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PARLIAMENT OF TASMANIA

AUDITOR-GENERAL SPECIAL REPORT NO 26

Capitalisation and Reporting of Road Assets in Tasmania

No. 2 of 1998 – May 1998

Presented to both Houses of Parliament in accordance with the provisions of Section 57 of the Financial Management and Audit Act 1990

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President
Legislative Council
HOBART

Speaker
House of Assembly
HOBART

Dear Mr President
Dear Mr Speaker

PERFORMANCE AUDIT NO 26 - CAPITALISATION AND REPORTING OF ROAD ASSETS IN TASMANIA

This report has been prepared consequent to examinations conducted under section 44 of the Financial Management and Audit Act 1990, for submission to Parliament under the provisions of section 57 of the Act.

Performance audits seek to provide Parliament with assessments of the effectiveness and efficiency of public sector programs and activities, thereby identifying opportunities for improved performance.

The information provided through this approach will, I am sure, assist Parliament in better evaluating agency performance and enhance Parliamentary decision making to the benefit of all Tasmanians.

Yours sincerely

A J McHugh
AUDITOR-GENERAL

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INTRODUCTION

Under the provisions of Section 44(b) of the Financial Management and Audit Act 1990 the Auditor-General may:

> *"carry out examinations of the economy, efficiency and effectiveness of Government departments, public bodies or parts of Government departments or public bodies."*

The conduct of such audits is often referred to as performance auditing.

This report is a special report made pursuant to Section 57(4) of the Act and relates to the performance audit conducted by the Tasmanian Audit Office during the period July 1997 to March 1998 of Capitalisation and Reporting of Road Assets in Tasmania.

INTRODUCTION OF AAS 27

Over recent years the implementation of Australian Accounting Standard AAS 27, has required local government authorities to publish general purpose financial reports incorporating all their business and non-business activities.

The inclusion of infrastructure assets across local government authorities has drawn attention to the variability of practice as to the valuation and depreciation practices for infrastructure assets such as road assets.

ENGAGEMENT OF CONSULTANTS

In August 1997 the Tasmanian Audit Office engaged a consultant, Jeff Roorda and Associates to carry out a performance audit of "Capitalisation and Reporting of Road Assets in Tasmania".

CONSULTATIVE COMMITTEE

I wish to express my thanks to members of the Steering Committee, Christine Bell - Glenorchy City Council, John Howard – Devonport City Council, Stewart Wardlaw – Local Government Association and Graeme Yeoland – Local Government Office who assisted by commenting at various stages on drafts of this Report. They do not however have any responsibility for any errors or omissions and may not necessarily agree with the conclusions reached.

AUDIT OBJECTIVES

The objective of this performance audit was to report on the existing valuation and depreciation practices of Tasmanian Local Government Authorities as they apply to Road Asset infrastructure and to develop "best practice" guidelines.

AUDIT CRITERIA

- To what extent do Councils have a documented asset management and financial reporting strategy that outlines the approach used, assumptions made and methodology deployed for the capitalisation of road assets.

- What assumptions and/or estimates are being used for asset valuation and depreciation calculations and what is the consistency and validity of those calculations.

- What policy framework is in place to ensure consistent treatment of capital and maintenance transactions to ensure financial reporting provides a fair account of the Council's financial position.

- What technology is being used for capitalisation and financial reporting.

- What is the quality, consistency and relevance of data used for financial reporting of road assets.

- To what extent have audit trail issues been addressed for the transfer of asset valuations between technical and financial systems.

- What approach is being taken on specific issues such as:

    - depreciation of gravel roads,
    - treatment of seal, pavement and earthworks as separate assets or single assets,
    - treatment of road furniture and line marking as aggregate assets or as an expense,
    - frequency of revaluations
    - capacity of persons carrying out condition assessment, valuations and estimates of useful life, and
    - order of accuracy and currency of information used to calculate asset values and depreciation charges.

RECOMMENDATIONS

The consultant made five recommendations which have been accepted and endorsed by the Audit Office as follows:

- Councils improve asset management analysis to support and complement the financial reports

- Councils review their existing valuation practices and depreciation methods against "industry practice" contained in the appendices to the report, and

- Councils should include in their annual reports:

  - an estimate of the cost to retain their existing asset stock at existing condition over the next five to ten years, in present overall condition, and
  - a comparison of actual expenditure for all infrastructure assets with what is estimated to be required to retain all infrastructure assets in their present overall condition for the time that the services they provide will be required.

- Councils re-value infrastructure assets at intervals not exceeding five years. This revaluation should include a reassessment of the economic life and remaining life of each road asset. The reassessment of every asset may be carried out progressively between revaluations during routine inspection, maintenance and renewal activities.

- The database created by the pilot councils during this project should continue to be developed and used as a resource for financial and management reporting and asset management practice for Local Government in Tasmania. The responsibility for this rests with councils, as it is not considered to be an ongoing function for the Tasmanian Audit Office.

AUDIT OPINION

Report Title	Capitalisation and Reporting of Road Assets in Tasmania.
Nature of the Audit	The objective of this performance audit was to report on the existing valuation and depreciation practices of Tasmanian Local Government Authorities as they apply to Road Asset infrastructure and to develop "best practice" guidelines.
Responsible Party	The General Manager in each Local government Authority is responsible for managing any risks associated with the management of road asset infrastructure
Mandate	This audit has been carried out under the provisions of Section 44(b) of the Financial Management and Audit Act 1990 which provides that: *"The Auditor-General may carry out examinations of the economy, efficiency and effectiveness of Government departments, public bodies or parts of Government department or public bodies."*
Applicable Standards	This audit has been performed in accordance with Australian Auditing Standard AUS 806 "Performance Auditing" which states that: *"The objective of a performance audit is to enable the auditor to express an opinion whether, in all material respects, all or part of an entity's activities have been carried out economically, and/or efficiently and/or effectively."*
Limitation on Audit Assurance	Audit procedures were restricted to a review of documentary evidence provided by the survey approach adopted in conducting the audit, and analytical procedures, and provide less evidence than would be available by applying more extensive and comprehensive procedures. The evidence provided by these procedures restricts the audit assurance to a moderate level, as the evidence is persuasive rather than conclusive in nature.

Audit Criteria

To what extent do Councils have a documented asset management and financial reporting strategy that outlines the approach used, assumptions made and methodology deployed for the capitalisation of road assets.

What assumptions and/or estimates are being used for asset valuation and depreciation calculations and what is the consistency and validity of those calculations.

What policy framework is in place to ensure consistent treatment of capital and maintenance transactions to ensure financial reporting provides a fair account of the Council's financial position.

What technology is being used for capitalisation and financial reporting.

What is the quality, consistency and relevance of data used for financial reporting of road assets.

To what extent have audit trail issues been addressed for the transfer of asset valuations between technical and financial systems.

What approach is being taken on specific issues such as:

- depreciation of gravel roads,
- treatment of seal, pavement and earthworks as separate assets or single assets,
- treatment of road furniture and line marking as aggregate assets or as an expense,
- frequency of revaluations,
- capacity of persons carrying out condition assessment, valuations and estimates of useful life, and
- order of accuracy and currency of information used to calculate asset values and depreciation charges.

Conclusion

Based on the evidence collected, I conclude that:

- there is a significant range of practice and policy being applied to the financial reporting of road assets,
- the treatment of gravel roads is highly variable,
- future asset funding requirements to retain present asset stocks is uneven and time dependant,
- significant variations in valuations of road assets may be attributable to:
  - the recent and relatively new requirement to report road asset valuations,
  - many smaller councils do not have the resources and expertise to carry out the required asset management activities,
  - asset management and reporting has a low priority, and
  - most councils have little or no “industry practice” information for guidance purposes,
- many councils do not have a fully documented asset management and financial reporting strategy,
- some councils do not have a policy framework in place to ensure a consistent treatment of capital and maintenance transactions,
- the integrity (quality, consistency and relevance) of data used for financial reporting of road assets by most councils is poor to fair, and
- there are potential audit trail problems with some councils related to the transfer of asset valuation data between technical and financial systems.

CONSULTANTS REPORT

Capitalisation and Reporting of Road Assets in Tasmania

Consultants Report
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1.1	EXECUTIVE SUMMARY and KEY RESULTS

Overall Assessment of Existing Financial Reporting Environment and Project Recommendations

Following the capitalisation of road[1] assets by councils in the last 2 years, there are a variety of practices and policy assumptions adopted in the process of road capitalisation for the 1996 – 1997 financial statements. This project reviews the adequacy of financial reporting issues covering the 29 Tasmanian councils' bridges, sealed and unsealed roads. These issues include but are not limited to:

- estimates of useful life,
- rates of depreciation,
- methods of depreciation,
- recognition thresholds
- valuation of roads; and
- method of determining written down value.

The cooperation from councils during a period where there have been many other calls on limited resources has been exemplary. Ultimately, 24 councils provided their information on the questionnaire and the survey analysis in this report refers to these councils. Financial reports were used as the basis for analysis for the 5 councils that did not return the questionnaire. Councils that did not complete the database quoted inadequate resources and lack of asset management expertise as the primary reason. This may be a factor that explains the variation in policy and practice outlined in this report and is of concern because of the high value of road assets. Unless each council applies adequate resources and expertise, the potential for benefits from improvements to asset management and reporting practice will be lost. The study found a high probability that most councils may have difficulty sustaining their present asset stock at current overall condition with current expenditures on assets. Councils with inadequate access to asset management information and expertise are unable to adequately plan for, or measure, infrastructure asset deterioration.

Many councils in Tasmania are carrying out asset management and financial reporting that is up to Australian best practice standards. The initiative of the Tasmanian Audit Office and the steering committee in carrying out this work is resulting in one of the first studies to assist councils improve their asset management and financial reporting on a state wide basis. The findings identified a number of potential and actual flaws in financial reporting practice. This should not be interpreted as a criticism of Tasmanian councils either individually or corporately. It reflects problems encountered throughout the entire public sector in Australia as it seeks to integrate accounting theory and engineering practice in a period of rapid change and reform.

The analysis assessed two policy questions. The first was whether the financial reports were consistent with published standards and statutory requirements. Some issues of concern have been identified during site visits and these have been included in the policy guide. If the guidelines in sections 3 and 4 are followed for future financial reports, all councils will comply with statutory requirements.

[1] Unless otherwise specified, "roads" includes roads, bridges, footpaths and kerb.

The second question is whether the financial reports give a true representation to the community of the financial position of the council with respect to road assets. In most cases it is considered that whilst they provide a guide, most financial reports do not enable the assessment of true consumption of asset service potential. This is due partly to the variability in policy and technical practice between councils. It is also due to the limitations of the financial reporting framework and the difficulty inherent in applying accounting standards to an asset as variable as local roads. The financial reports should complement and be consistent with other management reporting such as asset management plans, capital evaluation and asset utilisation strategies and life cycle costing analysis.

Whilst outside the direct scope of the study, initial data gathered during this study indicates that future replacement, rehabilitation and maintenance obligations associated with infrastructure assets may cause financial difficulties for some councils within the next 15 years and for most councils beyond that period. Preliminary data gathered suggests that infrastructure deterioration has the potential to affect the viability of most councils unless future costs are measured and a strategy to address infrastructure deterioration is formulated. It is recommended that a state wide asset management strategy be developed for local government working in partnership with State and Commonwealth Governments. The results of the preliminary analysis are shown in appendix 6.7.

The findings of the study are:

1. There is a significant range of practice and policy being applied to the financial reporting of road assets. This results in variations in asset values and depreciation charges far greater than can be explained by disability factors such as geography, topography or climate. The variations and concerns raised about the 1996/1997 financial reports do not necessarily make them incorrect or subject to audit qualification. It does mean that they have the potential to mislead the readers of financial reports about the "true" financial position of councils unless there is adequate supporting information about methodology, accuracy and assumptions behind the calculations for asset values and depreciation amounts.

   A "standard" economic life for each asset category is not recommended since economic life for each road is the product of past and future maintenance strategy, climate and topography, construction standards, and traffic. The recommended strategy is that councils analyse their economic lives and depreciation charges and be able to explain differences and changes over time and show how their economic life is derived. The variations in economic life should continue to be reviewed because road assets are a major financial responsibility for councils. The replacement value of local road assets in Tasmania exceeds $2Billion and local bridges a further $85 Million (based on council's financial reports).

2. The accounting treatment of gravel roads is highly variable and may benefit from the practice guide included in section 4 of this report.

3. Most councils have road asset age profiles that are consistent with a large asset creation programme in the period of 1950 to 1980. The future funding requirement to retain this asset stock is uneven and will increase markedly in the next 10 to 20 years for most councils. Councils with a large proportion of local road networks approaching the end of their useful lives should use a valuation and depreciation methodology that estimates the remaining life of the assets taking into account local variables such as climate, traffic, condition and maintenance levels.

4. Extraordinary[2] variations in valuation and depreciation of road assets exist due to a number of factors including:

   - The capitalisation and financial reporting of road assets is relatively new and many council's are still in a transition phase (despite the formal transitional period for AAS27 concluding 1 July 1996).

   - Many smaller councils do not have the resources and expertise to carry out asset management activities necessary to provide more accurate asset inventories and valuations. Asset information is therefore either minimal or fragmented and difficult to access.

   - Asset management and public reporting of the consumption of service potential for assets often has a low priority and the only information available is that which is perceived necessary for minimum statutory compliance.

   - Most councils would benefit from more resource information on industry practice. Benchmark data and guidelines on asset capitalisation and financial reporting will enhance work councils will be carrying out in the next 2 to 3 years to improve asset management and financial and management reporting.

1.2 RECOMMENDATIONS

1. **It is recommended that councils improve asset management analysis to support and complement the financial reports.** The primary focus of continued improvement and reform in road asset reporting is to make the consumption of service potential and future replacement, or maintenance obligations transparent to the community so that informed decisions can be made about sustainable levels of service. New capital projects should take into account the total life cycle cost of the asset. With some excellent exceptions, this level of analysis and reporting is currently rare. Councils that do not have the "in house" resources to carry out such asset management analysis should consider working in cooperation with other councils or the private sector.

2. **It is recommended that councils review their existing valuation and depreciation methods and practices against "industry practice" contained in the appendices and database.** This report does not advocate the adoption of uniform rates and practices for local roads, although it may be applicable in the future for concrete/steel bridges. There may be valid reasons, for example, why one council includes earthworks in road valuations and another excludes earthworks. Similarly, one council may choose to treat resurfacing as a capital transaction and another treat the same activity as a maintenance expense. The preferred focus recommended is that the readers of the financial report can form an informed view of asset consumption and the underlying methodology, accuracy and assumptions. Part of this approach is that variations to published guidelines and industry standards can be explained and the accuracy of the methodology used is understood and transparent to the reader of the financial report.

[2] Greater than can be explained by geography, climate or other disability factors.

3. It is recommended that councils should include in their annual reports:

- An estimate of the cost to retain the existing asset stock in the next 5 to 10 years in present overall condition.

- A comparison of actual expenditure for all infrastructure assets with what is estimated to be required to retain all infrastructure assets in their present overall condition for the time that the services they provide will be required.

4. It is recommended that Councils re-value infrastructure assets at intervals not exceeding 5 years. This revaluation should include a reassessment of the economic life and remaining life of each road asset. The reassessment of every asset may be carried out progressively between revaluations during routine inspection, maintenance and renewal activities.

5. It is recommended that the database created by the pilot councils during this project continue to be developed and used as a resource for financial and management reporting and asset management practice for Local Government in Tasmania**.**

2 OBJECTIVES OF STRATEGIC ASSET MANAGEMENT AND FINANCIAL REPORTING

The management of infrastructure involves professionals from a range of disciplines working together to provide decision support information to the community and policy makers. Decisions on infrastructure have long term consequences, often exceeding 50 years and the measurement and reporting of these consequences involves technical, financial and information technology disciplines. The quality of asset related policy decisions is likely to be enhanced if financial and management reporting provides complementary information with a consistent message.

Statement of Accounting Concepts, SAC2, sets the objectives for general purpose financial reporting in Australia and indicates that financial reports should provide information that:

- is useful to users for making and evaluating decisions about the allocation of scarce resources
- assists management and governing bodies in discharging their accountability; and
- is relevant to assessment of performance, financial position and financing and investment, including information about compliance (sac2 paras. 43-45) [1]

SAC2 expands on the role of financial reporting for decision support;

" Efficient allocation of scarce resources will be enhanced if those who make resource allocation decisions, …have the appropriate financial information on which to base their decisions. General purpose financial reporting aims to provide this information." [SAC2 Para 13] [2]

Some specific comments on current financial reporting practice by Tasmanian Local Government follow. The comments are based on notes from site visits and an overall assessment and interpretation of all data collected in the survey. The purpose of this section is to give a general overview of the general financial reporting environment in Tasmania and specific issues that reflect excellent practice or would benefit from improvement. The percentages in this section are a qualitative view to produce concise and simple conclusions from a large and complex data set. To see quantitative analysis, the detailed data in section 3 and the appendices should be used.

The methodology for this study included:

1. the analysis of financial reports for the 1996/97 financial year.
2. site visits and interviews at 22 councils.
3. a detailed survey of road asset technical and accounting practice and policy.[3] a database has been built that includes the results of the financial report analysis, site interview results and the returns of the survey.

The database built by this project can continue to develop to provide ongoing management information of asset financial reporting and management reporting practice in Tasmania.

[3] Many councils were unable to complete all data fields in the survey form because information was not available or too fragmented to access with available resources.

The study addressed the following criteria:

1 To what extent do councils have a documented asset management and financial reporting strategy that outlines the approach used, assumptions made and methodology deployed for the capitalisation of road assets.

Less than 25% of councils have a fully documented asset management and financial reporting strategy, however 75% of councils expect to have such a strategy in place within 2 to 3 years. The remainder have indicated that they do not have the resources or expertise. It is recommended that councils increase the pooling of expertise and resources, or use external resources to improve policy documentation and analysis.

2. What assumptions/estimates are being used for asset valuation and depreciation calculations and what is the consistency and validity of those assumptions (eg design life, deterioration algorithms, maintenance strategies, materiality thresholds and aggregation)? Test and comment on the validity of these assumptions and estimates.

The assumptions and methodology for valuation and depreciation calculations are variable and shown in detail in the report. The area that requires attention is the accuracy and validity of data used for calculations, and in particular estimates of economic life, remaining life and condition. There is currently insufficient data to conclusively demonstrate the deterioration profile of local roads. An assumption of linear deterioration is considered acceptable within the overall order of accuracy, but increasing the frequency of revaluations will reduce depreciation errors. This is set out in detail in the practice guide in section 4. Based on the overall quality of data and valuation and depreciation methodology, it is our opinion that the order of accuracy of valuations and depreciation for 50% to 75% of councils is between plus or minus 20% and 30%. 25% to 50% are likely to have an order of accuracy of plus or minus 10% to 20%. It is unlikely that any councils have an order of accuracy better than plus or minus 10%. The high overall and proportional value of roads makes it important for councils to address the issue of poor supporting data over the next 2 to 3 years. Assumptions that apply a fixed percentage depreciation rate without analysis of actual economic or remaining life of the network components is likely to lead to errors much larger than 20% and may give misleading results in financial reports.

3. What policy framework is in place to ensure consistent treatment of capital and maintenance transactions to ensure financial reporting provides a fair account of the councils financial position (whilst complying with statutory requirements).

There is some consistency of treatment, but little consistency in results for variables such as unit costs, depreciation rates and economic life for local roads. Less than 50% of councils have a clearly documented policy framework for consistent treatment of asset transactions and guidelines are included in sections 3 and 4.

4. What technology is being used for the capitalisation and financial reporting

Technology for capitalisation and financial reporting varies with the expertise and emphasis placed on asset management by individual councils. The most common method is the use of spreadsheets. Of the 22 councils that responded to this section of the survey, 11 use a pavement management system. The level of detail of data in road databases varies from basic inventory data to detailed assessment of condition and maintenance history for each road segment.

5. Data Integrity - what is the quality, consistency and relevance of data used for financial reporting of road assets

   In our opinion, the data integrity of most councils is currently poor to fair (accuracy of fields used for valuation and depreciation calculation worse than plus or minus 20%). 20% of councils have fair to good data fair (accuracy of fields used for valuation and depreciation calculation between than plus or minus 10% and 20%). Most councils are carrying out increased inspections and it is expected that road and bridge data will improve markedly over the next 2 to 3 years.

6. To what extent have audit trail issues been addressed for the transfer of asset valuations between technical and financial systems

   Potential audit trail problems were encountered with approximately 20% of councils. The most common problem was inadequate coordination and policy documentation between finance and engineering policy and systems. This has been addressed in the guide in section 4.

7. What approach is being taken on specific issues such as

   - Depreciation of gravel roads
   - Treating seal, pavement and earthworks as separate or single assets
   - Treating road furniture and line marking as aggregate assets or as an expense
   - Frequency of revaluations
   - Capacity of persons carrying out condition assessment, valuations and estimates of remaining life
   - Order of accuracy and supporting data on accuracy and currency of information used to calculate asset values and depreciation charges

This report is constructed from the database, questionnaires, financial reports and site visit notes. Section 3 contains a series of graphs and accompanying analysis to address these questions. The appendices contain extracts from a database that may enable the monitoring of ongoing development in asset management and financial reporting.

It is difficult to generalise and the detailed analysis throughout the report and appendices needs to be examined for particular issues. The database has recorded a "snapshot view" of the financial policy and reporting framework of all councils. Based on initial and draft stage data, approximately one third of councils have a good to excellent approach to documenting policy assumptions and methodology. Approximately one third have a good approach but could improve methods of documentation of assumptions and polices. The further one third have used broad approximations and percentages for valuation and depreciation. calculations and the accuracy and veracity of their results are difficult to determine.

The broad approach recommended in this report is for councils to use the analysis and data contained herein and be able to explain variations and improve their methodology and results over time. This is considered a better approach than to attempt to "standardise" key variables and methodology through direct comparison between councils that currently apply varying techniques, technologies and data to manage a highly unpredictable asset.

3 ANALYSIS OF THE EXISTING ROAD FINANCIAL REPORTING ENVIRONMENT – SYSTEMS, PROCESSES AND OUTPUTS

3.1 Estimates of Useful Life

3.1.1 Purpose

The purpose of this section is to examine the variables that affect estimates of useful life and report on current council practice.

3.1.2 Policy Guide

All assets with limited useful lives "depreciable assets" are to be depreciated in accordance with Australian Accounting Standard AAS4, Depreciation of Non Current Assets.
Being a function of factors which cannot be determined with certainty, for example, useful life and amount recoverable on disposal, depreciation expenses necessarily contain an element of approximation. This emphasises the need to review those factors annually with adjustment, where necessary to existing depreciation rates. (AAS4, para 4.5.1)

The asset remaining life is the period from the acquisition of the asset, to the time when the asset, while physically able to provide a service, ceases to be the lowest cost alternative to satisfy a particular level of service. The economic life is at the maximum when equal to the physical life however obsolescence will often ensure that the economic life is less than the physical life.

3.1.3 Factors That Affect Useful Life

Useful life and remaining life are two of the key variables in asset valuation and depreciation calculations.

The estimate of remaining life is based on technical and environmental factors. Some of the factors that influence the variation in economic lives include:

- traffic
- topography
- shifts in demography
- climate
- policy factors (for example trends in waste collection and recycling can significantly influence the mass and frequency of heavy vehicles and seriously affect economic lives of lightly trafficked local roads with thin pavements.
- the current physical condition of the asset.
- the cost associated with bringing that asset up to an acceptable condition.
- the level of usage of the asset.
- previous maintenance history.
- future maintenance conditions.

The unique and variable characteristics of local road networks are reflected in the variability of the following graphs and tables.

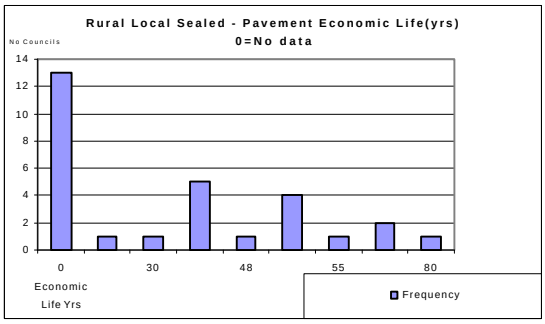
It is possible for a local road with light local traffic to have a very long economic life if there is a regular resealing programme. This road may fail technical tests such as roughness, but be considered satisfactory by council's customers using the road. For example, if the users of the road travel at low speeds (eg a cul de sac) customer perception can override technical factors.

Apparently minor changes in traffic patterns (eg changing the frequency of waste collection or the size of waste collection vehicles can then seriously affect a local road with thin pavement carrying a few local vehicles). A remaining life of 20 – 50 years can change to less than 5 years within a relatively short period. This variability in local road networks tends to defy accounting and engineering theory and any desire for uniformity and consistency. The challenge is to improve and develop engineering and accounting practice to provide management and financial reporting that enables open and accountable decision making. Hopefully, this report will complement the excellent work by many others towards that objective.

3.1.4 Current Council Practice in Tasmania

The following graphs (Fig. 3.1.1) show the distribution of pavement economic life for unsealed and sealed roads.

Figure 3.1.1 - Distribution of Pavement Economic Life for Sealed Roads



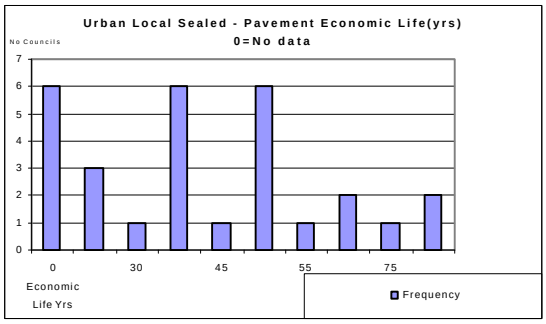
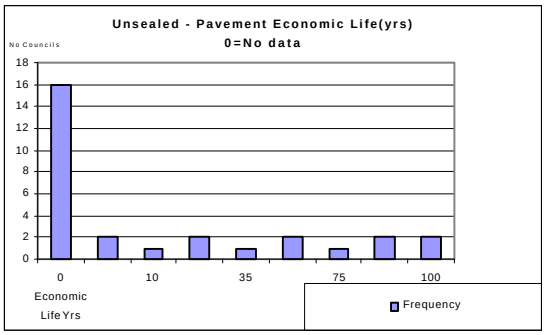
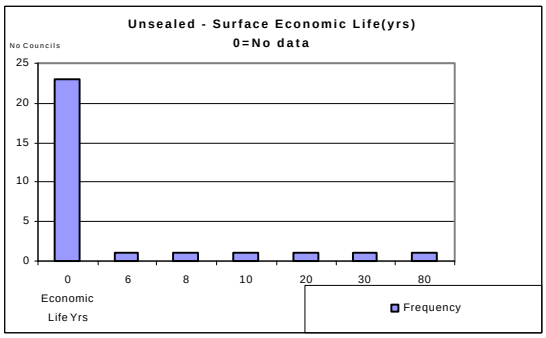


Figure 3.1.2 - Distribution of Economic Life for Unsealed Roads





The previous graphs show the variability of economic lives between road networks managed by different councils. This variability also occurs between road segments within road networks. The economic life is different for every asset (eg road segment or bridge) within a network.

Appendix 6.1.2 contains the distributions for all transport assets.

Table 3.1.3 - Road Economic Life used by Tasmanian Councils

	Engineering Estimate of Economic Life					
	Urban Local Sealed			**Unsealed**		
Council	Earthworks	Pavement	Seal	Earthworks	Pavement	Surface
Break O'day						
Brighton	40	40	15	30	30	30
Burnie		40	12		40	6
Central Coast	100	50	15	100		
Central Highlands		20	12		10	
Circular Head	100	40	13	100		
Clarence	60	40	7			
Derwent Valley		20	10		5	
Devonport	100	55	15	100	55	
Dorset	80	80	20	100	5	
Flinders		30	15		30	
George Town						
Glamorgan - Spring Bay						
Glenorchy	100	40	20	100	40	20
Hobart		60	15			
Huon Valley		20	8			
Kentish						
King Island	100	80	11	100	80	
Kingborough						
Latrobe		50	15			
Launceston		75	25			
Meander Valley		40	15		35	
Northern Midlands	100	60	12	100	100	10
Sorell	100	50	10			
Southern Midlands	50	50	10	100	100	
Tasman			20		80	80
Waratah - Wynyard	100	50	15	100	75	
West Coast	50	50	50			
West Tamar	100	45	20	100	80	

For the purpose of this study the economic life of each asset group is defined as "the average time between the construction of an asset and its replacement". Note that this is *not the remaining life*, nor is it the design life or the economic life listed in asset reference manuals. It is the life based on each council's experience. In many cases there is insufficient data available because there has not yet been much need for the replacement of pavement. The variability of economic lives shown in Figures 3.1.1 and 3.1.2 and Table 3.1.3 helps explain the variability of depreciation rates in section 3.2.

Table 3.1.4- Bridge Economic Life used by Tasmanian Councils

Average Bridge Economic Life						
	Timber		Steel/Concrete		Composite	
Council	Structure	Deck	Structure	Deck	Structure	Deck
Break O'day						
Brighton						
Burnie	24		75			
Central Coast	20		80			
Central Highlands	30	12	100			
Circular Head	20		80		60	
Clarence						
Derwent Valley	20	20	80	80		
Devonport	24		75		30	
Dorset	25	8	80	80		
Flinders	40		40		40	
George Town						
Glamorgan - Spring Bay						
Glenorchy	80	15	80	80		
Hobart						
Huon Valley	35		90			
Kentish						
King Island	40	10	40			
Kingborough						
Latrobe						
Launceston	20	7	75		50	
Meander Valley	20	10	80			
Northern Midlands	20		60		60	
Sorell	60		100			
Southern Midlands	25	15				
Tasman	80	50	60			
Waratah - Wynyard	20	10	80		60	
West Coast						
West Tamar	25		75			

3.2 Rates of Depreciation

3.2.1 Purpose

The purpose of this section is to set some guidelines for the treatment of depreciation for transport assets and to compare the rates of depreciation used by councils.

3.2.2 Policy Guide

Depreciation is an expense, which is charged annually against the value of an asset with the aim of apportioning the cost of using up the asset over its useful life. [3]

AAS4 notes that depreciation rates must be reviewed annually, and, if necessary adjusted so that they will reflect the most recent assessments of the useful lives of the respective assets, having

regard to such factors as asset usage and the rate of technical and commercial obsolescence. (AAS 4 para 4.2) [4].

The depreciation of road assets is based on the best estimate of the actual consumption of service potential.

The concept of the depreciation includes the provision for the following factors:

- Wear and tear through physical use that is greater than that which maintenance can restore.
- Technical obsolescence where by an asset becomes increasingly out of date and insufficient as a result of technological advances and improvements.
- Commercial obsolescence whereby an asset becomes redundant through a fall in demand.

It is important to note that depreciation is not a valuation technique and does not provide cash for replacement of an asset. Depreciation is not a measure of maintenance and renewal requirements. For projections of cash required to sustain service levels, a long term asset management plan is required to define service levels and asset replacement/renewal needs.

Councils that have chosen not to depreciate earthworks or the gravel surface on gravel roads, and have excluded them from current replacement cost calculations should make that policy decision and the reasons clear in the financial reports. As a guide, it is recommended that where they are material, earthworks and the gravel surface are capitalised and depreciated at a rate that reflects the consumption of service potential of the asset. See section 4 for more detail on the suggested treatment of gravel roads and earthworks.

3.2.3 Factors That Affect Depreciation Rates

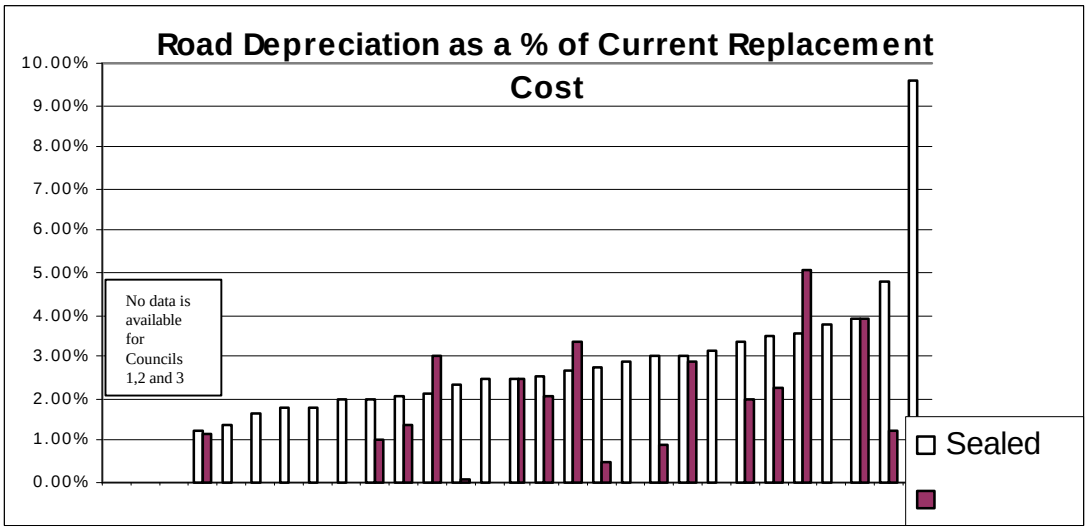
A range of factors such as those outlined in section 3.1.3 will cause variations in depreciation rates, however, it is estimated that no councils currently have the capacity and resources to measure the link between all factors and service potential consumption. Some councils are working towards this level of decision support and there are 2-3 councils that have a level of asset management practice that is at leadership level nationally.

Policy assumptions for asset depreciation are also variable. Some councils include earthworks with pavement depreciation and are likely to be significantly overstating depreciation charges, Depreciation charges for earthworks should only reflect an allowance for obsolescence and therefore be depreciated at a lower rate than the pavement or surface, except where the earthworks are replaced during pavement reconstruction. The same applies to Councils that do not separately depreciate the gravel surface to the underlying structure/earthworks and the cost of the gravel surface is material (see section 3.4.3). The gravel surface can be expected to have a much shorter economic life than the underlying substructure. Some councils have data that supports this as can be seen on table 3.1.3, however the sample in Tasmania is currently too small to be conclusive. The important factor is consistency of policy and if resealing and/or resheeting are treated as capital, they should be separately depreciated. Graphs 3.3.4 and 3.3.5 indicate that this currently is not always occurring in Tasmania.

3.2.4 Current Council Practice in Tasmania

Rates of depreciation have been analysed by measuring unit depreciation based on total current replacement cost and annual depreciation of road assets. This is shown in figure 3.2.1.

Figure 3.2.1 - Road Depreciation Rates as a % or Current Replacement Cost



It can be seen that the variation is higher for unsealed roads than for sealed roads, although both are significant when taking into account the relatively high values of roads compared with other assets. When analysing the tables of councils in appendix 6.2 it can be seen that the variations in depreciation rates can not be easily explained by individual factors such as geography, scale (network length) or topography.

3.3 Methods of Depreciation

3.3.1 Purpose

The purpose of this section is to examine the methods councils are using to calculate depreciation and the likely accuracy and applicability of the results.

3.3.2 Policy Guide

"The method of calculating the depreciation charge of a particular asset is based on the method used to determine the useful life and the expectation of how service potential is likely to be used up. There are a number of methods currently used to determine the depreciation charge, each of which attempts to accurately apportion the cost of using the service potential of an asset to the appropriate period." [3]

The suggested objective for road is to determine a methodology that:

1. best approximates and reports on consumption of service potential
2. is not prohibitively complex and/or costly to calculate
3. produces consistent and reproducible results.

The first task is to determine "the asset". In the case of steel and concrete bridges this is almost always the bridge as an integral unit. In the case of timber bridges, approximately 50% of Councils (based on a sample of 18) have separate economic lives for the timber deck and structure and are likely to treat the deck and structure as separate assets for the purpose of depreciation. Disaggregation of roads is discussed in section 3.3.4.

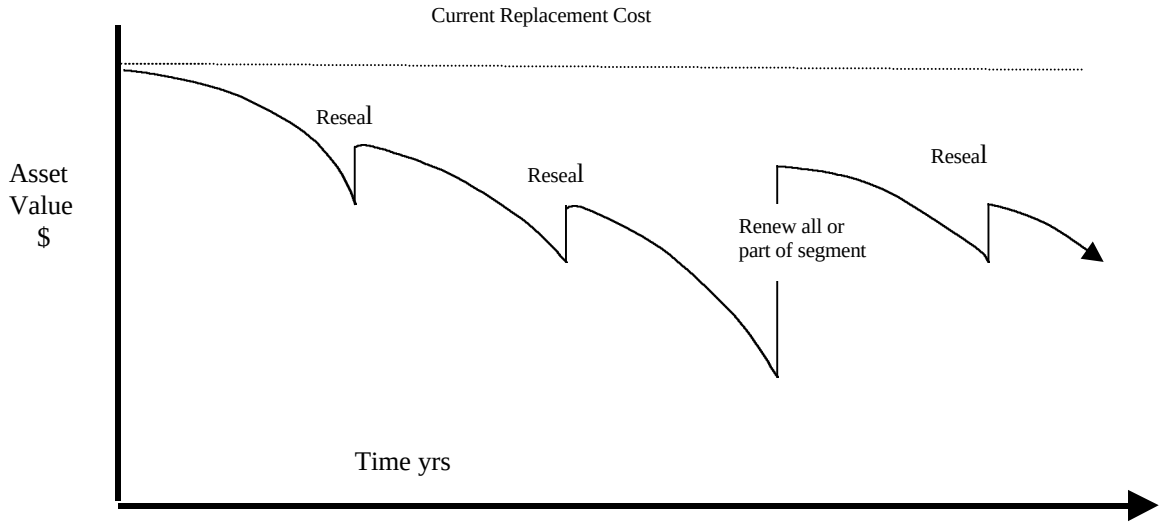
3.3.3 Factors That Affect Depreciation Method

The methodology most suitable for each council is a function of:

1. the variability of the assets within the network
2. the deterioration profile of the asset, i.e. straight line or curved
3. the age distribution of assets in the network i.e. is a large proportion of the network in the initial or final 25% of useful life?
4. the accuracy and detail of available data including the level of disaggregation of the road network.
5. the level of technical expertise used in analysis
6. the potential variability of remaining life, i.e. is the past history of the network not valid for future extrapolation because of future changes to traffic, adverse climate, maintenance and renewal policy or service level policy.

The actual consumption of service potential and economic life of the road seal and pavement within the segment can vary over time as represented by figure 3.3.0. Maintenance and renewal treatments have a significant impact on economic life and hence, depreciation rates. Figure 3.3.0 is only a representation and the true deterioration profile will become clearer in the future when councils have a number of years of road data.

Figure 3.3.0 Representation of the service potential of a road segment over time.



3.3.4 Current Council Practice in Tasmania

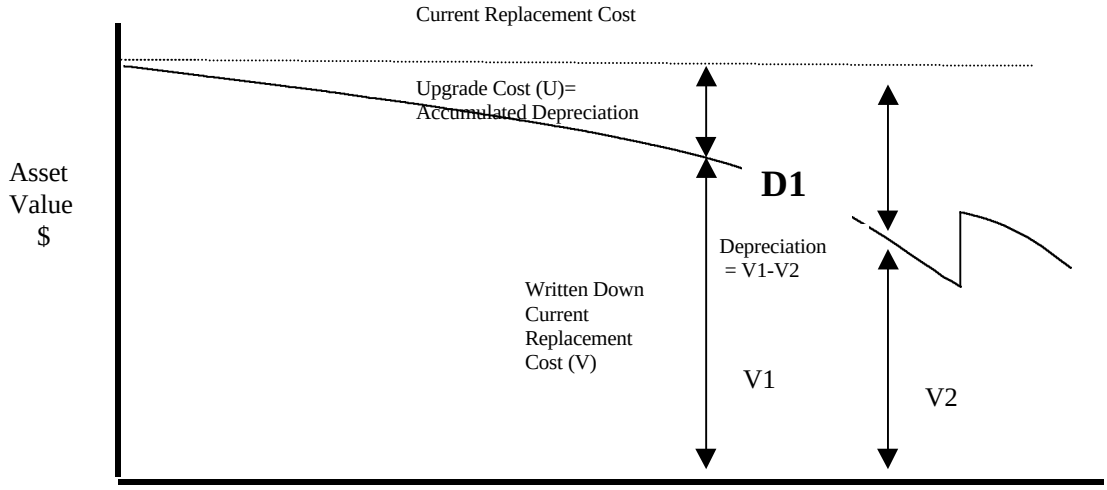
The study found that there were two methods used to determine remaining life and depreciation. These are the methods set out in 3.3.4.2 and 3.3.4.3. Many councils had some difficulty matching the definitions in the survey form with the method they used and individual council methodology data has not been used to draw conclusions.

The definitions set out in the study were:

3.3.4.1 U=Upgrade (U); calculates the written down value by subtracting the cost of upgrading the asset to new from the current replacement value of the asset.

Depreciation is the difference between successive revaluations. This method is independent of age, economic life and remaining useful life and only analyses current condition and the upgrade cost from current condition. The upgrade cost becomes, in effect, the accumulated depreciation. No council in Tasmania currently uses this method. It has been included here because it is potentially one of the most accurate methodologies since it ignores age and remaining life, two or the most variable and possibly largest sources of error. Its difficulty for many is that it requires an annual revaluation to determine the "depreciation" rate. It also requires sufficiently sophisticated analysis to determine what treatment will bring each segment to "new".

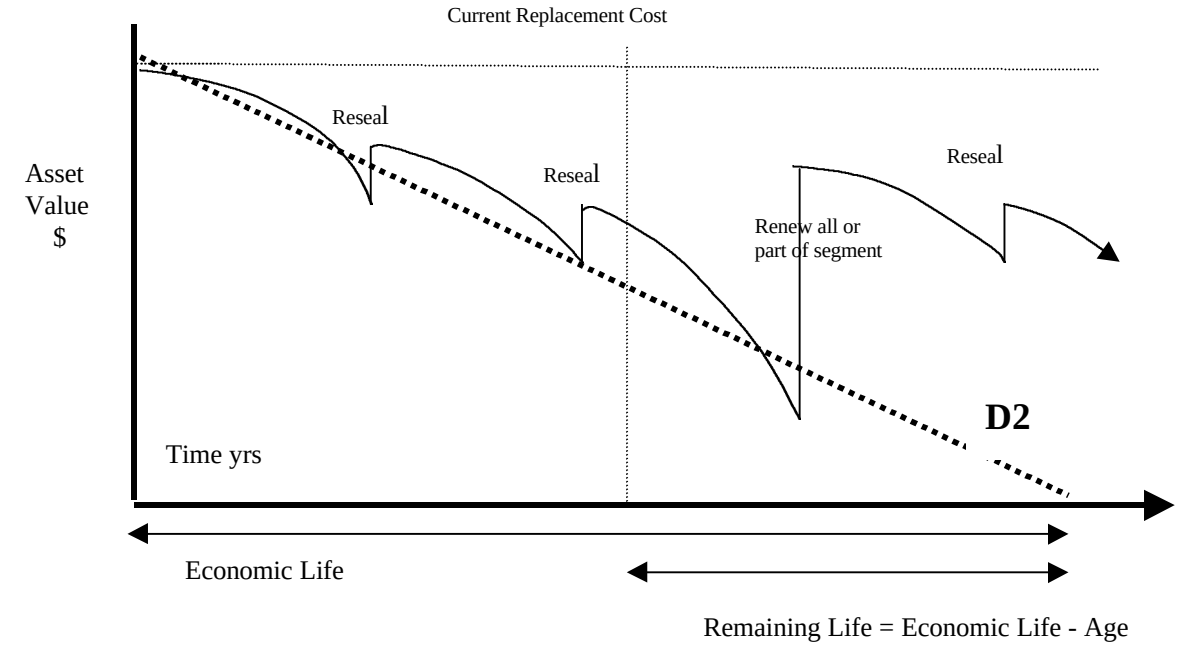
Figure 3.3.4.1 – "U" or Upgrade Method. (Deterioration curve/line is for a single asset/road segment) – D1 = depreciation



3.3.4.2 **R**=Remaining Life (R); calculates the remaining life and written down value by subtracting asset age from total economic life.

Depreciation is a fixed percentage based on dividing current replacement cost by economic life. A better term for this method may be **"Economic Life"** since this method does not actually make a direct assessment of remaining life based on the variables outlined in section 3.1.
The accuracy of depreciation using this method is dependent on the degree of disaggregation, accuracy of age data and the estimation of the economic life of the segment. Anecdotal experience throughout Australia is that age and economic life are subject to an error of at least +/- 20%. A practice that should be avoided when using this method is to use a single economic life for an entire asset class. If there is a high degree of variability within the asset class, the accuracy of the results by this method becomes indeterminable. If this method is used, it is recommended that the economic life estimate is regularly assessed (at least 5 yearly) for each segment and careful assessment is made of variations and the reasons for variations between similar councils.

Figure 3.3.4.2 – "R" or Economic Life Method. (Deterioration curve/line is for a single asset/road segment)



3.3.4.3 C=Condition (C); Depreciation is calculated by dividing the written down value (V3 on figure 3.3.4.3) by the estimate of the assets' remaining life (RL3).

An important characteristic of this method is that an actual assessment of remaining life and written down cost is made taking into account condition and/or some or all of the factors listed in section 3.1.

Figure 3.3.4.3 – "C" Condition/Remaining Life Method. (Deterioration curve/line is for a single asset/road segment)

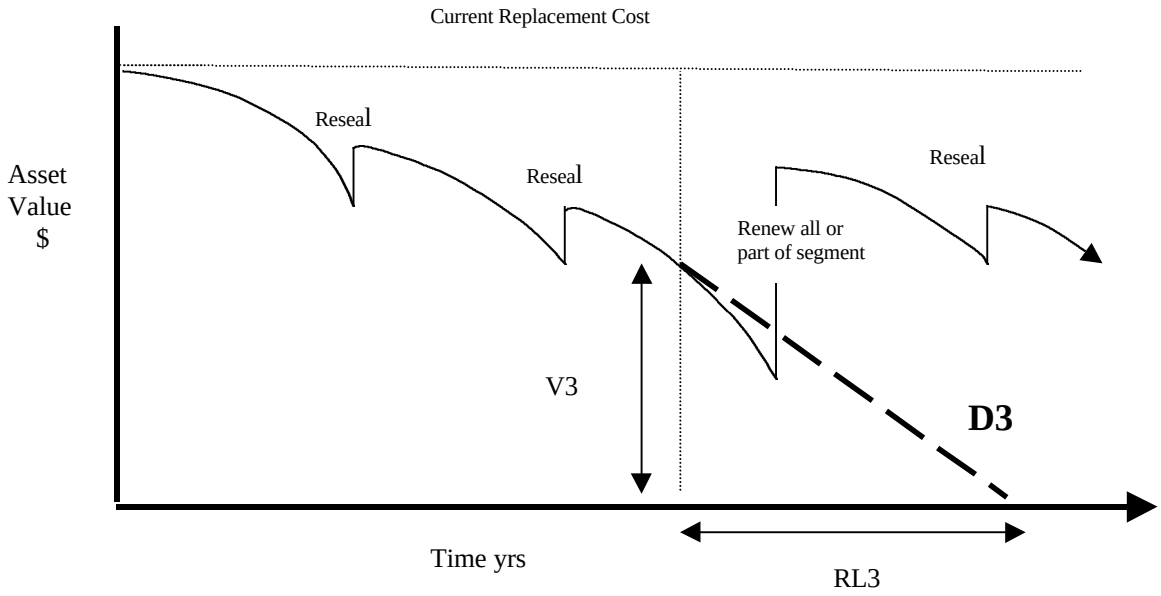


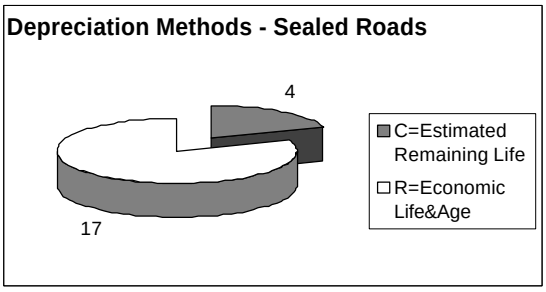
Figure 3.3.4.3 shows that the depreciation rate can vary during the life of a road asset. The methodology takes into account some or all of the variables that can affect the remaining life of the asset (road segment)

3.3.4.4 H=(H); uses historic values at cost written down annually by a fixed percentage regardless of actual deterioration.

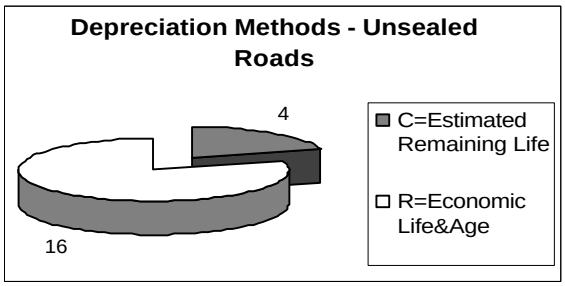
This method does not assess remaining useful life but may reassess the economic life. This method is likely to understate the value and depreciation of transport assets that are greater than 10 – 20 years old. This method is not used by any of the councils in Tasmania.

The graphs below show the distributions of the two methods used amongst councils that completed this section of the survey (21).

Graph 3.3.4.1



Graph 3.3.4.2



This shows that most councils are applying economic life and age to determine depreciation and makes the accuracy of economic life estimates critical.

3.4 Recognition Thresholds

3.4.1 Purpose

The purpose of this section is to examine current practice and policy framework for the initial recognition of road assets and treatment of subsequent transactions.

3.4.2 Definition and Recognition of Assets

Statement of Accounting Concepts, SAC 4, defines what should be recognised as an asset.

"Assets are service potential of future economic benefits controlled by the reporting entity as a result of past transactions and other past events." (para 12) [5]

The recognition criteria are that assets be recognised when:

"(a) it is probable that the service potential or future economic benefits embodied in the asset will eventuate and

(b) the asset possesses a cost or other value that can be measured reliably." (para 36)[5]

Statements of Accounting Concepts SAC3 defines reliability as:

"…that quality of financial information which exists when that information can be depended upon to represent faithfully, and without bias or undue error, the transactions or events that either it purports to represent or could be reasonable be expected to represent" (para 5)[6]

3.4.3 Materiality

Australian Standard AAS5 sets out the application of the concept of materiality.

Information is material is its omission, non-disclosure or misstatement has the potential to adversely affect:

(a) decisions about the allocation of scarce resources made by users of the local government's general purpose financial report; or

(b) the discharge of accountability by the governing body of the local government (AAS 27 para 10) [7},[8],[9]

Throughout Australia there is a division of opinion as to whether resealing and resheeting costs are material and therefore should be capitalised. The current NSW asset accounting manual for example states "unless council considers it material, all resealing and resheeting costs should be expensed as a period cost (maintenance expense)" [7]. This reversed the initial version that suggested that resealing and resheeting work constitutes capital. The change was made in response to submissions by local government practitioners. Whilst the Asset Accounting Manuals in Victoria and South Australia suggest that resealing and resheeting work constitute capital, actual practice varies between councils.

Some of the main arguments for capitalisation of resealing and resheeting are that:

1. the difference in useful life between the surface (typically 15 to 20 years) and the pavement (typically 40 to 80+ years) and ,

2. a reseal/gravel resurface extends the service potential of the road asset.

Some of the main arguments for treating a reseal and gravel resurface as maintenance are that:

1. the surface is an integral part of the road in the same way that the roof is an integral part of a building.

2. the economic life assumptions for the road pavement are based on the regular replacement (maintenance) of the surface. If this regular resurfacing is not carried out the economic life for the road pavement will not be achieved.

The suggested approach in Tasmania is to apply the principles set out in sections 3.4.2 and 3.4.3 and judge whether the seal/gravel surface is material and, when considered in the context of the economic life used, a reseal/resheet would extend the economic life used for the road asset. Generally, the shorter the pavement economic life, the stronger the argument for capitalising the surface because resurfacing becomes more likely to extend the economic life of the pavement.

3.4.4 Disaggregation of Assets

The factors influencing asset disaggregation are determined by the need to satisfy management and financial information requirements and providing the necessary information about renewal, replacement, useful lives and disposal of assets.

Generally, the greater the disaggregation, the greater the accuracy. A minimum requirement is to separate the road network into (relatively) homogenous segments so a representative useful life and remaining life can be determined.

The level of disaggregation will vary for each council and depends on factors such as:

- Variability of assets within a class
- Extent of infrastructure deterioration
- Risks posed by deteriorating infrastructure
- The benefit cost ratio to council of asset management information
- The cost penalty of later duplication of data collection
- The ability to keep the information up to date (if additional detail is collected)
- Initial capture costs and available funding
- Skills and resources available

- Senior Management commitment

The road asset network should be subdivided into homogenous sections or segments. Each segment can then be treated as a separate asset and economic life, remaining life, current replacement cost, written down value and depreciation calculated for the asset.

In urban areas it is recommended that segment definitions remain fixed to enable linking road segments with other systems such as Geographic Information Systems, Financial Systems and Customer Service Request Systems. A common delimiter in urban areas is intersection to intersection.

In rural areas, segment definition requires more judgment because of the distance between intersections and simplicity of management must be balanced with the need to have homogenous sections. It should be recognised that even with high levels of segmentation, local road sections can still be (and usually are) variable within the segment. Representative sections are one way of measurement of segment attributes such as remaining life and condition.

3.4.5 The distinction Between Capital and Maintenance Expenditure

This is a practical issue for all councils throughout Australia. As with materiality, there are conflicting views on what expenditure should be classified as capital or maintenance. As a general guide, expenditure is capital in nature where:

1. it will significantly increase the remaining and or economic life that has been used to calculate asset values and depreciation

2. it significantly enhances or upgrades the service provided by the original asset

3. it is material to the asset category (see section 3.4.3)

4. it is the reconstruction or renewal or an existing asset. in this case the remaining value of the asset in the asset register must be written off.

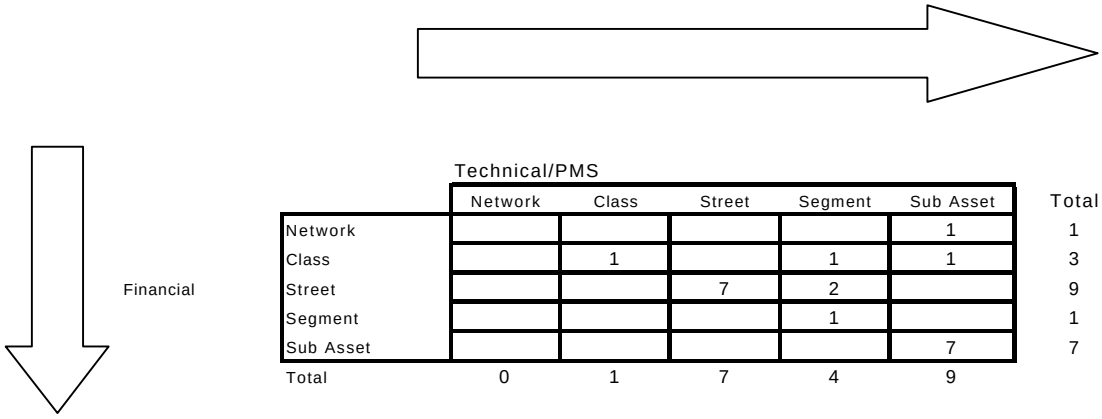
3.4.6 Current Council Practice in Tasmania

One of the recurring issues encountered during site visits and data collection was a difficulty in establishing unambiguous definitions of asset recognition and subsequent transactions for assets.

The accuracy of the depreciation could be expected to improve with increasing detail of analysis. One of the factors is the level of disaggregation of the road network, since the road network consists of many assets, all with different economic and remaining lives. For roads, the subdivision of the road network by Tasmanian councils varies as shown in tables 3.4.T1 and 3.4.T2.

Table 3.4.T1 Asset Data Detail (Disaggregation) for Technical and Financial Systems (number of councils in each category) – Sealed Roads

Improving Detail



Financial

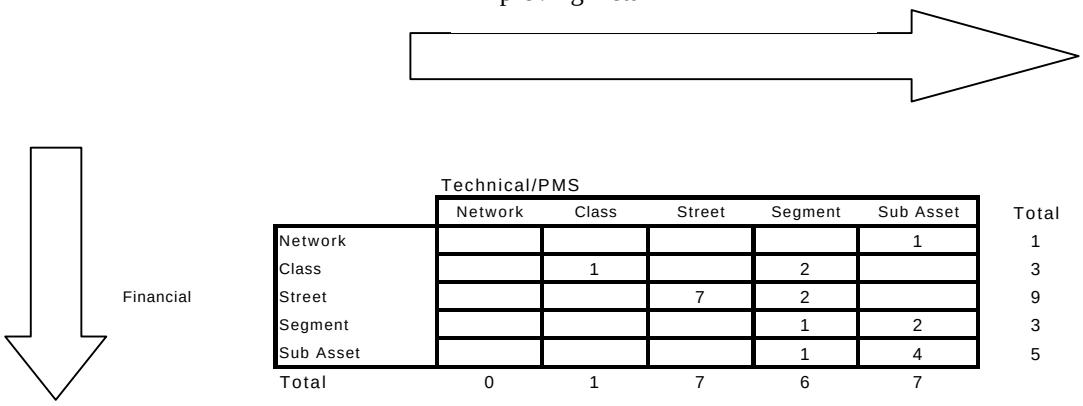
	Technical/PMS					
	Network	Class	Street	Segment	Sub Asset	Total
Network					1	1
Class		1		1	1	3
Street			7	2		9
Segment				1		1
Sub Asset					7	7
Total	0	1	7	4	9	

Improving Detail

In the above table, provided one of the asset systems (financial or technical) has a higher level of detail, the council can be deemed to have that level of detail. Usually technical systems have higher level of detail, however, a number of councils have a combined (financial/technical) system. The difference between financial and technical systems is detailed in section 4.5.

Table 3.4.T2 Asset Data Detail for Technical and Financial Systems (number of councils in each category) – Unsealed Roads

Improving Detail



Financial

	Technical/PMS					
	Network	Class	Street	Segment	Sub Asset	Total
Network					1	1
Class		1		2		3
Street			7	2		9
Segment				1	2	3
Sub Asset				1	4	5
Total	0	1	7	6	7	

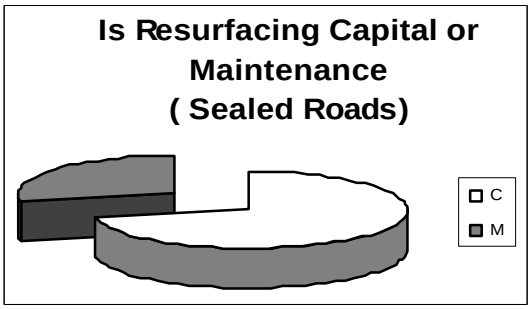
Improving Detail

The variation in asset recognition policy can further be illustrated in the following graphs showing the variation for separately depreciating the road surface.

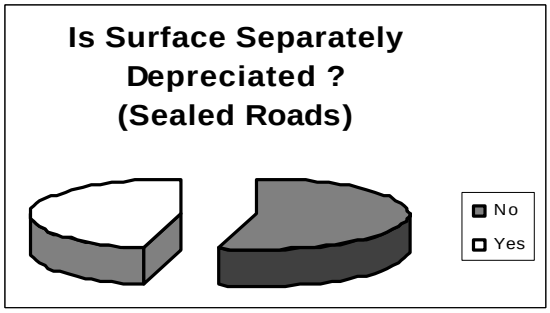
Note that if the resurfacing is treated as a capital transaction ("C" in 3.4.1), it should follow that the surface is also separately depreciated ("Yes" in 3.4.2), where the surface has a different economic life from the pavement.

The graphs below indicate that this is not the case for some councils,

Graph 3.4.1



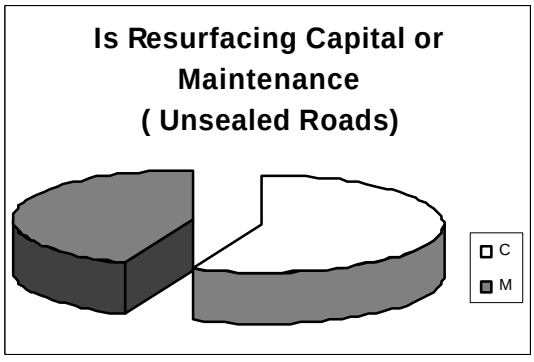
Graph 3.4.2



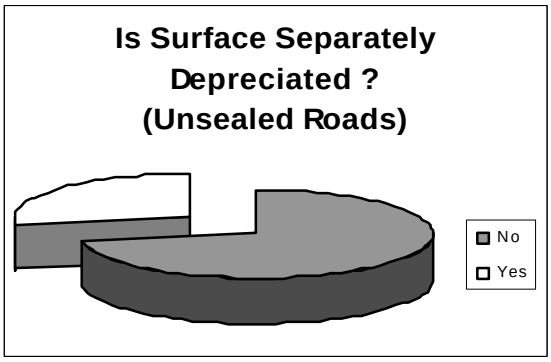
C=Capital M=Maintenance

For sealed roads, 6 councils indicated in their survey response that they capitalised road reseals but did not separately depreciate the road surface.

Graph 3.4.3



Graph 3.4.4



C=Capital M=Maintenance

3.5 Valuation Methods

3.5.1 Purpose

The purpose of this section is to examine the methods councils are using to calculate asset values and the likely accuracy and applicability of the results.

3.5.2 Policy Guide

Councils must use the current cost for the initial capitalisation of road assets. SAP1 states that the "current cost" in relation to an asset, means its cost measured by reference to the lowest costs at which the gross "service potential" of the asset could currently be obtained in the normal course of business (SAP1, para 49c) [10]

"Service potential" means the total benefit expected to be derived form the asset and the "gross service potential" is the total benefit expected to be derived when the asset was first acquired and also the benefit from any subsequent upgrading.

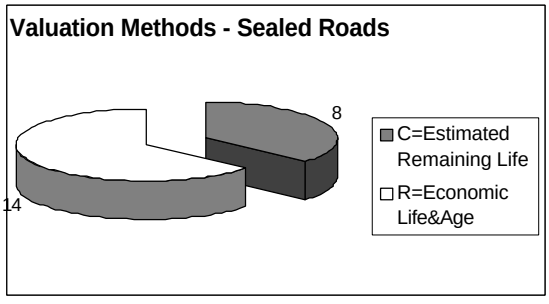
"Written down current cost," means the current cost less accumulated depreciation to reflect the already consumed or expired service potential of the asset (SAP1 para49f) [10]

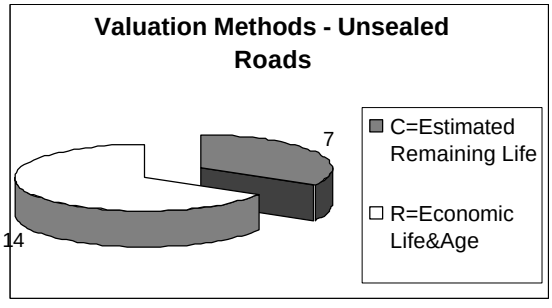
3.5.3 Current Council Practice in Tasmania

Current practice is that councils are using the same two methods that are used for depreciation calculations as set out in section 3.3. Both valuation methods and the resulting gross and unit values were analysed.

Table 3.5.1 Valuation Methods Used by Tasmanian Councils (number using each method)

The descriptions of the methods for "R" and "C" in table 3.5.1are set out in sections 3.3.4.2 and 3.3.4.3.



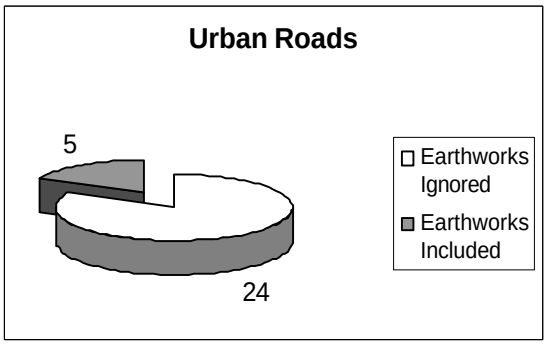


External review of valuation rates is rare other than smaller or isolated councils who use external consultants to provide all engineering services including asset valuations. External review of valuation rates is an important issue and a potential mechanism to ensure more consistency of methodology.

One of the issues that requires attention is the treatment of earthworks valuation.

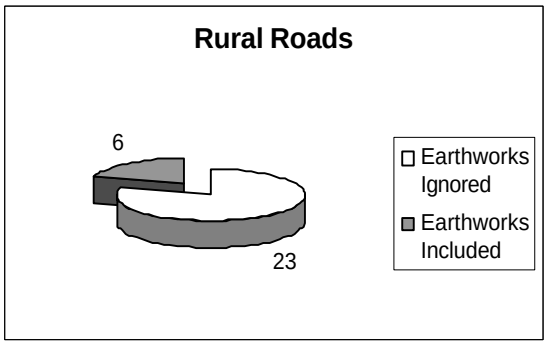
Examples of variations in road valuation policy with respect to earthworks are shown below:

Graph 3.5.2



Number of Councils

Graph 3.5.3



Number of Councils

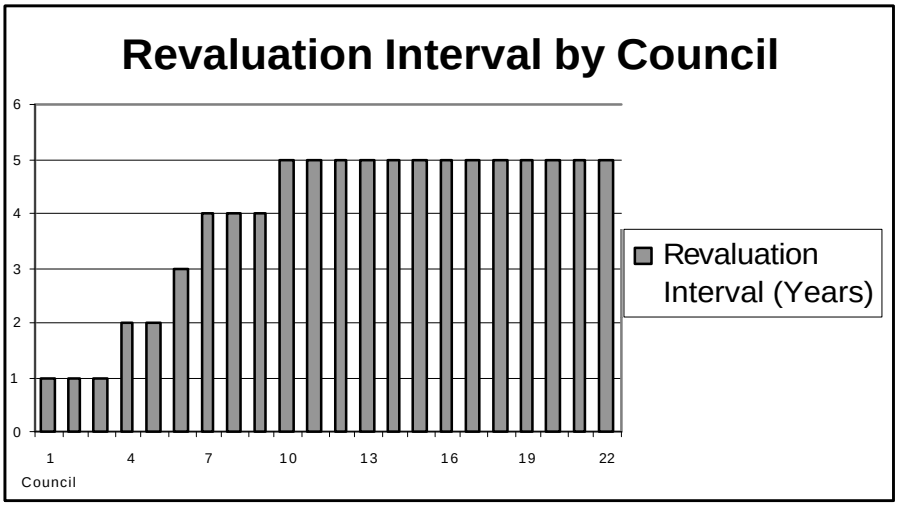
3.5.4 Frequency of Revaluations

The frequency of revaluations is a separate issue to the frequency of reassessment of asset condition or remaining life. For example, an annual revaluation does not necessarily require annual re-inspection of the complete network provided that:

- the asset register is updated for all assets that have been maintained, upgraded or renewed and
- the deterioration profile determined at the last inspection remains valid for all other assets.

The decision on the frequency of revaluations should be based on management reporting requirements. The graph below shows the variation in the frequency of road revaluations. It indicates that 13 out of 22 councils are planning 5 yearly revaluations, 9 out or 22 plan to revalue more frequently with 3 Councils planning annual revaluations.

Graph 3.5.4 Revaluation Intervals Used by Tasmanian Councils for Roads



Shorter periods between revaluations allow more frequent re-assessment on the key variables such as remaining life and economic life.

One way to measure the results of valuation practice for roads is to calculate the unit replacement cost form councils' financial reports. Table 3.5.5 shows the reported road current replacement cost ($'000's) divided by the road length (km). The variations that can be seen in the table are a result of factors such as:

1. varying practice and methodology for valuation calculation

2. varying assumptions and calculations for economic and remaining life

3. variation in practice for the inclusion/exclusion of road sub assets with road values. examples are earthworks, kerb and channel, footpaths, street furniture and landscaping. it is estimated that this accounts for some of the larger variations.

Table 3.5.5 Unit Replacement Value of Roads based on Financial Report

	Unit Rates ($'000/km)		
Council	Sealed	Unsealed	Total
Break O Day	239		77
Brighton	336	141	285
Burnie	279	201	323
Central Coast	169	61	176
Central Highlands	509		59
Circular Head	107	25	56
Clarence	231	71	296
Derwent Valley	115		35
Devonport	249	162	441
Dorset	185		56
Flinders	208	113	132
George Town	140	199	167
Glamorgan - Spring Bay			
Glenorchy	405	297	398
Hobart	556	507	707
Huon Valley			
Kentish	96		46
King Island	814		100
Kingborough	405	110	245
Latrobe	143		81
Launceston	637	54	467
Meander Valley	106	40	92
Northern Midlands	142	35	98
Sorell	186	86	112
Southern Midlands	209	78	106
Tasman	246	129	155
Waratah - Wynyard	140	53	112
West Coast	337		159
West Tamar	157	60	115

3.6	Condition Assessment Methods

3.6.1 Purpose

The purpose of this section is to examine current practice for condition assessment.

3.6.2 Policy Guide

In the past, assets that were capitalised were usually operating assets where condition assessment was not a significant factor in the determination of asset values and asset capitalisation.

For operating assets such as motor vehicles the exercise was simply to bring the asset to account at its new or purchase price. Straight-line depreciation is then applied over the theoretical design life of the asset. This approach can lead to significant errors if used for existing infrastructure assets where the life of the asset is unknown and the remaining life of the asset is estimated without taking into account the factors in section 3.1.3.

The link between asset condition and the maintenance regime makes regular evaluation of asset condition essential. Regular assessment of asset condition will enable a profile of asset deterioration to be developed. It will also enable assessments to be made of the costs to reinstate assets to a specified level of service. Such information is vital for planning purposes when assessing future risks and liabilities associated with the asset.

While this approach is satisfactory as an initial step, it may be that the level of accuracy needs to be carefully monitored. The key objectives when determining a methodology for condition assessment is that it is:

- reproducible.
- easily audited
- representative of the condition of the asset at the time of survey.
- minimises the time and cost associated with data entry.

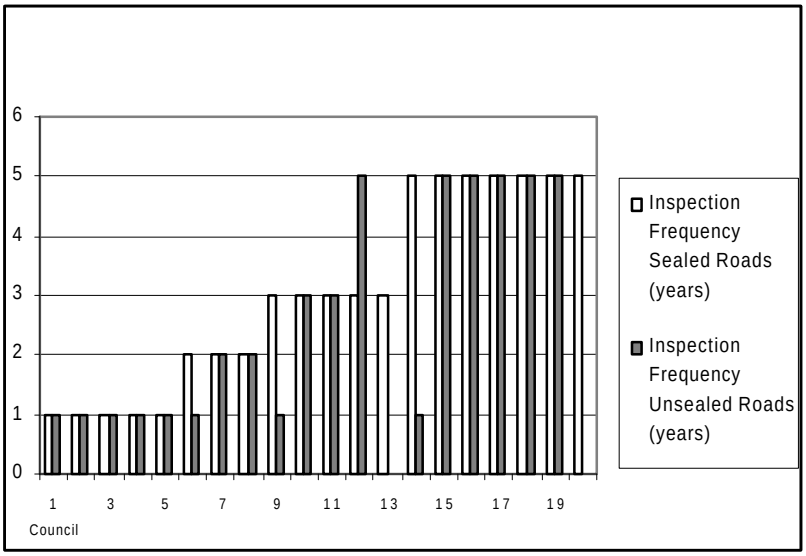
Some estimate of order of accuracy should be reported and a sensitivity analysis needs to be completed. This should be taken into account and reported when disclosing asset values in the balance sheets.

The condition assessment phase of an asset management programme is the most important variable for risk management analysis of an asset. The ability for asset management systems to monitor the condition of an asset over time is vital. Management information is needed to monitor appropriate and optimum levels of maintenance expenditure. This allows prediction of the effects of various levels of maintenance expenditure and maintenance strategies on the long term life and behavior of the asset.

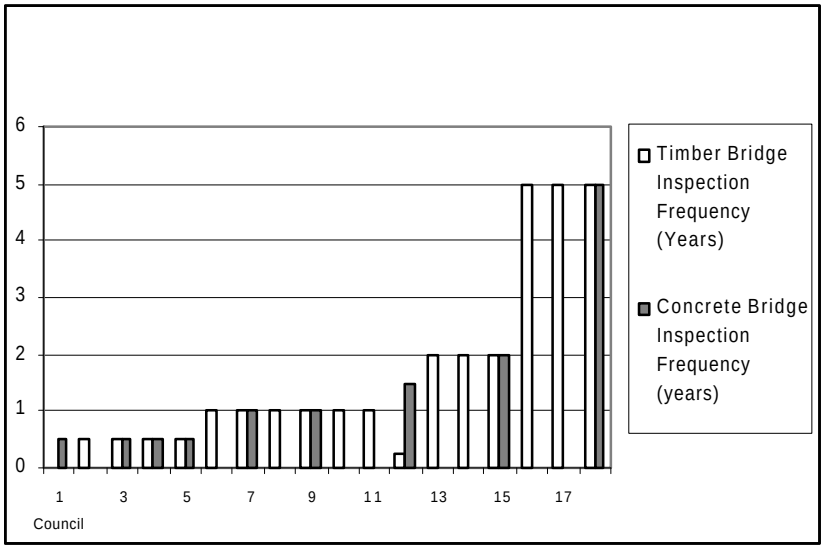
3.6.3 Current Council Practice in Tasmania

The frequency of condition assessment is a measure of the quality of road data. This condition assessment process can be incorporated into a programme of inspections as maintenance and renewal work is done on assets. In accordance with the recommendation of 5 yearly maximum revaluation intervals, 5 yearly inspection of roads can occur where there is no maintenance or renewal work on the road segment during the 5-year period.

Graph 3.6.1 Asset Inspection Frequency for Road Assets - Tasmanian Councils



Graph 3.6.2 Asset Inspection Frequency for Bridge Assets - Tasmanian Councils



3.7 Comparison of Life Cycle Cost and Expenditure

3.7.1 Purpose

The purpose of this section is to compare councils estimated life cycle cost to retain assets in current overall condition with the actual expenditure in 1996/97.

3.7.2 Results

The results are based on preliminary data because this work was outside the scope of the study and further work is recommended to carry out a more detailed analysis. It is suspected that councils that did not complete this section of the database may be in a worse position that those councils represented here.

The graphs below show the ratio between the expenditure required as measured by councils' estimates of life cycle cost and actual expenditure in 1996/97. For both graphs, –50% on the "y axis" means that expenditure is 50% less than necessary to retain current asset stock. For Figure 3.7.1, even if all current expenditure on existing and new assets was spent on maintenance and renewal of the existing road asset stock, expenditure is still 50% less than what is required (as determined by life cycle cost).

Figure 3.7.1 Total Asset Expenditure Ratio (Maintenance, Renewal and New Assets)

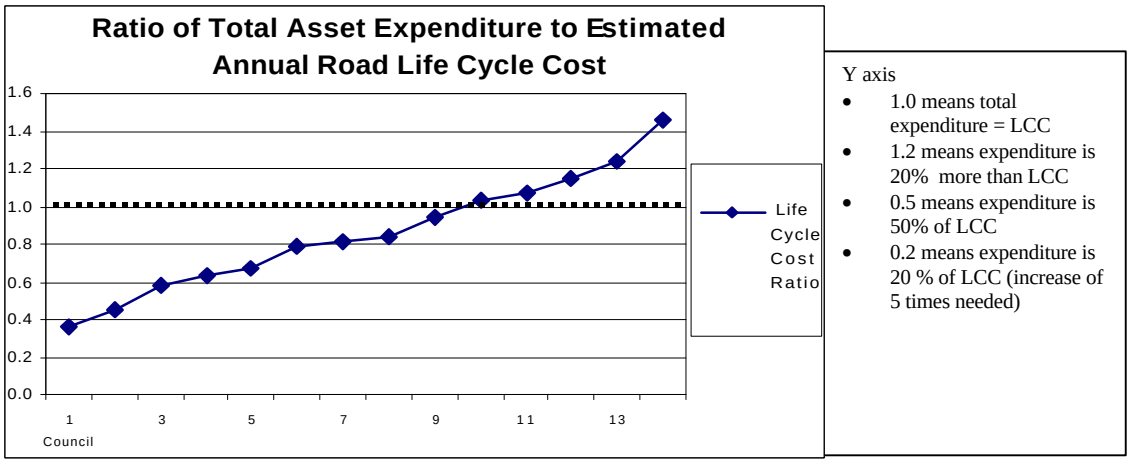
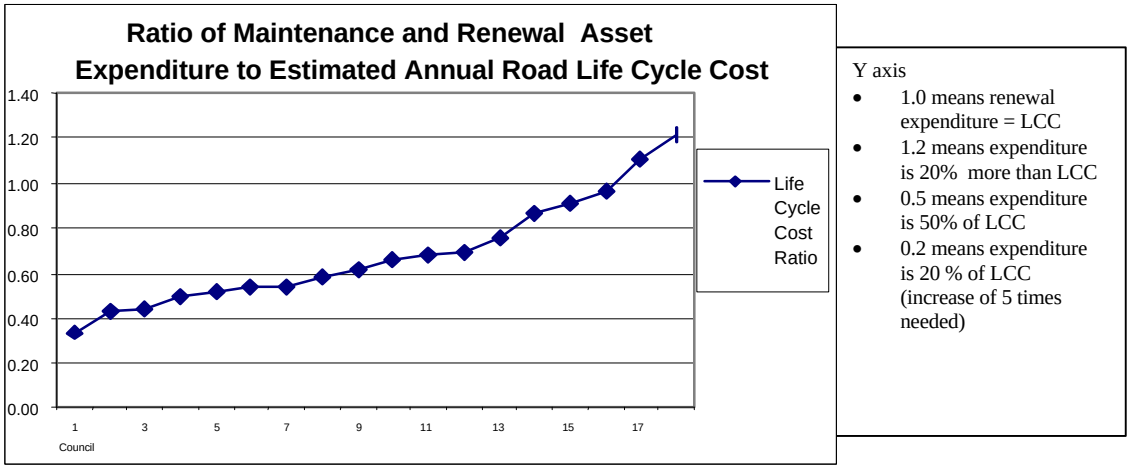


Figure 3.7.2 Total Asset Expenditure Ratio (Maintenance and Renewal)



4 GUIDELINES FOR SYSTEMS AND PROCEDURES

This section is in two parts. The first provides some indicators for financial reporting reliability for key areas of inconsistency found in the study. The second part provides some guidelines for "problem areas" identified in the report.

4.1 Indicators for Financial Reporting Reliability

The report recommends that councils document and explain methodology, accuracy and assumptions pertaining to the calculation of asset valuation and depreciation. This was seen to be preferable to adopting uniform standards for variables such as economic life. The current variability of local roads and local road data would indicate that a standardised approach is unlikely to be more accurate and relevant to improved management than local assessment and analysis, and may be much worse. If a council is outside any "industry norms" that may be inferred from the accompanying data, the meaning ascribed to the variation should be interpreted with professional judgment. It may mean the values in the financial reports are potentially misleading.

Councils with many of the following attributes or practices (indicators) are less likely to have seriously misleading asset values and depreciation charges than councils that have few or none of these indicators. In cases where serious doubt exists as to whether the financial statements are misleading, an independent technical assessment may be warranted.

Some of the indicators of reliable road asset values are:

1. Does the council have a written policy for the initial capitalisation of assets and the subsequent consistent treatment of asset related transactions.

2. Has an experienced professional appropriately qualified to assess and value local roads carried out the determination of road remaining life, economic life and/or condition?

3. Has the road network been subdivided into homogenous sections or segments and attributes of each segment assessed? Attributes used for valuation and depreciation include length, area, pavement and seal type, age, condition, and estimate of remaining life.

4. Are individual segment values and depreciation charges assessed?

5. Does the council have a documented system or process for collecting segment attributes that can demonstrate consistent and reproducible results?

6. What is the accuracy and reliability of non-reproducible data such as age (if age is used in the councils methodology) or economic life?

7. Is an engineering estimate being used for remaining economic life (with or without a pavement management system)?

8. Does the council use and maintain and use a pavement management system for managing road information?

4.2 Capitalisation of Earthworks[4]

The capitalisation and depreciation of earthworks is a matter for individual judgment. Whilst there is an arguable case for initial capitalisation, the depreciation of earthworks must be dealt with carefully or the total road depreciation charge will be overstated. This is an issue primarily for rural roads or urban roads in steep terrain. If earthworks values are included in financial reports, it is recommended that the value be separately depreciated. Depreciating earthworks at the same rate as the pavement is likely to overstate depreciation charges unless the earthworks are actually replaced with the pavement.

The depreciation charges for earthworks should reflect actual estimates of economic life or an allowance for obsolescence. Councils that have chosen not to depreciate earthworks (or have excluded them from current replacement cost calculations should make that policy decision and the reasons clear in the financial reports.

As a general guide, it is recommended that earthworks be capitalised and separately depreciated in a manner that reflects actual consumption of service potential, accompanied by a note in the financial report indicating the policy and accounting treatment used.

4.3 Financial Transactions Relating to Road Assets

A written policy should be set which defines when expenditure is capital or maintenance Suggested distinctions are set out in the following table:

Maintenance	Expenditure on an asset which **maintains the asset in use** but does not increase its service potential or life, e.g. repairing a pothole in a road, repairing the decking on a timber bridge, repair work to prevent early failure of an asset or a portion of an infrastructure network.
Capital Renewal	Expenditure on **renewing an existing asset or a portion of an infrastructure network** which increases the service potential or extends the life, e.g. renewing a section of a road
Capital Expansion	Expenditure on **extending an infrastructure network, at the same standard currently enjoyed by existing residents**, to a new group of users, e.g. extending a road network
Capital Upgrade	Expenditure on **upgrading the standard of an existing asset or infrastructure network to provide a higher level of service to users**, e.g. widening the pavement and sealed area of an existing road, replacing an existing bridge with one having a greater carrying capacity.

[4] Earthworks are defined as the formation under but not including the road pavement. Earthworks include cut and fill operations for rural and undulating urban areas. Trim and compact operations in flat urban areas would normally be part of the pavement.

4.4 Accounting for Gravel Roads

As a general guide it is recommended that the gravel surface and underlying formation be separately valued and depreciated.

The guide in section 3.1 on economic life applies to gravel roads as for all road assets. The economic life for the gravel surface is the average frequency of the replacement of the gravel surface on a segment by segment basis.

If surfacing of gravel roads has been separately capitalised, subsequent replacement of the gravel surface should be treated as a capital transaction. This includes any work that materially extends the service potential of the asset. Similarly, if the gravel surface has not been separately capitalised, any subsequent work should be expensed.

If the gravel surface has not been separately capitalised and resheeting of gravel roads is treated as maintenance, there should be supporting information to demonstrate that the service potential of the asset is being maintained by appropriate maintenance expenditure and that the gravel surface is not material (see section 3.4.3)

4.5 Information Systems for Assets

A distinction is made between an asset register and an asset database, noting that number of councils have a single system that carries out both functions. The two have different purposes, custodians and underlying business rules. It is when the differences and strengths of the two are understood that financial reporting becomes a powerful decision support tool.

One of the current experiences in best practice organisations is that the needs of financial and operational managers of assets are different. This difference comes from the different constraints and types of decisions that are made in the financial and operational environment, even where the functions are carried out using a single software system.

It is useful to understand the distinction between the asset register and the asset database to ensure that audit trail of asset transactions is not compromised. Changes to an asset register are subject to strict procedures to ensure capital transactions are captured and recorded against the asset. The sum of capital transactions must balance with the change in asset value, after depreciation, acquisitions and disposals have been taken into account.

Reconstruction of an asset requires that the remaining value in the asset register is adjusted and the capital cost brought to account. Transactions to an asset database are not usually subject to these rules as they are usually developed as technical management tools.

Changes to asset database attributes such as condition, dimensions and construction costs are often made with no audit trail. These changes affect asset value but it is unlikely that the new values calculated in asset databases balance with capital transactions captured through the general ledger.

4.5.1 Asset Registers

The asset register records these details for assets that are "material" or significant to the delivery of service or financial reporting of the asset. The asset register must comply with accounting standards on the treatment of financial transactions and changes are subject to audit trail. Movements in the asset register must be consistent with movements in the general ledger.

As a financial tool, an asset register provides information about:

- the service potential of the asset expressed in standardised financial reporting format.
- the value of individual assets and major components.
- the depreciation and the value of the asset class or "portfolio".
- financial transactions affecting the asset and in particular, capital transactions that affect the asset's value and service potential.
- physical details sufficient to identify the asset.

The asset register records these details for assets that are "material" or significant to the delivery of service or financial reporting of the asset. (section 3.4.3)

Financial decisions and asset register transactions tend to be controlled by accounting standards and codes defining the:

- treatment and reporting of transactions
- measurement and reporting of service potential,
- methodology for financial management reporting
- audit trail and accountability

One question that must be addressed by agencies is what level of detail should be held in the asset register and what level of detail should be held in the asset database.

Information should be readily accessible to answer questions like:

- What role does the asset play in delivering core services?
- What are the risks and liabilities associated with the asset?
- How can the maintenance costs for the asset be minimised without incurring unacceptable risk or loss?
- What are the interrelationships between assets and how can they be modified to improve customer service?
- Is the asset over or under utilised and why?

4.5.2 Asset Databases

An asset database is all information that relates to assets. The asset database usually consists of a number of diverse and often unrelated systems including systems for pavement management, risk management, service requests, works ordering, contract management, maintenance management, property and land management and construction plans and maintenance records.
An asset database is a dynamic record of assets and their attributes. This record is a management tool to enable council to measure and report service potential and deliver sustainable services to a council's customers at the lowest possible cost, whilst controlling exposure to risk and loss.

The asset database is the core of an asset management system and its purpose is to provide information for better decisions. Current service potential of assets reflects the quality of past

decisions, be they deliberate or made by default. The simplest form of asset database is a hard copy spreadsheet. More advanced asset databases integrate textual databases, technical modeling systems and spatial information management systems.

The asset database is the first step to answer the basic question, "what assets are in our custody and what decisions need to made about these assets?"
Asset databases have the following objectives:

- Support continuous improvement, innovation and accountability within the organisation.
- Provide accessible useful and well-maintained information for informed decisions.
- Support better decisions.
- Provide measurable benefits to agency customers.
- Provide the best possible benefit cost ratio.
- Fit within a consistent framework used by all agencies to enable the transfer of information between local government and government agencies and support a "whole of government" approach.

Operational and technical requirements relate to the construction, maintenance and the day to day operation of the asset. Operational decisions tend to be controlled by technical standards and codes defining:

- asset design,
- asset construction,
- asset maintenance,
- asset deterioration
- how to measure and control risks associated with asset failure

These standards and codes result in a large amount of data that form the most detailed level in the asset registration process.

This is also the environment where most asset inventory data is created and maintained. Data in asset databases changes continually as asset related transactions are carried out as a result of:

1. customer service requests
2. work carried out on the asset
3. changes to asset attributes

These transactions often do not comply with the strict transaction requirements that apply to asset registers. If audit trail exists at all, it is usually as a "historic layer" or "layers" of data.

The challenge for asset managers is that the data or attributes in an asset database only become useful information if data can be organised and viewed in a certain way. This "view" of the asset database could be different for every decision type. This presents difficulties for large asset databases. Many organisations are finding that the questions continually change and hence defining exactly what level of detail is required becomes a "moving target". This presents a major challenge to packaged software.

The determinant of level of detail becomes the quality of the organisation's questions and the capability of systems, technology and organisational structures to provide meaningful answers.

As a management tool for operational mangers, an asset database is subject to constant change and update. This results from the use of the asset and changes to the asset associated with construction and maintenance activities.

The way these changes occur in an operational environment is generally not regulated and depends on factors including:

- the information required by managers.
- the requirements and assumptions of proprietary software systems.
- the resources and skills available to initially capture information and then keep the asset register up to date.
- the technology available to managers.

Operational asset data used for technical modeling and facilities management usually contains far more detail than financial asset registers.

5.1 References

1. Statement of Accounting Concepts SAC2 *Objectives of General Purpose Financial Reporting*

2. Discussion Paper *17 "Financial Reporting of Infrastructure and Heritage Assets by Public Sector Entities"* TR Rowles AARF

3. Local Government Tasmania - *Accounting and Financial Management Manual –KPMG for IMM and IMEA – March 1993*

4. Australian Accounting Standard 4, AAS4 – *Depreciation of Non-Current Assets* AARF

5. Statement of Accounting Concepts SAC *4 Definition and Recognition of the Elements of Financial Statements.* AARF

6. Statement of Accounting Concepts SAC *3 Qualitative Characteristics of Financial Information.* AARF

7. NSW Asset Accounting Manual - NSW Department of Local Government

8. Australian Accounting Standard 5, AAS5, *Materiality* AARF

9. Australian Accounting Standard 27, AAS27, *Financial Reporting by Local Governments* AARF

10. –Statement of Accounting Practice 1, SAP1 *Current Cost Accounting*

5.2 Glossary of Terms

5.2.1 Definition of a road asset covered by this guide.

A road asset means transport related future economic benefits controlled by the entity as a result of past transactions or other past events (AAS 27, paragraph 12). Important but not essential characteristic of community assets are listed as follows:

- They yield their service potential economic benefits over long periods of time.
- They are public facilities or commonly owned by the community at large.
- Community assets provide social and commercial advantages
- Some infrastructure and heritage type assets provide services to the community at no direct cost to the consumers, or at less that full coverage.
- They are physically immovable e.g. drainage, water and sewerage systems roads and bridges etc.
- Some community assets are not salable or have no market value and some assets such as roads and drainage systems may have not other use other than the purpose for which they were created.
- They may have no determinable physical life.

5.2.2 Asset Economic Life (Roads)

It is recommended that where total asset life is used in the calculation of accumulated depreciation and annual depreciation, the economic life be used as the measure of total asset life. The economic life is defined as the actual (or estimated) period between the construction (or last renewal) of an asset and its subsequent renewal. The economic life is not the design life. The economic life takes into account local levels of service, acceptable risk, maintenance levels and local variables.

5.2.3 Control of an asset

Councils must capitalise all assets under their control. Control means the capacity of the entity to benefit from the asset in the pursuit of the entity's objectives and to deny or regulate the access of others to that benefit (SAC 4 paragraph 14).

5.2.4 Design Life

The period from the construction of the asset to the time when the asset, while it may be physically able to provide a service, requires refurbishment or reconstruction not allowed for in the initial technical design of the asset.

5.2.5 Culverts

Throughout Australia and within Tasmania, there is a range of definitions to delineate between a "minor culvert" and a "major culvert". The reason the distinction is important is that "major culverts" replace bridges and come within the bridge category. The primary criterion that should be applied is the requirements of the Tasmanian Grants Commission (TGC).

5.2.6 Level of Service

The definition of service quality for a particular activity or service area against which service performance can be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental acceptability and cost.

5.2.7 Pavement Management System (PMS)

A Pavement Management System is a technical modelling system developed specifically for managing road pavements.

5.2.8 Residual Value

The net market or recoverable value which would be realised from disposal of an asset or facility at the end of its life.

5.2.9 Service Potential

The remaining service potential at any point in the life of an asset, its ability to provide a service over and above a minimum acceptable standard below which the asset is deemed to have "failed".

5.2.10 Written Down Current Replacement Cost (WDCRC)

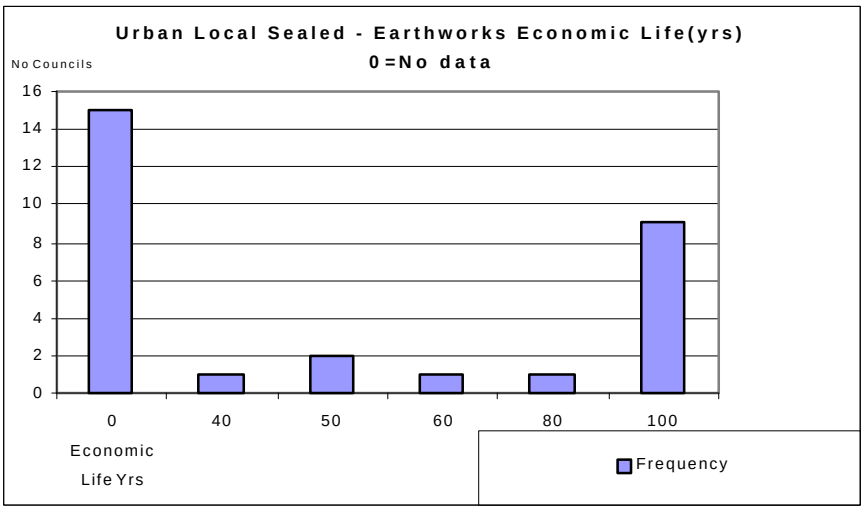
The WDCRC or "written down value" Is the current replacement cost less the accumulated depreciation.

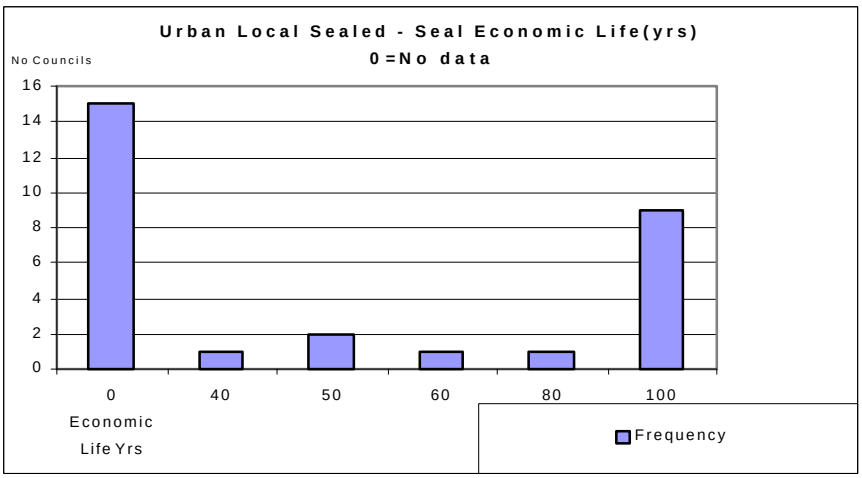
6 Appendices

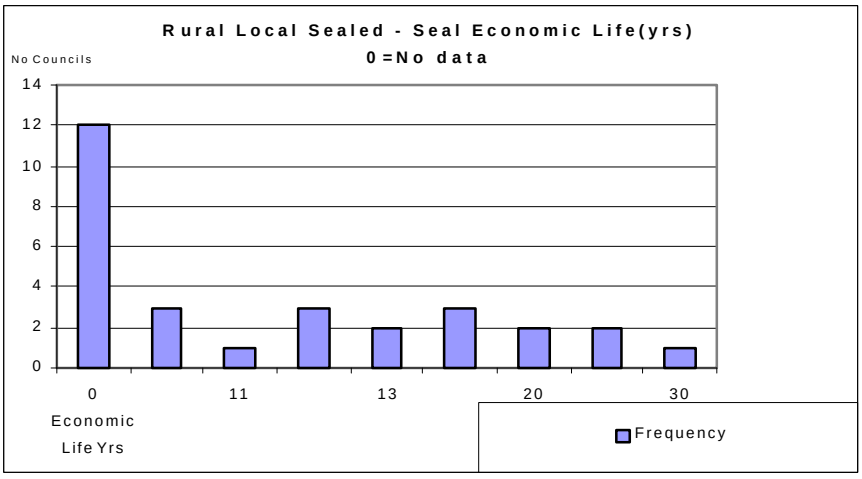
Note

The graphs and data in the appendices are a "snapshot" in time of a continually changing and improving database. Data that applies to individual Councils may have changed and should be checked with that council or with the latest version of the database.

Appendix 6.1	1 Economic Life Distributions **(See Figure 3.1.2 For Additional Distributions)**







Appendix 6.2	**Rates Of Depreciation**
	1 Road Depreciation Rates Table
	2 Bridge Depreciation Rates Table
	3 Bridge Depreciation Graph

Appendix	**6.2.1 Road Depreciation Rates Table**

Depreciation Rate as a % of Current Replacement Cost

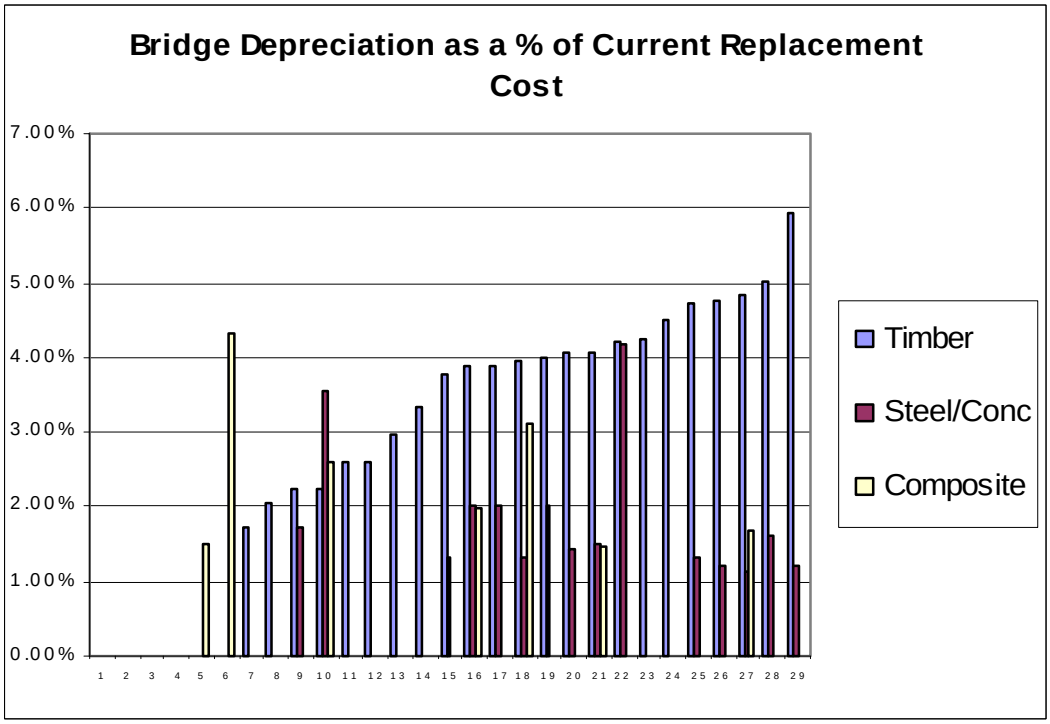
Council	Sealed	Unsealed
Break O'Day	1.67%	
Brighton (M)	2.68%	3.32%
Burnie (C)	2.50%	2.50%
Central Coast (M)	3.33%	1.98%
Central Highlands (M)	3.74%	
Circular Head (M)	3.17%	0.02%
Clarence (C)	1.24%	1.18%
Derwent Valley (M)	9.59%	
Devonport (C)	2.55%	2.04%
Dorset (M)	1.99%	
Flinders (M)	2.84%	
George Town (M)	2.34%	0.06%
Glamorgan - Spring Bay (M)		
Glenorchy (C)	3.90%	3.90%
Hobart (C)	3.55%	5.06%
Huon Valley (M)		
Kentish (M)	1.77%	
King Island (M)	1.75%	
Kingborough (M)	2.77%	0.50%
Latrobe (M)	2.43%	
Launceston (C)	1.36%	
Meander Valley (M)	3.00%	2.86%
Northern Midlands (M)	2.13%	3.03%
Sorell (M)	3.46%	2.29%
Southern Midlands (M)	2.00%	1.00%
Tasman (M)	4.80%	1.25%
Waratah - Wynyard (M)	2.08%	1.34%
West Coast (M)		
West Tamar (M)	2.99%	0.91%

M= Municipality C=City

Appendix 6.2.2 Bridge Depreciation Rates Table

Bridge Depreciation as a percentage of Current Replacement Cost				
Council	Deck Area (m2)	Timber	Steel/Conc	Composite
Break O'day (M)	6407	4.50%		
Brighton (M)	1529			
Burnie (C)	2740	3.76%	1.32%	
Central Coast (M)	5924	5.94%	1.22%	
Central Highlands (M)	4312	4.24%		
Circular Head (M)	5028	4.84%	1.15%	1.68%
Clarence (C)	1159	2.06%		
Derwent Valley (M)	4224	2.59%		
Devonport (C)	1065	3.97%	1.30%	3.13%
Dorset (M)	8660	3.89%	2.00%	
Flinders (M)	1539	2.24%	3.57%	2.59%
George Town (M)	2224	4.00%	2.00%	
Glamorgan - Spring Bay (M)	2562			
Glenorchy (C)	2416	4.76%	1.22%	
Hobart (C)	4320			1.51%
Huon Valley (M)	8522			
Kentish (M)	4906	2.96%		
King Island (M)	993			4.32%
Kingborough (M)	3473	2.23%	1.72%	
Latrobe (M)	2440	2.61%		
Launceston (C)	4977			
Meander Valley (M)	8244	3.89%	2.03%	1.98%
Northern Midlands (M)	9920	5.00%	1.60%	
Sorell (M)	3637	4.22%	4.19%	
Southern Midlands (M)	10703	3.33%		
Tasman (M)	1146	4.06%	1.43%	
Waratah - Wynyard (M)	4835	4.07%	1.49%	1.47%
West Coast (M)	2548	1.73%		
West Tamar (M)	2780	4.71%	1.33%	

Appendix	**6.2.3 Bridge Depreciation Graph**



Appendix 6.3	**Methods Of Depreciation**
	1 Valuation And Depreciation Methods Table
	2 Valuation And Depreciation Methods Graphs

Appendix	**6.3.1 Valuation And Depreciation Methods Tables**

	Valuation Method			
Council	Seal	Unseal	Kerb	Footpath
Break O'day				
Brighton (M)	C	C	C	C
Burnie (C)	C	C	C	C
Central Coast (M)	R	R	R	R
Central Highlands (M)				
Circular Head (M)	R	R	R	R
Clarence (C)	R	R		R
Derwent Valley (M)				
Devonport (C)	R	R	R	R
Dorset (M)	C	C	C	C
Flinders (M)	C	C		
George Town (M)	R	R	R	R
Glamorgan - Spring Bay (M)				
Glenorchy (C)	R	R		
Hobart (C)	R	R	R	R
Huon Valley (M)				
Kentish (M)				
King Island (M)	R	R	R	R
Kingborough (M)	R	R		
Latrobe (M)	R	R	R	R
Launceston (C)	R		R	R
Meander Valley (M)	C	R	R	R
Northern Midlands (M)	C	C	C	C
Sorell (M)	R	R		
Southern Midlands (M)	C	C	C	C
Tasman (M)	R	R		
Waratah - Wynyard (M)	R	R	R	R
West Coast (M)				
West Tamar (M)	C	C	C	C

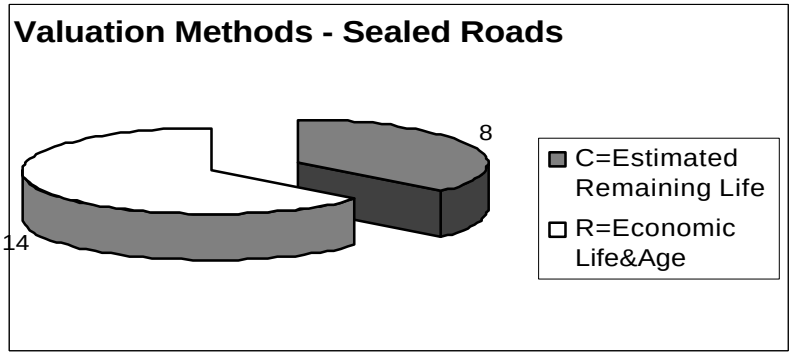
Appendix 6.3.1 (Continued) Valuation And Depreciation Methods Tables

Council	Remaining Life Method			
	Seal	Unseal	Kerb	Footpath
Break O'day				
Brighton (M)	C	C	C	C
Burnie (C)	C	C	C	C
Central Coast (M)	C	C	C	C
Central Highlands (M)				
Circular Head (M)	R	R	R	R
Clarence (C)	R	R	R	R
Derwent Valley (M)				
Devonport (C)	R	R	R	R
Dorset (M)	C	C	C	C
Flinders (M)	R	R		
George Town (M)	R	R	R	R
Glamorgan - Spring Bay (M)				
Glenorchy (C)	C	C		
Hobart (C)	R	R	R	R
Huon Valley (M)				
Kentish (M)				
King Island (M)				
Kingborough (M)	R	R		
Latrobe (M)				
Launceston (C)	R		R	R
Meander Valley (M)	C	R	R	R
Northern Midlands (M)	C	C	C	C
Sorell (M)	R	R		
Southern Midlands (M)	C	C	C	C
Tasman (M)	R	R		
Waratah - Wynyard (M)	R	R	R	R
West Coast (M)				
West Tamar (M)	R	R	R	R

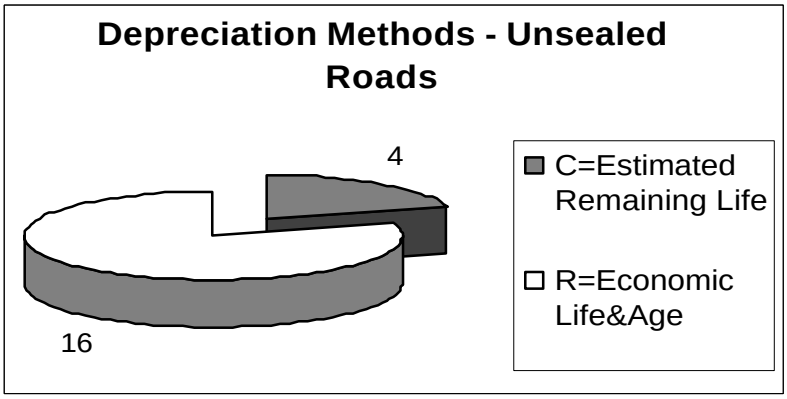
Appendix 6.3.1 (Continued) Valuation And Depreciation Methods Tables

Council	Depreciation Method			
	Seal	Unseal	Kerb	Footpath
Break O'day				
Brighton	R	R	R	R
Burnie	C	C	C	C
Central Coast	R	R	R	R
Central Highlands				
Circular Head	R	R	R	R
Clarence	R	R	R	R
Derwent Valley				
Devonport	R	R	R	R
Dorset	C	C	C	C
Flinders	R	R		
George Town	R	R	R	R
Glamorgan - Spring Bay				
Glenorchy	C	C		
Hobart	R	R	R	R
Huon Valley				
Kentish				
King Island	R	R	R	R
Kingborough	R	R		
Latrobe				
Launceston	R		R	R
Meander Valley	R	R	R	R
Northern Midlands	R	R	R	R
Sorell	R	R		
Southern Midlands	R	R	R	R
Tasman	R	R		
Waratah - Wynyard	R	R	R	R
West Coast				
West Tamar	R	R	R	R

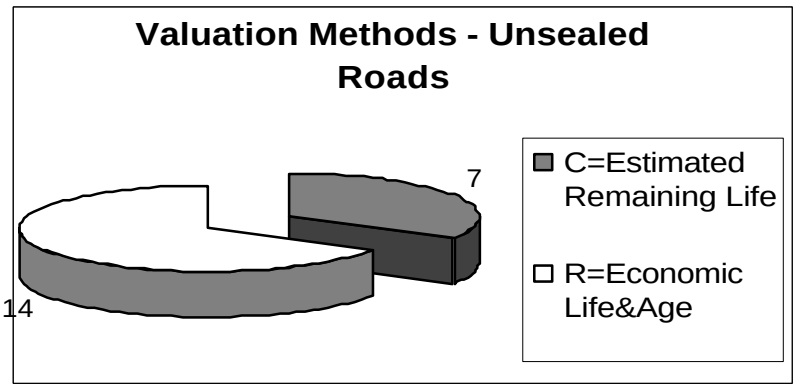
Appendix	6.3.2 Valuation And Depreciation Methods Graphs



Number of Councils



Number of Councils



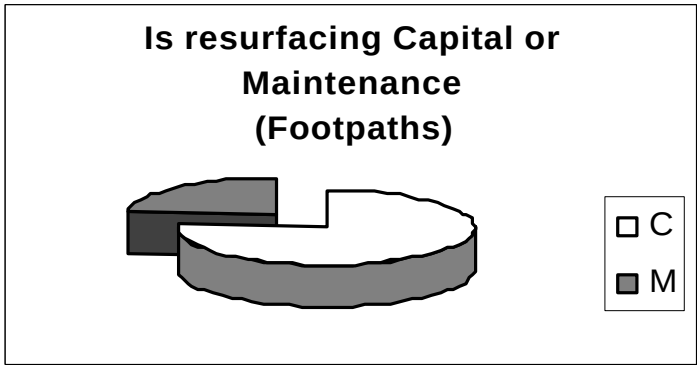
Number of Councils

Appendix 6.4	**Recognition Thresholds**
	1 Recognition Thresholds Table– Roads
	2 Road Capitalisation Policy Table - Roads
	3 Road Capitalisation Policy Graph - Roads

Appendix	**6.4.1 Recognition Thresholds – Roads**

	Initial capital recognition				Asset financial transactions			
	sealed	**unsealed**	**kerb**	**footpaths**	**sealed**	**unsealed**	**kerb**	**footpaths**
Council								
Break O'day								
Brighton	2	2	2		1	1	1	
Burnie	$15000	$15000	$1000	$1,000	1	1	1	1
Central Coast	0	0	0		1	1	1	
Central Highlands	0	0	0	0	0	0	0	0
Circular Head	2	2	2		2	2	2	
Clarence	0	0	0		0	0	0	
Derwent Valley	1	1	1	1	1	1	1	1
Devonport	2	2	2	2	1	1	1	1
Dorset	2	2	2	2	1	1	1	1
Flinders	0	0	0		1	1		
George Town	2	2	2	2	1	1	1	1
Glamorgan - Spring Bay								
Glenorchy	1	1	1	1	0	0	0	0
Hobart	1	1	1		1	1	1	
Huon Valley								
Kentish	2	2	2	2	1	1	1	1
King Island	2	2	2		1	1	1	
Kingborough	2	2			2	2		
Latrobe	2	2	2	2	1	1	1	1
Launceston	1	2	1		1	2	1	
Meander Valley	1	1	1		1	1	1	
Northern Midlands	1	1	1		1	1	1	
Sorell	2	2			2	2		
Southern Midlands	1	1	1	1	2	2	2	2
Tasman	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000		
Waratah - Wynyard	0	0	0	0	0	0	0	0
West Coast								
West Tamar	2	2	2					
Key								
=0 if there is no documented policy for materiality thresholds								
=$ (fill in amount) if a monetary threshold is the primary method (show the threshold in "$ 000"s)								
=1 if an activity is used to define materiality e.g. resurfacing, reconstuct more than 50% of segment								
'=2 if an asset category is the primary method as per the levels of asset detail set out in the previous section								

Appendix	**6.4.2 Road Capitalisation Policy Graphs** **(see Section 3.4 for other graphs)**



Appendix 6.5	**Valuation Methods**
	1 Road Lengths – Survey And Grants Commission
	2 Earthworks Capitalisation Policy
	3 Unit Rates Table – Based On Survey Data
	4 Bridge Valuations Table

Appendix	**6.5.1 Road Lengths – Survey And Grants Commission**

	Survey Data						
	Category Totals						
	Sealed			Unsealed			
Council	Urban	Rural	Total	Urban	Rural	Total	**Total**
Break O'day							
Brighton	67	36	103	0	37	37	**140**
Burnie	125	155	280	1	64	65	**345**
Central Coast	126	394	520	2	144	146	**666**
Central Highlands		92	92		645	645	**737**
Circular Head	33	213	246	1	476	477	**723**
Clarence							
Derwent Valley	32	67	99	4	223	227	**326**
Devonport	162	68	230	1	14	15	**245**
Dorset	38	196	234	12	524	536	**770**
Flinders	7	66	73	3	299	302	**375**
George Town	64	85	149	8	113	121	**270**
Glamorgan - Spring Bay							
Glenorchy	230	36	266	2	15	17	**283**
Hobart	280	0	280	0	0	0	**280**
Huon Valley	0	152	152	0	605	605	**757**
Kentish							
King Island	0	359	359	0	0	0	**359**
Kingborough	105	126	231	0	273	273	**504**
Latrobe							
Launceston	350	121	471	0	194	194	**665**
Meander Valley	107	431	538	13	253	266	**804**
Northern Midlands	97	466	563	11	415	426	**989**
Sorell	38	52	90	54	200	254	**344**
Southern Midlands	26	148	174	0	637	637	**811**
Tasman							
Waratah - Wynyard	78	151	229	0	281	281	**510**
West Coast							
West Tamar	68	183	251	7	187	194	**445**

Appendix 6.5.1 (Continued) Road Lengths – Survey And Grants Commission

	Survey Data							Tasmanian Grants Commision Data					
								- Annual Report 1997-98					
	Category Totals												
	Sealed			Unsealed				Sealed		Unsealed			Variance
Council	Urban	Rural	Total	Urban	Rural	Total	**Total**	Urban	Rural	Urban	Rural	**Total**	
Break O'day								52	128	41	337	**558**	no data
Brighton	67	36	103	0	37	37	**140**	68	36	0	38	**142**	1%
Burnie	125	155	280	1	64	65	**345**	121	153	0	80	**354**	3%
Central Coast	126	394	520	2	144	146	**666**	125	405	2	144	**676**	1%
Central Highlands		92	92		645	645	**737**	8	78	6	655	**747**	1%
Circular Head	33	213	246	1	476	477	**723**	23	219	3	529	**774**	7%
Clarence								234	109	5	62	**410**	no data
Derwent Valley	32	67	99	4	223	227	**326**	32	67	4	228	**331**	2%
Devonport	162	68	230	1	14	15	**245**	158	71	1	15	**245**	0%
Dorset	38	196	234	12	524	536	**770**	38	196	12	524	**770**	0%
Flinders	7	66	73	3	299	302	**375**	4	67	5	305	**381**	2%
George Town	64	85	149	8	113	121	**270**	35	108	3	138	**284**	5%
Glamorgan - Spring Bay								48	71	25	200	**344**	no data
Glenorchy	230	36	266	2	15	17	**283**	233	36	2	15	**286**	1%
Hobart	280	0	280	0	0	0	**280**	281	0	8	0	**289**	3%
Huon Valley	0	152	152	0	605	605	**757**	24	134	10	580	**748**	-1%
Kentish								18	211	2	250	**481**	no data
King Island	0	359	359	0	0	0	**359**	8	36	13	364	**421**	15%
Kingborough	105	126	231	0	273	273	**504**	102	125	0	272	**499**	-1%
Latrobe								41	117	9	113	**280**	no data
Launceston	350	121	471	0	194	194	**665**	335	111	3	274	**723**	8%
Meander Valley	107	431	538	13	253	266	**804**	108	431	13	255	**807**	0%
Northern Midlands	97	466	563	11	415	426	**989**	79	466	15	413	**973**	-2%
Sorell	38	52	90	54	200	254	**344**	27	80	43	181	**331**	-4%
Southern Midlands	26	148	174	0	637	637	**811**	26	155	17	643	**841**	4%
Tasman								1	45	5	156	**207**	no data
Waratah - Wynyard	78	151	229	0	281	281	**510**	72	184	7	281	**544**	6%
West Coast								68	15	17	76	**176**	no data
West Tamar	68	183	251	7	187	194	**445**	69	181	5	188	**443**	0%

Possible explanations for discrepancies between Survey lengths and Grants Commission Lengths ar

1 Errors in Councils road data used to complete survey

2 Roads not valued or depreciated and therefore not included in survey data (eg unformed or unmade

3 Errors in Grants Commission data

Appendix 6.5.2 Earthworks Capitalisation Policy

	Earthworks in CRC Cost Calculations	
Council	Urban	Rural
Break O Day	Ignored	Ignored
Brighton (M)	Ignored	Ignored
Burnie (C)	Included	Included
Central Coast (M)	Ignored	Ignored
Central Highlands (M)	Included	Included
Circular Head (M)	Ignored	Ignored
Clarence (C)	Ignored	Ignored
Derwent Valley (M)	Ignored	Ignored
Devonport (C)	Ignored	Included
Dorset (M)	Ignored	Ignored
Flinders (M)	Ignored	Ignored
George Town (M)	Ignored	Ignored
Glamorgan - Spring Bay (M)	Ignored	Ignored
Glenorchy (C)	Ignored	Ignored
Hobart (C)	Ignored	Ignored
Huon Valley (M)	Ignored	Ignored
Kentish (M)	Ignored	Ignored
King Island (M)	Ignored	Ignored
Kingborough (M)	Ignored	Ignored
Latrobe (M)	Ignored	Ignored
Launceston (C)	Included	Included
Meander Valley (M)	Ignored	Ignored
Northern Midlands (M)	Ignored	Ignored
Sorell (M)	Included	Included
Southern Midlands (M)	Included	Ignored
Tasman (M)	Ignored	Ignored
Waratah - Wynyard (M)	Ignored	Ignored
West Coast (M)	Ignored	Included
West Tamar (M)	Ignored	Ignored
Note Ignored Includes Councils that did not complete this section of the form		

Appendix 6.5.3 Unit Rates Table – Based On Survey Data

Road Unit Rates $/m2 (**$/m for kerb**)

	Earthworks									Pavement				
	Average			High			Low			Average				
	Sealed		Unsealed	Sealed		Unsealed	Sealed		Unsealed	Sealed		Unsealed	Kerb	Footpath
	Local	Arterial		Local	Arterial		Local	Arterial		Local	Arterial			
Council														
Break O'Day														
Brighton	7									48			6	13
Burnie										40	50	40	40	35
Central Coast	13	12	15	21	20	23	8	8	10	8	10	7	73	38
Central Highlands														
Circular Head										17	21	7	40	29
Clarence													35	50
Derwent Valley														
Devonport	4		4				4			34		27	81	62
Dorset														
Flinders	6			11			1			24				
George Town														
Glamorgan - Spring Bay														
Glenorchy										25	31	6	42	35
Hobart										41	60		37	40
Huon Valley														
Kentish														
King Island										24		20	54	38
Kingborough	8									16				
Latrobe														
Launceston										80	85		100	30
Meander Valley														
Northern Midlands	5		5	8		8	4		4	30				23
Sorell										43		34		
Southern Midlands	2			3			1			19			28	25
Tasman														
Waratah - Wynyard										11			43	37
West Coast														
West Tamar										20		13	35	36
Note that these rates represent a number of significant variations in measurement														
and inclusions/exclusions and should not be used for comparisons between Councils														

Road Unit Rates $/m2 (**$/m for kerb**)

	Pavement										Asphaltic Concrete		
	High					Low							
	Sealed		Unsealed	Kerb	Footpath	Sealed		Unsealed	Kerb	Footpath	Sealed		
	Local	Arterial				Local	Arterial				Local	Arterial	Footpath
Council													
Break O'Day													
Brighton													
Burnie	50	55	45	50	60	35	40	35	30	12	15	15	15
Central Coast	10	11	8	63	40	7	8	6	53	31	12		10
Central Highlands													
Circular Head	15	21	7	40	47	18	21	7	40	11	9	9	
Clarence		60		60	70		35		30	45	0.1		40
Derwent Valley													
Devonport	75		27	81	64	27		27	81		13		
Dorset													
Flinders	41					14					52		
George Town													
Glamorgan - Spring Bay													
Glenorchy	26	32	7	43	44	24	29	5	40	26	8		
Hobart													
Huon Valley													
Kentish													
King Island	37					12							
Kingborough													
Latrobe													
Launceston	100	200		120	40	35	50		80	20	12	18	10
Meander Valley				50	45	16		10			10		
Northern Midlands	33				25	28				21	12		12
Sorell													
Southern Midlands	22			33	30	17			26	22			
Tasman													
Waratah - Wynyard	12					8					16		
West Coast													
West Tamar											7		
Note that these rates represent a number of significant variations in measurement													
and inclusions/exclusions and should not be used for comparisons between Councils													

Appendix	**6.5.3 (Continued)** **Unit Rates Table – Based On Survey Data**

Road Unit Rates $/m2 **($/m for kerb)**							
	Initial Seal	Reseal	Gravel Sheeting				Segmental Paving
			Average	High	Low	Footpaths	
Council							
Break O'Day							
Brighton		13					
Burnie	3	5	3	5	2	2	
Central Coast	7	3				15	88
Central Highlands							
Circular Head	4	2					
Clarence	3	2	6	12		2	
Derwent Valley							
Devonport	4	4				27	64
Dorset							
Flinders	5	4					
George Town							
Glamorgan - Spring Bay							
Glenorchy		3	4	5	3		
Hobart	23	9					
Huon Valley							
Kentish							
King Island							
Kingborough	6	4					
Latrobe							
Launceston							
Meander Valley	6	3		3			
Northern Midlands	2	2	3	4	3		55
Sorell							
Southern Midlands	5	3				4	
Tasman							
Waratah - Wynyard	5	3					
West Coast							
West Tamar	3	2					
Note that these rates represent a number of significant variations in measurement							
and inclusions/exclusions and should not be used for comparisons between Councils							

Appendix 6.5.4 Bridge Valuations Table – Based On Financial Report

Bridge Valuations ('$000's)

	Valuations	Replacement Cost			Written Down Value			Annual Depreciation		
	From 97	Timber	Steel/Conc	Composite	Timber	Steel/Conc	Composite	Timber	Steel/Conc	Composite
Council	Financial Report									
Break O'day	yes	$4,931						$222		
Brighton			$360		$496					
Burnie		$825			$457	$1,080			$21	
Central Coast			$2,940		$900			$120	$36	
	yes	$4,202						$101		
Circular Head			$2,258	$119		$1,268	$117		$26	$2
		$194			$72					
Derwent Valley	yes				$1,759			$82		
		$252	$1,074		$112	$377		$10	$14	
Dorset	yes									
		$134	$84		$7	$77		$3	$3	
George Town		$1,250			$376	$583			$15	
Glamorgan - Spring Bay										
Glenorchy		$21			$13	$978			$23	
Hobart							$3,824			$133
	yes									
Kentish		$4,219			$2,065					
King Island				$1,366						$59
Kingborough			$871		$274			$30	$15	
	yes	$1,188						$31		
Launceston									$45	$2
		$3,906	$3,058		$1,511	$1,425		$152	$62	
Northern Midlands		$5,355			$1,323	$1,230			$22	$1
		$1,541	$191			$175	$918		$8	$15
		$6,120			$2,496					
Tasman		$837			$227	$211			$4	
Waratah - Wynyard			$5,017	$272		$2,988	$264		$75	$4
		$2,945						$51		
		$849	$2,639			$1,227		$40		

6.6 Condition Assessment and Depreciation Methods

Valuation and Inspection Frequency - Roads

	Revaluation	Inspection Frequency (years)				Inspection Data Average Age (month				Valuations By			
	Frequency	Seal	Unseal	Kerb	Footpaths	Seal	Unseal	Kerb	Footpaths	Seal	Unseal	Kerb	Footpaths
Council	(years)												
Break O'day													
Brighton	5	5	5	5	5	36	36	36	36	I	I	I	I
Burnie	1	5	5	5	5	31	27	33	31	I	I	I	I
Central Coast	5	3	5	5	5	18	12	24	24	I	I	I	I
Central Highlands													
Circular Head	2	2	2	2	2	121	12	12	12	I	I	I	I
Clarence		2	REGULAR	2	2	22		22	22	I	I	I	I
Derwent Valley	2												
Devonport	1	3	1	5	1	10	12		6	E	E	E	E
Dorset													
Flinders	5	1	1			5	5			E	E		
George Town	5	0	0	0	0	0	0	0	0	I	I	I	I
Glamorgan - Spring Bay													
Glenorchy	3	3	3	3	3	1	1	1	1	I	I		
Hobart	5	5		5	5	18		18	12	I	I	I	I
Huon Valley													
Kentish	5												
King Island	5	1	1	1	1	16	16	16	16	E	E	E	E
Kingborough	3-5	3-5								I	I		
Latrobe	5												
Launceston	5	3		3	3	36		36	36	I		I	I
Meander Valley	5	5	1			36				I	I	I	I
Northern Midlands	1	5	5	5	5	36	36	36	36	I	I	I	I
Sorell	5	5	5			48	48			E	E		
Southern Midlands	4	3	3	3	3	15	15	15	15	I	I	I	I
Tasman	5	5	5							E	E		
Waratah - Wynyard	5	1	1	1	1	12	12	12	12	I	I	I	I
West Coast										I	I	I	I
West Tamar	4	2	2	2	2	24	24	24	24	I	I	I	I
									(I= internal; E=external consultant)				

PREVIOUS REPORTS TO PARLIAMENT

1992	**SPECIAL REPORT NO. 1**	**REGIONAL HEALTH SUPPORT SERVICES**
1992	**SPECIAL REPORT NO. 2**	**STUDENT TRANSPORT**
1993	**SPECIAL REPORT NO. 3**	**EDUCATION INSTITUTIONS CLEANING SERVICES**
1993	**SPECIAL REPORT NO. 4**	**STANDARD OF ANNUAL REPORTING BY GOVERNMENT DEPARTMENTS**
1993	**SPECIAL REPORT NO. 5**	**MUNICIPAL SOLID WASTE MANAGEMENT**
1994	**SPECIAL REPORT NO. 6**	**ADMINISTRATION AND ACCOUNTABILITY OF GRANTS**
1994	**SPECIAL REPORT NO. 7**	**REGIONAL HEALTH MEDICAL REVIEW**
1994	**SPECIAL REPORT NO. 8**	**WASTEWATER MANAGEMENT IN LOCAL GOVERNMENT**
1995	**SPECIAL REPORT NO. 9**	**HERITAGE COLLECTION MANAGEMENT**
1995	**SPECIAL REPORT NO. 10**	**OFFICE ACCOMMODATION MANAGEMENT**
1995	**SPECIAL REPORT NO. 11**	**RECORDING AND REPORTING BY GOVERNMENT DEPARTMENTS OF THEIR NON-CURRENT PHYSICAL ASSETS**
1995	**SPECIAL REPORT NO. 12**	**TENDERED WORKS**
1996	**SPECIAL REPORT NO. 13**	**NURSING COSTS IN TASMANIA**
1996	**SPECIAL REPORT NO. 14**	**REVIEW OF PERFORMANCE INDICATORS IN GOVERNMENT DEPARTMENTS**
1996	**SPECIAL REPORT NO. 15**	**CASH MANAGEMENT IN LOCAL GOVERNMENT**
1996	**SPECIAL REPORT NO. 16**	**DEPARTMENTAL ACCOUNTING MANUALS AND COMPLIANCE WITH PROCEDURES**
1997	**SPECIAL REPORT NO. 17**	**AIR TRAVEL**
1997	**SPECIAL REPORT NO. 18**	**REVIEW OF LAND INFORMATION**
1997	**SPECIAL REPORT NO. 19**	**COMPLIANCE WITH SUPERANNUATION GUARANTEE ARRANGEMENTS**
1997	**SPECIAL REPORT NO. 20**	**REVIEW OF COMPUTER CONTROLS IN GOVERNMENT DEPARTMENTS**
1997	**SPECIAL REPORT NO. 21**	**SPECIAL INVESTIGATION INTO ADMINISTRATIVE PROCESSES ASSOCIATED WITH PRESERVATION AND MAINTENANCE OF THE PORT ARTHUR HISTORIC SITE**
1997	**SPECIAL REPORT NO. 22**	**LAND INFORMATION AND ADVERSE POSSESSION**
1997	**SPECIAL REPORT NO. 23**	**MANAGING SCHOOL MAINTENANCE AND MINOR WORKS**
1997	**SPECIAL REPORT NO. 24**	**FURTHER REVIEW OF PERFORMANCE INDICATORS IN GOVERNMENT DEPARTMENTS**
1997	**SPECIAL REPORT NO. 25**	**THE YEAR 2000 – ARE WE READY?**