



Austroads

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Minimum Levels of Componentisation for Road Infrastructure Assets

Guideline

Minimum Levels of Componentisation for Road Infrastructure Assets: Guideline

Prepared by

Gary Rykers

Project Manager

Andrew Golding

Abstract

The purpose of this guideline is to assist organisations determine the appropriate minimum level of componentisation for road infrastructure assets.

This guideline is designed to facilitate improved integration and alignment of asset management, financial management and financial reporting processes. It is intended that this guideline will drive a more consistent approach to data management, asset recognition and preparation of financial statements. In turn, this will enable more efficient collation of national data sets used to enable equitable reform initiatives.

Keywords

Financial management, financial reporting, asset management, componentisation, asset hierarchy, asset classification structure, asset class, asset type, component, auditor

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Publisher

Austrroads Ltd.
Level 9, 287 Elizabeth Street
Sydney NSW 2000 Australia
Phone: +61 2 8265 3300
austroads@austrroads.com.au
www.austrroads.com.au



About Austrroads

Austrroads is the peak organisation of Australasian road transport and traffic agencies.

Austrroads' purpose is to support our member organisations to deliver an improved Australasian road transport network. To succeed in this task, we undertake leading-edge road and transport research which underpins our input to policy development and published guidance on the design, construction and management of the road network and its associated infrastructure.

Austrroads provides a collective approach that delivers value for money, encourages shared knowledge and drives consistency for road users.

Austrroads is governed by a Board consisting of senior executive representatives from each of its eleven member organisations:

- Roads and Maritime Services New South Wales
- Roads Corporation Victoria
- Queensland Department of Transport and Main Roads
- Main Roads Western Australia
- Department of Planning, Transport and Infrastructure South Australia
- Department of State Growth Tasmania
- Department of Infrastructure, Planning and Logistics Northern Territory
- Transport Canberra and City Services Directorate, Australian Capital Territory
- The Department of Infrastructure, Regional Development and Cities
- Australian Local Government Association
- New Zealand Transport Agency.

Summary

The purpose of this guideline is to assist organisations determine the appropriate minimum level of componentisation for road infrastructure assets.

This guideline is designed to facilitate improved integration and alignment of asset management, financial management and financial reporting processes. It is intended that this guideline will drive a more consistent approach to data management, asset recognition and preparation of financial statements. In turn, this will enable more efficient collation of national data sets used to enable equitable reform initiatives.

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1. Guideline Overview

1.1 Purpose

The purpose of this guideline is to assist organisations determine the appropriate minimum level of componentisation for road infrastructure assets.

This guideline is designed to facilitate improved integration and alignment of asset management, financial management and financial reporting processes. It is intended that this guideline will drive a more consistent approach to data management, asset recognition and preparation of financial statements. In turn, this will enable more efficient collation of national data sets used to enable equitable reform initiatives.

1.2 Who Is This Guideline For?

For organisations seeking alignment of asset management, financial management and financial reporting processes, this guideline is to be used to inform asset data structure and associated reporting, as follows:

- For use by asset management and information technology practitioners to inform asset hierarchy and/or reporting requirements, within asset information management systems.
- For use by asset management and financial management practitioners to inform asset valuation processes, aligned to an industry standard asset classification structure.
- For use by financial reporting practitioners to inform how recognised assets are rolled up for financial reporting, aligned to an industry standard asset classification structure.

This guideline provides a minimum benchmark for auditors of financial statements, where road owners have made a management decision to drive business efficiencies by aligning asset management, financial management and financial reporting processes. This guideline is not intended to be used as a compliance document for minimum financial reporting requirements.

1.3 Terminology

- **Accounting Standards** – A set of rules that govern the way in which financial statements are prepared to ensure that these statements are comparable through time for an entity and across similar entities. Refers to the accounting standards of Australia and New Zealand.
- **Asset Class** – A group of assets having a similar nature or function in the operations of an entity. Relates to level 1 of the asset classification structure within this guideline. Asset Class is broken down into Asset Sub-Class groups, level 2 of the asset classification structure, for the purposes of disclosure within notes to financial statements.
- **Asset Classification Structure** – Hierarchy describing how assets are consistently broken down into components and how assets are rolled up for reporting. The asset classification structure in this guideline consists of Asset Class (level 1), Asset Sub-Class (level 2), Asset Type (level 3), Asset Sub-Type (level 4), Asset Component (level 5) and Asset Sub-Component (level 6). Refer to Appendix B for details.
- **Asset Component** – specific parts of an asset having independent physical or functional identity and having attributes such as different life expectancy, maintenance regimes, risk or criticality. Relates to level 5 of the asset classification structure within this guideline. Asset Component may be broken down into Asset Sub-Component, level 6 of the asset classification structure, for the purposes of identifying engineering detail required for maintenance and renewal regimes.

- **Asset Management** – the combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost effective manner.
- **Asset Type** – a group of assets having similar nature or function in the operations of an entity. Relates to level 3 of the asset classification structure within this guideline. Asset Type may be broken down into Asset Sub-Type groups, level 4 of the asset classification structure, for the purposes of identifying asset groups that can be valued using similar data attributes.
- **Average Weighted Asset** – a group of assets of relatively low value, where an Average Weighted unit rate is applied to a number of different Asset Types, within a given segment. This Item definition approach will generally adopt the concept of modern day equivalent to describe the typical assets expected on different functional road classifications. Average Weighted Assets are a practical way of ensuring many small value assets, within a segment, are recognised as a single asset. This Item definition approach is applied at the Asset Sub-Class level of the asset classification structure, where the Asset Types within the Sub-Class are considered together.
- **Capitalisation** – recognising expenditure as capital, in relation to defined assets.
- **Complex Asset** – an individual asset that is disaggregated into Components for the purposes of recognising value. This Item definition approach is applied at the Asset Type (or Asset Sub-Type) level of the asset classification structure.
- **Financial Management** – management of an organisation's finances to achieve organisational goals.
- **Financial Report** – reports generated about an organisation's finances. The objective of financial statements is to provide information about financial position, performance and cash flows that is useful to a wide range of users for making economic decisions.
- **Gross Replacement Cost (GRC)** - the cost the entity would incur to acquire an equivalent new asset on the reporting date.
- **Group of Assets** – a collection of individual assets that have been grouped together for a purpose. Assets may be grouped at different levels, as per the asset classification structure.
- **Item** – a non-current infrastructure asset with a life greater than 12 months, which enables services to be provided. The Item may be recognised as a Simple Asset, Complex Asset or a Network Asset.
- **Modern Day Equivalent** – an asset that is the most cost efficient, currently available asset which will provide the same level of service that the existing asset is capable of producing. The modern day equivalent is a concept applied when assets are renewed or replaced.
- **Network Asset** – a group of similar assets, where individual assets are below the entity's capitalisation policy threshold, treated as an individual asset for the purposes of recognising value. Network Assets are a practical way of ensuring many small value assets are recognised, but as a single asset. This Item definition approach is applied at the Asset Type (or Asset Sub-Type) level of the asset classification structure.
- **Segmentation** – a network definition concept, used to inform how a network of linear assets is broken down into discrete geographic locations where individual assets are located.
- **Simple Asset** – an individual asset that is not disaggregated into Components for the purposes of recognising value. This Item definition approach is applied at the Asset Type (or Asset Sub-Type) level of the asset classification structure.
- **Valuation** – the process of determining the worth of an asset.

1.4 Core Content of this Guideline

This document provides guidance material regarding:

- common asset classification structure terminology,
- prescriptive break down of road infrastructure assets within the asset classification structure,
- process and principles to guide users in determining the appropriate Item definition approach for groups of assets, and
- determination of key outputs, by group of assets, being recommended 'Item definition approach' and associated 'minimum inventory data requirements'.

1.5 Limits of this Guideline

The following related topic areas are not detailed within this guideline.

- Valuation – details of valuation processes, data requirements and algorithms are not included in the guideline process.
- Capitalisation – details of capitalisation processes, data requirements and algorithms are not included in the guideline process.
- Useful Lives – core input to Valuation and Capitalisation processes, which typically varies across entities due to local circumstances, is not prescribed in this guideline.
- Unit Rates – core input to Valuation and Capitalisation processes, which typically varies across entities due to local circumstances, is not prescribed in this guideline.
- Segmentation – location categories are not incorporated into guideline asset classification structure.
- Functionality – functional categories are not incorporated into guideline asset classification structure.

1.6 Minimum Requirements

This guideline provides prescriptive direction regarding minimum levels of componentisation for road infrastructure assets. These minimum levels of componentisation are intended to be used by road management organisations (financial management, information management and asset management practitioners), and auditors of financial statements, seeking to realise business benefits from aligning asset management to financial management to financial reporting.

In Australia and New Zealand valuation techniques using an Average Weighted unit rate, to account for multiple Asset Types, are sometimes used to satisfy financial reporting requirements. The use of an Average Weighted unit rates methodology has been shown to be technically compliant with accounting standards and current principles of auditing, provided the approach does not materially under or over-state the organisation's recorded depreciation expense. Whilst compliant with accounting standards, this methodology provides negligible benefit to broader financial management and asset management functions of an organisation and is unlikely to facilitate the alignment or integration of disciplines. That is, it is expected that the minimum componentisation levels to meet statutory financial reporting requirements only, as adopted in an Average Weighted unit rates methodology, would not realise the broader benefits associated with improved integration of asset management and financial management disciplines.

This guideline prescribes minimum requirements and associated processes, for componentisation of road infrastructure assets, which will facilitate and enable improved integration of asset management and financial management disciplines. It is anticipated that the adoption of these minimum requirements will result in business benefits that will outweigh the cost associated with implementation. It is acknowledged that further componentisation, beyond the minimum prescribed in this guideline, may reasonably produce additional value to an organisation and should be pursued if appropriate.

This guideline should be understood as supplementary to legislative requirements, as described in accounting standards and associated State and Territory directions.

1.7 Expected Benefits

Organisations responsible for managing data as input to financial reporting also use this data for other business purposes, such as financial management, inputs to performance metrics, preparing asset management plans and informing planning for forward programs. In consideration of this, it is recognised that there is value associated with componentising infrastructure assets for multiple business purposes. This guideline follows the established understanding that organisations will derive benefits when financial management and asset management principles and practices are aligned. This understanding is core to documents such as *ISO 55001* and the *International Infrastructure Management Manual*.

Business benefits expected to be realised by individual organisations include:

- improved data integration,
- increased reporting efficiencies,
- greater transparency and evidence for financial valuation reporting,
- improved availability of financial information to inform forward planning processes,
- greater confidence in financial information to inform performance metrics, and
- improved data analytics to inform optimised decision making by top management.

There will also be benefits for the wider road sector through consistent reporting and cross organisation knowledge-sharing initiatives, as well as enabling of more equitable national reform initiatives.

1.8 Referenced Documents

This guideline should be understood in conjunction with the following documents:

- *Data Standard for Road Management & Investment in Australia and New Zealand (AP-T315-16)*
- *Expenditure Categories for a Forward Looking Cost Base (2017)*
- *AGAM, Austroads Guide to Asset Management (2018)*
- *IIMM, International Infrastructure Management Manual (IPWEA 2015)*
- *AIFMM, Australian Infrastructure Financial Management Manual (IPWEA 2015)*
- *Australian and New Zealand Accounting Standards*

2. Guideline Application

2.1 Principles

This guideline prescribes the minimum requirements for breaking down a road infrastructure network into its constituent parts, for financial and asset management purposes leading to financial reporting. The breakdown of a road infrastructure network is enabled via the use of an asset classification structure.

This guideline provides a process for estimating the relative value of a group of assets, relative to other road infrastructure assets managed by that organisation. The outcome of this process is to identify groups of assets that represent significant value to the organisation. The individual assets within each asset group are then valued in a consistent manner and subsequently rolled up as part of the financial reporting. The guideline also enables identification of which asset groups may not be significant to the organisation and recommends an appropriate way to recognise these assets.

This guideline provides a process for identifying the minimum level of prescriptive breakdown for each group of assets. By utilising this prescriptive element, this guideline aims to provide a consistent determination for both asset managers and financial managers, as well as for the broader industry.

2.2 Asset Classification Structure

The following asset classification structure is to be used when applying this guideline.

These asset classification structure levels provide a consistent framework for defining the grouping of assets, to be used by organisations seeking to align asset management, financial management and financial reporting practices.

Level 1: Asset Class (prescribed)

- One (1) Asset Class only: Road Infrastructure Assets.
- Broken down into Asset Sub-Class groups, for the purposes of disclosure within financial statements.

Level 2: Asset Sub-Class (prescribed)

- Aligned to National Transport Commission (NTC) Expenditure Categories, proposed for use in a national Forward-Looking Cost Base.
- Five (5) Asset Sub-Classes only: Roads, Roadside, Structures, Drainage & Mechanical and Electrical.
- Defines the minimum level of disclosure required in notes to financial statements.

Level 3: Asset Type (prescribed)

- As per Austroads' Data Standard for Road Management and Investment in Australia and New Zealand.
- As defined in Appendix B: Asset Classification Structure.

Level 4: Asset Sub-Type (not prescribed)

- Examples only provided by this guideline.
- Optional. May be used as required for organisational management purposes.
- Organisation specific definition, provided there is a many to one relationship with level 3.

Level 5: Asset Components (not prescribed)

- Examples only provided by this guideline.
- In regard to valuation and capitalisation processes, not required for Simple Assets or Network Assets.
- Organisation specific definition, provided there is a many to one relationship with level 4.

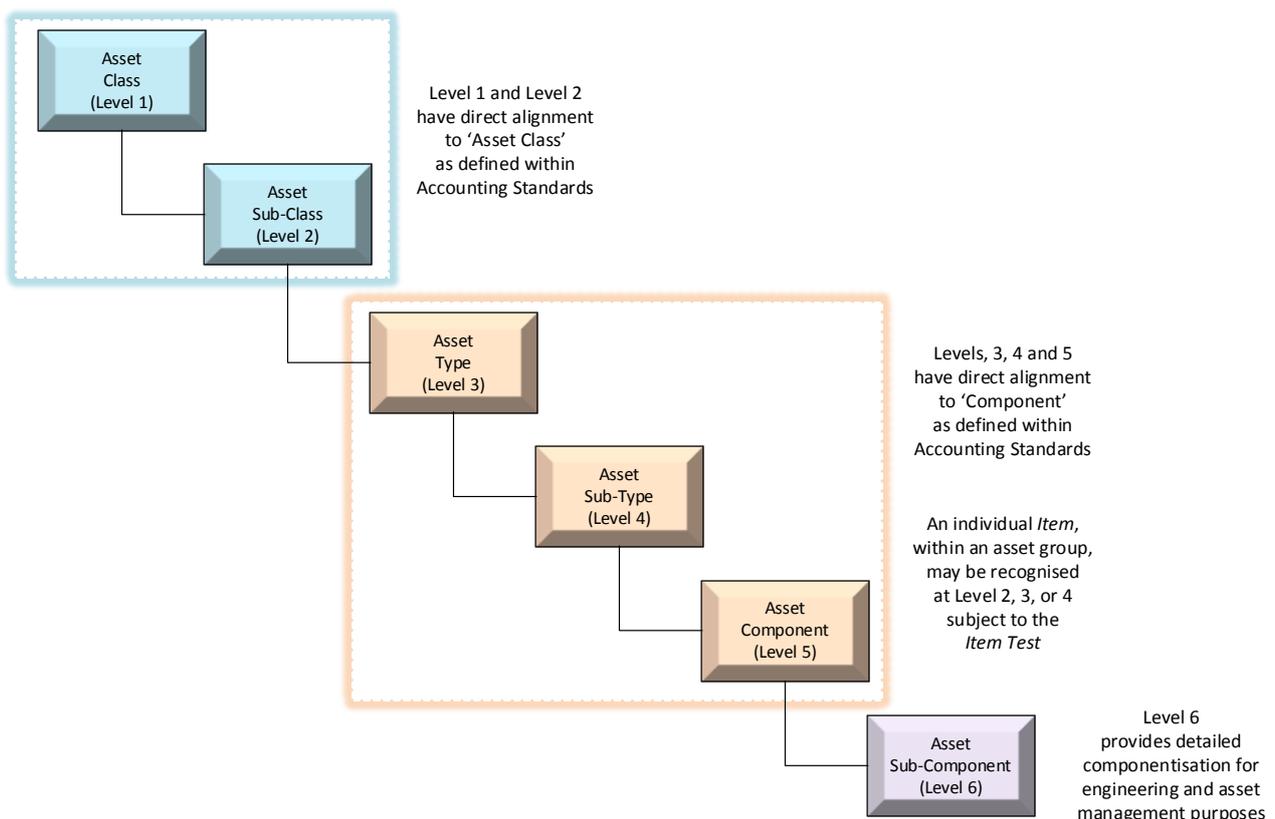
Level 6: Asset Sub-Components (not prescribed)

- Not defined by this guideline.
- Optional. May be used as required for organisational management purposes.
- Organisation specific definition, provided there is a many to one relationship with level 5.

Appendix B prescribes minimum requirements for level 1 Asset Class, level 2 Asset Sub-Class and level 3 Asset Type. Appendix B also provides examples for level 4 Asset Sub-Type and level 5 Asset Component.

It is important to acknowledge the relationship between terminology used in accounting standards and terminology defined in this guideline. Asset classification concepts defined in accounting standards, such as Asset Class, Component and Item, are insufficient to fully describe the complex nature of road infrastructure assets. The following diagram shows the relationship between accounting standard terminology and the asset classification structure defined in this guideline.

Figure 2.1: Relationship between Accounting Standard Terminologies of this Guideline



2.3 Complex Asset Requirements

In regard to Complex Assets, Australia and New Zealand Accounting Standards require Components of Complex Assets to:

- Be separately identifiable and measurable; and
- Require replacement at regular intervals during life of the Complex Asset; and
- Exceed the entity's capitalisation threshold; and
- Have a significant value in relation to the total cost of Complex Asset; and
- Have a different estimated useful life from the Complex Asset so that a failure to depreciate it separately would result in a material difference in the annual depreciation expense for the Complex Asset.

2.4 Key Guideline Elements

The guideline provides a structured approach to determining the recommended 'Item definition approach', for groups of assets, and the associated 'minimum inventory data requirements'.

2.4.1 Key Inputs

Key Inputs are required as follows:

- Asset Classification Structure – provides common structure and terminology, refer Appendix B.
- Gross Replacement Costs – determined by organisation. Organisation may reference previous financial year valuations, cost reports from corporate systems, current contract schedules, etc.

2.4.2 Methods

Various parts of this guideline relate to the core methodology, referred to as the *Item Test*. Each of these guideline parts are complimentary and should be read together, as follows:

- PART 2 sub-sections:
 - *Item Test* – provides description of in principle business rules, including Table 3.1.
 - Qualifying Questions within *Item Test* – provides purpose description for questions.
 - Application of *Item Test* – provides step by step process description in prose.
- *Item Test* Process Workflow – provides diagrammatical representation of step by step process, refer Appendix A.

Key Outputs

By using Key Inputs and applying the Methods outlined above, Key Outputs are determined as follows:

- Item definition approach – describes recommendation for how a group of assets will be recognised as an Item, including relationship to the levels of the Asset Classification Structure.
- Minimum inventory data requirements – describes the minimum level of asset inventory data that should be available to an organisation and that should be expected by an auditor. This key output can be used to inform potential data gaps that may require action by an organisation.

The Item definition approach and minimum inventory data requirements outputs are intrinsically linked, as is evident in both the *Item Test* Process Workflow and Table 3.1 in sub-section *Item Test*.

2.4.3 Tool for Recording Results

- *Item Test* Worksheet – refer Appendix C. Used to record, by asset group, the following:
 - Gross Replacement Cost percentage (GRC%) estimates,
 - Answers to *Item Test* qualifying questions,
 - Data Gaps identified,
 - Recommended Item definition approach and
 - Minimum inventory data requirement.

The *Item Test* Worksheet includes notes which mirror process steps in the Application of *Item Test*.

2.5 Level of Item Recognition

An *Item*, is a term used in this guideline to define an individual asset, with a life greater than 12 months, that has value to an organisation for either financial or management reporting purposes.

To understand if a group of assets has significant value within an organisation's road infrastructure portfolio, an *Item Test* is undertaken. This guideline provides an *Item Test* for use by preparers and auditors of financial statements. The *Item Test* will depend on:

- the relative Gross Replacement Cost (GRC) of the group of assets - to recognise the value to the organisation and
- the relative position in the asset classification structure - to recognise its physical relationship to other assets, or groups of assets.

The outcome of the *Item Test* will provide a suggested Item definition approach for each group of assets. That is, for each group of assets, one of the following Item definition approaches will be recommended:

- Average Weighted Asset (Asset Sub-Class level only), or
- Network Asset, or
- Simple Asset, or
- Complex Asset.

Each *Item*, within each group of assets, is then valued in a consistent manner and subsequently rolled up as part of the financial reporting.

Each of the four Item definition approaches listed above can be applied to determine fair value of assets.

2.6 Item Test

The purpose of the *Item Test* is to determine which Item definition approach (i.e. Average Weighted, Network, Simple or Complex) will be adopted for groups of assets and the associated minimum inventory data requirements. The *Item Test* may be applied to a group of assets at either:

- Level 2: Asset Sub-Class or
- Level 3: Asset Type

An *Item Test* applied at level 2 is where the relative GRC of an Asset Sub-Class group is determined as a percentage of the overall Road Infrastructure GRC (excluding Land Under Roads). An *Item Test* applied at level 3 is where the relative GRC of an Asset Type group is determined as a percentage of the overall Road Infrastructure GRC.

$$GRC\%_{asset\ group} = \frac{GRC_{asset\ group}}{GRC_{Road\ Infrastructure}}$$

If an *Item Test* applied at the Asset Sub-Class level results in $GRC\%_{asset\ group} \geq 5\%$, the *Item Test* is then re-applied at the Asset Type level.

Appendix C provides a sample *Item Test* worksheet. Appendix E provides a hypothetical case study.

Once the actual $GRC_{asset\ group}$ has been determined for the various asset groups, the *Item Test* should be re-applied to confirm that the appropriate Item definition approach was adopted for each asset group.

Table 3.1 provides indicative $GRC\%_{asset\ group}$ ranges, to be used to inform how each group of assets should be valued, in regard to selection of a suitable asset accounting

Table 3.1: Recommended Item definition approaches and minimum inventory data requirements, for groups of assets

Option	GRC%	Weighted Average Unit Rate Practical?	Common Items?	Components Practical?	Recommended Item Definition Approach (Including Minimum Inventory Data Required)
Item Test applied at Asset Sub-Class (level 2)					
1	<1%	Yes	N/A	N/A	Average Weighted Asset ¹ <ul style="list-style-type: none"> Avg. 'weighted' GRC Unit Rate, combining unit rates for individual Asset Types, applied to a group of assets that make up an <i>Item</i>. Concept of modern day equivalent applied, to describe the typical assets expected within a segment, typically differentiated by functional road classification². If inventory data is not available for the group of assets, an estimate of assets within a segment, typically by functional road classification², may be extrapolated from sample data or desk top assumptions.
2	≥1% to <5%	Yes	N/A	N/A	Average Weighted Asset <ul style="list-style-type: none"> Avg. 'weighted' GRC Unit Rate, combining unit rates for individual Asset Types, applied to a group of assets that make up an <i>Item</i>. Concept of modern day equivalent applied, to describe the typical assets expected within a segment, typically differentiated by functional road classification². If inventory data is not available for the group of assets, an estimate of assets within a segment, typically by functional road classification², may be extrapolated from sample data.

Option	GRC%	Weighted Average Unit Rate Practical?	Common Items?	Components Practical?	Recommended Item Definition Approach (Including Minimum Inventory Data Required)
Item Test applied at Asset Type (level 3)					
3	<1%	N/A	Yes	N/A	Network Asset ^{1, 3} <ul style="list-style-type: none"> Avg. GRC Unit Rate applied to each <i>Item</i>, typically by functional road classification². Asset count required (i.e. number of <i>Items</i>). If inventory data is not available for the group of assets, a reasonable estimate of the number of <i>Items</i> may be made based on sample data or desk top assumptions.
			No		Simple Asset ^{1, 3} <ul style="list-style-type: none"> <i>Items</i> recognised individually, based on attribute data (dimensions, material, etc.). If inventory data is not available for the group of assets, a reasonable estimate of inventory quantities may be made based on sample data or desk top assumptions.
4	≥1% to <5%	N/A	Yes	N/A	Network Asset <ul style="list-style-type: none"> Avg. GRC Unit Rate applied to each <i>Item</i>, typically by functional road classification². Asset count required (i.e. number of <i>Items</i>). If inventory data is not available for the group of assets, a reasonable estimate of number of <i>Items</i> may be extrapolated from sample data.
			No		Simple Asset <ul style="list-style-type: none"> <i>Items</i> recognised individually, based on attribute data (dimensions, material, etc.). If inventory data is not available for the group of assets, a reasonable estimate of inventory quantities may be made by extrapolating from a representative data sample.
5	≥5% to <10%	N/A	N/A	N/A	Simple Asset <ul style="list-style-type: none"> <i>Items</i> recognised individually, based on attribute data (dimensions, material, etc.). Full asset inventory data required.
6	≥10%	N/A	N/A	No	Simple Asset <ul style="list-style-type: none"> <i>Items</i> recognised individually, based on attribute data (dimensions, material, etc.). Full asset inventory data required.
				Yes	Complex Asset <ul style="list-style-type: none"> <i>Items</i> recognised individually, at the Component level. Attribute data required at Component level. Component level inventory data required.

Note:

1. An entity may make a decision not to value selected Asset Types, if they consider the collective value to be highly immaterial and they consider desk top assumptions related to asset data to provide negligible value to asset management functions. Any such decisions will be subject to normal auditing processes to assess the appropriateness of materiality assessment decisions

If an entity decides not to value selected Asset Types, this is to be acknowledged in the notes to the financial statements.

2. References made to 'functional road classification' should be interpreted in accordance with the Austroads Data Standard for Road Management and Investment in Australia and New Zealand (AP-T315-16). Functional road classifications include National High Volume [1a], National [1b], Arterial [2], Regional [3], Primary Connector [4], Secondary Connector [5], Access [6a] and Access Low Volume [6b].

3. The *Item Test* will enable *Item* definition approach recommendations, for groups of assets, via a top down approach. If this process identifies that an Average Weighted Asset approach is not applicable for a given Asset Sub-Class, recommendations are then determined at the Asset Type level. The application of an *Item* definition approach to some of these Asset Types will mean that the remaining Asset Types will have a reduced cumulative %GRC, at the Asset Sub-Class level. If these remaining Asset Types have a GRC% <5%, then an Average Weighted Asset approach may be applied. Appendix E provides a relevant example for the Roadside Asset Sub-Class, where Road Barriers and Pathways Asset Types are treated separately and the remaining Asset Types are treated as an Average Weighted Asset.

2.7 Qualifying Questions within Item Test

The *Item Test* is to be used in conjunction with the process workflow outlined in Appendix A, including qualifying questions as follows:

- Is it practical to apply an Average Weighted unit rate to the group of assets?
 - This question applies to the *Item Test* applied at Asset Sub-Class (level 2).
 - This question will assist with determining if a group of assets should adopt an Average Weighted Asset *Item* definition approach or if the *Item Test* should be reapplied at the Asset Type level of the asset classification structure.
 - The adoption of a Weighted Average Asset *Item* definition approach requires application of the modern day equivalent concept to describe the typical assets expected, often differentiated by functional road classifications. This approach is generally considered practical for low value groups of assets, where road standards provide an adequate level of guidance regarding the Asset Types specified for construction, typically differentiated for each functional road classification.
- Are *Items* in Asset Type common?
 - This question applies to the *Item Test* applied at Asset Type (level 3). It may also be applied at Asset Sub-Type (level 4), provided all Asset Sub-Types defined by an organisation adopt a common *Item* definition approach.
 - This question will assist with determining if a group of assets should adopt a Network Asset or a Simple Asset *Item* definition approach.
 - This question is a prompt to establish if individual *Items*, within a group of assets, are similar to the point where a common gross replacement cost unit rate can be applied.
 - The term ‘common’ in this question should not be interpreted to mean that a consistent modern day equivalent would be assigned for every individual *Item* within the group of assets. Rather, *Items* within a group of assets may still be assessed as common where *Item* attribution, such as asset dimensions and materials, will result in a different unit rate.
- Is it practical to split *Items* into Components?
 - This question applies to the *Item Test* applied at Asset Type (level 3). It may also be applied at Asset Sub-Type (level 4), provided all Asset Sub-Types defined by an organisation adopt a common *Item* definition approach.
 - This question will assist with determining if a group of assets should adopt a Simple Asset or a Complex Asset *Item* definition approach.
 - This question is a prompt to determine if *Items* within a group of assets can be split into separable Asset Components (level 5), in accordance with Complex Asset requirements.

2.8 Application of Item Test

See Appendix A for a process workflow. The following steps summarise the process to be applied to determine minimum grouping of assets and assignment of associated Item definition approaches.

Application to Asset Sub-Class groups (level 2):

1. Start by estimating the value of each Asset Sub-Class and determining the $GRC\%_{\text{asset group}}$ for each Sub-Class (i.e. roads, roadside, structures, drainage & mechanical and electrical).
2. If any of those Asset Sub-Classes are less than 5%, an assessment is made to determine the applicability of an Average Weighted unit rate being applied to an *Item* within the asset sub-class. If an Average Weighted unit rate approach is considered applicable, then an appropriate Item definition approach is assigned as per Table 3.1. No further asset breakdown is required under these Asset Sub-Classes, to meet minimum requirements.

Application to Asset Type groups (level 3):

3. If any of the Sub-Classes are estimated to be greater than or equal to the 5% threshold, or if a Sub-Class is less than the 5% threshold but an Average Weighted unit rate approach is not considered applicable, the value of the Asset Types in each of those Sub-Classes, as prescribed in Appendix B, is broadly estimated. That is, the *Item Test* is reapplied at the Asset Type level.
4. If any of those Asset Types are less than 10%, an appropriate Item definition approach is assigned as per Table 3.1, with due consideration of the commonness of the individual *Items* within the Asset Type groups. No further asset breakdown is required under these Asset Types, to meet the minimum requirements.
5. If any of the Asset Types are estimated to be greater than or equal to the 10% threshold, that Asset Type should be broken down into Asset Components (examples in Appendix B), with due consideration of the Complex Asset requirements detailed above. If an Asset Type does not have Component examples in Appendix B, it is unlikely that the *Items* consist of separately identifiable and measurable Components and there is no need for further asset breakdown.

2.9 Transition Statement

For organisations that have made a management decision to implement this guideline, transition from current business practices will result in business impacts. The level of impact will depend on the asset management and financial management practices currently in place for the organisation. Potential impacts can be grouped into the following categories:

- Depreciation Expense / Asset Portfolio Value
- Financial Reporting & Audit / Compliance Risk
- Revaluation Timing
- Disclosure Requirement
- Asset Management Information Systems
- Cost/Effort Imposition
- Unit Rates / Useful Lives
- Potential to Realise Value to Organisation

One of the practical considerations in implementing this guideline is the availability of data. Data gaps should be assessed in consideration of the minimum inventory data requirements documented in Table 3.1 (i.e. desk top assumptions, sample data, full asset inventory or component level inventory data). If an organisation identifies a data gap, it is acknowledged that it may take some time to fill this gap.

Implementation of this guideline should be completed in a collaborative environment inclusive of asset management, financial management and financial reporting practitioners. This guideline is not a substitute for business processes. As such, organisations will be required to document changes to business processes that result from implementation of this guideline. Organisations should also collaborate with their auditor (of financial statements) as the implementation process is progressed.

In consideration of the potential time required to address identified data gaps and the importance of consulting with internal stakeholders and auditors, it is recommended that organisations implementing this guideline allow at least a 12 month lead time, in advance of their next scheduled revaluation cycle. A high level pragmatic approach to guideline implementation, as detailed in Appendix A, is as follows:

Table 2.2: Pragmatic Guideline implementation steps and recommended timing

Step	Step Description	Recommended Timing
1	Apply the <i>Item Test</i> , up to the point of fair value calculation. This should be a relatively quick and easy process, which will assist with organisation specific implementation planning.	>12 months in advance of the next scheduled revaluation cycle
2	Consult with internal stakeholders and auditor regarding proposed changes to business processes.	
3	Address identified data gaps, including associated information management considerations, and complete fair value calculation.	During the year of the next scheduled revaluation cycle
4	Complete financial report and financial statement, including audit.	

Implementation of this guideline will trigger an assessment against requirements within *AASB 108 Accounting Policies, Changes in Accounting Estimates and Errors*. A determination will need to be made as to whether changes to financial statements will constitute a ‘change in policy’ or a ‘change in estimate’.

Every situation will need to be assessed based on merit and the specifics of the particular organisation. That said, it is anticipated that implementation of this guideline will constitute a change in estimate only. This is because an organisation that chooses to implement this guideline will continue to assess fair value of road infrastructure assets, via adoption of a current replacement cost methodology. As a result, implementation of this guideline is not considered to significantly impact the valuation approach and by extension is unlikely to materially impact the organisation’s financial statements.

2.10 Reporting and Outcomes

By grouping assets in a structured manner, an organisation can expect to report a more accurate depreciation expense. Furthermore, by adopting a common asset classification structure for asset management and financial management processes, an organisation can expect a range of internal business benefits, as summarised in Part 1 Guideline Overview

It is anticipated that in time, with support from the auditing community, this guideline will facilitate organisations to report financial statements in a common way. That is, it is expected that over time road infrastructure assets will be increasingly reported, in the notes to financial statements, at the Asset Sub-Class level (i.e. roads, roadside, drainage, structures, mechanical and electrical, land under roads). This will result in increased confidence when comparing financial statements across State / Territory road agencies and local government authorities.

Broad adoption of the process detailed in Appendix A, in conjunction with the asset classification structure detailed in Appendix B, will provide increased confidence that line items within financial reports are comprised of common Asset Types. This level of consistency will enable national reform initiatives, which rely on the provision of data sets from road management organisations, to be effectively implemented with expediency thus resulting in broader economic benefit to the broader transport sector.

2.11 Clarifications and Limitations

- The componentisation prescribed within this guideline is provided for adoption as part of an organisation's ordinary financial reporting processes and cycles. This guideline should be considered a minimum requirement only, for organisations seeking alignment of asset management, financial management and financial reporting processes.
- Componentisation beyond the levels prescribed in this guideline may bring additional asset management and financial management benefits to organisations. Organisations can adopt additional Asset Sub-Classes and Asset Types, provided they can be aggregated back up to the prescribed asset classifications detailed in Appendix B.
- Asset Sub-Type and Asset Component is part of the asset classification structure, but has not been prescribed by this guideline. This is to provide organisations with flexibility of approach to improve management outcomes. All Asset Sub-Types and Asset Components adopted by an organisation need to be able to roll up into the prescribed Asset Types listed in Appendix B.
- Some Asset Types may not be covered by this standard. Where this occurs, practitioners should use their best judgement to align with the guideline principles.

References

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Accounting Standards

Australian Accounting Standard AASB 108 *Accounting Policies, Changes in Accounting Estimates and Errors*

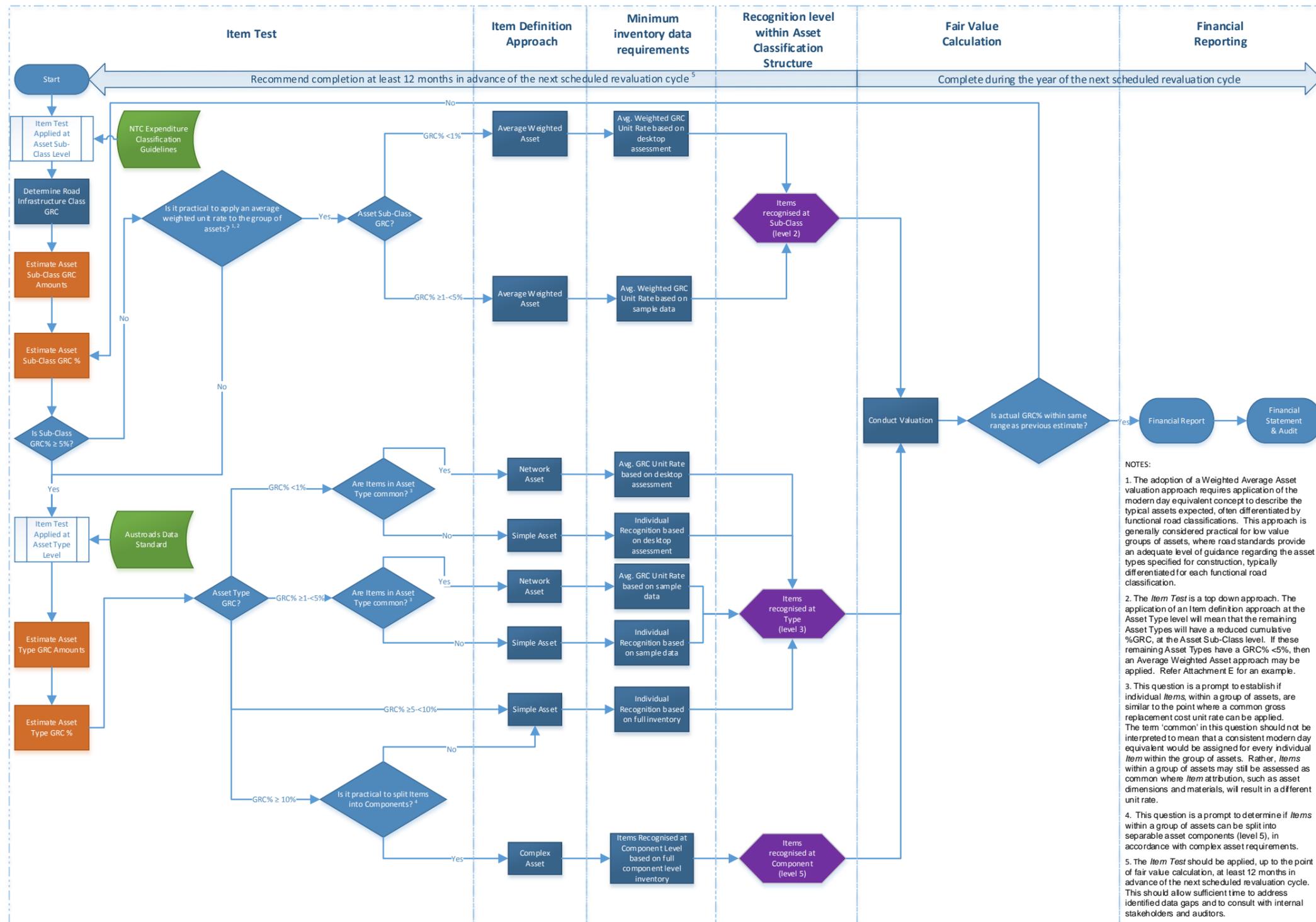
Australian Accounting Standard AASB 116 *Property Plant and Equipment*

ISO/DTS 55010 *Guidance on alignment of asset management, finance and accounting* (Draft Standard)

New Zealand Public Benefit Entity International Public Sector Accounting Standard PBE IPSAS 17 *Property, Plant and Equipment*

Appendix A Item Test Process Workflow

Figure A 1: Item Test Process Workflow (to be applied in conjunction with Part 2 Guideline Application and Appendix B)



Appendix B Asset Classification Structure

B.1 Asset Sub-Classes

As a minimum ¹, the following Asset Sub-Classes must be used:

- Roads
 - Roadside
 - Structures
 - Drainage
 - Mechanical and Electrical
 - Land Under Roads
1. Additional Sub-Classes may be used as long as they can be aggregated back up into the Sub-Classes above.
 2. Land Under Roads is valued in accordance with AASB 1051. Land Under Roads may be valued under the Road Infrastructure Asset Class, or the Land Asset Class, depending on State/Territory financial reporting requirements.

B.2 Asset Types

The following is a list of Asset Types, as described by the Austroads *Data Standard for Road Management and Investment in Australia and New Zealand (AP-T315-16)*.

B.2.1 Asset Types with Asset Component examples provided

The follow Asset Types may be considered Complex if they are found to have significant value:

- | | | |
|-----------------------------|--------------------|-------------------|
| • Bridges | • Other Structures | • Road Barriers |
| • Major Culverts | • Parking | • Shelters |
| • ITS Assets | • Pavement | • Signs |
| • Lighting | • Pits | • Traffic Signals |
| • Mechanical and Electrical | • Public Toilets | • Tunnels |
| • Minor Culverts | • Retaining Walls | |

In the context of financial valuation and capitalisation, Asset Components (level 5) are only required where the *Item Test* assesses the need for a Complex asset.

B.2.2 Asset Types without Asset Component examples provided

The following Asset Types are unlikely to be considered Complex and as such should not require componentisation:

- Amenities
- Bins
- Earthworks
- Fences
- Kerb and Channel
- Landscaping
- Land Under Roads
- Line Marking
- Open Drains
- Pathways
- Public Art
- Slope Treatments
- Surfacing
- Trees
- Traffic Management Devices
- Vehicle Crossings

B.3 Asset Classification Structure Details

The following asset classification structure prescribes minimum requirements for level 1 Asset Class, level 2 Asset Sub-Class and level 3 Asset Type. Level 4 Asset Sub-Type and level 5 Asset Component provides examples only; levels 4 and 5 are not prescribed in order to provide organisations with flexibility of approach.

Table B 1: Asset Classification Structure for componentisation of Roading Infrastructure

Level 1 Asset Class (prescribed)	Level 2 Asset Sub-Class ¹ (prescribed)	Level 3 Asset Type (prescribed)	Level 4 Asset Sub-Type (Examples only)	Level 5 Asset Component ² (Examples only)
Road Infrastructure	Roads	PAVEMENT	<i>Flexible Rigid Unsealed</i>	Base Sub-base
		SURFACING	<i>Asphalt Spray Seal Other</i>	<i>No example provided</i>
		EARTHWORKS		<i>No example provided</i>
		PARKING	<i>On Road Off Road</i>	Line Marking Meters Traffic Management
		LINE MARKING	<i>Line Marking Pavement Marking</i>	<i>No example provided</i>
		TRAFFIC MANAGEMENT DEVICES	<i>Bollard Chicane Intersection Platform Median Strip Pedestrian Crossing Roundabout Raised Pavement Rumble Strip Speed Bump School Crossings Splitter Islands</i>	<i>No example provided</i>

Level 1 Asset Class (prescribed)	Level 2 Asset Sub-Class ¹ (prescribed)	Level 3 Asset Type (prescribed)	Level 4 Asset Sub-Type (Examples only)	Level 5 Asset Component ² (Examples only)
Road Infrastructure	Drainage	OPEN DRAINS	Table Catch	No example provided
		KERB AND CHANNEL	Mountable Semi-mountable Non-mountable Barrier	No example provided
		PITS	Manhole Junctions Gully Side Entry	Lid/Surround Structure
		MINOR CULVERTS	Pipe Arch Box Slab	Inlet Structure Barrel Outlet Structure
	Mechanical and Electrical	ITS ASSETS	CCTV Electronic Signs Traffic Counters Overhead Lane Controls Height Gauges	Controller Cable Camera Display
		MECHANICAL AND ELECTRICAL	Cables Communication Power/Electrical Fire Protection Security	Controller Distribution Board Generator Fire System
		LIGHTING	Street Feature Directional Navigational	Light Pole Mast Arm
		TRAFFIC SIGNALS	Intersection Pedestrian School Zone	Signals Pole Controller Loops

Level 1 Asset Class (prescribed)	Level 2 Asset Sub-Class ¹ (prescribed)	Level 3 Asset Type (prescribed)	Level 4 Asset Sub-Type (Examples only)	Level 5 Asset Component ² (Examples only)
Road Infrastructure	Roadside	SIGNS	Regulatory Warning Guide Freeway Guide Temporary Hazard Other	Sign Face/Blade Pole
		TREES	Historical/Heritage Other	No example provided
		SLOPE TREATMENTS	Shotcrete Rock Bolts Netting Rock Fall Fence Dewatering System	No example provided
		LANDSCAPING	General Conservation Areas Firebreaks	No example provided
		BINS	Waste Recycle Green Hazardous	No example provided
		FENCES	Boundary Pedestrian Noise walls	No example provided
		PATHWAYS	Concrete Asphalt Pavers Unsealed Other	No example provided
		SHELTERS	Tram Bus Pedestrian Other	Pad Structure Other

Level 1 Asset Class (prescribed)	Level 2 Asset Sub-Class ¹ (prescribed)	Level 3 Asset Type (prescribed)	Level 4 Asset Sub-Type (Examples only)	Level 5 Asset Component ² (Examples only)
Road Infrastructure	Roadside	PUBLIC TOILETS	<i>Toilet Ablution Block</i>	Foundations Structure Roof Cladding Fit Out
		PUBLIC ART	<i>Statue Memorial</i>	<i>No example provided</i>
		ROAD BARRIERS	<i>Guardrail New Jersey Barrier Safety Barrier Sight Rail Wire Rope</i>	Poles Terminals Rail
		VEHICLE CROSSINGS	<i>Residential Industrial Commercial</i>	<i>No example provided</i>
		AMENITIES	<i>Service Centres Rest Areas</i>	<i>No example provided</i>
	Structures	BRIDGES	<i>Cable Stayed Suspension Box Girder Arch Moving</i>	Superstructure Sub-structure Foundations
		MAJOR CULVERTS	<i>Pipe Arch Box Slab</i>	Inlet Structure Barrel Outlet Structure
		RETAINING WALLS	<i>Gabion Cantilever Sleeper Earth Cable</i>	Gabion Baskets Wall Facing/Panels Columns/Supports Foundations

Level 1 Asset Class (prescribed)	Level 2 Asset Sub-Class ¹ (prescribed)	Level 3 Asset Type (prescribed)	Level 4 Asset Sub-Type (Examples only)	Level 5 Asset Component ² (Examples only)
Road Infrastructure	Structures	OTHER STRUCTURES	Flagpole Gantry Truss Cantilever Arms/Beams	Footings Mast Base Plates Pads
		TUNNELS	Arch Overpass Underpass	Barrel Buttress Portal Tunnel Lining (panels/cladding) Fire Protection
	Land Under Roads ³	LAND UNDER ROADS		No example provided

Notes:

1. Implementation of this guideline includes separate identification of the Asset Sub-Class categories (as a minimum) in the notes to financial statements.
2. Where the Item Test identifies a Complex Asset as being recommended for a group of assets, the examples provided in level 5 of the asset classification structure may be used as a reasonable representation of minimum Component requirements, subject to Components having different useful lives. All Components with useful lives greater than 1 year shall be recognised, even if they are assessed in isolation as having immaterial value, as they are Component parts of a larger physical Asset Item that has already been assessed as being significantly material.
3. Land Under Roads is valued in accordance with AASB 1051. Land Under Roads may be valued under the Road Infrastructure Asset Class, or the Land Asset Class, depending on State/Territory financial reporting requirements. Where Land Under Roads is valued under the Road Infrastructure Asset Class, it shall be separately identified in the notes to financial statements.

Appendix C Item Test Worksheet

This worksheet is to be used in conjunction with Part 2: Guideline Application, Appendix A and B. This worksheet is intended to assist practitioners determine the appropriate level of componentisation, Item definition approach and minimum inventory data requirement. The worksheet is provided as a guide and practitioners are encouraged to adapt it to their needs.

Table C 1: Item Test Worksheet

Asset Sub-Class	Sub Class GRC% ¹	Weighted Average Unit Rate Practical? ²	Data Gap? ⁸	Asset Type	Asset Type GRC% ³	Common Items? ⁴	Data Gap? ⁸	Components Practical? ⁵	Data Gap? ⁸	Recommended Item Definition Approach ⁶	Minimum Inventory Data Requirements ⁷	Notes
ROADS	_____%	N/A (≥ 5%)	Yes / No	PAVEMENT	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
				SURFACING	_____%	Yes / No	Yes / No	N/A	N/A			
				EARTHWORKS	_____%	Yes / No	Yes / No	N/A	N/A			
				PARKING	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
				LINE MARKING	_____%	Yes / No	Yes / No	N/A	N/A			
				TRAFFIC MANAGEMENT DEVICES	_____%	Yes / No	Yes / No	N/A	N/A			
DRAINAGE	_____%	N/A (≥ 5%)	Yes / No	OPEN DRAINS	_____%	Yes / No	Yes / No	N/A	N/A			
				KERB AND CHANNEL	_____%	Yes / No	Yes / No	N/A	N/A			
				PITS	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
				MINOR CULVERTS	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
MECHANICAL AND ELECTRICAL	_____%	N/A (≥ 5%)	Yes / No	ITS ASSETS	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
				MECH AND ELEC	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
				LIGHTING	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
				TRAFFIC SIGNALS	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
ROADSIDE	_____%	N/A (≥ 5%)	Yes / No	SIGNS	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
				TREES	_____%	Yes / No	Yes / No	N/A	N/A			
				SLOPE TREATMENTS	_____%	Yes / No	Yes / No	N/A	N/A			
				LANDSCAPING	_____%	Yes / No	Yes / No	N/A	N/A			
				BINS	_____%	Yes / No	Yes / No	N/A	N/A			
				FENCES	_____%	Yes / No	Yes / No	N/A	N/A			
PATHWAYS	_____%	Yes / No	Yes / No	N/A	N/A							

Asset Sub-Class	Sub Class GRC% ¹	Weighted Average Unit Rate Practical? ²	Data Gap? ⁸	Asset Type	Asset Type GRC% ³	Common Items? ⁴	Data Gap? ⁸	Components Practical? ⁵	Data Gap? ⁸	Recommended Item Definition Approach ⁶	Minimum Inventory Data Requirements ⁷	Notes
				SHELTERS	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
				PUBLIC TOILETS	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
				PUBLIC ART	_____%	Yes / No	Yes / No	N/A	N/A			
				ROAD BARRIERS	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
				VEHICLE CROSSINGS	_____%	Yes / No	Yes / No	N/A	N/A			
				AMENITIES	_____%	Yes / No	Yes / No	N/A	N/A			
STRUCTURES	_____%	N/A (≥ 5%)	Yes / No	BRIDGES	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
		No		MAJOR CULVERTS	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
		Yes		RETAINING WALLS	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
				OTHER STRUCTURES	_____%	Yes / No	Yes / No	Yes / No	Yes / No			
				TUNNELS	_____%	Yes / No	Yes / No	Yes / No	Yes / No			

Notes:

1. Application of Item Test – Step 1. As determined by calculating the Gross Replacement Cost percentage for the Asset Sub-Class level. If GRC% >5%, apply Item Test at Asset Type level. Various resources can be used to determine the estimate of gross replacement cost by Asset Sub-Class, such as previous valuations, analysis of organisational cost data, analysis of project contracts and schedule of rates, industry guides (e.g. Rawlinsons) and/or expert opinion.
2. Application of Item Test – Step 2. Possible outcomes defined in Table 3.1 are option 1 or option 2. This question will assist with determining if a group of assets should adopt an Average Weighted Asset Item definition approach or if the Item Test should be reapplied at the Asset Type level of the asset classification structure. An Average Weighted Asset approach applies only to low value groups of assets, at the Sub-Class level.
3. Application of Item Test – Step 3. As determined by calculating the Gross Replacement Cost percentage for the Asset Type level. Various resources can be used to determine the estimate of gross replacement cost by Asset Type, such as previous valuations, analysis of organisational cost data, analysis of project contracts and schedule of rates, industry guides (e.g. Rawlinsons) and/or expert opinion.
4. Application of Item Test – Step 4. Possible outcomes defined in Table 3.1 are option 3 or option 4. This question will assist with determining if a group of assets should adopt a Network Asset or a Simple Asset Item definition approach.
5. Application of Item Test – Step 5. Possible outcome defined in Table 3.1 is option 6. This question will assist with determining if a group of assets should adopt a Simple Asset or a Complex Asset Item definition approach.
6. Recommended Item definition approach may be one of Average Weighted Asset (Sub-Class level only), Network Asset, Simple Asset or Complex Asset. Refer to Table 3.1 for guidance. Each of the four Item definition approaches can be applied to determine fair value of assets.
7. The recommended Item definition approach will assist with identifying the minimum inventory data requirements. Refer to Table 3.1 for guidance. Minimum inventory data requirements may be one of Desk Top Assumptions, Sample Data, Full Asset Inventory or Component Level Inventory Data.
8. Data gaps should be assessed in consideration of minimum inventory data requirements.
9. For the purposes of applying the Item Test in this guideline, the Gross Replacement Cost of the Road Infrastructure Asset Class ($GRC_{Road\ Infrastructure}$) is to exclude the value of Land Under Roads. Land Under Roads adopts a discounted market rate approach to determination of fair value. Land Under Roads may be valued under the Road Infrastructure Asset Class, or the Land Asset Class, depending on State/Territory financial reporting requirements.

Appendix D Statement of Conformance

D.1 Statement by Independent Reviewer John Comrie FCPA

To the best of my knowledge this Guideline for determining minimum levels of asset componentisation as set out in this document is compliant with Australian and New Zealand Accounting Standards. Australian Accounting Standards do not provide explicit detailed requirements regarding asset componentisation. For example paragraph 43 of AASB 116 (Property Plant and Equipment) states 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'*. This may be particularly relevant where significantly valued Components have notably different useful lives to other Components. An entity's aggregate depreciation expense will vary in such circumstances based on the degree of componentisation. However in many instances the impact is unlikely to be particularly material relative to its total expenses (or even total depreciation expenses). Componentisation may nevertheless be of value to an entity to assist e.g. in its asset management planning and decision-making. Paragraph 47 of AASB 116 provides entities with some discretion as it says; *'An entity may choose to depreciate separately the parts of an item that do not have a cost that is significant in relation to the total cost of the item'*.

New Zealand Accounting Standards have a similar provision to componentisation to that described above in AASB 116. NZ PBE IPSAS 17 states (para 59) 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'*.

Government agencies must comply with rulings made at a whole of government jurisdictional level regarding accounting requirements. Typically these directions incorporate Australian Accounting Standards and stipulate additional requirements. Queensland has specified that any Items making up more than 10% of road infrastructure Complex Assets are considered significant and therefore should effectively be componentised. Queensland thus specifies additional (but nevertheless complimentary) criteria beyond that recommended in this Guideline in determining whether an asset should be componentised. South Australia requires assets to be recognised as Complex Assets if the fair value at time of acquisition is greater than \$5 million for infrastructure assets and the estimated useful life is greater than 3 years. It requires such Complex Assets to be componentised subject to specific criteria including that *'effort in separately tracking components is justified'*.

I am not aware of any other specific requirements regarding asset componentisation in other Australian states or territories. The Queensland and South Australian directions provide additional requirements for relevant authorities but are not in conflict with the recommendations in this Guideline. All government agencies are audited. They need to satisfy their auditor that their accounting practices are compliant with requirements and appropriate for their circumstances.

The following reinforces the importance of integrating asset and financial management disciplines.

The need for alignment is multidimensional for many reasons, particularly because of the alignment of information requirements for different levels and functions within the organisation; this includes the ability to have vertical alignment of the information from top management down into the operational areas, as well as horizontal alignment between asset management, financial accounting, financial management and risk management functions, by using a common terminology for financial and non-financial information. The effectiveness of asset management is limited by the ability of an organisation to synthesize both financial and non-financial information and to make the most appropriate business decisions about its assets.

ISO/DTS 55010 (Draft Standard)

Appendix E Hypothetical Case Study

Joe from the Finance department had been working in his organisation for 20 years. Jane from the Engineering department had only been there a few years. Each year, Joe asks Jane for details of new assets built and assets disposed, to inform financial valuation processes. Each year, Jane does her best to provide this information in the format Joe requests. She also analyses contract information each year to help Joe understand the current replacement cost of the assets managed by the organisation. Jane was always interested in the outcome of this annual finance process and made a point of checking the notes to the financial statements each year. However, she was often discouraged as the level of detail within the notes to the financial statements did not match the way in which she planned forward programs and did not provide the transparency required to be useful across other business functions.

Jane was reading this new Austroads *Minimum Levels of Componentisation for Road Infrastructure Assets: Guideline* and wondered what it actually meant when it referred to improved integration and alignment of asset management, financial management and financial reporting processes. Jane and Joe struck up a conversation and discussed the finance fixed asset register and why it was designed the way in was. They also discussed the asset management register and why it was different. They also discussed the fundamental reasons why these two corporate information management systems were different and explored the historical reasons. They soon realised that the reasons for having two separate legacy asset registers was primarily due to different business requirements, complicated by different terminology and associated misunderstanding. They also realised that although the two registers were necessarily a bit different, they could actually map them if they could overcome this terminology challenge.

Joe and Jane recognised that mapping of corporate asset registers is not a small job and wondered whether they should invest the effort. They decided to consult others to get different perspectives regarding what was involved, the effort required, the upstream and downstream impacts, expected costs and anticipated benefits. After much discussion and consultation with other colleagues they agreed to implement the Austroads Guideline. Their primary reasons for doing so were two fold, as follows:

- The financial information that rolled up into the financial statements could be used by the Engineering department to better inform forward planning processes, business performance metrics and asset management plans.
- The expected cost of mapping the asset registers and modifying associated processes would provide information management and reporting efficiencies that were expected to outweigh the costs of implementation.

Joe and Jane started by producing a few reports from their respective information management systems and getting some recent cost schedules from some capital works contracts. Their plan was to analyse this information to better understand the relative cost between the various asset groups listed in the asset classification structure in Appendix B of the Guideline. They brought Jack from the Capital Works department into this session, because Jack has been around the organisation for decades and his knowledge and understanding was highly valued. They also convinced Jerry from the Planning department, because Jerry understood details of what data they had available in the asset management register. Armed with system reports, contract schedules and support from key colleagues, Joe, Jane, Jack and Jerry sat together for a whole day and worked their way through the *Item Test* detailed in the Guideline.

At the start of the day, before they went too far into the detail, they made sure they understood what the options were in the Guideline for Item definition approach (i.e. Complex, Simple, Network and Weighted Average). Joe and Jerry were very nervous about the additional data this new process may require, so Jane also explained the options for minimum inventory data requirements (component level inventory, full asset inventory, sample data or desk top assumptions). They all acknowledged that by the end of the day, they would only get up to the purple boxes in the process workflow, where they could propose which Item definition approaches may apply to which groups of assets.

As they went through the back and forth process of analysing the available data they had, Joe and Jane found Table 3.1 from the Guideline particularly useful, and they recorded the outcomes of their analysis in the *Item Test Worksheet* from Appendix C. Jerry was still concerned about the data required to feed this potential new approach, so he made additional notes about what data sets they already had and where the gaps were. At the end of the day, Joe from Finance, Jane from Engineering, Jack from Capital Works and Jerry from Planning had recorded the following workshop outputs.

Figure E 1: Workshop Outputs

Inventory Data Approach Adopted

AAM2102 Guidelines for Minimum Levels of Asset Componentisation – Worksheet

This worksheet is to be used in conjunction with Part 2: Guideline Application, Attachments A and B. This worksheet is intended to assist practitioners determine the appropriate level of componentisation and valuation approach. The worksheet is provided as a guide and practitioners are encouraged to adapt it to their needs.

Asset Sub-Class	Sub Class GRC% ¹	Weighted Average Unit Rate Practical? ²	Data Gap? ³	Asset Type	Asset Type GRC% ³	Common Items? ⁴	Data Gap? ³	Components Practical? ⁵	Data Gap? ³	Recommended Item Definition Approach ⁶	Minimum Inventory Data Requirements ⁷	Notes	
ROADS	54.4	No	Yes / No	PAVEMENT	31.1%	Yes/No	Yes/No	Yes/No	Yes/No	Complex	Complex	Complex	
				SURFACING	8.9%	Yes/No	Yes/No	N/A	N/A	Simple	Full	Full	
				EARTHWORKS	10.4%	Yes/No	Yes/No	N/A	N/A	Simple	Full	Full	
				PARKING	1.3%	Yes/No	Yes/No	Yes/No	Yes/No	Simple	Sample	Full	
				LINE MARKING	0.7%	Yes/No	Yes/No	N/A	N/A	Network	DeskTop	DeskTop	
				TRAFFIC MANAGEMENT DEVICES	2.0%	Yes/No	Yes/No	N/A	N/A	Network	Sample	Sample	
DRAINAGE	8.2	No	Yes / No	OPEN DRAINS	0.5%	Yes/No	Yes/No	N/A	N/A	Network	DeskTop	DeskTop	
				KERB AND CHANNEL	1.1%	Yes/No	Yes/No	N/A	N/A	Network	Sample	Full	
				PITS	2.8%	Yes/No	Yes/No	Yes/No	Yes/No	Simple	Sample	Full	
				MINOR CULVERTS	2.8%	Yes/No	Yes/No	IN PROGRESS	IN PROGRESS	Simple	Sample	Full	
MECHANICAL & ELECTRICAL	12.6	No	Yes / No	ITS ASSET	3.5%	Yes/No	Yes/No	Yes/No	Yes/No	Network	Sample	Varies	
				MECH AND ELEC	0.4%	Yes/No	Yes/No	Yes/No	Yes/No	Simple	DeskTop	DeskTop	
				LIGHTING	2.9%	Yes/No	Yes/No	Yes/No	Yes/No	Network	Sample	Full	
				TRAFFIC SIGNALS	5.8%	Yes/No	Yes/No	Yes/No	Yes/No	Simple	Full	Full	
ROADSIDE	5.9	No	Yes / No	SIGNS	0.9%	Yes/No	Yes/No	Yes/No	Yes/No	*			
				TREES	0.3%	Yes/No	Yes/No	N/A	N/A	*	* Except Pathways & Road Barriers		
				SLOPE TREATMENTS	0.2%	Yes/No	Yes/No	N/A	N/A	*	* all Roadside asset types		
				LANDSCAPING	0.5%	Yes/No	Yes/No	N/A	N/A	*	* to be treated as		
				BINS	0.2%	Yes/No	Yes/No	N/A	N/A	*	* Average Weighted or Sample		
				FENCES	0.4%	Yes/No	Yes/No	N/A	N/A	*			
				PATHWAYS	0.9%	Yes/No	Yes/No	N/A	N/A	Network	DeskTop	Full	Adopt Simple
				SHELTERS	0.1%	Yes/No	Yes/No	Yes/No	Yes/No	*			
				PUBLIC TOILETS	0.1%	Yes/No	Yes/No	Yes/No	Yes/No	*			
				PUBLIC ART	0.2%	Yes/No	Yes/No	N/A	N/A	*			
				ROAD BARRIERS	1.8%	Yes/No	Yes/No	Yes/No	Yes/No	Network	Sample	Full	Adopt Simple
				VEHICLE CROSSING	0.3%	Yes/No	Yes/No	N/A	N/A	*			
				AMENITIES	0.3%	Yes/No	Yes/No	N/A	N/A	*			
STRUCTURES	18.9	No	Yes / No	BRIDGES	11.8%	Yes/No	Yes/No	Yes/No	Yes/No	Complex	Complex	Complex	
				MAJOR CULVERTS	6.3%	Yes/No	Yes/No	Yes/No	Yes/No	Simple	Full	Full	
				RETAINING WALLS	0.6%	Yes/No	Yes/No	Yes/No	Yes/No	Simple	DeskTop	DeskTop	
				OTHER STRUCTURES	0.2%	Yes/No	Yes/No	Yes/No	Yes/No	Simple	DeskTop	DeskTop	
				TUNNELS	NIL%	Yes/No	Yes/No	Yes/No	Yes/No				

Adopt Network

NOTE: Network by Sub-Type
COMBINE Roadside Drainage
NOTE: Network by Sub-Type
Adopt Network
NOTE: Network by Sub-Type
Adopt Simple
Adopt Simple
COMBINE Other Structure

Table E 1: Asset Information System Data Gaps identified as part of *Item Test Assessment* (Jerry's notes)

Asset Type	Information System	Gap?	Comments
PAVEMENT	Confirm	Yes	Pavement layers not in Confirm. Need to determine Modern Day Equivalents, by functional road class.
SURFACING	Confirm	No	Data up to date. Updated annually.
EARTHWORKS	GIS	Yes	Need to categorise segments as per topographical data. Topographical data in GIS. Categories to go to Confirm.
PARKING	Confirm	No	Data up to date. Double check with Catherine.
LINE MARKING	?	Yes	No data available. Need a data collection survey. Paul.
TRAFFIC MANAGEMENT DEVICES	Excel	No	Refer input file for 2016 Traffic Management Strategy
OPEN DRAINS	?	Yes	No known data available. Check with maintenance team.
KERB AND CHANNEL	Confirm	No	Data up to date. Recent survey completed.
PITS	Confirm	Yes	Data survey currently underway. Approx. 60% complete.
MINOR CULVERTS	Confirm	Yes	
ITS ASSETS	ITSys	Yes	Partial data available. Due to high risk and short life spans, have been discussing data collection for a while now. Speak to Abdul to get this moving.
MECH AND ELEC	ITSys	Yes	Partial data available only. Check details with Abdul.
LIGHTING	ITSys	No	Data up to date.
TRAFFIC SIGNALS	ITSys	No	Data up to date.
SIGNS	GIS	?	Check with Sam
TREES	?	Yes	No known data available.
SLOPE TREATMENTS	?	Yes	No known data available.
LANDSCAPING	?	Yes	No known data available.
BINS	Excel	No	Managed by maintenance team.
FENCES	?	Yes	No known data available.
PATHWAYS	Confirm	No	Data up to date.
SHELTERS	Excel	No	Data up to date. Collected for bus route assessments.
PUBLIC TOILETS	Excel	No	Managed by maintenance team.
PUBLIC ART	?	Yes	No known data available.
ROAD BARRIERS	Confirm	No	Data up to date.
VEHICLE CROSSINGS	GIS	?	Check with Sam
AMENITIES	Excel	No	Managed by maintenance team.
BRIDGES	BIS	No	Data up to date
MAJOR CULVERTS	BIS	No	Data up to date
RETAINING WALLS	?	Yes	No known data available.
OTHER STRUCTURES	?	Yes	No known data available.
TUNNELS	N/A	N/A	N/A

A week later, Joe and Jane scheduled another meeting to debrief on the session. They looked a bit more closely at the outcomes they had recorded on the *Item Test Worksheet* and checked these against Jerry's notes. In recognition of foreseeable business impacts, Joe and Jane prepared some recommendations that were proposed as part of a 12 month implementation plan. Proposed actions were identified as follows:

- For Roads asset sub-class:
 - Expand existing Pavement data set in Confirm via a desk top analysis of existing info (refer Jerry's notes). Incorporate into Confirm program of works.
 - Establish Earthworks data set in Confirm, using topographical info (refer Jerry's notes). Incorporate into Confirm program of works. Discuss with Sam to ensure GIS resource is available.
 - For Line Marking, establish Modern Day Equivalent for each functional road class, via reference to line marking standards. Note: Desk Top only. Data survey not required as per Jerry's suggestion. Communicate decision to Paul to manage expectation (i.e. other data collection priorities).
- For Drainage asset sub-class:
 - Treat 'Open Drains' and Kerb & Channel' as a single Asset Type called 'Roadside Drainage'. Recognise as Network Asset, with a Modern Day Equivalent for each functional road class. Kerb & Channel data recently collected to be supplemented by desk top for Open Drains.
 - Note that decision already taken by Engineering department to collect culvert and pit data, due to flooding risk issues. Consultant has been engaged – currently 60% complete.
- For Mechanical and Electrical asset sub-class:
 - Abdul has a structured hierarchy for ITS Assets, with suitable Asset Sub-Types. Some ITS Assets Sub-Types already have a full inventory data set. He has been requesting funds to complete a data collection program for remaining Sub-Types, due to technological obsolescence and the need for asset upgrade programs. Kick off a 20% sample data collection program for remaining ITS Assets Sub Types, to support this already identified asset management need.
 - Mech and Elec assets have no known inventory data set. The Guideline process recommends treating as Simple Assets. However, this is considered onerous due to the disparate nature of the assets across the network. As the value is low, a balanced decision has been taken to treat this Asset Type as a Network Asset, because the detail within the ITS Assets Sub-Types will assist with making reasonable assumptions.
- For Roadside asset sub-class:
 - For Road Barriers and Pathways, an asset management need has previously been identified which triggered collection of a full inventory data set. As such, it was decided to treat these two Asset Types as Simple Assets, as opposed to the minimum Guideline recommendation of Network Assets.
 - The total estimated GRC% of the Roadside Asset Sub-Class is 5.9%. The remaining Asset Types within the Roadside Asset Sub-Class were all relatively low value, totalling 3.2% when Road Barriers and Pathways are excluded. Some of the remaining Asset Types were considered common and some were not. Some of the Asset Types has data sets and some did not. Notwithstanding these complexities, a balanced decision was made to treat the Roadside Asset Sub-Class (excluding Road Barriers and Pathways) as an Average Weighted Asset, based on 10% sample data collected across differing functional road classes.
- For Structures asset sub-class:
 - Bridges are a Complex Asset. Components for valuation purposes will be Superstructure and Substructure, because renewal program often replaces superstructure and maintains existing substructure (i.e. different useful lives). Decision was made not to separately componentise Substructure and Footings, as per Guideline example, because they have a similar useful life. Rather, footings will be incorporated into the Substructure component.

- For Retaining Walls and Other Structures, there is no known inventory data set. The Guideline process recommends treating as Simple Assets. However, this is considered onerous due to the disparate nature of the assets across the network. As the value is low, a balanced decision has been taken to combine these Asset Types and treat as a Network Asset, because the detail within the proposed Earthworks dataset (to be collected) is expected to be adequate to assist with making reasonable assumptions.
- General
 - Incorporate level 1 and level 2 descriptions from asset classification structure into asset information management systems (i.e. Confirm, ITSys and BIS), to allow mapping to Ellipse.
 - Amend the Chart of Accounts in Ellipse to allow cost information to be captured by adopted Asset Types.
 - Build asset valuation capability into BIS (bespoke systems). The detailed elements (i.e. Guideline Level 6 Sub-Components) in the BIS will need to be tagged with the appropriate Component (i.e. Guideline level 5), to enable roll up of information.
 - Incorporate excel data sets into Confirm for Traffic Management Devices and various Roadside Asset Types (i.e. Bins, Shelters, Public Toilets and Amenities), including implementation of the Confirm valuation module for these new Asset Types.
 - Update financial valuation and capitalisation business processes to recognise the Item definition approaches adopted and the associated inventory data requirements adopted.

Joe and Jane acknowledged that there were quite a large number of data gaps identified, but this was not a surprise because the data gaps related primarily to lower value Asset Types that had not been prioritised in the past. There was some further discussion regarding the cost associated with the data collection needs identified. This concern was dispelled on the basis that the data was required to assist with evidence based asset management forward planning and much of the data collection was basic desk top assessment or sample data collection, as opposed to collection of full inventory data sets for all Asset Types.

At this point, Joe and Jane had confidence that the benefits they would get from implementing the Austroads Guideline were substantial. Jane was really keen on being able to use this more granular finance information to inform forward plans for asset renewal programs that had historically been very reactive. Joe was a bit concerned that he had to go and tweak the chart of accounts so that cost data would be available for some of these Asset Types, but he was happy to do this because he agreed with Jane that there were organisational planning benefits and he also wanted to compare outcomes with other organisations.

Joe and Jane then proceeded to brief the Chief Financial Officer Barry and Executive Director Engineering Bob. Barry and Bob both supported the process on the proviso others were included. Barry asked Joe to contact their external auditor and Bob asked Jane to brief the works managers. Further conversations were held with key stakeholders and potential risks and issues recorded. Joe and Jane jointly prepared a paper for the monthly Executive Leadership Team (ELT) meeting and it was minuted that a program of works would proceed in the upcoming financial year to implement the Austroads Guideline.

From the day of the first discussion between Jane and Joe, to the circulation of the ELT minutes, three full months had elapsed. Jane and Joe remained a bit apprehensive regarding the effort required, but with the support of the ELT and the external auditor they were ready to proceed with implementation. They understood that implementation would require focussed effort and they proceeded with setting up three programmed and resourced work streams as follows:

- Update of capitalisation and financial valuation business processes
- Mapping of asset management register to finance fixed asset register
- Data collection program (desk top and field based)

It took a full 12 months (2019/20) of focussed and collaborative effort to deliver the above work streams. Along the journey, Joe made sure that their external auditor was kept informed of progress and consulted on matters of process change. They discussed the planned revaluation schedule and decided to make some minor alterations. They jointly agreed that the new business processes should be implemented in a staged manner, with fair value calculated for roads, roadside and drainage Asset Sub-Classes for period ending 30 June 2020 and all other Asset Sub-Classes for period ending 30 June 2021.

For each reporting period Joe doubled checked the original GRC% estimates against the actuals, to confirm they were in the expected range; and they were. Once all asset fair values were calculated, it was noted that there was a moderate increase in depreciation expense. The auditor confirmed that this change constituted a change in estimate only, as the change in business process still focussed on preparation of fair value based on a current replacement cost methodology.

Jane followed up with Joe and the Finance department to ensure that agreed changes to the chart of accounts were implemented. This ensured that costs were captured at an appropriate level of detail to allow transparent cost analysis of adopted Asset Types. Jane also worked closely with Jack and the Capital Works department to make some modifications to works delivery processes and associated contract clauses and schedules. These minor changes ensured that cost estimation processes and project handover processes were aligned with the organisationally adopted asset classification structure.

In subsequent years, the ELT acknowledged the organisational benefits realised from implementation of the Austroads Guideline, with a specific recognition of improved forward planning processes and integrated reporting allowing more informed investment decision making.



Austroads

Level 9, 287 Elizabeth Street
Sydney NSW 2000 Australia

Phone: +61 2 8265 3300

austroads@austroads.com.au
www.austroads.com.au