fair value and sets out a single framework for the measurement of fair value.

It does not replace the other standards that deal specifically with different types of assets but does result in a change to the definition of fair value and provides for certain disclosures.

Overview

IN1 International Financial Reporting Standard 13 fair value Measurement (IFRS 13):
- defines fair value;
- sets out in a single IFRS a framework for measuring fair value; and
- requires disclosures about fair value measurements.

IN2 The IFRS applies to IFRSs that require or permit fair
value measurements or disclosures about fair value measurements (and measurements, such as fair value less costs to sell, based on fair value or disclosures about those measurements), except in specified circumstances.

IN3 The IFRS is to be applied for annual periods beginning on or after 1 January 2013. Earlier application is permitted.

IN4 The IFRS explains how to measure fair value for financial reporting. It does not require fair value measurements in addition to those already required or permitted by other IFRSs and is not intended to establish valuation standards or affect valuation practices outside financial reporting.

Reasons for issuing the IFRS

IN5 Some IFRSs require or permit entities to measure or disclose the fair value of assets, liabilities or their own equity instruments. Because those IFRSs were developed over many years, the requirements for measuring fair value and for disclosing information about fair value measurements were dispersed and in many cases did not articulate a clear measurement or disclosure objective.

IN6 As a result, some of those IFRSs contained limited guidance about how to measure fair value, whereas others contained extensive guidance and that guidance was not always consistent across those IFRSs that refer to fair value. Inconsistencies in the requirements for measuring fair value and for disclosing information about fair value measurements have contributed to diversity in practice and have reduced the comparability of information reported in financial statements. IFRS 13 remedies that situation.

IN7 Furthermore, in 2006 the International Accounting Standards Board (IASB) and the US national standard-setter, the Financial Accounting Standards Board (FASB), published a Memorandum of Understanding, which has served as the foundation of the boards’ efforts to create a common set of high quality global accounting standards. Consistent with the Memorandum of Understanding and the boards’ commitment to achieving that goal, IFRS 13 is the result of the work by the IASB and the FASB to develop common requirements for measuring fair value and for disclosing information about fair value measurements in accordance with IFRSs and US generally accepted accounting principles (GAAP).

Main features

IN8 IFRS 13 defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (i.e. an exit price).

IN9 That definition of fair value emphasises that fair value is a market-based measurement, not an entity-specific measurement. When measuring fair value, an entity uses the assumptions that market participants would use when pricing the asset or liability under current market conditions, including assumptions about risk. As a result, an entity’s intention to hold an asset or to settle or otherwise fulfil a liability is not relevant when measuring fair value.

IN10 The IFRS explains that a fair value measurement requires an entity to determine the following:

(a) the particular asset or liability being measured;

(b) for a non-financial asset, the highest and best use of the asset and whether the asset is used in combination with other assets or on a stand-alone basis;

(c) the market in which an orderly transaction would take place for the asset or liability; and

(d) the appropriate valuation technique(s) to use when measuring fair value. The valuation technique(s) used should maximise the use of relevant observable inputs and minimise unobservable inputs. Those inputs should be consistent with the inputs a market participant would use when pricing the asset or liability.¹⁰

As the bulk of assets controlled by the public sector are valued under the property plant and equipment standard using the cost approach (or depreciated current replacement cost) this guide will focus on this standard. The concepts embodied do, however, apply consistently to the other valuation-related standards.

The market value approach is also used across a range of valuation-related standards and is also applied consistently with the way it is applied under the property plant and equipment standard.

The following decision tree provides an overview of how each of the accounting standards work together to enable the application of the correct accounting treatments under the IFRS framework. This decision tree is also included in Attachment B: Inter-relationship of the accounting standards.

¹⁰ IFRS 13 IN (www.aasb.com.au)
Figure 3: Valuation of assets decision tree

Valuation of assets decision tree

Is this a financial asset?

Financial instruments (IFRS9)

Is it a land under road?

Land under roads (AASB1051) Australia only

Is it inventory?

Inventories (IAS 2)

Is it land or building held primarily for rental income or capital appreciation?

Investment properties (IAS 40)

Does it relate to agricultural activity?

Agriculture (IAS 41)

Will its value be recovered principally through its sale, it is available for sale and a sale is highly probable?

Assets held for sale (IFRS 5)

Is it a leased assets?

Leases (IAS 17)

Does it lack physical substance?

Intangible assets (IAS 38)

‘Intangible assets’ decision tree

‘Revaluation and amortisation’ decision tree

‘fair value’ decision tree

‘Costs of assets’ decision tree

‘Impairment’ decision tree

‘Impairment’ decision tree

Borrowing costs (AS123)

‘Borrowing costs’ decision tree

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Key requirements and concepts

Overview

The prescribed requirements vary between jurisdictions, but generally they require non-current assets to be valued at fair value based on the International Financial Reporting Standards (IFRS) or International Public Sector Accounting Standards (IPSAS). Typically there may be adaptations for public sector entities including an allowance to enable revaluations to be offset against individual assets within the same class. They may also be adaptations for specific jurisdictions.

The IFRS/IPSAS prescribe a range of accounting standards which deal with different types of assets. An overview diagram of how the various standards inter-relate is included as Attachment B: Inter-relationship of the accounting standards.

For land, buildings, community and infrastructure assets (unless they are held for resale) the valuation is normally undertaken in accordance with IAS 16/IPSAS 17/AASB 116 Property, Plant and Equipment.

Key definitions provided by Property, Plant and Equipment are:

- **Carrying amount** is the amount at which an asset is recognised after deducting any accumulated depreciation and accumulated impairment losses.

- **Depreciable amount** is the cost of an asset, or other amount substituted for cost, less its residual value.

- **Depreciation** is the systematic allocation of the depreciable amount of an asset over its useful life.

- **Fair value** is the amount for which an asset could be exchanged between knowledgeable, willing parties in an arm’s length transaction (see the definition in Appendix 2).

An **impairment loss** is the amount by which the carrying amount of an asset exceeds its recoverable amount.

- **Recoverable amount** is the higher of an asset’s fair value less costs to sell and its value in use.

The **residual value** of an asset is the estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life (see the definition in Appendix 2).

**Useful life** is:

(a) the period over which an asset is expected to be available for use by an entity; or

(b) the number of production or similar units expected to be obtained from the asset by an entity.\(^{11}\)

The key requirements are:

- **Assets valued on the fair value basis.** Typically this is done on the depreciated current replacement cost basis unless there is an active and liquid market in which case the valuation basis would be market value. The income approach is usually only used with for-profit entities where the asset generates profits.

- **Componentisation.** Assets which are made of significant parts which in turn have different lifecycles must be depreciated separately. This is also critical for asset management planning and why all assets that are capitalised need to be componentised.

- **Annual assessment for revaluation and/or depreciation changes.** At the end of each year the entity needs to assess whether the carrying amount differs significantly from the fair value. This is done by consideration of changes in aspects such as functionality, capacity, utilisation, obsolescence and the assessment of unit rates, pattern of consumption, residual value, useful life, condition and as a result remaining useful life. Based on this assessment the assets may need to be revalued and/or depreciation rates changed prospectively.

- **Revaluation of entire class.** If an asset is revalued all assets within the class must also be revalued.

- **Depreciation requirements.** The method used to determine the amount of accumulated depreciation and depreciation expense must:
  - **Match the pattern of consumption.** The use of straight-line is not allowed as a default, as the standard mandates the application of an appropriate pattern of consumption.
  - **Be based on the relevant factors** which provide sufficient and appropriate audit evidence to determining the level of remaining service potential and how it is consumed.
  - **Only depreciate the depreciable amount.** This requires determination of the non-depreciable component or residual value.
  - **Depreciate the depreciable amount in a systematic way over the asset’s useful life.**

\(^{11}\) IAS 16 Property, Plant and Equipment Paragraph 6
In order to undertake the valuations there are a number of concepts that need to be taken into account. These include a number of common concepts that apply broadly across the entire body of accounting standards as well as concepts that apply specifically to those standards that relate to valuation.

The common concepts include:

- Control
- Future economic benefit
- Materiality and thresholds
- Recognition criteria

The valuation-specific concepts include:

- Exit price
- Hierarchy of fair value inputs
- Valuation basis
- Cost of an asset
- Data hierarchy/asset registers
- Segmentation
- Components
- Networked assets
- Major plant and equipment
- Gross replacement cost
- Pattern of consumption
- Assessing remaining level of future economic benefit
- Condition or consumption scales
- Approaches to depreciation
- De-recognition (via renewal)

### Common concepts

#### Control

The international financial reporting framework defines an asset as follows:

*An asset is a resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity.*

As result, an asset must:

- Be controlled by the entity
- Be a result of past events
- Produce future economic benefits.

The International Financial Reporting Standards provide no direct guidance on the concept of control in relation to the definition of an asset.

However, there are a number of GAAP (General Accepted Accounting Practice) guidelines which provide some comment. The common view is that to have control the entity must be able to receive the benefit and restrict other entities’ access to that benefit.

The Wiley IFRS 2007 Guide states that:

*The following three characteristics must be present for an item to qualify as an asset:*

- The asset must provide probable future economic benefit that enables it to provide future net cash inflows.
- The entity is able to receive the benefit and restrict other entities’ access to that benefit.
- The event that provides the entity with the right to the benefit has occurred.

To have control the entity does not necessarily have to hold legal title. Likewise, because an entity uses an asset for its own purposes does not necessarily mean that it has control. Often the determining factor is whether they have the ability to restrict the access to that benefit. For example, councils often benefit and maintain roads or land on behalf of higher levels of government. While they benefit from their use and expend money maintaining them, ultimately they do not control them as the higher level of government is the only one able to:

- close them;
- sell them and receive proceeds from sale;
- restrict access to them; or
- even allow another user to also use the same land for other purposes.

Before assuming a physical asset is an asset of the entity, consideration may need to be given to determining whether the asset is controlled by the entity. Often this is a complex issue to be resolved.

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12 IFRS Framework paragraph 49

### Future economic benefit

The IFRS framework defines an asset as: “the future economic benefit embodied in an asset is the potential to contribute, directly or indirectly, to the flow of cash and cash equivalents to the entity.”\(^{14}\)

The framework or accounting standards do not provide a specific definition of future economic benefit. However, the framework does provide some comment:

*The future economic benefit embodied in an asset is the potential to contribute, directly or indirectly, to the flow of cash and cash equivalents to the entity. The potential may be a productive one that is part of the operating activities of the entity. It may also take the form of convertibility into cash or cash equivalents or a capability to reduce cash outflows, such as when an alternative manufacturing process lowers the costs of production.*\(^{15}\)

The *Accountants’ Handbook* also provides comment regarding future economic benefit:

*Assets commonly are items that also can be characterised as economic resources – the scarce means through which people and other economic units carry out economic activities such as consumption, production, and exchange. All economic resources or assets have service potential or future economic benefit, the scarce capacity to provide services or benefits to the people or other entities that use or hold them.*\(^{16}\)

It is commonly accepted that future economic benefit and service potential are used as interchangeable terms.

The international valuation standards defines service potential as:

3.9 **Service potential.** The capacity to provide goods and services in accordance with the entity’s objectives, whether those objectives are the generation of net cash inflows or the provision of goods and services of a particular volume, quantity and quality to beneficiaries thereof. In the public sector, the concept of service potential takes the place of the test of adequate profitability applied in the private sector.\(^{17}\)

The definitions and comment provided by both the international valuation standards and the IFRS is consistent. Future economic benefit (with respect to public sector entities) can be defined as follows.

*The potential to contribute, directly or indirectly, to:

- the delivery of relevant goods or services;
- in accordance with the entity’s objectives; and
- of a particular volume, quantity and quality to its beneficiaries.*

In regards to public sector entities such as local governments, the over-riding objective of the entity is to provide services to and for the benefit of the community at a level of service that is acceptable to the community or beneficiaries.

In essence, the local government exists to provide a range of services to the community to enable the community to function efficiently and effectively ensuring satisfaction of essential needs. These typically include safety, health, social, environmental and economic trade.

In general terms the concept of future economic benefit or service potential can be seen as the potential to contribute, directly or indirectly, to the delivery of services that meet the needs of the community and at a level of service that is deemed to be acceptable to the community.

It therefore revolves not only around the direct impact on the asset owner but also the impact on the community or beneficiaries of the services delivered by the assets.

### Materiality and thresholds

As with all accounting standards due consideration needs to be given to the costs and benefits of compliance with specific requirements. This includes both the financial cost of the compliance as well as the additional cost incurred to provide a slightly higher level of disclosure.

The IFRS Framework provides some guidance on materiality:

*Information is material if its omission or misstatement could influence the economic decisions of users taken on the basis of the financial statements. Materiality depends on the size of the item or error judged in the particular circumstances of its omission or misstatement.*\(^{18}\)

It further states that:

*To be reliable, the information in financial statements must be complete within the bounds of materiality and cost. An omission can cause information to be false or misleading and thus unreliable and deficient in terms of its relevance.*\(^{19}\)

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14 IFRS Framework Paragraph 53  
15 IFRS Framework Paragraph 53  
16 Accountants’ Handbook (Carmichael, Whittington & Graham)  
17 International Valuation Standard IVA3 Valuation of Public Sector Assets for Financial Reporting  
18 IFRS Framework paragraph 30  
19 IFRS Framework paragraph 38
In relation to non-current assets this is typically handled by establishing an asset accounting policy which incorporates two key thresholds.

**Capitalisation threshold**

This threshold determines the cut-off point at which expenditure which provides future economic benefits greater than 12 months (non-current) is capitalised as an asset. Expenditure below this threshold is expensed and is referred to as either operational expenditure or maintenance.

The rules around capitalisation can become quite complex depending upon the type and nature of the asset and relative size of the organisation. It may also depend upon whether the asset is part of a network which, in combination, provides the future economic benefit; for example, a reticulated water network.

It is appropriate to establish a capitalisation threshold for each asset class based on an assessment of materiality, cost and benefit. For infrastructure assets the development of the asset management framework would include determination of what intervention activities represent capital treatments with the lower cost being referred to as maintenance activities.

**Revaluation threshold**

Entities subject to the fair value regime should also establish a revaluation threshold which provides for only assets of value greater than a certain level to require revaluation. This is done to reduce the cost of revaluation given that the revaluation of relative small value items would have no material impact on the total valuation. While only a portion of the total asset class is comprehensively inspected and revalued, the entire asset class is deemed to be valued at fair value because the final result is not materially incorrect.

There are two commonly adopted approaches to dealing with the portion not subject to comprehensive inspection and valuation. Either continue to record their gross value at the existing value, or index the assets based on an appropriate index.

In setting this threshold consideration needs to be given to the number and value of existing assets and their stratification within the total portfolio. The threshold should be set at a level where even of those assets below the threshold were reported with an incorrect balance the overall impact on the total portfolio would be immaterial.

Typically portfolios to have a very small number of assets which comprise the bulk of the fair value and a large number of assets that make up a relative small proportion of the total portfolio fair value. The risk associated with the large value assets is high while the valuation risk associated with the small value assets is very low, as all of those assets would need to be materially misstated to make even a minor impact on the overall valuation.

For example, imagine that a portfolio was comprised of the following:

<table>
<thead>
<tr>
<th>Value less than</th>
<th>Number</th>
<th>%No.</th>
<th>WDV</th>
<th>%WDV</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,000</td>
<td>250</td>
<td>57%</td>
<td>150,000</td>
<td>4%</td>
</tr>
<tr>
<td>$5,000</td>
<td>100</td>
<td>23%</td>
<td>350,000</td>
<td>10%</td>
</tr>
<tr>
<td>$10,000</td>
<td>50</td>
<td>11%</td>
<td>400,000</td>
<td>12%</td>
</tr>
<tr>
<td>$50,000</td>
<td>25</td>
<td>6%</td>
<td>875,000</td>
<td>26%</td>
</tr>
<tr>
<td>$100,000</td>
<td>10</td>
<td>2%</td>
<td>760,000</td>
<td>23%</td>
</tr>
<tr>
<td>$1,000,000</td>
<td>3</td>
<td>1%</td>
<td>800,000</td>
<td>24%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>438</strong></td>
<td><strong>100%</strong></td>
<td><strong>3,335,000</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Based on the following assessment it would be appropriate to set a Revaluation Threshold at $5,000 and possibly even $10,000 depending upon the organisation’s risk assessment. With a threshold of $5,000 (even if those assets below that limit were misstated by 40 per cent) the total overall error of the reported fair value would only be 6 per cent, which would be considered immaterial.

This approach would result in a considerable reduction in the cost of valuation as 350 (or 80 percent of the number of assets in the portfolio) would not require inspection and revaluation.

**Recognition criteria**

Even if the expenditure satisfies the definition of being a cost of the asset, it must also satisfy the recognition criteria. This is possibly the most difficult aspect of the decision process as it involves consideration of subjective criteria and each scenario can be slightly different, possibly leading to a different outcome.

For example, if council has committed to a project and approved the budget, providing the design is undertaken after the approval to proceed is given, these costs can be incorporated as a cost of the asset. However, if the design is completed prior to the approval being given, the design...
costs cannot be included.

The recognition criteria are that:

The cost of an item of property, plant and equipment shall be recognised as an asset if, and only if:

(a) it is probable that future economic benefits associated with the item will flow to the entity; and

(b) the cost of the item can be measured reliably.  

If there is any doubt that the asset will not produce future economic benefit or will proceed, such costs fail the recognition threshold. Common examples include initial survey and planning costs, community consultation and planning process costs.

Likewise, costs that cannot be measured reliably or identified as being directly attributable to the asset also fail to satisfy the recognition criteria. Common examples include various forms of overhead costs such as rental of main administration buildings, salaries of executives and IT costs.

It is also important to note that the assessment against the recognition criteria must be performed at the time the cost is incurred. It cannot be reassessed at a later date such as after the project is approved to proceed. The standard states:

An entity evaluates under this recognition principle all its Property, Plant and Equipment costs at the time they are incurred. These costs include costs incurred initially to acquire or construct an item of Property, Plant and Equipment and costs incurred subsequently to add to, replace part of, or service it.  

Valuation-specific concepts

Exit price

There are two commonly quoted definitions of fair value. The definition incorporated into the various accounting standards prior to being replaced by the new definition provided by IFRS13 fair value is:

The amount for which an asset could be exchanged between knowledgeable, willing parties in an arm’s length transaction.  

In 2011 the International Accounting Standards Board (IASB) issued IFRS13 fair value. It deals with how fair value should be measured when it is required by existing standards. It replaces fair value measurement guidance contained within individual International Financial Reporting Standards (IFRSs) with a single, unified definition of fair value, as well as further authoritative guidance on the application of fair value measurement in inactive markets.

The new definition of fair value is:

The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price).  

BC30 Like the previous definition of fair value, the revised definition assumes a hypothetical and orderly exchange transaction (i.e. it is not an actual sale or a forced transaction or distress sale). However, the previous definition of fair value:

(a) did not specify whether an entity is buying or selling the asset;

(b) was unclear about what is meant by settling a liability because it did not refer to the creditor, but to knowledgeable, willing parties; and

(c) did not state explicitly whether the exchange or settlement takes place at the measurement date or at some other date.

BC31 The IASB concluded that the revised definition of fair value remedies those deficiencies. It also conveys more clearly that fair value is a market-based measurement, and not an entity-specific measurement, and that fair value reflects current market conditions (which reflect market participants’, not the entity’s, current expectations about future market conditions).  

While on the face of the definition it appears to create some issues for public sector assets the reality is that the definition is consistent with the existing definition of fair value. Confusion only exists in some jurisdictions where in the past they were guided by approaches which adopted a market value or value to the business approach, rather than a fair value approach and this has created confusion and significant differences in valuations.

The basis of conclusions that accompanies the standard states that the cost approach (often used in the public sector) is an appropriate valuation basis and represents the exit price.

BC141 Respondents generally agreed with the descriptions of the three valuation techniques. Some respondents questioned whether a cost approach
is consistent with an exit price definition of fair value because they think that the cost to replace an asset is more consistent with an entry price than an exit price. The IASB noted that an entity’s cost to replace an asset would equal the amount that a market participant buyer of that asset (that would use it similarly) would pay to acquire it (i.e. the entry price and the exit price would be equal in the same market). Thus, the IASB concluded that the cost approach is consistent with an exit price definition of fair value.25

The accounting standards are quite explicit in that where there is no open and liquid market or other indicators of market value (either direct or using an Income approach) fair value is to be measured using the cost approach. This approach is commonly referred to as the depreciated current replacement cost approach as the cost approach measures the value of the remaining service potential at current cost.

A good example of exit price for assets valued under the cost approach is land which is acquired by a local authority and then converted to a cemetery with appropriate zonings and restrictions. If the local authority had purchased it the transfer price would have been $1 million to acquire it from a third party. At the time of sale its highest and best use may have been for residential development and it would not have come with the restrictions placed upon it by the local authority after the sale.

As land does not depreciate the depreciated current replacement cost (and fair value) is one million. Irrespective of whether the land is used for parks, buildings or even a cemetery, the cost to replace the land would still be one million. Once converted to a cemetery the market value (sale price) may change but its replacement cost would remain the same.

IE 29 A donor contributes land in an otherwise developed residential area to a not-for-profit neighbourhood association. The land is currently used as a playground. The donor specifies that the land must continue to be used by the association as a playground in perpetuity. Upon review of relevant documentation (legal and other), the association determines that the fiduciary responsibility to meet the donor’s restriction would not be transferred to market participants if the association sold the asset, i.e. the donor restriction on the use of the land is specific to the association. Furthermore, the association is not restricted from selling the land. Without the restriction on the use of the land by the association, the land could be used as a site for residential development. In addition, the land is subject to an easement (i.e. a legal right that enables a utility to run power lines across the land). Following is an analysis of the effect on the fair value measurement of the land arising from the restriction and the easement:

(a) Donor restriction on use of land. Because in this situation the donor restriction on the use of the land is specific to the association, the restriction would not be transferred to market participants. Therefore, the fair value of the land would be the higher of its fair value used as a playground (that is, the fair value of the asset would be maximised through its use by market participants in combination with other assets or with other assets and liabilities) and its fair value as a site for residential development (that is, the fair value of the asset would be maximised through its use by market participants on a stand-alone basis), regardless of the restriction on the use of the land by the association.

(b) Easement for utility lines. Because the easement for utility lines is specific to (that is, a characteristic of) the land, it would be transferred to market participants with the land. Therefore, the fair value measurement of the land would take into account the effect of the easement, regardless of whether the highest and best use is as a playground or as a site for residential development.26

IFRS 13 Fair Value requires no change to the previously existing approach to determining fair value. If there is an active and liquid market the value is market value. Where there are other market indicators of value it is determined using market value or net present value. However, where there is no market evidence the value is determined by depreciated current replacement cost which is also the most common approach used for public sector assets. This process is set out in the IAS 16 fair value decision tree included in Attachment C: Overview of specific accounting standards.

Typically the major assets controlled by public sector entities are the type that provide a community service and are not traded on an open and liquid market. Accordingly their valuation basis (exit price) would normally be depreciated current replacement cost.

25 IAS 13 fair value Basis for Conclusions
26 IAS 13 fair value Illustrative Examples
Hierarchy of fair value inputs

To increase consistency and comparability in fair value measurements and related disclosures, IFRS 13 fair value establishes a fair value hierarchy that categorises the inputs to the valuation into three levels.

Highest priority is given to quoted prices in active markets for identical assets or liabilities and the lowest priority to unobservable inputs. It also notes that “in some cases, the inputs used to measure the fair value of an asset or a liability might be categorised within different levels of the fair value hierarchy. In those cases, the fair value measurement is categorised in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement.”

The different levels of inputs are defined as follows:

- **Level 1 inputs** are quoted prices (unadjusted) in active markets for identical assets or liabilities that the entity can access at the measurement date.
- **Level 2 inputs** are inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. If the asset or liability has a specified (contractual) term, a Level 2 input must be observable for substantially the full term of the asset or liability. Level 2 inputs include the following:
  
  (a) quoted prices for similar assets or liabilities in active markets.
  
  (b) quoted prices for identical or similar assets or liabilities in markets that are not active.
  
  (c) inputs other than quoted prices that are observable for the asset or liability, for example:

  (i) interest rates and yield curves observable at commonly quoted intervals;
  
  (ii) implied volatilities; and
  
  (iii) credit spreads.

  (d) market-corroborated inputs.

- **Level 3 inputs** are unobservable inputs for the asset or liability.

Adjustments to Level 2 inputs will vary depending on factors specific to the asset or liability. Those factors include the following:

(a) the condition or location of the asset;

(b) the extent to which inputs relate to items that are comparable to the asset or liability (including those factors described in paragraph 39); and

(c) the volume or level of activity in the markets within which the inputs are observed.

An adjustment to a Level 2 input that is significant to the entire measurement might result in a fair value measurement categorised within Level three of the fair value hierarchy if the adjustment uses significant unobservable inputs.

Unobservable inputs shall be used to measure fair value to the extent that relevant observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at the measurement date. However, the fair value measurement objective remains the same, i.e., an exit price at the measurement date from the perspective of a market participant that holds the asset or owes the liability. Therefore, unobservable inputs shall reflect the assumptions that market participants would use when pricing the asset or liability, including assumptions about risk.

The following table provides examples of the types of typical valuation processes for different types of assets and their associated classifications a level of valuation input.
**Table 5: Typical valuation approaches by asset class**

<table>
<thead>
<tr>
<th>Asset type</th>
<th>Approach to valuation</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freehold land</td>
<td>As freehold land is traded in an open and liquid market the valuation basis will be market value. Each parcel of land is however unique and the valuation will be determined by reference to the sales prices of similar or reference sales.</td>
<td>2 or 3</td>
</tr>
<tr>
<td>Restricted land such as parkland</td>
<td>This type of land is not able to be traded in an open market and its value is not linked to its income-generating capability. The valuation basis will be the cost approach and will be determined by reference to the sales prices of parcels of freehold land similar characteristics.</td>
<td>2 or 3</td>
</tr>
<tr>
<td>Residential buildings</td>
<td>As residential buildings are traded in an open and liquid market the valuation basis will be market value. Each asset is, however, unique and the valuation will be determined by reference to the sales prices of similar or reference sales.</td>
<td>2</td>
</tr>
<tr>
<td>Commercial buildings</td>
<td>The values of these are usually determined using either a market value or income approach by reference to sales or similar buildings and analysis of the gross and net areas, leasing rates, vacancy rates, outgoings and other factors.</td>
<td>2 or 3</td>
</tr>
<tr>
<td>Specialised buildings</td>
<td>The nature of the public sector is that entities often have buildings which serve a specific purpose and as a consequence may have specialised features built into them or be in a specific location. As a consequence they are normally considered specialised buildings and are normally valued at depreciated current replacement cost. The building will be componentised into different parts and valued and depreciated separately. The cost will be determined by reference to actual construction costs of other similar or reference buildings, standard rates obtained from construction guides and in some cases costs developed from first principles using prices for materials and taking into account allowances for design and construction.</td>
<td>2 or 3</td>
</tr>
<tr>
<td>Infrastructure operated as a for-profit entity</td>
<td>The nature of these assets is that their overall value is based on the income-generating capability of the business as a whole. As a consequence an income approach will be used which takes into account the cash inflows and outflows with allowance made for risk, discount factors and a range of other information. These assets are also often subject to regulatory pricing and therefore, as pricing is outside the control of the entity, there is significant uncertainty regarding future income streams.</td>
<td>3</td>
</tr>
<tr>
<td>Infrastructure operated to provide a service to the community at no or nominal fee. This may include government business entities</td>
<td>These typically comprise the bulk of assets operated by the public sector and include assets such as roads, bridges, parks, footpaths, water and sewerage infrastructure. These assets would be valued at depreciated current replacement cost by reference to actual construction cost of similar assets, unit rates from construction guides or costs developed from first principles using prices for materials and taking into account allowances for design and construction.</td>
<td>2 or 3</td>
</tr>
</tbody>
</table>

**Valuation basis**

There is a range of standards that deal with the valuation of different types of assets. Each standard requires the application of a range of methods. Some standards (such as inventories and agriculture assets) have a range of different methods which must be applied depending upon the nature of the asset, how it is to be distributed and the stage of production.
These include:

### Table 6: Valuation basis by accounting standard

<table>
<thead>
<tr>
<th>IFRS standard</th>
<th>Valuation basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventories</td>
<td>Depending on the nature of the inventory and whether the inventory is to be sold at no or nominal cost or commercial price, the valuation method is either current replacement cost or estimated selling price. Various methods are used to determine the current replacement cost.</td>
</tr>
<tr>
<td>Impairment</td>
<td>Lower of carrying amount or net recoverable amount. For NFP entity the recoverable amount is either DCRC or present value of cash flows. For profit entity, the recoverable amount is the present value of cash flows.</td>
</tr>
<tr>
<td>Assets Held for Sale</td>
<td>The lower of carrying amount or fair value less cost to sell.</td>
</tr>
</tbody>
</table>
| Property, Plant and Equipment | Either cost or fair value  
If fair value: market value, income approach or DCRC.                                      |
| Leases                   | The lower of fair value or present value of minimum lease payments.                                 |
| Intangible Assets        | Depending upon whether generated from external or internal source, and it passes certain test it may be valued either at cost, fair value or expensed. If revalued it is either at market value, market value less accumulated depreciation and impairment or cost less accumulated depreciation and impairment. |
| Investment Properties    | If leased: in accordance with leasing standard  
If not leased either at cost or fair value (based on market value). |
| Agriculture              | Range of methods to use depending on present condition of the asset, stage of production and whether it is attached to the land. Generally use either fair value (market value or discounted cash flow (DCF)) less point of sale costs or cost. |
| Borrowing Costs          | Depending upon whether borrowing is specifically for the asset or not, the associated borrowing costs may need to be incorporated as part of the cost of the asset.                                                                 |

However the fundamental concept applied to most is the determination of fair value. The various standards, in particular IAS 16 Property, Plant and Equipment highlight that fair value is to be determined as follows:

- If there is an active and liquid market (market value);
- If the underlying value of the asset is primarily dependent on its income-generating capability (income method); or
- Otherwise (depreciated current replacement cost).

### Cost of an asset

The initial recognition of most assets is done at cost. When revaluing using the depreciated current replacement cost or replacement cost approaches, it is therefore important to first understand what constitutes the cost of the asset. Cost is defined by IAS 16 Property, Plant and Equipment as follows:

Cost is the amount of cash or cash equivalents paid or the fair value of the other consideration given to acquire an asset at the time of its acquisition or construction or, where applicable, the amount attributed to that asset when initially recognised in accordance with the specific requirements of other IFRSs, e.g. IFRS 2 Share-based Payment.

The costs of assets decision tree and capitalisation of borrowing costs decision tree (refer Attachment C: Overview of specific accounting standards) provide a visual guide to the aspects discussed below.

IAS 16 Property, Plant and Equipment states that:

16 The cost of an item of Property, Plant and Equipment comprises:

(a) its purchase price, including import duties and non-refundable purchase taxes, after deducting trade discounts and rebates.

(b) any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management.
(c) the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located, the obligation for which an entity incurs either when the item is acquired or as a consequence of having used the item during a particular period for purposes other than to produce inventories during that period.

17 Examples of directly attributable costs are:

(a) costs of employee benefits (as defined in IAS 19 Employee Benefits) arising directly from the construction or acquisition of the item of Property, Plant and Equipment;
(b) costs of site preparation;
(c) initial delivery and handling costs;
(d) installation and assembly costs;
(e) costs of testing whether the asset is functioning properly, after deducting the net proceeds from selling any items produced while bringing the asset to that location and condition (such as samples produced when testing equipment); and
(f) professional fees.  

These different types of costs which can form part of the cost of an asset can be described as either being:

• direct cost (including initial, subsequent, borrowing, dismantling and third party costs);
• indirect costs; or
• contributed costs.

Initial costs
Providing the cost satisfies the recognition criteria, any costs initially incurred in acquiring the asset are to be capitalised. This includes expenditure on items that may not produce any impact in terms of output, but are required due to new or changing requirements.

Subsequent costs
Typically the useful life of infrastructure assets is extended through a combination of maintenance and renewal. Using a road as an example, this would include pothole repairs, grading gravel roads, patch repairing, re-seals, painting of new lines and major rehabilitation.

Cyclical maintenance assets differ from other assets in that their total life is extended over time via ongoing maintenance and renewal. As a consequence, an assets total lifecycle cost can differ as a resulting of changing:

• maintenance costs;
• renewal treatments; and
• levels of service.

The assets are generally maintained via cyclical maintenance at a level that satisfies the community’s expectation or at a defined level of service. This maintenance does not restore the consumed future economic benefit but simply keeps the asset on its lifecycle path. It may, however, have a significant impact on the time to next intervention.

When the asset is unable to meet the community’s needs there are a number of possible outcomes. These include:

• Restore the future economic benefit through renewal or upgrade.
• Replace the asset with an alternative asset.
• Change the community’s expectations (reduced level of service).

The following diagram represents typical lifecycle outcomes.

**Figure 4: Typical lifecycle outcomes for cyclical maintenance assets**

![Figure 4: Typical lifecycle outcomes for cyclical maintenance assets](image_url)

IAS 16 Property, Plant and Equipment recognises the difference between the impacts of operational maintenance versus asset renewal. Providing the expenditure satisfies the recognition criteria (and it is material), it is to be capitalised.
The following diagram provides a summary of the types of expenditure incurred subsequent to initial acquisition. It covers all lifecycle costs other than the cost of the initial acquisition.

**Types of expenditure subsequent to initial acquisition**

**Table 7: Types of expenditure subsequent to initial acquisition**

<table>
<thead>
<tr>
<th>Type</th>
<th>Operational</th>
<th>Maintenance</th>
<th>Renewal</th>
<th>Upgrade</th>
<th>Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes</td>
<td>Day-to-day running costs.</td>
<td>May extend life of asset but by definition must either extend life by less than 12 months or be immaterial</td>
<td>May include part-disposal as part of the renewal</td>
<td>Improvement on original design</td>
<td>Total end of life disposal</td>
</tr>
<tr>
<td>Treatment</td>
<td>Expense</td>
<td>Expense</td>
<td>Capitalise</td>
<td>Capitalise</td>
<td>Expense or Reduce Existing Liability</td>
</tr>
<tr>
<td>Budget Type</td>
<td>Recurrent</td>
<td>Recurrent</td>
<td>Capital</td>
<td>Capital</td>
<td>Capital</td>
</tr>
<tr>
<td>Funding</td>
<td>Non-discretionary</td>
<td>Non-discretionary</td>
<td>Non-discretionary</td>
<td>Discretionary</td>
<td>Discretionary (except if linked to renewal)</td>
</tr>
<tr>
<td>Examples³²³³</td>
<td>Salaries &amp; wages</td>
<td>Supplies</td>
<td>Electricity</td>
<td>Grass mowing</td>
<td>Street cleaning</td>
</tr>
</tbody>
</table>

**Borrowing costs**

Due to the high acquisition cost of infrastructure assets, many are partly funded by way of borrowings. The amount of interest can be capitalised as part of the cost of the asset to the extent that the borrowing costs can be attributed to the acquisition of the asset.

IAS 23 Borrowing Costs provides that “borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset shall be capitalised as part of the cost of that asset. The amount of borrowing costs eligible for capitalisation shall be determined in accordance with this Standard.”³³

However, in many public sector jurisdictions there are over-riding prescribed requirements which may require that such costs be expensed rather than capitalised. Care needs to be taken to ensure compliance with the appropriate prescribed requirements.

**Compensation and third-party costs**

The standards require all costs to be included in the valuation. This may include a range of costs that may not be immediately apparent.
IAS 16 Property, Plant and Equipment states that total cost includes:

- purchase price including duties and taxes after deducting trade discounts and rebates;
- any costs directly attributable to bringing it to operation; and
- initial estimates of dismantling or rehabilitation where an obligation exists.

Examples include:

- sunk costs (originally incurred but never to be repeated. For example, making a cutting in the side of a mountain);
- re-acquisition or reconstruction costs (based on likely method used to reconstruct or acquire asset); and
- third party costs. Compensation or reconstruction of assets controlled by third party. For example, relocation of third party infrastructure to construct a dam, or reconstruction of road belonging to a third party so you can replace pipes running underneath it.

The cost of building a new road may include costs in relation to forced resumption of land, and relocation or reconstruction of assets held by third parties affected by the project. In this case, the costs “directly attributable to bringing the asset into operation” include:

- purchase of land (usually market value plus premium for compensation); and
- relocation/reconstruction of assets held by other parties (even though assets replaced are not controlled by our council).

However, it is worth noting that this requirement poses a number of significant issues for revaluation. Especially when the period between original construction (and payment of third party costs) and the date of revaluation is significant. Over time, the detailed information about the transactions may be lost or forgotten and the inherent uncertainty regarding how to establish a current value for these payments may be high.

To deal with this issue some jurisdictions have provided specific prescribed requirements that essentially require the costs to be capitalised as part of the original cost and to be either excluded from future valuations, or immediately treated as an impairment adjustment.

Each entity must review its assets annually for impairment indicators, and assets recorded at fair value must be revalued each year. As part of these processes, agencies must assess what third party costs should remain as part of the carrying amount of the asset.

If an agency determines the third party cost would not be incurred again when the asset is replaced the agency has the following options in relation to the initial recognition of third party cost/s:

**Capitalise and subsequently impair the asset**

Where the carrying value of the asset does not reflect the agency’s capacity to derive future economic benefit or the asset’s ability to deliver its full service potential there is an indication that the asset is impaired.

Any impairment is to be recognised in accordance with AASB 136 Impairment of Assets.

**Capitalise and subsequently revalue the asset on the basis of the third party costs will not be incurred again**

Care needs to be taken to ensure compliance with the appropriate prescribed requirements.

**Overheads**

The cost of delivering a service using an asset includes both direct and indirect costs. These costs are incurred throughout the entire asset lifecycle including acquisition, operation, maintenance, renewal, upgrade or disposal.

Overheads is a general term often used to describe indirect costs.

Indirect costs in entities providing services from infrastructure include technical overheads for program and project management, survey, investigation, design and construction supervision and corporate overheads for general management, procurement, financial services, information technology, and human resource management.

Overheads are no different to any other asset cost in that there must be an element of cost in order to be capitalised. Most importantly, the cost is:

**Directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management.**

---

34 Queensland Treasury Non-Current Assets Policies NCAP 1 Recognition of Assets Non-Current Asset Policies
35 IPWEA NAMS Australian Infrastructure Financial Management Guidelines Section 12.9
36 IAS 16 Property, Plant and Equipment Paragraph 16
Overheads are commonly categorised into the following types:

**Table 8: Overheads**

<table>
<thead>
<tr>
<th>Type</th>
<th>Examples</th>
<th>Common approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labour</td>
<td>Amount paid in addition to direct wages (e.g. leave loading)</td>
<td>Based on percentage of wages. Normally supported by time sheets and other wages records linking specific employees back to project.</td>
</tr>
<tr>
<td></td>
<td>Amounts paid to others for direct benefit of employees (e.g. superannuation).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unproductive time (e.g. annual and long service leave, sick leave).</td>
<td></td>
</tr>
<tr>
<td>Materials</td>
<td>Cost of receiving, storing and issuing materials through a store.</td>
<td>Based on total cost of store as percentage of total value of stores issued. Normally supported by materials list used on project linked back to stores records.</td>
</tr>
<tr>
<td></td>
<td>Delivery and transport costs.</td>
<td></td>
</tr>
<tr>
<td>Technical</td>
<td>E.g. engineering management, investigation, survey, design and supervision.</td>
<td>Based on total cost of the expenditure for which the technical service is responsible for as percentage of total cost of providing the technical service. Normally linked to timesheets and/or internal charge records showing linkage back to specific projects.</td>
</tr>
<tr>
<td>Corporate</td>
<td>General management and services such as financial services, purchasing, human resources, information technology, work, health and safety.</td>
<td>Not normally allocated unless can show direct link to specific project.</td>
</tr>
<tr>
<td>Plant and equipment</td>
<td>Cost of operation, maintenance and replacement of plant and equipment</td>
<td>Normally charged directly to projects as internal plant hire. However, under IAS 16 “any internal profits are eliminated in arriving at such costs.”</td>
</tr>
</tbody>
</table>

**Contributed assets**

Some entities (such as local governments) receive a significant number of assets as contributions. Typically these are assets constructed by developers and handed over or donated to the local government. Likewise not-for-profit entities may receive donated assets.

IAS 16 Property, Plant and Equipment requires that such assets be recognised at an acquisition cost equivalent to the fair value of the asset. The standard states:

*The cost of such an item of Property, Plant and Equipment is measured at fair value unless (a) the exchange transaction lacks commercial substance or (b) the fair value of neither the asset received nor the asset given up is reliably measurable.*

**Data hierarchy / Asset registers**

To enable efficient valuation and analysis it is critical that that significant work be undertaken regarding the data structure (or hierarchy) prior to the creation of the asset register and data capture.

As the data is collected and the valuation progressed it is likely that the original asset hierarchy will be adjusted as new information is received about the portfolio.

Establishing the asset hierarchy or data structure will include consideration of aspects such as:

- General category
- Asset class and financial class
- Facility
- Defining the asset level
- Segments
- Components
- Asset types and sub-types
- Component types and sub-types
- Other attributes

For example, it is common for a number of different assets to be linked together as a common facility that when combined provide the overall service. This may include a number of assets from within the same asset class as well as other assets spread across a range of vastly different asset classes.
For example, a community facility might include:

- Land
- Buildings
- Parks and garden assets
- Roads
- Car parks
- Transport infrastructure
- Drainage
- Miscellaneous infrastructure such as water and electrical services
- Flood lights

From both an asset management perspective, as well as governance perspective, it may be necessary to be able to identify the assets in relation to the overall facility. This may include gaining an understanding of the overall condition and functionality of the assets to enable development of a facility asset management plan. In the case of emergencies or natural disasters it also provides capability to quickly understand the entirety of the assets affected.

Care needs to be taken when establishing your asset register or asset listing that proper consideration is given to defining your data hierarchy, how various assumptions will be applied across the portfolio and how the final figures are to be reported and used for other purposes (such as asset management planning).

### Segmentation

Some assets are identifiable as a completely separate asset (for example, buildings) whereas others form part of a larger network or facility. This is especially so for lateral assets such as roads and pipes. Other examples include water treatment facilities which may comprise a range of different assets.

For both asset management and valuation purposes it is important that the overall asset be separated into segments with each segment recognised as a separate asset within the asset register. This allows the asset to be managed at a level that takes into account different dimensions, materials, condition and treatments.

Common approaches to segmentation include the following. Often the segments are a combination of various approaches based on local knowledge.

---

### Table 9: Typical approaches to segmentation by asset class

<table>
<thead>
<tr>
<th>Asset category</th>
<th>Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads</td>
<td>Intersection to intersection</td>
</tr>
<tr>
<td>Footpaths</td>
<td>Based on chainage (new segment every defined distance)</td>
</tr>
<tr>
<td>Cycle ways</td>
<td>Change in design (materials, dimension)</td>
</tr>
<tr>
<td>Kerb and channel</td>
<td>Significant change in condition</td>
</tr>
<tr>
<td>Drains</td>
<td>Known areas of different rate of consumption</td>
</tr>
<tr>
<td>Pipes</td>
<td>Node to node Manhole to manhole</td>
</tr>
<tr>
<td>Fences (very long)</td>
<td>Based on chainage (new segment every defined distance)</td>
</tr>
<tr>
<td></td>
<td>Change in design (materials, dimension)</td>
</tr>
<tr>
<td></td>
<td>Significant change in condition</td>
</tr>
<tr>
<td>Water treatment facility</td>
<td>Known areas of different rate of consumption</td>
</tr>
</tbody>
</table>

| Components |

**IAS 16 Property, Plant and Equipment requires:**

> Each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item shall be depreciated separately.\(^{38}\)

The basis of conclusions that accompanies IAS 16 Property, Plant and Equipment specifically states:

> BC26 The Board’s discussions about the potential improvements to the depreciation principle in the previous version of IAS 16 included consideration of the unit of measure an entity uses to depreciate its items of property, plant and equipment. Of particular concern to the Board were situations in which the unit of measure is the “item as a whole” even though that item may be composed of significant parts with individually varying useful lives or consumption patterns. The Board did not believe that, in these situations, an entity’s use of approximation techniques, such as a weighted average useful life for the item as a whole, resulted in

\(^{38}\) IAS 16 Property, Plant and Equipment (Paragraph 43)
depreciation that faithfully represents an entity’s varying expectations for the significant parts.

BC27 The Board sought to improve the previous version of IAS 16 by proposing in the ED revisions to existing guidance on separating an item into its parts and then further clarifying in the Standard the need for an entity to depreciate separately any significant parts of an item of property, plant and equipment. By doing so an entity will also separately depreciate the item’s remainder.39

The standard also defines cost as being:

The amount of cash or cash equivalents paid or the fair value of the other consideration given to acquire an asset at the time of its acquisition or construction or, where applicable, the amount attributed to that asset when initially recognised in accordance with the specific requirements of other IFRSs, e.g. IFRS 2 Share-based Payment.40

This means that assets comprised of:

• a number of significant parts;
• which have a different value; and
• exhibit different useful lives or depreciation method;
are to be depreciated separately. This is commonly referred to as componentisation and is a critical aspect to ensuring the valuation is meaningful, accurate and can be used as a key input to the asset management planning process.

Assets valued at market value

Note that under the definition for assets valued at market value each component must have a separate cost (amount paid or value). This means that each component must be able to be bought and sold independently of the other components. A good example would be a commercial building comprising a number of separate strata titles. Each strata title could be bought and sold independently of the others, and has its own cost (value). By comparison, the kitchen of a residential property would not satisfy the definition of a component. This is because it cannot be sold independently of the remainder of the property.

In reality most market value assets are usually valued and depreciated as only having one component, with the market value based on recent sales evidence. Where there is an asset comprising more than one component, with each component having a separate market value, each component is usually valued as a separate asset.

Assets valued using the income approach

Fair value is based on the overall income-generating capability. However the value needs to be allocated against the individual assets to enable depreciation calculations.

For these types of assets the total value is then allocated proportionally across the individual assets. The various depreciation assumptions are applied against each asset to then determine the amount of depreciation expense.

Assets valued at depreciated current replacement cost

Specialised buildings and community infrastructure are normally valued using the depreciated current replacement cost basis. For these assets the components should be selected based on the realities of the asset management planning process. In particular, consideration should be given to which components of the overall asset are managed separately from other parts and what types of treatments are used to maintain and renew the asset through cyclical maintenance.

This provides clear evidence of the parts which have a different useful life and depreciation method as well as significant cost. The information gained from this analysis will provide guidance on how the asset should be disaggregated down to its component parts.

For example, based on typical lifecycles and asset management treatment regimes, a road is typically broken into the following components:

• Formation or earthwork (sometimes these are further separated)
• Pavement
• Surface

This may then be supported by additional assets linked to the road such as:

• Kerb and guttering
• Footpaths (left and right)
• Traffic signals
• Traffic management devices
• Retaining walls
• Others

This split is logical and enables the data (such as condition and specifications) to be collected as part of the valuation exercise to feed directly into the asset management planning process.

39 IAS 16 Property, Plant and Equipment Basis of Conclusions
40 IAS 16 Property, Plant and Equipment (definitions)
To identify components, consider how the asset is managed from an asset management perspective and what parts comprise a significant cost but have a different useful life, give consideration to the following:

- Is cost significant (greater than 5 per cent) and exceeds capitalisation threshold;
- Has it a different useful life or pattern of consumption (all parts within the component should have same life and pattern);
- Is the component separately identifiable, measurable and able to be separated from complex asset;
- Is it replaced or renewed at regular intervals or is it a sunk cost;
- Is it managed with specific capex treatments relatively independent of other components; and
- Due to risk or criticality does it need to be separated for asset management planning.\(^{41}\)

### Thresholds

Having previously established a materiality threshold for compliance with the standards some entities have been tempted to establish an additional and significantly higher threshold to specify whether or not to componentise an asset. This should not be done.

Firstly, the materiality thresholds (capitalisation and revaluation) have previously been established. These set the rules of what aspects of the standards you can choose not to apply. Anything above these thresholds therefore needs to be done in full compliance with the standards. This includes componentisation.

Secondly, in order to determine the fair value of an asset the valuer needs to determine the relevant replacement costs of each component and assess the relative condition of each component. If this assessment is not done there will be insufficient evidence to support the valuation, and as the valuation is based on broad assumptions rather than actual evidence, there is a high risk that the valuation may be materially misstated.

Finally, the information gained from the valuation process (such as condition of each component) would normally be used to feed directly into the asset management planning process. If componentisation and inspection is not conducted at a low level the quality of data passed through to the asset management plan may significantly impair the quality and usefulness of the plan.

### Networked assets

Network assets are groups of homogenous type assets where individually each asset falls below the recognition threshold but when considered as a whole are material in value and should therefore be recorded on the balance sheet. This principle should not be used for assets that have fundamentally different characteristics, as this will result in incorrect assumptions about useful life and depreciation.

To determine what constitutes a network asset, consideration should be given to the following:

- Items being considered are below the recognition threshold level on an individual basis yet when considered as a whole are material;
- Individual items are homogenous in nature and typically purchased rather than constructed; and
- Useful lives and consumption patterns of individual items are approximately the same.

Examples typically include:

- Road signs and furniture
- Parking meters
- Waste disposal bins
- Water reticulation meters

In some cases entities may choose to record network assets as one asset in the asset register with all new purchases capitalised as a new addition. In this scenario the accounting policy often specifies for the asset class is to be valued at historical cost with depreciation based on an average useful life using the straight-line method. The account balance will still require support by way of an asset register.

However it may be necessary to monitor the condition of each networked asset for asset management or risk purposes. In this situation the assets will need to be individually identified and condition assessed. This provides the opportunity to value on either historical cost or fair value. The disposal of individual items comprising a network asset are not normally required to be accounted for within the financial asset register on the basis of materiality.

### Major plant and equipment

Entities will have a range of assets which are typically grouped together as plant and equipment. Like most asset classes there is typically a small number of assets with high value and large number of assets with low value.

It may be not be cost effective to value all of these assets at fair value given the large number of assets required to...
be inspected and relative low value when compared to the materiality of other asset classes.

Typically this issue is managed via the creation of two different financial asset classes with appropriate policies for each class.

• Minor: items of plant and equipment that do not satisfy the definition of a major item of plant and equipment. Typically recorded at historical cost and depreciated on the straight-line basis.

• Major: items above a high value threshold which also exhibit a useful life of greater than five years. Typically these are valued at fair value.

Care does, however, need to be taken to ensure the approach adopted is consistent with the approved non-current assets policy and other prescribed requirements.

**Gross replacement cost**

Having gained an appreciation of the types of costs which comprise an asset, the first step when using DCRC approach is to calculate the gross current replacement cost. The calculation for this will differ depending upon:

• the nature of the asset;
• components;
• construction techniques;
• whether you would reproduce the asset or replace it with a modern equivalent;
• whether there are any sunk costs that need to be taken into consideration; and
• allowance for any decommissioning or reinstatement costs.

Data to determine the gross replacement cost will be obtained from a range of sources. These may include:

• recent actual construction contracts and prices;
• similar or reference projects in other locations;
• industry construction guides; and
• theoretical first principals designs.

A critical part of the calculation will be the format of the calculation and how the various variable costs are incorporated into the overall gross cost for each component. For example, is the calculation based on a dimension by unit rate, combination of various costs, apportionment across various components and how much allowance is made for different levels of quality or design specification?

Determination of the assumed gross cost will require extensive professional judgement and may include engagement of an external expert (such as a valuer). It is important that sufficient and appropriate audit evidence to support the gross current replacement cost is properly documented.

As a consequence consideration needs to be given to whether the evidence is based at the total asset level and apportioned over the components, or developed at the component level and if so, can it be based on data at a summary component level or does it need to be a complex calculation based on the sub-set of pieces that make up the component?

Likewise, consideration needs to be given to adjusting between the difference in service potential between the existing asset and the potential replacing modern equivalent.

**Pattern of consumption**

One of the most common non-compliance issues associated with IAS 16 Property, Plant and Equipment with respect to both valuation and depreciation is failure to take into account the pattern of consumption. Unfortunately, the impact of this non-compliance issue can be extremely material.

IAS 16 Property, Plant and Equipment mandates that:

> The depreciation method used shall reflect the pattern in which the asset’s future economic benefits are expected to be consumed by the entity.  

It further states that:

> The depreciation method applied to an asset shall be reviewed at least at each financial year-end and, if there has been a significant change in the expected pattern of consumption of the future economic benefits embodied in the asset, the method shall be changed to reflect the changed pattern. Such a change shall be accounted for as a change in an accounting estimate in accordance with IAS 8.

The pattern of consumption of future economic benefits may take various forms and hence require a different method of depreciation, which includes but is not limited to:

• when consumption is constant over the useful life of the asset – straight-line method;
• when consumption is greater in the early years and less
in the later years – declining balance method;

- when consumption increases as the asset approaches the end of its useful life – output/service basis method; and

- when consumption varies with outputs/service – units of production method.\textsuperscript{44}

The alternatives are shown in the attached diagram.

**Figure 5: Accounting concepts NAMS Australian infrastructure financial management guidelines**\textsuperscript{45}

![Diagram showing methods of allocation of Depreciable Amount to reflect pattern of consumption of future economic benefits.]

There are many reasons why assets experience different patterns of consumption. Typically assets that have a very long life are maintained in a reasonable condition and their life can be extended considerably beyond original design. For these assets, the biggest driver of consumption towards the end of their life tends to be obsolescence and other holistic factors rather than physical condition alone.

For example, the IPWEA Building Condition and Performance Assessment Guidelines Practice Note 3 notes that: "Condition degradation typically accelerates over time for building components, and accordingly, condition grades can be utilised through application of appropriate degradation models, to assess remaining useful life of these components."\textsuperscript{46}

The practice note demonstrates this through the following diagram.

While physical degradation is different from economic consumption, due consideration needs to be given to the impact of wear and tear along with technical, legal and physical obsolescence.

Likewise, the impact of different asset management regimes and funding allocated to asset renewal and maintenance along with changing community expectations about the level of service to be delivered using the asset will impact the assessment of the level of remaining service potential, as well as the expected pattern of consumption of the remaining service potential.

Due consideration needs to be given to identify the pattern of consumption and an appropriate method used to reflect the pattern in the determination of both fair value and depreciation expense.

IAS16 requires that: “The entity selects the method that most closely reflects the expected pattern of consumption of the future economic benefits embodied in the asset. That method is applied consistently from period to period unless there is a change in the expected pattern of consumption of those future economic benefits.”\textsuperscript{47}

**Assessing remaining level of future economic benefit**

Fair value for infrastructure assets is normally determined by the calculation of the depreciated current replacement cost. In essence this means:

- **Determining the gross current replacement cost** of the service potential embodied within the existing asset.

\textsuperscript{44} NAMS Australian Infrastructure Financial Management Guidelines sec 12.3
\textsuperscript{45} IPWEA 2009 NAMS Australian Infrastructure Financial Management Guidelines
\textsuperscript{46} IPWEA Buildings Condition and Performance Assessment Guideline PN3 (page 36)

\textsuperscript{47} IPWEA Building Condition and Performance Assessment Guidelines Practice Note 3
\textsuperscript{48} IAS 16 Property, Plant and Equipment Paragraph 62
This may require adjusting for differences in service potential between the design and capacity of the existing asset and what the modern equivalent asset would be. For example – replacing a 4 metre wide road with a 6 metre wide road.

- **Assessing the amount of consumed service potential** (accumulated depreciation). This involves analysis of the pattern of consumption and the factors that determine the level of remaining service potential.

One of the more common mistakes made by entities is to try and estimate the level of remaining service potential using factors that have no bearing on the measurement. The most common example is the use of age to determine the level of remaining service potential for assets where there is no correlation between age and remaining service potential. While this approach is easy to calculate and easily understood it may not result in a reasonable estimate of the level of remaining service potential. Its accuracy depends entirely upon the pattern of consumption remaining constant and the underlying assumptions being extremely accurate.

This is why it is critical to understand the pattern of consumption as well as the factors that indicate the level of remaining service potential. These same factors are the ones that asset managers use to make decisions about maintenance and renewal. It is also important to measure the level of remaining service potential at the individual asset level so that informed decisions can be made about individual assets (including asset management decisions).

To demonstrate the risk of not taking into account the relevant factors but basing the calculations on simple assumptions we will use a simple analogy.

The aim is to measure the fair value of fuel in a tank with a maximum capacity of 10,000 litres. Our long-term usage history tells us that on average 10 trucks are fuelled each day with an average fill of 100 litres each. These assumptions are supported by appropriate records. We know the tank was last filled six days ago to full capacity, and therefore using a simple calculation would assume the amount of remaining fuel was: 10,000 less 6,000 litres. (6 days x 10 trucks x 100 litres) That means 4,000 litres remaining.

However, in reality the average consumption is nothing more than an estimate based on averages and does not directly indicate the level of remaining service potential. The method is not based on factors that provide a direct measurement of the level of consumed service potential.

To measure the actual level of remaining fuel you would place a measuring stick in the fuel tank and, based on the height of the measurement and dimensions of the tank, you would then determine the amount of remaining fuel correctly. In this case, assuming the tank is a cylinder, and the stick showed a depth of 55 per cent of the height of the tank, the amount of fuel remaining would be 5,500 litres. This means that the previous estimate was materially incorrect as it was misstated by 27 per cent.

This was caused by basing the calculation on factors (age) which did not directly result in the determination of the level of remaining service potential. In this case the key factors were shape of the tank and height of the fuel level.

### Condition or consumption scales

Assessing the level of remaining service potential for many assets is done using a condition or consumption scale. Despite a willingness by many to use the same scale for asset management planning purposes and asset valuation purposes, extreme care needs to be taken with the design of the scale.

The level of accuracy with condition assessment may differ for valuation and asset management purposes. Asset management guides typically recommend broad scoring scales such as a five or ten point scale. While a broad scale like this may be sufficient for asset management planning, it is not appropriate for valuation, due to the impact of materiality and the need for accuracy. For example: a one-to-five scale (often used for asset management purposes) typically results in a change in value of 25 per cent between each rating. If used for valuation a slight change in condition may drive a change in score and would result in a 25 per cent change in the value. The risk of such large movements places doubts over the accuracy of the valuation.

It is therefore more appropriate to use scales for valuation that enable valuation within 1 per cent or 2 per cent graduations. Typically this is achieved by adapting a broad scale (used for asset management planning) and including incremental steps.

For example, the following scale identifies five asset lifecycle phases which coincide with a scale often used for asset management planning. The phases are established as broad phases developed using local knowledge of the
asset lifecycle. The valuation, however, is done at a level by inclusion of a single decimal point. For example a score of 2.3 would represent that the asset is aged and in good condition and it is estimated to be 30 per cent of the way between a two and a three. These are typically described as follows but can be tailored for different condition rating scales:

**Figure 7: Example valuation scoring scale (Fair Value Pro)**

<table>
<thead>
<tr>
<th>Phase Points</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>New or very good condition – very high level of remaining service potential.</td>
</tr>
<tr>
<td>1</td>
<td>Not new but in very good condition with no indicators of any future obsolescence and providing a high level of remaining service potential.</td>
</tr>
<tr>
<td>2</td>
<td>Aged and in good condition provide an adequate level of remaining service potential. No signs of immediate or short-term obsolescence</td>
</tr>
<tr>
<td>3</td>
<td>Providing an adequate level of remaining service potential but some concerns over the ability of the asset to continue to provide an adequate level of service in the short to medium term. May be signs of obsolescence in short to mid-term.</td>
</tr>
<tr>
<td>4</td>
<td>Indicators that will need to renew, upgrade or scrap in near future. Should be reflected by inclusion in the capital works plan to renew or replace in short-term. Very low level of remaining service potential.</td>
</tr>
<tr>
<td>5</td>
<td>At intervention point. No longer providing an acceptable level of service. If remedial action is not taken immediately the asset will need to be closed or decommissioned.</td>
</tr>
</tbody>
</table>

**End of Life**

Theoretical end of life

**Approaches to depreciation**

As fair value represents the level of remaining service potential via determination of the amount of accumulated depreciation, and depreciation measures the rate of consumption of that service potential, it is important that the methodologies used to calculate both fair value and depreciation expense are consistent in approach and use the same underlying assumptions.

The requirements relating to how to undertake depreciation calculations is quite broad. They require that the depreciation method must:

- Depreciate separately each part with a cost that is significant in relation to the total cost of the item.

However, if different parts have the same depreciation method and useful life the parts can joined as one part for depreciation purposes.

- Depreciate the depreciable amount.
- Depreciate over the asset’s useful life where useful life of an asset is defined in terms of the asset’s expected utility to the entity.
- Be done in a systematic way.
- Use a method that matches the expected pattern of consumption of the future economic benefit.
- Take into account physical usage, wear and tear, obsolescence and legal and other limits.

These requirements enable a variety of methods to be used, provided of course that the method satisfies all of the above requirements. For example the standard suggest a range of methods including:

- the straight-line method where the pattern of consumption is expected to be constant over the useful life of the asset;
- the diminishing balance method and the units of production method where the pattern of consumption is expected to be a decreasing rate over the useful life; and
- the units of production method where the pattern of consumption is based on the expected use or output.

This does not, however, limit the use of other methods providing the underlying requirements are satisfied. Likewise, just because a method is listed above does not mean that it is appropriate. For example, if the pattern of consumption is considered to be a pattern that results in an increasing rate of consumption over time, it would be inappropriate to use a diminishing balance method as this method employs a completely different pattern of consumption.

There is a range of commonly used condition-based and consumption-based methods used globally. These methods are typically incorporated into propriety software (such as road or pavement management systems, water infrastructure management systems, and specialised IFRS valuation software) but some are also available in the public domain.

There is additional guidance provided in Australia through UIG1030. Depreciation of Long-Lived Physical Assets: Condition-Based Depreciation and Related Methods states that the method must ensure:

- depreciation is calculated by reference to the depreciable amount;
• appropriate consideration is given to technical and commercial obsolescence;
• maintenance and capital expenditure are separately identified and accounted for in accordance with AASB 116 (the equivalent of IAS 16);
• the renewals annuity method is not used; and
• depreciation is calculated separately for each component.

When selecting or designing an appropriate depreciation method it should be remembered that the standards require that the entity selects the method that most closely reflects the expected pattern of consumption of the future economic benefits embodied in the asset, and that the method is applied consistently from period to period unless there is a change in the expected pattern of consumption of those future economic benefits.

Under the requirements of IAS 13 fair value the entity also needs to disclose a range of information about the valuation process and assumptions used.

**Assets that do not have a limited useful life**

Assets can generally be described as either having:
• a limited useful life; or
• not having a limited useful life.

Those which are considered not to have a limited useful life do not need to be depreciated. This includes land but in some cases may include assets like earthworks associated with roads. This issue was specifically identified and addressed in Australia by UIG 1055 Accounting for Road Earthworks which in its consensus view stated:

> Road earthwork assets that are assessed as not having a limited useful life shall not be depreciated. Such an assessment shall be based on engineering reviews of the expected physical wear and tear and technical obsolescence of the particular earthworks and on consideration of commercial obsolescence and legal or other limits on the use of the earthworks.

**Assets with limited useful life (including cyclical maintenance assets)**

Most assets are considered to have a limited useful life and as their service potential is consumed they need to be depreciated.

Some assets with a limited useful life only receive limited or no maintenance and once they are consumed are replaced in whole with a new asset. Examples include motor vehicles, computers, some pumps and electrical equipment.

However, some assets are commonly referred to as cyclical maintenance assets. These are assets whose useful life and service potential are regularly extended through ongoing maintenance, renewal and/or replacement of parts. These types of assets typically are required to provide a certain level of service to the community and are managed through an asset management process to replace or renew components or part-components at regular intervals in order to continue delivering an appropriate level of service. Examples includes roads, bridges, buildings and water treatment facilities.

Cyclical maintenance assets differ from other assets in that their total life is extended over time via ongoing maintenance and renewal. As a consequence, an asset's total lifecycle cost can differ as a result of changing:
• Maintenance costs
• Renewal treatments
• Levels of service

When the asset is unable to meet the community's needs there are a number of possible outcomes. These include:
• restore the future economic benefit through renewal or upgrade;
• replace the asset with an alternative asset; or
• change the community's expectations (reduced level of service).

The following diagram represents typical lifecycle outcomes.

**Figure 8: Typical lifecycle outcomes for cyclical maintenance assets**

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50 UIG1055 (Australian Accounting Standards Board)
Understanding whether the service potential and useful life of the asset is extended through cyclical maintenance is critical to the valuation and depreciation calculations. Those with no limited useful life are not depreciated and therefore will not have any accumulated depreciation.

Whether or not an asset’s useful life and service potential is extended through cyclical maintenance, directly impacts the determination of key concepts such as useful life, residual value and depreciable amount.

**Residual value, depreciable amount and useful life**

**IAS 16 Property, Plant and Equipment** defined residual value as:

The estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life.\(^{51}\)

However the IFRS 13 Fair Value changed the definition of residual value.

The board changed the definition of residual value to the amount an entity could receive for the asset currently (at the financial reporting date) if the asset were already as old and worn as it will be when the entity expects to dispose of it.\(^{52}\)

It further defines the useful life as being:

The period over which an asset is expected to be available for use by an entity; or the number of production or similar units expected to be obtained from the asset by an entity.\(^{53}\)

Depreciable amount is defined as:

The cost of an asset, or other amount substituted for cost, less its residual value.\(^{54}\)

It is quite specific in that only the depreciable amount can be depreciated.

A critical part of determining residual value (and by default the depreciable amount) is determining the end of the useful life. Traditionally, many organisations have literally taken this as being the point of decommissioning. However, with respect to cyclical maintenance assets, this concept needs to take into account the impact of regular renewal.

For assets whose useful life and service potential are not extended through cyclical maintenance, the residual value is commonly interpreted as the scrap value at the time of decommissioning, and the useful life as the period from acquisition to eventual decommissioning. For example, if the asset was a car purchased for $40,000 and after three years the car is expected to be traded in for $10,000, the residual value would be $10,000, the useful life three years and the depreciable amount $30,000. Assuming a constant pattern of consumption (straight-line) the annual depreciation would be $10,000 per annum.

However, for assets subject to cyclical maintenance, the concept of residual value becomes much more complex. The various components of the asset are subjected to regular renewal and if the renewal is not undertaken the asset reaches a point where the asset no longer provides an acceptable level of service and needs to either be renewed or closed. In other words it will reach a point where it is no longer available for use and accordingly can be interpreted as having reached the end of its useful life. Major capital work (renewal) may result in the commencement of a new useful life.

As a consequence, the useful life can be interpreted as being the time it would take (given the typical environment and asset management practices) for the asset to deteriorate from as-new condition to the point where there was no choice but to close the asset. In other words it is now no longer available for use.

Likewise, as the definition of residual value is tied to when the asset reaches the end of its useful life or exceed disposal, the residual value would represent the value remaining in the asset at that point in time rather than the scrap value at the point of decommissioning. In practical terms if the asset with a GCRC of $25,000 reached a point in time where there was no choice but to close the asset (end of useful life) and the asset could be restored back to as new for $15,000 then by definition the estimated amount that an entity would currently obtain from disposal of the asset would be $10,000.

\(^{51}\) IAS 16 Property, Plant and Equipment definitions

\(^{52}\) IAS 16 Property, Plant and Equipment Basis for Conclusions paragraph BC29

\(^{53}\) IAS 16 Property, Plant and Equipment Definitions

\(^{54}\) IAS 16 Property, Plant and Equipment Definitions
As a result the key concepts, in relation to cyclical maintenance assets, can be represented as follows:

**Figure 10: Accounting concepts for cyclical maintenance assets**

The risk of not taking into account the impact of cyclical maintenance, and the typical asset management strategies adopted by the entity, can be demonstrated using the following simple analogy.

The level of water in the bottle represents the level of remaining service potential. If is filled to full (one litre) in the morning, and at the end of the day 250 ml remains, it is easy to assume the rate of consumption is 750 ml per day. This analogy demonstrates that the useful life of the asset can be very easily misstated if the impact of cyclical maintenance and the asset management regime is not taken into account. The reality however is that despite the fact that the levels at start and end of the day can be verified, the actual useful life and residual value are not as assumed because they have not taken into account the cyclical maintenance nature of the asset. The analogy highlights the need to understand:

- How the asset is actually consumed;
- What treatments are applied, when, why and their impact; and
- The factors that provide a direct indication of the level of remaining service potential.

The following diagrams represent different phases of the water bottle’s lifecycle throughout the day.

The lifecycle of the bottle of water can be represented as follows with each re-filling recognised as a renewal treatment just as re-sealing a road, undertaking a pavement stabilisation process, repairing a roof or fitting a new kitchen also results in renewal of an asset.

The risk of ignoring the reality of the actual lifecycle and basing the valuation and depreciation on simplistic assumptions can be demonstrated as follows. Traditionally a lot of organisations have based their calculations on assuming a constant pattern of consumption (straight-line) and relying on three key pieces of information:

- gross current replacement cost (appropriately verified);
- residual value based on scrap value at the end of total lifecycle (often assumed to be nil); and
- total useful life (based on time from original commissioning to final decommissioning).

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55 Prabhu-Edgerton Consumption Model (www.apv.net)
56 Prabhu-Edgerton Consumption Model (www.apv.net)
Using the data from the water bottle analogy the approach can be represented as follows:

Using this approach, if a valuer were to assess the level of remaining service potential at 1:00pm the calculation would be determined as follows:

Total useful life = 13 hours (6:00 am to 7:00 pm)
Remaining useful life = 6 hours (7:00 pm less 1:00 pm)
Residual value = 25% (scrap value at 7:00 pm)

WDV = \[
\frac{\text{reasonable useful life}}{\text{useful life}} \times (\text{Gross CRC} - \text{RV}) + \text{RV}
\]
= \[\frac{6}{13} \times (100\% - 25\%) \] + 25%
= 59.6% (rounded to 60%)

However, in reality this would represent a material misstatement in both the value and rate of consumption of the asset.

Having gained an appreciation of the actual asset we know that the asset was actually completely empty at 1:00 pm and was renewed through re-filling at 1:45 pm. The risk of error is demonstrated below.

Given the nature of the asset (water) you would expect that the rate of consumption would also vary throughout the day as a result of the physical effort being exerted and the surrounding environmental condition (air-conditioning). Likewise the consumption of service potential of public sector infrastructure assets also varies as a result of environmental factors, usage, functionality, obsolescence, etc.

For cyclical maintenance assets, just as refilling a bottle of water to full numerous times during the day results in a new bottle of water, the point of major renewal represents the disposal of the existing asset and creation of a new asset with a new useful life.

When determining the residual value, consideration needs to be given to the types of treatments (and their costs) that would typically be used by the entity to renew or restore the asset’s service potential when it reaches the preferred or worst-case intervention point.

For example, a roof consists of roof sheeting as well as trusses. If the roof sheeting was damaged, or deteriorated to a point that there was significant water penetration the entity would normally fix the problem before it became a major issue. However, if it were allowed to deteriorate even further and the roof sheeting needed complete replacement the cost to bring the roof back to as new would typically only be the cost of replacing the roof sheeting and not the trusses. Accordingly the residual value of the roof would be significant.

Likewise the residual value of a dam spillway is typically considered extremely high, as spillways are designed to last for a very long time and, assuming there is no obsolescence, will be maintained at a very high level through regular maintenance. If obsolescence became an issue the residual value would be reassessed as part of the annual revision
of assumptions resulting in either a change to the valuation and/or prospective change in depreciation expense.

Clearly for some assets the residual value will be nil or negligible. However for others it may be quite high depending upon the typical asset management treatments adopted by the organisation. It is critical that due consideration be given to the most likely renewal treatments and asset lifecycle in determining the useful life and appropriate level of residual value to be applied against each component.

The following diagram highlights the risk of assuming a zero residual value rather than determining the residual value (and therefore depreciable amount) by taking into account the typical asset management treatments adopted by the entity.

**Figure 11: Common breaches**

Useful life and residual value not based on the asset management reality. For example -

- Useful life is based on date of original commissioning rather than date of last major renewal
- Reasonable useful life (RUL) based on time to theoretical demolition rather than time to next major renewal
- Useful life assumed to be nil

As a consequence -

- Asset is depreciated over a period in excess of useful life
- Whole of asset is depreciated rather than depreciable amount
- Pattern used in constant rather than one that matches pattern of consumption
- WDV is typically undervalued
- Depreciation typically overstated

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**De-recognition (via renewal)**

The issue of part disposal through renewal of an asset has in the past has created some discussion as to whether the whole part of the component replaced or renewed needed to be written off and how to treat the expenditure related to the renewal.

The introduction to IAS 16 Property, Plant and Equipment has addressed this issue.

An entity is required to de-recognise the carrying amount of a part of an item of property, plant and equipment if that part has been replaced and the entity has included the cost of the replacement in the carrying amount of the item. The previous version of IAS 16 did not extend its derecognition principle to such parts; rather, its recognition principle for subsequent expenditures effectively precluded the cost of a replacement from being included in the carrying amount of the item.

The following example uses the resealing of a road surface to demonstrate the correct accounting treatment and potential pitfalls. The example focuses only on the seal component.

**Example**

Immediately prior to undertaking capital expenditure to renew the seal the seal was valued as follows.

<table>
<thead>
<tr>
<th>Area (square metres)</th>
<th>10,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit rate per Sq M</td>
<td>50</td>
</tr>
<tr>
<td>Gross current replacement cost</td>
<td>500,000</td>
</tr>
<tr>
<td>Assessed level of remaining service potential</td>
<td>64%</td>
</tr>
<tr>
<td>Assessed WDV (pre-renewal)</td>
<td>320,000</td>
</tr>
</tbody>
</table>

The seal was then renewed.

<table>
<thead>
<tr>
<th>Cost of renewal work</th>
<th>250,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has the unit rate used to determine the GCR changed?</td>
<td>No</td>
</tr>
<tr>
<td>Has the overall gross service potential of the seal changed?</td>
<td>No</td>
</tr>
<tr>
<td>Assessed gross current replacement cost</td>
<td>500,000</td>
</tr>
<tr>
<td>Reassessed level of remaining service potential</td>
<td>95%</td>
</tr>
<tr>
<td>Assessed WDV (post renewal)</td>
<td>475,000</td>
</tr>
</tbody>
</table>

---

57 Edgerton (Presentation to CPA Australia NSW Congress 2008)
58 IAS 16 Property, Plant and Equipment IN14
While money was spent on the seal the reality is that the overall gross current replacement cost did not change. Likewise the impact of the $250,000 only resulted in a net increase in the WDV of $155,000 ($475,000 – $320,000).

Therefore if we included the cost of the replacement in the carrying amount of the item ($250,000) we also need to derecognise the carrying amount of a part of an item of property, plant and equipment if that part has been replaced. Working backwards we would need to only derecognise $95,000. That is, ($320,000 + $250,000 – $475,000).

<table>
<thead>
<tr>
<th>Capitalise 250,000 and derecognise the part that has been replaced (95,000)</th>
<th>GCRC</th>
<th>Accum. dep.</th>
<th>WDV</th>
<th>Cash</th>
<th>Dereconition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening balance (pre-renewal)</td>
<td>$500,000</td>
<td>$(180,000)</td>
<td>$320,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journals DR (Cr)</td>
<td>$250,000</td>
<td>$250,000</td>
<td>$(250,000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journals DR (Cr)</td>
<td>$(250,000)</td>
<td>$155,000</td>
<td>$(95,000)</td>
<td>$95,000</td>
<td></td>
</tr>
<tr>
<td>Result (balance post renewal)</td>
<td>$500,000</td>
<td>$(25,000)</td>
<td>$475,000</td>
<td>$(250,000)</td>
<td>$95,000</td>
</tr>
<tr>
<td>Correct result</td>
<td>$500,000</td>
<td>$(25,000)</td>
<td>$475,000</td>
<td>$(250,000)</td>
<td>$95,000</td>
</tr>
<tr>
<td>Error (amount)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error (%)</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

The following represent examples of common (but incorrect) journal approaches. These demonstrate the potential for error.

<table>
<thead>
<tr>
<th>Only Capitalise 250,000 as CAPEX</th>
<th>GCRC</th>
<th>Accum. dep.</th>
<th>WDV</th>
<th>Cash</th>
<th>Dereconition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening balance (pre-renewal)</td>
<td>$500,000</td>
<td>$(180,000)</td>
<td>$320,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journals DR (Cr)</td>
<td>$250,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Result (balance post renewal)</td>
<td>$750,000</td>
<td>$(180,000)</td>
<td>$570,000</td>
<td>$(250,000)</td>
<td>$95,000</td>
</tr>
<tr>
<td>Correct result</td>
<td>$500,000</td>
<td>$(25,000)</td>
<td>$475,000</td>
<td>$(250,000)</td>
<td>$95,000</td>
</tr>
<tr>
<td>Error (amount)</td>
<td>$(250,000)</td>
<td>$(155,000)</td>
<td>$(95,000)</td>
<td>$(95,000)</td>
<td></td>
</tr>
<tr>
<td>Error (%)</td>
<td>50.0%</td>
<td>620.0%</td>
<td>20.0%</td>
<td>0.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Capitalise 250,000 but write off full value of existing component</th>
<th>GCRC</th>
<th>Accum. dep.</th>
<th>WDV</th>
<th>Cash</th>
<th>Dereconition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening balance (pre-renewal)</td>
<td>$500,000</td>
<td>$(180,000)</td>
<td>$320,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journals DR (Cr) - CAPEX</td>
<td>$250,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journals DR (Cr) - write off existing component</td>
<td>$(500,000)</td>
<td>$180,000</td>
<td>$(320,000)</td>
<td>$320,000</td>
<td></td>
</tr>
<tr>
<td>Result (balance post renewal)</td>
<td>$250,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct result</td>
<td>$500,000</td>
<td>$(25,000)</td>
<td>$475,000</td>
<td>$(250,000)</td>
<td>$95,000</td>
</tr>
<tr>
<td>Error (amount)</td>
<td>$250,000</td>
<td>$(25,000)</td>
<td>$(475,000)</td>
<td>$(225,000)</td>
<td></td>
</tr>
<tr>
<td>Error (%)</td>
<td>50.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>0.0%</td>
<td>236.8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Capitalise 250,000 to new asset and make no changes to existing asset</th>
<th>GCRC</th>
<th>Accum. dep.</th>
<th>WDV</th>
<th>Cash</th>
<th>Dereconition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening balance (pre-renewal)</td>
<td>$500,000</td>
<td>$(180,000)</td>
<td>$320,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journals DR (Cr)</td>
<td>$250,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Result (balance post renewal)</td>
<td>$750,000</td>
<td>$(180,000)</td>
<td>$320,000</td>
<td>$(250,000)</td>
<td>$95,000</td>
</tr>
<tr>
<td>Correct result</td>
<td>$500,000</td>
<td>$(25,000)</td>
<td>$475,000</td>
<td>$(250,000)</td>
<td>$95,000</td>
</tr>
<tr>
<td>Error (amount)</td>
<td>$(250,000)</td>
<td>$155,000</td>
<td>$155,000</td>
<td>$95,000</td>
<td></td>
</tr>
<tr>
<td>Error (%)</td>
<td>50.0%</td>
<td>620.0%</td>
<td>32.6%</td>
<td>0.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
To ensure the correct accounting treatment is adopted it is recommended:

- Expenditure be capitalised;
- Value of the asset be immediately reassessed after the completion of the work. This is to include consideration of both the gross replacement cost and the fair value; and
- Any difference between the new carrying amount and the new assessed value be immediately adjusted through de-recognition.

In reality the adjustment may result either in an increase in value or a decrement in value. There will also need to be consideration of materiality and whether to take the adjustments to the profit and loss report or via the asset revaluation reserve. In practice, many organisations argue that such adjustments are immaterial when compared to the overall asset base, and choose to revalue the entire class of assets at year end and take the net impact through to the asset revaluation reserve.

Irrespective of the approach adopted, the policy should be discussed with your auditor in advance and well documented.
Practical application
Overview

IAS 16 Property, Plant and Equipment defines fair value as:

*Fair value is the amount for which an asset could be exchanged between knowledgeable, willing parties in an arm’s length transaction.*

The standard further states:

*The fair value of land and buildings is usually determined from market-based evidence by appraisal that is normally undertaken by professionally qualified valuers. The fair value of items of plant and equipment is usually their market value determined by appraisal.*

*If there is no market-based evidence of fair value because of the specialised nature of the item of property, plant and equipment and the item is rarely sold, except as part of a continuing business, an entity may need to estimate fair value using an income or a depreciated replacement cost approach.*

On the face of it, fair value is an easy concept. However, in practice, especially with long-lived infrastructure assets, it becomes difficult to translate this concept into something meaningful. This is because public sector assets are often constructed but rarely sold. Additionally, the process involves a range of steps requiring detailed understanding of:

- Accounting standards and concepts
- Valuation standards and processes
- Engineering and construction
- Asset management and lifecycles
- Audit requirements

Undertaking a fair value valuation requires more than completing a range of calculations. It includes the development of a valuation framework and methodology which provides the rules to enable the valuation (and subsequent depreciation) to be completed in full compliance with IAS 16 Property, Plant and Equipment. The development of this framework is also an essential element in producing the disclosure requirements required under IAS 13 fair value.

The various steps involved in the process can be seen in the following diagram. A quick explanation is also provided for each major process. These processes are explained in greater detail under the fair value and depreciation sections that follow this section.

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59 IAS 16 Property, Plant and Equipment Definitions
60 IAS 16 Property, Plant and Equipment paragraphs 32 and 33
Valuation of assets decision tree

1. Identify and define assets by class
2. Develop and document valuation and depreciation policy and methodology (including condition, threshold, valuation basis, data hierarchy, etc...)
3. Determine whether the asset needs to be valued at market value, NPV or depreciated current replacement cost

Consumption of future economic benefit
- Identify the factors that drive the consumption of future economic benefit
- Determine the pattern of consumption
- Inspect and condition assess the assets (documents, photos, GPS, dimensions, etc) consider sample inspection
- Document audit evidence for each critical assumption
  - Pattern of consumption
  - Residual value
  - Consumption rating
  - Unit Rate
- Document and Sign Off the key assumptions used to finalise the valuation

Gross current replacement cost
- Determine GCRC for each component after adjusting for differences in utility
- Identify significant components (including sunk costs)
- Identify all costs and determine whether would reproduce or use modern equivalent

Design and build databases
- Build databases and tools incorporating methodology and assumptions to enable calculation of values, depreciation, etc

Complete the Valuation
- Based on factors and consumption scoring determine WDV for each component and sum at whole of asset level
- Review results for
  - Reasonableness
  - Errors
  - Assumptions
  - Completeness
- Produce final
  - Valuation report and certificate
  - Valuation calculations
  - Methodology and assumptions

Steps in “fair value” process

Depreciation
- Calculate ensuring
  - Matches pattern of consumption
  - Depreciates over useful life
  - Only depreciates the depreciable amount
  - Based on relevant factors
  - Supported by audit evidence

Annual reassessment
- Assess for changes in
  - Pattern of consumption
  - Unit rates
  - Useful life
  - Residual value
- Revalue or prospectively change depreciation

Year end audit
- Ensure sufficient and appropriate audit evidence is available to support
  - Valuation
  - Depreciation
  - Impairment testing

Net present value
Market value
Asset class level

As with any major project, it is critical to first undertake some analysis and develop a plan or strategy. If this is not done well the entity is exposed to significant risks including wasting resources, missing assets, adopting inappropriate methodologies and ultimately receiving a modified audit opinion.

The initial analysis should attempt to identify the different asset classes controlled by the entity and provide some materiality and risk assessment. This step is critical to identifying which asset classes should be valued at fair value and which ones should continue to be recognised at historical cost.

Most public sector entities control a range of assets. Typically this includes portfolios comprising major infrastructure which represent the bulk of the asset value but also include a large number of assets which individually are low in value. When combined, the low value assets may only represent five per cent of the total portfolio value. For these types of low value or short-lived assets it may be appropriate to adopt a policy stating that these assets are to be valued at historical cost. The reason being that even if they were valued at fair value the risk of material misstatement would remain very low and therefore the benefits of the exercise would not warrant the cost involved.

Having identified the asset classes to be valued at fair value a valuation methodology needs to be developed which addresses the key issues of IAS 16 Property, Plant and Equipment. For each asset class, the methodology should address:

- why the assets exist and the types used;
- general statistics on size and stratification of the portfolio;
- thresholds for:
  - capitalisation
  - revaluation;
- the basis of valuation (market, income or depreciated current replacement cost);
- the key components;
- how the gross replacement cost will be determined;
- the factors that drive the consumption of the asset;
- how those factors will be assessed or inspected;
- assumptions regarding the general pattern of consumption;
- the condition scoring process to enable objective measurement of the level of remaining service potential;
- how residual value will be determined; and
- how the WDV will be calculated using the above.

Individual asset level: choosing valuation basis

Within a class of assets there may be instances where individual assets may need to be valued on a different basis. The most common examples include land and buildings. Some land can be sold on an open and liquid market (market value) while other types of land cannot be, due to legislative or other restrictions. Likewise, residential buildings would normally be valued at market value, commercial buildings at either market value or the income approach and specialised buildings at depreciated current replacement cost.

This analysis can only be undertaken at the individual asset level and ideally should be assessed prior to the actual inspection.

If either the market value or net present value basis is chosen it may be necessary to seek assistance from a properly qualified expert. Consideration should be given to:

- The size and nature of the asset;
- The experience and expertise of internal staff;
- Access to market data;
- Whether the asset is inherently linked to land (in which case a valuer is required); and
- Complexity of detailed economic calculations and methodology.

Registered valuers with RICS (Royal Institute of Chartered Surveyors) or equivalent qualifications would normally be employed to undertake the valuation of land and buildings using the market value basis or commercial buildings based on the income approach.

The valuation of cash generating units (CGU) using the income (DCF or net present value (NPV)) approach would normally be undertaken by accountants or appropriately experienced valuers. Often these types of valuations are undertaken by internal staff with expert assistance provided by external experts.

Gross current replacement cost

This part of the process involves three key tasks:

- assessing whether, if the asset was partly or wholly destroyed, you would reproduce it or replace with a
modern equivalent. This also involves consideration as to whether the asset is surplus to needs in which case you would choose not to replace it at all;

• identification of the components. Each component must be significant and separable, have a different useful life and/or pattern of consumption and may include a range of sunk costs. In some cases the components may be more in number than technically required due to the needs to feed into the asset management planning process; and

• determining the gross current replacement cost of the existing asset. This requires adjusting between the difference in utility between the existing asset and its modern equivalent. This step is often overlooked.

**Consumption of future economic benefit**

This phase is the most critical of all the phases and, unfortunately is the phase most often overlooked. The key requirement of IAS 16 Property, Plant and Equipment is to identify the level of remaining service potential so that the fair value can be calculated.

In order to do so there are a number of steps that must be undertaken. These include:

• Identifying the factors that drive the consumption of the future economic benefit. This analysis is obviously critical to the asset management planning process as well. If you don’t understand how your assets are consumed and the factors that drive the consumption you will not be in a position to make an informed decision regarding future asset management strategies or be able to measure the level of remaining service potential and at what rate the service potential is being consumed.

• Determine the pattern of consumption. IAS 16 Property, Plant and Equipment states that you must choose a pattern that reflects the expected pattern of consumption. In order to do so you need to understand the factors that drive consumption and how they impact on the asset at different phases of the asset’s lifecycle.

> Straight-line depreciation results in a constant charge over the useful life if the asset’s residual value does not change. The diminishing balance method results in a decreasing charge over the useful life. The units of production method results in a charge based on the expected use or output. The entity selects the method that most closely reflects the expected pattern of consumption of the future economic benefits embodied in the asset. That method is applied consistently from period to period unless there is a change in the expected pattern of consumption of those future economic benefits. 62

• Inspect and condition assess the assets. This would normally include recording condition assessments, key details as well as photos, GPS co-ordinates and may even include recording maintenance requirements. For some asset classes (for example, buildings) it would be appropriate to inspect every (or almost every) asset, whereas for other asset classes (for example, roads and underground assets) it may be more appropriate to use a sampling approach and rely on engineering data.

• Document the audit evidence for each critical assumption. Auditors are required to obtain sufficient and appropriate audit evidence and cannot just rely on the fact that the inspection was undertaken by an external expert. You will need to provide sufficient and appropriate evidence to support the critical assumptions. This will primarily be provided at an asset class or asset type level but in some cases (and for condition) will need to be provided at the individual asset or component level. The key assumptions include:
  - Pattern of consumption
  - Residual value
  - Condition rating
  - Unit rates

• Document and sign off the key assumptions. Irrespective of whether the valuation is undertaken by an internal team or external expert the auditors will expect that there has been some form of quality assurance exercised over the project. The key assumptions should be documented and reviewed and signed off by both the valuation team and the reviewer as being appropriate based on their understanding of how the assets are consumed and their condition as at balance date.

**Design and build databases**

This task is commonly one of the largest costs associated with the fair value process but often is overlooked because of the hidden costs involved and the range of staff involved in the process. Due to the unique nature of the various assets controlled by public sector entities it is not
uncommon to find the valuations completed on not less than fifteen or more different databases or spreadsheets (which have their own risks) across the organisation.

In addition, these calculations are often completed on data sets that were originally taken from existing asset registers but over time no longer reconcile to the official asset register. Significant resources are used to firstly create the various databases (by different people and sections) which also involve trying to understand the valuation process, identify data needs and develop methodologies from scratch. As a result significant resources are wasted by people without the right experience or expertise trying to re-invent the wheel from a position of low knowledge. In addition to this financial risk it also exposes the entity to the risk of investing in a non-compliant methodology and approach which ultimately leads to increased audit risk.

Once developed, the databases then need to be maintained from year to year and continually reconciled to the official asset registers. When key staff move organisations or roles this leads to an increased level of inefficiency. As a result care needs to be taken to manage the risks associated with this part of the process. Due consideration needs to be given the various implementation and delivery options.

**Completing the valuation**

Having captured the necessary data the process now turns to completing the calculations and producing the valuations. This involves:

- Using the various data collected (specifications, condition, assumptions) to estimate the level of remaining service potential and apply against the gross current replacement cost to calculate the WDV. This needs to be done at the component level and then summed together to arrive at an overall fair value for the individual asset.

- Reviewing the data (as part of a Quality Assurance process) for obvious errors, proper application of the assumptions and completeness of the data. It is advisable that this process be documented and signed off as a form of audit evidence.

- Producing the final valuation output. This would include:
  - a valuation report setting out methodology, key assumptions, process and of course final results;
  - valuation details for individual assets. This is typically provided to the auditors in spreadsheet form setting out key data, specifications, condition scores, unit rates, key assumptions, etc to enable audit testing and verification against the account balance in the general ledger. Alternatively the auditors may be provided with online access to the valuation system;
  - a final version of all methodologies and policies signed off by appropriate officers; and
  - an auditors’ package setting out key aspects of the methodology and approach, key assumptions and any other information addressing the audit assertions (e.g. experience and expertise of the valuer).

**Year end aspects**

Revaluations are normally undertaken at the end of financial year but may also be undertaken at the beginning or during the financial year. Irrespective of this the accounting standards and audit requirements require a number of process be undertaken (and documented) at the end of each year. These include:

- Calculating depreciation, ensuring full compliance with IAS 16 Property, Plant and Equipment. In particular ensuring that the depreciation method:
  - matches the pattern of consumption;
  - depreciates over the useful life;
  - only depreciates the depreciable amount (not residual value);
  - is based on the relevant factors; and
  - is supported by sufficient and appropriate audit evidence.

- Annual reassessment of key assumptions. This depends on the effect of changes in either adjusting the valuation and/or prospectively changing the depreciation rate. The standards mandate a year end reassessment of:
  - unit rates;
  - pattern of consumption;
  - useful life and remaining useful life;
  - residual value; and
  - condition scores (as they affect WDV).

- **Year end audit.** The key aspect is ensuring there is sufficient and appropriate evidence to support the valuation, depreciation and impairment testing requirements.
**Requirements**

IAS 16 Property, Plant and Equipment outlines three methods of determining fair value. Where there is:

- an active and liquid market, use market value;
- observable market evidence (for example, current market rents), use income (NPV / DCF); or
- no market evidence, use depreciated current replacement cost (CRC).

This also seems fairly simple. However, this is often where critical mistakes are made. For example, entities may opt to value land or commercial assets on the basis of NPV/DCF because they are generating a revenue stream. While this may appear to be appropriate, in some circumstances it may be incorrect. Consideration needs to be given to factors such as whether the revenue stream represents true market rates or is constrained by other factors such as regulatory pricing, subsidies or community service obligations.

Prior to determining the fair value it is critical to identify the nature and extent of the asset being valued. This includes an understanding of what future economic benefits the asset delivers.

For example, some entities have commercialised business units that are set up to provide essential services to the community, but in a commercially oriented way. A good example is a water business that provides water to rate payers on behalf of a council and in return is expected to produce a return on assets and provide a dividend back to the council. These are often referred to as cash generating units.

For some entities like this, the primary objective of the business unit is to generate income whereas for others it is to provide the essential service to the community. In the first instance the future economic benefit is the generation of cash and therefore there exists market evidence of the value of the asset. In this instance, the fair value would be determined based on the calculation of the net present values. In the second instance, the future economic benefit embodied in the asset includes a level of intrinsic value associated with ensuring the community is afforded essential services. The generation of cash is a secondary (albeit important) objective. However, even if the business unit could not generate a profit the entity would continue to provide the service due to its over-riding public benefit objective. In this instance, the fair value would be determined by determining the depreciated current replacement cost.

In these circumstances it is important that the drivers are properly identified and documented in an appropriate policy. The valuation basis should be specified in the non-current assets policy.

In terms of the standard the following fair value decision tree provides an overview of the process as specified by IAS 16 Property, Plant and Equipment.
Figure 12: Fair value decision tree

IAS16 property, plant and equipment

Valuation of assets decision tree

As at 13 April 2012

Current market selling price at highest and best use

Determine market selling price at highest and best use by adjusting for differences in service potential, condition or other relevant factors

Determine NPV of the cashflows by using DCF etc

Is there and **active and liquid market?**

Are there current market selling prices or recent transaction prices for similar assets?

Is there other evidence of market value?

---

**Depreciated current replacement cost**

Choose reproduction or modern equivalent?

Identify all costs

Split complex assets into **components**

Determine gross cost for each component

Adjust for **differences in service potential** of modern equivalent

Determine value of **remaining service potential**

Sum the components

Fair value

---

Is the amount calculated above greater than the value in use calculated in accordance with IAS36? (**refer impairment decision tree**)

**Revalued amount =**

- **Fair value** (No impairment)
- **Value in use** (Impairment loss)
Market value approach

The market value basis should only be used where there is an active and liquid market (such as for residential property or motor vehicles) or there is existing market evidence for the sale of similar assets. The basis can either be direct market evidence or indirect methods and may even include the use of an income approach to support the valuation.

If the asset is fundamentally tied to land and can only be sold in conjunction with the land, the asset must normally be valued by an appropriately qualified valuer. Depending on the jurisdiction the valuer would be appropriately registered under legislation and be members of a recognised professional body such as the Royal Institute of Chartered Surveyors (RICS).

Market value is normally determined by comparison to actual sales data for the same or similar assets. The valuer would normally identify a range of similar assets, adjust for differences in the assets, location, market, and the timing of the sales, and provide a professional judgement of the expected value.

Reference may also be made to appropriate cost guides which provide industry or sector data on sales prices achieved for specific asset types. Examples include used motor vehicle price guides.

The evidence to support the valuation needs to be documented and made available to the auditor to enable the auditor to obtain sufficient and appropriate audit evidence. The approach taken also needs to be disclosed in accordance with IFRS 13 Fair Value.

Income approach

These are used for assets where the value is dependent on the asset’s cash generating capability. Often they include commercial buildings and business operations.

The process to determine fair value based on the NPV or DCF approach has not been covered in this guide. Where such assets exist guidance should be obtained from an appropriate expert such as a valuer or accountant.

Present value techniques

B12 Paragraphs B13–B30 describe the use of present value techniques to measure fair value. Those paragraphs focus on a discount rate adjustment technique and an expected cash flow (expected present value) technique. Those paragraphs neither prescribe the use of a single specific present value technique nor limit the use of present value techniques to measure fair value to the techniques discussed. The present value technique used to measure fair value will depend on facts and circumstances specific to the asset or liability being measured (e.g. whether prices for comparable assets or liabilities can be observed in the market) and the availability of sufficient data.

The components of a present value measurement

B13 Present value (i.e. an application of the income approach) is a tool used to link future amounts (e.g. cash flows or values) to a present amount using a discount rate. A fair value measurement of an asset or a liability using a present value technique captures all the following elements from the perspective of market participants at the measurement date:

(a) an estimate of future cash flows for the asset or liability being measured.

(b) expectations about possible variations in the amount and timing of the cash flows representing the uncertainty inherent in the cash flows.

(c) the time value of money, represented by the rate on risk-free monetary assets that have maturity dates or durations that coincide with the period covered by the cash flows and pose neither uncertainty in timing nor risk of default to the holder (i.e. a risk-free interest rate).

(d) the price for bearing the uncertainty inherent in the cash flows (i.e. a risk premium).

(e) other factors that market participants would take into account in the circumstances.

(f) for a liability, the non-performance risk relating to that liability, including the entity’s (i.e. the obligor’s) own credit risk.

General principles

B14 Present value techniques differ in how they capture the elements in paragraph B13. However, all the following general principles govern the application of any present value technique used to measure fair value:

(a) Cash flows and discount rates should reflect assumptions that market participants would use when pricing the asset or liability.

(b) Cash flows and discount rates should take into account only the factors attributable to the asset or liability being measured.
(c) To avoid double-counting or omitting the effects of risk factors, discount rates should reflect assumptions that are consistent with those inherent in the cash flows. For example, a discount rate that reflects the uncertainty in expectations about future defaults is appropriate if using contractual cash flows of a loan (i.e. a discount rate adjustment technique). That same rate should not be used if using expected (i.e. probability-weighted) cash flows (i.e. an expected present value technique) because the expected cash flows already reflect assumptions about the uncertainty in future defaults; instead, a discount rate that is commensurate with the risk inherent in the expected cash flows should be used.

(d) Assumptions about cash flows and discount rates should be internally consistent. For example, nominal cash flows, which include the effect of inflation, should be discounted at a rate that includes the effect of inflation. The nominal risk-free interest rate includes the effect of inflation. Real cash flows, which exclude the effect of inflation, should be discounted at a rate that excludes the effect of inflation. Similarly, after-tax cash flows should be discounted using an after-tax discount rate. Pre-tax cash flows should be discounted at a rate consistent with those cash flows.

(e) Discount rates should be consistent with the underlying economic factors of the currency in which the cash flows are denominated.  

Further guidance on the various Income approaches are provided in IFRS 13 Fair Value

Cost approach

The bulk of assets controlled by public sector entities would typically be valued using the cost approach. This approach is commonly referred to as the depreciated current replacement cost (DCRC) basis.

In addition to obvious assets like specialised buildings and infrastructure (roads, bridges, water infrastructure, stormwater and marine protection walls) this should also be used for assets such as land where there is no active and liquid market (for example, parks). In the case of land it is important that it only be valued by an appropriately qualified valuer, as most jurisdictions have legislation making it illegal for anyone other than a registered valuer/surveyor to provide a value for land.

To understand the process reference should be made to the fair value decision tree and the steps in fair value process included previously.

The following provides greater guidance regarding some specific issues.

Inability to sell does not mean low value

Where no market evidence exists, the asset is to be valued on what it would cost to acquire the asset. In an active and liquid market both the amount to be realised upon sale and cost to acquire would be the same. However, when there is no such market the approach is fundamentally different. Rather than estimating what you receive from sale of the asset, IAS 16 Property, Plant and Equipment requires an estimate of what it would cost you to acquire the assets (replacement cost).

The fact that these assets are generally not traded on an open market or may be zoned in such a way that they cannot be used for any other purpose does not reduce the service potential of the asset. The cost of acquisition basis measures what it would cost to acquire the asset not what you could sell it for.

If, however, the restricted land was now to be sold it would need to be valued under IAS 5 Assets Held for Sale and Discontinuing Operations at market value which would probably be significantly lower than the fair value. This highlights that market value does not necessarily equal fair value. It should only be used to determine fair value when there is an open and liquid market.

For example, public sector entities often acquire green space by purchasing freehold land at market value. They then rezone or place restrictions on that land that result in the land being unable to be sold or developed in the future and in turn would significantly reduce its market value. In this situation, the limitation on development does not reduce the service potential of the asset but instead increases it as the land and its environmental and social benefits are now protected for future generations. Its fair value is the estimate of what it would cost to acquire the asset. That is, the market value of freehold land with similar characteristics.

Assets surplus to needs

Sometimes entities hold assets that are surplus to their needs. They are not used in any way to deliver outcomes for the organisation. Generally efforts would be made to dispose of these assets and would be accounted for in accordance with IFRS 5 Non-Current Assets Held for Sale and Discontinued Operations.
However, the nature of some of these assets is such that the entity is unable to dispose of the assets other than through demolition or possible sale of scrap materials. In these situations, the assets exhibit signs of impairment and should either be written down to the recoverable amount under IAS 36 Impairment of Assets or revalued to fair value under IAS 16 Property, Plant and Equipment to reflect the very low level of remaining service potential.

These assets are considered surplus to needs and the service potential embodied within the asset is limited to what could be generated either by sale as is, through sale or re-use of scrap material following demolition.

Reproduction or modern equivalent
Determining depreciated current replacement cost depends on whether replacement with a modern equivalent asset or reproduction is the more likely way of replacing the asset’s service potential. An entity’s management might choose the less economical means (due to subjective factors), in which case the intended method of replacement would form the basis of estimating depreciated current replacement costs.

However, this does not mean the existence of a less expensive modern equivalent necessarily means the value of the modern equivalent should be used.

For example, an entity may have an old lighthouse constructed of stone. It could replace this asset with a solar panel-powered light on top of a steel pole at considerably less cost than reproducing it using original construction techniques and materials. The entity may, however, choose that if it were severely damaged, it would reproduce the asset rather than replace it with the modern equivalent. This reflects that the service potential of the asset embodies more than its originally designed function. It may include intrinsic value such as heritage value or economic value to the community through tourism, etc. In this instance the current replacement cost would be based on the reproduction of the asset and not the modern (less costly) equivalent. This is because the modern equivalent does not provide the same level of future economic benefit.

Identification of all costs to be valued
The standards require all costs to be included in the valuation. This may include a range of costs that may not be immediately apparent. IAS 16 Property, Plant and Equipment states, that total cost includes:

- purchase price including duties and taxes after deducting trade discounts and rebates;
- any costs directly attributable to bringing it to operation;
- initial estimates of dismantling or rehabilitation where an obligation exists.

Examples include:

- Sunk costs (originally incurred but never to be repeated. For example, making a cutting in the side of a mountain)
- Reacquisition or reconstruction costs (based on likely method used to reconstruct or acquire assets)
- Third party costs (compensation or reconstruction of assets controlled by third party. For example, relocation of a third party’s infrastructure to construct a dam, or reconstruction of road belonging to a third party so you can replace pipes running underneath)

However, when valuing pipes that run under road when it would require destruction and later reconstruction of the road to undertake renewal of the pipes, it would exclude the cost to reconstruct a road where the road was also controlled by the entity. Alternatively, these costs would be included if the road was controlled by a third party. In the first scenario, inclusion of the road reconstruction costs would result in double counting and the internal transaction would require elimination.

Some entities adopt policies requirement either a greenfield or brownfield approach. These terms are engineering terms and are not mentioned or defined in any of the associated accounting literature. Depending upon the circumstances of the specific asset being valued, either approach may produce the correct result but both may also be incorrect. Accordingly any reference to these approaches is not recommended.

Componentisation
IAS 16 Property, Plant and Equipment requires that where a complex asset comprises a number of separate and significant components that have different useful lives, those components must be accounted for and depreciated separately. This requirement supports the asset management function in that assets are managed from an asset management perspective at the component level. For example, roads would generally be split into formation, pavement and seal. Buildings would normally be split into floor, envelope, roof, floor coverings, fit-out and various services.

Sunk costs, such as some types of earthworks, design costs and even third party compensation, may form a separate component depending upon the nature of how their service potential is consumed.
Determine gross replacement cost for each component

For each component, an estimate is required of what it would cost to replace or reconstruct at either reproduction or use of a modern equivalent. Sometimes this is straightforward (like-for-like) but may be difficult due to changing technologies or in relation to costs only incurred when the asset was originally acquired. (For example, compensation to third parties to relocate their assets).

The basis for calculating the gross replacement cost will also vary depending upon the nature of the asset. For some assets it may be as simple as length or area by a rate whereas for others there may need to be apportionment of total costs across components after allowing for differences in quality and materials.

If the modern equivalent is chosen for the reference, asset allowance must also be made to adjust for the differences in utility between the existing asset and the modern equivalent.

With changing technology and practices, it is often the case that the modern equivalent is designed or constructed differently or from different materials than the existing asset or has a different capacity or longer lifecycle. These differences represent differences in the total service potential of the existing asset and the modern equivalent.

For example, an existing four-metre wide road may now be replaced with a six-metre wide road. While both transport cars from A to B they have different costs and deliver differing levels of service potential. The wider road may allow increased traffic speed, aesthetics and safety.

The difference in service potential between the existing asset and the modern equivalent needs to be adjusted so that the gross cost represents the value of the total service potential embodied in the existing asset and not what it would be replaced with. This adjustment requires considerable professional judgement and the reasons for the adjustment need to be well documented.

Determine value of remaining service potential (WDV)

This is the fundamental and most critical requirement of IAS, 16 Property, Plant and Equipment. Unfortunately, it is often the part of the process which receives the least amount of effort. Entities may spend significant funds engaging external experts to determine the gross current replacement cost but then use simplistic and quick methods to calculate the WDV.

Critical to this step is an understanding of:

- how the assets are to be accounted for at the components level;
- the treatment of costs subsequent to initial acquisition;
- the factors that drive the consumption of the asset’s service potential;
- the nature of how the assets service potential is consumed; and
- the pattern in which the service potential is consumed.

Assets valued on the current replacement cost basis are generally complex assets and maintained through ongoing cyclical maintenance for an indefinite period of time in order to deliver outcomes at a service level that meets the community’s needs. This pattern can be represented graphically as shown in the attached diagram.

Figure 13: Cyclical maintenance assets

Lifecycle continually extended through regular renewal

Simply converting the gross cost to WDV by the use of straight-line depreciation based on long-term and subjective assumptions may result in material error in the calculation of the WDV with corresponding material error in the calculation of depreciation expense. This can also be graphically represented as follows:

Figure 14: Risk of applying incorrect pattern of consumption

Written down value to be based on level of remaining service potential

Pattern used (constant) does not reflect actual pattern of consumption

Material misstatement of value of remaining service potential (WDV)
It is critical that the entity gain an understanding of their assets, how they are consumed and the factors that drive the consumption. Having gained this understanding, they then need to develop and implement a methodology that complies in all respects with IAS 16 Property, Plant and Equipment and enables the determination of the level of remaining service potential.

There is a myriad of approaches commonly used throughout the world to achieve this with the best methods closely linked to asset management frameworks. Depending on the asset class this may include either:

- traditional methods such as straight-line (typically most appropriate for short life assets);
- consumption based depreciation models (such as incorporated in a range of propriety valuation systems and asset management systems); or
- condition based depreciation models (typically used in propriety pavement management systems).

**Sum the components**

While the value and depreciation are calculated at the component level, these are then added together to provide the WDV for the individual asset. Future depreciation charges are to be calculated based on the pattern of consumption of the separate components and not the WDV of the total asset.

**Comparison to recoverable amount (impairment test)**

The final step in the process is to compare the carrying amount (cost or fair value) with the recoverable amount calculated under the impairment test (IAS 36). If the carrying amount (cost or fair value) is greater than the recoverable amount, the revalued amount is deemed to be the recoverable amount (impaired value).

For public sector entities who value fair value on the cost approach (provided the fair value is kept up to date by annual revaluation) the recoverable amount by definition will always be the fair value. This is because the recoverable amount is the greater of the value in use (equal to DCRC or fair value) and fair value less cost to sell. This can best be seen diagrammatically in the IAS 36 impairment of assets decision tree.
Depreciation: practical issues

Requirements

Depreciation is defined in IAS 16 Property, Plant and Equipment as:

*Depreciation is the systematic allocation of the depreciable amount of an asset over its useful life.*

Key paragraphs of IAS 16 Property, Plant and Equipment include:

43 Each part of an item of Property, Plant and Equipment with a cost that is significant in relation to the total cost of the item shall be depreciated separately.

50 The depreciable amount of an asset shall be allocated on a systematic basis over its useful life.

51 The residual value and the useful life of an asset shall be reviewed at least at each financial year-end and, if expectations differ from previous estimates, the change(s) shall be accounted for as a change in an accounting estimate in accordance with IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors.

60 The depreciation method used shall reflect the pattern in which the asset’s future economic benefits are expected to be consumed by the entity.

61 The depreciation method applied to an asset shall be reviewed at least at each financial year-end and, if there has been a significant change in the expected pattern of consumption of the future economic benefits embodied in the asset, the method shall be changed to reflect the changed pattern. Such a change shall be accounted for as a change in an accounting estimate in accordance with IAS 68.

The purpose of depreciation is to record the value (or cost) of the asset that has been consumed during the accounting period so that users of the financial statements can discern information about the council’s assets and the performance of the assets. Its purpose is solely that of a key performance indicator reported in the financial statements and is not intended for any other purpose.

Some entities have attempted to use depreciation for purposes other than as a measure of the value of the asset consumed during the year. For example, in the absence of a robust asset management plan and long-term financial plan many have used the figure as either:

- a de facto measure of the amount of future funding required to replace the existing asset (future funding needs); or
- a mechanism to set user charges or rates (budgeting) based on fully funding depreciation.

However, there is no direct relationship between depreciation and either future funding needs or as a rate-setting mechanism. Given the significant investment by public sector entities (such as local governments) in infrastructure assets and the associated proportion of total council funds allocated to the operation and maintenance of these assets, it is imperative that appropriate systems be put in place to better estimate the requirements for future funding needs (that is, asset replacement and renewal) and the true cost to provide (and therefore charge equitably) services to the community using the assets. This achieved by the development of a robust asset management framework.

When determining the fair value of an asset the objective of the valuer is to calculate the value of the remaining level of future economic benefit (or service potential) embodied within the asset. Depending upon the most likely scenario the fair value would be calculated after considering whether the asset would be reproduced or replaced with a modern equivalent. This choice provides an insight into the service potential delivered by the asset and hence how that service potential is consumed.

Depreciation expense is then calculated to estimate the amount of service potential that is expected to be consumed within the next 12 months.

The process and requirements can be demonstrated in the depreciation decision tree shown on the following page.
Identify the nature of the service potential provided by the asset. e.g. Units of output, economic, social environmental, heritage

Identify whether asset is subject the cyclical maintenance or not

Does the asset have significant components with different patterns of consumption?

No - non complex asset
   Calculate depreciation for asset as a whole

Yes - complex asset
   Calculate depreciation for each component

Identify the factors that drive the consumption e.g. Age, physical condition, functionality, utilisation, obsolescence, capacity, safety, etc

Determine the pattern of consumption e.g. Consistent, increasing, decreasing, variable

Determine the residual value and calculate the depreciable amount (gross less residual value)

Determine the useful life and RUL

Has either pattern of consumption, residual value or useful life change from previous year?

No - apply depreciation methodology

Yes - either - revalue entire class of asset applying new assumptions or adjust assumptions ensuring changes are prospective and not retrospective (i.e. Open WDV remains same)

Does the depreciation methodology -
   - Match the pattern of consumption
   - Only depreciate the depreciable amount
   - Depreciate over the useful life in a systematic way

Does the method -
   - Calculate depreciation by reference to the depreciable amount
   - Include allowance for technical or commercial obsolescence
   - Treat maintenance and capital in accordance with IAS16
   - Not use the renewal annuity approach
   - Calculate depreciation separately for significant components

Reconsider whether a different depreciation method approach maybe more appropriate

Can the critical assumptions used be supported by sufficient and appropriate audit evidence?

Non compliant methodology

Fully compliant methodology

Australia UIG 1030

Yes

No

Input

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Choosing the appropriate method

Providing the depreciation method complies with the requirements of IAS 16 Property, Plant and Equipment, any method of depreciation can be employed. However, care needs to be taken to ensure all aspects of IAS 16 Property, Plant and Equipment (and any other prescribed requirements) are complied with including:

- Method must match pattern of consumption.
- Where the asset has a number of different components with varying patterns of consumption, each component is to be depreciated separately.
- Depreciation is to be calculated on a systematic basis over its useful life.
- A residual value needs to be determined and must not be depreciated.

As a minimum, the pattern of consumption, useful life and residual value need to be reassessed at year end, and the depreciation method adjusted if there are any significant changes. Under IAS 36 Impairment and IAS 16 Property, Plant and Equipment there also needs to be a review of the relative price movement in gross cost (such as an index) and condition of the asset along with the depreciation assumptions to determine whether the carrying amount differs significantly from the fair value.

Some jurisdictions (such as Australia) have provided further guidance through Urgent Issues Group Interpretations. Australia’s UIG 1030 Depreciation of Long-Lived Physical Assets: Condition-Based Depreciation and Related Methods states that the method must ensure:

- depreciation is calculated by reference to the depreciable amount;
- appropriate consideration is given to technical and commercial obsolescence;
- maintenance and capital expenditure are separately identified and accounted for in accordance with AASB 116 (the equivalent of IAS 16);
- the renewals annuity method is not used; and
- depreciation is calculated separately for each component.

Additionally, as the final results need to withstand an extensive audit process, consideration needs to be given to ensure that the auditors will be able to obtain sufficient and appropriate evidence with respect to the critical assumptions adopted within the methodology and that the methodology is logical and consistent with the entity’s understanding of how the asset’s service potential is consumed.

This includes assumptions such as:

- The pattern of consumption
- Useful life
- Residual value
- Depreciable amount

These aspects are discussed in greater detail in the following pages. IAS 16 Property, Plant and Equipment requires that:

The entity selects the method that most closely reflects the expected pattern of consumption of the future economic benefits embodied in the asset. That method is applied consistently from period to period unless there is a change in the expected pattern of consumption of those future economic benefits.

Common methods adopted by public sector entities include the following:
Table 10: Common depreciation methods

<table>
<thead>
<tr>
<th>Straight-Line</th>
<th>Condition Based Depreciation</th>
<th>Consumption Based Depreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factors used:</td>
<td>Factors used:</td>
<td>Factors used:</td>
</tr>
<tr>
<td>Age only</td>
<td>Physical condition</td>
<td>Holistic and component specific factors</td>
</tr>
<tr>
<td></td>
<td>Typically uses actual age plus RUL to calculate a total useful life.</td>
<td>Considers factors such as functionality, capacity, utilisation, obsolescence, etc at the whole of asset level. Then takes into account the physical condition and repair and maintenance history of the asset to determine the level of remaining service potential. A matrix is created to link the level of service to the valuation and depreciation.</td>
</tr>
<tr>
<td></td>
<td>WDV is then determined by (RUL/total life) – residual.</td>
<td>Closely linked to asset management frameworks. Usually integrated into propriety valuation or asset management systems.</td>
</tr>
<tr>
<td></td>
<td>If applied correctly this method is good for assets with a short and predictable useful life. However for long lived cyclical maintenance assets it is often incorrectly applied resulting in material misstatement. Care needs to be taken to ensure the critical assumptions reflect the asset lifecycle.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One issue with these methods is that they focus on physical deterioration and may not necessarily take into account obsolescence.</td>
<td></td>
</tr>
</tbody>
</table>

The risk of using incorrect assumptions

Even if the correct depreciation method is used to ensure the correct pattern of consumption and other factors are properly taken into account, there is a risk of material misstatement if incorrect assumptions are used.

This is demonstrated in the following example. For the purpose of the exercise we have assumed that the pattern of consumption is constant and therefore it is appropriate to use the straight-line method.

The following formulas are used to calculated the WDV and depreciation.

$$WDV = \frac{RUL}{useful\ life} \times (gross\ cost - residual\ value) + residual\ value$$

where

$$RUL = useful\ life - age\ depreciation\ expense = either$$

$$\frac{(gross\ cost - residual\ value)}{useful\ life} \ or \ \frac{(WDV - residual\ value)}{RUL}$$

While there is nothing fundamentally wrong with this calculation providing the pattern of consumption is considered to be constant over the useful life, the example shows that it can easily be incorrectly applied for cyclical maintenance assets resulting in significant and material misstatement. To just assume straight-line is appropriate is extremely risky as there are many ways in which the same formula can be used to result in materially different results.

Irrespective of the method used, it is vitally important to understand whether the approach adopted uses the relevant information and results in the right answer.

The following example demonstrates that, irrespective of which depreciation method you adopt:

- the same method can be applied in different ways if based on different assumptions;
- any approach that does not reflect the asset lifecycle can easily lead to material misstatement;
- using a simple approach might be quick and easy but may lead to very poor outcomes; and
- if your approach is flawed there is a high risk that your financial statements will also be materially incorrect.

This example shows how the same facts can be interpreted differently (even when they all use straight-line) to produce materially different results for both valuation and depreciation.

Example: different application of straight-line depreciation

To keep things simple we will assume that the gross value of the asset remains unchanged over time so that the

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66 APV Valuers and Asset Management Technical Information Sheet (www.apv.net)
resulting differences can be seen to be attributable purely to different straight-line approaches. The task is to determine the WDV (fair value) and depreciation expense.

The basic assumptions are:

- Gross value: $100,000
- Date of original commissioning: 40 years ago
- Original assumptions: 45 year useful life (UL) with zero residual value
- Based on current condition assessment, the RUL is estimated at 30 years

Some additional information is provided for various approaches as shown below.

Option 1. This is one of the most common approaches adopted. It applies the standard formula (age + RUL = UL) and assumes a zero RV. The result is $(40 + 30) = 70$-year useful life. WDV = 30/70 x 100,000 = 42,857 WDV and depreciation of $42,857 / 30 = $1,429.

Option 2. This option takes into account additional information provided by the asset management system which indicates the asset was last renewed 10 years ago. As a result it assumes the age is only 10 years and therefore useful life = 40 (10 + 30). This is also quite a common approach. The result is 30/40 x 100,000 = $75,000 WDV and depreciation of $75,000 / 30 = $2,500 per year.

Option 3. This option is occasionally used by in-house and external engineers and built into a number of common engineering modelling tools. It also uses additional information based on the asset management practices of the entity. It is based on the fact that the asset was commissioned 40 years ago but based on predictive models estimates that the asset will be renewed in 5 years time at a cost of 50,000. As a result it assumes a RV of $50,000 and useful life of 45 (40 + 5). The result is 5/45 x ($100,000-$50,000) + $50,000 = $60,000 WDV and depreciation of ($60,000 - $50,000)/ 5 = $2,000 per year.

Option 5. This is based on the original design life assumptions and is commonly applied in financial systems where the annual assessments (required by IAS16) are not properly performed and actioned. It is also often argued by practitioners that the asset’s design life is maintained through maintenance so the useful life should remain unchanged. As a result it assumes a RV of zero and useful life of 45. The result is 5/45 x $100,000 = $11,111 WDV. Depreciation of $11,111/5 = $2,222 per year.

Option 6. This is very similar to option 5 but the condition assessment (30 years RUL) is used to determine the WDV. This is probably the second most common form of the calculation. It assumes a RV of zero and because the useful life is assumed to be 45 years and RUL has now been assessed as 30 years. The actual age to date is assumed to be only 15 years old. The result is 30/45 x $100,000 = $66,667 WDV and depreciation of $66,667/30 = $2,222 per year.

It should be stressed that each of the above calculations is based on fact. The only difference is which facts are used to undertake the straight-line calculation. Typically the calculation is based on the data that is most easily accessible and held within the asset register, and therefore there is a risk that only the easily accessible facts are used rather than taking into account all the relevant factors.

The following graph provides a graphical representation of each approach.

**Figure 17: Impact of alternative straight-line approaches**

Questions remain, however, namely:

- Which approach is correct?
Whether or not the incorrect application will result in material misstatement and therefore should result in an audit qualification?

In this case Option 4 ($60,000 WDV and $2,000 depreciation expense) produces the correct result. To enable analysis of the different approaches the following actual data was used to determine each calculation. You will see that each approach was based on fact. It’s just that some approaches relied on different pieces of information. Each of the alternative approaches is also shown in the following graph.

<table>
<thead>
<tr>
<th>Year</th>
<th>Depreciation (before renewal)</th>
<th>Addition</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>$100,000</td>
<td>$100,000</td>
</tr>
<tr>
<td>5</td>
<td>($10,000)</td>
<td>$90,000</td>
<td>$90,000</td>
</tr>
<tr>
<td>10</td>
<td>($10,000)</td>
<td>$80,000</td>
<td>$80,000</td>
</tr>
<tr>
<td>15</td>
<td>($10,000)</td>
<td>$70,000</td>
<td>$20,000</td>
</tr>
<tr>
<td>20</td>
<td>($10,000)</td>
<td>$80,000</td>
<td>$80,000</td>
</tr>
<tr>
<td>25</td>
<td>($10,000)</td>
<td>$70,000</td>
<td>$70,000</td>
</tr>
<tr>
<td>30</td>
<td>($10,000)</td>
<td>$60,000</td>
<td>$20,000</td>
</tr>
<tr>
<td>35</td>
<td>($10,000)</td>
<td>$70,000</td>
<td>$70,000</td>
</tr>
<tr>
<td>40</td>
<td>($10,000)</td>
<td>$60,000</td>
<td>$60,000</td>
</tr>
<tr>
<td>45</td>
<td>($10,000)</td>
<td>$50,000</td>
<td>$50,000</td>
</tr>
</tbody>
</table>

The use of different assumptions, whilst using the same methodology, results in significantly different results for the fair value (WDV) and depreciation expense calculations. The question of materiality needs to be assessed by the auditor. However given the impact of the valuation and depreciation of infrastructure assets on the financial statements of asset intensive public sector entities it is likely that if the most common (and easiest) approaches were adopted the financial statements would have been materially misstated.

Choosing the right depreciation method

The use of different depreciation methodologies will result in different impacts on the financial statements both in the current year as well as over the life of the asset. Ultimately it is the responsibility of the entity to determine how it depreciates its assets but of course reference must be made back to the requirements of IAS 16 Property, Plant and Equipment.

There is no one best method that should be applied across all assets. To be successful, the method must be cost effective and must reflect the pattern of consumption of the asset’s service potential so as to enable the users of the financial statements to make sound economic decisions.

The purpose of the financial statements is to provide the general purpose users with information about the current financial status of the council and its performance during the past 12 months. It is therefore critical that the statements reflect a true and fair view of the value of the assets as well as the amount of loss of value the entity expects to experience in the next 12 months via consumption (depreciation).

For an individual asset, if the rate of consumption is expected to be greater than the previous year, the depreciation method employed should also reflect an increase in the rate of consumption. If the rate of consumption is expected to be constant till the end of life, the adoption of a straight-line method would be appropriate.

When selecting the best method to adopt, consideration should be given to:

- the nature and size of the portfolio;
- the risk of material misstatement;
- whether the asset tends to be renewed through cyclical maintenance;
- how often the asset is replaced;

The summary of results and level of misstatement is summarised as follows –

<table>
<thead>
<tr>
<th></th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
<th>Option 4</th>
<th>Option 5</th>
<th>Option 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calc WDV</td>
<td>$42,857</td>
<td>$75,000</td>
<td>$55,556</td>
<td>$60,000</td>
<td>$11,111</td>
<td>$66,667</td>
</tr>
<tr>
<td>Depr</td>
<td>$1,429</td>
<td>$2,500</td>
<td>$1,111</td>
<td>$2,000</td>
<td>$2,222</td>
<td>$2,222</td>
</tr>
</tbody>
</table>

Variance (%) to

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual WDV</td>
<td>(28.57%)</td>
<td>25.00%</td>
<td>(7.41%)</td>
<td>0.00%</td>
<td>(81.48%)</td>
</tr>
<tr>
<td>Actual depreciation</td>
<td>(28.57%)</td>
<td>25.00%</td>
<td>(44.44%)</td>
<td>0.00%</td>
<td>11.11%</td>
</tr>
</tbody>
</table>
• how the asset’s service potential is consumed; and
• whether the information is reliable and relevant enabling it to be used to assist in other decisions across the entity.

Straight-line depreciation

The straight-line method is considered most suitable for short-lived assets that do not experience renewal through cyclical maintenance. Typically these tend to be minor items of plant and equipment such as computers, office equipment and motor vehicles. In these circumstances there is generally sufficient and appropriate evidence to support key assumptions such as useful life and residual value.

In some circumstances the straight-line method may be appropriate for long lived assets. This is dependent upon:
• the pattern of consumption being constant;
• strong evidence to support the critical assumptions of useful life; residual value and remaining useful life; and
• frequent revaluation whereby useful life, remaining useful life and residual value are reviewed and if appropriate re-estimated.

Where there is little evidence to support the critical assumptions or there is a high level of uncertainty regarding future projections of when and what renewal will occur, the appropriateness of this method becomes increasingly questionable.

Example - straight-line depreciation

The calculation is based purely on age. If appropriate consideration is not given to technical or commercial obsolescence there is also a risk of non-compliance with the standards. Care also needs to be taken to ensure any adjustments resulting from a change in the RUL or RV are adjusted prospectively and not retrospectively.

The main advantages of the traditional approach to straight-line depreciation are its simplicity and ease of calculation.

The main disadvantages or risks of applying this method are:
• The difficulties experienced in trying to find evidence to support the critical assumptions (useful life, RUL and RV) when trying to depreciate long-lived assets such as roads, water, sewerage and buildings. The adoption of an assumption that is more than 5 per cent incorrect will lead to material misstatement of the figures in the financial statements.
• Critical assumptions can easily be incorrectly adopted. As previously demonstrated, it is easy to incorrectly apply straight-line by adopting erroneous assumptions. In many cases the assumptions appear correct but do not reflect the reality of the assets lifecycle.
• The method is often applied based purely on age of the asset rather than also providing due consideration to the impact of obsolescence.

Example - straight-line depreciation

The cost to Council for a new road “seal” using three coats is $50,000

At the time of construction, it is estimated that the road will need to be "re-sealed" with one coat in 10 years time.

The cost of a *re-seal* is estimated to be $35,000.

Gross = $50,000

RV = $15,000

Useful life = 10 years

Depreciation = \[(\text{Gross} - \text{Residual Value}) / \text{Useful Life}\]

\[(50,000 - 15,000) / 10\]

$3,500 p.a.
Condition-based depreciation

Condition-based depreciation methods rely upon a known correlation between the physical characteristics of the asset (for example, cracking, rutting, roughness, oxidisation) and the relevant remaining useful life. It is generally only considered appropriate where the consumption of the asset is primarily dependent upon the physical condition of the asset. Care needs to be taken to ensure that the critical assumptions (correlation between each condition assessment and RUL) can be supported by sufficient and appropriate audit evidence.

In some cases, the RUL of asset may be affected by non-physical factors. In these circumstances, if appropriate consideration is not given to technical or commercial obsolescence, there is a risk of non-compliance with the standards.

The main advantages of condition-based depreciation are:

- It encourages the capture of data that supports both asset management (engineering) and accounting needs.
- The development of condition models provides a better understanding of the lifecycles and deterioration of the council's physical assets and hence supports the asset management function.
- It enables the objective measure of where an asset is within its lifecycle.

The main disadvantages are:

- There is a high level of complexity and resources required to identify, measure and develop lifecycles based on specific condition scores. As a result these models tend to only be developed for roads, sewerage and water assets where the cost/benefit can be justified.
- Often standard models are adopted and not customised and validated for the particular entity. As a result, there is a risk that the model and measures may not be relevant, or accurately reflect the level of remaining service potential or reflect the rate of consumption for the particular entity.
- The method tends to focus solely on physical condition, and as a result is often applied without due consideration being given to the impact of obsolescence. This would result in non-compliance with the standards.

Example - condition based depreciation

Council has implemented a Pavement Management System. In doing so, it has created a number of algorithms to estimate the RUL of each “seal” based on various condition scores. The algorithms for each condition result in the following correlation with estimated RUL. Zero RUL represents total end of life RUL is assessed on each condition with lowest RUL adopted.

The cost of a “re-seal” is estimated to be $35,000.

| Gross cost | $50,000 |
| RV | $15,000 |
| Usefull life | 10 years |

**Condition algorithm**

<table>
<thead>
<tr>
<th>RUL (years)</th>
<th>Condition scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factor 1</td>
</tr>
<tr>
<td>10</td>
<td>150</td>
</tr>
<tr>
<td>8</td>
<td>140</td>
</tr>
<tr>
<td>6</td>
<td>125</td>
</tr>
<tr>
<td>5</td>
<td>105</td>
</tr>
<tr>
<td>4</td>
<td>90</td>
</tr>
<tr>
<td>3</td>
<td>75</td>
</tr>
<tr>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>0</td>
<td>10</td>
</tr>
</tbody>
</table>

In turn, this leads to a "revaluation" -

| RV | $15,000 |
| Gross | $50,000 |
| Usefull life | 10 |
| RUL | 5 |

Depreciation = \((\text{Gross} - \text{RV}) \div \text{UL}\)

\((\$50\text{K} - \$15\text{K}) \div 10\)

\$3,500

\$50\text{K} - ((10 - 5) \times 3,500)\)

\$32,500

WDV = \(\text{Gross} - (\text{Useful life} \times \text{RUL}) \times \text{depreciation}\)

\$32,500

In year 3 a "condition assessment" was performed. The results were -

**Actual condition**

<table>
<thead>
<tr>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>125</td>
<td>440</td>
<td>4%</td>
</tr>
</tbody>
</table>

Therefore RUL = 5

32,500

 Alloy Casting Technical Paper Depreciation (2009)
Consumption-based depreciation

Consumption-based depreciation\(^9\) is based on measuring the level of the asset's remaining service potential after taking into account both holistic and component specific factors. It was developed from the straight-line asset management (SLAM) methodology originally published in the 2000 Queensland Audit Office Better Practice Guidelines for Local Governments.

It relies upon the determination of a pattern of consumption consistent with the asset's residual value and path of transition through the various stages of an asset's lifecycle.

The method uses a dynamic matrix to identify a small number of phases of the asset's lifecycle based on the factors that indicate how it is consumed. Based on the entity's knowledge of how long the asset transitions from phase to phase and the cost of the final renewal treatment a valuation and depreciation model is determined. The fair value pro consumption-based depreciation methodology is represented as follows:

**Figure 18: Consumption-based depreciation (cyclical maintenance assets)**

The method effectively uses the same formulas as used for straight-line depreciation except that instead of depreciating from the WDV to the residual value of the RUL it only depreciates from the WDV to the value at the next phase over the expected time of transition through that phase.

The main advantages of this method are that:

- It enables a wide range of factors to be incorporated into the assessment process while delivering a simple and cost effective mechanism to assess the level of remaining service potential (WDV) and rate of depreciation.
- It allows increased flexibility to provide different weightings for different factors depending upon which factors are impacting individual assets.
- It significantly reduces the risk of material misstatement because the highest rate of depreciation coincides with the phases where there is the highest level of assurance over the critical assumptions.
- Sufficient and appropriate audit evidence is easily supported by the council's asset management plans.

The main disadvantages of this method are:

- It can appear quite complex at first and tends to challenge many traditional concepts and ideas held by experienced practitioners. As a result, some practitioners prefer to adopt approaches they are more familiar with.
- Significant development of this methodology has occurred over the past few years with enhancements protected by patents. However, this has been licensed through proprietary software products (such as Fair Value Pro) resulting in easy access for users.
- A perception that existing finance systems cannot handle the calculations. This, however, is not an issue as they accommodate the methodology by importing the valuations and depreciation rates from the proprietary systems.

The method is best used for long-lived cyclical maintenance assets where there is little evidence to support the critical assumptions of alternative methodologies such as straight-line and condition based depreciation.

**Example: consumption-based depreciation**\(^7\)

This example uses an early version of the methodology (advanced SLAM) rather than the more recent and more sophisticated approaches embedded in the main proprietary IFRS valuation systems.

A council developed a consumption-based depreciation methodology for its infrastructure assets. This included analysis of a range of component specific and whole of asset factors including physical condition, functionality, utilisation, capacity, safety and obsolescence.
After considerable discussion about how the asset is normally consumed it was agreed that the most significant factors driving consumption were physical condition and obsolescence. It was also agreed that the impact of these resulted in a great rate of loss of potential as the asset aged. As a result, the council adopted the following consumption pattern. The basic assumptions are outlined in the table below.

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Adopted</th>
<th>Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCRC</td>
<td>$1,000,000</td>
<td>Based on recent construction costs for a new road</td>
</tr>
<tr>
<td>Useful life</td>
<td>60</td>
<td>Typically 40 – 80 years</td>
</tr>
<tr>
<td>Residual Value</td>
<td>30%</td>
<td>The most likely treatment at the end of useful life would be chemical stabilisation. It is estimated that this would cost approximately 70% of the GCRC</td>
</tr>
</tbody>
</table>

Based on this understanding, the following lifecycle was also developed for road pavement -

<table>
<thead>
<tr>
<th>Details</th>
<th>Phase 0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>% RSP</td>
<td>100%</td>
<td>93%</td>
<td>83%</td>
<td>69%</td>
<td>51%</td>
<td>30%</td>
<td>0%</td>
</tr>
<tr>
<td>Time through phase</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>9</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Depr rate</td>
<td>0.467%</td>
<td>0.700%</td>
<td>0.933%</td>
<td>1.944%</td>
<td>3.500%</td>
<td>5.000%</td>
<td></td>
</tr>
</tbody>
</table>

Example – consumption profile road pavement

Following an inspection the consumption rating was assessed as 1 representing a High level of remaining service potential.

Accordingly the calculations were as follows:

<table>
<thead>
<tr>
<th>Fair value (WDV)</th>
<th>RSP% of 1 = 93%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Therefore WDV = 93% of $1,000,000 = $930,000</td>
</tr>
<tr>
<td>Depreciation expense</td>
<td>RSP% of 1 = 93% and for 2 = 83%</td>
</tr>
<tr>
<td></td>
<td>Therefore net change = 10% over a 15 year period</td>
</tr>
<tr>
<td></td>
<td>Therefore depreciation rate = 10% / 15 years = 0.7% per annum = $7,000</td>
</tr>
</tbody>
</table>

**Renewals annuity**

The renewals annuity method cannot be used for financial reporting purposes. Its use was specifically considered in Australia and prohibited by UIG Interpretation 1030.

However, its use for financial modelling as part of the asset management plan is highly recommended. The method assumes the existing assets will be maintained at a constant level of service via ongoing cyclical maintenance.

The net cash flows to undertake the maintenance and renewal are projected out over an extended period (for example, 20 years) and are then converted to an annuity to provide an annualised average cost to maintain the asset.

This method provides an estimate of the amount of funding required to meet future needs, and converts it to an annuity so that the relevant funds can be accumulated consistently and equitably over a long period. This avoids sudden significant variations in funding needs.

**S-curve**

9.26 The S-curve is recommended where sufficient data is available for the valuer to be confident that the curve represents the likely reality. In some cases it presents the most realistic representation of an asset’s depreciation by assuming that depreciation is at a low rate in the early years, then accelerates in the middle years and reduces again in the final years. However, some assets, such as plant, may have a different depreciation pattern (high at first rather than low).72

It can be represented as follows:

**Figure 19: S-curve consumption pattern**

Example: S - Curve consumption patterns

72 RICS Red Book GN 6 Depreciated replacement cost method of valuation for financial reporting
Reducing balance methods

These methods provide for a higher depreciation charge in the first year of an asset’s life and gradually decreasing charges in subsequent years. They are based on the assumption that the asset loses most of its value as soon as it is put into use and the rate of depreciation then reduces over time.

Under this method the written-down value is multiplied by a fixed rate.

Annual depreciation = depreciation rate \times \text{book value at beginning of year}

The most common rate used is double the straight-line rate. For this reason, this technique is referred to as the double-declining-balance method.

Example

Assuming the asset has:
- Gross cost of $1,100 original cost
- Residual value of $100 age value
- The depreciable amount = $1,000
- A useful life of five years

The first step is to calculate straight-line depreciation rate by dividing the depreciable amount ($1,100 – 100) by the useful life (five years) = 20%. With the double declining balance method, as the name suggests, double that rate, or the 40 per cent depreciation rate is used. The table below illustrates the double declining balance method of depreciation.

<table>
<thead>
<tr>
<th>Year</th>
<th>Open WDV</th>
<th>Depreciation rate</th>
<th>Depreciation expense</th>
<th>Accumulated depreciation</th>
<th>Closing WDV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$1,000</td>
<td>40%</td>
<td>$400</td>
<td>$400</td>
<td>$600</td>
</tr>
<tr>
<td>2</td>
<td>$600</td>
<td>40%</td>
<td>$240</td>
<td>$240</td>
<td>$360</td>
</tr>
<tr>
<td>3</td>
<td>$360</td>
<td>40%</td>
<td>$144</td>
<td>$144</td>
<td>$216</td>
</tr>
<tr>
<td>4</td>
<td>$216</td>
<td>40%</td>
<td>$86</td>
<td>$86</td>
<td>$130</td>
</tr>
<tr>
<td>5</td>
<td>$130</td>
<td>130 - 100</td>
<td>$30</td>
<td>$30</td>
<td>$100</td>
</tr>
</tbody>
</table>

When using the double declining balance method, the residual value is not considered in determining the annual depreciation, but the WDV value of the asset being depreciated is never brought below its salvage value, regardless of the method used. The process continues until the residual value, or the end of the asset’s useful life, is reached. In the last year of depreciation a subtraction might be needed in order to prevent WDV from falling below estimated residual value.

Since double declining balance depreciation does not always depreciate an asset fully by its end of life, some methods also compute a straight-line depreciation each year, and apply the greater of the two. This has the effect of converting from declining balance depreciation to straight-line depreciation at a midpoint in the asset’s life.

It is possible to find a rate that would allow for full depreciation by its end of life with the formula:

Depreciation rate = 1 - n \sqrt{\frac{\text{residual value}}{\text{gross vale}}}

where n is the estimated useful life of the asset.
Common mistakes with valuation

To help assist entities avoid making critical (but common) mistakes, the following guidance is provided on some common issues that affect the valuation and depreciation of assets.

These include:

• using the incorrect basis of valuation;
• not adjusting for differences in service potential;
• not taking into account consumption curves or cyclical maintenance;
• not taking into account the residual value;
• focussing on gross rather than the fair value;
• treating capital versus maintenance incorrectly; and
• componentisation issues, such as:
  – greenfield v brownfield / sunk costs
  – determination of components
  – market value assets.

Using the incorrect basis of valuation

As noted above, sometimes critical errors are made right at the start by choosing the incorrect method to value an asset. Often this happens when a decision is made to follow the same process seen elsewhere.

Some examples are:

• splitting residential properties into components and then going through a DCRC process for each component rather than just getting a market appraisal for the properties; and
• valuing land using a NPV of the future lease rentals. In fact, the lease rentals were below market value (isolated grazing lease) and the lease rentals were originally determined by assessing the market value of the land and then applying a discount rate to arrive at an approved lease rental.

Not adjusting for difference in service potential

It is relatively easy to identify what an existing asset would be replaced with should the entity be deprived of it. However, consideration needs to be given to whether the replacement (reference) asset has the same or different utility to the existing asset.

Due to technological advancements, new materials, new construction techniques and improved safety measures, it is normally the case that a difference exists between the utility of the existing asset and its modern equivalent. For example, a four-metre wide road may now be replaced with a six-metre wide road. The additional width is more costly, but also provides additional utility because of increased safety, aesthetics and better protection against moisture and therefore a longer life.

A key question to ask is: If it didn’t provide additional utility….. why would you bother replacing the asset with one considerably more expensive?

Professional judgement is required to identify why there is a difference and to what extent those differences create variation in the total utility of the assets. The reasoning behind the adjustment needs to be well documented for audit purposes.

Not taking into account consumption curves or cyclical maintenance

Different types of assets behave in different ways, as do individual assets within the same class. To effectively manage your asset base, you need to understand how assets degrade, are consumed and how this affects their lifecycle in addition to their ability to perform at a desired service level. These patterns are often represented by consumption curves (or degradation curves) and provide information about when is the optimum time to perform maintenance work, when to renew and when to scrap the asset.

While not every entity has the resources to research and develop detailed consumption curves for each of their assets, every asset manager needs to understand how their assets behave in general and should be able to draw a basic consumption curve based on their extensive knowledge of their asset base, existing maintenance standards and their unique asset management plans and capital works program.

The effect of cyclical maintenance is that the asset lifecycle is continually extended through replacement or renewal. Accordingly, this affects the asset’s useful life. Valuation methodologies based primarily on useful life and age need to be closely assessed to see whether there is a high correlation between the level of remaining service potential and age. If the correlation is low the use of such an approach may not be appropriate.

Unfortunately some entities prefer to use simplistic approaches instead of ensuring all the requirements of the accounting standards are complied with. While this makes the calculation quick and easy there is a high risk that the
resulting calculation is materially misstated and does not satisfy the requirements of IAS 16 Property, Plant and Equipment. In particular, consideration needs to be given to the pattern of consumption.

One of the challenges with cyclical maintenance assets is that they are continually renewed and therefore, as one component is replaced with a new component, the complex asset’s total life extends out to a period in excess of the original design life. In the traditional sense, they may not have a fixed total life or remaining useful life. Therefore, methodologies based around these concepts may be inherently flawed.

Not taking into account the residual value

Often overlooked is the need to establish the appropriate level of residual value in order to calculate the depreciable amount.

The nature of public sector cyclical maintenance assets is such that the assets tend to be renewed when the service level reaches a point that represents the community’s minimum expectations. Often when this point is reached, the public complains and political pressure is brought to bear to ensure the asset is renewed.

As a result, the asset is not replaced when the remaining service potential is totally consumed but rather there is a level of service potential which is transferred from the old asset into the new asset. This represents a proceed from disposal of the old asset and therefore represents the residual value. In simple terms, if you spend $100 to end up with an asset worth $150, then by definition the value of the asset transferred from the old asset into the new asset must equal $50. If you valued the asset immediately after renewal its GCRC should be $150, not $100.

Some agencies fail to recognize this point and as a result tend to depreciate the asset at a far greater rate than required. Additionally, their accounting entries can mistakenly lead to assets being recorded significantly below their real value as a result of writing off the entire value of the old asset rather than the portion that was disposed.

Focussing on gross rather than the fair value

Often great efforts go into determining the gross replacement cost of assets and then a simple but erroneous formula is used to write the asset down to WDV. For example, a straight-line depreciation method is used where it is assumed there is a zero residual and the remaining useful life (RUL) is determined by comparing the actual date of commissioning with a pre-determined total life rather than taking into account the cyclical maintenance and renewal work conducted over many years.

To demonstrate:

Assume a building was originally constructed 100 years ago. During its life it has been re-roofed three times, refurbished and re-clad numerous times and enhanced with, for example, air-conditioning, insulation and cable. At last valuation it was estimated to have a RUL of 45 years and a nominal useful life of 60 years.

Some financial systems would calculate the useful life as 145 (Age of 100 + 45 RUL) based on the date of commissioning, whereas others may rely on the assumed nominal useful life of 60.

Assuming the gross cost to replace this building is $200,000 some systems would calculate the WDV as being $150,000 whereas others may calculate it as $62,000. Likewise for depreciation, assuming straight-line depreciation is used with a zero residual, the future depreciation charge per annum would be reported as either $62,000/45 = 1,370 or $150,000/45 = 3,333. This represents a difference of 59% which will have a significant impact on the financial statements.

The question is, which one is correct? It may be that neither is correct because the process did not satisfy the various mandatory aspects of the standard, such as using an appropriate pattern of consumption, determining the residual value on an appropriate basis, or taking into account the asset management reality of the asset.

Treating capital and maintenance incorrectly

Consideration needs to be given to whether the maintenance practices of the entity actually produce expenditure of a capital nature or expenditure that should be expensed. Care must be taken to ensure that the definition of maintenance from an engineering perspective is not confused with the definition from an accounting perspective.

Engineers undertake certain maintenance work in order to maintain the asset at a predefined service level over a defined period. This work is undertaken to extend the life of the asset and therefore, by accounting definition, is capital in nature. If this work is material and adds service potential, which will last for more than twelve months, it represents capital work and the expenditure therefore must be capitalised and depreciated.

IAS 16 Property, Plant and Equipment is quite clear that
only day-to-day servicing are to be expensed through the profit and loss account as maintenance and any subsequent expenditure to replace or renew existing parts of the asset is capital in nature, and must be capitalised.

Under the recognition principle in paragraph 7, an entity does not recognise in the carrying amount of an item of property, plant and equipment the costs of the day-to-day servicing of the item. Rather, these costs are recognised in profit or loss as incurred. Costs of day-to-day servicing are primarily the costs of labour and consumables, and may include the cost of small parts. The purpose of these expenditures is often described as for the repairs and maintenance of the item of property, plant and equipment.

Note that the standard does not differentiate between expenditure that enhances the service potential up to or below the original design and beyond the original design. Provided it either increases the service potential or extends the useful life beyond the existing position, it is deemed to be capital in nature.

Parts of some items of Property, Plant and Equipment may require replacement at regular intervals. For example, a furnace may require relining after a specified number of hours of use, or aircraft interiors such as seats and galleys may require replacement several times during the life of the airframe. Items of Property, Plant and Equipment may also be acquired to make a less frequently recurring replacement, such as replacing the interior walls of a building, or to make a nonrecurring replacement. Under the recognition principle in paragraph 7, an entity recognises in the carrying amount of an item of Property, Plant and Equipment the cost of replacing part of such an item when that cost is incurred if the recognition criteria are met. The carrying amount of those parts that are replaced is derecognised in accordance with the derecognition provisions of this Standard (see paragraphs 67–72).

One of the common mistakes is a belief that such expenditure should be capitalised if it only restores the original service potential above the original design. This is incorrect. The assessment must be made based on the impact of the expenditure at the time it is incurred. If as a result of the expense the remaining life of the asset is extended (beyond existing) or its service potential is enhanced (by, for example, aesthetics or functionality) then provided the expenditure satisfies the recognition criteria it is considered to be capital in nature. Provided it satisfies the materiality provisions it is to be capitalised.

The Australian Infrastructure Financial Management Guidelines provide a number of classifications for the various types of expenditures:

- **Maintenance**: Regular, ongoing day-to-day work necessary to keep assets operating, for example, road patching.
- **Operations**: Regular activities to provide public health, safety and amenity, for example, street sweeping, grass mowing, street lighting.
- **Renewal/Refurbishment**: Restores, rehabilitates, replaces existing asset to its original capacity, for example, gravel re-sheeting.
- **Upgrade/Improvements**: Enhances existing asset to provide higher levels of service, for example, widen seal.
- **New**: Creation of a new asset to meet additional service level requirements, for example, a new building.

<table>
<thead>
<tr>
<th>Recurrent expenditure</th>
<th>Capital expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational costs</td>
<td>Maintenance costs</td>
</tr>
<tr>
<td>operating</td>
<td>maintenance</td>
</tr>
<tr>
<td></td>
<td>(routine &amp; specific)</td>
</tr>
<tr>
<td>Asset management</td>
<td>Upgrade &amp; new</td>
</tr>
<tr>
<td>refurbishment /</td>
<td>projects upgrade,</td>
</tr>
<tr>
<td>renewal</td>
<td>new/ expansion</td>
</tr>
<tr>
<td>Street lighting</td>
<td>- Pothole patching</td>
</tr>
<tr>
<td></td>
<td>- Reseals</td>
</tr>
<tr>
<td>- Pavement widening</td>
<td></td>
</tr>
<tr>
<td>Grass mowing</td>
<td>- Playground equl</td>
</tr>
<tr>
<td>- Gravel resheets</td>
<td>- New kerb / footpath</td>
</tr>
<tr>
<td>Cleaning drains</td>
<td>- Water main valve</td>
</tr>
<tr>
<td>- Oval refurbishment</td>
<td>- New curb building</td>
</tr>
<tr>
<td>Streetsweeping</td>
<td>- Build (window rep)</td>
</tr>
<tr>
<td>- Roof replacement</td>
<td>- Waste water</td>
</tr>
<tr>
<td>Facilities cleaning</td>
<td>- Bridge pile nice</td>
</tr>
<tr>
<td>- Pump replacement</td>
<td>additional pumps</td>
</tr>
<tr>
<td>Non-discretionary</td>
<td>Non-discretionary</td>
</tr>
<tr>
<td>funding</td>
<td>funding</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

While these classifications provide a high level overview of how various expenditures are to be treated, reference needs to be made to IAS 16 when deciding whether to capitalise or expense particular items. Greater detail of the types of expenditure and appropriate accounting treatment are provided in the key concepts section under subsequent expenditure.

**Componentisation issues**

This issue has created considerable debate over the past two decades. The decision as to what constitutes a significant component must be based on a range of factors and requires professional judgement. These include the nature of the asset; how it is maintained; the effect of different parts on other parts; materiality; industry standards; the effect on depreciation for the asset class.
if the component was not accounted for and depreciated separately; and what information is used in strategic and operational asset management.

Some aspects to consider are:

- **Greenfield versus brownfield, and sunk costs**
  These terms are engineering terms and refer to what the cost would be if the site was a fresh site with no existing infrastructure or impediments (a greenfield site), or, in the case of a brownfield site, whether the costs reflect the need to work around existing assets and possibly include cost to dig up and replace existing infrastructure; work in tight conditions; work at night; and even employ safety officers. Clearly the difference in these costs can be significant.

Some agencies have adopted the brownfield approach to infrastructure assets as a default. They argue that some work (for example, making a cutting in the side of the mountain) will never have to be re-done, and therefore there is no replacement cost. However these costs were necessarily incurred in order to construct the road and therefore should be included as a component - with indefinite life - of the road.

This does not mean that the greenfield approach should be adopted as a default. Such an approach fails to recognise that the costs that would be incurred to replace the assets today would be different as a result of now having to work around existing infrastructure.

IAS 16 Property, Plant and Equipment requires that all costs be recognized when valuing using fair value. In some cases the brownfield approach is appropriate, whereas in other circumstances the greenfield basis should be adopted. In other cases, neither represents fair value.

To demonstrate the complexity we will consider the construction of a dam. As a consequence of the dam construction you need to spend significant amounts to relocate the infrastructure belonging to and controlled by other entities. These costs would be capitalised as WIP and upon completion of the dam the assets are gifted to the third parties.

Under IAS 16 Property, Plant and Equipment, even though the physical assets were transferred to other entities, the cost involved was necessarily incurred as part of the project and really represents a right to construct the dam and would be capitalised as part of the dam’s historical cost.

In future valuations (unless there are specific prescribed requirements not requiring the exclusion of these costs) an allowance needs to be incorporated to recognise this component. Providing the dam continues to be expected to last forever, that component would not be depreciated (but will be recognised as part of the asset), as its service potential is not expected to diminish as long as the dam is in existence. In this case the brownfield approach is appropriate.

Now consider the issue of pipes running under a road where the road would require destruction and later reconstruction in order to undertake the renewal of the pipes. Fair value would exclude the cost to reconstruct a road where the road was also controlled by the entity (greenfield) whereas the costs would be included if the road was controlled by a third party (brownfield). In the first scenario, inclusion of the road reconstruction costs would result in double counting and internal transactions would require elimination.

This highlights that neither the greenfield nor brownfield methods are necessarily correct and do not necessarily comply with the requirements of IAS 16 Property, Plant and Equipment. These are engineering terms and are not defined or incorporated into the accounting literature. Depending upon the situation, either method may result in the exclusion of costs that should have been included or the inclusion of costs that should not have been included.

- **Determination of components**
  Because of materiality considerations, unless you had extremely sophisticated information needs and systems that provide that information, the number of components should be limited. For example, in managing a building, it would be important to have an understanding of the general condition of the roof as opposed to knowing the condition of each rafter, tile, bearer, gutter and vent.

  As a general guide, components should be determined after consideration of materiality, their useful lives and how they are managed from an asset maintenance perspective. For example, the roof is normally managed independently from the fit out.

- **Market value assets**
  As with cash generating units, assets bought and sold on an open market are usually sold as one asset and a purchaser cannot buy part of the asset. For example, when residential houses are sold on the open market you have to buy the whole house and cannot buy separately the kitchen or the kitchen from a different house.
As a result, there are typically no separately identifiable components with a different value and therefore do not represent a complex asset. These assets may be componentised for asset management purposes but do not qualify for componentisation for financial reporting purposes under the accounting standards (unless there are components which have a separate market value).

Common depreciation mistakes

**Methodology does not attempt to match pattern of consumption of service potential**

IAS 16 Property, Plant and Equipment is specific in that the depreciation method shall reflect the pattern of consumption. The standard requires an attempt to measure the amount of future economic benefit that will be consumed in the period.

It is therefore essential that the methodology should reflect how the service potential of the asset is delivered, the factors involved and eventually how it is consumed.

Unfortunately, many methodologies are based around factors that do not relate in any way to how the asset’s service potential is consumed. Many also adopt the straight-line method as a default. However, it should be noted that IAS 16 Property, Plant and Equipment states that the straight-line method of depreciation should only be used when the asset’s service potential is expected to be consumed in a consistent pattern.

**Methodology based on subjective and unsupported assumptions**

The International Auditing and Assurances Standard Board (IAASB) is responsible for issuing the International Auditing Standards (ISA). There are a number of auditing standards of particular relevance to the depreciation of assets. These include:

- **ISA 500, Audit Evidence**

  This ISA explains what constitutes audit evidence in an audit of financial statements, and deals with the auditor’s responsibility to design and perform audit procedures to obtain sufficient appropriate audit evidence to be able to draw reasonable conclusions on which to base the auditor’s opinion.

- **ISA 540, Auditing Accounting Estimates, Including fair value Accounting Estimates, and Related Disclosures**

  This ISA deals with the auditor’s responsibilities relating to accounting estimates, including fair value accounting estimates, and related disclosures in an audit of financial statements. Specifically, it expands on how ISA 315 and ISA 330 and other relevant ISAs are to be applied in relation to accounting estimates. It also includes requirements and guidance on misstatements of individual accounting estimates, and indicators of possible management bias.

- **ISA 580, Written Representations**

  This ISA deals with the auditor’s responsibility to obtain written representations from management and, where appropriate, those charged with governance in an audit of financial statements.

- **ISA 620, Using the Work of an Auditor’s Expert**

  This ISA deals with the auditor’s responsibilities relating to the work of an individual or organization in a field of expertise other than accounting or auditing, when that work is used to assist the auditor in obtaining sufficient appropriate audit evidence.\(^74\)

The key message from all of these standards is that the auditor must obtain sufficient and appropriate evidence to support the completeness and accuracy of asset register, logic of methodology and the critical assumptions.

Some commonly used methodologies are based using critical assumptions that cannot be supported with sufficient and appropriate evidence. In essence, and in relation to infrastructure assets, the standards require the auditor to:

- obtain sufficient and appropriate evidence over the completeness and accuracy of the asset register;
- assess the appropriateness and logic of the valuation and depreciation methodologies;
- ensure that the methodology fully complies with the accounting standards. In particular IAS 16 Property, Plant and Equipment;
- assess the competence, experience and objectivity of any experts used within the valuation and depreciation exercise;
- obtain representations from management over a range of issues; and
- obtain sufficient and appropriate evidence to support the critical assumptions used within the methodology.

\(^{74}\) IFAC website  [http://web.ifac.org/clarity-center/the-clarified-standards](http://web.ifac.org/clarity-center/the-clarified-standards)
Accounting data contradicted by engineering data

Similar to the previous issue, the auditing standards place an obligation on the auditor not only to consider the information presented but also to consider the information presented in light of their own knowledge and any other contradictory information.

Auditors are becoming increasingly more aware of asset management issues and engineering systems. Many good auditors, when reviewing asset valuation and depreciation methodologies, are seeking information directly from the engineers or their systems.

This practice is increasingly starting to show significant contradictions between the data presented to audit for financial reporting purposes and the data held and used by the engineers for asset management purposes. It is therefore essential that the valuation and depreciation methodologies be consistent with the entity’s asset management system.

Complex assets not componentised for depreciation

Despite the requirement for complex assets to be depreciated separately, many valuation and depreciation methodologies still fail to do so. For example, complex buildings that are recognised as single asset and depreciated as a whole using a simplistic useful life.

Apart from being overly simplistic this fails to provide any useful information to the users with respect to either their financial or asset management needs.

Depreciation: unit of measure

BC26 The Board’s discussions about the potential improvements to the depreciation principle in the previous version of IAS 16 included consideration of the unit of measure an entity uses to depreciate its items of property, plant and equipment. Of particular concern to the Board were situations in which the unit of measure is the ‘item as a whole’ even though that item may be composed of significant parts with individually varying useful lives or consumption patterns. The Board

did not believe that, in these situations, an entity’s use of approximation techniques, such as a weighted average useful life for the item as a whole, resulted in depreciation that faithfully represents an entity’s varying expectations for the significant parts.

Things to note

Depreciation and fair value are not necessarily new concepts. However, the accounting requirements relating to them have experienced enhancement and refinement over the past two decades. As a result some practitioners continue to adopt practices that no longer comply with the requirements of IAS 16 Property, Plant and Equipment. The following addresses some common issues.

Straight-line cannot be used as the default pattern of consumption

IAS 16 Property, Plant and Equipment mandates that, “the depreciation method used shall reflect the pattern in which the asset’s future economic benefits are expected to be consumed by the entity”.

IAS 16 Property, Plant and Equipment goes further to state that, “the depreciation method applied to an asset shall be reviewed at least at each financial year-end and, if there has been a significant change in the expected pattern of consumption of the future economic benefits embodied in the asset, the method shall be changed to reflect the changed pattern. Such a change shall be accounted for as a change in an accounting estimate in accordance with IAS 8”.

Paragraph 62 of IAS 16 Property, Plant and Equipment also states that:

- Straight-line depreciation results in a constant charge over the useful life if the asset’s residual value does not change.
- The entity selects the method that most closely reflects the expected pattern of consumption of the future economic benefits embodied in the asset.
Different methods of depreciation will result in different amounts charged to the P&L as depreciation expensed over life of asset

Some practitioners occasionally argue that irrespective of the method, the result is the same over the life of the asset, and therefore we should just adopt a simple approach like straight-line. However, the only time the overall impact is the same is when the assets are valued at historical cost.

When assets are regularly revalued at fair value the valuation process is designed to adjust to take account of changes in the replacement cost as well as correct for changes in the rate of depreciation previously charged. As a result different depreciation methods will result in different results and therefore we should just adopt a simple approach like straight-line. However, the only time the overall impact is the same over the life of the asset, the method and assumptions used are appropriate.

For example, consider the impact on the same asset using the following four different approaches. The basic assumptions are:

- original gross replacement cost = $100,000;
- original useful life = 60 years;
- original residual value = $50,000 (50%); and
- asset is re-valued every three years with RUL adjusted accordingly. To simplify the calculations it is assumed that the unit rate does not change, with only the RUL changing. The RUL is reassessed upwards in five-year intervals in years 42, 51, 60 and 65 resulting in an actual useful life of 80 years. This is typical and is a consequence of regular maintenance and small capital renewals.

The four approaches used are:
- Traditional straight-line, where the useful life is adjusted upwards to reflect reassessment (that is, increases from 60 to 80).
- Traditional straight-line, where the Useful Life remains at 60 years based on a standard life.
- A moderate pattern applied using consumption-based depreciation (based on methodology patented by Fair Value Pro).
- A high pattern applied using consumption-based depreciation (based on methodology patented by Fair Value Pro).

Table 11: Effect of different depreciation approaches on P&L over time

Summary of calculations (where cannot accurately measure remaining service potential)

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross</th>
<th>RV</th>
<th>Dep amt</th>
<th>Useful life</th>
<th>RUL</th>
<th>WDV (beg)</th>
<th>Dep exp</th>
<th>Years</th>
<th>Charged to P&amp;L</th>
<th>Variance $</th>
<th>Variance %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$100,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>60</td>
<td>60</td>
<td>$100,000</td>
<td>833</td>
<td>42</td>
<td>$35,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>$100,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>65</td>
<td>23</td>
<td>$69,167</td>
<td>833</td>
<td>9</td>
<td>$7,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>$100,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>70</td>
<td>19</td>
<td>$65,833</td>
<td>833</td>
<td>9</td>
<td>$7,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>$100,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>75</td>
<td>15</td>
<td>$62,500</td>
<td>833</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>66</td>
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<td>$50,000</td>
<td>$50,000</td>
<td>80</td>
<td>14</td>
<td>$61,667</td>
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<tr>
<td>80</td>
<td>$100,000</td>
<td>$50,000</td>
<td>$50,000</td>
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<td>$50,000</td>
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<td>-</td>
<td>$50,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Straight-line method (valuation based on design life and not adjusted to reflect progressive re-assessment of useful life)

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross</th>
<th>RV</th>
<th>Dep amt</th>
<th>Useful life</th>
<th>RUL</th>
<th>WDV (beg)</th>
<th>Dep exp</th>
<th>Years</th>
<th>Charged to P&amp;L</th>
<th>Variance $</th>
<th>Variance %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<td>$50,000</td>
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<td>$35,000</td>
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<td>$69,167</td>
<td>833</td>
<td>9</td>
<td>$7,500</td>
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<tr>
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<td>$100,000</td>
<td>$50,000</td>
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<td>70</td>
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<td>$65,833</td>
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<td>9</td>
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<td>833</td>
<td>6</td>
<td>$5,000</td>
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<tr>
<td>66</td>
<td>$100,000</td>
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<td>$50,000</td>
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<td>$61,667</td>
<td>833</td>
<td>14</td>
<td>$11,667</td>
<td></td>
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<tr>
<td>80</td>
<td>$100,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>-</td>
<td>-</td>
<td>$50,000</td>
<td>-</td>
<td>-</td>
<td>$50,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total depreciation expensed $61,102
Actual consumption $50,000
Variance $11,102
Variance % 22.20%

- Total depreciation expensed $66,667
- Actual consumption $50,000
- Variance $16,667
- Variance % 33.33%
consumption based method - moderate and high patterns of consumption

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross</th>
<th>WDV (beg)</th>
<th>%RSP</th>
<th>Cond</th>
<th>Years</th>
<th>Rate</th>
<th>Dep exp</th>
<th>Charged to P&amp;L</th>
<th>Rate</th>
<th>CBD depr</th>
<th>Charged to P&amp;L</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$100,000</td>
<td>$100,000</td>
<td>100.00</td>
<td>0H</td>
<td>21</td>
<td>0.33%</td>
<td>$333</td>
<td>$7,000</td>
<td>0.17%</td>
<td>$166.67</td>
<td>$3,500</td>
</tr>
<tr>
<td>21</td>
<td>$100,000</td>
<td>$95,000</td>
<td>73.75</td>
<td>1H</td>
<td>21</td>
<td>0.50%</td>
<td>$500</td>
<td>$10,500</td>
<td>0.33%</td>
<td>$333.33</td>
<td>$7,000</td>
</tr>
<tr>
<td>42</td>
<td>$100,000</td>
<td>$87,500</td>
<td>47.50</td>
<td>2H</td>
<td>9</td>
<td>0.62%</td>
<td>$615</td>
<td>$5,535</td>
<td>0.46%</td>
<td>$461.54</td>
<td>$4,154</td>
</tr>
<tr>
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<td>$100,000</td>
<td>$82,500</td>
<td>36.25</td>
<td>2M</td>
<td>9</td>
<td>0.57%</td>
<td>$571</td>
<td>$5,143</td>
<td>0.43%</td>
<td>$428.57</td>
<td>$3,857</td>
</tr>
<tr>
<td>60</td>
<td>$100,000</td>
<td>$77,500</td>
<td>25.00</td>
<td>3H</td>
<td>6</td>
<td>1.11%</td>
<td>$1,111</td>
<td>$6,667</td>
<td>1.11%</td>
<td>$1,111.11</td>
<td>$6,667</td>
</tr>
<tr>
<td>66</td>
<td>$100,000</td>
<td>$71,250</td>
<td>17.50</td>
<td>3M</td>
<td>6</td>
<td>1.04%</td>
<td>$1,042</td>
<td>$6,250</td>
<td>1.04%</td>
<td>$1,041.67</td>
<td>$6,250</td>
</tr>
<tr>
<td>72</td>
<td>$100,000</td>
<td>$65,000</td>
<td>10.00</td>
<td>4H</td>
<td>8</td>
<td>1.88%</td>
<td>$1,875</td>
<td>$15,000</td>
<td>2.81%</td>
<td>$2,812.50</td>
<td>$22,500</td>
</tr>
<tr>
<td>80</td>
<td>$100,000</td>
<td>$50,000</td>
<td>- 5H</td>
<td>0.00%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total depreciation expense $56,098 $53,928
Actual consumption $50,000 $50,000
Variance $6,098 $3,928
Variance % 12.20% 7.86%

The results of this example clearly show that the adoption of different depreciation approaches will result in different amounts expensed through the statement of financial performance over the asset’s useful life. This demonstrates the importance of matching the pattern of consumption.

Useful life and RUL are not required to determine WDV (fair value) or depreciation expense

Some practitioners attempt to calculate the WDV by firstly determining the amount of depreciation expense and then working backwards using the RUL to determine the level of remaining service potential. This is incorrect.

The objective of IAS 16 is to firstly determine the fair value, and once that has been achieved, to reduce it via the allocation of depreciation expense.

IAS 16 Property, Plant and Equipment requires that the depreciable amount be depreciated over the useful life using a method that matches the pattern of consumption. It also states that there is a range of methods that can be used including those using time as well as units of production. What is important is that the depreciable amount is depreciated in a systematic way that matches the pattern of consumption and that over time the total amount is depreciated to reflect the asset’s lifecycle.

Methods other than life - such as units of production - can be used to determine the amount of depreciation expense. Likewise life should only be used as a key factor in the calculation when it has a direct bearing on the amount of consumed service potential. The standard requires that the depreciation method match the pattern of consumption and take into account the factors that drive the consumption.

For example, using the analogy used previously - to measure the amount of water in a bottle you would assess the shape of the bottle and height of the water. The length of time it has been in the bottle is not relevant to determining the amount of water remaining. Likewise, with infrastructure assets the fair value should be based on an assessment of the factors that drive or indicate the level of remaining service potential.

Using straight-line method does not produce the same overall result as other more detailed methods

It is sometimes argued that, while the results for individual assets will be different because there are thousands of assets, when averaged across the entire portfolio the straight-line method will produce the same overall result. Unfortunately this assumption does not hold true and can lead to material misstatement.

Most condition-based depreciation or consumption-based depreciation models are based on an assessment of either the optimised intervention point or worst-case intervention point. In reality most organisations will intervene at a range of different points for each asset within an asset class, depending upon factors such as funding, environmental conditions, supply of materials and emergent priorities. As a result, the average is constantly moving and can only be measured by detailed assessment of each individual asset.

Detailed analysis of the financial statements of local governments in Australia conducted by APV Valuers and Asset Management in 2006 indicated that on average most councils tended to maintain their infrastructure assets at a level that kept the WDV as a percentage of the GCRC above 65%. This supports the argument that the real average is not 50% but is somewhat higher depending upon the actual asset management strategies adopted.

78 CPA Australia, Asset Accounting and Asset Management in the Public Sector Program, 2007
The following case study examples are provided to create a great understanding of the steps of the actual calculations. It is important to recognise that the valuation process entails much more than doing the calculations. The development of the asset valuation framework is critical. This provides the overall framework, data hierarchy and answers to key challenges that will be presented through the process. Likewise the process needs to be fully documented and appropriate evidence supplied to audit.

It should also be noted that these are only examples and in the real world the valuer may need to adapt slightly different approaches for specific assets. What is important is that the key requirements of the accounting standards and other prescribed requirements are complied with.

These examples should also highlight that different approaches are required in different situations and the process can range from relatively simple to extremely complex. As a result they may require the use of appropriate qualified professionals or access and/or specialised IFRS valuation software.

The following examples include:

### Table 12: Case study examples

<table>
<thead>
<tr>
<th>Valuation Basis</th>
<th>Example</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market value</td>
<td>Residential property</td>
<td>Asset valued by reference to market data (reference sales) and asset then split into Land and Building components. The Market Value approach should only be undertaken by professionals with the appropriate qualifications and experience.</td>
</tr>
<tr>
<td>Income approach</td>
<td>None provided</td>
<td>Due to the complexity and variability in processes, assumptions, risks and discount factors each DCF valuation needs to be developed by a professional with the appropriate qualifications and experience. So as not to present a basic model that potentially could be misused or misinterpreted no example has been provided.</td>
</tr>
<tr>
<td>Cost approach (single life)</td>
<td>Motor vehicle</td>
<td>Motor vehicle is purchased as new and based on entity’s policy is trade-in on a new vehicle after three years.</td>
</tr>
<tr>
<td>Cost approach (asset level)</td>
<td>Specialised building</td>
<td>Useful life is regularly renewed through cyclical maintenance and market evidence of ‘cost’ is determined at the whole of asset level.</td>
</tr>
<tr>
<td>Cost approach (component level)</td>
<td>Road</td>
<td>Useful life is regularly renewed through cyclical maintenance and market evidence of ‘cost’ is determined at the component level.</td>
</tr>
<tr>
<td>Cost approach (Sub-component level)</td>
<td>Traffic signals</td>
<td>Useful life is regularly renewed through cyclical maintenance and market evidence of ‘cost’ is determined at the sub-component level.</td>
</tr>
<tr>
<td>Cost approach (specialised)</td>
<td>Landfill</td>
<td>Site comprises space for a number of cells which will be constructed over an extended period. Due to nature of activity liabilities are also created for future environmental requirements.</td>
</tr>
</tbody>
</table>
Market value

Depending upon the nature and materiality of the asset this approach may be applied by internal staff. However, if it involves land, buildings or a relatively complex or specialised piece of plant or machinery, the market value approach should only be undertaken by professionals with the appropriate qualifications and experience.

This method is used where there is an active and liquid market. It involves determining a value based on actual sales data from reference sales. This may include assets that are homogenous and traded in a market based on quoted price (such as financial assets). However, in relation to non-financial assets it usually involves comparison against sales data for assets similar in nature but not identical.

In this example the asset is a residential property (detached house), which includes a separate garage, garden shed, timber fence and swimming pool and sits on 700 square metres of land. Its value is determined by reference to market data (reference sales) and the asset is split into land and building components.

The valuer will identify the key factors that provide an indicator of value in order to then find comparable sales to compare against.

In this situation the valuer determines that the key indicators of value are:

- Location
- Size and number of bedrooms
- Size of building in relation to size of land
- Age and style of the building
- Amenity (views, location to transport, immediate neighbourhood, etc)
- Condition
- Planned developments that may impact the site

The valuer then identifies five comparable sales and after professional evaluation of the sales determines that the market value is between $600,000 and $650,000 so adopts a value of $625,000.

Because the accounting standards require land to be separated from the buildings (for depreciation purposes) the valuer then needs to deduct the value of the land from the overall value to determine the building value.

The valuer does this by reference to the available sales data for the sale of vacant land. If there are no reference sales that can be used the valuer may also apply an alternative method using the sale of non-vacant land and adjusting for the estimated cost of improvements. Based on this analysis the valuer determines the vacant land rate to be $410 to $450 per square metre so adopts a land value of $300,000.

As such the building is valued at the total market value ($625,000) less the land value ($300,000) = $325,000.

While the building component comprises a range of individual physical assets (garage, garden shed, fence and pool) these assets cannot be sold separately. As such they do not have a separate value and do not meet the definition of a separate component. Therefore for depreciation purposes the building component is to be depreciated as one asset.

After due consideration of the age of the building and the difference between the adopted value and what the replacement cost would be for insurance purposes the valuer determines that the appropriate pattern of consumption to apply is an S Curve. Based on the S Curve model, the appropriate rate of depreciation to apply is determined to be 0.7 per cent = $2,275 ($325,000 x 0.7 per cent).

Table 13: S-Curve consumption pattern

<table>
<thead>
<tr>
<th>Example: S - curve consumption patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1: Lower rate of consumption at early and later stages of lifecycle</td>
</tr>
<tr>
<td>S2: Higher rate of consumption at early and later stages of lifecycle</td>
</tr>
</tbody>
</table>

Income approach

As previously noted, due to the complexity and variability in processes, assumptions, risks and discount factors, each DCF valuation needs to be developed by a professional with the appropriate qualifications and experience.

So as not to present a basic model that potentially could be misused or misinterpreted, no example has been provided.
Cost approach (single life)

This example uses a motor vehicle which is purchased as new for $40,000 one year ago and based on the entity’s policy will be traded in on a new vehicle after three years. As such, the asset has a single lifecycle. The entity has a contract in place with the supplier of motor vehicles when guarantees a 30 per cent trade-in price at the end of three years or 60,000 kilometres.

Past experience across the entire car fleet indicates that the amount of kilometres travelled by each car is approximately 20,000 km per year and 98 per cent of vehicles are traded after three years under the term of the contract.

As a consequence the use of an output method using the number of kilometres travelled is considered appropriate.

The calculation is:

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCRC</td>
<td>Purchase price</td>
<td>$40,000</td>
</tr>
<tr>
<td>Residual value</td>
<td>30% trade-in guarantee</td>
<td>$12,000</td>
</tr>
<tr>
<td>Depreciable amount</td>
<td>GCRC less RV</td>
<td>$28,000</td>
</tr>
<tr>
<td>Kilometres travelled</td>
<td>$18,000 out of expected</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$60,000</td>
<td></td>
</tr>
<tr>
<td>Accumulated depreciation</td>
<td>18/60 x depreciable amount</td>
<td>$8,400</td>
</tr>
<tr>
<td>Fair value</td>
<td>Gcrc less accumulated</td>
<td>$31,600</td>
</tr>
<tr>
<td></td>
<td>depreciation</td>
<td></td>
</tr>
<tr>
<td>Depreciation expense</td>
<td>(WDV – RV) / RUL</td>
<td>$9,800</td>
</tr>
<tr>
<td></td>
<td>($31,600 – $12,000) / 2 year</td>
<td></td>
</tr>
</tbody>
</table>

Cost approach (asset level)

This approach is appropriate when the useful life is regularly renewed through cyclical maintenance, and market evidence of cost is determined at the whole of asset level.

The nature of assets such as specialised buildings is that they are acquired to deliver a particular function or located in a non-commercial position. As a consequence there is no open and liquid market for these types of buildings and accordingly they are valued using the cost approach.

As they have different parts which are significant that also exhibit a different useful life or depreciation pattern, they need to be componentised. The market evidence to support the cost of the asset is normally available at a total asset level and therefore it is appropriate to apportion the overall cost across the various components in order to determine the gross replacement cost for each component. Note that some construction cost guides may split the overall cost into different phases of construction such as design, structure and professional fees. These do not satisfy the definition of a component according to the accounting standards, because they do not possess different useful life or consumption patterns.

In this example the asset has been split into different components reflecting a different useful life or depreciation method and a gross cost determined for each component. For each component a range of assumptions is then applied in conjunction with a condition assessment using an appropriate depreciation methodology to calculate the depreciated current replacement cost and depreciation expense. The DCRC of each component is then summed to arrive at the fair value of the asset.

In this example of a specialised building the first step is to determine the gross replacement cost and apportion the cost against each component.

As the market evidence of cost is evidenced at the whole of asset level, the overall cost is apportioned over the relevant components.

<table>
<thead>
<tr>
<th>Floor area type</th>
<th>Area</th>
<th>Min</th>
<th>Max</th>
<th>Notes</th>
<th>Rate to adopt</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>600</td>
<td>800</td>
<td>1500</td>
<td>High quality</td>
<td>1,200</td>
<td>720,000</td>
</tr>
<tr>
<td>Type 2</td>
<td>200</td>
<td>800</td>
<td>1100</td>
<td>High quality</td>
<td>1,000</td>
<td>200,000</td>
</tr>
<tr>
<td>Type 3</td>
<td>100</td>
<td>300</td>
<td>600</td>
<td>Low quality</td>
<td>300</td>
<td>30,000</td>
</tr>
<tr>
<td>Type 4</td>
<td>100</td>
<td>450</td>
<td>750</td>
<td>Low quality</td>
<td>500</td>
<td>50,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,000</td>
<td></td>
<td></td>
<td>1,000,000</td>
<td></td>
</tr>
</tbody>
</table>
Apportion gross cost across components

<table>
<thead>
<tr>
<th>Component</th>
<th>Apportionment</th>
<th>GCRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor</td>
<td>15%</td>
<td>150,000</td>
</tr>
<tr>
<td>Floor coverings</td>
<td>10%</td>
<td>100,000</td>
</tr>
<tr>
<td>Internal fit-out</td>
<td>15%</td>
<td>150,000</td>
</tr>
<tr>
<td>Envelope</td>
<td>30%</td>
<td>300,000</td>
</tr>
<tr>
<td>Roof</td>
<td>20%</td>
<td>200,000</td>
</tr>
<tr>
<td>Mechanical</td>
<td>6%</td>
<td>60,000</td>
</tr>
<tr>
<td>Transport</td>
<td>2%</td>
<td>20,000</td>
</tr>
<tr>
<td>Fire</td>
<td>1%</td>
<td>10,000</td>
</tr>
<tr>
<td>Security</td>
<td>1%</td>
<td>10,000</td>
</tr>
<tr>
<td><strong>100%</strong></td>
<td><strong>1,000,000</strong></td>
<td><strong>1,000,000</strong></td>
</tr>
</tbody>
</table>

Having determined the gross replacement cost, the depreciated current replacement cost and depreciation expense of each component needs to be calculated. Under the accounting standards the method must:

- be done at the component level;
- match the pattern of consumption;
- be based on the relevant factors;
- only depreciate the depreciable amount; and
- depreciate the depreciable amount in a systematic way over the asset’s useful life.

Application of assumptions and methodology

<table>
<thead>
<tr>
<th>Component</th>
<th>GCRC</th>
<th>Residual value</th>
<th>Depreciable amount</th>
<th>Condition score (0 - 5)</th>
<th>%RSP</th>
<th>Fair value</th>
<th>Pattern of consumption</th>
<th>Useful life</th>
<th>Depreciation rate</th>
<th>Depreciation expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor</td>
<td>$150,000</td>
<td>30%</td>
<td>$105,000</td>
<td>1</td>
<td>90%</td>
<td>$135,000</td>
<td>FVP high</td>
<td>80</td>
<td>0.50%</td>
<td>$525</td>
</tr>
<tr>
<td>Floor coverings</td>
<td>$100,000</td>
<td>0%</td>
<td>$100,000</td>
<td>3</td>
<td>50%</td>
<td>$50,000</td>
<td>FVP low</td>
<td>25</td>
<td>7.00%</td>
<td>$7,000</td>
</tr>
<tr>
<td>Internal fit-out</td>
<td>$150,000</td>
<td>25%</td>
<td>$112,500</td>
<td>2</td>
<td>75%</td>
<td>$112,000</td>
<td>FVP mod</td>
<td>40</td>
<td>1.00%</td>
<td>$1,125</td>
</tr>
<tr>
<td>Envelope</td>
<td>$300,000</td>
<td>50%</td>
<td>$150,000</td>
<td>2</td>
<td>75%</td>
<td>$225,000</td>
<td>FVP mod</td>
<td>80</td>
<td>1.20%</td>
<td>$1,800</td>
</tr>
<tr>
<td>Roof</td>
<td>$200,000</td>
<td>50%</td>
<td>$100,000</td>
<td>0</td>
<td>100%</td>
<td>$200,000</td>
<td>FVP mod</td>
<td>50</td>
<td>0.20%</td>
<td>$200</td>
</tr>
<tr>
<td>Mechanical</td>
<td>$60,000</td>
<td>25%</td>
<td>$45,000</td>
<td>2</td>
<td>75%</td>
<td>$45,000</td>
<td>Straight-line</td>
<td>30</td>
<td>4.00%</td>
<td>$1,800</td>
</tr>
<tr>
<td>Transport</td>
<td>$20,000</td>
<td>25%</td>
<td>$15,000</td>
<td>2</td>
<td>75%</td>
<td>$15,000</td>
<td>FVP mod</td>
<td>50</td>
<td>1.00%</td>
<td>$150</td>
</tr>
<tr>
<td>Fire</td>
<td>$10,000</td>
<td>25%</td>
<td>$7,500</td>
<td>2</td>
<td>75%</td>
<td>$7,500</td>
<td>Straight-line</td>
<td>35</td>
<td>4.00%</td>
<td>$300</td>
</tr>
<tr>
<td>Security</td>
<td>$10,000</td>
<td>25%</td>
<td>$7,500</td>
<td>2</td>
<td>75%</td>
<td>$7,500</td>
<td>Straight-line</td>
<td>35</td>
<td>4.00%</td>
<td>$300</td>
</tr>
<tr>
<td><strong>$1,000,000</strong></td>
<td><strong>$642,500</strong></td>
<td></td>
<td><strong>$797,500</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$13,200</strong></td>
</tr>
</tbody>
</table>

This example uses the consumption-based depreciation method which has been embedded into a range of proprietary software such as Fair Value Pro. In its simplest form the methodology can be represented as follows.

![Diagram](image.png)

Source: Fair value pro “practical guide to valuation”

Ultimately it is the responsibility of the entity to determine the appropriate pattern of consumption and apply an appropriate methodology to determine the fair value and depreciation expense.
Cost approach (component level)

This approach, often referred to as direct cost, is appropriate when the useful life is regularly renewed through cyclical maintenance, and market evidence of cost is determined by applying unit rates at the component level.

For this example we will use a road. The road comprises a range of associated assets such as kerb and channel, footpaths, traffic signals, traffic management devices, etc. Each of these will need to be valued as a separate asset class. The road itself needs to be split into the different segments and then componentised into:

- Formation
- Pavement
- Surface

The gross replacement cost is then determined by calculating the total area at an appropriate unit rate. The total area needs to include the length by width as well additional areas such as car parking and verges. Unit rates will be determined from recent construction data, costing guides and benchmark data.

Segmentation and componentisation

Road name: Smith St

<table>
<thead>
<tr>
<th>Segment</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset id</td>
<td>RD1000-1</td>
<td>RD1000-2</td>
<td>RD1000-3</td>
<td>RD1000-4</td>
<td>RD1000-5</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>500</td>
<td>400</td>
<td>400</td>
<td>300</td>
<td>400</td>
<td>2,000</td>
</tr>
<tr>
<td>Formation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
<td>Std + Cutting</td>
<td>Standard</td>
<td>Total</td>
</tr>
<tr>
<td>Width</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>10</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Additional area</td>
<td>300</td>
<td>200</td>
<td>150</td>
<td>100</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Total area</td>
<td>4,300</td>
<td>3,400</td>
<td>3,350</td>
<td>3,100</td>
<td>3,400</td>
<td>17,550</td>
</tr>
<tr>
<td>Unit rate</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>350</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>GCRC</td>
<td>860,000</td>
<td>680,000</td>
<td>670,000</td>
<td>1,085,000</td>
<td>680,000</td>
<td>3,975,000</td>
</tr>
<tr>
<td>Pavement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Standard</td>
<td>Extra Depth</td>
<td>Standard</td>
<td>Standard</td>
<td>None</td>
<td>Total</td>
</tr>
<tr>
<td>Width</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional area</td>
<td>225</td>
<td>150</td>
<td>110</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total area</td>
<td>3,225</td>
<td>2,550</td>
<td>2,510</td>
<td>1,875</td>
<td>10,160</td>
<td></td>
</tr>
<tr>
<td>Unit rate</td>
<td>250</td>
<td>400</td>
<td>250</td>
<td>250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GCRC</td>
<td>806,250</td>
<td>1,020,000</td>
<td>627,500</td>
<td>468,750</td>
<td>-</td>
<td>2,922,500</td>
</tr>
<tr>
<td>Surface</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Asphalt 30mm</td>
<td>Asphalt 30mm</td>
<td>Asphalt 30mm</td>
<td>Concrete</td>
<td>Gravel</td>
<td>Total</td>
</tr>
<tr>
<td>Width</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Additional area</td>
<td>225</td>
<td>150</td>
<td>110</td>
<td>75</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Total area</td>
<td>3,225</td>
<td>2,550</td>
<td>2,510</td>
<td>1,875</td>
<td>12,760</td>
<td></td>
</tr>
<tr>
<td>Unit rate</td>
<td>350</td>
<td>50</td>
<td>50</td>
<td>80</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>GCRC</td>
<td>1,128,750</td>
<td>127,500</td>
<td>125,500</td>
<td>150,000</td>
<td>1,609,750</td>
<td></td>
</tr>
<tr>
<td>Total GCRC</td>
<td>2,795,000</td>
<td>1,827,500</td>
<td>1,423,000</td>
<td>1,703,750</td>
<td>758,000</td>
<td>8,507,250</td>
</tr>
</tbody>
</table>
For each component of each segment a range of assumptions is then applied in conjunction with a condition assessment using an appropriate depreciation methodology to calculate the depreciated current replacement cost and depreciation expense.

This example uses the consumption-based depreciation method which has been embedded into a range of proprietary software such as Fair Value Pro which a specialised IFRS valuation solution. Ultimately it is the responsibility of the entity to determine the appropriate pattern of consumption and apply an appropriate methodology to determine the written-down value (fair value) and depreciation expense.

Road assets (in particular, the pavement) are often managed by proprietary systems that utilise a range of road pavement models. Some of these systems are particularly good for asset management planning but may not necessarily use valuation or depreciation models that fully comply with all aspects of the accounting standards. It is always advisable to first gain an understanding of their valuation process and formulas, and validate their full compliance against the accounting standards, before adopting their financial statement figures.

**Calculation of WDV and depreciation expense**

<table>
<thead>
<tr>
<th>Component ID</th>
<th>GCRC</th>
<th>Residual value</th>
<th>Depreciable amount</th>
<th>Condition score (0 - 5)</th>
<th>%RSP</th>
<th>Fair value</th>
<th>Pattern of consumption</th>
<th>Useful life</th>
<th>Depreciation rate</th>
<th>Depreciation expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD1000-1-Form</td>
<td>860,000</td>
<td>70%</td>
<td>258,000</td>
<td>0</td>
<td>100%</td>
<td>860,000</td>
<td>FVP Extreme</td>
<td>120</td>
<td>0.00%</td>
<td>-</td>
</tr>
<tr>
<td>RD1000-1-Pav</td>
<td>806,250</td>
<td>30%</td>
<td>564,375</td>
<td>1</td>
<td>90%</td>
<td>725,625</td>
<td>FVP Road Pav 1</td>
<td>70</td>
<td>0.50%</td>
<td>2,822</td>
</tr>
<tr>
<td>RD1000-1-Surf</td>
<td>1,128,750</td>
<td>25%</td>
<td>846,563</td>
<td>1</td>
<td>85%</td>
<td>959,438</td>
<td>FVP Asphalt</td>
<td>20</td>
<td>0.50%</td>
<td>4,233</td>
</tr>
<tr>
<td>RD1000-2-Form</td>
<td>680,000</td>
<td>70%</td>
<td>204,000</td>
<td>0</td>
<td>100%</td>
<td>680,000</td>
<td>FVP Extreme</td>
<td>120</td>
<td>0.00%</td>
<td>-</td>
</tr>
<tr>
<td>RD1000-2-Pav</td>
<td>1,020,000</td>
<td>40%</td>
<td>612,000</td>
<td>2</td>
<td>80%</td>
<td>816,000</td>
<td>FVP Road Pav 1</td>
<td>70</td>
<td>1.50%</td>
<td>9,180</td>
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<tr>
<td>RD1000-2-Surf</td>
<td>127,500</td>
<td>25%</td>
<td>95,625</td>
<td>2</td>
<td>70%</td>
<td>89,250</td>
<td>FVP Asphalt</td>
<td>20</td>
<td>1.00%</td>
<td>956</td>
</tr>
<tr>
<td>RD1000-3-Form</td>
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<td>70%</td>
<td>201,000</td>
<td>1</td>
<td>95%</td>
<td>636,500</td>
<td>FVP Extreme</td>
<td>120</td>
<td>0.50%</td>
<td>1,005</td>
</tr>
<tr>
<td>RD1000-3-Pav</td>
<td>627,500</td>
<td>30%</td>
<td>439,250</td>
<td>3</td>
<td>60%</td>
<td>376,500</td>
<td>FVP Road Pav 1</td>
<td>70</td>
<td>3.00%</td>
<td>13,178</td>
</tr>
<tr>
<td>RD1000-3-Surf</td>
<td>125,500</td>
<td>25%</td>
<td>94,125</td>
<td>2</td>
<td>70%</td>
<td>87,850</td>
<td>FVP Asphalt</td>
<td>20</td>
<td>1.00%</td>
<td>941</td>
</tr>
<tr>
<td>RD1000-4-Form</td>
<td>1,085,000</td>
<td>85%</td>
<td>162,750</td>
<td>0</td>
<td>100%</td>
<td>1,085,000</td>
<td>FVP Extreme</td>
<td>120</td>
<td>0.00%</td>
<td>-</td>
</tr>
<tr>
<td>RD1000-4-Pav</td>
<td>468,750</td>
<td>30%</td>
<td>328,125</td>
<td>1</td>
<td>90%</td>
<td>421,875</td>
<td>FVP Road Pav 1</td>
<td>70</td>
<td>0.50%</td>
<td>1,641</td>
</tr>
<tr>
<td>RD1000-4-Surf</td>
<td>150,000</td>
<td>60%</td>
<td>60,000</td>
<td>1</td>
<td>85%</td>
<td>127,500</td>
<td>FVP Concrete</td>
<td>40</td>
<td>2.00%</td>
<td>1,200</td>
</tr>
<tr>
<td>RD1000-5-Form</td>
<td>680,000</td>
<td>70%</td>
<td>204,000</td>
<td>0</td>
<td>100%</td>
<td>680,000</td>
<td>FVP Extreme</td>
<td>120</td>
<td>0.00%</td>
<td>-</td>
</tr>
<tr>
<td>RD1000-5-Pav</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>RD1000-5-Surf</td>
<td>78,000</td>
<td>15%</td>
<td>66,300</td>
<td>3</td>
<td>45%</td>
<td>35,100</td>
<td>FVP Gravel</td>
<td>10</td>
<td>12.50%</td>
<td>8,288</td>
</tr>
<tr>
<td>8,507,250</td>
<td>4,136,113</td>
<td>7,580,638</td>
<td>43,443</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Calculation uses FVP Consumption Based Depreciation method. The rates and assumptions applied are not actual and only used for purposes of demonstrating calculation.

**Cost approach (sub-component level)**

This approach is a variation on the direct cost approach and should be used for cyclical maintenance assets where the market evidence of cost needs to be determined at the sub-component level. This occurs most often where the component being valued can consist of a range of designs or is overly complex. As a consequence the component’s GCRC needs to be built up using a quantity surveyor approach.

A good example is a set of traffic signals. While the portfolio of traffic signals may comprise the same components (poles, lights, controllers, audio signals) the actual design and inclusions between individual traffic signals can vary significantly. As a result it is not possible to apply a standard unit rate at the component level.

As a consequence the GCRC for each component needs to be calculated using a standard unit rate for each sub-component. Depending upon the nature of the asset it may also involve including allowances for design, construction and project management.
Having determined the gross replacement cost, the depreciated current replacement cost and depreciation expense of each component needs to be calculated.

In this example we have used a traditional straight-line approach based on useful life less age to determine the RUL. Ultimately, it is the responsibility of the entity to determine the appropriate pattern of consumption, and apply an appropriate methodology to determine the written-down value (fair value) and depreciation expense.

<table>
<thead>
<tr>
<th>Component</th>
<th>GCRC</th>
<th>Residual value %</th>
<th>Residual value amount</th>
<th>Depreciable amount</th>
<th>Age</th>
<th>Useful life</th>
<th>RUL</th>
<th>WDV</th>
<th>Depreciation expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poles</td>
<td>24,700</td>
<td>25%</td>
<td>6,175</td>
<td>18,525</td>
<td>22</td>
<td>50</td>
<td>28</td>
<td>16,549</td>
<td>371</td>
</tr>
<tr>
<td>Lights</td>
<td>48,000</td>
<td>30%</td>
<td>14,400</td>
<td>33,600</td>
<td>22</td>
<td>30</td>
<td>8</td>
<td>23,360</td>
<td>1,120</td>
</tr>
</tbody>
</table>

72,700

39,909

1,491

Cost approach (specialised)

Some assets, such as landfill sites, require the development of a very detailed and specialised approach. These need to take into account the extreme complexity of the asset as well as the associated complex asset accounting requirements.

In the case of landfill sites this includes building in estimates for future regeneration and adjusting the annual valuation and depreciation calculations to reflect the creation and filling of the cells which comprise part of the overall landfill asset.

One of the difficulties with such assets is that they are continually undergoing change and estimates of future capacity and design also experience regular reassessment. The useful life of these assets can be long and uncertain and the nature of the activity typically involves transforming land from poor quality to land that is used for sporting or recreational facilities, or possibly industrial use. As a consequence, the valuation requires considerable professional expertise and should only be undertaken by appropriately qualified and experience valuers.

For this example we will use a landfill site. Landfills usually comprise a number of cells which are constructed at different times throughout the lifecycle of the facility. As one cell is filled and capped, another cell is prepared and opened. Other costs are also incurred, including construction of a leachate pond and internal roads. Once the entire site is filled it is monitored and often turned into sporting fields or green space. Eventually it may be converted into industrial land.

In most jurisdictions there is a legal obligation requiring the site to be remediated once the site is filled. Under IAS 16 Property, Plant and Equipment such costs also need to be included as part of the gross current replacement cost.

One of the complexities of landfill sites is that the costs are incurred over a long period of time and as a result the costs of completed cells still require indexing to enable the gross cost of the entire facility to remain current.
### Site construction costs

<table>
<thead>
<tr>
<th></th>
<th>Qty measure</th>
<th>Rate</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site clearing and earthwork</td>
<td>30,000 M³</td>
<td>25</td>
<td>$750,000</td>
</tr>
<tr>
<td>Leachate</td>
<td>1,000 M³</td>
<td>150</td>
<td>$150,000</td>
</tr>
<tr>
<td>Internal road 1</td>
<td>500 Meters</td>
<td>50</td>
<td>$25,000</td>
</tr>
<tr>
<td>Internal road 2</td>
<td>350 Meters</td>
<td>40</td>
<td>$17,500</td>
</tr>
<tr>
<td>Vegetation and softscaping</td>
<td>3,000 M²</td>
<td>15</td>
<td>$45,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>$987,500</strong></td>
</tr>
</tbody>
</table>

### Cells

<table>
<thead>
<tr>
<th>Cells</th>
<th>Previous year gross</th>
<th>Indexation adjustment</th>
<th>Adjusted opening balance</th>
<th>CAPEX this</th>
<th>Total gross (prior to remediation)</th>
<th>Estimated remediation costs</th>
<th>Total GCRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$100,000</td>
<td>3.10%</td>
<td>$103,100</td>
<td>$103,100</td>
<td>$20,000</td>
<td>$123,100</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>$140,000</td>
<td>3.10%</td>
<td>$144,340</td>
<td>$144,340</td>
<td>$25,000</td>
<td>$169,340</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>$200,000</td>
<td>3.10%</td>
<td>$206,200</td>
<td>$206,200</td>
<td>$35,000</td>
<td>$241,200</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>$130,000</td>
<td>3.10%</td>
<td>$134,030</td>
<td>$134,030</td>
<td>$25,000</td>
<td>$159,030</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>$80,000</td>
<td>3.10%</td>
<td>$82,480</td>
<td>$40,000</td>
<td>$20,000</td>
<td>$142,480</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>$25,000</td>
<td>$25,000</td>
<td>$25,000</td>
<td>$50,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$650,000</td>
<td></td>
<td>$670,150</td>
<td>$65,000</td>
<td>$150,000</td>
<td>$885,150</td>
<td></td>
</tr>
</tbody>
</table>

### Total land fill costs

<table>
<thead>
<tr>
<th></th>
<th>Asset</th>
<th>Liability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site construction</td>
<td>$987,500</td>
<td></td>
</tr>
<tr>
<td>Cells</td>
<td>$885,150</td>
<td>$150,000</td>
</tr>
<tr>
<td>Gross current replacement cost</td>
<td>$1,872,650</td>
<td>$150,000</td>
</tr>
</tbody>
</table>

Having determined the fair value an appropriate methodology needs to be employed to calculate depreciation expense.
Year-end requirements

Year-end assessment

Some of the more commonly overlooked requirements are those that relate to year end. IAS 16 Property, Plant and Equipment and IAS 36 Impairment of Assets require an annual assessment at the end of the financial year of whether the carrying amount would be materially different from its fair value if the fair value was recalculated as at balance date.

In particular, to provide this analysis, assessments need to be made as to whether there have been any changes in:

- the underlying unit rate or replacement cost;
- useful life and remaining useful life;
- residual value; or
- pattern of consumption.

The standards then provide a number of alternative scenarios as highlighted in the following diagram.

Figure 21: Decision tree year-end processes
RUL, residual value, pattern of consumption) you would need to prospectively change the rate of depreciation. This creates issues for many financial accounting systems. Some automatically change the WDV as a result in changes in the assumptions rather than keeping the WDV and making prospective changes to the depreciation rate.

However, if some individual assets would be materially misstated you have some options.

- If the carrying amount is less than the fair value you can either:
  - revalue the asset (you do not have to revalue entire class as the impact by definition is immaterial); or
  - keep the same value but prospectively change the depreciation rate.

- If the carrying amount is greater than the fair value, IAS 36 impairment comes into play and the carrying amount will need to change. However, as with the scenario for an overall material impact, we would recommend a revaluation of the affected assets rather than an impairment write-down.

Why you should do annual revaluations

The various prescribed requirements for most jurisdictions recommend that comprehensive revaluations (full inspection and validation) be undertaken every three years. It is an absolute maximum of five years where there is little evidence of material change. Desktop revaluations must be done annually.

However, IAS 16 Property, Plant and Equipment requires that revaluations be undertaken regularly and mandates that an annual assessment be undertaken. If there are indicators of material differences, the entire class of asset must be revalued. As a result, any prescribed requirements setting out defined revaluation schedules should only be seen as a minimal guide.

Revaluations shall be made with sufficient regularity to ensure that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.80

The most cost-effective way to satisfy the requirements is to undertake a comprehensive revaluation every three years with interim revaluations conducted annually via the use of indexation. These are commonly referred to as interim or desktop revaluations.

Annual interim revaluations provide a number of significant benefits. They ensure:

- the asset registers are better maintained;
- figures are reported more accurately;
- entities save significant costs relating to complex accounting treatments;
- costs used for asset management planning purposes are maintained at current cost levels ensuring more accurate budget forecasting; and
- capital works on existing assets which have been capitalised as a new asset are cleared with the master asset restated to the new fair value.

If an annual desktop revaluation is not undertaken the entity is exposed to a number of risks. These include:

- the risk of an audit determining that the carrying amount does not reflect fair value;
- the risk of an audit being unable to determine whether the carrying amount reflects the fair value;
- the risk of asset registers getting out of control, with multiple entries for one physical asset. This is extremely common and makes asset management planning very difficult;
- the complexity of undertaking prospective depreciation calculations. Many finance systems cannot do this well;
- the complexity of creating separate impaired assets registers with separate depreciation calculations for the impairment;
- the risk of asset registers not being maintained resulting in huge costs to rectify at comprehensive revaluation time. This is very common and is the main reason for high valuation costs; and
- the risk of data used for financial planning and reporting being materially incorrect.

80 IAS 16 Property, Plant and Equipment Paragraph 31
When undertaking a desktop revaluation, care does need to be taken to ensure all necessary requirements are complied with. In addition to applying an index (to adjust for the change in the cost of the asset) the entity must also assess and adjust for changes in:

- additions and deletions to the asset register;
- the condition or indicators of impairment;
- pattern of consumption;
- residual value; and
- useful life and RUL.

It is also important that the review of these factors be clearly documented for the audit process.

**Year-end checklist**

The accounting standards require the review of a range of aspects of valuations as at the end of the year. These include the review of aspects impacting or indicators of:

- Value
- Depreciation
- Impairment

Attachment G: Year-end checklist provides a summary of key requirements and disclosures required by the various asset-related standards as at the end of the financial reporting period.
Each of the relevant accounting standards requires specific disclosures and IFRS 13 Fair Value provides an additional range of disclosures that apply to all assets reported at fair value.

This section summarises the disclosure requirements relating to IFRS 13 Fair Value and IAS 16 Property Plant and Equipment. Specific details of the disclosure requirements relating to the other accounting standards should be sourced directly from the relevant accounting standards.

Required disclosures by standard

IFRS 13 Fair Value disclosures

The following tables provide an overview of the various disclosure requirements. Detailed information is included in Attachment G: Year-end checklist. Some disclosures are mandated with respect to all assets valued at fair value whereas as some apply depending upon whether the fair value is deemed to be a recurring or non-recurring fair value measurement and also whether the valuation input is defined as being either Level 1,2 or 3.

Mandatory

Table 14: IFRS 13 disclosures (general)

<table>
<thead>
<tr>
<th>General disclosures</th>
</tr>
</thead>
<tbody>
<tr>
<td>An entity shall determine appropriate classes of assets and liabilities on the basis of the following:</td>
</tr>
<tr>
<td>the nature, characteristics and risks of the asset or liability; and</td>
</tr>
<tr>
<td>the level of the fair value hierarchy within which the fair value measurement is categorised.</td>
</tr>
</tbody>
</table>

An entity shall disclose and consistently follow its policy for determining when transfers between levels of the fair value hierarchy are deemed to have occurred. The policy about the timing of recognising transfers shall be the same for transfers into the levels as for transfers out of the levels. Examples of policies for determining the timing of transfers include the following:

- the date of the event or change in circumstances that caused the transfer;
- the beginning of the reporting period; and
- the end of the reporting period.

If an entity makes an accounting policy decision to use the exception in paragraph 48 (Application to financial assets and financial liabilities with offsetting positions in market risks or counterparty credit risk), it shall disclose that fact.

For each class of assets and liabilities not measured at fair value in the statement of financial position but for which the fair value is disclosed, an entity shall disclose:

- the level of fair value hierarchy;
- for levels 2 and 3 a description of the valuation techniques and inputs. If there has been a change the change and reason for the change; and
- a narrative description of the sensitivity of the fair value to changes in unobservable inputs.

An entity shall present the quantitative disclosures required by this standard in a tabular format unless another format is more appropriate.

- The valuation techniques and inputs used to determine fair value
- The fair value measurement at the end of the reporting period
- The level of the fair value hierarchy within which the fair value measurements are categorised in their entirety (Level 1, 2 or 3)

Recurring

Recurring fair value measurements of assets or liabilities are those that other Accounting Standards require or permit in the statement of financial position at the end of each reporting period.

Examples include the valuation of land, buildings, community and infrastructure assets, inventory, investment properties, etc.
### Table 15: IFRS 13 disclosures (recurring)

<table>
<thead>
<tr>
<th>Level of Input</th>
<th>Disclosure dependent upon level of valuation input</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The amounts of any transfers between Level 1 and Level 2 of the fair value hierarchy, the reasons for those transfers and the entity’s policy for determining when transfers between levels are deemed to have occurred. Transfers into each level shall be disclosed and discussed separately from transfers out of each level.</td>
</tr>
<tr>
<td>2</td>
<td>A description of the valuation technique(s) and the inputs used in the fair value measurement. If there has been a change in valuation technique (for example, changing from a market approach to an income approach or the use of an additional valuation technique), the entity shall disclose that change and the reason(s) for making it.</td>
</tr>
<tr>
<td>3</td>
<td>The effect of the measurements on profit or loss or other comprehensive income for the period.</td>
</tr>
<tr>
<td></td>
<td>Quantitative information about the significant unobservable inputs used in the fair value measurement. An entity is not required to create quantitative information to comply with this disclosure requirement if quantitative unobservable inputs are not developed by the entity when measuring fair value (for example, when an entity uses prices from prior transactions or third-party pricing information without adjustment). However, when providing this disclosure an entity cannot ignore quantitative unobservable inputs that are significant to the fair value measurement and are reasonably available to the entity.</td>
</tr>
<tr>
<td></td>
<td>A reconciliation from the opening balances to the closing balances, disclosing separately changes during the period attributable to the following:</td>
</tr>
<tr>
<td></td>
<td>• total gains or losses for the period recognised in profit or loss (at line item level);</td>
</tr>
<tr>
<td></td>
<td>• total gains or losses for the period recognised in other comprehensive income (at line item level);</td>
</tr>
<tr>
<td></td>
<td>• purchases, sales, issues and settlements; and</td>
</tr>
<tr>
<td></td>
<td>• the amounts of any transfers into or out of Level 3, the reasons for those transfers and the entity’s policy for determining when transfers between levels are deemed to have occurred. Transfers into Level 3 shall be disclosed and discussed separately from transfers out of Level 3.</td>
</tr>
<tr>
<td></td>
<td>The amount of the total gains or losses for the period attributable to the change in unrealised gains or losses relating to those assets and liabilities held at the end of the reporting period (at the line item level).</td>
</tr>
<tr>
<td></td>
<td>A description of the valuation processes used by the entity (including, for example, how an entity decides its valuation policies and procedures and analyses changes in fair value measurements from period to period).</td>
</tr>
<tr>
<td></td>
<td>A narrative description of the sensitivity of the fair value measurement to changes in unobservable inputs and if there are interrelationships between those inputs and other unobservable inputs provide a description of those interrelationships and of how they might magnify or mitigate the effect of changes in the unobservable inputs on the fair value measurement.</td>
</tr>
<tr>
<td></td>
<td>If the highest and best use of a non-financial asset differs from its current use, an entity shall disclose that fact and why the non-financial asset is being used in a manner that differs from its highest and best use.</td>
</tr>
</tbody>
</table>

### Non-recurring

Non-recurring fair value measurements of assets or liabilities are those that other accounting standards require or permit in the statement of financial position in particular circumstances. This happens when, for example, an entity measures an asset held for sale at fair value less costs to sell in accordance with AASB 5 Non-current Assets Held for Sale and Discontinued Operations because the asset’s fair value less costs to sell is lower than its carrying amount.
Table 16: IFRS 13 disclosures (non-recurring)

<table>
<thead>
<tr>
<th>Level of Input</th>
<th>Disclosure dependent upon level of valuation Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The reasons for the measurement (given that it is not required)</td>
</tr>
<tr>
<td>2</td>
<td>A description of the valuation technique(s) and the inputs used in the fair value measurement. If there has been a change in valuation technique (for example, changing from a market approach to an income approach or the use of an additional valuation technique), the entity shall disclose that change and the reason(s) for making it.</td>
</tr>
<tr>
<td>3</td>
<td>Quantitative information about the significant unobservable inputs used in the fair value measurement. An entity is not required to create quantitative information to comply with this disclosure requirement if quantitative unobservable inputs are not developed by the entity when measuring fair value (for example, when an entity uses prices from prior transactions or third-party pricing information without adjustment). However, when providing this disclosure an entity cannot ignore quantitative unobservable inputs that are significant to the fair value measurement and are reasonably available to the entity.</td>
</tr>
</tbody>
</table>

IAS 16 Property Plant and Equipment disclosures

The following disclosures are required.

For each class of property, plant and equipment:
- the measurement bases used for determining the gross carrying amount;
- the depreciation methods used;
- the useful lives or the depreciation rates used;
- the gross carrying amount and the accumulated depreciation (aggregated with accumulated impairment losses) at the beginning and end of the period; and
- a reconciliation of the carrying amount at the beginning and end of the period.

Details about:
- the existence and amounts of restrictions on title, and property, plant and equipment pledged as security for liabilities;
- the amount of expenditures recognised in the carrying amount of an item of property, plant and equipment in the course of its construction;
- the amount of contractual commitments for the acquisition of property, plant and equipment; and
- if it is not disclosed separately in the statement of comprehensive income, the amount of compensation from third parties for items of property, plant and equipment that were impaired, lost or given up that is included in profit or loss.

Details about the depreciation methodology including:
- the depreciation methods adopted;
- the estimated useful lives or depreciation rates;
- the amount of depreciation expense and accumulated depreciation; and
- information that allows users to review the policies selected by management, and enables comparisons to be made with other entities.

The nature and effect of a change in an accounting estimate that has an effect in the current period or is expected to have an effect in subsequent periods. This includes changes arising from changes in estimates with respect to:
- residual values;
- the estimated costs of dismantling, removing or restoring items of property, plant and equipment;
- useful lives; and
- depreciation methods.

Details about the valuation including:
- the effective date of the revaluation;
- whether an independent valuer was involved;
- the methods and significant assumptions applied in estimating the items’ fair values;
- the extent to which the items’ fair values were determined directly by reference to observable prices in an active market or recent market transactions on arm’s length terms or were estimated using other valuation techniques;
- for each revalued class of property, plant and equipment, the carrying amount that would have been recognised had the assets been carried under the cost model (does not apply to Australian not-for-profit entities); and
the revaluation surplus, indicating the change for the period and any restrictions on the distribution of the balance to shareholders.

It is also suggested that the following disclosures be provided:

- the carrying amount of temporarily idle property, plant and equipment;
- the gross carrying amount of any fully depreciated property, plant and equipment that is still in use;
- the carrying amount of property, plant and equipment retired from active use and not classified as held for sale in accordance with IFRS 5; and
- when the cost model is used, the fair value of property, plant and equipment when this is materially different from the carrying amount.

Example Disclosure Note

This is a draft document for comment. The example disclosure note will be included in the next draft.
Guidance for specific asset classes

The public sector tends to control a wide range of assets. Examples include but are not limited to the following.

Table 17: Typical asset classes

<table>
<thead>
<tr>
<th>General category</th>
<th>Asset class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land and buildings</td>
<td>Land</td>
</tr>
<tr>
<td></td>
<td>Land improvements</td>
</tr>
<tr>
<td></td>
<td>Landfill</td>
</tr>
<tr>
<td></td>
<td>Buildings (at market value)</td>
</tr>
<tr>
<td></td>
<td>Buildings (at DCRC)</td>
</tr>
<tr>
<td></td>
<td>Other structures</td>
</tr>
<tr>
<td></td>
<td>Building contents</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>Art works</td>
</tr>
<tr>
<td></td>
<td>Fleet</td>
</tr>
<tr>
<td></td>
<td>Plant and equipment</td>
</tr>
<tr>
<td>Parks and gardens</td>
<td>Parks and open space</td>
</tr>
<tr>
<td></td>
<td>Playgrounds</td>
</tr>
<tr>
<td>Road infrastructure</td>
<td>Sealed roads</td>
</tr>
<tr>
<td></td>
<td>Unsealed roads</td>
</tr>
<tr>
<td></td>
<td>Bridges</td>
</tr>
<tr>
<td></td>
<td>Culverts</td>
</tr>
<tr>
<td></td>
<td>Kerb and channel</td>
</tr>
<tr>
<td></td>
<td>Traffic signals</td>
</tr>
<tr>
<td></td>
<td>Traffic management devices (TMDs)</td>
</tr>
<tr>
<td></td>
<td>Road furniture and signs</td>
</tr>
<tr>
<td></td>
<td>Street lighting</td>
</tr>
<tr>
<td>Stormwater and drainage infrastructure</td>
<td>Drains</td>
</tr>
<tr>
<td></td>
<td>Stormwater pits and civil assets</td>
</tr>
<tr>
<td></td>
<td>Gross pollutant traps (GPTs)</td>
</tr>
<tr>
<td>Water infrastructure</td>
<td>Water mains</td>
</tr>
<tr>
<td></td>
<td>Water meters and services</td>
</tr>
<tr>
<td></td>
<td>Water equipment and civil assets</td>
</tr>
<tr>
<td></td>
<td>Dams, weirs and canals</td>
</tr>
<tr>
<td>Sewerage infrastructure</td>
<td>Sewerage pipes</td>
</tr>
<tr>
<td></td>
<td>Sewerage manholes</td>
</tr>
<tr>
<td></td>
<td>Sewerage equipment and civil assets</td>
</tr>
<tr>
<td>Miscellaneous infrastructure</td>
<td>Major civil assets</td>
</tr>
<tr>
<td></td>
<td>Marine assets</td>
</tr>
<tr>
<td></td>
<td>Footpaths and cycle ways</td>
</tr>
</tbody>
</table>

The following guidance is provided for a selection of these different asset types. The following should be seen as guidance only. Ultimately it is the responsibility for the entity to adopt and approach whichever, is appropriate given the entity’s particular circumstances and requirements.

Land

In most jurisdictions it is illegal for anyone other than an appropriately qualified valuer to value land. This also applies to the application of an index against a valuation previously provided by a valuer.

Freehold

Land can be openly traded which would require having what’s known as freehold title. It may also exhibit indicators of some form of impairment. Examples include being flood prone or contaminated. This type of land would normally be valued at market value by a valuer.

Restricted

In the public sector a significant amount of land is designated as crown land, reserve, or has specific restrictions placed upon it resulting in its inability to be traded in the market. Likewise not-for-profit entities may control buildings that sit on reserve or public land. As a consequence the valuation approach will be either the income or cost approach.

The income approach should only be used if its value is primarily dependent on its income generating capability. The use of discounted lease streams to provide access to sections of the community that could not afford to pay the lease at a full market rate would indicate that the value of the asset is not dependent on its cash-generating capability. Any income approach should only be undertaken by a properly qualified valuer.

Any remaining land needs to be valued on the cost basis. This requires gaining an understanding of the characteristics of the land and determining how much it would cost to acquire it if it were owned by a third party and you had to purchase it from them. This would mean that the land would need to be held in freehold title and any restrictions placed upon it by the current owner are irrelevant. The cost would be the same as the market value of the site assuming it was held in freehold title and not subject to any restrictions (other than those normally existing for freehold title in that location).
Buildings (valued at market value)

The market value will need to be determined for the entire site (including all structures and improvements) and allocated against the land and buildings. As this involves the valuation of land it would normally be undertaken by an appropriately qualified valuer.

Having determined the overall market value of the site (either by direct market comparison or using the Income approach) the valuer needs to determine the value of the land component. This is typically done using the vacant land rate. The difference between the overall market value and the land component is the building part.

Componentisation

To satisfy the definition of being a component it must have a separate value. As a consequence a detached house would be the only component.

However if the property was a block of units or terrace houses (as each unit could be independently bought and sold) each unit would be classified as a separate component. The same would apply for strata title units in a commercial building. In some circumstances (such as when the units will not be made available for individual sale) it may be appropriate to value and depreciate the entire building as one asset.

Gross value disclosure

Most jurisdictions require the use of the gross disclosure method for non-current assets. As such the financial statements include a reconciliation disclosure note of movement between the opening and closing balances of gross value, accumulated depreciation and the written-down value (fair value).

For assets valued on the cost basis the determination of these movements is relatively straight forward. However for assets valued at market value the question of “What is the gross value?” can sometimes be seen as problematic.

The answer is however relatively easy. When valuing assets at market value the market value represents both the gross and WDV values. After twelve months (assuming no revaluation) the difference between the two is one year’s depreciation expense.

Pattern of consumption and depreciation

The determination of the appropriate pattern of consumption for assets valued at market value is particularly difficult. This is because for any individual asset the factors that drive the determination of value can be highly varied and their impact can also change significantly in a very short period of time.

The valuer should give due consideration to evidence from the market in order to assess what the pattern of consumption has been in the past and use professional judgement to determine whether the pattern in the future is likely to be:

- Constant
- Increasing curve
- Decreasing curve
- S-curve
- Some other pattern

Consideration also needs to be given to whether the building or units contain a residual value. If it is likely the building will eventually be decommissioned and removed the residual value is likely to be nil. However if the building exhibits heritage or other similar characteristics and is unlikely to be demolished it is possible that a residual value does exist and needs to be taken into account.

These assumptions need to be well documented and applied appropriately to perform the depreciation calculations.

Buildings and other structures (valued using the cost approach)

These typically comprise buildings and structures that are constructed with special properties or designs, built in specific locations or on non-freehold land that result in the asset not being able to bought and sold in an open and liquid market. The various assets may comprise an overall facility that delivers a particular service to the community. As such they need to be valued on the cost approach. Examples include hospitals, prisons, council administration buildings, court houses, aquatic centres, works depots, etc.

Identification of the asset within the facility

These types of asset can become quite complex. There may be a number of different buildings or other structures...
on the same site, one building may sit on a number of different land titles or multiple assets may sit across a range of separate land titles.

The types of assets on the site may include a range of buildings as well as a range of other structures such as:

- Car ports and pergolas
- Footpaths
- Fences
- Retaining walls
- Swimming pools
- Sport or recreational facilities
- Fountains and water features
- Hardstand and parking areas
- Landscaping and gardens
- Security lighting

Each of these should be valued as separate assets with their own features, characteristics, condition, costs and depreciation. Together they comprise the total cost of the facility. Typically they may be separated as follows (examples only) with the main difference between a building and other structures being the existence of a roof.

**Table 18: Common building and other structure assets**

<table>
<thead>
<tr>
<th>Buildings</th>
<th>Other structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings</td>
<td>Hardstands</td>
</tr>
<tr>
<td>Sheds</td>
<td>Fences</td>
</tr>
<tr>
<td>Pergolas</td>
<td>Retaining walls</td>
</tr>
<tr>
<td>Covered walkways</td>
<td>Security lights</td>
</tr>
<tr>
<td>Shade structures</td>
<td>Footpaths</td>
</tr>
<tr>
<td>Bus shelters</td>
<td>Fountains and water features</td>
</tr>
<tr>
<td>Toilets</td>
<td>Swimming pools</td>
</tr>
<tr>
<td></td>
<td>Sporting facilities</td>
</tr>
<tr>
<td></td>
<td>Landscaping and gardens</td>
</tr>
<tr>
<td></td>
<td>Irrigation systems</td>
</tr>
</tbody>
</table>

**Thresholds**

Consideration also needs to be given to setting appropriate capitalisation and revaluation thresholds.

The capitalisation threshold should be established for each asset class at a level where the cost of treating the cost of acquisition as an asset is considered to exceed the benefits received given the overall cost. This level will vary from organisation to organisation and guidance or instruction is often provided by over-riding prescribed requirements such as those issued by Treasury. All assets with an estimated value above this level need to be recorded in the asset register and brought to account.

Assets below this level should be expensed. However given the nature of these assets it may be appropriate to record them in a register of portable and attractive items and implement appropriate annual inventory procedures to account for their existence.

A revaluation threshold should also be established that provides for a level where the risk of not revaluing the assets below this threshold is considered to be less than the cost involved in including them in the revaluation. While setting this threshold is subjective and requires professional judgement typically it is set where the value of assets subject to the revaluation is greater than 70 per cent.

Depending on the nature of the portfolio and percentage of assets included in the revaluation exercise it may be appropriate to either:

- keep those assets excluded from the revaluation at their existing values and continue depreciating them; or
- adjust the valuation of the assets excluded from the valuation by use an appropriate index. This typically would be calculated from the results of the actual valuation.

For example given a capitalisation threshold of $5,000 it would be appropriate to:

- set a revaluation threshold of $20,000 if 85 per cent of the value of the total portfolio was expected to be greater than $20,000; and
- adjust the value of the assets below $20,000 by the average percentage increase in cost that was determined for the assets above $20,000.

**Componentisation**

Each asset will need to be componentised to allow for condition assessment and determination of depreciation expense. Each component should:

- be significant in cost (however for asset management purposes many organisation choose to treat some parts with lower costs as a separate component); and
- have a different useful life or depreciation pattern

Typical components include the following. However consideration needs to be given to the level of detail required given the size and nature of the associated facility asset. The conclusions reached from this analysis should be incorporated into the entity’s non-current assets policy or valuation and depreciation methodology.
### Table 19: Typical components (buildings and other structures)

<table>
<thead>
<tr>
<th>Buildings</th>
<th>Other Structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor</td>
<td>Hardstands</td>
</tr>
<tr>
<td>Envelope / structure</td>
<td>Earthworks</td>
</tr>
<tr>
<td>Floor coverings</td>
<td>Pavement</td>
</tr>
<tr>
<td>Internal fit out</td>
<td>Surface</td>
</tr>
<tr>
<td>Roof</td>
<td></td>
</tr>
<tr>
<td>Mechanical services</td>
<td></td>
</tr>
<tr>
<td>Transportation services</td>
<td></td>
</tr>
<tr>
<td>Fire and safety services</td>
<td></td>
</tr>
<tr>
<td>Heating services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fences</td>
</tr>
<tr>
<td></td>
<td>Posts</td>
</tr>
<tr>
<td></td>
<td>Rails</td>
</tr>
<tr>
<td></td>
<td>Fence Material</td>
</tr>
<tr>
<td></td>
<td>Retaining Walls</td>
</tr>
<tr>
<td></td>
<td>Structure</td>
</tr>
<tr>
<td></td>
<td>Security Lights</td>
</tr>
<tr>
<td></td>
<td>Poles</td>
</tr>
<tr>
<td></td>
<td>Lights</td>
</tr>
<tr>
<td></td>
<td>Footpaths</td>
</tr>
<tr>
<td></td>
<td>Left</td>
</tr>
<tr>
<td></td>
<td>Right</td>
</tr>
<tr>
<td></td>
<td>Fountains and Water Features</td>
</tr>
<tr>
<td></td>
<td>Structure</td>
</tr>
<tr>
<td></td>
<td>Pump</td>
</tr>
<tr>
<td></td>
<td>Controller</td>
</tr>
<tr>
<td></td>
<td>Swimming Pools</td>
</tr>
<tr>
<td></td>
<td>Pool</td>
</tr>
<tr>
<td></td>
<td>Filtration and dosing system</td>
</tr>
<tr>
<td></td>
<td>Pumps</td>
</tr>
<tr>
<td></td>
<td>Sporting Facilities (e.g. tennis court)</td>
</tr>
<tr>
<td></td>
<td>Court</td>
</tr>
<tr>
<td></td>
<td>Fence</td>
</tr>
<tr>
<td></td>
<td>Lighting</td>
</tr>
<tr>
<td></td>
<td>Landscaping and Gardens</td>
</tr>
<tr>
<td></td>
<td>Softscaping</td>
</tr>
<tr>
<td></td>
<td>Garden Beds</td>
</tr>
<tr>
<td></td>
<td>Structures</td>
</tr>
<tr>
<td></td>
<td>Furniture</td>
</tr>
<tr>
<td></td>
<td>Services</td>
</tr>
<tr>
<td></td>
<td>Irrigation Systems</td>
</tr>
<tr>
<td></td>
<td>Pipes</td>
</tr>
<tr>
<td></td>
<td>Sprinklers</td>
</tr>
<tr>
<td></td>
<td>Pumps</td>
</tr>
<tr>
<td></td>
<td>Controllers</td>
</tr>
</tbody>
</table>

### Determining the gross current replacement cost

The cost will typically be determined by either or a combination of:

- Recent construction costs by the entity or a similar entity
- Details provided from an industry construction guide
- Benchmarks against similar entities
- Valuers in-house cost databases

The source of data and process used to arrive at the final cost needs to be well documented. It also needs to be assessed against the level of valuation input as specified in IFRS 13 Fair Value as different levels have a significant impact on the level of disclosure required in the financial statements.

### Pattern of consumption and depreciation

Due consideration needs to be given to the:

- factors that drive the economic consumption of the asset and each component;
- likely pattern of consumption for each component; and
- likely asset management treatments and subsequent impact on useful life and residual value for each component.

The drivers of consumption are usually holistic (such functionality, capacity, utilisation, obsolescence, equitable access, safety) and component-specific (such as physical condition and maintenance history). Typically, as buildings age, the impact of the holistic factors becomes increasingly important and physical condition less important.

Once assessed these and the assessed pattern of consumption need to be documented and used within an appropriate valuation and depreciation methodology to determine the level of consumed future economic benefit (accumulated depreciation) and depreciation expense.

It is also important to document the evidence to support the key assumption used to support the valuation. If this is not possible it may be an indicator that the methodology being adopted may not be appropriate and therefore consideration should be given to using an alternative methodology.

### Using a weighted average across the whole building

In the past some jurisdictions have recommended the use of a weighted average depreciation expense, which is then
applied to the value of the entire building.

This method is not appropriate.

In the basis for conclusions supporting IAS 16 Property, Plant and Equipment it was noted that:

Of particular concern to the Board were situations in which the unit of measure is the item as a whole, even though that item may be composed of significant parts with individually varying useful lives or consumption patterns. The Board did not believe that, in these situations, an entity’s use of approximation techniques, such as a weighted average useful life for the item as a whole, resulted in depreciation that faithfully represents an entity’s varying expectations for the significant parts.\footnote{Basis of conclusions IAS 16 Property, Plant and Equipment BC26}

Road infrastructure

Road infrastructure typically comprises a range of different asset types which, due to their different nature, characteristics and asset management regimes, should be classified as different asset classes. Typically, these include:

- Sealed roads
- Unsealed roads
- Bridges
- Culverts
- Kerb and channel (gutters)
- Traffic signals
- Traffic management devices
- Road furniture and signs
- Street lighting
- Footpaths and cycleways
- Stormwater and drainage

Segmentation

The bulk of these types of assets are commonly referred to as lateral assets, because they stretch for some distance. As such these assets need to be segmented.

Each segment should be homogeneous in that they should comprise the same characteristics (such as width and material) and have the same condition across the entire segment. Once the overall portfolio is segmented into these different sub-populations, the valuation can be then be performed efficiently using a range of assumptions.

In an urban environment it is usual to break the segments into intersections.

However, in a rural environment the distance between intersections may be long, with the road experiencing significant change in the underlying characteristics and condition. In this situation it is advisable to set a maximum segment length and to set smaller segments in places where that part of the road network is expected to have a different consumption pattern from the other parts.

For example, a rural local government may set a maximum segment length of 1,000 metres. However, it may have shorter lengths in areas of known flooding or which experience particularly heavy traffic or loads. As a consequence the road may be segmented as follows.

Componentisation

Each asset will need to be componentised to allow for condition assessment and determination of depreciation expense. Each component should:

- be significant in cost (however, for asset management purposes many organisations choose to treat some parts with lower costs as a separate component); and
- have a different useful life or depreciation pattern.

<table>
<thead>
<tr>
<th>Asset Name</th>
<th>Segment Number</th>
<th>Chainage Start</th>
<th>Chainage End</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queens Road (0 - 1000)</td>
<td>1</td>
<td>0</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>Queens Road (1000 - 1780)</td>
<td>2</td>
<td>1000</td>
<td>1780</td>
<td>780</td>
</tr>
<tr>
<td>Queens Road (1780 - 2100)</td>
<td>3</td>
<td>1780</td>
<td>2100</td>
<td>320</td>
</tr>
<tr>
<td>Queens Road (2100 - 3100)</td>
<td>4</td>
<td>2100</td>
<td>3100</td>
<td>1000</td>
</tr>
<tr>
<td>Queens Road (3100 - 4100)</td>
<td>5</td>
<td>3100</td>
<td>4100</td>
<td>1000</td>
</tr>
<tr>
<td>Queens Road (4100 - 4750)</td>
<td>6</td>
<td>4100</td>
<td>4750</td>
<td>650</td>
</tr>
<tr>
<td>Queens Road (4750 - 5000)</td>
<td>7</td>
<td>4750</td>
<td>5000</td>
<td>250</td>
</tr>
</tbody>
</table>

Typical components include the following. However consideration needs to be given to the level of detail required, given the size and nature of the asset. The conclusions reached from this analysis should be incorporated into the entity’s non-current assets policy, or valuation and depreciation methodology.
Table 21: Typical components (roads infrastructure)

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sealed roads</td>
<td>Seal</td>
</tr>
<tr>
<td></td>
<td>Pavement</td>
</tr>
<tr>
<td></td>
<td>Formation</td>
</tr>
<tr>
<td></td>
<td>Earthworks (only if significantly different from formation)</td>
</tr>
<tr>
<td>Unsealed roads</td>
<td>Surface</td>
</tr>
<tr>
<td></td>
<td>Formation</td>
</tr>
<tr>
<td></td>
<td>Earthworks (only if significantly different from formation)</td>
</tr>
<tr>
<td>Bridges</td>
<td>Superstructure</td>
</tr>
<tr>
<td></td>
<td>Sub-structure</td>
</tr>
<tr>
<td></td>
<td>Rails</td>
</tr>
<tr>
<td></td>
<td>Surface / decking</td>
</tr>
<tr>
<td></td>
<td>Note : If bridges are small, one component only may suffice.</td>
</tr>
<tr>
<td>Culverts</td>
<td>Culvert</td>
</tr>
<tr>
<td>Kerb and channel</td>
<td>Left kerb</td>
</tr>
<tr>
<td></td>
<td>Right kerb</td>
</tr>
<tr>
<td></td>
<td>Traffic islands</td>
</tr>
<tr>
<td>Traffic signals</td>
<td>Poles</td>
</tr>
<tr>
<td></td>
<td>Signals</td>
</tr>
<tr>
<td></td>
<td>Controllers</td>
</tr>
<tr>
<td></td>
<td>Audio systems</td>
</tr>
<tr>
<td>Traffic management devices (TMDs)</td>
<td>Device</td>
</tr>
<tr>
<td>Road furniture and signs</td>
<td>Asset</td>
</tr>
<tr>
<td>Street lighting</td>
<td>Poles</td>
</tr>
<tr>
<td></td>
<td>Lights</td>
</tr>
<tr>
<td>Footpaths and cycleways</td>
<td>Left</td>
</tr>
<tr>
<td></td>
<td>Right</td>
</tr>
<tr>
<td>Stormwater and drainage</td>
<td>Pipes and drains (closed pipe, open channel and drains)</td>
</tr>
<tr>
<td></td>
<td>Stormwater pits and civil assets</td>
</tr>
<tr>
<td></td>
<td>Gross pollutant traps (GPTs)</td>
</tr>
</tbody>
</table>

Determining the gross current replacement cost

The cost will typically be determined by either or a combination of:

- Recent construction costs by the entity or a similar entity
- Details provided from an industry construction guide
- Benchmarks against similar entities
- Valuer’s in-house cost databases

The source of data and process used to arrive at the final cost needs to be well documented. It also needs to be assessed against the level of valuation input as specified in IFRS 13 Fair Value, as different levels have a significant impact on the level of disclosure required in the financial statements.

Pattern of consumption and depreciation

Due consideration needs to be given to the:

- factors that drive the economic consumption of the asset and each component;
- likely pattern of consumption for each component; and
- likely asset management treatments and subsequent impact on useful life and residual value for each component.

The drivers of consumption are usually holistic (such as functionality, capacity, utilisation, obsolescence, safety and traffic congestion) and component-specific (such as physical condition and maintenance history). Typically, as roads age, the impact of the holistic factors becomes more important. Likewise, over the past 100 years the volume, size and weight of vehicles has also increased leading to the need to design bigger and better new roads or undertake significant renewal work on existing roads. Often this may also lead to the construction of new infrastructure to relieve the stress on the existing network or solve specific traffic congestion issues.

Once assessed the above factors, and the assessed pattern of consumption need to be document and used within an appropriate valuation and depreciation methodology to determine the level of consumed future economic benefit (accumulated depreciation) and depreciation expense.

It is also important to document the evidence to support the key assumption used to support the valuation. If this is not possible it may be an indicator that the methodology being adopted may not be appropriate, and therefore consideration should be given to using an alternative methodology.
Other infrastructure

The process for all other infrastructure is the same as for roads. It includes the identification of the appropriate:

- Segments
- Components
- Costs
- Factors that drive the consumption
- Asset lifecycle and treatments and subsequent impact on useful life and residual value
- Valuation and depreciation methodology

Typical components include the following. However, consideration needs to be given to the amount of detail required, because of the size and nature of the associated facility asset. The conclusions reached from this analysis should be incorporated into the entity’s non-current assets policy or valuation and depreciation methodology.

Table 22: Typical components (other infrastructure)

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water mains</td>
<td>Mains</td>
</tr>
<tr>
<td></td>
<td>Valves</td>
</tr>
<tr>
<td>Water meters and services</td>
<td>Meters</td>
</tr>
<tr>
<td></td>
<td>Services</td>
</tr>
<tr>
<td>Water equipment and civil assets</td>
<td>Civil</td>
</tr>
<tr>
<td></td>
<td>Mechanical</td>
</tr>
<tr>
<td></td>
<td>Electrical</td>
</tr>
<tr>
<td>Dams, weirs and canals</td>
<td>Civil</td>
</tr>
<tr>
<td></td>
<td>Mechanical</td>
</tr>
<tr>
<td></td>
<td>Electrical</td>
</tr>
<tr>
<td>Sewerage mains</td>
<td>Pipes</td>
</tr>
<tr>
<td>Sewerage manholes</td>
<td>Manhole</td>
</tr>
<tr>
<td>Sewerage equipment and civil assets</td>
<td>Civil</td>
</tr>
<tr>
<td></td>
<td>Mechanical</td>
</tr>
<tr>
<td></td>
<td>Electrical</td>
</tr>
<tr>
<td>Major civil assets</td>
<td>Civil</td>
</tr>
<tr>
<td></td>
<td>Mechanical</td>
</tr>
<tr>
<td></td>
<td>Electrical</td>
</tr>
<tr>
<td>Marine assets</td>
<td>Civil</td>
</tr>
<tr>
<td></td>
<td>Mechanical</td>
</tr>
<tr>
<td></td>
<td>Electrical</td>
</tr>
</tbody>
</table>
Overview of audit process

The valuation and depreciation calculations are undertaken for financial reporting purposes, and the process is not completed until the external audit has been successfully completed. In some cases this may be more than six months after the actual valuation was undertaken.

Key elements of an effective asset valuation framework

To ensure the valuation process is conducted efficiently and to a high quality it is important to develop a good asset valuation framework.

In the 2011 review of the valuation of the water sector assets of Victoria the Auditor-General of Victoria noted that:

The revaluation of land, buildings and infrastructure assets can significantly alter the values disclosed in an entity’s financial report. Effective internal controls in relation to asset valuations are therefore important and will mitigate the following strategic and operational risks:

- failure to engage, understand and manage the valuation process
- lack of co-ordination with stakeholders
- lack of data integrity
- inability to maintain accurate and current asset information
- recording of incorrect asset values
- failure to comply with regulatory and legislative requirements.

Effective asset valuation controls and processes include:

- comprehensive policies and procedures
- appropriate management practices
- sound governance and oversight.

The Auditor-General also identified the following key elements of an effective asset valuation framework.

Table 23: Key elements of an effective valuation framework

<table>
<thead>
<tr>
<th>Component</th>
<th>Key elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policies and procedures</td>
<td>Measurement and valuation of non-current physical assets policy. Guidelines should:</td>
</tr>
<tr>
<td></td>
<td>• contain an objective;</td>
</tr>
<tr>
<td></td>
<td>• specify the scope of the policy;</td>
</tr>
<tr>
<td></td>
<td>• specify the frequency the policy should be reviewed and updated;</td>
</tr>
<tr>
<td></td>
<td>• require assets to be valued at a component level;</td>
</tr>
<tr>
<td></td>
<td>• specify the valuation approach for determining fair value;</td>
</tr>
<tr>
<td></td>
<td>• refer to applicable financial reporting framework and its requirements; and</td>
</tr>
<tr>
<td></td>
<td>• be comprehensive.</td>
</tr>
<tr>
<td></td>
<td>Policy and guidelines approved by the board.</td>
</tr>
<tr>
<td>Management practices</td>
<td>Terms of engagement with the qualified valuer documented; agreed with management; and aligned with the requirements of the exercise.</td>
</tr>
<tr>
<td></td>
<td>Comprehensive and regular reporting to management and board. Relevance of valuation methodology reviewed. Reasonableness of the valuation result assessed considering:</td>
</tr>
<tr>
<td></td>
<td>• appropriateness of sample selection, sample size and mix of physical and desktop assessments;</td>
</tr>
<tr>
<td></td>
<td>• appropriateness of the unit costs/indices applied;</td>
</tr>
<tr>
<td></td>
<td>• asset condition considered when assessing useful lives; and</td>
</tr>
<tr>
<td></td>
<td>• reasonableness of the movement in asset value given management understanding of the assets. Recommendation by management to the board</td>
</tr>
<tr>
<td></td>
<td>regarding adoption of valuation results. Management periodic review of policy, procedures and practices.</td>
</tr>
<tr>
<td>Governance and oversight</td>
<td>Policy and procedures approved by the board. Periodic review of policies by management and board. Compliance with approved policy and procedures monitored.</td>
</tr>
<tr>
<td></td>
<td>Proposed valuation methodology reviewed. Reasonableness of the fair values assessed. Fair values adopted for financial reporting.</td>
</tr>
</tbody>
</table>

Source: Victorian Auditor-General’s Office.
Tips

The following tips are recommended to ensure a smooth and clear audit process:

Involve audit at earliest phases of planning for the valuation
This would include discussions on asset classes to be valued; general approach and methodology; software being used; components; use of external experts; audit process; and what they are looking for in terms of sufficient and appropriate evidence. This provides audit with the opportunity to identify and discuss potential issues and their expectations. Inviting their involvement also creates a better working relationship and opens communication channels.

Create clear lines for communication
This also includes communicating with external experts such as valuers. It is important that audit knows who to talk to and how to get hold of them. If you are using external experts ensure they understand the role of audit and are happy to field audit queries (even six months after final delivery).

Once the draft valuation methodology is developed invite audit to provide feedback
This will include defining the valuation basis; the method to calculate gross value; components; factors used to determine depreciation; condition scoring matrix; and patterns of consumption. While they may not want to express an opinion on the appropriateness of the methodology this step does provide the opportunity to identify potential issues. Better to address the issues before too much work begins than have a major issue at financial statement time.

Involve audit in discussions regarding use of sampling and appropriateness of sample sizes
While there are no specific rules on sample size, auditors are very familiar with the concept from an audit sample selection perspective. In determining the sampling approach due consideration needs to be given to materiality, stratification of the portfolio and risk of error.

Document key assumptions and have them reviewed and approved
While some assumptions will be unique for individual assets you will need to develop default assumptions for the different asset types within each asset class. The auditors will want to obtain sufficient and appropriate evidence over the reasonableness of these assumptions. One of the best ways of doing this is to document the assumptions – including the reasoning behind each assumption – and to have a reviewing officer or team independently review and approve the assumptions.

This approach is a standard control of any quality management system and enables the auditors to obtain comfort over the reasonableness of the default assumptions.

Invite audit to attend some Inspections
While they may not want to attend inspections it provides an opportunity for audit to see how the valuation methodology is translated in practice. In particular, how condition scoring and estimates of remaining useful life are assessed. This also provides an opportunity for audit to assess the competence and capability of the people undertaking the inspections.

Undertake and document post-valuation checks
Having completed the valuation calculations it is important to scrutinise the data for obvious errors, incorrect assumptions and missing data. Any documentation to support that this was undertaken (such as validation checks, spreadsheets and reports) should be retained for review by audit.

This quality management control enables audit to obtain comfort over the quality, completeness and accuracy of the calculations.

Ensure audit has access to all data, calculations and supporting documentation
Audit will want to undertake its own analysis of the results, as well as undertake recalculation where possible, and select samples for substantive testing. They will also want to add the totals to agree to the valuation report and figures posted to the general ledger and be able to file the supporting spreadsheet or report electronically in their audit software. It’s important to ensure the final reports are all in agreement!

Provide audit with final, signed output
Ideally this would include scanned copies of:

- Valuation certificate
- Valuation report
- Asset listings spreadsheet
- Final approved valuation methodology including assumptions
- Quality control review conducted by internal officers
Pre-audit checklists

To assist both practitioners and auditors we have included two pre-audit checklists as Attachment D: Pre-audit checklists.

The first is designed specifically to cover the valuation methodology whereas the second covers the asset valuation framework.
Appendices and attachments
## Appendix 1: Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAMCoG</td>
<td>Australian Asset Management Collaboration Group</td>
</tr>
<tr>
<td>AASB</td>
<td>Australian Accounting Standards Board</td>
</tr>
<tr>
<td>CGU</td>
<td>Cash generating units</td>
</tr>
<tr>
<td>CPA</td>
<td>CPA Australia</td>
</tr>
<tr>
<td>DCF</td>
<td>Discounted cash flow</td>
</tr>
<tr>
<td>DCRC</td>
<td>Depreciated current replacement cost</td>
</tr>
<tr>
<td>GCRC</td>
<td>Gross current replacement cost</td>
</tr>
<tr>
<td>IAASB</td>
<td>International Audit and Assurance Standards Board</td>
</tr>
<tr>
<td>IASB</td>
<td>International Accounting Standards Board</td>
</tr>
<tr>
<td>IFAC</td>
<td>International Federation of Accountants</td>
</tr>
<tr>
<td>IFRS</td>
<td>International Financial Reporting Standards</td>
</tr>
<tr>
<td>IPSAS</td>
<td>International Public Sector Accounting Standards</td>
</tr>
<tr>
<td>IPWEA</td>
<td>Institute of Public Works Engineers Association</td>
</tr>
<tr>
<td>KPI</td>
<td>Key performance indicators</td>
</tr>
<tr>
<td>LTFP</td>
<td>Long-term financial plan</td>
</tr>
<tr>
<td>MEA</td>
<td>Modern equivalent asset</td>
</tr>
<tr>
<td>MV</td>
<td>Market value</td>
</tr>
<tr>
<td>NFP</td>
<td>Not for profit</td>
</tr>
<tr>
<td>NPV</td>
<td>Net present value</td>
</tr>
<tr>
<td>RICS</td>
<td>Royal Institute of Chartered Surveyors</td>
</tr>
<tr>
<td>RUL</td>
<td>Reasonable useful life</td>
</tr>
<tr>
<td>RV</td>
<td>Residual value</td>
</tr>
<tr>
<td>UL</td>
<td>Useful life</td>
</tr>
<tr>
<td>WDV</td>
<td>Written down value</td>
</tr>
</tbody>
</table>
## Appendix 2: Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Active market</strong> (IFRS 13)</td>
<td>A market in which transactions for the asset or liability take place with sufficient frequency and volume to provide pricing information on an ongoing basis.</td>
</tr>
<tr>
<td><strong>Active market</strong> (IAS 36)</td>
<td>A market in which all the following conditions exist:</td>
</tr>
<tr>
<td><strong>Active market</strong> (IAS 38)</td>
<td>• The items traded within the market are homogeneous;</td>
</tr>
<tr>
<td><strong>Active market</strong> (IAS 41)</td>
<td>• Willing buyers and sellers can normally be found at any time; and</td>
</tr>
<tr>
<td><strong>Active market</strong> (IAS 41)</td>
<td>• Prices are available to the public.</td>
</tr>
<tr>
<td><strong>Agricultural activity</strong> (IAS 41)</td>
<td>The management by an entity of the biological transformation and harvest of biological assets for sale or for conversion into agricultural produce or into additional biological assets.</td>
</tr>
<tr>
<td><strong>Agricultural produce</strong> (IAS 41)</td>
<td>The harvested product of the entity's biological assets.</td>
</tr>
<tr>
<td><strong>Amortisation</strong> (IAS 38)</td>
<td>The systematic allocation of the depreciable amount of an intangible asset over its useful life.</td>
</tr>
<tr>
<td><strong>Asset</strong> (IAS 38)</td>
<td>A resource:</td>
</tr>
<tr>
<td><strong>Asset</strong> (IAS 38)</td>
<td>• controlled by an entity as a result of past events; and</td>
</tr>
<tr>
<td><strong>Asset</strong> (IAS 38)</td>
<td>• from which future economic benefits are expected to flow to the entity.</td>
</tr>
<tr>
<td><strong>Asset lifecycle</strong></td>
<td>The total period from when an asset is initially created till its final disposal. It includes all activities such as acquisition, maintenance, renewal, upgrade and disposal.</td>
</tr>
<tr>
<td><strong>Asset management framework</strong></td>
<td>The policies, processes, controls, systems and governance arrangements put in place aimed at ensuring an appropriate level of service is delivered to the community in the long term in the most cost-effective manner.</td>
</tr>
<tr>
<td><strong>Biological asset</strong> (IAS 41)</td>
<td>A living animal or plant.</td>
</tr>
<tr>
<td><strong>Biological transformation</strong> (IAS 41)</td>
<td>Comprises the processes of growth, degeneration, production, and procreation that cause qualitative or quantitative changes in a biological asset.</td>
</tr>
<tr>
<td><strong>Borrowing costs</strong> (IAS 23)</td>
<td>Interest and other costs that an entity incurs in connection with the borrowing of funds.</td>
</tr>
<tr>
<td><strong>Capex</strong> (Capital expenditure)</td>
<td>Expenditure which, based on its existing condition, either extends the useful life of an asset or leads to an increase in its remaining service potential.</td>
</tr>
<tr>
<td><strong>Carrying amount</strong> (IAS 16)</td>
<td>The amount at which an asset is recognised after deducting any accumulated depreciation (amortisation) and accumulated impairment losses thereon.</td>
</tr>
<tr>
<td><strong>Carrying amount</strong> (IAS 36)</td>
<td>The amount at which an asset is recognised in the statement of financial position.</td>
</tr>
<tr>
<td><strong>Carrying amount</strong> (IAS 40)</td>
<td></td>
</tr>
<tr>
<td><strong>Carrying amount</strong> (IAS 41)</td>
<td></td>
</tr>
<tr>
<td><strong>Carrying amount</strong> (IAS 38)</td>
<td>Cost is the amount of cash or cash equivalents paid or the fair value of other consideration given to acquire an asset at the time of its acquisition or construction, or, when applicable, the amount attributed to that asset when initially recognised in accordance with the specific requirements of other IFRSs, for example, IFRS 2 Share-based Payment.</td>
</tr>
<tr>
<td><strong>Cash-generating unit</strong> (CGU) (IAS 36)</td>
<td>The smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets.</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
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<td>-------------------------------------</td>
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</tr>
<tr>
<td>Commencement of the lease term</td>
<td>The date from which the lessee is entitled to exercise its right to use the leased asset. It is the date of initial recognition of the lease. That is, the recognition of the assets, liabilities, income or expenses resulting from the lease, as appropriate.</td>
</tr>
<tr>
<td>Component</td>
<td>A significant part of a complex asset which has a different useful life or pattern of consumption from the other significant parts.</td>
</tr>
<tr>
<td>Comprehensive valuation</td>
<td>A revaluation which entails significant levels of physical inspection and evaluation of all appropriate aspects such as methodology, assumptions and unit rates.</td>
</tr>
<tr>
<td>Condition-based depreciation</td>
<td>Depreciation method used to determine physical deterioration and based on a correlation between the physical characteristics and condition of an asset.</td>
</tr>
<tr>
<td>Consumption-based depreciation</td>
<td>Depreciation method used to determine economic consumption and based on consideration of holistic (functionality, capacity, utilisation, obsolescence) as well as the physical characteristics and condition of an asset. Commonly referred to as the Fair Value Pro consumption-based method and based on the Prabhu-Edgerton consumption model.</td>
</tr>
<tr>
<td>Contingent rent</td>
<td>The portion of the lease payments that is not fixed in amount but is based on the future amount of a factor that changes other than with the passage of time (for example, the percentage of future sales, amount of future use, future price indices and future market rates of interest).</td>
</tr>
<tr>
<td>Control</td>
<td>The potential to contribute, directly or indirectly, to the delivery of relevant goods or services in accordance with the entity's objectives of a particular volume, quantity and quality to its beneficiaries including the ability to restrict access of others to those benefits.</td>
</tr>
<tr>
<td>Corporate assets</td>
<td>Assets other than goodwill that contribute to the future cash flows of both the cash-generating unit under review and other cash-generating units.</td>
</tr>
<tr>
<td>Corporate governance</td>
<td>Everything that you do in order to achieve your objectives. Typically this includes such things as policies, procedures, processes, organisation structure and plans.</td>
</tr>
<tr>
<td>Cost</td>
<td>The amount of cash or cash equivalents paid or the fair value of the other consideration given to acquire an asset at the time of its acquisition or construction or, where applicable, the amount attributed to that asset when initially recognised in accordance with the specific requirements of other IFRSs, for example, IFRS 2 Share-based Payment.</td>
</tr>
<tr>
<td>Cost approach</td>
<td>A valuation technique that reflects the amount that would be required currently to replace the service capacity of an asset (often referred to as current replacement cost).</td>
</tr>
<tr>
<td>Costs of disposal</td>
<td>Incremental costs directly attributable to the disposal of an asset or cash-generating unit, excluding finance costs and income tax expense.</td>
</tr>
<tr>
<td>Costs to sell for a group of biological assets</td>
<td>The incremental costs directly attributable to the disposal of an asset, excluding finance costs and income taxes.</td>
</tr>
<tr>
<td>Cyclical maintenance assets</td>
<td>Assets whose life and service potential is regularly extended through on-going maintenance and renewal.</td>
</tr>
<tr>
<td>Depreciated optimised replacement cost (DORC)</td>
<td>A method used to value assets based on an assumption that the asset is efficient with no excess or surplus capacity and based on current costs after allowing for consumed service potential.</td>
</tr>
<tr>
<td>Discounted cash flow (DCF)</td>
<td>An income approach method used to calculate market value. It is based on analysis of cash inflows and outflows, discount rates, beta risk and alternative scenarios.</td>
</tr>
<tr>
<td>Depreciable amount</td>
<td>The cost of an asset, or other amount substituted for cost, less its residual value.</td>
</tr>
<tr>
<td><strong>Depreciated current replacement cost</strong></td>
<td>The gross replacement cost less any accumulated depreciated. It reflects the level of remaining service potential embodied in an asset based on the current replacement cost.</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Depreciation (amortisation)</strong></td>
<td>The systematic allocation of the depreciable amount of an asset over its useful life.</td>
</tr>
<tr>
<td>(IAS 16)</td>
<td></td>
</tr>
<tr>
<td>(IAS 36)</td>
<td></td>
</tr>
<tr>
<td><strong>Development</strong></td>
<td>The application of research findings or other knowledge to a plan or design for the production of new or substantially improved materials, devices, processes, systems or services before the start of commercial production or use.</td>
</tr>
<tr>
<td>(IAS 38)</td>
<td></td>
</tr>
<tr>
<td><strong>Economic life</strong></td>
<td>Either:</td>
</tr>
<tr>
<td>(IAS 17)</td>
<td>• the period over which an asset is expected to be economically usable by one or more users; or</td>
</tr>
<tr>
<td></td>
<td>• the number of production or similar units expected to be obtained from the asset by one or more users.</td>
</tr>
<tr>
<td><strong>Entity specific value</strong></td>
<td>The present value of the cash flows an entity expects to arise from the continuing use of an asset, and from its disposal at the end of its useful life, or expects to incur when settling a liability.</td>
</tr>
<tr>
<td>(IAS 16)</td>
<td></td>
</tr>
<tr>
<td>(IAS 38)</td>
<td></td>
</tr>
<tr>
<td><strong>Entry price</strong></td>
<td>The price paid to acquire an asset or received to assume a liability in an exchange transaction.</td>
</tr>
<tr>
<td>(IFRS 13)</td>
<td></td>
</tr>
<tr>
<td><strong>Exit price</strong></td>
<td>The price that would be received to sell an asset or paid to transfer a liability.</td>
</tr>
<tr>
<td>(IFRS 13)</td>
<td></td>
</tr>
<tr>
<td><strong>Expected cash flow</strong></td>
<td>The probability-weighted average (that is, mean of the distribution) of possible future cash flows.</td>
</tr>
<tr>
<td>(IFRS 13)</td>
<td></td>
</tr>
<tr>
<td><strong>Fair value</strong></td>
<td>The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.</td>
</tr>
<tr>
<td>(IFRS 13)</td>
<td></td>
</tr>
<tr>
<td><strong>Fair value</strong></td>
<td>The amount for which an asset could be exchanged between knowledgeable, willing parties in an arm's length transaction.</td>
</tr>
<tr>
<td>(IAS 16)</td>
<td></td>
</tr>
<tr>
<td>(IAS 40)</td>
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<td>(IAS 17)</td>
<td></td>
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<tr>
<td>(IAS 2)</td>
<td></td>
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<tr>
<td>(IAS 41)</td>
<td></td>
</tr>
<tr>
<td>(IAS 38)</td>
<td></td>
</tr>
<tr>
<td><strong>Fair value less costs to sell</strong></td>
<td>The amount obtainable from the sale of an asset or cash-generating unit in an arm's length transaction between knowledgeable, willing parties, less the costs of disposal.</td>
</tr>
<tr>
<td>(IAS 36)</td>
<td></td>
</tr>
<tr>
<td><strong>Finance lease</strong></td>
<td>A lease that transfers substantially all the risks and rewards incidental to ownership of an asset. Title may or may not eventually be transferred.</td>
</tr>
<tr>
<td>(IAS 17)</td>
<td></td>
</tr>
<tr>
<td><strong>Future economic benefit</strong></td>
<td>The potential to contribute, directly or indirectly, to the delivery of goods and services in accordance with the entity's objectives of a particular volume, quantity or quality to its beneficiaries.</td>
</tr>
<tr>
<td><strong>Gross current replacement cost</strong></td>
<td>The cost of replacing the total potential future economic benefit of the existing asset using either reproduction or modern equivalents after taking into account any differences in the utility of the existing asset and the modern equivalent.</td>
</tr>
<tr>
<td><strong>Government grants</strong> (IAS 41)</td>
<td>As defined in IAS 20 Accounting for Government Grants and Disclosure of Government Assistance.</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| **Gross investment in the lease** (IAS 17) | The aggregate of:  
• the minimum lease payments receivable by the lessor under a finance lease; and  
• any unguaranteed residual value accruing to the lessor. |
| **Group of biological assets** (IAS 41) | An aggregation of similar living animals or plants. |
| **Gross value** | The value of an asset based on current replacement cost prior to the deduction of any accumulated depreciation. |
| **Guaranteed residual value** (IAS 17) | Is:  
• for a lessee, that part of the residual value that is guaranteed by the lessee or by a party related to the lessee (the amount of the guarantee being the maximum amount that could, in any event, become payable); and  
• for a lessor, that part of the residual value that is guaranteed by the lessee or by a third party unrelated to the lessor that is financially capable of discharging the obligations under the guarantee. |
| **Harvest** (IAS 41) | The detachment of produce from a biological asset or the cessation of a biological asset's life processes. |
| **Highest and best use** (IFRS 13) | The use of a non-financial asset by market participants that would maximise the value of the asset or the group of assets and liabilities (for example, a business) within which the asset would be used. |
| **Impairment loss** (IAS 16) (IAS 38) (IAS 36) | The amount by which the carrying amount of an asset or a cash-generating unit exceeds its recoverable amount. |
| **Inception of the lease** (IAS 17) | The earlier of the date of the lease agreement and the date of commitment by the parties to the principal provisions of the lease. As at this date:  
• a lease is classified as either an operating or a finance lease; and  
• in the case of a finance lease, the amounts to be recognised at the commencement of the lease term are determined. |
| **Income approach** (IFRS 13) | Valuation techniques that convert future amounts (for example, cash flows or income and expenses) to a single current (that is, discounted) amount. The fair value measurement is determined on the basis of the value indicated by current market expectations about those future amounts. |
| **Initial direct costs** (IAS 17) | Incremental costs that are directly attributable to negotiating and arranging a lease, except for such costs incurred by manufacturer or dealer lessors. |
| **Inputs** (IFRS 13) | The assumptions that market participants would use when pricing the asset or liability, including assumptions about risk, such as the following:  
• the risk inherent in a particular valuation technique used to measure fair value (such as a pricing model); and  
• the risk inherent in the inputs to the valuation technique.  
Inputs may be observable or unobservable. |
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intangible asset (IAS 38)</td>
<td>An identifiable non-monetary asset without physical substance.</td>
</tr>
</tbody>
</table>
| Interest rate implicit in the lease (IAS 17) | The discount rate that, at the inception of the lease, causes the aggregate present value of:  
  - the minimum lease payments; and  
  - the unguaranteed residual value to be equal to the sum of:  
    - the fair value of the leased asset; and  
    - any initial direct costs of the lessor. |
| Interim revaluation by indexation | Also referred to as a desktop valuation. This type of valuation is based purely on indexation rates and adjustments for additions, deletions and changes in condition (for example, impairment). It should be limited to a maximum of two or three years between comprehensive valuations. |
| Inventories (IAS 2) | Assets held:  
  - for sale in the ordinary course of business;  
  - in the process of production for such sale; or  
  - in the form of materials or supplies to be consumed in the production process or in the rendering of services. |
| Investment property (IAS 40) | Property (land or a building—or part of a building—or both) held (by the owner or by the lessee under a finance lease) to earn rentals or for capital appreciation or both, rather than for:  
  - use in the production or supply of goods or services or for administrative purposes; or  
  - sale in the ordinary course of business. |
<p>| International valuation standards (IVS) | |
| Land under roads (AASB 1051) | Land under roadways, and road reserves, including land under footpaths, nature strips and median strips. |
| Lease (IAS 17) | An agreement whereby the lessor conveys to the lessee in return for a payment or series of payments the right to use an asset for an agreed period of time. |
| Lease term (IAS 17) | The non-cancellable period for which the lessee has contracted to lease the asset together with any further terms for which the lessee has the option to continue to lease the asset, with or without further payment, when at the inception of the lease it is reasonably certain that the lessee will exercise the option. |
| Lessee’s incremental borrowing rate of interest (IAS 17) | The rate of interest the lessee would have to pay on a similar lease or, if that is not determinable, the rate that, at the inception of the lease, the lessee would incur to borrow over a similar term, and with a similar security, the funds necessary to purchase the asset. |
| Level 1 inputs (IFRS 13) | Quoted prices (unadjusted) in active markets for identical assets or liabilities that the entity can access at the measurement date. |
| Level 2 inputs (IFRS 13) | Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. |
| Level 3 inputs (IFRS 13) | Unobservable inputs for the asset or liability. |
| Level of service | The defined service quality for a particular service against which its service performance can be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental impact, acceptability and cost. |
| Maintenance expenditure | Expenditure which either does not result in an increase in useful life or service potential, or is immaterial and enables the asset to keep performing on its typical lifecycle path. |</p>
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market approach (IFRS 13)</td>
<td>A valuation technique that uses prices and other relevant information generated by market transactions involving identical or comparable (that is, similar) assets, liabilities or a group of assets and liabilities, such as a business.</td>
</tr>
</tbody>
</table>
| Market participants (IFRS 13) | Buyers and sellers in the principal (or most advantageous) market for the asset or liability that have all of the following characteristics:  
- They are independent of each other, that is, they are not related parties as defined in AASB 124, although the price in a related party transaction may be used as an input to a fair value measurement if the entity has evidence that the transaction was entered into at market terms.  
- They are knowledgeable, having a reasonable understanding about the asset or liability and the transaction using all available information, including information that might be obtained through due diligence efforts that are usual and customary.  
- They are able to enter into a transaction for the asset or liability.  
- They are willing to enter into a transaction for the asset or liability, that is, they are motivated but not forced or otherwise compelled to do so. |
| Market value | The price that would be exchanged between a willing buyer and seller in an open and liquid market. |
| Market-corroborated inputs (IFRS 13) | Inputs that are derived principally from, or corroborated by, observable market data by correlation or other means. |
| Minimum lease payments (IAS 17) | The payments over the lease term that the lessee is or can be required to make, excluding contingent rent, costs for services and taxes to be paid by and reimbursed to the lessor, together with:  
- for a lessee, any amounts guaranteed by the lessee or by a party related to the lessee; or  
- for a lessor, any residual value guaranteed to the lessor by:  
  - the lessee;  
  - a party related to the lessee; or  
  - a third party unrelated to the lessee that is financially capable of discharging the obligations under the guarantee.  
However, if the lessee has an option to purchase the asset at a price that is expected to be sufficiently lower than fair value at the date the option becomes exercisable for it to be reasonably certain, at the inception of the lease, that the option will be exercised, the minimum lease payments comprise the minimum payments payable over the lease term to the expected date of exercise of this purchase option and the payment required to exercise it. |
<p>| Monetary assets (IAS 38) | Money held and assets to be received in fixed or determinable amounts of money. |
| Most advantageous market (IFRS 13) | The market that maximises the amount that would be received to sell the asset or minimises the amount that would be paid to transfer the liability, after taking into account transaction costs and transport costs. |
| Net investment in the lease (IAS 17) | The gross investment in the lease discounted at the interest rate implicit in the lease. |
| Net realisable value (IAS 2) | The estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale. |</p>
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
</table>
| Non-cancellable lease (IAS 17)            | A lease that is cancellable only:                                                                  *• upon the occurrence of some remote contingency;*  
*• with the permission of the lessor;*  
*• if the lessee enters into a new lease for the same or an equivalent asset with the same lessor; or*  
*• upon payment by the lessee of such an additional amount that, at inception of the lease, continuation of the lease is reasonably certain.* |
| Non-performance risk (IFRS 13)            | The risk that an entity will not fulfil an obligation. Non-performance risk includes, but may not be limited to, the entity's own credit risk. |
| Net present value (NPV)                   | Refer: Discounted cash flow                                                                                                                      |
| Observable inputs (IFRS 13)               | Inputs that are developed using market data, such as publicly available information about actual events or transactions, and that reflect the assumptions that market participants would use when pricing the asset or liability. |
| Operating lease (IAS 17)                  | A lease other than a finance lease.                                                                |
| Orderly transaction (IFRS 13)             | A transaction that assumes exposure to the market for a period before the measurement date to allow for marketing activities that are usual and customary for transactions involving such assets or liabilities; it is not a forced transaction (for example, a forced liquidation or distress sale). |
| Owner-occupied property (IAS 40)          | Property held (by the owner or by the lessee under a finance lease) for use in the production or supply of goods or services or for administrative purposes. |
| Pattern of consumption                    | The pattern in which the asset's future economic benefits are expected to be consumed by the entity. This may be constant, increasing, decreasing or variable. |
| Principal market (IFRS 13)                | The market with the greatest volume and level of activity for the asset or liability.                                                            |
| Property, plant and equipment (IAS 16)    | Tangible items that:  
*• are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and*  
*• are expected to be used during more than one period.* |
<p>| Public sector (IAS 16)                    | An entity which is either established by legislation or controlled by an entity established under legislation. This includes statutory bodies and all forms of government. Typically their financial reporting requirements will be specified by Treasury or some form of prescribed requirement backed by legislation. |
| Qualifying asset (IAS 23)                 | An asset that necessarily takes a substantial period of time to get ready for its intended use or sale. |
| Recoverable amount (IAS 16)               | The higher of an asset's fair value less costs to sell and its value in use.                                                                     |
| Renewal                                   | Expenditure which extends the useful life or increases the service potential of the asset beyond its current condition but not exceeding its current maximum design level. For example, re-sealing of a road. |
| Renewals annuity                          | A method of depreciation which uses the annualised cost of future renewal costs as a proxy for depreciation expense. This method is not allowed under the IFRS as it assumes the assets will be maintained in a constant state and the calculation is not based on the depreciable amount of the asset. However this method is an ideal tool for asset management planning purposes. |
| Research (IAS 38)                         | Original and planned investigation undertaken with the prospect of gaining new scientific or technical knowledge and understanding. |</p>
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual value</td>
<td>The estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life. Or The amount an entity could receive for the asset currently (at the financial reporting date) if the asset were already as old and worn as it will be when the entity expects to dispose of it.</td>
</tr>
<tr>
<td>Residual value (IAS 38)</td>
<td>In an intangible asset, this is the estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life.</td>
</tr>
<tr>
<td>Risk premium (IFRS 13)</td>
<td>Compensation sought by risk-averse market participants for bearing the uncertainty inherent in the cash flows of an asset or a liability. Also referred to as a risk adjustment.</td>
</tr>
<tr>
<td>Remaining useful life (RUL)</td>
<td>The time remaining until an asset ceases to provide the required level of service or reaches the end of its economic usefulness.</td>
</tr>
<tr>
<td>Service potential</td>
<td>Refer: Future economic benefit</td>
</tr>
<tr>
<td>Straight-line depreciation</td>
<td>Depreciation method used to determine the written-down value where the pattern of consumption is considered to be constant over a period of time, and the calculation is based on age and remaining useful life.</td>
</tr>
</tbody>
</table>
| Transaction costs (IFRS13)                 | The costs to sell an asset or transfer a liability in the principal (or most advantageous) market for the asset or liability that are directly attributable to the disposal of the asset or the transfer of the liability and meet both of the following criteria:  
  - They result directly from and are essential to that transaction; and  
  - They would not have been incurred by the entity had the decision to sell the asset or transfer the liability not been made (similar to costs to sell, as defined in AASB 5). |
| Transport costs (IFRS 13)                  | The costs that would be incurred to transport an asset from its current location to its principal (or most advantageous) market.                                                                              |
| Unearned finance income (IAS 17)           | The difference between:  
  - the gross investment in the lease; and  
  - the net investment in the lease.                                                                                                               |
| Unguaranteed residual value (IAS 17)       | That portion of the residual value of the leased asset, the realisation of which by the lessor is not assured or is guaranteed solely by a party related to the lessor.                                            |
| Unit of account (IFRS 13)                  | The level at which an asset or a liability is aggregated or disaggregated in a standard for recognition purposes.                                                                                    |
| Unobservable inputs (IFRS 13)              | Inputs for which market data are not available and that are developed using the best information available about the assumptions that market participants would use when pricing the asset or liability. |
| Upgrade                                    | Expenditure which extends the useful life or increases the service potential of the asset beyond its current maximum design level. For example, widening a road to add an extra traffic lane or improve safety. |
| Useful life (IAS 16)                       | Useful life is:  
  - the period over which an asset is expected to be available for use by an entity; or  
  - (b) the number of production or similar units expected to be obtained from the asset by an entity. |
<p>| Useful life (IAS 36)                       | The estimated remaining period, from the commencement of the lease term, without limitation by the lease term, over which the economic benefits embodied in the asset are expected to be consumed by the entity. |
| Value in use (IAS 36)                      | The present value of the future cash flows expected to be derived from an asset or cash-generating unit.                                                                                                         |</p>
<table>
<thead>
<tr>
<th>Written-down value (WDV)</th>
<th>Refer: Carrying amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole of lifecycle cost</td>
<td>All the costs associated with control of an asset. They include the costs of acquisition, operation, maintenance, renewal, upgrade and disposal.</td>
</tr>
</tbody>
</table>
## Attachment A: Cross reference between IFRS, IPSAS and Australian Accounting Standards

<table>
<thead>
<tr>
<th>IFRS Standard</th>
<th>Name</th>
<th>IPSAS Equivalent</th>
<th>AASB equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>IAS 2</td>
<td>Inventories</td>
<td>IPSAS 12</td>
<td>AASB 102</td>
</tr>
<tr>
<td>IFRS 9</td>
<td>Financial Instruments</td>
<td>IPSAS 15</td>
<td>AASB 9</td>
</tr>
<tr>
<td>IFRS 15</td>
<td>Non-current Assets Held for Sale and Discontinued Operations</td>
<td>IPSAS 29</td>
<td>AASB 5</td>
</tr>
<tr>
<td>IFRS 13</td>
<td>Fair value Measurement</td>
<td></td>
<td>AASB 13</td>
</tr>
<tr>
<td>IAS 16</td>
<td>Property, Plant and Equipment</td>
<td>IPSAS 17</td>
<td>AASB 116</td>
</tr>
<tr>
<td>IAS 17</td>
<td>Leases</td>
<td>IPSAS 13</td>
<td>AASB 117</td>
</tr>
<tr>
<td>IAS 23</td>
<td>Borrowing Costs</td>
<td>IPSAS 5</td>
<td>AASB 123</td>
</tr>
<tr>
<td>IAS 36</td>
<td>Impairment of Assets</td>
<td>IPSAS 21</td>
<td>AASB 136</td>
</tr>
<tr>
<td>IAS 38</td>
<td>Intangible Assets</td>
<td>IPSAS 31</td>
<td>AASB 138</td>
</tr>
<tr>
<td>IAS 40</td>
<td>Investment Property</td>
<td>IPSAS 16</td>
<td>AASB 140</td>
</tr>
<tr>
<td>IAS 41</td>
<td>Agriculture</td>
<td>IPSAS 27</td>
<td>AASB 141</td>
</tr>
</tbody>
</table>
Attachment B: Inter-relationship of the accounting standards

‘Valuation of assets’ decision tree

Is this a financial asset?

Financial instruments (IFRS9)

Is it a land under road?

Land under roads (AASE1051) Australia only

Is it inventory?

Inventories (IAS 2) ‘Inventories’ decision tree

Is it land or building held primarily for rental income or capital appreciation?

Investment properties (IAS 40) ‘Investment property’ decision tree

Does it relate to agricultural activity?

Agriculture (IAS 41) ‘Agriculture’ decision tree

Will its value be recovered principally through its sale, it is available for sale and a sale is highly probable?

Assets held for sale (IFRS 5) ‘Assets held for sale’ decision tree

Is it a leased asset?

Leases (IAS 17) ‘Leases’ decision tree

Does it lack physical substance?

Intangible assets (IAS 38) ‘Intangible assets’ decision tree

‘Revaluation and amortisation’ decision tree

Property, plant and equipment (IAS 16) ‘fair value’ decision tree

‘Costs of assets’ decision tree

‘Depreciation’ decision tree

Impairment (IAS36) ‘Impairment’ decision tree

Yes

Fair value IFRS13

Borrowing costs (AS123) ‘Borrowing costs’ decision tree

No

Input

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Attachment C: Overview of specific accounting standards

There is a range of accounting standards that relate to the valuation and depreciation of assets in the public sector. The following decision trees provide an easy to understand overview of the requirements.

It should be noted that these provide only a summary of key requirements as they relate to the valuation and depreciation of assets in the public sector. Reference should always be made back to the original standard when researching a specific issue.

The decision trees are in the following order:
- IFRS 13 Fair Value
- IAS 16 Property, Plant and Equipment
- IAS 123 Borrowing Costs
- IAS 36 Impairment of Assets
- IAS 5 Assets Held for Sale
- IAS 40 Investment Property
- IAS 17 Leases
- IAS 38 Intangible Assets
- IAS 2 Inventories
- IAS 41 Agriculture
- AASB 1051 Land Under Roads (Australia only)
Current market selling price at highest and best use

Determine market selling price at highest and best use by adjusting for differences in service potential, condition or other relevant factors

Determine NPV of the cashflows by using DCF etc.

Is there an active liquid market?

Are there current market selling prices or recent transaction prices for similar assets

Is there other evidence of market value

Is the amount calculate above greater than the value in use calculated in accordance with IAS36 (refer impairment decision tree)

Revaluated amount = fair value (no impairment)

Revalued amount = value in use (no impairment)
### What is the nature of the transaction?

<table>
<thead>
<tr>
<th>Indirect cost</th>
<th>Direct cost</th>
<th>Contributed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overhead</td>
<td>Borrowing costs (including interest)</td>
<td>Paid for at less than full price</td>
</tr>
<tr>
<td>Monies expended to purchase asset at full price</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Can the costs be reliably measured?**

**If asset is self constructed, eliminate and internal profits**

**Is the amount greater than or equal to the capitalisation threshold?**

**Do the represent an element of cost i.e.**
- Cost of acquisition
- Directly attributed to bringing asset into operation or
- An obligation to be fulfilled upon decommissioning of the asset

**Will it lead to an increase to the service potential of the asset?** Eg - increase useful life, increase capacity, reduce risk of impairment

**Will the benefits last greater than 12 months?**

**Is it probable that the benefits will eventuate?** For example -
- Approval to proceed has been given
- There are no concerns over the ability of the asset to deliver
- Project is not subject to satisfaction of other requirements

**Has the assessment been made at the time the cost was incurred?**

**Are the costs borrowing costs?**

**Is the recoverable amount greater than or equal to the capitalised amount?**

**Account for impairment loss in accordance with IAS36 (refer IAS36 decision tree)**

**Recognise at fair value (refer IAS16 fair value decision tree)**

**Provide disclosure note in the Financial Statements (if material)**

### Non capital

- **For example**
  - Operational expenditure
  - Routine maintenance
  - Charge to P&L as expense

### Capital

- **For example**
  - Refurbishment
  - Renewal
  - Enhancement
  - New acquisition

**Record as asset in balance sheet**
IAS16 property, plant and equipment

Depreciation decision tree
As at 13 April 2012

Identify the nature of the service potential provided by the asset.
  e.g. Units of output, economic, social environmental, heritage

Identify whether asset is subject to the cyclical maintenance or not

Does the asset have significant components with different patterns of consumption?

No - non complex asset
  Calculate depreciation for asset as a whole

Yes - complex asset
  Calculate depreciation for each component

Identify the factors that drive the consumption
  e.g. Age, physical condition, functionality, utilisation, obsolescence, capacity, safety, etc

Determine the pattern of consumption
  e.g. Consistent, increasing, decreasing, variable

Determine the residual value and calculate the depreciable amount
  (gross less residual value)

Determine the useful life and RUL

Has either pattern of consumption, residual value or useful life change from previous year?

No - apply depreciation methodology

Yes - either - revalue entire class of asset applying new assumptions or adjust assumptions
  ensuring changes are prospective and not retrospective (i.e. Open WDV remains same)

Does the depreciation methodology -
  • Match the pattern of consumption
  • Only depreciate the depreciable amount
  • Depreciate over the useful life in a systematic way

Does the method -
  • Calculate depreciation by reference to the depreciable amount
  • Include allowance for technical or commercial obsolescence
  • Treat maintenance and capital in accordance with IAS16
  • Not use the renewal annuity approach
  • Calculate depreciation separately for significant components

Reconsider whether a different depreciation method approach maybe more appropriate

Can the critical assumptions used be supported by sufficient and appropriate audit evidence?

Non compliant methodology

Fully compliant methodology
IAS123 borrowing costs

Borrowing costs decision tree

As at 13 April 2012

<table>
<thead>
<tr>
<th>Why were the funds borrowed?</th>
<th>For general purposes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifically</td>
<td>i.e While the funds were used for an asset acquisition, whether or not the specific asset was acquired would not have affected the decision to borrow the funds</td>
</tr>
<tr>
<td>for the Asset</td>
<td>Determine general borrowing costs by excluding borrowing costs that specifically relate to the acquisition of an asset</td>
</tr>
<tr>
<td>i.e They would not have been borrowed if the asset had not been acquired</td>
<td></td>
</tr>
<tr>
<td>Capitalise the borrowing costs incurred during the period less any interest earned from the investment of the borrowing</td>
<td></td>
</tr>
<tr>
<td>Is the amount of capitalised borrowing cost (for all assets) less than the total borrowing cost incurred during the period?</td>
<td></td>
</tr>
<tr>
<td>Reduce the amount of capitalised interest so that there is no excess i.e expense as interest expense</td>
<td></td>
</tr>
</tbody>
</table>

Return to costing of assets decision tree
**Impairment decision tree**

As at 13 April 2012

Is the entity’s principal objective the generation of profit?

**Not-for-profit**

Determine whether dealing with specific asset or CGU

Determine **value in use**

Value in use for entities that:
- Are not primarily dependent on the cash inflows generated by the assets; and
- Would replace the asset if it were deprived of it (depreciated replacement cost)

Value in use for all others

(Present value of cashflows expected to be generated from asset CGU)

Determine **fair value less costs to sell** (refer fair value decision tree)

Determine **recoverable amount**

= Greater of value in use and fair value less cost to sell?

Is carrying amount > recoverable amount?

Excess = impairment loss

Is asset valued on cost basis?

Tale loss to P&L, adjust firstly against goodwill (for CGU) and then the asset.

Adjust loss firstly against any goodwill (for CGU) and then by reducing the asset against ARR (if balance exists from previous asset increment). Take any additional loss to direct to P&L.

No impairment loss

If any excess: does this represent a reversal of a previous impairment loss (other than for goodwill)?

No adjustment

Reverse against prior period impairment losses (except for goodwill)

For-profit

Determine whether dealing with specific asset or CGU

Determine **value in use**

(Present Value of cashflows expected to be generated from asset CGU)

Determine **fair value less costs to sell** amount obtainable from the sale of an asset or cash-generating unit in an arms length transaction between knowledgeable, willing parties, less the cost of disposal (refer fair value Decision Tree)

Determine **recoverable amount**

= Greater of value in use and fair value less cost to sell?

Is carrying amount > recoverable amount?

Excess = impairment loss

Is asset valued on cost basis?

Tale loss to P&L, adjust firstly against goodwill (for CGU) and then the asset.

Adjust loss firstly against any goodwill (for CGU) and then by reducing the asset against ARR (if balance exists from previous asset increment). Take any additional loss to direct to P&L.

No impairment loss

If any excess: does this represent a reversal of a previous impairment loss (other than for goodwill)?

No adjustment

Reverse against prior period impairment losses (except for goodwill)
Will the Assets value be **recovered principally through its sale** rather than through continuing use?

- **Yes**
  - Is the asset **available for immediate** sale based on reasonable terms and a sale is highly probable?

- **No**
  - Return to valuation of assets decision tree

---

**Asset held for sale** (IAS 5)

Determine carrying amount (cost or fair value)

- **Yes**
  - Is carrying amount greater than fair value less cost to sell?

- **No**
  - Refer costing of assets &/or fair value decision tree

---

Value to be reported = carrying amount

(No impairment)

Value to be reported = fair value less cost to sell

(Impairment loss)

---

Input

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Is the land or building held primarily for rental income or capital appreciation?

Return to valuation of assets decision tree

Is the property leased?

Value in accordance with paragraph 20 of IAS 17 (refer to leases decision tree)

Initial measurement at cost

Apply valuation policy to all investment properties

Cost

Fair value

Can market value basis per fair value decision tree be reliably determined?

Apply market value basis per fair value decision tree

Determine change in market value from previous year

Take gains or losses direct to P&L

Cost

Value at cost and assume residual value = nil

Calculate depreciation annually (refer depreciation decision tree)

Expense depreciation to P&L

Input

Yes

No
Does the lease transfer substantially all the risks and rewards incidental to ownership of an asset?
Title may or may not eventually be transferred

Finance lease

Determine fair value (including initial direct costs) of asset

Calculate present value of minimum lease payments (using interest rate implicit in lease or entities incremental borrowing rate) and add any initial direct costs.

Is fair value less than PV of lease payments?

Capitalise fair value of asset

Capitalise present value of minimum lease payments

Does the asset have physical substance?

Depreciate (refer depreciation decision tree)

Amortise (refer revaluation and amortisation of intangible assets decision tree)

Deduct depreciation/amortisation from carrying amount

Assets for impairment (refer impairment decision tree)

Adopt and apply valuation policy annually

Cost

Revaluation

Operating lease

Charge as expense to profit & loss account

Refer fair value decision tree
Does it meet the **definition of an intangible asset** -
- Lacks physical substance
- Is not a monetary asset
- Is separable or arises from contractual or other right
- Is controlled by entity (power to benefit or deny access to future economic benefits of the asset)
- Provides future economic benefit

**Is it probable** that the future economic benefits will eventuate?

**Can the costs be measured reliably?**

**What is the source of the asset?**

**External**
- **Separate acquisition**
  - Cost or
  - If not for profit & no or nominal cost -> fair value
- **Business combination**
  - Fair value
- **Government grant**
  - Fair value
- **Exchange of assets**
  - Fair value

**Does the exchange -**
- Have commercial substance
- Enable reliable measured FV

**Value at carrying amount of asset given up**

**Refer costing of assets or fair value decision tree**

**Internally generated**
- **Subsequent to initial acquisition of existing intangible**
- **Internally generated intangible**
- **Internally generated intangible**

**Is expenditure for brand, masthead, customer list or similar**

**Nature of expenditure**
- Development
- Research

**Is there –**
- Technical feasibility of completing asset
- Intention to complete and use / sell asset
- Ability to use / sell asset
- Likelihood of generation of future economic benefits
- Availability of adequate technical, financial and other resources to complete the development and use / sell asset; and
- Ability for the entity to reliably measure expenditure

**Capitalise as intangible asset**

**Go to revaluation and amortisation of intangible assets decision tree**

**Charge as expense to P&L account**

**Return to valuation of assets decision tree**

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Apply same valuation policy to all intangible assets

**Cost**

- Has asset been valued at market value previously?
  - Carrying amount = **cost** less accumulated depreciation and accumulated impairment

**Revaluation**

- Can market value be determined from an active market?
  - Carrying amount = **market value at least revaluation** less accumulated depreciation and accumulated impairment

Calculate amortisation annually

**Assess “Useful Life”**

- Finite
  - Is useful life limited by contractual or other legal rights?
    - Can they be renewed?
    - Determine useful life
      - Include renewal period
      - Contract period
      - Length of number of production units
    - Determine residual value
      - Assume = nil unless
        - There is commitment to purchase at end of life or
        - RV determined by reference to active market; and
        - Probable that active market will exist at end of useful life
    - Amortise
      - Can pattern of consumption be determined reliably?
        - Use pattern of consumption
        - Use straight-line
        - Deduct amortisation from carrying amount

- Infinite
  - Carrying amount = **market value**

Assets for impairment (refer impairment decision tree)

Do not amortise
IAS2 inventories

Inventories decision tree

As at 13 April 2012

Is the asset -
(a) held for sale in the ordinary course of business
(b) in the process of production for sale; or
(c) in the form of materials or supplies to be consumed in the production process or in the rendering of services.

Return to Valuation of Assets decision Tree

Yes →
No →
Input →

Is the entity a not-for-profit entity and inventory acquired at no or nominal cost?

Current replacement cost (at date of acquisition)

Is the inventory of a service provider?

Cost of production

Is the inventory a biological asset?

Fair value less estimated point of sale costs (refer agriculture decision tree)

Can cost be approximated by standard cost?

Standard cost (assume normal levels of activity)

Can cost be approximated by retail method?

Retail method (reduce sales price by gross margin)

Total cost sum of cost of purchase, costs of conversion and other costs

Use appropriate method based on nature of inventories to determine cost

Ordinary interchangeable use either fifo or weighted average

Produced and segregated for specific projects specific indentification of individual costs

Is the entity not for profit and assets are held for distribution at no or normal cost?

NRV = estimated selling price in ordinary course of business

NRV = replacement cost entity would be prepared to incur

is cost > NRV?

is cost > NRV?

Estimated selling price

Cost

Current replacement cost

Annual assessment

Determine net realisable value

Determine cost

Sum of costs of purchase, conversion and other costs

Return to Valuation of Assets decision Tree

Any adjustments made directly to P&L

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Is the activity biological transformation of biological assets for sale, into agriculture produce, or into additional biological assets?

Is the asset either a living animal or plant, or its produce (at the point of harvest)

Are the following criteria satisfied -
- the entity controls the asset as a result of past events;
- it is probable that future economic benefits associated with the asset will flow to the entity;

Can the fair value or cost of the asset can be measured reliably?

Is asset available for sale in its present condition?

Determine fair value based on market evidence

Calculate fair value as DCF discounted at current market determined pre-tax rate

Is there an active market?

Use quoted market price

- Use most recent sales price
- market price for similar assets adjusted for differences or
- Sector benchmarks

Calculate DCF based on estimated net cash flows

Deduct fair value of land and improvements from total fair value

Is the asset attached to land?

Initial valuation use cost

Refer costing of assets decision tree

Annual revaluation

Can fair value be reliably measured or has fair value been previously been applied?

Revalue at fair value less estimated point of sale costs

Take change to P&L

Continue with valuation at cost

Calculate depreciation annually (refer to depreciation decision tree)

Test for impairment annually (refer Impairment decision Tree)

Return to valuation of assets decision tree

Do not recognise as an asset

Initial valuation: use fair value less estimated point of sale costs
Is the land under road recognised as at 1 July 2008

Do you want to continue to recognise it

Derecognise as at 1 July 2008.

Adjust opening balance of accumulated surplus (deficiency) as at 1 July 2008. Comparative data is not adjusted.

Do you want to recognise it

May either -
• revise the carrying amount under paragraph 10.
• continue with the previous cost or fair value choice.
• change from cost to fair value or vice versa.

Any adjustment is made to opening balance of accumulated surplus (deficiently) as at 1 July 2008. Comparative data is not adjusted.

Measure at cost or fair value

Do not recognise. No Adjustment required

Adjust opening balance of accumulated surplus (deficiency as at 1 July 2008. Comparative data is not adjusted.
Attachment D: Pre-audit checklists

This includes two checklists which have been adapted from checklists previously issued by APV Valuers and Asset Management and Fair Value Pro.

The first relates specifically to the valuation and depreciation methodology whereas the second relates to the overall asset valuation framework.

Valuation and depreciation pre-audit checklist (methodology)

This pre-audit checklist has been developed to assist entities undertake a quality assurance review of their valuation and depreciation figures prior to the external audit review.

Instances of non-compliance should be reviewed in light of the overall materiality and either amended or reasons for the non-compliance documented and provided to the auditor.

The checklist is not exhaustive but covers most common issues and requirements of the relevant prescribed requirements.

<table>
<thead>
<tr>
<th>Consideration</th>
<th>Ref</th>
<th>Compliance?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Asset register</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has the asset register been established and maintained appropriately so that all assets are recorded at an appropriate level (that is, segments and components); and can they be identified (through location and description)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fair value methodology</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the methodology take into account the various factors that drive the consumption of the asset’s service potential? For example, is it based purely on age or does it take into account physical condition, obsolescence, functionality, capacity, safety standard and changing community expectations?</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Does the methodology take into account that the asset experiences cyclical maintenance and/or renewal? Consider whether the calculation of WDV is still based on original date of commissioning or whether it is adjusted to reflect the most recent renewal.</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Have the assets been split into components to enable proper valuation and depreciation? If a threshold for componentisation has been set, is the threshold appropriate?</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Has a separate value and depreciation expense been determined for each component? If not, has the decision not to do so been tested to ensure that it has not produced material misstatement?</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Has sufficient and appropriate evidence been produced to support the critical assumptions? Consider evidence to support the GCRC, condition, pattern of consumption, useful life, RUL and residual value.</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Is the result of the valuation consistent with the asset management system? Compare the WDV as a percentage of gross value with condition data provided by the engineers.</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td><strong>Date of last effective valuation</strong></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Consider the length of time since last revaluation and whether it is likely that the fair value has moved materially since that time. That is, Does the WDV reflect a true and fair view of the fair value of the assets? Have the underlying assumptions being assessed at the end of the year and considered in light of the valuation?</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>Assessing independent experts</strong></td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Did the person giving the valuation possess the appropriate qualifications, experience and independence? Was the scope of the valuation exercise limited in some way? Did they fully understand the requirements of the accounting standards?</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>Appropriateness of valuation indices</strong></td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>If indices were used to do the valuation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Were the indices appropriate and relevant for the specific assets being revalued?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Are the indices reasonable based on market movements and prior year indices?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Were they applied correctly to the asset class?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• If not applied by an external valuer, do the financial statements clearly indicate the valuation has been provided by management and not the valuer?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Did the revaluation also include assessment of additions, deletions and changes in condition?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Depreciation expense considerations

<table>
<thead>
<tr>
<th>Consideration</th>
<th>Ref</th>
<th>Compliance?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review the depreciation methodology policy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How has depreciation expense been calculated? Does the methodology take into</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>account the various factors that drive the consumption of the asset’s service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>potential or is it based on age alone? Does the method used ensure compliance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>with the accounting standards and other prescribed requirements?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the method take into account regular cyclical maintenance/renewal?</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Does the method attempt to match the pattern of consumption of the asset’s</td>
<td>1 &amp; 9</td>
<td></td>
</tr>
<tr>
<td>service potential? Is the pattern adopted consistent with the engineer’s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>understanding of how the asset is consumed? If not, which is correct?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has depreciation been calculated for each component?</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Reference notes

1 IAS 16 requires: “The depreciation method used shall reflect the pattern in which the asset’s future economic benefits are expected to be consumed by the entity.”

It is imperative that the methodology take into account the factors that drive the consumption of the asset’s service potential. For cyclical maintenance assets (such as buildings, roads, water, sewerage, etc) age alone is generally irrelevant in measuring how much service potential has been consumed.

The International Infrastructure Management Manual (published by IPWEA) provides guidance on the types of factors that impact on the rate of consumption of the asset’s service potential. They include such factors as:

- Physical wear and tear
- Functionality
- Capacity
- Utilisation
- Obsolescence
- Changing requirements (including safety, legislation and design specifications)

Failure of the methodology to take into account the various factors will result in non-compliance with the accounting standards.

2 Assets such as buildings and infrastructure regularly experience cyclical maintenance. This is to maintain the asset at a level that provides the appropriate level of service to the community. As a consequence of this regular maintenance and renewal, the asset’s life is extended beyond what it would have been if the maintenance work was not completed. The effect is that the original date of commissioning of the asset now becomes irrelevant. If used in the calculation of the WDV there is an extreme risk that the calculation of both WDV and depreciation expense will be materially misstated.

To demonstrate, consider the following scenario:

- Asset originally commissioned 40 years ago
- Based on current condition the RUL is assessed as another 40 years
- The gross cost of the asset is $50,000
- Every 15 years the asset is renewed at a cost of $15,000 which restores the asset back to as new with a design life of 50 years

Using the straight-line method, the calculation of WDV and depreciation expense could be done in a number of different ways depending upon how you interpret the assumptions.

IAS 16 Paragraph 60
### Method A | Method B | Method C
---|---|---
Gross | $50,000 | $50,000 | $50,000
Age | 40 years (since date of commissioning) | 40 years (since date of commissioning) | 10 years (date since last renewal)
RUL | 40 years Based on current condition | Five years Based on estimated RUL till next renewal | Five years Based on estimated RUL till next renewal
Useful life (Age + RUL = UL) | 80 years | 45 years | 15 years
Residual value | Nil Assets like these never sold | $35,000 Gross less renewal to bring back to as new | $35,000 Gross less renewal to bring back to as new
Depreciation (Gross – RV) / UL | $625 ($50,000 - 0) / 80 | $333 ($50,000 – $35,000) / 45 | $1,000 ($50,000 – $35,000) / 5

Only Method C calculates the WDV and depreciation expense correctly. The impact of the errors for methods A and B are as follows:

<table>
<thead>
<tr>
<th>Method</th>
<th>WDV</th>
<th>%Error</th>
<th>Depreciation</th>
<th>%Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method A</td>
<td>$25,000</td>
<td>(37.5%)</td>
<td>$625</td>
<td>(37.5%)</td>
</tr>
<tr>
<td>Method B</td>
<td>$36,667</td>
<td>(8.3%)</td>
<td>$333</td>
<td>(66.7%)</td>
</tr>
<tr>
<td>Method C</td>
<td>$40,000</td>
<td>-</td>
<td>$1,000</td>
<td>-</td>
</tr>
</tbody>
</table>

3 IAS 16 (Paragraph 43) requires that: “each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item shall be depreciated separately.”  

Due consideration also needs to be given to materiality. In order to ensure the valuation process is cost effective it is normal practice to adopt thresholds to ensure that cost is not wasted on collecting data or undertaking calculations that do not warrant the additional cost. Depending upon the size of the asset portfolio, the level of threshold for asset recognition may vary.

However, the issue is whether a threshold set to disaggregate an asset into components is appropriate and whether it will allow the valuation and associated depreciation to be materially correct. From a practical perspective, the valuation of any structure (irrespective of value) requires the valuer to consider the individual components, their construction material, likely replacement strategies and the physical condition of each component. Two buildings that are identical but the components of each are in different conditions will result in significantly different values and depreciation profiles.

As a general rule, all complex assets need to be componentised as per IAS 16. However, if a componentisation threshold has been established there needs to be sufficient and appropriate evidence that the valuation and associated depreciation would not have been materially different if the assets had been componentised. Likewise the valuer will need to justify how they arrived at a valuation if they didn’t consider the individual components.

Failure to obtain such evidence would impair the ability to assess whether the WDV and associated depreciation expense is materially correct.

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84 IAS16 Property, Plant and Equipment (Paragraph 43)
There are a number of auditing standards that have a direct impact in relation to infrastructure assets. These are:

- ASA 500 Audit Evidence
- ASA 540 Audit of Accounting Estimates
- ASA 580 Management Representations
- ASA 620 Using the Work of an Expert
- ASA 545 Auditing fair value Measurements and Disclosures

In essence, and in relation to infrastructure assets, they mandate that auditors:

- obtain sufficient and appropriate evidence over the completeness and accuracy of the asset register;
- assess the appropriateness and logic of the valuation and depreciation methodologies;
- ensure that the methodologies fully comply with the accounting standards. In particular IAS 16 Property, Plant and Equipment;
- assess the competence, experience and objectivity of any experts used within the valuation and depreciation exercise;
- obtain representations from management over a range of issues; and
- obtain sufficient and appropriate evidence to support the critical assumptions used within the methodology.

If the valuer is unable to supply sufficient and appropriate evidence to support the critical assumptions used within the methodology it is likely to be because:

- the assumptions are incorrect;
- the method does not reflect the pattern of consumption;
- it does not take into account the cyclical maintenance and lifecycle of the asset; and
- there is no evidence to support the assumptions.

Not only does the auditor have to take into account what they are told, they must also draw upon knowledge gained from other sources and consider whether the information supplied is consistent with the information supplied by other sections within the same entity.

Of critical importance is the need to consider the financial statement information in the light of the asset management information. For example, the auditor could compare the WDV expressed as a percentage of gross value against condition data provided by the engineers. These should be consistent. If the engineers (via their asset management plans) indicate the condition of the asset portfolio is good the accounting figures should also reflect the same. If they don’t, this most likely indicates that the valuation methodology does not accurately reflect the level of remaining service potential and therefore materially misstates the WDV and associated depreciation expense.

IAS 16 requires that “revaluations shall be made with sufficient regularity to ensure that the carrying amount does not differ materially from that which would be determined using fair value at the reporting date.”

IAS 16 states: “Some items of property, plant and equipment experience significant and volatile changes in fair value, thus necessitating annual revaluation.”

In relation to a period of three to five years it further states that this would only apply to items where there is insignificant change in value. “Such frequent revaluations are unnecessary for items of property, plant and equipment with only insignificant changes in fair value. Instead, it may be necessary to revalue the item only every three or five years.”

Consider:

- Whether it is likely that the fair value has moved by more than 5 per cent since the last date of valuation.
- The length of time since the last comprehensive revaluation. Three years is generally considered the maximum.
- Whether appropriate indices or desktop updates have been applied in the interim years.

Just because you’re an accountant does not mean you have the experience, expertise and specialist knowledge to do specialised tax or insolvency work. The same applies to experts being used to value specialised public sector assets.

Sometimes the decision of which valuer to appoint is made on price alone without due consideration given to the ability of the valuer to provide an output that fully complies with all prescribed requirements.

Consider:

- The valuer’s experience in valuing specialised public sector assets (years, number of clients, qualifications);
- Their reputation and past performance (number of qualifications, client feedback);
- The approach and methodology; and
- Their understanding of the applicable accounting standards.

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85 IAS 16 Paragraph 31
86 IAS 16 Paragraph 34
87 IAS 16 Paragraph 34
Sometimes entities take it upon themselves to apply an index to a previous valuation. While there is nothing necessarily wrong with this practice it is imperative that the index used is appropriate for the specific asset. There is a range of indices available both publicly and via subscription to specific cost guides.

The incorrect application of these indices could lead to material misstatement. The use of one generic index across all asset classes or an entire asset class is also likely to lead to material misstatement.

It should also be noted that only registered valuers are legally able to value land. If an entity applies an index to an external valuer’s valuation the valuation now becomes a management valuation and the associated disclosure statements need to be amended accordingly. If it relates to land, unless it is provided by a registered valuer, it would constitute a breach of legislation.

Traditionally some entities have adopted the straight-line approach to valuation and depreciation as a default. However IAS 16 states that “the depreciation method used shall reflect the pattern in which the asset’s future economic benefits are expected to be consumed by the entity.”

It further states: “The entity selects the method that most closely reflects the expected pattern of consumption of the future economic benefits embodied in the asset. That method is applied consistently from period to period unless there is a change in the expected pattern of consumption of those future economic benefits.”

Accordingly, the adoption of a particular pattern (straight-line or otherwise) without due consideration and of the actual expected pattern of consumption will result in non-compliance with the standards and typically will lead to material misstatement.
Valuation and depreciation pre-audit checklist (valuation framework)

How do you ensure you are prepared for your auditors?

Auditors are concerned with more than just calculations. Under the auditing standards they need to gain assurance with respect to a number of audit representations. This includes gaining sufficient and appropriate audit evidence enabling them to certify that they have obtained the necessary comfort.

While not exhaustive the following list provides an overview of some key aspects that need to be covered to ensure the safe passage of audit. We suggest that it be used as a checklist in preparation for the annual audit. The processes are split into those that should be done before or during the valuation and those which should be completed after the valuation. Details of each process are included on the pages following the checklist.

Pre-audit checklist

<table>
<thead>
<tr>
<th>Pre-valuation and during the valuation</th>
<th>Done?</th>
<th>Post-valuation</th>
<th>Done?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan but don’t over-design</td>
<td></td>
<td>Document and confirm key aspects of the non-current assets policy.</td>
<td></td>
</tr>
<tr>
<td>Get the valuation procurement process right</td>
<td></td>
<td>Document in detail the final valuation and depreciation methodology</td>
<td></td>
</tr>
<tr>
<td>Engage audit in the process sooner than later</td>
<td></td>
<td>Document the process used to undertake the valuation including how the evidence was captured.</td>
<td></td>
</tr>
<tr>
<td>Create clear lines for communication</td>
<td></td>
<td>Annual review of unit rates and gross current replacement cost.</td>
<td></td>
</tr>
<tr>
<td>Once the draft valuation methodology is developed invite audit to provide feedback.</td>
<td></td>
<td>Annual review of factors and assumptions critical to the calculation of the WDV and depreciation (including impairment)</td>
<td></td>
</tr>
<tr>
<td>Involve audit in discussions regarding use of sampling and appropriateness of sample sizes.</td>
<td></td>
<td>Document the process and results of an internal review by management</td>
<td></td>
</tr>
<tr>
<td>Review the asset register to ensure it is complete and accurate.</td>
<td></td>
<td>Undertake some high level analytics and compare to previous years’ results.</td>
<td></td>
</tr>
<tr>
<td>Review the asset register to ensure dimension and valuation critical data is accurate.</td>
<td></td>
<td>Complete a movement reconciliation supported by appropriate details for each movement.</td>
<td></td>
</tr>
<tr>
<td>Invite audit to attend some Inspections</td>
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</tbody>
</table>
Pre-valuation and during the valuation

We find that many mistakes are made prior to the valuation even being started. Any underlying problems with the methodology or even the capability of those responsible for delivering the valuation will impact the whole of the project.

To ensure these problems do not occur, action needs to be taken prior to conducting inspections. This includes such things as cleaning and validating the asset register as much as possible.

Prior to and during the valuation the following processes should be undertaken and assessed for performance.

<table>
<thead>
<tr>
<th>Process: pre-valuation and during valuation</th>
<th>Explanation</th>
<th>Done?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan but don’t over-design</td>
<td>If you are going to engage experts (whether internal or external) to do the work for you, respect that they have greater knowledge in the area and allow them to advise on the best and most cost-effective way to undertake the project.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rather than tell the expert how to do their job it is better to first get their advice and then ask questions to ensure it meets your needs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A poorly designed or inefficient approach established at the beginning of the project will impact every stage of the project. If it is non-compliant or seriously flawed it will significantly increase the audit risk.</td>
<td></td>
</tr>
</tbody>
</table>

Get the valuation procurement process right

Make sure you understand what is important, that the analysis is undertaken by those who know what to look for and that you are going to get what you need.

The aim is to procure value for money which requires a comparison of value (quality and output received) against the cost to acquire it.

Sometimes procurement processes get in the way of making the best decisions. Sometimes this is because of:

- A weighting system is used which skews everything towards price at the expense of more important aspects.
- The analysis of the tender is undertaken by people who don’t really understand what is needed.
- The tender specification is focussed on doing something a particular (but substandard, non-compliant or inefficient) way rather than achieving the necessary outcome.
- The process is based on making life easy for the tender panel by reducing the number of tenders to analyse. This often is achieved setting a range of entity-wide mandatory factors that are irrelevant to the ability to deliver the project.

The impact of asset-related balances (valuation and depreciation) on the financial statements are typically the ones that cause audit the most angst and concern. This is due to their high materiality, subjectivity and complexity. It therefore makes sense that appropriate effort is put into ensuring the procurement process delivers the firm best able to deliver value for money and full compliance.

Aspects such as the methodology, experience, past performance, guarantee of an unqualified audit report, ability to value-add, quality management certification, ability to liaise with auditors and post-valuation service are more important than price alone.

Price is always important but if the final product turns out to be sub-standard or non-compliant, even though cheap it will be a complete waste of money.

Best practice procurement dictates that for these types of services a price/quality evaluation model could be utilised where price is excluded from weightings. Each tender should be assessed from a quality perspective using the same criteria, and then cost should be considered with objective reasoning being given if it is proposed to accept a tender which is more expensive than a tender that meets the minimum quality standards.
<table>
<thead>
<tr>
<th>Process: pre-valuation and during valuation</th>
<th>Explanation</th>
<th>Done?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engage audit in the process sooner than later</strong></td>
<td>This provides audit with the opportunity to identify and discuss potential issues and their expectations. Inviting their involvement also creates a better working relationship and opens communication channels. If there are any potential issues, or audit’s expectation of what is required is different from yours it is critical that these be identified at the start. This allows any issues to be addressed rather than becoming a stumbling block at the end of the audit process.</td>
<td></td>
</tr>
<tr>
<td><strong>Create clear lines for communication</strong></td>
<td>During the peak audit season auditors work under extreme pressure and timeframes. If they identify an issue or need information it must be provided as quickly and as accurately as possible. The longer it takes to provide the necessary response, or if the response leads to other concerns, the longer it will take to finalise the audit and allow the financial statements to be signed off. Rather than try and answer all the queries yourself (and potentially provide a misleading response) instruct the auditor to talk directly to the person who knows best how to answer the query. If work was performed by an external expert instruct the auditor to discuss the issues directly with the external expert.</td>
<td></td>
</tr>
<tr>
<td><strong>Once the draft valuation methodology is developed invite audit to provide feedback.</strong></td>
<td>While audit may not want to express an opinion on the appropriateness of the methodology, it does provide the opportunity to identify potential issues. Better to address the issues before too much work begins than have a major issue at financial statement time.</td>
<td></td>
</tr>
<tr>
<td><strong>Involve audit in discussions regarding use of sampling and appropriateness of sample sizes.</strong></td>
<td>While there are no specific rules on determining the appropriate valuation sample, size auditors are very familiar with the concept. In determining the valuation sampling approach, due consideration needs to be given to materiality, stratification of the portfolio and risk of error. The inherent audit risk associated with a portfolio of a very large number of homogeneous assets (such as roads, footpaths, drains and pipes) is very low and therefore a very small sample size may be appropriate but will need to vary depending on confidence over the accuracy of existing condition data. In contrast, some asset portfolios (such as specialised buildings) tend to include few assets that could be deemed to be the same. As a result the sample size may need to include 100 per cent or all assets over a certain materiality threshold.</td>
<td></td>
</tr>
<tr>
<td>Process: pre-valuation and during valuation</td>
<td>Explanation</td>
<td>Done?</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-------------</td>
<td>-------</td>
</tr>
<tr>
<td>Review the asset register to ensure it is complete and accurate.</td>
<td>Asset registers can very easily become inaccurate or incomplete due to a range of reasons. Typically new assets are acquired by the entity (either by purchase or contribution) and while they may be updated in the asset management system may not be updated in the asset register. Likewise disposals may be updated in one but not all registers.</td>
<td></td>
</tr>
<tr>
<td>This will include removing any in-year capex accounts from the register and updating the condition rating of assets affected by the capex.</td>
<td>If the starting point for the valuation is inaccurate, the valuation and depreciation calculations will also be inaccurate.</td>
<td></td>
</tr>
<tr>
<td>Ideally there should be documented evidence to show that this review was undertaken and to report the results.</td>
<td>This review needs to be undertaken by in-house staff who have a more intimate knowledge of the portfolio than external consultants.</td>
<td></td>
</tr>
<tr>
<td>All assets scrapped or disposed during the year should also be removed from the asset register (at the time of disposal) with the resulting profit or loss reconciled to the income statement.</td>
<td>It is important for asset management and finance staff to work together to review and proof the accuracy of all asset registers.</td>
<td></td>
</tr>
<tr>
<td>Review the asset register to ensure dimension and valuation critical data is accurate.</td>
<td>As entities are improving their data they often find they need to make changes to critical data such as lengths, widths and material type.</td>
<td></td>
</tr>
<tr>
<td>This may include direct reconciliation to GIS or other systems and comparison of total area and length with previous year's register.</td>
<td>These changes can create big changes in valuations, so accuracy is important.</td>
<td></td>
</tr>
<tr>
<td>Ideally there should be documented evidence to show that this review was undertaken and to report the results.</td>
<td>While the data gathering may be done by either internal or external staff, it is critical that the results be reviewed by internal staff and signed off as evidence of the review.</td>
<td></td>
</tr>
<tr>
<td>Invite audit to attend some inspections</td>
<td>It is important that the accounting treatment for adjustments to existing assets is appropriate.</td>
<td></td>
</tr>
<tr>
<td>While they may not necessarily want to attend inspections it provides an opportunity for audit to see how the valuation methodology is translated in practice. In particular, how condition scoring and estimates of remaining useful life are assessed.</td>
<td>This also provides an opportunity for audit to assess the competence and capability of the people undertaking the inspections.</td>
<td></td>
</tr>
</tbody>
</table>
**Post-valuation**

Once the valuation is complete there is a range of processes that should be completed. Essentially, these relate to documenting what actually happened, how it was done, the assumptions used, outcomes achieved and a range of quality assurance processes.

This information will form the primary evidence used to undertake the auditors’ substantive testing procedures, and should be provided to the auditor as an audit package.

<table>
<thead>
<tr>
<th>Process: post valuation</th>
<th>Explanation</th>
<th>Done?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Document and confirm key aspects of the non-current assets policy.</strong></td>
<td>The non-current assets policy sets out a range of rules which dictate definitions, policies and specifically how the valuation and depreciation calculations are to be done. This includes such things as thresholds, valuation basis, depreciation method and management assumptions. The auditor needs to understand these boundaries, ensuring they comply with the prescribed requirements and the calculations have been completed in accordance with the policies.</td>
<td></td>
</tr>
<tr>
<td><strong>Document in detail the final valuation and depreciation methodology</strong> used to produce the valuation and depreciation calculations adopted in the financial statements.**</td>
<td>This is the most important piece of audit evidence that the auditor needs to gather. It provides the auditor with the complete picture of how the valuation and depreciation calculations were completed. It also provides key evidence that enables the auditor to gain assurance of a number of critical audit assertions and to judge compliance of the methodology against the prescribed requirements and methodologies used by other entities. Without a clearly documented methodology the audit will need to ask an inordinate number of questions to gain the necessary knowledge. This, in turn, will only result in increased audit time, cost and no doubt confusion or uncertainty. With a comprehensive, well documented and fully compliant methodology the auditor instantly gains a higher level of confidence in the approach, and as various audit assertions can be easily satisfied, typically results in a lower audit risk assessment and should aid in a quicker and easier audit process. The auditor will of course still need to test the principles and assumptions in the methodology so the methodology needs to accurately reflect the actual assumptions, processes and calculations used to produce the valuation and depreciation calculations.</td>
<td></td>
</tr>
</tbody>
</table>
### Process: post valuation

#### Document the process used to undertake the valuation including how the evidence was captured.

These needs to details aspects such as:
- High overview of the valuation process
- The data capture process (completeness)
- Sampling and validation
- Quality assurance process

Even if the valuation is outsourced to an external firm it is critical that the internal process be fully documented.

<table>
<thead>
<tr>
<th>Explanation</th>
<th>Done?</th>
</tr>
</thead>
<tbody>
<tr>
<td>While a methodology document explains how the calculations were completed, the auditor needs to gain evidence specifically about how the valuation process was implemented, what controls were put in place and how decisions were made about matters such as sampling. This enables the auditor to gain assurance that the policy and methodology were both implemented as described and that reliance can be placed on the output.</td>
<td></td>
</tr>
<tr>
<td>Without a clearly documented process the auditor will need to obtain the evidence by asking questions across the organisation. Often this leads to inconsistency in responses and further confusion which may result in the auditor spending additional and unnecessary time investigating concerns raised from those queries.</td>
<td></td>
</tr>
</tbody>
</table>

#### Annual review of unit rates and gross current replacement cost.

Ideally there should be documented evidence to show that this review was undertaken and to report the results.

The entity needs to document the pricing / indexation references it intends to use each year in the asset accounting manual.

<table>
<thead>
<tr>
<th>Explanation</th>
<th>Done?</th>
</tr>
</thead>
<tbody>
<tr>
<td>IAS 16 requires a review at the end of year to assess whether there is any evidence to suggest the carrying amount is significantly different from the fair value. By nature this includes a review of the GCRC. Even if an entity adopts a policy of revaluing every three years the prescribed requirements mandate that the annual review be undertaken and if there is evidence of a material change a revaluation must be undertaken. Quantification of the annual movement in fair value must be documented so that the auditor can assess the materiality of fair value increments and decrements.</td>
<td></td>
</tr>
</tbody>
</table>

#### Annual review of factors and assumptions critical to the calculation of the WDV and depreciation (including impairment).

Ideally there should be documented evidence to show that this review was undertaken and to report the results.

<table>
<thead>
<tr>
<th>Explanation</th>
<th>Done?</th>
</tr>
</thead>
<tbody>
<tr>
<td>IAS 16 and IAS 36 require a review at the end of year to assess whether there is any evidence to suggest the carrying amount is significantly different from the fair value. By nature this includes a review of the assumptions that drive the calculation of the WDV (fair value) and depreciation expense. Even if an entity adopts a policy of revaluing every three years the prescribed requirements mandate that the annual review be undertaken and if there is evidence of a material change a revaluation must be undertaken. The review needs to clearly document that the following aspects were reviewed and confirm the appropriateness (or show relevant changes made) of:</td>
<td></td>
</tr>
<tr>
<td>• Condition assessments (including impairment) • Residual value • Pattern of consumption • Useful life and remaining useful life</td>
<td></td>
</tr>
</tbody>
</table>
### Process: post valuation

<table>
<thead>
<tr>
<th>Document the process and results of an internal review by management for accuracy, reasonableness, quality and consistency with the entity’s understanding of the portfolio. This essentially requires management to critically assess the outcomes of the valuation, and to validate the accuracy and appropriateness of the key assumptions relied upon.</th>
<th>Explanation</th>
<th>Done?</th>
</tr>
</thead>
<tbody>
<tr>
<td>The responsibility for the figures reported in the financial statements rests with management. Even if an external valuer is appointed, it is the responsibility of management to review the results and critically assess the outcomes of the valuation. This includes reasonableness, consistency, appropriateness and accuracy. Auditors are becoming more concerned about entities that accept work without checking it against the prescribed requirements, contract specification or their own knowledge. If a review is undertaken and documented, the auditor is able to obtain some comfort regarding management controls. This will aid in the audit process and may result in time and cost savings. Asset management personnel should provide evidence that a quality control process has been undertaken that provides assurance on the accuracy, completeness and valuation of all assets. Finance personnel should ensure that they review the information provided to them prior to finalising the financial report.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Undertake some high level analytics and compare to previous years' results.

| One year is sufficient but up to five years would be ideal. This should include comparison (at asset class level) of: * GCRC (percentage and amount of change); * WDV (percentage and amount of change); * WDV as a percentage of change; * Depreciation expense as a percentage of GCRC; * Depreciation expense (percentage and amount of change); * Minimum, maximum and average depreciation rates applied by asset type; and * Minimum, maximum and average unit rates applied by asset type. | Auditors need to assess the competence of management and their understanding of the results. The conduct of high level analytics supported by management’s explanation about the findings provides the auditor with a high level of assurance over the competency of the management and relative strength of the governance framework. The results also enable the auditor to identify significant trends and areas of audit focus, as well as gain evidence over key disclosures provided in the financial statements. | |
Complete a movement reconciliation supported by appropriate details for each movement.

This reconciliation is mandated by IAS 16 as a disclosure note to the statements. It is essential that the various figures be validated and tied back to a list of assets or transactions that represent each figure.

<table>
<thead>
<tr>
<th>Process: post valuation</th>
<th>Explanation</th>
<th>Done?</th>
</tr>
</thead>
<tbody>
<tr>
<td>If there is one thing that will cause serious grief during the audit it is a movement reconciliation that does not add or agree to the general ledger.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>This reconciliation with supporting details forms an essential part of every organisation’s financial statement work papers. It enables the auditor to identify major movements in account balances and to identify areas of audit focus and risk.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It also provides the auditor with assurance that the account balance has been tested, validated and reconciles to the general ledger. It gives assurance over completeness and accuracy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Failure to complete the reconciliation prior to the audit visit could result in errors being detected as part of the audit resulting in changes to the financial statements and increased audit concerns and risk.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The following roll forwards should be prepared:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Each asset register with depreciation expense, profit / loss on sale, opening and closing cost / fair value and accumulated depreciation reconciled to the general ledger control accounts.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asset additions should be reconciled to the cash flow statement after adjusting for capital creditors and non-cash contributions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The asset revaluation reserve movements should be reconciled to each asset register and supporting fair value indexation calculations.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Attachment E: Pro forma tender specification and instructions to valuers

Example quotation/tender specification

Name of entity
Provision of asset valuation services

<table>
<thead>
<tr>
<th>Name of quote/tender:</th>
<th>Provision of asset valuation services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing time:</td>
<td>Time and date of closing</td>
</tr>
<tr>
<td>Number:</td>
<td>Tender reference</td>
</tr>
</tbody>
</table>

1 Quotation / tender details

<table>
<thead>
<tr>
<th>Item</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project manager</td>
<td>Name and Contact numbers of project manager</td>
</tr>
<tr>
<td>Due date and time</td>
<td>Time and date of closing</td>
</tr>
<tr>
<td>Delivery address</td>
<td>Address of tender delivery and any special requirements, such as electronic lodgment only or marked tender box, and the number of copies required.</td>
</tr>
</tbody>
</table>

2 Services to be provided

Name of entity is seeking expressions of interest for the provision of valuation services for a three (3) year period. Council is required to capture and value its assets and account for them according to accounting standards and other prescribed requirements to ensure good asset management practices and accurate and reliable accounting treatment.

The project involves:

- The valuation of the following asset classes as at day and month of year-end each year as follows at fair value (FV). A comprehensive (Comp) valuation will involve physical inspection (although a sampling approach may be utilised as appropriate). A desktop revaluation (Desk) will not require inspection by the valuer although updated condition data will be provided by entity to assist the valuer with these valuations.

- Name of entity also aims to develop a long term strategic relationship with the successful tenderer. Accordingly the supplier is requested to incorporates into the quote a price for the ad hoc provision of general asset accounting and asset valuation advice.

Some asset classes will also require the provision of insurance values (Ins).

<table>
<thead>
<tr>
<th>Asset class</th>
<th>Basis</th>
<th>Revaluation threshold</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>FV</td>
<td>$1</td>
<td>Comp</td>
<td>Desk</td>
<td>Desk</td>
</tr>
<tr>
<td>Buildings</td>
<td>FV and Ins</td>
<td>$10,000</td>
<td>Comp</td>
<td>Desk</td>
<td>Desk</td>
</tr>
<tr>
<td>Other structures</td>
<td>FV and Ins</td>
<td>$2,000</td>
<td>Comp</td>
<td>Desk</td>
<td>Desk</td>
</tr>
<tr>
<td>Roads infrastructure</td>
<td>FV</td>
<td>$1</td>
<td>Comp</td>
<td>Desk</td>
<td>Desk</td>
</tr>
<tr>
<td>Water and sewerage infrastructure</td>
<td>FV</td>
<td>$1</td>
<td>Comp</td>
<td>Desk</td>
<td>Desk</td>
</tr>
<tr>
<td>Parks and recreational assets</td>
<td>FV</td>
<td>$2,000</td>
<td>Comp</td>
<td>Desk</td>
<td>Desk</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The outputs are to include:

<table>
<thead>
<tr>
<th>Type of Information</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data to be provided</td>
<td>The key valuation data to be produced from the valuation report include:</td>
</tr>
<tr>
<td></td>
<td>Asset level</td>
</tr>
<tr>
<td></td>
<td>• Gross value (either MV or GCRC)</td>
</tr>
<tr>
<td></td>
<td>• Accumulated depreciation</td>
</tr>
<tr>
<td></td>
<td>• Fair value</td>
</tr>
<tr>
<td></td>
<td>Component level</td>
</tr>
<tr>
<td></td>
<td>• Gross value, accumulated depreciation and WDV</td>
</tr>
<tr>
<td></td>
<td>• Condition or consumption score</td>
</tr>
<tr>
<td></td>
<td>• Pattern of consumption</td>
</tr>
<tr>
<td></td>
<td>• Residual value</td>
</tr>
<tr>
<td></td>
<td>• Useful life and RUL</td>
</tr>
<tr>
<td></td>
<td>• Depreciation rate</td>
</tr>
<tr>
<td></td>
<td>• Depreciation expense</td>
</tr>
<tr>
<td>Timing</td>
<td>Draft report to be provided by date for draft report</td>
</tr>
<tr>
<td></td>
<td>Final report to be provided by date for final report</td>
</tr>
<tr>
<td>Valuation report and certificate</td>
<td>Signed original report setting out the process, results, limitations, qualification of the valuer, valuation certificate and summary data.</td>
</tr>
<tr>
<td>Electronic valuation report</td>
<td>To be provided in either Microsoft Excel or an electronic database listing each asset and component, underlying assumptions and results with hyperlinked photographs, and GIS co-ordinates (where appropriate).</td>
</tr>
<tr>
<td></td>
<td>The ability for name of entity to access the electronic data and use it to upload to other systems is critical.</td>
</tr>
<tr>
<td>Valuation and depreciation methodology</td>
<td>The valuation is required to be supported by appropriate documentation setting out the underlying methodology, process and evidence used to produce the valuation. This needs to make reference back to the underlying accounting standards and demonstrate full compliance with all aspects of the prescribed requirements.</td>
</tr>
<tr>
<td>Audit liaison</td>
<td>The valuer is required to follow up and liaise with the external auditor or name of entity with respect to any issues relating to their processes, methodology and evidence gathered in relation to the valuation. This may include the provision of source data to the auditor. Any fees associated with this process are to be included in the overall quoted fee.</td>
</tr>
</tbody>
</table>
3 Background information

To assist the valuer gain and understanding the project the following information is provided regarding name of entity.

<table>
<thead>
<tr>
<th>Type of Information</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of entity</td>
<td>For example, local government</td>
</tr>
<tr>
<td>Key contact</td>
<td>Name and details of key contact</td>
</tr>
<tr>
<td>Location (head office)</td>
<td>Address and contact details</td>
</tr>
</tbody>
</table>
| Location of assets  | Provide overview of:  
  • Types of assets held  
  • Geographical spread of the assets  
  • Special instructions regarding access and inspections |

<table>
<thead>
<tr>
<th>Overview of the business</th>
<th>Details</th>
</tr>
</thead>
</table>
|                         | • Overview of what the entity does  
  • Types of assets held  
  • Services provided  
  • Customer base / community demographics  
  • Other |

<table>
<thead>
<tr>
<th>Linkage to other systems or processes</th>
<th>Details</th>
</tr>
</thead>
</table>
|                                      | Provide details of other systems or processes that may impact of the delivery of the data and conduct of the valuation. For example:  
  • Financial asset register  
  • Asset management system  
  • Integration into asset management plan  
  • Existing sources of data condition information |

A detailed listing of assets will be provided to potential suppliers by contacting contact officer direct via email on contact office email address.

Or

Detailed listings of the assets to be valued are included in the attached Excel spreadsheets.

However the following information is provided for quick analysis.

<table>
<thead>
<tr>
<th>Asset class</th>
<th>No. assets</th>
<th>Valuation basis</th>
<th>Last comp</th>
<th>Current WDV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>3,000</td>
<td>MV and DCRC</td>
<td>2009</td>
<td>$56 million</td>
</tr>
<tr>
<td>Buildings</td>
<td>600</td>
<td>MV and DCRC</td>
<td>2009</td>
<td>$67 million</td>
</tr>
<tr>
<td>Other structures</td>
<td>350</td>
<td>DCRC</td>
<td>2009</td>
<td>$45 million</td>
</tr>
<tr>
<td>Roads infrastructure</td>
<td>25,400</td>
<td>DCRC</td>
<td>2009</td>
<td>$470 million</td>
</tr>
<tr>
<td>Water and sewerage infrastructure</td>
<td>32,300</td>
<td>DCRC</td>
<td>2009</td>
<td>$370 million</td>
</tr>
<tr>
<td>Parks and recreational assets</td>
<td>890</td>
<td>DCRC</td>
<td>2009</td>
<td>$8 million</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 4 Definitions and prescribed requirements

The valuation is required to comply with all aspects of the relevant accounting standards and other Prescribed Requirements. These include (but are not limited to) –

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFRS</td>
<td>Accounting Standard</td>
</tr>
<tr>
<td>IFRS 13</td>
<td>Fair value</td>
</tr>
<tr>
<td>IAS 116</td>
<td>Property, Plant and Equipment</td>
</tr>
<tr>
<td>IAS 136</td>
<td>Impairment</td>
</tr>
<tr>
<td>IFRS 5</td>
<td>Assets Held for Sale</td>
</tr>
<tr>
<td>IAS 40</td>
<td>Investment Properties</td>
</tr>
<tr>
<td>IAS 123</td>
<td>Borrowing Costs</td>
</tr>
<tr>
<td></td>
<td>List jurisdiction specific requirements (for example, Treasury policies)</td>
</tr>
</tbody>
</table>

For the purposes of the exercise the following definitions apply.

**Active market**
- A market in which all the following conditions exist:
  - (a) the items traded within the market are homogeneous; 
  - (b) willing buyers and sellers can normally be found at any time; and 
  - (c) prices are available to the public.

**Component**
- A significant part of a complex asset which has a different useful life or pattern of consumption from the other significant parts.

**Comprehensive valuation**
- A revaluation which entails significant levels of physical inspection and evaluation of all appropriate aspects such as methodology, assumptions and unit rates.

**Depreciable amount**
- The cost of an asset, or other amount substituted for cost, less its residual value.

**Depreciated current replacement cost**
- The gross replacement cost less any accumulated depreciation. It reflects the level of remaining service potential embodied in an asset based on the current replacement cost.

**Depreciation**
- The systematic allocation of the depreciable amount of an asset over its useful life which reflects the pattern in which the asset's future economic benefits are expected to be consumed by the entity.

**Fair value**
- The amount for which an asset could be exchanged between knowledgeable, willing parties in an arm's length transaction.
  - Or
  - The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price).

**Gross current replacement cost**
- The cost of replacing the total potential future economic benefit of the existing asset using either reproduction or modern equivalents after taking into account any differences in the utility of the existing asset and the modern equivalent.

**Interim revaluation by indexation**
- Also referred to as a desktop valuation. This type of valuation is based purely on indexation rates and adjustments for additions, deletions and changes in condition (for example, impairment). It should be limited to a maximum of two or three years between comprehensive valuations.

**Market value**
- The price that would be exchanged between a willing buyer and seller in an open and liquid market.

**Pattern of consumption**
- The pattern in which the asset's future economic benefits are expected to be consumed by the entity. This may be constant, increasing, decreasing or variable.

**Residual value**
- The estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life.

**Remaining useful life**
- The time remaining until an asset ceases to provide the required level of service or reaches the end of its economic usefulness.

**Useful life**
- The period over which an asset is expected to be available for use by an entity; or the number of production or similar units expected to be obtained from the asset by an entity.
5 Specific requirements of the contract

1. Comprehensive valuation

- All assets to be revalued at fair value in full compliance with the requirements of the prescribed requirements and relevant guides as listed in the section: Services to be Provided.

- This includes valuing each asset as appropriate using either the market value, income or the depreciated current replacement cost basis. With respect to the depreciated current replacement cost basis, this includes:
  - identification of all costs;
  - splitting complex assets into components (all assets above revaluation threshold);
  - determining gross current replacement cost for each component
  - adjusting for the differences in service potential between existing asset and modern equivalent or reference asset; and
  - determination of remaining service potential based on condition, obsolescence, the entity’s asset management strategies and other relevant factors.

- The term fair value means the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm’s length transaction. This is not necessarily the market selling price of the asset. Rather, it should be regarded as the maximum value that agency management would rationally pay to acquire the asset if it did not currently hold it, taking into account:
  - the cost of replacing or reproducing the asset, if management intend to replace the asset;
  - the remaining useful life and condition of the asset; and
  - cash flows from future use and disposal.

- Fair value will be determined as follows:
  - Where there is an active and liquid market, at market value
  - Where there is other evidence of market value, at net present value or depreciated current replacement cost
  - Where there is no evidence of market value: depreciated current replacement cost

- Where appropriate, complex assets are to be componentised in accordance with the requirements of the accounting standards at a level that enables determination of depreciation for each component as well as integration into the entity’s asset management framework. All assets above the revaluation threshold are to be componentised.

- All valuations are to be completed with an effective date of day and month of year end each year.

- All valuations are to be supported by sufficient and appropriate audit evidence to enable our auditors to satisfy their professional requirements.

- The valuation and depreciation methodology must comply with all aspects of the accounting standards. In particular the depreciation methodology must:
  - be based on the relevant factors that drive the consumption of the assets future economic benefits;
  - reflect the asset management lifecycle of the asset;
  - include allowance for an appropriate residual value;
  - depreciate the depreciable amount over the useful life;
  - use a method that matches the pattern of consumption; and
  - be systematic.

- Where indicated, insurance valuations are also to be provided for each asset. In determining the insurance valuation, adequate allowances will be made for:
  - cost increases during the rebuilding period;
  - cost of demolition and removal of debris;
  - cost of all relevant professional fees including, but not limited to, architects, engineers, solicitors, surveyors and planning consultants;
  - any foreseeable associated or incidental costs; and
  - any additional costs due to planning restrictions or due to changes in regulations relating to fire, flood and occupational health and safety legislation.

2. Annual desktop revaluations

- Updates will be required by desktop update due date each year to enable the timely completion of financial statements.

- Documentation and supporting information to support the valuation are to be provided.

3. Provision of general asset accounting and asset management advice

- Provide an hourly rate for ad hoc asset accounting and asset valuation advice (phone and email support).

- Provide an hourly and daily rate for face to face meetings, workshops or the production of detailed written reports or research as required.
6 Evaluation criteria

In addition to price, the evaluation criteria include a range of mandatory and qualitative criteria.

The criteria and their respective weightings are as follows. Please ensure your proposal specifically addresses each criterion.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Type</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Meets timeframe</td>
<td>Yes/No</td>
</tr>
<tr>
<td>2</td>
<td>Insurance coverage</td>
<td>Yes/No</td>
</tr>
<tr>
<td>3</td>
<td>Methodology (including full compliance and timeframe)</td>
<td>40%</td>
</tr>
<tr>
<td>4</td>
<td>Relevant skills</td>
<td>20%</td>
</tr>
<tr>
<td>5</td>
<td>Relevant experience</td>
<td>15%</td>
</tr>
<tr>
<td>6</td>
<td>Track record</td>
<td>15%</td>
</tr>
<tr>
<td>7</td>
<td>Ability and willingness to add value</td>
<td>5%</td>
</tr>
<tr>
<td>8</td>
<td>Quality assurance</td>
<td>5%</td>
</tr>
</tbody>
</table>

If a supplier is unable to satisfy all criteria they may be eliminated from the tender process. However they may still submit an alternative tender. If so they must:

1. Explain in detail the reason for non-compliance; and
2. Set out an alternative strategy for consideration by the evaluation panel.

The non-price criteria are described as follows.

1. **Meets timeframe**
   The specification requires the draft to be delivered by **date for draft report** with the final report to be delivered by **date for final report**.
   The response for this criteria is either Yes or No.

2. **Insurance coverage**
   The following insurance is required. Please provide the following information and indicate whether you satisfy the minimum requirements with a Yes or No.

<table>
<thead>
<tr>
<th>Insurance</th>
<th>Amount required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public liability</td>
<td>$10 million</td>
</tr>
<tr>
<td>Professional indemnity</td>
<td>$5 million</td>
</tr>
<tr>
<td>‘Workers’ compensation</td>
<td></td>
</tr>
</tbody>
</table>

For each policy please advise:

- Amount of coverage held
- Name of insurer
- Policy number

- Expiry date
- Excess
- Whether you satisfy the minimum requirements (Yes or No)

3. **Methodology (including full compliance and timeframe)**
   Proposals should include a discussion of the valuation methodology to be used and the proposed process to be followed.

   Examples of data collection forms and all other relevant material to be used including a sample of the output should be tendered as part of your proposal.

   Examples of the proposed reporting format should be included as part of the fee proposal.

   It is critical that this section addresses the items identified in services to be provided and specific requirements of the contract sections.

4. **Relevant skills**
   Proposals should include curriculum vitae detailing relevant qualifications and expertise for all team members including sub-contractors. Where sub-contractors are used, your quotation should clearly identify that part of the project to be undertaken by the sub-contractors.

5. **Relevant experience**
   Proposal should outline your experience and reputation with respect to:
   - the valuation of these types of assets;
   - this sector;
   - provision of advice, consulting and training with respect to asset accounting and asset valuation; and
   - contributions (of a professional or technical nature) made for the benefit of the sector as whole.

   In particular the proposal should also outline details of any other relevant experience or expertise that may be relevant or provide the potential to add extra value to **name of entity** as a consequence of being awarded this contract.

6. **Track record**
   Proposals should provide details of their track record in successfully completing projects of this nature.

   In particular, provide details of:
   - the number of these types of valuations completed over the past three years;
• details of whether qualified audits resulted due to asset/ depreciation/valuation problems;
• contact details for referees; and
• relevant information that provides an indicator of actual performance.

7. Ability and willingness to add value
The values of assets held by name of entity are significant and due to their impact across the various services delivered by the entity it is desirable to build a long-term strategic relationship that provides name of entity with added value.

Proposals are to include information which will provide an indication of the potential to develop such a relationship. In particular they should provide information about:
• the ability and desire to establish a long-term relationship with name of entity;
• contributing to the development of better practices across the sector or within specific entities with particular focus on asset accounting, asset valuation, asset management and corporate governance;
• your ability to deliver all services in-house; and
• relevant information that provides an indicator of actual performance.

8. Quality assurance
Proposals should indicate the processes they have in place to ensure a high level of quality assurance. Entities with independent third party ISO:9001 quality management will be afforded full marks.

7 Pricing schedule
All costs are to be quoted as a fixed price (inclusive of travel, ancillary and tax costs) using the following schedule.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Rate</th>
<th>Price (inclusive of travel, ancillary costs and tax)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valuation of assets</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Provision of ad hoc advice (email and phone support)</td>
<td>Per hour</td>
<td></td>
</tr>
<tr>
<td>Provision of ad hoc advice (meetings, workshops, detailed reports and research)</td>
<td>Per hour</td>
<td>Per day</td>
</tr>
</tbody>
</table>

Date issued: Date of issue
### Sample evaluation scoring template

<table>
<thead>
<tr>
<th>Type</th>
<th>Score</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Meets timeframe</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2 Insurance coverage</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3 Methodology</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Satisfies all requirements of services to be provided section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Market value approach - approach is compliant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Income approach - approach is compliant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Cost approach - is compliant and includes:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– identification of all costs;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– splitting complex assets into components; and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– determining gross current replacement cost for each component after adjusting for the differences in service potential between existing asset and modern equivalent or reference asset.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Fair value is based on assessment of condition, obsolescence, the entity’s asset management strategies and other relevant factors.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Componentisation is appropriately applied for all assets above the revaluation threshold.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The depreciation methodology fully complies with all aspects of the accounting standards. In particular the depreciation methodology must:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– be based on the relevant factors that drive the consumption of the assets future economic benefits;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– reflect the asset management lifecycle of the asset;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– include allowance for an appropriate residual value;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– depreciate the depreciable amount over the useful life;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– use a method that matches the pattern of consumption; and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– be systematic.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The valuation will be supported by sufficient and appropriate audit evidence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Where relevant the insurance valuations will be based on an appropriate basis</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4 Relevant skills</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Appropriate qualifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5 Relevant experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• These types of assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• This sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Provision of advice, consulting and training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Contributions (of a professional or technical nature)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Potential to add value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Score</td>
<td>Comments</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>6</strong> Track record</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The number of these type of valuations completed over the past three years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• History of qualified audits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Referees comments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Relevant information that provides and indicator of actual performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>7</strong> Ability and willingness to add value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The ability and desire to establish long-term relationship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Contribution to the development of better practices across the sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ability to deliver all services in house</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Relevant information that provides an indicator of actual performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8</strong> Quality assurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ISO:9001 Quality Management</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Instructions to valuers

Date: insert date

Address: Insert address

Dear Sir / Madam

Instruction - valuation of non-current assets of Insert agency name

Insert name of valuation firm has been appointed to undertake the revaluation of non-current physical assets for insert agency name. The revaluation will be used for the preparation of the financial reports for the period ended insert date of end of financial period.

Services to be provided

The project involves:

• The comprehensive valuation of the following asset classes at fair value as at date of valuation. A comprehensive (Comp) valuation will involve physical inspection (although a sampling approach may be used as appropriate).

• A desktop revaluation (Desk) as at insert day and month of year end. This will not require inspection by the valuer although updated condition data will be provided by Insert agency name to assist the valuer with these valuations.

• Some asset classes will also require the provision of insurance values (Ins).

<table>
<thead>
<tr>
<th>Asset class</th>
<th>Basis</th>
<th>Revaluation threshold</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>FV</td>
<td>$1</td>
<td>Comp</td>
<td>Desk</td>
<td>Desk</td>
</tr>
<tr>
<td>Buildings</td>
<td>FV and Ins</td>
<td>$10,000</td>
<td>Comp</td>
<td>Desk</td>
<td>Desk</td>
</tr>
<tr>
<td>Other structures</td>
<td>FV and Ins</td>
<td>$2,000</td>
<td>Comp</td>
<td>Desk</td>
<td>Desk</td>
</tr>
<tr>
<td>Roads infrastructure</td>
<td>FV</td>
<td>$1</td>
<td>Comp</td>
<td>Desk</td>
<td>Desk</td>
</tr>
<tr>
<td>Water &amp; sewerage infrastructure</td>
<td>FV</td>
<td>$1</td>
<td>Comp</td>
<td>Desk</td>
<td>Desk</td>
</tr>
<tr>
<td>Parks and recreational assets</td>
<td>FV</td>
<td>$1</td>
<td>Comp</td>
<td>Desk</td>
<td>Desk</td>
</tr>
<tr>
<td>Other</td>
<td>FV</td>
<td>$2,000</td>
<td>Comp</td>
<td>Desk</td>
<td>Desk</td>
</tr>
</tbody>
</table>

The outputs are to include:
<table>
<thead>
<tr>
<th>Type of information</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data to be provided</td>
<td>The key valuation data to be produced from the valuation report include –</td>
</tr>
<tr>
<td>Asset level</td>
<td>• Gross value (either MV or GCRC)</td>
</tr>
<tr>
<td></td>
<td>• Accumulated depreciation</td>
</tr>
<tr>
<td></td>
<td>• Fair value</td>
</tr>
<tr>
<td>Component level</td>
<td>• Gross value, accumulated depreciation and WDV</td>
</tr>
<tr>
<td></td>
<td>• Condition or consumption score</td>
</tr>
<tr>
<td></td>
<td>• Pattern of consumption</td>
</tr>
<tr>
<td></td>
<td>• Residual value</td>
</tr>
<tr>
<td></td>
<td>• Useful life &amp; RUL</td>
</tr>
<tr>
<td></td>
<td>• Depreciation rate</td>
</tr>
<tr>
<td></td>
<td>• Depreciation expense</td>
</tr>
<tr>
<td>Timing</td>
<td>Draft report to be provided by [date for draft report]</td>
</tr>
<tr>
<td></td>
<td>Final report to be provided by [date for final report]</td>
</tr>
<tr>
<td>Valuation report and certificate</td>
<td>Signed original report setting out the process, results, limitations, qualification of the valuer, valuation certificate and summary data.</td>
</tr>
<tr>
<td>Electronic valuation report</td>
<td>To be provided on either Microsoft Excel or an electronic database, listing each asset and component, underlying assumptions and results with hyperlinked photographs, GIS co-ordinates (where appropriate).</td>
</tr>
<tr>
<td></td>
<td>The ability for [insert agency name] to access the electronic data and use it to upload to other systems is critical.</td>
</tr>
<tr>
<td>Valuation and depreciation methodology</td>
<td>The valuation is required to be supported by appropriate documentation setting out the underlying methodology, process and evidence used to produce the valuation. This needs to make reference back to the underlying accounting standards and demonstrate full compliance with all aspects of the prescribed requirements.</td>
</tr>
<tr>
<td>Audit Liaison</td>
<td>The valuer is required to follow up and liaise with the external auditor of [Insert agency Name] with respect to any issues relating to their processes, methodology and evidence gathered in relation to the valuation. This may include the provision of source data to the auditor.</td>
</tr>
<tr>
<td></td>
<td>Under the requirements of this contract you are duly authorised to liaise directly with the external auditor or QAO on behalf of council as necessary to resolve any potential audit issues.</td>
</tr>
</tbody>
</table>
To assist the valuer gain and understanding the project the following information is provided.

<table>
<thead>
<tr>
<th>Type of information</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of entity</td>
<td>For example: local government</td>
</tr>
<tr>
<td>Key contact</td>
<td>Name and details of key contact</td>
</tr>
<tr>
<td>Location (head office)</td>
<td>Address and contact details</td>
</tr>
<tr>
<td>Location of assets</td>
<td>Provide overview of:</td>
</tr>
<tr>
<td></td>
<td>• Types of assets held</td>
</tr>
<tr>
<td></td>
<td>• Geographical spread of the assets</td>
</tr>
<tr>
<td></td>
<td>• Special instructions regarding access and inspections</td>
</tr>
<tr>
<td>Overview of the business</td>
<td>• Overview of what the entity does</td>
</tr>
<tr>
<td></td>
<td>• Types of assets held</td>
</tr>
<tr>
<td></td>
<td>• Services provided</td>
</tr>
<tr>
<td></td>
<td>• Customer base / community demographics</td>
</tr>
<tr>
<td></td>
<td>• Other</td>
</tr>
<tr>
<td>Linkage to other systems or</td>
<td>Provide details of other systems or processes that may impact of the</td>
</tr>
<tr>
<td>processes</td>
<td>conduct of the valuation.</td>
</tr>
<tr>
<td></td>
<td>• Financial asset register</td>
</tr>
<tr>
<td></td>
<td>• Asset management system</td>
</tr>
<tr>
<td></td>
<td>• Integration into asset management plan</td>
</tr>
<tr>
<td></td>
<td>• Existing sources of data condition information</td>
</tr>
<tr>
<td>External auditor</td>
<td>Provide details of key audit contacts.</td>
</tr>
<tr>
<td></td>
<td>• Name of audit firm</td>
</tr>
<tr>
<td></td>
<td>• Key contact and their details</td>
</tr>
</tbody>
</table>

Detailed listings of the assets to be valued are included in the attached Excel spreadsheets. However the following information is provided for quick analysis.

<table>
<thead>
<tr>
<th>Asset class</th>
<th>No. Assets</th>
<th>Valuation basis</th>
<th>Last comp.</th>
<th>Current WDV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>3,000</td>
<td>MV &amp; DCRC</td>
<td>2009</td>
<td>$56 million</td>
</tr>
<tr>
<td>Buildings</td>
<td>600</td>
<td>MV &amp; DCRC</td>
<td>2009</td>
<td>$67 million</td>
</tr>
<tr>
<td>Other structures</td>
<td>350</td>
<td>DCRC</td>
<td>2009</td>
<td>$45 million</td>
</tr>
<tr>
<td>Roads infrastructure</td>
<td>25,400</td>
<td>DCRC</td>
<td>2009</td>
<td>$470 million</td>
</tr>
<tr>
<td>Water and sewerage infrastructure</td>
<td>32,300</td>
<td>DCRC</td>
<td>2009</td>
<td>$370 million</td>
</tr>
<tr>
<td>Parks and recreational assets</td>
<td>890</td>
<td>DCRC</td>
<td>2009</td>
<td>$8 million</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Definitions and prescribed requirements**

The valuation is required to comply with all aspects of the relevant accounting standards and other prescribed requirements. These include (but are not limited to):

<table>
<thead>
<tr>
<th>AASB</th>
<th>Accounting standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>AASB13</td>
<td>Fair value (note not applicable until 2013-14 but may be adopted in 2011-12 if desired)</td>
</tr>
<tr>
<td>AASB116</td>
<td>Property, plant and equipment</td>
</tr>
<tr>
<td>AASB136</td>
<td>Impairment</td>
</tr>
<tr>
<td>AASB5</td>
<td>Assets held for sale</td>
</tr>
<tr>
<td>AASB140</td>
<td>Investment properties</td>
</tr>
<tr>
<td>AASB123</td>
<td>Borrowing costs</td>
</tr>
<tr>
<td></td>
<td>List jurisdiction specific requirements (for example, treasury policies)</td>
</tr>
</tbody>
</table>
For the purposes of the exercise the following definitions apply.

**Active Market**
A market in which all the following conditions exist:

(a) the items traded within the market are homogeneous;

(b) willing buyers and sellers can normally be found at any time; and

(c) prices are available to the public.

**Component**
A significant part of a complex asset which has a different useful life or pattern of consumption from the other significant parts.

**Comprehensive valuation**
A revaluation which entails significant levels of physical inspection and evaluation of all appropriate aspects such as methodology, assumptions and unit rates.

**Depreciable amount**
The cost of an asset, or other amount substituted for cost, less its residual value.

**Depreciated current replacement cost**
The gross replacement cost less any accumulated depreciation. It reflects the level of remaining service potential embodied in an asset based on the current replacement cost.

**Depreciation**
The systematic allocation of the depreciable amount of an asset over its useful life which reflects the pattern in which the asset’s future economic benefits are expected to be consumed by the entity.

**Fair value**
The amount for which an asset could be exchanged between knowledgeable, willing parties in an arm’s length transaction.

Or

The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price).

**Gross current replacement cost**
The cost of replacing the total potential future economic benefit of the existing asset, using either reproduction or modern equivalents, after taking into account any differences in the utility of the existing asset and the modern equivalent.

**Interim revaluation by indexation**
Also referred to as a desktop valuation. This type of valuation is based purely on indexation rates and adjustments for additions, deletions and changes in condition (for example, impairment). It should be limited to a maximum of two or three years between comprehensive valuations.

**Market value**
The price that would be exchanged between a willing buyer and seller in an open and liquid market.

**Pattern of consumption**
The pattern in which the asset’s future economic benefits are expected to be consumed by the entity. This may be constant, increasing, decreasing or variable.

**Residual value**
The estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life.

**Remaining useful life**
The time remaining until an asset ceases to provide the required level of service, or reaches the end of its economic usefulness.

**Useful life**
The period over which an asset is expected to be available for use by an entity; or the number of production or similar units expected to be obtained from the asset by an entity.
Specific requirements of the contract

4. Comprehensive valuation

- All assets to be revalued at fair value in full compliance with the requirements of the prescribed requirements and relevant guides as listed in the section on services to be provided.
- This includes valuing each asset as appropriate using the market value, income or the depreciated current replacement cost basis. With respect to the depreciated current replacement cost basis this includes:
  - identification of all costs;
  - splitting complex assets into components (all assets above revaluation threshold);
  - determining gross current replacement cost for each component;
  - adjusting for the differences in service potential between existing asset and modern equivalent or reference asset; and
  - determination of remaining service potential based on condition, obsolescence, the entity’s asset management strategies and other relevant factors.
- The term fair value means the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm’s length transaction. This is not necessarily the market selling price of the asset. Rather, it should be regarded as the maximum value that agency management would rationally pay to acquire the asset if it did not currently hold it, taking into account:
  - the cost of replacing or reproducing the asset, if management intend to replace the asset;
  - the remaining useful life and condition of the asset; and
  - cash flows from future use and disposal.
- Fair value will be determined as follows:
  - Where this is an active and liquid market – market value
  - Where there is other evidence of market value – net present value or depreciated current replacement cost
  - Where there is no evidence of market value – depreciated current replacement cost
- Where appropriate, complex assets are to be componentised in accordance with the requirements of the accounting standards at a level that enables determination of depreciation for each component as well as integration into the entity’s asset management framework.
- All valuations are to be completed with an effective date of day and month of year end each year.
- All valuations are to be supported by sufficient and appropriate audit evidence to enable our auditors to satisfy their professional requirements.
- Where indicated, insurance valuations are also to be provided for each asset. In determining the insurance valuation adequate allowances will be made for:
  - cost increases during the rebuilding period;
  - cost of demolition and removal of debris;
  - cost of all relevant professional fees including, but not limited to, architects, engineers, solicitors, surveyors and planning consultants;
  - any foreseeable associated or incidental costs; and
  - any additional costs due to planning restrictions or due to changes in regulations relating to fire, flood and occupational health and safety legislation.

5. Annual desktop re-valuations

- Updates will be required by desktop update due date each year to enable the timely completion of financial statements.
- Documentation and supporting information to support the valuation are to be provided.

Yours………
Price quality
Price quality is a supplier selection method where the quality attributes of suppliers whose proposals meet the RFP’s requirements are graded, and the preferred supplier is selected by balancing price and quality through the use of a formula.

Using price quality
Price quality should be used where the approved organisation determines that best value for money will be obtained by having suppliers compete on both price and quality, and selecting the supplier that offers the best combination of the two.

The process an approved organisation goes through to decide how much more to pay for additional quality is clearly shown.

Proposal evaluation procedure
When selecting a supplier using the price quality method, approved organisations must use the following proposal evaluation procedure.

Separation of non-price and price information
- Proposals must be submitted in two separate envelopes. Envelope 1 must contain all proposal information other than the price. Envelope 2 must contain the price information.
- Approved organisations must complete steps 1–5 before opening envelope 2.

Step 1: Grade the non-price attributes.
- Open envelope 1.
- Determine that the proposal is within the RFP’s scope and requirements.
- Grade each non-price attribute for each proposal from zero to 100.
- Reject (exclude from further consideration) any proposal that fails against an attribute.

Step 2: Calculate the weighted sum margin.
- Multiply the weight (specified in the RFP) by the grade for each non-price attribute and divide by 100. The result is the index for each non-price attribute.
- Add all the indices for each proposal. The result is the weighted sum of the non-price attribute grades.
- Deduct the lowest weighted sum from each proposal’s weighted sum. The result is the weighted sum margin for each proposal.

Step 3: Calculate the supplier quality premium.
- Calculate the supplier quality premium for each proposal using the following formula:
  \[ \text{Supplier quality premium} = \text{estimate} \times \left( \frac{\text{weighted sum margin}}{\text{price weight}} \right) \]
- The estimate used in the formula must exclude any amount fixed by the approved organisation, such as any provisional sums contained within the schedule of quantities.

Step 4: Confirm the supplier quality premium.
- Review the supplier quality premium calculated for each proposal.
- Confirm that the supplier quality premium for each proposal represents the amount more that the approved organisation is prepared to pay for a higher quality supplier.
- Replace any supplier quality premium with an acceptable figure if the review shows that any supplier quality premium does not represent the extra amount that the approved organisation is prepared to pay.
- Confirm the new figure with those responsible for determining the preferred supplier.

Step 5: Calculate the added value premium.
- Calculate the supplier quality premium for alternative proposals by following steps 1–4 above.
- Calculate the added value premium for each alternative proposal by following the method set out in section 10.17 Added value premium.

Step 6: Identify the preferred supplier.
- Open envelope 2.
- Deduct each proposal’s supplier quality premium and each alternative proposal’s added value premium from the price.
The preferred supplier is the supplier that presents the proposal that is within the RFP’s scope and requirements, passes on all non-price attributes and has the lowest price less supplier quality premium and less any added value premium.

**Guidelines for proposal evaluation**

Rules and guidelines on the selection, weighting and evaluation of non-price attributes are set out in section 10.14: Non-price proposal evaluation attributes.

Section 10.15: Price and price weight, sets out the relevant requirements for price and price weight.

The RFP must establish the criteria that may lead to a non-price attribute being evaluated as a fail and any other criteria that may lead to the rejection of a proposal.

**Testing the price quality method**

Before using the price quality method, an approved organisation must fully understand how the method works. The choices made will influence the proposal evaluation outcome because of their impact on the supplier quality premium values – the amount more that the purchaser is prepared to pay for a higher quality proposal. Supplier quality premiums are influenced by:

- the price estimate;
- chosen non-price attributes;
- how the non-price attributes are graded (the spread of grades);
- weights given to the non-price attributes; and
- weight given to price.

All these impact on the supplier quality premiums, but the most significant impact typically arises from the weight given to price.

The attribute weight setting tool is available to help set the weights for the price and non-price attributes. The price quality evaluation tool will also assist with this testing.

**Grading the non-price attributes for alternative and non-alternative proposals**

Grade the non-price attributes of all proposals, including alternative proposals. Alternative proposals should not be evaluated until step 5.

This separation will help ensure that the evaluation of the supplier (the main focus of the non-price attribute evaluation) is separated from the evaluation of differences in the output offered under an alternative proposal (usually the main focus of the alternative proposal evaluation). The distinctions between the two – the supplier and the output offered – are then more easily drawn. See section 10.17: Added value premium.

Information and guidelines on how to grade non-price attributes are in section 10.14: Non-price proposal evaluation attributes.

**Guidelines for proposal evaluation (continued)**

The estimate used in the supplier quality premium formula must be included in the RFP to ensure that the process is transparent.

As noted in step 3 above, any amount fixed by the approved organisation must be excluded from the estimate. These amounts are usually a provisional sum, a prime cost sum or a contingency sum.

Any provisional, prime or contingency sum priced by a supplier when preparing a proposal and not fixed by the approved organisation must be included in the estimate. The estimate is for the part of the output that the supplier is required to price.

**Confirming the supplier quality premium**

The review of each proposal’s supplier quality premium (step 4) is intended to confirm that no supplier quality premium is too high or too low. If the review concludes that one or more supplier quality premium values should be adjusted, then the conclusion and its reasons must be recorded.

The NZTA expects that use of the permission (in step 4) to adjust one or more of the supplier quality premium values will only be rarely used and its use will be limited to those exceptional occasions when the proposal evaluation process reveals something that could not have been anticipated by a capable purchaser. Before using this permission, the purchaser should consider seeking specific legal advice.

Approved organisations should be mindful of the heightened possibility of a hostile response from proposal submitters if they choose to use this permission in a way that could not have been foreseen by those submitting proposals.

Supplier quality premium values must not be adjusted for an arbitrary or irrelevant reason. Adjustment will in most instances be viewed by suppliers as an admission by the purchaser that some aspect of the procurement procedure design was wrong.
For example, when a decision is made to adjust all values by a fixed percentage, this will be seen as an admission that the chosen price weight was wrong.

Approved organisations should state in the RFP that the supplier quality premium values calculated by the price quality method formula at step 3 may be adjusted in certain circumstances. Where the approved organisation can identify the circumstances under which such an adjustment may occur, then, in the interests of transparency, it should outline those circumstances in the RFP.

**Disclosing the results of the evaluation process**

Approved organisations should advise each proposal submitter of the value of their supplier quality premium, and how it differed from the preferred supplier’s supplier quality premium.

**Alternative proposals**

Price quality can accommodate alternative proposals. Alternative proposals must be evaluated in accordance with the proposal evaluation procedure described above.

When using price quality for professional services, true alternative proposals are unlikely to be received. In most cases, professional services proposals are in effect all alternatives. This issue is further discussed in section 10.16: Alternative proposals.

**Negotiation**

The approved organisation may negotiate with the preferred supplier, providing any negotiations are carried out in accordance with the RFP’s requirements. See section 10.12 RFP contents and conformity, and section 10.18: Use of negotiation in a supplier selection process.

---

**Example calculation**

**Step 1: Grade the non-price attributes**

Company A and E are excluded from further evaluation as both failed an essential non-cash attributes.

Company A was experienced in this type of work but the methodology did not take into account critical aspects of IAS16

Company E did not have any staff with appropriate qualifications.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Type</th>
<th>Weighting</th>
<th>Co A</th>
<th>Co B</th>
<th>Co C</th>
<th>Co D</th>
<th>Co E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Meets timeframe</td>
<td>Yes/No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>Insurance coverage</td>
<td>Yes/No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>Methodology (including full compliance and timeframe)</td>
<td>30% Non-compliant</td>
<td>90</td>
<td>75</td>
<td>50</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Relevant skills</td>
<td>20%</td>
<td>85</td>
<td>100</td>
<td>65</td>
<td>60</td>
<td>75</td>
</tr>
<tr>
<td>5</td>
<td>Relevant experience</td>
<td>20%</td>
<td>85</td>
<td>100</td>
<td>20</td>
<td>30</td>
<td>75</td>
</tr>
<tr>
<td>6</td>
<td>Track record</td>
<td>20%</td>
<td>50</td>
<td>100</td>
<td>95</td>
<td>45</td>
<td>95</td>
</tr>
<tr>
<td>7</td>
<td>Ability and willingness to add value</td>
<td>5%</td>
<td>100</td>
<td>80</td>
<td>70</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>8</td>
<td>Quality assurance</td>
<td>5%</td>
<td>20</td>
<td>100</td>
<td>75</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>100%</td>
<td>Non-compliant</td>
<td>570</td>
<td>400</td>
<td>285</td>
<td>Non-compliant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Step 2: Calculate the weighted sum margin

<table>
<thead>
<tr>
<th>Criteria Type</th>
<th>Weighting</th>
<th>Co A</th>
<th>Co B</th>
<th>Co C</th>
<th>Co D</th>
<th>Co E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Meets timeframe</td>
<td>Yes/No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Insurance coverage</td>
<td>Yes/No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Methodology (including full compliance and timeframe)</td>
<td>30%</td>
<td>27.00%</td>
<td>22.50%</td>
<td>15.00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Relevant skills</td>
<td>20%</td>
<td>20.00%</td>
<td>13.00%</td>
<td>12.00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Track record</td>
<td>20%</td>
<td>20.00%</td>
<td>19.00%</td>
<td>9.00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Ability and willingness to add value</td>
<td>5%</td>
<td>4.00%</td>
<td>3.50%</td>
<td>2.50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Quality assurance</td>
<td>5%</td>
<td>5.00%</td>
<td>3.75%</td>
<td>2.50%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Weighted sum of the non-price attribute grades | 100% | Non-compliant | 96.00% | 65.75% | 47.00% | Non-compliant

Deduct the lowest weighted sum | -47.00% | -47.00% | -47.00% |      |      |

Weighted sum margin | 49.00% | 18.75% | 0.00% |      |      |

Step 3: Calculate the supplier quality premium

Supplier quality premium = estimate × (weighted sum margin / price weight premium per grade)

<table>
<thead>
<tr>
<th>Estimate of likely cost for project</th>
<th>Co A</th>
<th>Co B</th>
<th>Co C</th>
<th>Co D</th>
<th>Co E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighted sum margin</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weighted sum margin</td>
<td>49.00%</td>
<td>18.75%</td>
<td>0.00%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Price weight options</th>
<th>Price weight premium per grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>4.00</td>
</tr>
<tr>
<td>25</td>
<td>3.00</td>
</tr>
<tr>
<td>30</td>
<td>2.33</td>
</tr>
<tr>
<td>35</td>
<td>1.86</td>
</tr>
</tbody>
</table>

Supplier quality premium | 114,333 | 43,750 | - |

Premium per grade point calculated as the Non-Price Weighting divided by Price Weighting eg. If Price weighting = 30% the calculation is 70%/30% = 2.33

20% to 30% is typically used for evaluation for the provision of professional services depending upon level of specialisation required and risks associated with poor quality or non-compliance. If Professional Indemnity Insurance level requirements are assessed as high (>5m) the price weighting should be low (<30%).
Step 4: Confirm the supplier quality premium

The use of 30% weight on price is considered appropriate

At 25% the supplier quality premium for the superior tender is $147,000
At 30% the supplier quality premium for the superior tender is $114,333
At 35% the supplier quality premium for the superior tender is $91,000

However given the critical need to have a fully compliant methodology and use a firm with the right experience and track record in order to reduce risk of audit issues the use of a 30% weighting for price is considered appropriate.

Step 5 Calculate the added value premium

No alternative tenders were submitted.

Step 6 Identify the preferred supplier

Open envelope (price quoted)
Less supplier quality premium
Less added value premium
Adjusted tender price

<table>
<thead>
<tr>
<th>Tender evaluations by company (0 - 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>45,000</td>
</tr>
<tr>
<td>(114,333)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-compliant</th>
<th>55,667</th>
<th>66,250</th>
<th>75,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winning tender</td>
<td>Non-compliant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Year-end checklist

The accounting standards require the review of a range of aspects of valuations as at the end of the year. These include the review of aspects impacting or indicators of:

- Value
- Depreciation
- Impairment

The following checklist provides a summary of key requirements and disclosures required by the various asset-related standards as at the end of the financial reporting period.

Please note that this checklist does not include all requirements of the various standards. It only includes those that relate to year-end, and specifically for the types of assets held by the public sectors.

<table>
<thead>
<tr>
<th>Miscellaneous considerations (all standards)</th>
<th>Done?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements</td>
<td></td>
</tr>
<tr>
<td>Were the underlying asset accounting policies reviewed to ensure consistency, relevance and accuracy?</td>
<td></td>
</tr>
<tr>
<td>Was there an internal review of the overall results and analysis for reasonableness, accuracy and compliance?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IFRS 13 Fair Value IAS 16 Property, Plant and Equipment IAS 36 Impairment</th>
<th>Done?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements</td>
<td></td>
</tr>
<tr>
<td>Valuation and impairment (IFRS 13, IAS 16, IAS 36)</td>
<td></td>
</tr>
<tr>
<td><strong>Review of market / gross value</strong></td>
<td></td>
</tr>
<tr>
<td>Was there a review of the underlying:</td>
<td></td>
</tr>
<tr>
<td>• market value (MV or income approach)</td>
<td></td>
</tr>
<tr>
<td>• gross replacement cost</td>
<td></td>
</tr>
<tr>
<td>This should include review of unit rates, indices, key assumptions and market information. It should also be well documented and supported with appropriate audit evidence.</td>
<td></td>
</tr>
<tr>
<td><strong>Review of level of condition</strong></td>
<td></td>
</tr>
<tr>
<td>Was there a review done of the underlying condition of the assets?</td>
<td></td>
</tr>
<tr>
<td>A change in condition will not impact the gross value but will impact the fair value. This should also be well documented and supported with appropriate audit evidence.</td>
<td></td>
</tr>
<tr>
<td><strong>Assessing for indicators of impairment</strong></td>
<td></td>
</tr>
<tr>
<td>Are there any indicators of impairment? If so, unless a revaluation was undertaken, the individual assets need to be adjusted to recoverable amount.</td>
<td></td>
</tr>
<tr>
<td><strong>Review of other key assumptions</strong></td>
<td></td>
</tr>
<tr>
<td>Were the following reviewed?</td>
<td></td>
</tr>
<tr>
<td>• Pattern of consumption</td>
<td></td>
</tr>
<tr>
<td>• Residual value</td>
<td></td>
</tr>
<tr>
<td>• Useful life and RUL</td>
<td></td>
</tr>
<tr>
<td>This should be well documented and supported with appropriate audit evidence.</td>
<td></td>
</tr>
<tr>
<td><strong>Determine whether difference between carrying amount and fair value is material</strong></td>
<td></td>
</tr>
<tr>
<td>Assuming the review of the key assumptions identified changes from those applied in the previous year, was the difference between the carrying amount and the fair value assessed for materiality?</td>
<td></td>
</tr>
<tr>
<td>Revalue the entire asset class if impact is material</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>If the impact of the difference between the carrying amount and the fair value was material, was the asset class revalued?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjusting for impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assuming the net difference between the carrying amount and the fair value was not material but the carrying amount of individual assets was greater than the fair value, were those affected assets written down to the recoverable amount (impairment)?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjusting for reversal of impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>If there were indicators that the impairment no longer exists, has the impairment been reversed?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impairment journals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were all impairment journals processed correctly? If the assets were valued at cost, any adjustments should be entered directly into the profit and loss, and for assets that were revalued, any adjustments should be entered against the asset revaluation reserve (but only to the extent that it reverses a prior period revaluation increment). Any remaining balance should be entered into the profit and loss.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Depreciation expense (IAS 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prospectively adjusting depreciation</td>
</tr>
<tr>
<td>Assuming the net difference between the carrying amount and the fair value was not material but there were differences in key assumptions (irrespective of whether the assets value was adjusted), was the associated depreciation for the affected assets adjusted prospectively?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disclosures (IFRS 13 Fair Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determination of asset classes</td>
</tr>
<tr>
<td>Did the financial statement separate the assets into different asset classes based on:</td>
</tr>
<tr>
<td>The nature, characteristics and risks of the asset; and</td>
</tr>
<tr>
<td>The level of the fair value hierarchy within which the fair value measurement is categorised?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transfers between levels of the fair value hierarchy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the entity disclose and consistently follow its policy for determining when transfers between levels of the fair value hierarchy are deemed to have occurred?</td>
</tr>
<tr>
<td>The policy about the timing of recognising transfers shall be the same for transfers into the levels as for transfers out of the levels. Examples of policies for determining the timing of transfers include the following:</td>
</tr>
<tr>
<td>• The date of the event or change in circumstances that caused the transfer.</td>
</tr>
<tr>
<td>• The beginning of the reporting period.</td>
</tr>
<tr>
<td>• The end of the reporting period.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assets not measured at fair value but for which the fair value is disclosed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were the following disclosures provided?</td>
</tr>
<tr>
<td>• The level of fair value hierarchy.</td>
</tr>
<tr>
<td>• For levels 2 and 3, a description of the valuation techniques and inputs. If there has been a change the change and reason for the change.</td>
</tr>
<tr>
<td>• A narrative description of the sensitivity of the fair value to changes in unobservable inputs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tabular format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were all quantitative disclosures provided in a tabular format, unless another format was more appropriate?</td>
</tr>
</tbody>
</table>
**Disclosures (IAS 13 Fair value)**

<table>
<thead>
<tr>
<th>Valuation techniques and inputs</th>
<th>Done?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were the valuation techniques and inputs used to determine fair value appropriately disclosed?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fair value measurement</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Were the fair value measurements reported (at the end of the reporting period) for all assets required to be measured at fair value?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fair value level of input hierarchy</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Were the fair values reported within which the fair value measurements are categorised in their entirety (Level 1, 2 or 3)?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recurring fair value measurements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Were the following disclosures provided:</td>
<td></td>
</tr>
<tr>
<td>• The amount of transfers between levels 1 and 2</td>
<td></td>
</tr>
<tr>
<td>• Description of the valuation techniques and inputs for levels 2 and 3. Including any changes and reasons for the change.</td>
<td></td>
</tr>
<tr>
<td>• For Level 3:</td>
<td></td>
</tr>
<tr>
<td>– Effect on measurement of profit and loss or other comprehensive income.</td>
<td></td>
</tr>
<tr>
<td>– Quantitative information about the significant unobservable inputs (except if they were not developed by the entity).</td>
<td></td>
</tr>
<tr>
<td>– Reconciliation from opening balance to the closing balance.</td>
<td></td>
</tr>
<tr>
<td>– Amount of total gains or losses for the period attributable to the change in unrealised gains or losses relating to those assets and liabilities held at the end of the reporting period (at the line item level).</td>
<td></td>
</tr>
<tr>
<td>– A description of the valuation processes used by the entity (including, for example, how an entity decides its valuation policies and procedures and analyses changes in fair value measurements from period to period).</td>
<td></td>
</tr>
<tr>
<td>– A narrative description of the sensitivity of the fair value measurement to changes in unobservable inputs and if there are interrelationships between those inputs and other unobservable inputs a description of those interrelationships and of how they might magnify or mitigate the effect of changes in the unobservable inputs on the fair value measurement.</td>
<td></td>
</tr>
<tr>
<td>– If the highest and best use of a non-financial asset differs from its current use that fact and why the non-financial asset is being used in a manner that differs from its highest and best use.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-recurring fair value measurements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Were the following disclosures provided?</td>
<td></td>
</tr>
<tr>
<td>• Reasons for the measurement, given that it is not required.</td>
<td></td>
</tr>
<tr>
<td>• Description of the valuation techniques and inputs for levels 2 and 3, including any changes and reasons for the change.</td>
<td></td>
</tr>
<tr>
<td>• For level 3:</td>
<td></td>
</tr>
<tr>
<td>– Quantitative information about the significant unobservable inputs (unless they were not developed by the entity).</td>
<td></td>
</tr>
<tr>
<td>– A description of the valuation processes used by the entity (including, for example, how an entity decides its valuation policies and procedures and analyses changes in fair value measurements from period to period).</td>
<td></td>
</tr>
</tbody>
</table>
**Disclosures (IAS 16 Property, Plant and Equipment)**

**Valuation methodology and assumptions**

For each class of property, plant and equipment:
- the measurement bases used for determining the gross carrying amount;
- the depreciation methods used;
- the useful lives or the depreciation rates used;
- the gross carrying amount and the accumulated depreciation (aggregated with accumulated impairment losses) at the beginning and end of the period; and
- a reconciliation of the carrying amount at the beginning and end of the period.

**Miscellaneous disclosures**

Details about:
- the existence and amounts of restrictions on title, and property, plant and equipment pledged as security for liabilities;
- the amount of expenditures recognised in the carrying amount of an item of property, plant and equipment in the course of its construction;
- the amount of contractual commitments for the acquisition of property, plant and equipment; and
- if it is not disclosed separately in the statement of comprehensive income, the amount of compensation from third parties for items of property, plant and equipment that were impaired, lost or given up that is included in profit or loss.

**Depreciation methodology and assumptions**

Details about the depreciation methodology including:
- the depreciation methods adopted;
- the estimated useful lives or depreciation rates;
- the amount of depreciation expense and accumulated depreciation; and
- information that allows users to review the policies selected by management and enables comparisons to be made with other entities.

**Changes in accounting estimates**

The nature and effect of a change in an accounting estimate that has an effect in the current period or is expected to have an effect in subsequent periods. This includes changes arising from changes in estimates with respect to:
- residual values;
- the estimated costs of dismantling, removing or restoring items of Property, Plant and Equipment;
- useful lives; and
- depreciation methods.

**Details about the valuation**

Including:
- the effective date of the revaluation;
- whether an independent valuer was involved;
- the methods and significant assumptions applied in estimating the items’ fair values;
- the extent to which the items’ fair values were determined directly by reference to observable prices in an active market or recent market transactions on arm’s length terms or were estimated using other valuation techniques;
- for each revalued class of property, plant and equipment, the carrying amount that would have been recognised had the assets been carried under the cost model (does not apply to Australian not-for-profit entities); and
- the revaluation surplus, indicating the change for the period and any restrictions on the distribution of the balance to shareholders.
## Optional disclosures

It is suggested that the following disclosures be provided:

- the carrying amount of temporarily idle property, plant and equipment;
- the gross carrying amount of any fully depreciated property, plant and equipment that is still in use;
- the carrying amount of property, plant and equipment retired from active use and not classified as held for sale in accordance with IFRS 5; and
- when the cost model is used, the fair value of property, plant and equipment when this is materially different from the carrying amount.

### Disclosures (IAS 36 Impairment)

#### Impairment amounts
For each class of assets:

- the amount of impairment losses recognised in profit or loss during the period and the line item(s) of the statement of comprehensive income in which those impairment losses are included;
- the amount of reversals of impairment losses recognised in profit or loss during the period and the line item(s) of the statement of comprehensive income in which those impairment losses are reversed;
- the amount of impairment losses on revalued assets recognised in other comprehensive income during the period; and
- the amount of reversals of impairment losses on revalued assets recognised in other comprehensive income during the period.

#### Segment disclosures
For entities that report segment information in accordance with IFRS 8, for each reportable segment:

- the amount of impairment losses recognised in profit or loss and in other comprehensive income during the period; and
- the amount of reversals of impairment losses recognised in profit or loss and in other comprehensive income during the period.

#### Material impairment transactions
- For each material impairment loss recognised or reversed during the period:
  - the events and circumstances that led to the recognition or reversal of the impairment loss;
  - the amount of the impairment loss recognised or reversed; and
  - for an individual asset:
    - the nature of the asset; and
    - if the entity reports segment information in accordance with IFRS 8, the reportable segment to which the asset belongs.
  - for a cash-generating unit:
    - a description of the cash-generating unit (such as whether it is a product line, a plant, a business operation, a geographical area, or a reportable segment as defined in IFRS 8);
    - the amount of the impairment loss recognised or reversed by class of assets and, if the entity reports segment information in accordance with IFRS 8, by reportable segment; and
    - if the aggregation of assets for identifying the cash-generating unit has changed since the previous estimate of the cash-generating unit’s recoverable amount (if any), a description of the current and former way of aggregating assets and the reasons for changing the way the cash-generating unit is identified.
  - whether the recoverable amount of the asset (cash-generating unit) is its fair value less costs to sell or its value in use;
  - if recoverable amount is fair value less costs to sell, the basis used to determine fair value less costs to sell (such as whether fair value was determined by reference to an active market); and
  - if recoverable amount is value in use, the discount rate(s) used in the current estimate and previous estimate (if any) of value in use.
**Aggregate impairment results**

For transactions not disclosed as material, information at the aggregate level for losses and reversals:

- the main classes of assets affected by impairment losses and the main classes of assets affected by reversals of impairment losses; and
- the main events and circumstances that led to the recognition of these impairment losses and reversals of impairment losses.

**Goodwill**

If any portion of the goodwill acquired in a business combination during the period has not been allocated to a cash-generating unit (group of units) at the end of the reporting period, the amount of the unallocated goodwill shall be disclosed together with the reasons why that amount remains unallocated.

**Recoverable amounts of cash-generating units containing goodwill or intangible assets with indefinite useful lives**

Have the various disclosures included in paragraphs 134 and 135 been provided?

<table>
<thead>
<tr>
<th><strong>Asset Held for Sale (IFRS 5)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Requirements</strong></td>
</tr>
<tr>
<td><strong>Classification</strong></td>
</tr>
<tr>
<td>Were assets held for sale recognised as a separate asset class in the statement of financial position?</td>
</tr>
<tr>
<td><strong>Depreciation</strong></td>
</tr>
<tr>
<td>Did depreciation cease from the time the assets were defined as being held for sale?</td>
</tr>
<tr>
<td><strong>Reassessment</strong></td>
</tr>
<tr>
<td>Were the assets previously held for sale assessed to see whether they still satisfied the definition?</td>
</tr>
<tr>
<td><strong>Journals</strong></td>
</tr>
<tr>
<td>Were appropriate journals processed for assets that are no longer considered held for sale?</td>
</tr>
</tbody>
</table>
### Cash generating units with goodwill or intangible assets

Have the disclosures required in paragraph 134 been provided? These include:

- the carrying amount of goodwill;
- the carrying amount of intangible assets with indefinite useful lives;
- the basis on which the recoverable amount has been determined;
- if based on value in use:
  - a description of each key assumption;
  - a description of management’s approach to determining the value;
  - the period over which management has projected cash flows;
  - the growth rate used to extrapolate cash flow projections; and
  - the discount rate(s) applied to the cash flow projections.
- if the recoverable amount is based on fair value less costs to sell, the methodology used to determine fair value less costs to sell and if not determined using an observable market price:
  - a description of each key assumption;
  - a description of management’s approach to determining the value;
  - the period over which management has projected cash flows;
  - the growth rate used to extrapolate cash flow projections; and
  - the discount rate(s) applied to the cash flow projections.
- if a reasonably possible change in a key assumption on which management has based its determination of the unit’s (group of units’) recoverable amount would cause the unit’s (group of units’) carrying amount to exceed its recoverable amount:
  - the amount by which the units’ (group of units’) recoverable amount exceeds its carrying amount;
  - the value assigned to the key assumption; and
  - the amount by which the value assigned to the key assumption must change, after incorporating any consequential effects of that change on the other variables used to measure recoverable amount, in order for the unit’s (group of units’) recoverable amount to be equal to its carrying amount.

### Investment property (IAS 40)

#### Requirements

<table>
<thead>
<tr>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unless the accounting policy is to record these assets at cost, have all investment properties been revalued at the end of the financial reporting period?</td>
</tr>
<tr>
<td>If there was a revaluation, was the net movement taken directly to the profit and loss?</td>
</tr>
<tr>
<td>If the assets were valued at cost and were also not classified as held for sale, was depreciation expense calculated in accordance with IAS 16?</td>
</tr>
</tbody>
</table>

#### Disclosures (IAS 40 Investment Property)

<table>
<thead>
<tr>
<th>Valuation model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whether investment properties are valued on either the fair value model or the cost model.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fair value – operating leases</th>
</tr>
</thead>
<tbody>
<tr>
<td>If using the fair value model, whether, and in what circumstances, property interests held under operating leases are classified and accounted for as investment property.</td>
</tr>
</tbody>
</table>
### Investment property (IAS 40)

#### Classification is difficult

When classification is difficult (see paragraph 14), the criteria it uses to distinguish investment property from owner-occupied property and from property held for sale in the ordinary course of business.

#### Methods and significant assumptions

The methods and significant assumptions applied in determining the fair value of investment property, including a statement whether the determination of fair value was supported by market evidence or was more heavily based on other factors (which the entity shall disclose) because of the nature of the property and lack of comparable market data.

#### Qualifications of the valuer

The extent to which the fair value of investment property (as measured or disclosed in the financial statements) is based on a valuation by an independent valuer who holds a recognised and relevant professional qualification and has recent experience in the location and category of the investment property being valued. If there has been no such valuation, that fact shall be disclosed.

#### Associated income and expenses

The amounts recognised in profit or loss for:

- rental income from investment property;
- direct operating expenses (including repairs and maintenance) arising from investment property that generated rental income during the period;
- direct operating expenses (including repairs and maintenance) arising from investment property that did not generate rental income during the period; and
- the cumulative change in fair value recognised in profit or loss on a sale of investment property from a pool of assets in which the cost model is used into a pool in which the fair value model is used (see paragraph 32C).

#### Restrictions

The existence and amounts of restrictions on the realisability of investment property or the remittance of income and proceeds of disposal.

#### Contractual obligations

Contractual obligations to purchase, construct or develop investment property or for repairs, maintenance or enhancements.

#### Fair value model disclosures

In addition to the disclosures required by paragraph 75:

- a reconciliation between the carrying amounts of investment property at the beginning and end of the period;
- when a valuation obtained for investment property is adjusted significantly for the purpose of the financial statements, a reconciliation between the valuation obtained and the adjusted valuation included in the financial statements;
- in the exceptional cases where there is an inability to determine fair value reliably, the reconciliation between opening and closing balance shall disclose amounts relating to that investment property separately from amounts relating to other investment property. In addition, an entity shall disclose:
  - a description of the investment property;
  - an explanation of why fair value cannot be determined reliably;
  - if possible, the range of estimates within which fair value is highly likely to lie; and
  - on disposal of investment property not carried at fair value:
    - the fact that the entity has disposed of investment property not carried at fair value;
    - the carrying amount of that investment property at the time of sale; and
    - the amount of gain or loss recognised.
### Investment property (IAS 40)

**Cost model disclosures**
- In addition to the disclosures required by paragraph 75:
- the depreciation methods used;
- the useful lives or the depreciation rates used;
- the gross carrying amount and the accumulated depreciation (aggregated with accumulated impairment losses) at the beginning and end of the period;
- a reconciliation of the carrying amount of investment property at the beginning and end of the period, showing the following:
  - additions, disclosing separately those additions resulting from acquisitions and those resulting from subsequent expenditure recognised as an asset;
  - additions resulting from acquisitions through business combinations;
  - assets classified as held for sale or included in a disposal group classified as held for sale in accordance with IFRS 5 and other disposals;
  - depreciation;
  - the amount of impairment losses recognised, and the amount of impairment losses reversed, during the period in accordance with IAS 36;
  - the net exchange differences arising on the translation of the financial statements into a different presentation currency, and on translation of a foreign operation into the presentation currency of the reporting entity;
  - transfers to and from inventories and owner-occupied property; and
  - other changes; and
- the fair value of investment property. In the exceptional cases described in paragraph 53, when an entity cannot determine the fair value of the investment property reliably, it shall disclose:
  - a description of the investment property;
  - an explanation of why fair value cannot be determined reliably; and
  - if possible, the range of estimates within which fair value is highly likely to lie.

### Leases (IAS 17)

**Disclosures (IAS 17 Leases)**

**Lessees – financial leases**

In addition to meeting the requirements of IFRS 7 Financial Instruments:
- for each class of asset, the net carrying amount at the end of the reporting period;
- a reconciliation between the total of future minimum lease payments at the end of the reporting period, and their present value. In addition, an entity shall disclose the total of future minimum lease payments at the end of the reporting period, and their present value, for each of the following periods:
  - not later than one year;
  - later than one year and not later than five years;
  - later than five years; and
- contingent rents recognised as an expense in the period;
- the total of future minimum sublease payments expected to be received under non-cancellable subleases at the end of the reporting period;
- a general description of the lessee’s material leasing arrangements including, but not limited to, the following:
  - the basis on which contingent rent payable is determined;
  - the existence and terms of renewal or purchase options and escalation clauses; and
  - restrictions imposed by lease arrangements, such as those concerning dividends, additional debt, and further leasing.
### Lessees – operating leases

- In addition to meeting the requirements of IFRS 7:
  - the total of future minimum lease payments under non-cancellable operating leases for each of the following periods:
    - not later than one year;
    - later than one year and not later than five years;
    - later than five years; and
  - the total of future minimum sublease payments expected to be received under non-cancellable subleases at the end of the reporting period;
  - lease and sublease payments recognised as an expense in the period, with separate amounts for minimum lease payments, contingent rents, and sublease payments;
  - a general description of the lessee's significant leasing arrangements including, but not limited to, the following:
    - the basis on which contingent rent payable is determined;
    - the existence and terms of renewal or purchase options and escalation clauses; and
    - restrictions imposed by lease arrangements, such as those concerning dividends, additional debt and further leasing.

### Lessors – financial leases

In addition to meeting the requirements in IFRS 7:

- a reconciliation between the gross investment in the lease at the end of the reporting period, and the present value of minimum lease payments receivable at the end of the reporting period. In addition, an entity shall disclose the gross investment in the lease and the present value of minimum lease payments receivable at the end of the reporting period, for each of the following periods:
  - not later than one year;
  - later than one year and not later than five years;
  - later than five years;
- unearned finance income;
- the unguaranteed residual values accruing to the benefit of the lessor;
- the accumulated allowance for uncollectible minimum lease payments receivable;
- contingent rents recognised as income in the period; and
- a general description of the lessor's material leasing arrangements.

### Lessors – operating leases

In addition to meeting the requirements of IFRS 7:

- the future minimum lease payments under non-cancellable operating leases in the aggregate and for each of the following periods:
  - not later than one year;
  - later than one year and not later than five years; and
  - later than five years;
- total contingent rents recognised as income in the period; and
- a general description of the lessor's leasing arrangements.
### Intangible Assets (IAS 38)

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Done?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Review amortisation period and method</strong></td>
<td></td>
</tr>
<tr>
<td>Has the amortisation period and method for an intangible asset with a finite useful life been reviewed at the end of the financial year? Have any changes been accounted for as changes in accounting estimates in accordance with IAS 8?</td>
<td></td>
</tr>
<tr>
<td><strong>Impairment testing</strong></td>
<td></td>
</tr>
<tr>
<td>In accordance with IAS 36, have all intangible assets with an indefinite useful life been tested for impairment by comparing its recoverable amount with its carrying amount?</td>
<td></td>
</tr>
<tr>
<td><strong>Review of assets with indefinite useful life</strong></td>
<td></td>
</tr>
<tr>
<td>Have assets deemed to have an indefinite useful life (and therefore not being amortised) been reviewed to determine whether events and circumstances continue to support an indefinite useful life assessment for that asset? If they do not, the change in the useful life assessment from indefinite to finite shall be accounted for as a change in an accounting estimate in accordance with IAS 8.</td>
<td></td>
</tr>
</tbody>
</table>

### Disclosures (IAS 38 Intangibles)

<table>
<thead>
<tr>
<th>General disclosures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinguishing between internally generated intangible assets and other intangible assets, the following points need to be addressed:</td>
</tr>
<tr>
<td>• whether the useful lives are indefinite or finite and, if finite, the useful lives or the amortisation rates used;</td>
</tr>
<tr>
<td>• the amortisation methods used for intangible assets with finite useful lives;</td>
</tr>
<tr>
<td>• the gross carrying amount and any accumulated amortisation (aggregated with accumulated impairment losses) at the beginning and end of the period;</td>
</tr>
<tr>
<td>• the line item(s) of the statement of comprehensive income in which any amortisation of intangible assets is included; and</td>
</tr>
<tr>
<td>• a reconciliation of the carrying amount at the beginning and end of the period.</td>
</tr>
</tbody>
</table>

### Changes in accounting estimates which have a material effect

The nature and amount of a change in an accounting estimate that has a material effect in the current period, or is expected to have a material effect in subsequent periods. Such disclosure may arise from changes in:

- the assessment of an intangible asset's useful life;
- the amortisation method; or
- residual values.

### Specific disclosures

Have the following been disclosed where relevant:

- for an intangible asset assessed as having an indefinite useful life, the carrying amount of that asset and the reasons supporting the assessment of an indefinite useful life;
- a description, the carrying amount and remaining amortisation period of any individual intangible asset that is material to the entity's financial statements;
- for intangible assets acquired by way of a government grant and initially recognised at fair value (see paragraph 44):
  - the fair value initially recognised for these assets;
  - their carrying amount; and
  - whether they are measured after recognition under the cost model or the revaluation model;
- the existence and carrying amounts of intangible assets whose title is restricted and the carrying amounts of intangible assets pledged as security for liabilities; and
- the amount of contractual commitments for the acquisition of intangible assets.
**Intangible assets measured after recognition using the revaluation model**

- By class of intangible assets:
  - the effective date of the revaluation;
  - the carrying amount of revalued intangible assets; and
  - the carrying amount that would have been recognised had the revalued class of intangible assets been measured after recognition using the cost model in paragraph 74;
- The amount of the revaluation surplus that relates to intangible assets at the beginning and end of the period, indicating the changes during the period and any restrictions on the distribution of the balance to shareholders; and
- the methods and significant assumptions applied in estimating the assets' fair values.

**Research and development expenditure**

The aggregate amount of research and development expenditure recognised as an expense during the period.

**Optional additional information**

These matters are encouraged, but not required, to be disclosed:

- a description of any fully amortised intangible asset that is still in use; and
- a brief description of significant intangible assets controlled by the entity but not recognised as assets because they did not meet the recognition criteria in this Standard or because they were acquired or generated before the version of IAS 38 Intangible Assets issued in 1998 was effective.

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**Inventories (IAS 2)**

**Disclosures (IAS 2 Inventories)**

**Policies and results**

Were the following disclosed?

(a) the accounting policies adopted in measuring inventories, including the cost formula used;
(b) the total carrying amount of inventories and the carrying amount in classifications appropriate to the entity;
(c) the carrying amount of inventories carried at fair value less costs to sell;
(d) the amount of inventories recognised as an expense during the period;
(e) the amount of any write-down of inventories recognised as an expense in the period in accordance with paragraph 34;
(f) the amount of any reversal of any write-down that is recognised as a reduction in the amount of inventories recognised as expense in the period in accordance with paragraph 34;
(g) the circumstances or events that led to the reversal of a write-down of inventories in accordance with paragraph 34; and
(h) the carrying amount of inventories pledged as security for liabilities.

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**Agriculture (IAS 41)**

**Disclosures (IAS 41 Agriculture)**

**Aggregate gain or loss**

The aggregate gain or loss arising during the current period on initial recognition of biological assets and agricultural produce and from the change in fair value less costs to sell biological assets.

**Description of each group**

A description of each group of biological assets.
### Nature of and estimates of quantities
If not disclosed elsewhere in information published with the financial statements:
- the nature of its activities involving each group of biological assets; and
- non-financial measures or estimates of the physical quantities of:
  - each group of the entity’s biological assets at the end of the period; and
  - output of agricultural produce during the period.

### Methods and assumptions
The methods and significant assumptions applied in determining the fair value of each group of agricultural produce at the point of harvest and each group of biological assets.

### Fair value less cost to sell
The fair value less costs to sell of agricultural produce harvested during the period, determined at the point of harvest.

### Restrictions, commitments and risk management strategies
Details about:
- the existence and carrying amounts of biological assets whose title is restricted, and the carrying amounts of biological assets pledged as security for liabilities;
- the amount of commitments for the development or acquisition of biological assets; and
- financial risk management strategies related to agricultural activity.

### Reconciliation in movements
A reconciliation of changes in the carrying amount of biological assets between the beginning and the end of the current period. The reconciliation shall include:
- the gain or loss arising from changes in fair value less costs to sell;
- increases due to purchases;
- decreases attributable to sales and biological assets classified as held for sale (or included in a disposal group that is classified as held for sale) in accordance with IFRS 5;
- decreases due to harvest;
- increases resulting from business combinations;
- net exchange differences arising on the translation of financial statements into a different presentation currency, and on the translation of a foreign operation into the presentation currency of the reporting entity; and
- other changes.

### Where fair value cannot be measured reliably: general disclosures
Where an entity measures biological assets at their cost less any accumulated depreciation and any accumulated impairment losses (see paragraph 30) at the end of the period, the entity shall disclose for such biological assets:
- a description of the biological assets;
- an explanation of why fair value cannot be measured reliably;
- if possible, the range of estimates within which fair value is highly likely to lie;
- the depreciation method used;
- the useful lives or the depreciation rates used; and
- the gross carrying amount and the accumulated depreciation (aggregated with accumulated impairment losses) at the beginning and end of the period.
**Where fair value cannot be measured reliably: disposals**

If, during the current period, an entity measures biological assets at their cost less any accumulated depreciation and any accumulated impairment losses (see paragraph 30), an entity shall disclose any gain or loss recognised on disposal of such biological assets and the reconciliation required by paragraph 50 shall disclose amounts related to such biological assets separately. In addition, the reconciliation shall include the following amounts included in profit or loss related to those biological assets:

- impairment losses;
- reversals of impairment losses; and
- depreciation.

**Where fair value previously could not be measured reliably, but has become reliably measurable**

If the fair value of biological assets previously measured at their cost less any accumulated depreciation and any accumulated impairment losses becomes reliably measurable during the current period, an entity shall disclose for those biological assets:

- a description of the biological assets;
- an explanation of why fair value has become reliably measurable; and
- the effect of the change.

**Government grants**

The following related to agricultural activity is covered by this standard:

- the nature and extent of government grants recognised in the financial statements;
- unfulfilled conditions and other contingencies attaching to government grants; and
- significant decreases expected in the level of government grants.

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**Footnotes**

1. Article from The Terrier magazine for the Association of Chartered Estate Surveyors  UK (2011) (www.aces.org.au)
2. Practical Guide to fair value (Fair Value Pro 2011)
3. IAS 16 Property, Plant and Equipment  Paragraph 22
4. Fair Value Pro Implementation Guide 2011
5. VAGO Water Entities: Results of the 2010–11 Audits 2011-12:12  Page 61