



Tasmania

DEPARTMENT of INFRASTRUCTURE,
ENERGY and RESOURCES

Strategic Asset Management Plan

ISSUE NO. 1 - JULY 2005

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Record of Amendments

Amendment No.	Date Issued	Description of Amendment

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Prepared	-	Asset Management Group	-	June 2005
Reviewed	Barry Walker	Manager Asset Management		June 2005
Approved	Renny Duckett	Manager Transport Infrastructure		June 2005



Tasmania

DEPARTMENT *of* INFRASTRUCTURE,
ENERGY *and* RESOURCES

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JULY 2005

Foreword

The publication of the *Strategic Asset Management Plan* (SAMP) fulfils an important Departmental commitment. It is the culmination of a great deal of research, consultation and development by staff of the Asset Management Group and I note in particular the important contributions of Rod McGee and Edgar Haertel whose work ensured the final document would be comprehensive in scope and direction.

The Plan sets directions and establishes what we should be doing - in a strategic context – to better manage our road and bridge asset and in doing so it identifies those management activities necessary for ensuring the asset is functional and provides the Tasmanian community with a safe, efficient and sustainable road network.

As a high-level document, the SAMP is an integral part of the Department's overall strategic management framework, sitting between the strategic drivers of Government policies and corporate plans, and the development of specific strategies and programs for the delivery of high level and timely asset maintenance.

The new *Bridge Asset Management Plan* and *Road Asset Management Plan* are complementary documents aimed at delivering these objectives. They are more detailed than the SAMP and give long-term projections for works and services and corresponding funding requirements.

The key objectives of the SAMP are to:

- Establish a strategic framework for the management of the road and bridge infrastructure
- Set asset management policies in relation to user demand, levels of service, life-cycle management and funding for asset-sustainability
- Facilitate the delivery of the Department's strategic and corporate goals.

The implementation of the *Strategic Asset Management Plan* will:

- Provide for a better understanding of asset management and stakeholder issues
- Improve the level of communication and reporting
- Improve asset performance monitoring and
- Enhance asset management through periodic strategic review.

Our Department is committed to strategic planning for short and long-term asset management and I am confident that the *Strategic Asset Management Plan* will contribute significantly to that commitment.



Peter Douglas
General Manager
Roads and Public Transport

Definitions, Acronyms and Abbreviations used in this Strategic Asset Management Plan

DEFINITIONS

<i>Asset</i>	Those State roads, land reserves, roadside facilities, bridges, retaining-walls, gantries and other miscellaneous structures, listed on the DIER infrastructure register and/or RIMS database and managed in accordance with the <i>Roads and Jetties Act - 1935</i> .
<i>Asset Management</i>	A comprehensive and structured approach to the long-term management of the asset for the efficient and effective delivery of community benefits.
<i>AusLink</i>	An agreement between the State and Commonwealth Governments in relation to maintenance funding for the AusLink Network over a five-year period commencing 2005/6.
<i>AusLink Network</i>	The former National Route (Hobart-Burnie via Midland and Bass Highways) and East Tamar Highway (Launceston to Bell Bay Port), identified as Link 1: Hobart-Launceston, Link 2: Launceston-Burnie and Link 3: Launceston to Bell Bay Port
<i>Enhancement</i>	The provision of certain post-construction works aimed at improving asset performance.
<i>Infrastructure Development</i>	The construction of new roads to improve the overall functionality and levels of service of the network.
<i>Maintenance</i>	The provision of certain, post-construction works, aimed at maintaining asset functionality and maximising service life.
<i>Rehabilitation</i>	The provision of certain, major, post-construction works, necessitated by a threatening level of deterioration, aimed at bringing the asset back up to its original performance level and ensuring - if not extending - its service life.
<i>Reinstatement</i>	The provision of certain, major works, necessitated by significant damage or loss, from deterioration or specific event (eg. floods), aimed at reinstating full functionality and achieving full service life. Reinstatement may, in certain instances, mean virtual reconstruction.
<i>Strategic Asset Management</i>	A strategic framework for decision-making in relation to the cost-effective management of the asset over the long term and the delivery of beneficial outcomes for the community.

ACRONYMS AND ABBREVIATIONS

<i>BAMP</i>	Bridge Asset Management Plan
<i>DIER</i>	Department of Infrastructure Energy and Resources
<i>DR</i>	Developmental Road
<i>EMP</i>	Emergency Management Plan
<i>HDM-4</i>	Highway Development and Management (version 4)
<i>HLR</i>	Heavy Load Route(s)
<i>Hwy</i>	Highway
<i>MLR</i>	Mass Limits Review
<i>MR</i>	Main Road
<i>NAASRA</i>	National Association of State Roads Authorities
<i>PMS</i>	Pavement Management System
<i>RAMP</i>	Road Asset Management Plan
<i>RC</i>	Reinforced Concrete
<i>SAM</i>	Strategic Asset Management
<i>SAMP</i>	Strategic Asset Management Plan (this document)
<i>SR</i>	Secondary Road
<i>TR</i>	Tourist Road

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1.0 Executive Summary

This *Strategic Asset Management Plan* (SAMP) is the strategic framework document for the management of the Tasmanian State Road infrastructure. It outlines the Tasmanian Government's approach to managing the single largest asset (at replacement value \$3.9bn) for which it has direct responsibility. It also demonstrates how the Government will service the needs of the State's transport sector, as the sole purpose of road network is to support the Tasmanian community and economy with an efficient, effective, safe and accessible road transport system.

The SAMP is supported by:

- (i) a *Road Asset Management Plan* and
- (ii) a *Bridge Asset Management Plan*.

These two documents are broader in their scope and nominate specific strategies, policies and practices for each of the infrastructure management elements.

The demands on Tasmania's road system are projected to increase dramatically in the future as the road freight tonnage is expected to almost quadruple by 2020 and new industrialisation, (particularly in the timber industry), will lead to significant changes in road use. Furthermore, the number of interstate tourists driving the network is increasing and there is a continuing community demand for safer roads and quality amenities. Urban sprawl, particularly in Hobart and Launceston, places additional demands on the network and with Tasmania's largely export-oriented economy, improved integration between State and Local Government roads and other modes of transport, to facilitate greater industry efficiencies, is required.

The State Road infrastructure is ageing "on average" as the current rate of replacement does not allow a management system, minimising whole-of-life costs, to be sustained. Roads and bridges have high capital and recurrent costs and long lives and need to be managed effectively to maximise the benefits from the initial investment. Strategic management of the infrastructure asset is therefore critical to ensure the State's long-term, sustainable economic and social development.

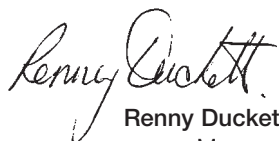
DIER is committed to the following key infrastructure management outcomes:

- The provision of a safe asset for all users
- A network that enables the freight industry to operate in an efficient manner
- Minimisation of a future maintenance liability due to unsustainable maintenance practices
- Minimisation of exposure to litigation due to nonfeasance
- Ensuring maintenance practices are environmentally sustainable and meet all legislative requirements
- The continued development of a funding framework and rationale that will ensure levels of funding are sustainable

The DIER's *State Roads Infrastructure Investment Strategy* supports the delivery of these outcomes by embracing a 'maintenance first' policy which dictates that funds are first allocated to ensure the long-term integrity and safe operation of the existing roads and bridges, before any consideration is given to upgrading or development. The average level of funding for maintenance of the State Roads infrastructure, (excluding AusLink), presently totals approximately \$30m p.a. which is below the assessed current sustainability level of \$44m. This figure increases to \$52m p.a. when projected to 2008/09. With the inclusion of AusLink, the 2008/09 total becomes \$60m pa.

The strategic framework provided in the SAMP embraces contemporary asset management principles for the determination of optimal and affordable outcomes for delivering the required levels of service developed in conjunction with stakeholders and the wider community.

This document is the first *Strategic Asset Management Plan* of the DIER and is to be referred as the 2005 Edition. It will be subjected to periodic review on a needs basis.



Renny Duckett
Manager

Transport Infrastructure Branch

June 2005

2.0 Introduction

Overview

This Section introduces the asset management philosophy of DIER, confirms the basic aims of the *Strategic Asset Management Plan* and nominates those principal asset management elements for which both management policies and strategies are essential.

2.1 Introduction

Transport is an essential part of producing and marketing almost all goods and services. The State Road Network is the “backbone” of the transport system within Tasmania, both directly and indirectly through its links with other parts of the system such as local roads, ports, airports and rail terminals. Failure of the State road asset can have dramatic and far-reaching consequences for the transport industry and the industries which they serve.

The State Road Network is the single largest asset (at replacement value \$3.9bn including bridges) for which the Tasmanian Government has direct responsibility for funding, day-to-day management and service delivery. Management of the network comprises a significant portion of the State budget. The Commonwealth contributes some additional funding for the AusLink Network and agreed projects of national significance.

DIER is committed to the long-term integrity of the State’s roads and bridges. These critical assets must be maintained and operated in a strategic manner to provide continuous, safe, efficient access for industry and the community.

2.2 Purpose of the Plan

This SAMP identifies the primary issues and strategies for managing the existing State Road Network including asset maintenance and operational functions. It does not include policies, practices or procedures relating to infrastructure development. More detailed information on individual assets, management policies, operational and legal issues and maintenance strategies, is contained in the separate supporting documents: *Road Asset Management Plan* and *Bridge Asset Management Plan*.

The key objectives of the SAMP are essentially:

- The establishment of a strategic asset management framework
- The setting of asset management policies in relation to user demand, levels of service, life-cycle management and funding for asset-sustainability
- To facilitate the delivery of our strategic and corporate goals.

2.3 Strategic Asset Management

Roads and bridges have high capital and recurrent costs and long lives and need to be managed effectively to maximise the benefits from the investment in the asset. An efficient and effective road freight network can reduce the costs of transport, enhancing Tasmania’s national and international competitiveness. Conversely, deterioration in the condition of the network can substantially increase overall maintenance costs, present a legal risk and other risk-management issues, and impact adversely on the environment, the overall State economy and elevates the cost of road transport.

Strategic management of this asset is therefore critical to ensure the State’s long-term sustainable economic and social development. The *Strategic Asset Management Plan* is a vital management tool to maximise the long-term benefits of the funding allocated to the State Road Network.

It nominates:

- The strategic framework for the management of the State Roads
- Asset management policies and strategies at a strategic level with respect to:
 - existing and future demand
 - levels of service
 - life-cycle management
 - management policies and strategies
 - financial implications of the above
 - risk management
 - social, economic and legal issues.

The SAMP is supported by the Road and Bridge Asset Management Plans as illustrated in Fig. 2.3 below. These Plans contain the details on how management strategies for roads and bridges will be implemented, as well as giving the rationale and analytical rigour behind the strategies themselves.



FIG. 2.3 – STRATEGIC ASSET MANAGEMENT FRAMEWORK

3.0 Asset Description

Overview

This Section describes the roads and bridges infrastructure, noting the overall composition of the asset and dollar value.

3.1 Description of the Asset

The Department of Infrastructure Energy and Resources (DIER) is the Tasmanian Government agency responsible for the management of the State's classified road system, including associated bridges, roadside facilities, miscellaneous structures and land. It is also responsible for the management of 30 bridges on council roads that have been declared a State responsibility because of their historical significance, technical complexity or high replacement cost.

The network consists of some 3,650 km of roads with 1,285 bridges (including major culverts, certain retaining-walls and gantry structures), 60 roadside rest areas of varying amenity and some 7,900ha of land. The estimated replacement cost of the asset is \$3.9bn. Its current value is approximately \$3.3bn and comprises approximately 75% of inner budget Agency assets. The network can be described as mature, with expenditure by the State Government focused largely on maintaining the existing asset, with significant developments primarily confined to the national (AusLink) network.

The classified road system carries a substantial proportion (65%) of the total distance travelled by all vehicles in Tasmania as well as the majority of the freight task. It is thus a vital part of the economic and social wellbeing of the State, particularly as Tasmania has the most decentralised population of any State. Its isolation imposes a greater transport cost per unit of production, highlighting the need for transport efficiency.

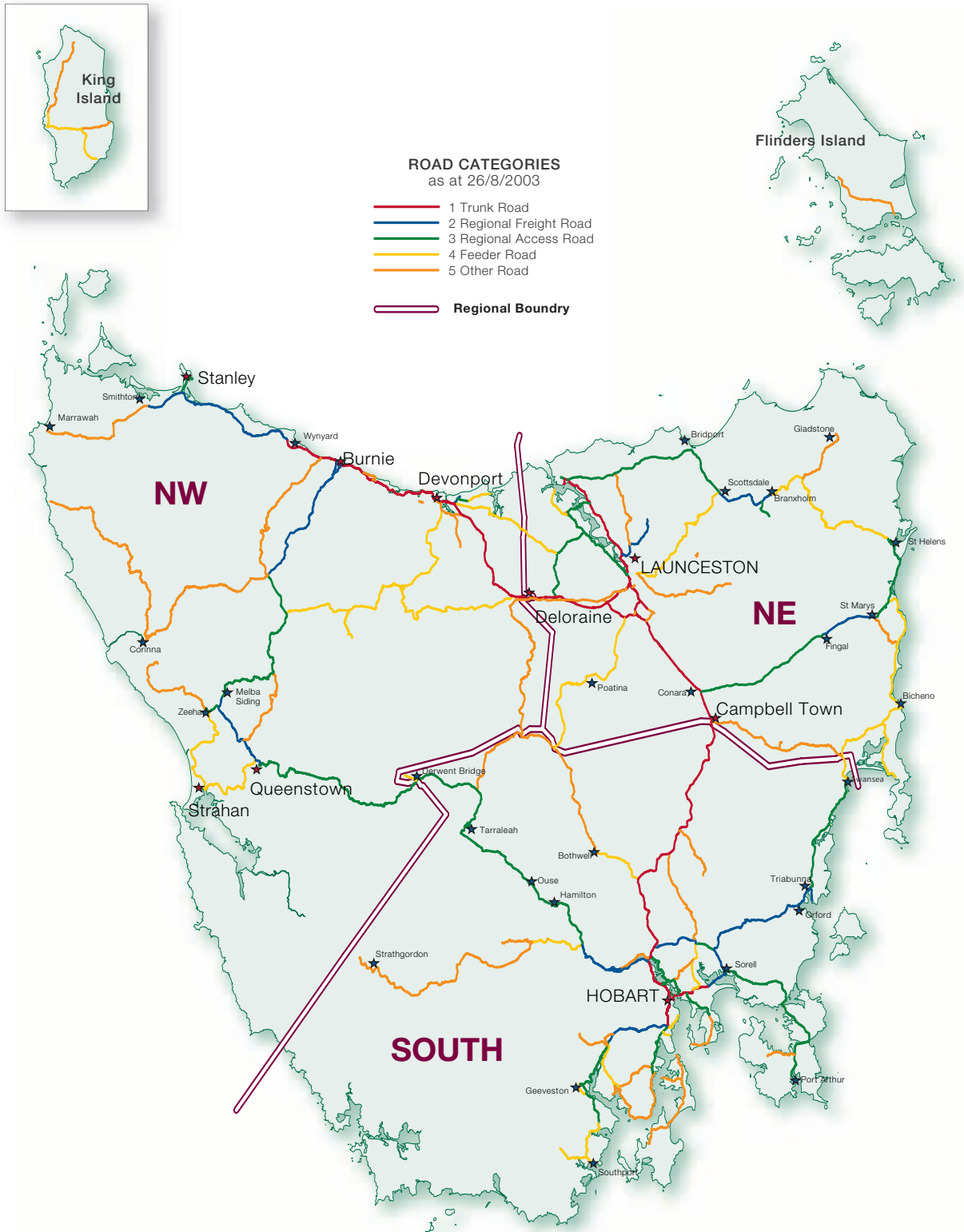
MAP 3.1 ILLUSTRATES THE TASMANIAN CLASSIFIED ROAD NETWORK.

3.2 Road Use

The State of the Network Report for 2004 indicates that there has been a general increase in traffic volumes over the past decade, although present trends suggest a slowing in the overall growth rate, with negative growth on part of the Murchison Highway. The following table illustrates typical current growth rates.

Road - Location	Link Reference	Annual Growth Rate
Tasman Hwy - Tasman Bridge Hobart	07/0.1	+1.5%
Bass Highway – Victoria Bridge Devonport	36/10.88	+1.5%
Bass Hwy – East Wynyard	60/0.92	+2.9%
Huon Hwy - Grove	26/2.3	+4.6%
Tasman Hwy - Beaumaris	58/3.81	+3.0%
Murchison Hwy - Fingerpost	52/9.2	-0.6%

TABLE 3.2 - ROAD USE GROWTH RATES



MAP. 3.1 – STATE ROAD NETWORK

The present highest AADT traffic count is 61,000 vpd on the Tasman Highway (Tasman Bridge) at Hobart. The lowest AADT count is 17 vpd for the Heemskirk DR. The total number of visitor vehicles coming into Tasmania each year, averages 74,000 on recent figures. Tasmanian vehicle registrations presently total some 371,000 comprising 263,000 light vehicles 9,000 motorcycles and 99,000 commercial and heavy vehicles. Total annual vehicle registrations have increased by an average 3% p.a. in recent years. Some 304,000 Tasmanians hold a full driver's licence. Tasmanian registered vehicles travel an average of 13,800 kms per year compared to the national average of 15,300 kms p.a. The yearly travel distance is increasing at 3.8%.

MAP 3.2 ILLUSTRATES THE TRAFFIC DISTRIBUTION ACROSS THE NETWORK.

Fig. 3.2(a) illustrates the AADT's (vehicles per day) carried by each of the five road categories, (eg. some 65% of the total length of Category 1 roads carry 3500-7000 vpd).

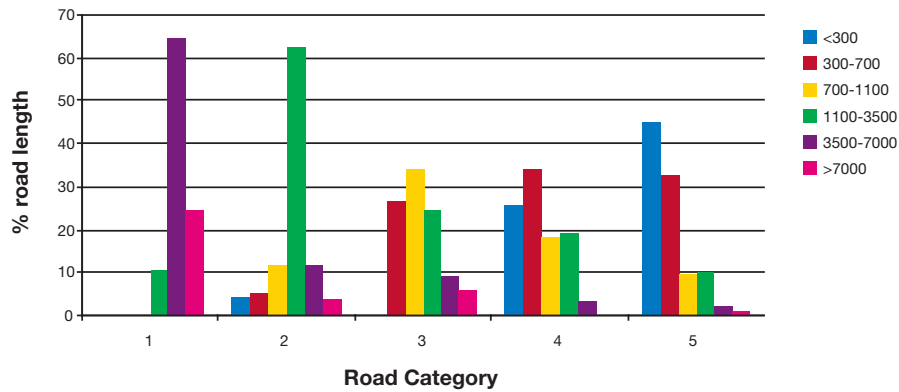


FIG. 3.2(A) – TRAFFIC VOLUMES ACROSS ROAD HIERARCHY

Fig. 3.2(b) illustrates the distribution of commercial vehicles travelling the five road categories, (eg. some 83% of the total length of Category 1 roads carry 350-900 commercial vpd).

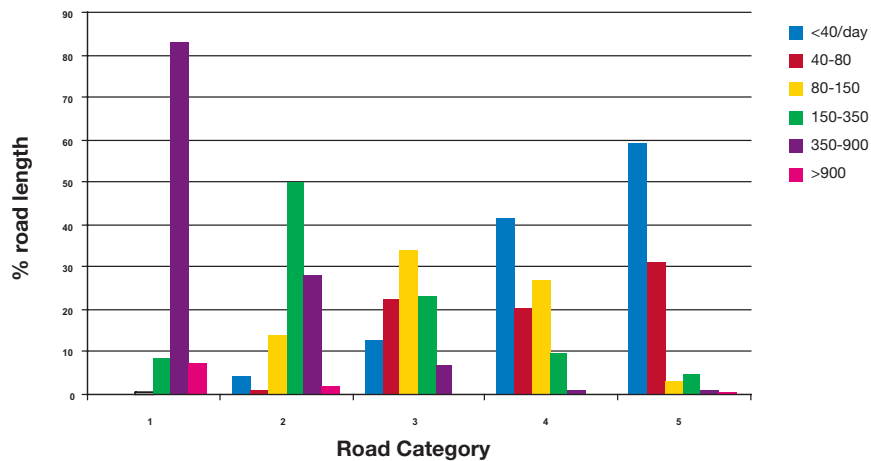
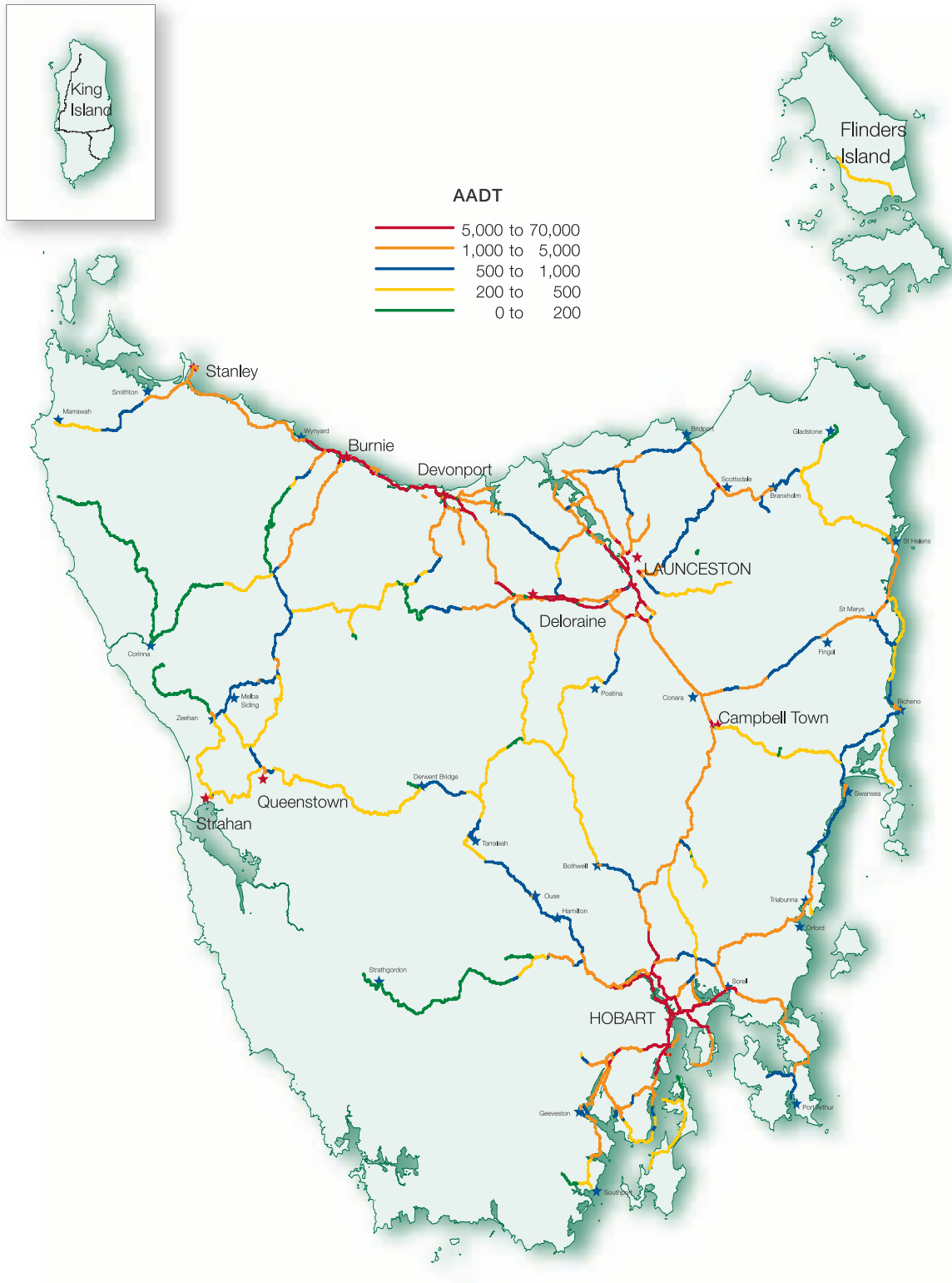


FIG. 3.2(B) – COMMERCIAL VEHICLE DISTRIBUTION ACROSS ROAD HIERARCHY



MAP 3.2 – TRAFFIC DISTRIBUTION ACROSS THE STATE ROAD NETWORK

3.3 Asset Condition

Overview - Roads

The condition of the roads is generally reflective of their strategic purpose, as Category 1 roads are maintained to a higher standard than Category 2 roads etc. Consequently, the condition of the former National Route is significantly better than the remainder of the system, in almost all the measured assessment criteria.

Condition surveys, are taken on a periodic basis. DIER produces an annual *State of the Network Report* and table 3.3 following, is a summary of the 2004 Report using extracted aggregated data.

The table may be interpreted by reference to the following criteria:

Assessment criteria	Measurement	Rating
Roughness (NRM)	<70	Good
	70 - 110	Fair
	>110	Poor
Rutting (depth)	<10mm	Good
	10 - 20mm	Fair
	>20mm	Poor
Cracking (width)	<2mm	Good
	2 - 5mm	Fair
	>5mm	Poor

Road	Roughness		Cracking		Rutting	Assessed overall condition
	Good	Poor	Good	Poor	Poor	
National Route	84%	1%	75%	19%	15%	Very good
State Roads (South)	45%	16%	95%	1%	21%	Fair to Good
State Roads (NE)	52%	12%	91%	3%	12%	Good
State Roads (NW)	49%	13%	90%	1%	14%	Fair to Good

TABLE 3.3 – ROAD ASSET CONDITION

The roughness surveys indicate that there is an increasing proportion of roads in a ‘fair to good’ state. Rutting levels generally follow the strategic nature of the road and accordingly the National Route has significantly less rutting than the remainder of the network. The proportion of roads suffering cracking, has generally remained stable.

Other condition criteria, (pot-holes, edge-breaks, line-marking etc.), are not currently measured as such, as these defects are addressed on a continual basis through the term maintenance contracts and the auditing process.

Overview - Bridges

At approximately 43 km, the total length of bridging equates to about 1.2% of the length of the road network. Based on current condition ratings, the bridges serving the National Route are considered to be in a “good to very good” condition, with those serving the State Roads being in a “fair to good” condition. Therefore the bridge asset is considered to be in a generally good condition overall and is being managed in a professional manner. This assertion is supported by the annual condition and monitoring reports as well as the program-specific inspections undertaken to validate the long-term projections for works and services.

Ageing Issue

Ageing and deterioration of the asset is a critical management issue. Some 70% of the present road network is older than its nominal design pavement life of 20 years. Approximately one quarter of the bridge stock is at or near the end of its design life, with 2% older than 100 years. Less than 20% is under 20 years old.

4.0 Strategic Context

Overview

This Section nominates the basic function of the road network and its relationship with other modes of transport. The Government's transport vision and the corporate vision of DIER are each referred. The social and commercial demands that drive good asset management are identified and their influence discussed.

4.1 Strategic Drivers

Transport is vital in supporting Tasmania's economic and social wellbeing. The State roads system needs to work efficiently and effectively and integrate with all other components of the transport system.

Tasmania Together is the Tasmanian Government's 20-year social, environmental and economic plan. It contains goals, targets and a timeframe for targets to be achieved. It will be used to inform budget decisions. While none of the goals and targets directly addresses road infrastructure, many of the goals and targets can only be achieved through having the State road system adequately maintained.

In association with the development of *Tasmania Together*, a Transport Forum developed a *transport vision* and identified principles and objectives to be used in its achievement. The transport vision is:

Tasmania's Vision for Transport

Enhance Tasmania's development, lifestyle and community wellbeing through an effective, efficient and sustainable transport system.

To achieve the transport vision, the SAMP needs an appropriate level of responsiveness and have some flexibility to incorporate major external factors, for example, new Government policies and initiatives. The key principles of the Vision are aimed at ensuring that our transport system is:

- Safe, fair and accessible to everyone
- Efficient and effective
- Environmentally sustainable
- Strategically planned for the long term
- Responsive to community and industry needs, and
- Integrated with transport systems outside Tasmania.

The DIER document *Connecting Tasmania - Draft Tasmanian Road Hierarchy and Targets* is a further strategic driver for the SAMP. It provides the strategic framework for categorising the road network into a hierarchy of roads and routes, based on their intended functionality and level of use. Prepared in 1999, this document nominates the traffic profiles for each road category and summarises the target performance standards that are to apply. (Refer also 6.2)

The DIER Corporate Plan (2003/04 – 2005/06) contains the following Vision:

DIER Corporate Vision

DIER will be a responsive organisation that leads to the creation of the best physical, regulatory and information infrastructure in Tasmania.

The Corporate Plan goes on to specify the following Strategic Objectives:

- To maintain and develop the infrastructure frameworks to advance social and economic development
- To achieve stakeholder support for all our business activities
- To collaborate within DIER and across all tiers of Government
- To maintain and develop a committed and capable workforce
- To achieve best value for money within budget

The *Roads and Public Transport Divisional Plan (2004 – 2007)* includes the development and completion of the *Strategic Asset Management Plan* as one of its major priorities.

4.2 Demand Drivers

Roads are built and maintained to serve a purpose: to support Tasmania's economy and society with an efficient, effective, safe and accessible road transport system. The State Road Network needs to be designed and maintained to adequately serve the long-term demands for the movement of people and freight. While this Section describes the likely changes in demand, unforeseen circumstances and innovations will always need to be monitored for their possible impact on this SAMP.

The most important changes in demand that can be predicted with reasonable certainty are:

Heavy Freight Demand

- If present trends continue, the Tasmanian road freight task measured in tonnes will almost quadruple by 2020. As heavy vehicles cause the most damage to the roads, this will place a huge demand on maintenance. This is arguably the most important issue that the SAMP needs to address.
- Pulpwood plantations, mostly concentrated in the North-west and north, will soon start to be harvested and will increase in volumes, at least doubling in the next 15 years.
- There will be new industrialisation, and there is the likelihood that there will be a new, major wood processing facility to process the logs that will result in changed flows of logs and road use.
- The global market is causing the increasing centralisation of manufacturing and processing and is causing increasing demand for greater efficiency in road transport and greater competition between road service providers. This in turn will lead to the continuation of the trend towards greater use of high productivity vehicles and technical innovation in vehicles, and may lead to new demands for which the existing road system was never designed.
- The Tasmanian economy is largely export oriented. To maintain and improve this position, Tasmania needs to have efficient and effective access to its industrial sites with a road transport system that is well integrated with State and Local Government infrastructure, and other modes of transport. Well-researched and carefully developed planning schemes that take full account of the projected needs and directions of the transport sector, will provide for an improved investment climate and consequent economic outcomes.

The future of the Tasmanian rail system as a general freight carrier is uncertain. An increase in market share, especially for heavy freight transport, will decrease pressure on the road network. If rail decreases its market share, then the freight task that it currently carries will likely need to be carried by road.

Light Freight Demand

Couriers, parcel freight and home deliveries are increasing, in particular with the availability of increasing use of just-in-time delivery and increasing use of internet home ordering. While this may impact many local roads more than State Roads, those State Roads connecting outlying industrial estates and areas of low density housing development on the fringes of urban areas, will carry increasing numbers of light freight vehicles.

Tourism Demand

The increase in tourists through the introduction of the three Bass Strait ferries and low-cost air travel is resulting in more tourists driving on Tasmania's roads. The addition of some 74,000 visitor vehicles travelling the network each year, is placing a significant demand on the infrastructure asset. Visitors not only expect a safe, well maintained road system, but one with a high level of amenity that adds to the overall travel experience. As well as the roads used to access main tourist destinations, roadside infrastructure such as signage and rest areas will need to be maintained at suitable levels to encourage return trips to maximise this important element of the Tasmanian economy.

Social Demand

- For some years, Tasmania's population level has been comparatively stable. However, recent figures indicate a decline in exits and an increase in the numbers of those coming to the State to live. Consequently, there is presently an upward trend in population numbers. Car ownership has increased and the use of vehicles for travelling to and from work has elevated by some 14% and is continuing.
- Despite the ever-increasing cost of motor fuels, greater levels of community wealth are facilitating increasing mobility. This is manifesting itself through increased numbers living in and commuting from rural residential and urban fringe areas resulting in a diminution of ready access to and from urban centres, especially at peak times.

In the long term, these changes will bring an increased pressure on the network and social demand will emerge as a significant management factor.

As life expectancy increases, the proportion of aged drivers is increasing. While the traditional view is that this sector of the population is less mobile, research shows that this is only true for the very old sector of the population. Roads will need to be better designed and managed to meet the demands and special needs of this increasingly important sector of the population.

Demand for Safer Roads

There is increasing public intolerance for road-related trauma and damage from motor vehicle accidents. The Tasmanian Government's *Tasmanian Road Safety Strategy* identifies safer roads as being one of the three keys factors to achieving the road safety vision of:

Enhancing community wellbeing by minimising the number and severity of road crashes in Tasmania.

Strategic road maintenance has a critical role in the management of network hazards and the achievement of the safety vision.

Demand for Environmental Responsibility

Even though the single most important factor in the future is likely to be the increased use of the network for heavy freight haulage - particularly by high-productivity vehicles - there is an increasing demand and community expectation that the network provides a satisfactory level of performance for increased traffic and a diverse range of uses. Accordingly, there will be a greater demand for strict compliance with all relevant statutes, and the continuing development and implementation of environmental-protection strategies for:

- Road-maintenance operations, particularly those that may lead to the spillage of contaminants and the generation of noise and dust
- Roadside maintenance and land-care operations, to improve aesthetics, through weed and pest control, removal of litter, control of fire-hazards and measures to ensure the preservation of endangered animals, plants, natural communities, aboriginal and historic heritage

4.3 Technological Drivers

There are two aspects of technology associated with the management of roads and bridges:

Infrastructure Technology

While the basic technologies associated with roads and bridges (ie granular pavements with bituminous surfacings and bridges built of concrete, steel and timber) are unlikely to change in the medium to longer term, a number of techniques are used to enhance their performance. These include the use of:

- Stabilisation of granular pavements with lime, cement and bitumen
- Polymers, geotextiles and emulsions for sprayed surfacings
- Open-graded, stone mastic and ultra thin asphalts
- Supplementary cementitious materials to enhance the durability of concrete
- Stainless steel reinforcing in concrete
- Carbon fibre materials for bridge strengthening

Road Use Technology

Technological developments of vehicles continue to increase the demand for the road system. Increased permissible masses for heavy vehicles were introduced from August 1999 on the basis of the 'road friendliness' of load-sharing suspensions. While there was extensive research undertaken as part of the OECD research project DIVINE (acronym for Dynamic Interaction between Vehicle and Infrastructure Experiment), there remains some uncertainty about the benefits of 'road friendly' suspension, particularly in situations such as low speed roads and where impacts are repeated spatially, and whether the suspensions are 'bridge friendly'. Changes to tyres, with the use of super singles and radials with high tyre pressures, are also having an impact. In recent years, there have been major changes in the configuration of vehicles with the introduction of superdogs and B-doubles.

In the interests of achieving greater road transport efficiencies across the nation, the National Transport Commission (NTC) has been developing a set of safety and infrastructure protection standards which are based on performance measures and thresholds. These standards form the criteria for establishing whether proposals for vehicle operations (particularly those involving new, innovative vehicles) meet the required safety and infrastructure protection standards to operate under the Performance-Based Standards (PBS) approach. This approach is an optional alternative to existing prescriptive rules on vehicle mass, dimensions and configuration, in accordance with the policy principles agreed by the Australian Transport Council (ATC) in May 2001.

The standards are designed to ensure that PBS vehicles cause no more road or bridge wear than their prescriptive equivalents.

Technological developments also provide the opportunity to manage demand for the road system through the use of intelligent vehicle systems. Those systems allow opportunities to provide access for over-dimension and over-mass vehicles to parts of the network which have adequate structural capacity for both roads and bridges, with road user charges funding the marginal costs of increased asset consumption.

4.4 Key Management Elements

In the strategic context, the key management elements become:

- (i) Ensuring appropriate asset use and functionality
- (ii) Maximising asset utilisation (ie. service potential is optimised)
- (iii) Application of full life-cycle analysis and costing
- (iv) Reduction or rationalisation of those assets not achieving a high level of productive outcome
- (v) Defining clear responsibilities for all elements of the asset, accountability and reporting
- (vi) Recognition that the management of the infrastructure assets must be directed at providing optimum services to the community

In essence this means:

- (a) Continued monitoring and strategy-refinement in relation to ensuring compliance with, and delivery of, the Government's *Transport Vision and the Corporate Vision* of DIER.
- (b) Continued research, inter-agency liaison and identification of road-safety issues and the implementation of strategic measures for mitigation of road trauma.
- (c) Continued research and adoption of proven, contemporary technologies for enhancement of asset functionality commensurate with life-cycle cost-value and best practice.

5.0 Objectives

Overview

This Section nominates the Objectives of Strategic Asset Management.

5.1 Objectives of Strategic Asset Management

The overall objective of Strategic Asset Management is essentially contained in the Government's *Transport Vision* (ref. 4.1). The support objectives, necessary for delivery of the *Vision*, are:

- Provision of a safe asset for all users
- Minimisation of restrictions on user access to the road network
- Provision of an effective road network that supports an efficient road freight transport
- Preservation of asset value and integrity through sustainable, cost-effective maintenance practices
- Provision of an effective emergency response service
- Management of the asset in an environmentally responsible and sustainable manner
- Provision of road corridors and user facilities with appropriate amenity
- Management of the road network according to Asset Management Principles
- Minimisation of exposure to litigation due to nonfeasance
- The continued development of a funding framework and rationale that will ensure levels of funding are sustainable

6.0 Levels of Service

Overview

This Section identifies the required Levels of Service across the road hierarchy, as well as asset performance targets and community expectations.

6.1 Strategic and Corporate Goals

DIER corporate goals focus on a safe, efficient, reliable and sustainable transport system which will provide social and economic benefits. Safety, efficiency and reliability will continue to be primary outcomes from the Department's programs for asset enhancement, development, maintenance, rehabilitation and replacement.

Limitations on funding however, have a major impact on the ability to achieve these outcomes and, in particular, continue to provide a sustainable road system. A key objective of this Plan is to assess the levels of funding required to achieve agency and Government goals and outcomes and the implications of different funding levels on Levels of Service.

6.2 Road Hierarchy and Targets

The Road Hierarchy categorises roads based on function and use, and sets targets that will provide the roads with a consistent look, level of safety and driving "feel", so that in the long term they provide a uniform and predictable service.

The target Levels of Service for the various road categories are:

Road Hierarchy	Target Levels of Service
Category 1 – Trunk Roads	Sealed surface – overtaking lanes at least each 15km – dual carriageway where warranted – town by-passes where economically justified – high-performance road markings – 100kmph road standard – junctions for high-productivity vehicles – truck parking at least each 50km – limited property access directly onto the road
Category 2 – Freight Roads	Sealed surface – overtaking lanes where warranted – standard road markings – 100kmph road standard - junctions for high-productivity vehicles - truck parking at least each 50km - limited property access directly onto the road
Category 3 – Access Roads	Sealed surface – overtaking lanes where warranted – standard road markings – 80kmph road standard in rural areas - junctions for high-productivity vehicles where appropriate - truck parking at least each 50km - limited property access directly onto the road complemented by local government planning and control
Category 4 – Feeder Roads	Sealed surface – overtaking lanes where warranted – standard road markings – 60kmph road standard - junctions for high-productivity vehicles where appropriate - property access directly onto important roads complemented by local government planning and control
Category 5 – Other Roads	Meet appropriate minimum safety standards for road use, with a higher standard for those roads used for agricultural or forestry purposes.

TABLE 6.2 – ROAD HIERARCHY TARGET LEVELS OF SERVICE

6.3 Bridges

Bridge service levels for public safety and structural competency, are stipulated by the relevant National Standards, design codes and specifications. The functional Levels of Service are:

- There is no impediment to road traffic in relation to legal axle loads and freight dimensions – ie. what can be carried along the road should be carried by the bridge.
- It is open to use at all times (other than occasional maintenance closures)
- Its design and construction takes full account of contemporary technologies, site and environmental conditions, road speeds, present and projected use

6.4 Road Safety

Safety is one of the corner-stones of DIER’s road management system.

All routine road maintenance contracts are designed to provide a safe road environment for the travelling public through the specification and implementation of performance-based standards which are written to address safety issues. Standards are defined in terms of *Maximum Defective Condition* and *Intervention Levels/Response Times*, and are regularly reviewed, often after consultation with stakeholders and /or in response to their needs.

The condition of the road network is closely monitored on a regular basis to ensure that it is operating in a safe manner and to highlight areas that need attention. Skid resistance is one of the key measures that is monitored on a network-wide basis and road crash statistics are used to target particular sites for remedial action.

Bridges are also inspected regularly to ensure that they continue to operate safely at all times, within the legal load limits.

6.5 Road Accessibility

In order to facilitate the transport task, roads need to be accessible to the transport industry and the travelling public in general. DIER aims to meet this need by addressing the specific accessibility issues through the following strategies and accessibility targets:

Issue	Accessibility Target	Delivery Strategy
Heavy vehicles	Use of all major roads	Definition of freight routes, focusing on Category 1, 2 and 3 roads.
Higher Mass Limits	Access to important regions	Definition of specific routes
High-productivity vehicles	Access to important regions	Definition of specific routes
Special mass access	Access to all regions	Issue of special, conditional permits
Flood protection	Elimination of road closures and flood-hazard accidents	Adoption of appropriate design standards for road and bridge works and a continuing involvement in flood-plain management where appropriate
Land stability	Minimisation of road closures	Continuing investigation, planning, risk assessment and development of appropriate management strategies, including reactive emergency management when the need arises
Emergency management	Minimisation of road closures	Prompt implementation of relevant emergency management procedures by DIER and its maintenance contractors.
Delays due to roadworks	Minimal delays due to full or partial road closures at any work sites.	Close supervision of specified maximum delay times required for specific contract works

TABLE 6.5 –ROAD ACCESSIBILITY TARGETS

6.6 Customer Research and Expectations

Research into customer expectations of levels of service from the network is limited, and the levels are often inferred from technical standards.

A number of specific surveys have nevertheless been undertaken and these include:

- The 1997 and 2003 DIER *Road Freight Surveys*
- The *Tasmanian Visitor Information System* (TVIS) survey of tourism facility signage
- ARRB TR research into a *Truck Ride Index*
- Austroads *User Satisfaction Index*

Community feedback is, however, commonplace where there are perceived deficiencies in the performance of the asset and may take the form of complaints about road surface condition, delays at road works, inadequacy of roadside tourist amenities or the height of grass on road verges. Conversely, little feedback occurs where levels of service meet community expectations.

Accordingly, the present levels of service have evolved over time and it is expected that this will be a continuing process as national standards, community needs and expectations change. Future maintenance contracts that provide a greater level of flexibility will therefore be developed and negotiated.

Service levels for public safety are stipulated by relevant National Standards, design codes and specifications.

7.0 Management Strategies

Overview

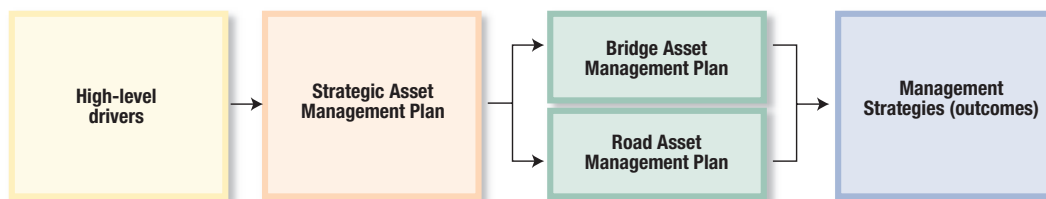
This Section identifies the operational framework for the strategic management of the asset, illustrating the inter-relationship between management drivers, plans and programs. In particular, the strategies to be implemented for the delivery (and risk-minimisation), of the principal Objectives, are nominated and tabulated.

7.1 Introduction

Roads and bridges are managed according to contemporary Asset Management principles. This involves a systematic process of effectively maintaining, upgrading and operating assets, combining engineering principles with sound business practice and economic rationale. The system also provides the tools necessary for a structured but flexible approach to making the decisions necessary to achieve the *Transport Vision*, the objectives nominated in this SAMP and satisfy public expectations.

7.2 Framework for Strategic Management

The framework within which the management of the infrastructure is developed and implemented, is illustrated at 2.3. In essence it comprises:



Pavement management and optimisation, is based on the World Road Association's HDM-4 highway development management model. It provides input for strategic planning and assists in medium to long-term predictions of network performance and funding estimates for a range of different scenarios. High-level management strategies and optimum pavement maintenance programs have been developed within specified budget constraints. The HDM model is considered an important management tool.

The bridge network is managed through a combination of life-cycle projections and expert analyses of condition inspections and ratings, in order to develop management strategies, short-term maintenance programs and long-term replacement plans.

7.3 Management of Key Risks

The strategies outlined in this Plan seek to manage the following key risk issues:

- *Providing a safe asset for all users* – through the provision of appropriate levels of service,
- *Enabling the freight industry to do its business* – by facilitating an efficient access to the road network and providing suitable levels of service,
- *Minimising the contingent liability for future maintenance* – by applying sustainable maintenance funding levels and practices now the liability for future governments and taxpayers will be controlled. This is particularly important given the ageing nature of the asset. A funding framework and rationale will be developed.
- *Minimising exposure to litigation due to nonfeasance issues* – by managing the road network according to a transparent and well-documented system which reflects contemporary asset management principles.
- *Ensuring maintenance practices are environmentally sustainable and meet all legislative requirements* – by appropriate works specifications and firm management of all asset-maintenance contracts.

7.4 Management Strategies

The strategies for the achievement of the Objectives, are summarised in the following schedule:

OBJECTIVE	STRATEGY
1. Provide a safe asset for all users	<ul style="list-style-type: none"> <li data-bbox="644 434 1391 533">(i) Undertake routine asset inspections and perform timely maintenance activities which have been prioritised according to accepted safety standards, affordability and available resources, <hr/> <li data-bbox="644 539 1391 600">(ii) Provide road surfacings of adequate skid resistance, in accordance with the Skid Resistance Strategy, <hr/> <li data-bbox="644 607 1391 674">(iii) Maintain adequate pavement drainage to minimise the potential for ponding and aquaplaning, <hr/> <li data-bbox="644 680 1391 748">(iv) Proactively manage road surfaces and the road corridor generally to counter the effects of ice/snow/fog, <hr/> <li data-bbox="644 754 1391 822">(v) Restore and maintain gravel road shoulder and verge profiles to appropriate standards, <hr/> <li data-bbox="644 828 1391 927">(vi) Ensure that road delineation and traffic furniture meet approved standards and provide appropriate guidance and protection for road users, <hr/> <li data-bbox="644 934 1391 1055">(vii) Instigate a safety barrier replacement program to meet contemporary standards, including the progressive replacement of low-standard bridge fences with appropriate traffic barriers, as determined by formal risk-analysis and prioritisation, <hr/> <li data-bbox="644 1061 1391 1106">(viii) Provide safe, functional and aesthetic pedestrian underpasses, <hr/> <li data-bbox="644 1113 1391 1180">(ix) Undertake road crash investigations and rectify asset defects where required, <hr/> <li data-bbox="644 1187 1391 1254">(x) Identify and manage high risk roadside hazards (eg dangerous trees, known slips, etc), <hr/> <li data-bbox="644 1261 1391 1305">(xi) Provide safe work-sites for workers and road users.
2. Minimise restrictions to user access to the road network	<ul style="list-style-type: none"> <li data-bbox="644 1337 1391 1404">(i) Facilitate access by High Productivity and Higher Mass Limits freight vehicles to strategic freight routes through the Permit System, <hr/> <li data-bbox="644 1411 1391 1478">(ii) Facilitate access by over-mass and over-dimension vehicles to the road network by application of nationally agreed standards and the Permit System, <hr/> <li data-bbox="644 1485 1391 1606">(iii) Strengthen and/or upgrade bridges on strategic freight routes to meet projected transport needs, and progressively remove load limits on Proclaimed bridges generally, <hr/> <li data-bbox="644 1612 1391 1711">(iv) Operate and maintain structures facilitating both road and marine transport (eg Bridgewater Bridge, Denison Canal Bridge), to ensure continued effective performance, user safety and functionality, <hr/> <li data-bbox="644 1718 1391 1785">(v) Operate the tidal flow system on the Tasman Bridge to effectively manage peak traffic flow periods, <hr/> <li data-bbox="644 1792 1391 1890">(vi) Manage and control the installation of utility services within the road reserve to minimise impact on the existing asset and future developments.

OBJECTIVE	STRATEGY
3. Provide for efficient road freight transport	(i) Maintain pavement conditions to target levels which have been optimised according to both transport user and agency costs, (ii) Progressively widen roads and seal shoulders on high priority freight routes in accordance with Strategic Road Hierarchy targets.
4. Maintain the integrity and value of the asset	(i) Ensure the long term integrity of sealed road pavements and bridges through sustainable maintenance and reinstatement programs, (ii) Provide an effective program of re-sheeting and grading unsealed roads to conserve pavement material and provide adequate strength, drainage and a safe running surface, (iii) Ensure the long term integrity of road corridor infrastructure through a structured maintenance program, (iv) Maintain a functional drainage system to protect the road structure and ensure its long term integrity, (v) Replace existing timber bridges with more permanent structures when they reach the end of their lives, (vi) Determine the load capacity of older and strategically important bridges through a structured load-testing program. (vii) Exercise strict control to prevent use of equipment that will damage roads more than the benefits of technology.
5. Provide an effective emergency response service	(i) Ensure that an Emergency Management System is in place for the timely management of emergency events affecting the road network, including routine responses by maintenance contractors and regular emergency exercises in conjunction with affected industry and community representatives, (ii) Provide and maintain sufficient Bailey (and other temporary) bridging stock, for effective emergency response, and ensure the availability of an appropriate level of related expertise, (iii) Manage structures listed on the State's Critical Infrastructure Register in accordance with nationally-prescribed security guidelines.
6. Manage the asset in an environmentally responsible and sustainable manner	(i) Use a systematic approach to manage vegetation in the road reserve, including declared weeds, high value conservation sites, dangerous trees and fire hazard reduction, (ii) Ensure erosion control in the road reserve is addressed at the design stage and is actively managed after road construction, (iii) Ensure compliance with heritage and environmental legislation in managing road corridors, (iv) Establish policies and practices to encourage good relationships with adjacent landowners, (v) Ensure noise management issues are considered in all construction and maintenance activities, (vi) Maintain, in perpetuity, nominated historic bridges to ensure structural competence, durability, heritage value and tourist attraction, (vii) Progressively remove lead-based paint on affected structures with priorities determined by specific hazard assessments.

OBJECTIVE	STRATEGY
<p>7. Provide road corridors and user facilities with appropriate amenity</p>	<p>(i) Enhance the aesthetic appearance of high profile urban arterial routes and town approaches with low cost maintenance solutions,</p> <hr/> <p>(ii) Remove litter through routine maintenance activities of an appropriate standard, encouraging further community involvement through schemes such as Adopt-A-Highway, and increasing community awareness of the issue,</p> <hr/> <p>(iii) Provide a higher standard of mowing through urban areas and around traffic facilities, and provide appropriate vegetation control elsewhere,</p> <hr/> <p>(iv) Provide clean, hygienic and attractive rest area facilities for road users,</p> <hr/> <p>(v) Maintain structures, fences and traffic facilities in a clean, neat and orderly state, free of offensive graffiti,</p> <hr/> <p>(vi) Remove illegal signs and abandoned vehicles from the road corridor in a timely manner.</p>
<p>8. Manage the road network according to Asset Management Principles</p>	<p>(i) Use an Asset Management System which supports good, contemporary asset management practices that are focused on delivering optimal outcomes while having regard to road user and agency costs, affordability, available resources, and the policies, priorities, strategies and legal requirements of the Department,</p> <hr/> <p>(ii) Ensure “minimum maintenance” principles are embedded in new road and bridge design and construction processes,</p> <hr/> <p>(iii) Ensure Whole of Life Costing principles are embodied within the design process for all road and bridge works,</p> <hr/> <p>(iv) Be responsive to community and industry needs,</p> <hr/> <p>(v) Actively consult with stakeholders, road users and the community on levels of service and the management of the State Road Network,</p> <hr/> <p>(vi) Actively encourage innovation and continuous improvement in all asset management activities,</p> <hr/> <p>(vii) Develop a funding framework and rationale that will ensure levels of funding are sustainable,</p> <hr/> <p>(viii) Regularly review the performance of the Term Maintenance Contracts to ensure that the objectives of the SAMP are being met, and, if not, negotiate changes to the performance measures.</p> <hr/> <p>(ix) Ensure adequate Agency resources are provided for the on-going management of the asset according to best practice, particularly with regard to the availability of appropriate knowledge, skills, competencies and training.</p>

8.0 Financial Summary

Overview

This Section summarises and compares the current vs. historic levels of total funding per annum. The currently-projected funding level for sustainable maintenance intervention is also indicated.

8.1 Financial Summary

Figure 8.1 shows the recent and short-term projected annual expenditure for the following key activities on the State road network (excluding the former National Highway maintenance funding allocation from the Commonwealth):

- Routine road maintenance
- Specific road maintenance
- Road reinstatement
- Bridge maintenance
- Bridge reinstatement
- Assistance to Local Government
- Other

The prior totals are actual expenditure levels for those years (ie. not adjusted in real terms) and are included to illustrate the historic context. The indicated funding levels on to 08/09 are projections based on anticipated funding availability rather than the level required for sustainable asset management.

The indicated costs exclude AusLink and do not include infrastructure development, new constructions, asset upgrading or environmental enhancements.

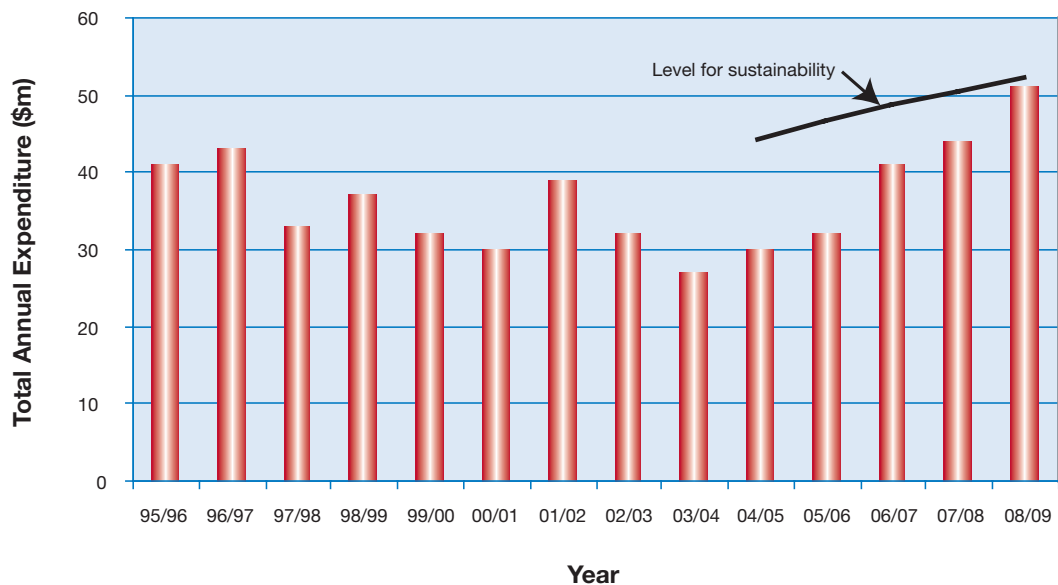


FIGURE 8.1: STATE ROADS MAINTENANCE FUNDING PROFILE

8.2 Sustainability Funding

Sustainable funding addresses the following issues:

- Ensuring the long-term integrity of the State road network and minimising contingent liability for future maintenance through sustainable maintenance practices
- Providing a safe asset for all users
- Minimising exposure to litigation due to non-feasance issues
- Providing appropriate service levels from an economic perspective, including connectivity of road links for existing and future industry needs, by minimising imposition of load limits on roads and bridges

The current funding levels for sustainability compared with current annual expenditure, are illustrated in Fig. 8.2. (An estimate of the Southern Region long-term maintenance contract component costs for resurfacing and reinstatement, has been included).

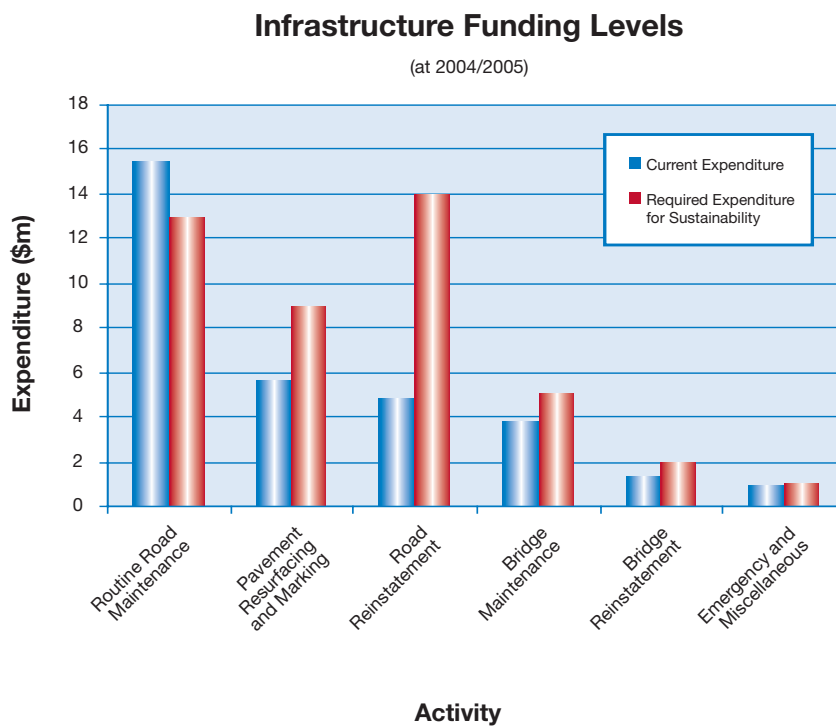


FIG. 8.2 – CURRENT FUNDING LEVELS

8.3 Projected Funding Requirements for Sustainability

A 'sustainability' level of funding is imperative for implementing the management strategies discussed under Section 7. Current sustainability requirements are illustrated at Fig. 8.2.

The projected 5-year funding levels for sustainability, are shown at Table 8.3 noting that the figures are indicative only, due to the complex cross-sharing of State and Federal funds for the AusLink and the uncertainty of the nature of the next round of maintenance contracts (all due for negotiation within the 5-year projection period).

Item	Road	2005/06	2006/07	2007/08	2008/09	2009/10
Routine Road Maintenance	AusLink State	2.76 17.50	2.80 18.00	2.80 18.80	2.85 14.70	2.90 15.14
Specific Road Maintenance	AusLink State	1.13 6.81	1.17 7.70	1.20 7.80	2.12 10.70	2.18 11.02
Road Reinstatement	AusLink State	1.74 17.28	1.79 17.79	1.84 18.00	1.90 18.20	1.96 18.75
Bridge Maintenance	AusLink State	0.80 6.93	3.75 10.25	0.96 7.73	0.50 7.27	0.52 5.06
Bridge Reinstatement	AusLink State	0.00 4.67	0.94 7.25	0.00 3.94	0.00 1.13	2.08 5.92
Assistance to Local Govt.	State	0.27	0.26	0.24	0.27	0.28
Miscellaneous	State	0.64	0.67	0.69	0.71	0.73
TOTALS	AusLink	6.43	10.45	6.80	7.37	9.64
	State	54.1	61.92	57.2	52.98	56.9

Figures are \$m.

TABLE 8.3 - FIVE-YEAR SUSTAINABILITY FUNDING LEVELS

The projections include the Commonwealth Government's AusLink maintenance contribution to the States over the next five years. Current indications are that for Tasmania, this amount will be in the order of \$6m per annum.

9.0 Asset Disposal

Overview

This Section outlines the basic considerations and methodologies adopted by DIER for asset disposal.

9.1 Principles

Asset disposal may involve handover of (by-passed) road sections or bridges, transfer to others by agreement, demolition, or rendering the asset non-functional. Disposal is undertaken in accordance with the relevant Statutes and DIER guidelines. Local government, community groups, planning authorities, transport industry and others with a statutory or vested interest are consulted at both the planning and operational phases. Any transferred assets become the responsibility of the recipient.

Until the disposal process is completed, the asset is provided with an appropriate level of maintenance to allow continuing use, or the site is provided with suitable barriers and warning signs to prevent public access and Departmental liability.

9.2 Asset Disposal Process

The evaluation and disposal procedure is summarised in the process flow-chart at Fig. 9.2 below.

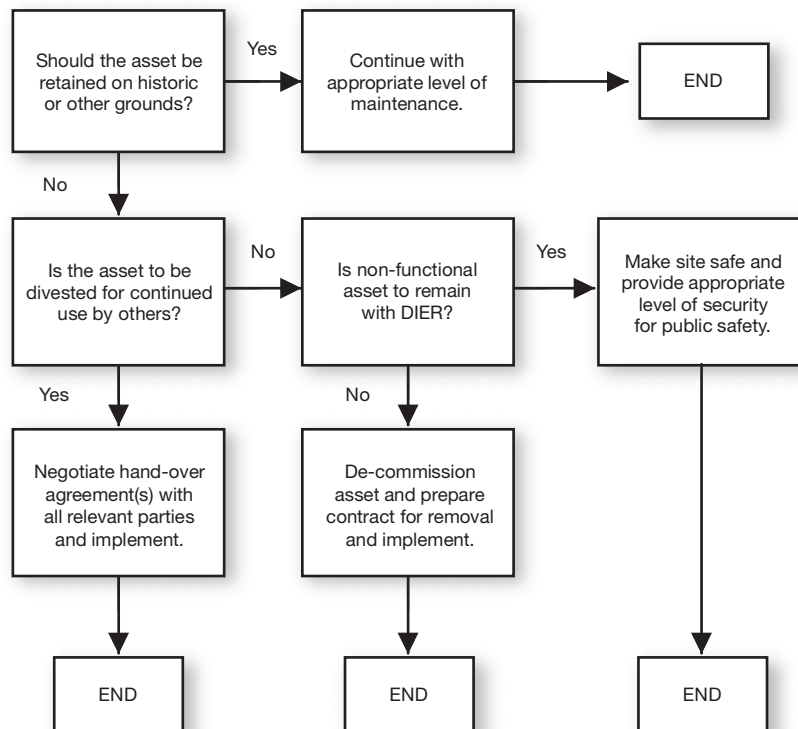


FIG. 9.2 – ASSET-DISPOSAL PROCESS

10.0 SAMP Monitoring and Improvement

Overview

This Section discusses the important issues of monitoring the performance of the *Strategic Asset Management Plan* and providing mechanisms for future improvements. The role and functionality of the DIER road and bridge asset management plans are also noted.

10.1 Amendments

The SAMP is considered to be a 'living document' and amendments will be undertaken on a periodic basis. Notwithstanding, it is subject to a formal Review at periods not exceeding three years. Improvements identified during that period are collated for consideration at the Review and the Plan amended as appropriate.

If in the interim period a significant issue emerges that requires an immediate amendment or improvement to the Plan, an amendment notice is issued. The Review will subsequently consider any amendments made during the operational period and confirm or revoke their inclusion in the next edition.

10.2 Monitoring Plan Performance

Monitoring the performance of the *Strategic Asset Management Plan* is a continuing process. Feedback from the broad spectrum of stakeholders and relevant DIER staff is forwarded to the Transport Infrastructure Branch Asset Manager. Recommendations are collated and suggested amendments prioritised.

Auditing of the implementation, operation and functionality of the SAMP, is undertaken on a three-yearly basis, timed to precede the Review, by an independent auditor, external to the DIER Transport Infrastructure Branch. The auditor focuses primarily on the overall effectiveness of the Plan, the nominated asset management strategies and the levels of service of the asset compared to those prescribed. The Auditor's report is taken as a monitoring component.

The performance of the Plan is assessed against tangible gains in several criteria, including:

- Level of safety for asset users
- Access to the road network
- Transport efficiency gains
- Maintained or improved asset value
- DIER emergency response and management
- Environmental management
- Asset facilities and amenities
- Corridor aesthetics
- Application of asset management principles

To ensure consistency and scope, the audit process will be undertaken in accordance with specific *Guidelines* developed for the purpose.

The effectiveness of this *Strategic Asset Management Plan* will be assessed against the following criteria:

Management Element	Assessment Criteria
1. Knowledge	<ul style="list-style-type: none"> • Increased ease of access to a consistent, user-friendly and up-to-date asset database covering generic and condition data • Improved feedback from Operations on completed contract works and services, by way of timely Completion Reports and/or Progress Reports • Increased level and frequency of asset inspections, with an emphasis on the ageing sectors and those carrying significant repair works
2. Asset valuation	<ul style="list-style-type: none"> • Refinement of the valuation methodologies • Determination of contemporary, robust valuations
3. Cost-benefit	<ul style="list-style-type: none"> • Improved cost-benefit across all works and services • Acceptance of cost-benefit assessments as basis for major proposals
4. Communication	<ul style="list-style-type: none"> • An increased level of public sector consultation • Greater awareness by the Government and the general public regarding how the Agency manages the infrastructure asset • Greater awareness by stakeholders as to the criteria that determine strategic management decisions • Increased constructive feedback from the public generally and the commercial road users in particular, regarding the way the Agency is addressing and managing infrastructure issues • Periodic review of Levels of Service, following external consultation
5. Asset function	<ul style="list-style-type: none"> • Decrease in number of road sectors with load or dimension limitations • All roads intended for B-doubles (or similar loading) are at full function • Decrease in number of road sectors subject to flooding or landslip • Reduced number of complaints from road users
6. Forecasting	<ul style="list-style-type: none"> • Works and services forecast and programmed on a well-funded, rational and robust basis using sound Life-Cycle criteria with minimal 'reactive' management • Forecasting merges well with community expectations and political imperatives without compromising engineering priorities or standards
7. Programming	<ul style="list-style-type: none"> • Short and long-term programming simplified by the employment of new Life-Cycle data, extensive and contemporary asset-condition assessments and appropriate funding levels • The programming process is well supported by adequate resources
8. Asset condition	<ul style="list-style-type: none"> • Programmed inspections show a steady improvement in overall asset condition when measured against standard criteria • A fall in the level of negative feedback from users • Increased complimentary feedback from the community and stakeholders

Management Element	Assessment Criteria
9. Risk attenuation	<ul style="list-style-type: none"> • Adoption of risk-assessment processes for all major proposals • Risk-reduction strategies implemented as appropriate • Identification, evaluation and adoption of business risk exposures, as appropriate • No sector of the asset to present any level of risk to legitimate users • A reduction in the number of sectors of the asset that present a commercial or community-safety risk through under-performance (eg. road closure due to landslip)
10. Funding	<ul style="list-style-type: none"> • Funding levels are at required level for sustainable asset maintenance • Funding levels are predictive to enable the development of desirable, short- and long-term management programs, without deferments or reduction of standards • Funding levels permit the engagement and retention of necessary resources
11. Road and Bridge Asset Management Plans	<ul style="list-style-type: none"> • Plans prove to be effective and result in the achievement of the strategic goals • Identify shortcomings in resource allocation and funding strategies and identify solutions • Identify areas and quanta for improvements in infrastructure asset management • Identify linked needs for complementary infrastructure elements • Periodic review and improvements are easily undertaken and implemented • Boost confidence in the management process • Identify areas for improved cost-benefit

TABLE 10.2 – SAMP PERFORMANCE CRITERIA

10.3 Road and Bridge Asset Management Plans

The issue and implementation of the *Road Asset Management Plan* and the *Bridge Asset Management Plan* as support documents, will enhance the management of the infrastructure asset by:

- (i) Providing a more robust basis for cost-estimation and budgeting
- (ii) Providing long-term cost projections for sustainable funding levels
- (iii) Providing long-term projections for works and services
- (iv) Identification and/or confirmation of all significant asset-management elements and nomination of appropriate management strategies
- (v) Providing clear guidance on the applicable processes for effective delivery of good management outcomes
- (vi) Providing asset life-cycle data that will enable more predictive management programs
- (vii) Providing pertinent information regarding levels of service and standards to apply when developing contracts for works and services
- (viii) Rationalising the need for a management re-focus and emphasis on asset maintenance as a higher priority to new works and asset development
- (ix) Enhancing asset functionality through sustainable, optimum maintenance

Each of these Plans contains performance criteria that, in turn, will bear on the SAMP and therefore assist in its evaluation as an effective document.

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