Centroc Regional Road Asset Valuation Methodology

Background

Centroc’s Regional Director of Corporate Services group requested that Centroc members work together for the upcoming road asset valuations due June 2015. A meeting of Council road engineers, asset managers and finance managers was held in Cowra on 2 August 2013. At that meeting Bathurst presented their methodology for road valuations and this was used as a template for the regional methodology.

Further meetings with the group as well as with John O’Malley of Intentus Auditors were held to ensure acceptance from members as well as approval from John who is used as an auditor by many councils.

Examples of evidence that would be sought by the auditor are included.

Attached is the regional methodology that was agreed to be used as a guide for the roads asset valuations due June 2015.

Next Steps

This group should use the methodology and provide advice back to Centroc at a regional meeting on its value. An email group has been set up and members are encouraged to provide feedback on an ongoing basis that will be collated and provided back to the mooted review meeting.

Recommendations

Councils are encouraged to utilise the attached methodology when doing their road asset valuations. Any questions or concerns can be raised with Jenny Bennett on 0428 690 935 or jenny.bennett@centroc.com.au
Centroc Regional Road Valuation Methodology

1. **Identify all roads and clean up asset register.**

Using information collected from Parish Maps and Government Gazettes the road register shall be verified and ownership confirmed as Council, Crown or Private.

2. **Gathering correct alignment and physical parameters**

**Rural Roads**

The information collected and verified shall be:
- Total length
- Sealed length
- Unsealed length
- Indicative formation width
- Indicative seal with where applicable
- Seal type

**Urban Roads**

The urban network shall be documented to a higher degree of accuracy than rural roads. New roads shall be added to the register as the linen plan is released with details on length and widths recorded from work as executed plans if available.

In order to gain more accurate pavement areas the urban road network can be traced from seal edge to seal edge from aerial photographs. The resulting polygons are stored in Mapinfo tables or other GIS system.

Other details collected include the seal type and the kerb and guttering present either side of the seal.

The physical parameters of the road network required validation.

3. **Segment roads**

**Rural Roads**

Rural roads shall be segmented by one of the following two ways,
1. 1000m section or
2. homogeneous segments

The 1000m segments create manageable assets, though being somewhat arbitrary they don’t always create a homogenous segment in terms of vertical alignment and seal type.

The start and finish point of the rural segments should be identified using rural addressing.

Homogeneous segments are particularly useful for unsealed roads and areas where there are large segments of the same type or condition. These sections can be up to 5km.

**Urban Roads**

Urban segments shall be generally from intersection to intersection with separate segments for roundabouts and major intersections. In some cases segments reflect the stages of construction of a road, maintaining homogenous pavement age and seal type across the segment.
4. **Segment construction dates and seal dates.**

**Rural Roads**
Historical information on rural roads is not always complete. In lieu of actual dates remaining useful life will be calculated from the results of a condition survey.

Records are normally available on sealing and resealing dates on the rural road network, which provides for remaining useful life to be based on actual age profiles.

**Urban Roads**
Where design drawings and sometimes WAE plans allowing accurate construction dates to be determined, actual dates can be used. If no design drawings can be found DP registration dates can be used as a good estimation of the date of completion.

If no information can be found such as the original grid area, road condition data will be used to estimate remaining useful life.

Urban seal and reseal records are relatively complete over the last 15-20 years in most cases, so actual dates can be used.

5. **Allocate road classifications**

Roads are classified into the following classes based on information from the IPWEA International Infrastructure Management Manual;

- **Class 1 – National Arterial**
- **Class 2 – State Arterial (Council is responsible outside the central traffic lanes);**
- **Class 3 – Regional & Local Arterial;**
- **Class 4 – Regional & Local Sub-Arterial;**
- **Class 5 – Local Distributor;**
- **Class 6 – Local Collector (or Minor Road);**
- **Class 7 – Local Access (property access, minor single lane roads)**

Classifications are based on an assessment of the function of the road. If current traffic count data is available for a particular segment this can also be used for classification in conjunction with functional assessment.

Classification of the road network allows a minimum design and construction level to be placed on each class of road.

6. **Road condition inspections**

Condition rating have been based on the IPWEA recommended system of 1 to 5. The standard for condition ratings is documented within each Council’s manual.
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7. **Entering all the information in an appropriate form into asset management system**

Councils all various asset management systems. All the collected information is entered and updated on an ongoing basis.

Each road segment asset is made up of 3 sub assets

1. **Bulk earthworks** - non depreciable. This consists of the excavation of cut and laying of fill to provide the vertical and horizontal alignments.
2. **Road pavement** - This is the placed and compacted layers of appropriate granular material making up the base layers of the road segment. In situ material has a residual value.
3. **Road surface** - The wearing surface of a road, normally AC, Spray seal, gravel surface or gravel re-sheet. To maximise benefit of re-surfacing "Road Pavement life" should be a multiple of the "Road Surface life".

**Table 1 - Table of Road Sub-Asset Useful Life (Years)**

<table>
<thead>
<tr>
<th>Class</th>
<th>Class 1</th>
<th>Class 2</th>
<th>Class 3</th>
<th>Class 4</th>
<th>Class 5</th>
<th>Class 6</th>
<th>Class 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>National Arterial</td>
<td>State Arterial</td>
<td>Regional &amp; Local Arterial</td>
<td>Regional &amp; Local Sub-Arterial</td>
<td>Local Distributor</td>
<td>Local Collector</td>
<td>Local Access</td>
</tr>
<tr>
<td>1 - Bulk Earthworks</td>
<td>Non depreciable. This consists of the excavation of cut and laying of fill to provide the vertical and horizontal alignments.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - Road pavement</td>
<td>50-60</td>
<td>50-60</td>
<td>50-60</td>
<td>50-60</td>
<td>60-80</td>
<td>60-90</td>
<td>60-100</td>
</tr>
</tbody>
</table>

- Useful lives have been based on industry information and council experience
- Kerb and gutter assets have been referenced to the parent segment
- The Useful Life needs to be truth tested against each Council’s actual expenditure and budget allowances

8. **Estimate vertical alignment**

To estimate the bulk earthworks required, an assessment of the rural roads vertical alignment is required where considered material to construction costs.
Council’s GIS system. The road segment was given a rating as follows:

- Flat      0-1%
- Undulating  2-4%
- Hilly      5-7%
- Steep     8-10%
- Very steep 10-12%

Urban road vertical alignment is not as crucial in determining bulk earthworks as segments are shorter and design speed is generally 50km/h. This is not taken into account in the earthworks calculations.

9. Unit rates

Over a period of time unit rates collected from internal construction and contracted construction. The unit rates have been adjusted for inflation and are updated each year. These have been used to provide the basis of the valuation.

Each council will have unit rates to be used for the valuation in the following categories:

- Bulk earthworks
- Lay and compact pavement
- Surfacing (AC)
- Surfacing (SS)
- Kerb and guttering
- Gravel sheeting

10. Calculation of bulk earthworks volumes and pavement areas

Calculate area of pavement using length x width. Width is estimated from the table below based on Council’s engineering guidelines if no actuals are available.

### Table 2 - Width estimates where no actuals are available

<table>
<thead>
<tr>
<th>Urban</th>
<th>Design width</th>
<th>Rural</th>
<th>Design Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access Road</td>
<td>8</td>
<td>Access Road</td>
<td>7</td>
</tr>
<tr>
<td>Collector Road</td>
<td>11</td>
<td>Collector Road</td>
<td>7</td>
</tr>
<tr>
<td>Distributor Road</td>
<td>13</td>
<td>Distributor Road</td>
<td>9</td>
</tr>
<tr>
<td>Lane way</td>
<td>6</td>
<td>Lane way</td>
<td>6</td>
</tr>
</tbody>
</table>

Derive appropriate pavement depth from Austroads guide to pavement construction. Assuming a sub base strength CBR of 4, pavement depths are approximately:

### Table 3 - Example of Minimum Pavement Depths

<table>
<thead>
<tr>
<th>Road Class</th>
<th>Road Class</th>
<th>Pavement Depth from Design Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Access Road</td>
<td>150mm</td>
</tr>
<tr>
<td>6</td>
<td>Collector Road</td>
<td>200mm</td>
</tr>
<tr>
<td>5</td>
<td>Distributor Road</td>
<td>410mm*</td>
</tr>
<tr>
<td>4</td>
<td>Lane way</td>
<td>100mm</td>
</tr>
</tbody>
</table>
Calculate the volume of earthworks by area × pavement depth.

For rural road works adjust the final value according to:

**Table 4 - Adjustment for extra earthworks required for road type**

<table>
<thead>
<tr>
<th>Flat</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undulating</td>
<td>2</td>
</tr>
<tr>
<td>Hilly</td>
<td>2.5</td>
</tr>
<tr>
<td>Steep</td>
<td>3</td>
</tr>
<tr>
<td>Very steep</td>
<td>3.5</td>
</tr>
</tbody>
</table>

This adjusts the value for extra earthworks required to construct roads to relevant speed environment. This is in line with the approximations given by the IPWEA in the Roads Fair Value Valuation Guide, p12.

The final values are obtained by:

**Earthworks**

\[ RSV = l \times w \times pd \times vaf \]

where

- \( RSV \) = rural segment volume (m³)
- \( l \) = segment length (m)
- \( w \) = segment width (m) based on road classification - table 1
- \( pd \) = pavement depth (m) based on road classification - table 2
- \( vaf \) = vertical alignment factor - table 3

\[ USV = A \times pd \times 2 \]

where

- \( USV \) = urban segment volume (m³)
- \( A \) = segment area measured (m²) from Mapinfo polygons
- \( pd \) = pavement depth (m) based on road classification - table 2
- \( 2 \) = adjustment factor for kerb and gutter, drainage earthworks

**Pavement**

\[ SA = l \times w \]

where

- \( SA \) = segment area (m²)
- \( l \) = segment length (m)
- \( w \) = segment width (m) based on road classification - Table 1

**Surface**

\[ SA = l \times w \]
where

\[ SA = \text{segment area (m}^2) \]
\[ l = \text{segment length (m)} \]
\[ w = \text{segment width (m) based on road classification - Table 1} \]

11. Calculation of seal area on rural roads

Where data has been collected the actual seal area will be used.

Alternatively where a fixed segment approach is used, to correctly value the seal area on rural roads the percentage of the seal has been calculated to the nearest 10% band. This has then been used to calculate the value of the surface.

The method used is:

\[
\% \text{sealed} = \left( \frac{SA_1}{A} + \frac{SA_2}{A} + \frac{SA_3}{A} + \cdots \right) \times 100
\]

Where \( SA_x \) is the area of a particular sealed section and \( A \) is the total area of the segment.

12. Estimating useful life

If no information is available on construction dates an estimate of remaining useful life is applied to assets based on condition assessment. As earth works are non-depreciable a construction date is not necessary for valuation.

For pavement, remaining useful life the following estimations have been used. Remaining life is calculated as below regardless of class of road.

Table 4 – Remaining life based on condition rating

<table>
<thead>
<tr>
<th>Condition Rating</th>
<th>Remaining Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>95%</td>
</tr>
<tr>
<td>2</td>
<td>75%</td>
</tr>
<tr>
<td>3</td>
<td>50%</td>
</tr>
<tr>
<td>4</td>
<td>25%</td>
</tr>
<tr>
<td>5</td>
<td>5%</td>
</tr>
</tbody>
</table>

Although Special Schedule 7 uses 0% for level 5 condition, Centroc members believe that 0% is not correct as there will always be some life left in a road pavement even at a level 5.

Kerb and guttering has been assumed to have a similar useful remaining life to the segment of the road it services.

13. Asset categorisation

The asset are categorised according to their function and activity.

Earthworks - (8229), bulk earthworks
Pavement - (8050), rural sealed pavement
14. Valuation

Based on examples in the IPWEA manual, valuations are calculated by the following for each section of road.

Pavement:

$$DRV = VM \times UR \times \frac{RL}{UL} + RV$$

where

- $DRV$ = depreciated replacement value
- $VM$ = valuation measurement
- $UR$ = unit rate
- $RL$ = remaining useful life
- $UL$ = useful life
- $RV = \text{residual value (based on original construction)} \geq 30\%$

Earthworks:

15. Residual Value

Each council will have a different residual value, but figures above 30% are common. The steps for Council’s to determine residual values are:

1. Work out what the desired pavement life is
2. Work out what it can be afforded to be
3. Is this satisfactory or not?

16. Bridges

Bridges are valued on a bridge by bridge basis (rather than on a unit rate). Accumulate data on bridge rates. Lachlan are going out on their own. ($2800/sqm). Parkes can put together a pro forma to send out to all councils for input.
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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.

| Fair value considerations | Ref | Compliance?
|---------------------------|-----|----------------
| **Consideration**         |     |                |
| Asset register            |     |                |
| 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)? |     |
| **Fair value methodology**|     |                |
| 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? | 1   |
| 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. | 2   |
| 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? | 3   |
| 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? | 3   |
| Has sufficient and appropriate evidence been produced to support the critical assumptions? Consider evidence to support the GCCRC, condition, pattern of consumption, useful life, RUL and residual value. | 4   |
| 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. | 5   |
| **Date of last effective valuation** |     |                |
| 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? | 6   |
| **Assessing independent experts** |     |                |
| 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? | 7   |
| **Appropriateness of valuation indices** |     |                |
| If indices were used to do the valuation: |     |                |
| • Were the indices appropriate and relevant for the specific assets being revalued? | 8   |
| • Are the indices reasonable based on market movements and prior year indices? |     |
| • Were they applied correctly to the asset class? |     |
| • If not applied by an external valuer, do the financial statements clearly indicate the valuation has been provided by management and not the valuer? |     |
| • Did the revaluation also include assessment of additions, deletions and changes in condition? |     |
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<table>
<thead>
<tr>
<th></th>
<th>Method A</th>
<th>Method B</th>
<th>Method C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross</td>
<td>$60,000</td>
<td>$50,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>Age (since date of commissioning)</td>
<td>40 years</td>
<td>40 years</td>
<td>10 years (date since last renewal)</td>
</tr>
<tr>
<td>RUL</td>
<td>40 years Based on current condition</td>
<td>Five years Based on estimated RUL till next renewal</td>
<td>Five years Based on estimated RUL till next renewal</td>
</tr>
<tr>
<td>Useful life (Age + RUL = UL)</td>
<td>80 years</td>
<td>45 years</td>
<td>15 years</td>
</tr>
<tr>
<td>Residual value</td>
<td>Nil Assets like these never sold</td>
<td>$35,000 Gross less renewal to bring back to as new</td>
<td>$35,000 Gross less renewal to bring back to as new</td>
</tr>
<tr>
<td>Depreciation</td>
<td>$625 ($50,000 - 0) / 80</td>
<td>$333 ($50,000 - $35,000) / 45</td>
<td>$1,000 ($50,000 - $35,000) / 5</td>
</tr>
</tbody>
</table>

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></th>
<th>Method A</th>
<th>Method B</th>
<th>Method C</th>
</tr>
</thead>
<tbody>
<tr>
<td>WDV</td>
<td>$25,000</td>
<td>$36,667</td>
<td>$40,000</td>
</tr>
<tr>
<td>%Error</td>
<td>(37.5%)</td>
<td>(8.9%)</td>
<td>-</td>
</tr>
<tr>
<td>Deprecation</td>
<td>$625</td>
<td>$333</td>
<td>$1,000</td>
</tr>
<tr>
<td>%Error</td>
<td>(37.5%)</td>
<td>(66.7%)</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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4 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.

5 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.

6 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.

7 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.

85 IAS 16 Paragraph 31
86 IAS 16 Paragraph 24
87 IAS 16 Paragraph 34
8 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.

9 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.

<table>
<thead>
<tr>
<th>Pre-audit checklist</th>
<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></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></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></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></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></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></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></td>
<td>Undertake some high level analytics and compare to previous years’ results.</td>
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<tr>
<td>Review the asset register to ensure dimension and valuation critical data is accurate.</td>
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<td>Complete a movement reconciliation supported by appropriate details for each movement.</td>
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<tr>
<td>Invite audit to attend some inspections</td>
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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>
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<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. 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. 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>
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<tr>
<td>Get the valuation procurement process right</td>
<td>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.</td>
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### Process: pre-valuation and during valuation

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<tr>
<th>Process</th>
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<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 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>
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<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>
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<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>
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<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>
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<tr>
<td>Process: pre-valuation and during valuation</td>
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<tr>
<td><strong>Review the asset register to ensure it is complete and accurate.</strong>&lt;br&gt;This will include removing any in-year capex accounts from the register and updating the condition rating of assets affected by the capex.&lt;br&gt;Ideally there should be documented evidence to show that this review was undertaken and to report the results.&lt;br&gt;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>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.&lt;br&gt;If the starting point for the valuation is inaccurate, the valuation and depreciation calculations will also be inaccurate.&lt;br&gt;This review needs to be undertaken by in-house staff who have a more intimate knowledge of the portfolio than external consultants.&lt;br&gt;It is important for asset management and finance staff to work together to review and proof the accuracy of all asset registers.</td>
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<td><strong>Review the asset register to ensure dimension and valuation critical data is accurate.</strong>&lt;br&gt;This may include direct reconciliation to GIS or other systems and comparison of total area and length with previous year’s register.&lt;br&gt;Ideally there should be documented evidence to show that this review was undertaken and to report the results.</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.&lt;br&gt;These changes can create big changes in valuations, so accuracy is important.&lt;br&gt;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.&lt;br&gt;It is important that the accounting treatment for adjustments to existing assets is appropriate.</td>
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<td><strong>Invite audit to attend some inspections</strong></td>
<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.&lt;br&gt;This also provides an opportunity for audit to assess the competence and capability of the people undertaking the inspections.</td>
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Depreciation expense considerations

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<tr>
<th>Consideration</th>
<th>Ref</th>
<th>Compliance?</th>
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<tbody>
<tr>
<td>Review the depreciation methodology policy</td>
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<tr>
<td>How has depreciation expense been calculated? Does the methodology take into account the various factors that drive the consumption of the asset’s service potential or is it based on age alone? Does the method used ensure compliance with the accounting standards and other prescribed requirements?</td>
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<td>Does the method take into account regular cyclical maintenance/renewal?</td>
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<td>Does the method attempt to match the pattern of consumption of the asset’s service potential? Is the pattern adopted consistent with the engineer’s understanding of how the asset is consumed? If not, which is correct?</td>
<td>2 &amp; 9</td>
<td></td>
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<tr>
<td>Has depreciation been calculated for each component?</td>
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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 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.

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83  IAS 16 Paragraph 60