Tenterfield Shire Council



Road Network

Asset Management Plan



Adopted: Council Resolution 87/13 – 27 March 2013



Tenterfield Shire Council – Road Network Asset Management Plan

	Asset Management for S	Small, Rural or Remote Communities
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Asset Management for Small, Rural or Remote Communities Practice Note

The Institute of Public Works Engineering Australia.

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1. Executive summary

1.1. Context

Tenterfield Shire Council's road network is an extensive combination of sealed and unsealed roads servicing the town of Tenterfield, its villages, state forest, national parks and neighbouring rural district. The provision of the road network in a serviceable condition is essential for the main industries of the region of agriculture and tourism.

The main issue associated with the management of the road network asset is inadequate funding to address renewal requirements. Of specific concern are the condition of numerous old bridges (mostly timber) which are near or exceeding their design life, and the transfer of state maintained roads to Council without adequate funding to compensate for the additional costs of renewal.

Due to limited available resources, Tenterfield Shire Council prioritises the upgrade of assets and construction of new assets as low priority, focusing instead on maintenance and renewal to support a modest level of service.

1.2. The road network service

The road network comprises approximately:

- 570km of sealed roads
- 1120km of unsealed roads
- 150 bridges (62 of which are timber)
- 4,597 concrete culverts
- 390 concrete causeways

These infrastructure assets have a replacement value of \$248 million.

1.3. What does it cost?

The projected cost to provide the services covered by this the Road Network Asset Management Plan including operations, maintenance, renewal and upgrade of existing assets over the 10 year planning period is \$97 million or \$9.7 million per year. Council's estimated available funding for this period is \$47 million or \$4.7 million per year which is 48% of the cost to provide the service. This is a funding shortfall of \$5 million per year which, if not addressed, will result in decreases to the level at which existing services can be provided. This may be in the form of load limited bridges, removal of bridges from service, restrictions to some classes of vehicles on regional and local roads, reversion of sealed roads to unsealed, or lower quality gravel surfaces.



The large gap between available funding and requisite expenditure is due largely to several upcoming capital projects, notably the replacement of timber bridges, and upgrading the Mt Lindesay Highway, Tooloom Rd and Bruxner Way. Without these projects, existing services will not be available at the current level, but the road service will generally remain available.

What we will do

Council plans to provide Road Network services for the following:

- Operation, maintenance and renewal of rural and regional roads, town streets, bridges, culverts, causeways and footpaths to meet service levels set by council in annual budgets, to the extent that available resources permit.
- Revitalise the main street of Tenterfield, secure the Tenterfield heavy vehicle bypass, seal the remaining unsealed section of the Mt Lindesay Road from Tenterfield to Legume, realign at least part of Bruxner Way approaching the New England Highway and continue efforts to rebuild Mt Lindesay road from Legume to Woodenbong within the 10 year planning period.

What we cannot do

Council does not have enough funding to provide all services at the desired service levels or provide new services. Works and services that cannot be provided under present funding levels are:

- New sealing of rural roads.
- Maintenance of existing road seals.
- Maintenance of a consistent depth of road gravel to unsealed roads.
- Maintenance of all bridges to a standard where no load limits are applied and future service is assured.

Managing the Risks

There are risks associated with providing the service and not being able to complete all identified activities and projects. We have identified major risks as:

- Insufficient funding
- Severe weather events such as the 2011 and 2012 floods
- Failure of major bridge structures

We will endeavour to manage these risks by:

- Identifying additional funding opportunities and supporting regional economic development.
- Monitoring bridges to ensure significant risks to service are identified and repaired where possible.

The next steps

The actions resulting from this asset management plan are:

- Identify options for additional funding including state and federal infrastructure grants, and special rates variations
- Improve the quality of renewal and maintenance project identification and prioritisation through updates to condition rating systems

Questions you may have

What is this plan about?

This asset management plan covers the infrastructure assets that serve the Tenterfield Shire Community's road network needs. These assets include roads, bridges, culverts, causeways and footpaths throughout the Council area that enable people to access businesses, residences, recreational facilities and tourist destinations.

What is an Asset Management Plan?

Asset management planning is a comprehensive process to ensure delivery of services from infrastructure is provided in a financially sustainable manner.

An asset management plan details information about infrastructure assets including actions required to provide an agreed level of service in the most cost effective manner. The Plan defines the services to be provided, how the services are provided and what funds are required to provide the services.

Why is there a funding shortfall?

Most of the Council's transport network was constructed from government grants, or by other government organizations such as the NSW Department of Works which were often provided and accepted without consideration of ongoing operations, maintenance and replacement needs.

Many of these assets are approaching the later years of their life and require replacement. The useful life of the assets is decreasing and maintenance costs are increasing.

Councils' present funding levels are insufficient to continue to provide existing services at current levels in the medium or long term.

What options do we have?

Resolving the funding shortfall involves several steps:

- Improving asset knowledge so that data accurately records the asset inventory, how assets are performing and when assets are not able to provide the required service levels,
- 2. Improving our efficiency in operating, maintaining, replacing existing and constructing new assets to optimise life cycle costs,
- 3. Identifying and managing risks associated with providing services from infrastructure,
- 4. Making trade-offs between service levels and costs to ensure that the community receives the best return from infrastructure,
- 5. Identifying assets surplus to needs for disposal to make savings in future operations and maintenance costs
- 6. Consulting with the community to ensure that transport services and costs meet community needs and are affordable,
- 7. Developing partnership with other bodies, where available to provide services;
- 8. Seeking additional funding from governments and other bodies to better reflect a 'whole of government' funding approach to infrastructure services.

What happens if we don't manage the shortfall?

Council will have to reduce service levels in some areas, unless new sources of revenue are found. For the road network, the service level reduction may include downgrading of sealed roads to gravel, removal of through access where a bridge is taken out of service and reduction in cycle times for planned maintenance of gravel roads.

What can we do?

Council can develop options and priorities for future road network services with costs of providing the services, consult with the community to plan future services to match the community services needs with ability to pay for services and maximise benefit to the community for costs to the community.

What can you do?

Council will be pleased to consider your thoughts on the issues raised in this asset management plan and suggestions on how Council may change or reduce its transport services mix to ensure that the appropriate level of service can be provided to the community within available funding.

2. Introduction

2.1. Background

This asset management plan demonstrates responsive management of assets (and services provided from assets), compliance with regulatory requirements, and communicates funding levels needed to provide the required levels of service. This document is integrally linked to the Road Network Management Plan (RNMP) which details operational guidelines to the management of roads and associated assets. This document, the Road Network Asset Management Plan (RNAMP) addresses the whole-of-life funding of Council's roads and associated assets.

The asset management plan is to be read with Council's Asset Management Policy and the following associated planning documents:

- Road Network Management Plan
- Community Strategic Plan
- Local Environment Plan
- Operational Plan
- Workforce Management Plan
- Annual Report
- MapInfo Spatial Asset Register
- Other Asset Management Plans

This infrastructure assets covered by this asset management plan are shown in Table 2.1.

Asset category	Dimension	Replacement Value
Roads – sealed and unsealed	1,691 km (1,120 km unsealed 570 km sealed)	\$206 million
Bridges – Timber and Concrete	26,132 m²	\$20.7 million
Rural Culverts	4,540	\$12.3 million
Causeways	390	\$3.2 million
Footpaths & Cycle ways		\$1.8 million
Kerb and gutter	33km	\$1.6 million
TOTAL		\$247 million

Table 2-1 Assets covered by this plan

Under the Roads Act 1993, Council has a maintenance responsibility only for public roads that have been dedicated to Council. In reality, Council maintains many more roads than this, as the legal status is not clearly defined for some roads, while others are not on Council road reserves (they may be in private land, or reserves controlled by other authorities including Crown reserves and state forests), or sit within Council road reserve for only part of their length. As a result it is not always clear whether a road is, or is not, a public road, and at times it may be necessary to carry out extensive searches to determine the status of a road. This plan assumes that all roads being maintained by Council at March 2013 are public roads.

2.2. Goals and objectives of asset management

Council's primary objective is to provide services to its community. Many of these services are provided by infrastructure assets. Council has acquired infrastructure assets from other government bodies (i.e. NSW Department

of Works), by 'purchase', by contract, construction by council staff and by donation of assets constructed by developers and others to meet increased levels of service.

Council's goal in managing infrastructure assets is to meet the community's desired level of service in the most cost effective manner for present and future consumers. The key elements of infrastructure asset management are:

- Taking a life cycle approach,
- Developing cost-effective management strategies for the long term,
- Providing a defined level of service and monitoring performance,
- Understanding and meeting the demands of growth through demand management and infrastructure investment,
- Managing risks associated with asset failures,
- Sustainable use of physical resources,
- Continuous improvement in asset management practices.

The goal of this asset management plan is to:

- Document the services/service levels to be provided and the costs of providing the service,
- Communicate the consequences for service levels and risk, where desired funding is not available, and
- Provide information to assist decision makers in trading off service levels, costs and risks to provide services in a financially sustainable manner.

This asset management plan is prepared under the direction of Council's vision, mission, goals and objectives.

Council's mission is:

Quality Nature, Quality Heritage, Quality Lifestyle

Council's vision is:

- To establish a shire where the environment will be protected and enhanced to ensure sustainability and inter-generational equity,
- To recognise and actively develop our cultural strengths and unique heritage,
- To establish a prosperous shire through balanced, sustainable economic growth managed in a way to create quality lifestyles and satisfy the employment, environmental and social aims of the community,
- To establish a community spirit which encourages a quality lifestyle, supports health and social well-being, promotes family life and lifestyle choices,
- To establish a community spirit which promotes opportunities to participate in sport and recreation, promotes equal access to all services and facilities, and
- To encourage all people to participate in the economic and social life of the community with a supportive attitude towards equal life chances and equal opportunity for access to the Shire's resources.

Relevant goals and objectives and how these are addressed in this asset management plan are shown in Table 2.2.

Table 2-2 Organisation goals and how these are addressed in this plan

Goal/objective	How Goal and Objectives are addressed in AMP
Sustainability and inter- generational equity	The long term costs of asset management and maintenance are determined and spread across their life span. This allows planning for acceptable levels of service and allocation of resources to ensure functioning assets with the cost not disproportionally allocated to future generations.
Establish a prosperous shire with quality lifestyle and economic development	The true cost of assets and their useful life is identified. Key assets are prioritised and realistic levels of service established.
Equal access to recreation,	The road network is a key requirement for accessibility. This plan identifies long

Goal/objective	How Goal and Objectives are addressed in AMP
services and facilities	term maintenance requirements and opportunities for improvement to ensure recreational facilities (many, such as national parks are accessed along rural roads) and services are accessible.

2.3. Plan framework

Key elements of the plan are

- Levels of service specifies the services and levels of service to be provided by council.
- Future demand how this will impact on future service delivery and how this is to be met.
- Life cycle management how the organisation will manage its existing and future assets to provide the required services
- Financial summary what funds are required to provide the required services.
- Asset management practices
- Monitoring how the plan will be monitored to ensure it is meeting the organisation's objectives.
- Asset management improvement plan

This asset management plan is prepared in accordance with the International Infrastructure Management Manual. It is prepared to meet minimum legislative and organisational requirements for sustainable service delivery and long term financial planning and reporting. Core asset management is a 'top down' approach where analysis is applied at the 'system' or 'network' level.

2.4. Community consultation

This asset management plan incorporates community consultation from Nov 2012 to Jan 2013 on infrastructure and service levels. This has assisted Council and the community in matching the level of service needed by the community, service risks and consequences with the community's ability to pay for the service.

Key results from the community consultations include:

- Road maintenance is the highest priority infrastructure priority for respondents overall, with 49.2% listing it as the highest or second highest maintenance priority.
- 98% of all respondents support the trial of alternative maintenance techniques such as recovery of verge material, and different ripping and rolling strategies.
- 84% (85% for rural) believe the quality of maintenance is more important than the length between maintenance visits;
- 72% (72% for rural) do not support Council maintaining private roads (this is current practice);
- 85% (81% for rural) believe all roads of the same class and usage should be maintained to the same standard;
- 66% (63% for rural) support the current policy of maintaining roads only to the second last property access;
- 78% believe better roads will improve tourist traffic to outer regions of the shire, but only 37% believe this justifies prioritisation of roads which are tourist routes;
- 57% support removing an expensive-to-replace bridge from service if an alternative route less than 5km longer exists;
- 72% are in support of better communication regarding maintenance cycle timing;

3. Levels of service

3.1. Customer Research and Expectations

Council completed a "road show" presenting the challenges facing the Tenterfield Shire in maintaining and improving assets in Nov/Dec 2012. As part of this process, and through subsequent surveys mailed to every Tenterfield Shire Resident (also online), the service expectations and level of understanding regarding asset management were determined. Service levels, maintenance strategies and the performance of the Road Network in general are outlined in the Tenterfield Shire Council Road Network Management Plan.

3.2. Legislative Requirements

Council has to meet many legislative requirements including Australian and State legislation and State regulations. The most significant of the relevant legislation is shown in Table 3.2.

Legislation	Requirement
Local Government Act 1993	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by asset management plans for sustainable service delivery.
Local Government Amendment (Planning and Reporting) Act 2009	Local Government Amendment (Planning and Reporting) Act 2009 includes the preparation of a long term financial plan supported by asset management plans for sustainable service delivery.
Public Works Act, 1912	Sets out the role of Council in the planning and construction of new assets.
Road Transport (General) Act, 2005	Provides for the administration and enforcement of road transport legislation. It provides for the review of decisions made under road transport legislation. It makes provision for the use of vehicles on roads and road related areas and also with respect to written off and wrecked vehicles.
Roads Act, 1993	Sets out rights of the public to pass along public roads, establishes procedures for opening and closing public roads, and provides for the classification of roads. It also provides for declaration of the RMS and other public authorities as roads authorities for both classified and unclassified roads, and confers certain functions (in particular, the function of carrying out roadwork) on the RMS and other roads authorities. Finally it provides for distribution of functions conferred by the Act between the RMS and other roads authorities, and regulates the carrying out of various activities on public roads.

Table 3-1 Legislative requirements

3.3. Levels of service

Customer levels of service – Customer levels of service for the road network are defined and described in the Tenterfield Shire Council Road Network Management Plan.

Technical levels of service - Supporting the community service levels are operational or technical measures of performance. These technical measures relate to the allocation of resources to service activities that the council undertakes to best achieve the desired community outcomes.

Technical service measures are linked to annual budgets covering:

- Operations the regular activities to provide services such as opening hours, cleansing frequency, mowing frequency, etc.
- Maintenance the activities necessary to retain an assets as near as practicable to its original condition (e.g. road patching, unsealed road grading, building and structure repairs),
- Renewal the activities that return the service capability of an asset up to that which it had originally (e.g. frequency and cost of road resurfacing and pavement reconstruction, pipeline replacement and bridge replacement),
- Upgrade the activities to provide an higher level of service (e.g. widening a road, sealing an unsealed road, replacing a pipeline with a larger size) or a new service that did not exist previously (e.g. a new road).

4. Future demand

4.1. Demand forecast

Factors affecting demand include population change, changes in demographics, seasonal factors, vehicle ownership, consumer preferences and expectations, economic factors, agricultural practices and environmental awareness. There is expected to be little change in demand due to population growth. The Tenterfield Shire's population has increased from 6,394 to 6,811 in the last 10 years (ABS) while the population of Tenterfield town has decreased from 3,191 to 2,997. Drake and Urbenville and other villages also exhibit decreasing or stable populations. This indicates a decentralisation of the population with the increased prevalence of lifestyle properties and small acreages. The non-urban/village population has increased from approx. 2,500 to 3,115 over 10 years, a growth of nearly 25%.

An aging demographic is also in evidence with an increase in persons aged over 54 from 30% to 39% and a decrease in persons aged 19 or under from 27% to 24%. The median age has increased from 41 to 47. Workforce participate has decrease from 53% to 50% since 2001, as would be expected from the aging population.

Demand factor trends and impacts on service delivery are summarised in Table 4-1.

Table 4-1 Demand factors, projections and impact on community

Demand factor	Present position (2011)	Projection (2021)	Impact on Community/Services
Population	6811	7500	Focus on maintenance and renewal of existing services
Non-urban population	3115	3750	Increased demand on rural road infrastructure
55 or older	39%	42%	Increased demand on health services
19 or younger	24%	21%	Possible reduction in education service personnel
Median age	47	51	Increased emphasis on lifestyle and recreation
Workforce participation	50%	48%	An aging local work force may make it more difficult to employ skilled personnel

4.2. Changes in technology

Technology changes forecast to affect the delivery of services covered by this plan are detailed in Table 4-2.

Table 4-2 Changes in technology and forecast effect on service delivery

Technology Change	Effect on Service Delivery
Social media and internet connectivity	Reduction in boundaries to rural residents "tele-commuting" and further decentralisation of the population. Increase of e-services such as remote medical services delivered over the internet, and remote video education.

Technology Change	Effect on Service Delivery
Increased use of GPS	Reduction in importance and significance of some signage; improvement in data collection and management for Asset Management
Changing pavement technologies, including new binders for Insitu stabilisation of sealed pavements and polymer modified bitumen binders	Reduction in gravel replacement, seal life extension

4.3. Demand management planning

Demand for the continuation of existing and for new services will be managed through a combination of existing asset maintenance and upgrade, the provision of modest asset upgrades to meet demand, and adjustments to expected service levels. Demand management practices can include non-asset solutions, insuring against risks and managing failures.

Non-asset solutions focus on providing the required service without the need for the council to own the assets and are not readily available for roads infrastructure in the rural context. As current funding is not adequate to maintain existing levels of service, it is essential that the expected consistent demand is addressed through either the communication of the resultant decrease in service levels, or by securing new funding.

4.4. New assets for growth

Council's road infrastructure is extensive and provides access to most parts of the Shire. There are five significant projects that are expected to impact on the potential for growth in the Shire:

1. The Legume to Woodenbong section of the Mt Lindesay Rd;

This section of road is extremely poor and need significant upgrade to provide basic safe access to the entire region. The upgrade of this region is essential to supporting population growth and tourism which will flow due to its location only 2 hours drive from Brisbane. A cost / benefit case and economic analysis for the region are under preparation.

2. The Tenterfield Heavy Vehicle Bypass.

The latter is a state or federally funded project and largely out of control of Council. As there is the potential for this project to negatively impact on traffic passing through and servicing local businesses, it is a priority of Council to improve the road infrastructure adjacent the existing highway (under Council control) to attract visitors and ensure the future prosperity of the town.

3. Sealing the last 17km off the Mt Lindesay Highway between Tenterfield and Legume

This section of road will provide the connectivity between the growth region supported by the Legume to Woodenbong section of the Mt Lindesay Rd, and Tenterfield.

4. Rebuilding and widening Tooloom Rd

While Tooloom Rd is not a particularly busy road, it is steep and windy, and the existing pavement is at the end of its useful life. Due to the terrain, the option of returning it a gravel road is not available. As the incremental cost to widen the road when compared to renewal is relatively low, the upgrade of this road is identified as a major project.

5. Realigning Bruxner Way from Sunnyside Loop Road to the New England Highway

Bruxner Way west is one of the busier roads under Council management taking an ADV of 276 vehicles (59 heavy). The section approaching the New England Highway has poor horizontal and vertical alignment and needs improvement to be suitable for the quantity and nature of traffic.

5. Lifecycle management plan

The lifecycle management plan details how Council plans to manage and operate the assets at the agreed levels of service (defined in Section 3) while optimising life cycle costs.

5.1. Background data

5.1.1. Road hierarchy

The road hierarchy provides a framework for structuring data in an information system to assist in collection of data, reporting information, specifying levels of service and making decisions. The hierarchy identifies the level of service of the components used which provides assistance in asset service planning, delivery and financial reporting. The road hierarchy is explained in detail in the RNMP, but also included below in Table 5-1 and Table 5-2 for reference.

Road Class	Description of Class
A – Regional Roads	Regional roads form part of the State-wide Regional network of roads, providing transport links between major towns and cities. They are roads classified in accordance with the NSW State Government's classification system and are included in the calculation of Council's annual Block Grant for Regional Roads.
B – Primary Rural	Primary Rural roads are the highest priority rural local roads and carry higher traffic volumes greater than 75 vehicles per day. Historically continuous school bus routes and roads which carry 50 – 75 vehicles per day and carry greater than 3% heavy vehicles are eligible for classification as Primary Rural.
C – Secondary Rural	Secondary Rural roads are mid priority rural local roads and carry traffic volumes less than 75 vehicles per day but which service more than 10 different property owners and have an average traffic volume greater than 20 vehicles per day. Secondary rural roads may also serve as bus routes.
D – Local Access	Local access roads are the lowest priority local roads servicing less than 10 different property owners or have traffic volumes of less than 20 vehicles per day.

Table 5-1 Asset service hierarchy - rural

Table 5-2 Asset service hierarchy - urban

Road Class	Description of Class
Class A – Arterial	Arterial Streets provide principal avenues of communication and links between parts of large cities or between major towns and cities. Within the towns and villages of Tenterfield Shire, only the New England Highway and Bruxner Highway perform this function. They are roads classified as National or State in accordance with the State Government's classification system. Maintenance on the central portion of the road is the responsibility of State and Federal Governments. However, Council has a maintenance responsibility for the parking lanes, footpaths and road reserve of these roads.
Class B – Sub – Arterial Streets	Sub-Arterial Streets are those streets which connect arterial streets to areas of development and other major areas of the town or shire. These streets carry high traffic volumes with a broad range of vehicle types. In the towns and villages of Tenterfield Shire, only the Regional Roads meet these requirements.

Road Class	Description of Class
Class C – Collector Streets	Collector streets are those streets which provide a link for traffic from the residential street system, some rural areas, industrial areas and other trip generators to other collector streets, sub-arterial or arterial streets.
Class D – Local Access Streets	Local Access Streets are streets which principally provide access to and from property. These streets generally carry low traffic volumes and form the bulk of streets within Tenterfield Shire.
Class E – Lanes	These streets generally provide alternative access to properties. They are narrower than Class D streets and generally have very low traffic volumes.

5.1.2. Physical parameters

Sealed and unsealed roads

This Management Plan deals only with Regional and Local Roads which are under the control of Council as a roads authority. The travelling lanes of State Roads within the urban areas and the area between the table drains throughout the Tenterfield Shire are controlled by the RMS and are not included as assets of the Tenterfield Shire Council. All other assets within the road reserve are included as Tenterfield Shire Council's responsibility.

Council managed roads range from lowly traffic roads which are generally formed from the natural granite substrate, through roads with gravel surfacing up to sealed roads of varying width and condition. The design standard for the different types of roads are described in the RNMP.

A summary of the length of roads and the surface is shown in each class and environment is shown in Table 5-3, Table 5-4 and Table 5-5.

Table 5-3 Road asset physical summary – rural roads

	Unsealed	Sealed	Total
Α	20.8 km	215.6 km	236.4 km
В	195.2 km	216.4 km	411.6 km
С	420.2 km	44.2 km	464.3 km
D	477.5 km	25.1 km	502.6 km
Total	1113.7 km	501.2 km	1614.9 km

Table 5-4 Road asset physical summary – urban roads

	Unsealed	Sealed	Total
Α	0.0 km	2.6 km	2.6 km
С	0.0 km	11.2 km	11.2 km
D	6.3 km	45.8 km	52.1 km
E	4.2 km	9.8 km	13.9 km
Total	10.5 km	69.3 km	79.8 km

Table 5-5 Road asset physical summary – all roads

	Unsealed	Sealed	Total
Total	1124.2 km	570.5 km	1694.7 km

Bridges

The early bridges built in the Shire were constructed from the readily locally available material - being timber. Later bridges were made of concrete, steel or composites such as Doolan Decks. As timber structures have deteriorated and when funds are available some structures over smaller waterways have been replaced with large box culverts whereas in other locations where waterway flows are higher or where road level above stream bed depth are greater, concrete bridges have been constructed as the most suitable solution. In some locations throughout the shire partial replacement of the bridge has occurred; some with concrete abutments and timber girders while others have timber abutments with concrete deck planking.

Hence the principal types of bridges within Tenterfield Shire can be grouped into the following categories:

- Timber;
- Concrete;
- Steel;
- Composite, both steel girder with concrete deck and timber girder with concrete deck (Doolan Deck);
- Combined Concrete abutment with timber girders or timber abutment with concrete decking;
- Bridge Size Box Culverts and multi cell pipes.

Bridges constitute the largest risk to maintenance of service in Tenterfield Shire due to the fact that current estimates place approximately 50% of bridges at age 60 and over, and the failure of a bridge results in the failure of connected services with no available reduced level of service. Figure 5-1 shows the estimated age profile for the bridge assets, although it should be noted this is extrapolated from the subset of 40 bridges for which we have established construction dates. There is a total of 150 bridges on our register, 62 of which are timber.



Figure 5-1 Bridge age profile

Culverts

This plan deals only with stormwater culverts in rural areas. Urban stormwater is managed in the SWAMP.

The rural culverts are comprised of nearly every type of culvert in over 100 different configurations from single barrel pipes of varying standard and nonstandard sizes, through to multi barrel pipes and box culverts. The pipes also have a wide range of ages and conditions with differing quality and type of construction.

Causeways

Causeways are generally concrete but there are some locations where dry creek crossings occur on minor roads that have not been recorded as causeways.

Concrete causeways have two basic types:

• Floodways – No low flow pipe included

• Causeways – Low flow pipe is included in the structure

Footpaths and cycleways

Council has a relatively small footpath and cycleway network, mostly located along the parks adjacent Tenterfield Creek or on the main street (Rouse St). There are short lengths of footpaths in some of the villages.

Kerb and gutter

Some of Council's higher class urban roads have kerb and gutter (K&G). The K&G asset is described and improvements projected in the Stormwater Asset Management Plan but its condition rating and maintenance falls under this plan. The inclusion of the K&G upgrades in the SWAMP is due to the fact that upgrades to K&G are primarily associated with upgrades to the stormwater system, often independent of any significant improvement to the road.

Signs and road furniture

The signage and road furniture such as guide posts, guard rails and linemarking are key features of the road network but are a relatively low cost component of the asset. The cost of providing these assets is a function of the road class, built environment and terrain.

5.1.3. Asset capacity and performance

Council's services are generally provided to meet design standards where these are available and when available funding allows. The target design levels for the assets in this plan are described in the Tenterfield Shire Council Road Network Management Plan.

There are many locations where service performance is deficient. This is most readily seen with load limited bridges, blocked culverts, overgrown vegetation impeding road alignments, insufficient gravel coverage, failing bituminous seals, rural roads with poor running surface and failing causeways. The most significant underperforming asset is the Mt Lindesay Highway from Legume to Woodenbong which urgently requires reconstruction.

5.1.4. Asset condition

Each individual asset in this Plan is graded in accordance with its condition. This condition rating is used to value the assets, assess its remaining life and plan for its maintenance. While the specific criteria for each asset varies due to the physical characteristics of the asset classes, the rating system is broadly in accordance with the conditions shown in Table 5-6.

Condition Grading	Description of Condition
1	Very Good: only planned maintenance required
2	Good: minor maintenance required plus planned maintenance
3	Fair: significant maintenance required
4	Poor: significant renewal/rehabilitation required
5	Very Poor: physically unsound and/or beyond rehabilitation

Table 5-6 IIMM description of condition

Sealed roads

Council has more sealed roads than it can afford to maintain. Many of these roads are at the end of their design life and urgently require reconstruction including the key Regional Roads:

- 1. Mt Lindesay Rd from Legume to Woodenbong;
- 2. Amosfield Rd and
- 3. Tooloom Rd.

Condition Grading	Description of Condition
1	No visible cracking
2	Fine cracking, <5% patching
3	Extensive cracking, plucking, 5% to 10% of area patched
4	Extensive cracking, patches on patches, 10% to 20% of area patched or failing
5	Greater than 20% patched or failing

Figure 5-2 Sealed road condition profile



Unsealed roads

While unsealed roads offer a generally inferior running surface compared to sealed surfaces when both assets are newly constructed, unsealed roads are more easily and cost efficiently bought back to an acceptable level of service. Unsealed roads are not suitable for high levels of traffic such as the levels on Regional roads, but are an appropriate surface for most lower-trafficked local roads. The condition of local roads varies widely across the different classes and is prioritised according to usage. This variation in condition is also strongly influenced by available resources which impact on cycle time for grader maintenance.

Table 5-8 Unsealed road condition rating

Condition Grading	Description of Condition
1	>90% of design pavement depth for road class, or intact seal on sealed road
2	65%-90% of design pavement depth for road class
3	40%-65% of design pavement depth for road class

Condition Grading	Description of Condition
4	Less than 40% bulk of design pavement depth for road class and earthworks exposed up to 50 % of area
5	Less than 40% bulk of design pavement depth for road class and earthworks exposed more than 50 % of area

Figure 5-3 Unsealed road condition profile



Bridges

Council carries out routine inspections of all bridges in accordance with Council's Road Network Management Plan. During Council's most recent inspection (a Level 1 Bridge Inspection) a full inventory register of all bridge components has been prepared. The Level 1 Inspection has identified which bridges needed further inspections, a Level 2 Inspection has been carried out by consultants on these bridges and defects noted.

Council's bridge data set does not contain any data on bridge load carrying capacity. Concrete and steel bridge structures were constructed in accordance with the design standards at the time of construction, but loss of strength due to fatigue loadings has occurred since construction. Council has regular inquiries about the load carrying capacity of bridges for proposed heavy load permits particularly on regional roads.

NOTE: Condition profiles for bridges will be included in future revisions of the plan as improved data is collected.

Condition Grading	Description of Condition
1	Good: New.
2	Minor Defects – may require maintenance or monitoring to prevent further problems.
3	Moderate Defects – Will require major maintenance or repairs to prevent further deterioration to Condition 4.
4	Severe Defects: Component is beyond repair and should be replaced.
5	Very Poor: Unserviceable – bridge should be closed until rectification completed.

Table 5-9 Bridge condition rating

Culverts

The enormous numbers of culverts in the road network mean that there is large variance in their condition and performance. Recent years with heavy rain events and limited maintenance resources have resulted in many blocked culverts whose condition may be restored with maintenance. Unfortunately a large number of culverts are also at or nearing their useful life and should be replaced, including handmade, poorly jointed culverts and culverts installed using older techniques such as bedding in hay.

NOTE: Condition profiles for culverts will be included in future revisions of the plan as improved data is collected.

Condition Grading	Description of Condition
1	Sound physical condition; insignificant deterioration; insignificant loss of hydraulic capacity
2	Minor defects; minor loss of hydraulic capacity; minor joint displacement (25mm); minor wear on invert – roughened surface; minor joint defect - spalling (10mm deep); minor cracking – single longitudinal or circumferential (0.5 mm).
3	Partial joint failure; root intrusion; joint displacement (50mm); multiple longitudinal cracking; service pipe through pipe; moderate circumferential fracture (10-20mm wide); corrosion evident – moderate rust spots (up to 50mm diameter); spalling on cracks (10mm); longitudinal joint displacement (25mm); moderate surface damage – heavily pitted; reinforcement exposed at spalling.
4	Significant longitudinal cracking (10mm wide); serious spalling (20mm) and corrosion of reinforcement; significant joint displacement (pipe wall thickness); significant cracking – multiple 10mm cracks; major fracture (20 – 30mm wide); major longitudinal joint displacement (50mm).
5	Major vertical displacement (100mm); Severe spalling and corrosion (pipe wall thickness); major fractures – blocks full pipe thickness; pipe fracture & collapse; significant longitudinal fractures (20mm)

Table 5-10 Culvert condition rating

Causeways

There are many causeways which are in a very poor condition and need replacement. This has been exacerbated by recent flood events. Older causeways have been affected by poor quality concrete and the lack off cutofff walls to prevent undermining. While these are gradually being replaced, this renewal cannot keep pace with the increasing number of failing or failed causeways.

NOTE: Condition profiles for causeways will be included in future revisions of the plan as improved data is collected.

Condition Grading	Description of Condition
1	Very Good – less than 1mm wide cracks over less than 1% of the area
2	Good – less than 3mm wide cracks over $1 - 5$ % of the area
3	Fair – greater than 3mm wide cracks over 5 – 10 % of the area

Table 5-11 Causeway condition rating

Condition Grading	Description of Condition
4	Poor – greater than 3mm wide cracks over greater than 10% of the area, significant undermining, patches of exposed reinforcement (<50mm square) or dangerous approach / departure grades in the structure
5	Very Poor – greater than 3mm wide cracks over greater than 10% of the area, undermining causing structural damage, sections of exposed reinforcement (>50mm square) or dangerous approach / departure grades in the structure

Footpaths and cycleways

The footpath and cycleways are in relatively good condition with much of the network along Tenterfield Creek only recently installed. The footpaths along the main street are less consistent, but not degraded to the point where service is consistently unreliable. Much of the paving along Rouse St in the central business district is expected to be renewed as part of works to improve the streetscape.

NOTE: Condition profiles for footpaths and cycleways will be included in future revisions of the plan as improved data is collected.

Table 5-12 Footpath and cycleway condition rating

Condition Grading	Description of Condition
1	Very Good – less than 1mm wide cracks over less than 1% of the area
2	Good – less than 3mm wide cracks over $1 - 5$ % of the area
3	Fair – greater than 3mm wide cracks over 5 – 10 % of the area
4	Poor – greater than 3mm wide cracks over greater than 10% of the area patches of exposed reinforcement (<50mm square) or regular differentials in height (<20% of joints less than 10mm) creating a potential hazard or uneven surface
5	Very Poor – greater than 3mm wide cracks over greater than 10% of the area patches of exposed reinforcement (>50mm square), regular differentials in height (>20% of joints less than 10mm, or joints >10mm) creating a potential hazard or uneven surface

Kerb and gutter

Table 5-13 Kerb and gutter condition rating

Condition Grading	Description of Condition
1	Sound physical condition; insignificant deterioration; insignificant loss of hydraulic capacity
2	Isolated fine cracking at intervals; Isolated misalignment (up to 5mm); minor cosmetic chipping; minor ponding in channel only.
3	Block cracking (3 – 5mm wide) up to 20% of length; Misalignment (5 – 15mm) up to 30% of length; Isolated chipping (30mm dia.) average 5m apart; significant ponding confined to channel (up to 30%)

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Condition Grading	Description of Condition
4	Block cracking (3 – 5mm wide) 20% - 50% of length; Misalignment (15 – 50mm) up to 50% of length water infiltration to pavement; Chipping & spalling some water infiltration (up to 50% of length); ponding encroaching into pavement with some pavement damage (up to 30%)
5	Block cracking with displacement & sections missing, water infiltrating pavement (more than 50%); misalignment over 50mm (over 50%) water infiltration; Major spalling (over 50%); Ponding significantly encroaching onto pavement, water infiltration, (30%), significant impact on adjoining pavement.

Signs and road furniture

Table 5-14 Signs and road furniture condition rating

Condition Grading	Description of Condition
1	In good condition
2	Signs: Post out of alignment, but sign still visible to traffic and serviceable
	Guardrail: Guardrail is cosmetically damaged but otherwise in full service
	Guideposts: Guidepost is out of alignment but sign still visible to traffic and serviceable
3	Signs: Post badly out of alignment, sign slightly bent or faded
	Guardrail: Guardrail has significant damage such as from a collision or is showing signs of age and fatigue such as rust to >5% but otherwise serves its function without creating a hazard.
	Guideposts: Guidepost is badly out of alignment but still visible to traffic, or reflector is faded to <75% luminosity
4	Signs : Badly Damaged – shot, torn, badly bent or faded, no night visibility.
	Guardrail: Guardrail has significant damage such as from a collision or is showing signs of age and fatigue such as rust to >20% but remains an effective barrier without creating a hazard, or support posts are showing evidence of undermining.
	Guideposts: Guidepost shows structural damage, or reflector is faded to <50% luminosity
5	Signs: Sign is missing or does not communicate required message
	Road Furniture: Guardrail or post or other item does not provide the required service or is a traffic hazard.

5.1.5. Asset valuations

The value of assets recorded in the asset register as at March 2013 covered by this asset management plan is shown below. Assets were last revalued between 2011 (bridges), 2012 (culverts, kerb and causeways) and 2013 (roads). The current valuation of road assets is summarized in Table 5-15

	Current Replacement Value	Depreciated Replacement Cost	Residual value at end of life	Depreciable Amount	Annual Depreciation
Earthworks	\$120,382,139	\$120,382,139	\$120,382,139	\$0	\$0
Pavements	\$61,809,099	\$47,506,496	\$30,904,550	\$30,904,550	\$684,981
Seal	\$23,642,255	\$18,642,179	\$159,261	\$23,482,994	\$939,320
Furniture	\$1,111,851	\$778,296	\$277,963	\$833,888	\$16,674
Road Total	\$206,945,345	\$187,309,111	\$151,723,912	\$55,221,432	\$1,640,974
Road Total	\$206,945,345	\$187,309,111	\$151,723,912	\$55,221,432	\$1,640,974
Bridges	\$20,681,235	\$15,055,364	\$0	\$20,681,235	\$364,202
Causeways	\$3,234,718	\$1,210,697	\$0	\$3,234,718	\$14,455
Culverts	\$12,344,156	\$9,528,116	\$0	\$12,344,156	\$246,883
Signs and furniture	\$1,111,851	\$667,111	\$277,963	\$833 <i>,</i> 888	\$16,674
Footpaths	\$1,884,029	\$1,704,767	\$0	\$1,884,029	\$47,101
Kerb and channel	\$1,664,775	\$573,474	\$0	\$1,664,775	\$41,119

Table 5-15 Road network valuation summary

Council's sustainability reporting reports the rate of annual asset consumption and compares this to asset renewal and asset upgrade and expansion.

\$152,001,875

\$95,864,234

\$2,371,408

\$216,048,639

Table 5-16 Road network metrics

Total Road Network

Asset Consumption (Depreciation/Depreciable Amount)	2.47%
Asset renewal	
(Capital renewal exp/Depreciable	
amount)	0.85%
Annual Upgrade/New	
(Capital upgrade exp/Depreciable	
amount)	0.63%
Renewal Sustainability	
(Renewal/Depreciation)	34.54%

\$247,866,109

Council is currently renewing assets at 34.54% of the rate they are being consumed each year and is not increasing the size of the asset base in any appreciable way.

To provide services in a financially sustainable manner, Council will need to ensure that it is renewing assets at the rate they are being consumed over the medium-long term and funding the life cycle costs for all new assets and services in its long term financial plan.

5.2. Risk management plan

An assessment of risks associated with service delivery from infrastructure assets has identified critical risks that will result in loss or reduction in service from infrastructure assets or a 'financial shock' to the organisation. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

Critical risks, being those assessed as 'Very High' - requiring immediate corrective action and 'High' – requiring prioritised corrective action identified in the Infrastructure Risk Management Plan are summarised in Table 5-17.

Table 5-17	Critical	risks and	treatment plans	

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Associated Costs
Bridges	Gradual or sudden failure due to deteriorating condition	VH	Identification of most at risk bridges (mainly timber) and performing critical maintenance or reducing service as appropriate. Lobbying for additional funding sources for an upgrade program	\$30 Million
Regional Roads	Condition continues to deteriorate until road is unsafe for certain vehicle classes, or all vehicles.	VH	Monitoring of condition and implementation of service restrictions as necessary while lobbying for appropriate funding sources for upgrades	\$25 Million
Sealed Roads	Deterioration in sealed surface to the point the road becomes unsafe	VH	Monitoring of condition and implementation of service restrictions as necessary, or alternatively ripping up sealed surfaces and returning to gravel road while lobbying for appropriate funding sources for upgrades	\$3.5 Million
Road Network, especially at watercourses	Flooding events or heavy rainfall	Η	Renewal or upgrade projects to be prioritised to at risk assets. Construction to consider for larger rainfall events	Not calculable

5.3. Routine maintenance plan

Routine maintenance is the regular on-going work that is necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make the asset operational again.

5.3.1. Maintenance plan

Maintenance includes reactive, planned and specific maintenance work activities.

Reactive maintenance is unplanned repair work carried out in response to service requests and management/supervisory directions. This maintenance occurs due to road failures, often after significant rainfall events.

Planned maintenance is repair work that is identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/breakdown experience, prioritising, scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.

Specific maintenance is replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including repainting, building roof replacement, etc. This work generally falls below the capital/maintenance threshold but may require a specific budget allocation.

Details of Council's maintenance planning and response levels of service are included in the Road Network Management Plan. Actual past maintenance expenditure is shown in Table 5-18. Current maintenance expenditure levels are considered to be inadequate to meet required service levels.

 Table 5-18 Maintenance expenditure trends

Year	Maintenance Expenditure
2012/2013	\$3,341,000 (budget)
2011/2012	\$3,273,414
2010/2011	\$3,394,168

5.3.2. Standards and specifications

Maintenance work is carried out in accordance with the Road Network Management Plan

5.3.3. Summary of future operations and maintenance expenditures

Future operations and maintenance expenditure is forecast to remain relatively stable in 2013 dollars due to budget limitations. Additional funds will need to be secured to maintain existing levels of service.

Deferred maintenance, i.e. works that are identified for maintenance and unable to be funded are included in the risk assessment process in the infrastructure risk management plan.

Maintenance is funded from the operating budget and grants where available. This is further discussed in Section 6.2.

5.4. Renewal/replacement plan

Renewal expenditure is major work which does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is upgrade/expansion or new works expenditure.

5.4.1. Renewal plan

Assets requiring renewal are identified using the asset registers and most recent condition rating. The ranking criteria used to determine priority of identified renewal proposals is detailed in Table 5-19.

Table 5-19 Renewal priority ranking criteria

Criteria	Weighting
Current service level of asset requiring renewal and expected life, including safety considerations.	30%
User base	50%

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Criteria	Weighting
Affordability	20%
Total	100%

Renewal will be undertaken using 'low-cost' renewal methods where practical. The aim of 'low-cost' renewals is to restore the service potential or future economic benefits of the asset by renewing the assets at a cost less than replacement cost.

Examples of low cost renewal include:

- Resealing;
- Reclaiming gravel from the adjacent verges rather than resheeting;
- Reusing salvaged timber from bridge replacements to renew other timber bridges;
- Retrofitting cutoff walls to causeways;
- Relaying sound pipework in culverts

5.4.2. Renewal standards

Renewal work is carried out in accordance with the standards outlined in the RNMP.

5.4.3. Summary of projected renewals

Projected future renewal expenditures are forecast to increase over time as the asset stock ages. The forecast costs and available budgets are summarised in Figure 5-4. The projected capital renewal program is shown in Appendix B. Note that all costs are shown in 2013 dollar values. The actual available funding for renewals is projected to decrease in line with inflation as funding for renewal, such as the Roads to Recovery program has not historically increased to compensate for the inflation.

It is important to understand that the renewal programme as described in Appendix B is to complete works necessary to maintain existing levels of service, rather than projects that can be achieved using existing budgets. The difference in necessary renewal expenditure and available funding are further discussed in Section 6. The great majority of the projected renewal expenditure is for the replacement of 52 timber bridges across the Shire. Without this significant cost of approximately \$26M (4/5 of which is within the forecast period), the funding shortage for the renewal program would be much lower.

Deferred renewal, i.e. those assets identified for renewal and not scheduled for renewal in capital works programs are included in the risk assessment process in the risk management plan.

Figure 5-4 Forecast renewal program and available budgets



5.5. Creation/acquisition/upgrade plan

Projects

2014

2015

Budget

2016

2017

New works are those works that create a new asset that did not previously exist, or works which upgrade or improve an existing asset beyond its existing capacity. They may result from growth, social or environmental needs. Assets may also be acquired at no cost to the Council from land development. These assets from growth are considered in Section 4.4.

2018

Projects Cumulative

2019

2020

2021

Budget Cumulative

2022

As Tenterfield has insufficient resources for basic maintenance, the upgrade of assets is a very low priority unless specific funding is available to support it. This is the case with the majority of road upgrade funding which is focused towards the improvement of the Mt Lindesay Highway and Bruxner Way.

5.5.1. Selection criteria

\$2,500,000 \$2,000,000

\$1,500,000

\$1,000,000

\$500,000

\$O

2013

New assets and upgrade/expansion of existing assets are identified from various sources such as community consultation, strategic plans or partnerships with other organisations. Candidate proposals are inspected to verify need and to develop a preliminary estimate. Verified proposals are ranked by priority and available funds and scheduled in future works programmes. The priority ranking criteria is detailed in Table 5-20.

Table 5-20 Upgrade/new assets priority ranking criteria

Criteria	Weighting
Potential for economic / population growth	30%
User base	30%
Affordability	20%
Impact on other services	20%
Total	100%

5.5.2. Standards and specifications

Standards and specifications for new assets and for upgrade/expansion of existing assets are outlined in the RNMP.

\$20,000,000

\$15,000,000

\$10,000,000

\$5,000,000

\$0

5.5.3. Summary of projected upgrade/new assets expenditure

Projected future upgrade expenditures are necessary to undertake 4 significant projects. These projects are the rebuilding and widening of the Mt Lindesay Highway from Legume to Woodenbong, sealing of the remaining sections of the Mt Lindesay Highway, rebuilding and widening Tooloom Rd and realigning Bruxner Way from Sunnyside Loop Road to the New England Highway. The available funding is limited to a regular \$500,000 budget consisting of 50:50 own source funding and matched REPAIR program funding. The forecast costs and available budgets are summarised in Figure 5-5. The projected capital upgrade program is shown in Appendix C. Note that all costs are shown in 2013 dollar values. The actual available funding for renewals is supplemented in 2013 and 2014 by funds contributed by RMS at the time the Bruxner Way was passed to Council to manage. Following this brief injection, funding returns to baseline and is subsequently projected to decrease in line with inflation as funding for upgrades, such as the REPAIR program have not historically increased to compensate for inflation.

It is important to understand that the upgrade programme as described in Appendix C is to complete works necessary to provide improvements to the existing levels of service in specific locations. For the rebuild and widening projects, it will not be possible to maintain the existing levels of service without these upgrades. The difference in necessary renewal expenditure and available funding are further discussed in Section 6.

Deferred renewal, i.e. those assets identified for renewal and not scheduled for renewal in capital works programs are included in the risk assessment process in the risk management plan.





New assets and services are to be funded from capital works program and grants where available. This is further discussed in Section 6.2.

5.6. Disposal plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. No assets have been identified as available for disposal.

6. Financial summary

This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset performance.

6.1. Financial statements and projections

The financial projections are shown in Figure 6-1 (for capital expenditure - renewal and upgrade/expansion/new assets - net disposal expenditure including estimated budget funding).



Figure 6-1 CAPEX projects vs. forecast budgets (combined renewals and new assets)

Note that all costs are shown in 2013 dollar values.

6.1.1. Financial sustainability in service delivery

There are three key indicators for financial sustainability that have been considered in the analysis of the services provided by this asset category, these being long term life cycle costs/expenditures and medium term projected/budgeted expenditures over 5 and 10 years of the planning period.

Long term - life cycle cost

Life cycle costs (or whole of life costs) are the average costs that are required to sustain the service levels over the longest asset life. Life cycle costs include operations and maintenance expenditure and asset consumption (depreciation expense). The life cycle cost for the services covered in this asset management plan is \$5.71 million per year (operations and maintenance expenditure plus depreciation expense in year 1).

Life cycle costs can be compared to life cycle expenditure to give an indicator of sustainability in service provision. Life cycle expenditure includes operations, maintenance and capital renewal expenditure in year 1. Life cycle expenditure will vary depending on the timing of asset renewals. The life cycle expenditure at the start of the plan is \$4.16 million (operations and maintenance expenditure plus budgeted capital renewal expenditure in year 1).

A shortfall between life cycle cost and life cycle expenditure is the life cycle gap.

The life cycle gap for services covered by this asset management plan is -\$1.55 million per year in the first year.

While the Life cycle expenditure is 73% of life cycle costs (giving a life cycle sustainability index of 0.73 in the first year), this underestimate the budget challenges associated with assets with little value which have significant unfunded renewal or upgrade costs. These assets require urgent capital works which are not considered in the sustainability index.

The life cycle costs and life cycle expenditure comparison highlights any difference between present outlays and the average cost of providing the service over the long term. If the life cycle expenditure is less than that life cycle cost, it is most likely that outlays will need to be increased or cuts in services made in the future.

Knowing the extent and timing of any required increase in outlays and the service consequences if funding is not available will assist organisations in providing services to their communities in a financially sustainable manner. This is the purpose of the asset management plans and long term financial plan.

Medium term – 10 year financial planning period

This asset management plan identifies the projected operations, maintenance and capital renewal expenditures required to provide an agreed level of service to the community over a 10 year period. This provides input into 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

These projected expenditures may be compared to budgeted expenditures in the 10 year period to identify any funding shortfall. In a core asset management plan, a gap is generally due to increasing asset renewals for ageing assets.

The projected operations, maintenance and capital renewal expenditure required over the 10 year planning period is \$6.63 million per year.

Estimated (budget) operations, maintenance and capital renewal funding is \$4.06 million per year giving a 10 year funding shortfall of \$2.57 million per year and a 10 year sustainability indicator of 0.61. This indicates that Council has 61% of the projected expenditures needed to provide the services documented in the asset management plan.

Medium term – 5 year financial planning period

The projected operations, maintenance and capital renewal expenditure required over the first 5 years of the planning period is \$6.56 million per year.

Estimated (budget) operations, maintenance and capital renewal funding is \$4.11 million per year giving a 5 year funding shortfall of \$2.44 million. This is 62.7% of projected expenditures giving a 5 year sustainability indicator of 0.627.

Financial sustainability indicators

Providing services from infrastructure in a sustainable manner requires the matching and managing of service levels, risks, projected expenditures and funding to achieve a financial sustainability indicator of 1.0 for the first years of the asset management plan and ideally over the 10 year life of the AM Plan.

Table 6-1 shows the shortfall between projected and budgeted renewals.

Table 6-1 Projected and budgeted renewals and expenditure shortfall

Financial Year Ending	Projected Renewals (\$000)	Planned Renewal Budget (\$000)	Renewal Funding Shortfall (\$000)	Cumulative Shortfall (\$000)
2013	\$2,358	\$820	-\$1,538	-\$1,538
2014	\$2,609	\$796	-\$1,813	-\$3,351
2015	\$4,182	\$773	-\$3,409	-\$6,760
2016	\$3,661	\$750	-\$2,911	-\$9,670
2017	\$3,289	\$729	-\$2,560	-\$12,230

Financial Year Ending	Projected Renewals (\$000)	Planned Renewal Budget (\$000)	Renewal Funding Shortfall (\$000)	Cumulative Shortfall (\$000)
2018	\$3,392	\$707	-\$2,685	-\$14,915
2019	\$3,375	\$687	-\$2,689	-\$17,604
2020	\$3,534	\$667	-\$2,867	-\$20,471
2021	\$3 <i>,</i> 469	\$647	-\$2,821	-\$23,293
2022	\$3,022	\$628	-\$2,393	-\$25,686

Note: An negative shortfall indicates a funding gap, a positive shortfall indicates a surplus for that year.

Providing services in a sustainable manner will require matching of projected asset renewals to meet agreed service levels with planned capital works programs and available revenue. A gap between projected asset renewals, planned asset renewals and funding indicates that further work is required to manage required service levels and funding to eliminate any funding gap.

We will manage the 'gap' by developing this asset management plan to provide guidance on future service levels and resources required to provide these services, and review future services, service levels and costs with the community.

6.1.2. Expenditure projections for long term financial plan

Table 6-2 shows the projected expenditures for the 10 year long term financial plan. Expenditure projections are in current (non-inflated) values.

Financial Year Ending	Maintenance (\$000)	Projected Renewals (\$000)	Capital Upgrade (\$000)
2013	\$3,341	\$2,358	\$345
2014	\$3,341	\$2,609	\$4,880
2015	\$3,341	\$4,182	\$5,791
2016	\$3,341	\$3,661	\$5,647
2017	\$3,341	\$3,289	\$5,550
2018	\$3,341	\$3,392	\$4,462
2019	\$3,341	\$3,375	\$906
2020	\$3,341	\$3,534	\$944
2021	\$3,341	\$3,469	\$981
2022	\$3,341	\$3,022	\$982

Table 6-2 Expenditure projections for long term financial plan (\$000)

Note: All projected expenditures are in 2013 values

6.2. Funding strategy

Projected expenditure identified in Section 6.1 cannot be funded from existing operating and capital budgets. Available funding will determine the extent to which the capital shortfall is addressed, and resultant required reductions in service levels.

6.3. Valuation forecasts

There is not expected to be any significant changes in the road network asset base with all projected capital upgrades replacing existing assets of only moderately lower value. As a result, depreciation expenses are expected to remain relatively stable.

6.4. Key assumptions made in financial forecasts

This section details the key assumptions made in presenting the information contained in this asset management plan and in preparing forecasts of required operating and capital expenditure and asset values, depreciation expense and carrying amount estimates. It is presented to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts.

Key assumptions made in this asset management plan are:

- Residual values of road assets are achievable;
- Condition ratings which are up to 2 years old and prior to 2 major flood events are accurate;
- The sample set of bridges used to assess the age profile is reflective of the wider asset base;
- The adopted standard life of assets predicts the true useful life.

7. Asset management practices

7.1. Accounting/financial systems

7.1.1. Accounting and financial systems

Council employs the Authority enterprise Business System provided by Civica. This is currently planned for replacement by the Horizon system in 2013/2014.

7.1.2. Accountabilities for financial systems

The Director of Corporate Services is responsible for the control of Council's accounting systems.

7.1.3. Accounting standards and regulations

Australia accounting standards (AASB) local Government, code of accounting practice and financial reporting, Council's accounting policy, the local government Act (LGA) and regulations.

In accordance with asset capitalisation policy expenditure which has benefit expected to last more than twelve month should be capitalized. Capital expender includes renewal, expansion and upgrade.

7.1.4. Capital/maintenance threshold

The aim of the capitalisation policy is to set a capitalisation threshold above which assets are required to be recorded by Council in its financial statements. The process for this is the capitalisation process and is achieved by the recording the capital cost of the acquisition of assets into Council's financial system and then into the asset management system.

Roads

Road assets are recognised as follows;

- Sealed surfaces (useful life 15 25 years)
- Sealed pavements (useful life 50-100 years)
- Unsealed pavement (useful life 25-100 years)
- Earthworks and formation are recognized but not depreciated

Work Activity				
Operations	Maintenance & Repair	Capital Renewal	Capital New	
 Service delivery management including condition assessment, defect inspections. Supervision Pavement markings Landscaping maintenance (inc. mowing, slashing, shrub clearing, etc.) Culvert and table drain clearing 	 Reactive maintenance and repair to road assets (pothole repair, washout repairs, guidepost replacement. Programmed maintenance (preparation/patching for sealed road resurfacing, unsealed road grading) Sealed pavement partial renewal/rehabilitation (heavy patching) 	 Pavement replacement/renewal of main (whole) asset with same standard Resurfacing with same standard Gravel resheeting 	 New assets Pavement upgrade – renewal with higher standard Resurfacing upgrade with higher standard Land acquired for road works 	

• Resurfacings are recognised as a new asset and the old asset retired from the asset stock.

• Pavement renewal/rehabilitation/reconstruction (remove and replace) (complete asset) is recognised as a new asset and the old asset retired from the asset stock.

• Pavement low cost renewal (stabilization, Tyne/add gravel and seal, etc of complete asset) is recognised as a new

asset with the old asset revalued to recognize its residual value. Land under roads acquired after 1 July 2008 for roads is recognized as a new asset.

Bridges

Bridge assets are recognized at the following asset level (each item)

• Timber bridge (useful life ~ up to 50 yrs)

• Steel & concrete bridges (useful life ~ up to 80 yrs)

Work Activity

Operations	Maintenance & Repair	Capital Renewal	Capital New
 Service delivery, management including condition assessment, defect inspection and management systems Supervision Cleaning and bridge related vegetation control Utility costs 	 Reactive maintenance to bridges Program maintenance of bridges (repainting, etc) Replacement of components (decks, beams, guard rails, with same standard, etc) < \$15,000 	 Replacement of bridge with the same standard Replacement of components (decks, beams, guard rails, with same standard, etc)> \$15,000. 	 New assets Upgrade asset (strengthening, widening, etc.)
 Bridge renewal (comp Bridge component renewality existing asset value and economic benefits to 	blete asset) is recognised as a newal (partial asset) is recogning the remaining/us the remaining/us the entity.	new asset and the old asset re ised by adding the componen seful life of the renewed asset	etired from the asset stock. t replacement cost to the t o recognise the restored

Culverts and causeways (stormwater)

Stormwater	drainage	assets are	recognised	at the following	asset level	(each item)
Juli	urumuge		recogniseu	at the following	usset iever	(cacin item)

- Pipe length (pipe reach between pits/access points) (useful life ~ 80 100 yrs)
- Pit/access point(useful life 50 yrs)
- Drainage structure (useful life 50 yrs)
- Lined & unlined open drains (useful life 80 yrs)
- Dams/retention basins (useful life 80 120 years)
- Pipelines length between nodes (80-100 years)

Work Activity

Operations	Maintenance & Repair	Capital Renewal	Capital New
 Service delivery (including condition assessment, defect inspection and drainage management system) Supervision Clearing drains and pits Utility costs 	 Reactive maintenance to drainage assets (pipe repair, pit repair and pit component replacement, drainage structure repair Programmed maintenance Replacement of 	 Replacement of asset length of drainage pipeline at same standard Replacement of complete pit/structure Replacement of partial pipe length > \$15,000 	 New assets Upgrade assets

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	partial pipe lengtl \$15,000	<
•	Drainage pipeline renewal (complete asset) is i	ecognised as a new asset and the old asset retired from the

- Drainage pipeline renewal (complete asset) is recognised as a new asset and the old asset retired from the asset stock.
- Drainage pit/access point/structure, pumps (complete asset) is recognised as a new asset and the old asset retired from the asset stock.
- Drainage pipeline low cost renewal (relining, etc) (complete asset) is recognised
- by adding the renewal cost to the existing asset and reviewing the remaining/useful life of the renewed asset to recognise the restored economic benefits to the entity.
- Drainage pipeline renewal (partial asset) is recognized as a new asset and the old asset dimensions modified and revalued to recognise the partial renewal.

Footpaths and cycleways

Footpath assets are recognised at the following asset level (each item)

- Paved surfaces(useful life ~ up to 50 yrs)
- Unsealed surfaces (useful life 7-10 yrs)

Work Activity

Operations		Maintenance & Repair		Capital Renewal		Capital New	
•	Service delivery management including condition assessment, defect inspection and management system Supervision Footpath markings Landscaping maintenance (inc. mowing, slashing, etc.) Clearing footpath related drains and pits Footpath cleaning, sweeping	 Reactive maintenance to footpath assets (pothole repair, joint grinding, segmental pavement resetting, footpath structure repair. Programmed maintenance (paved footpath repair, footpath resurfacing preparation/patching, unsealed surface resurfacing) Paved footpath partial renewal/replacement 	•	Resurfacing with same standard Replacement of whole asset length of paved footpath at same standard	••••	New assets Footpath upgrade- renewal with higher standard Resurfacing upgrade with higher standard	
٠	Footpath renewals (comple stock	lete asset) are recognized as a new	ass	et and the old asset	retir	ed from the asset	

Kerb and gutter

Refer to the SWAMP

Signs and road furniture

 Road & reserve assets (road furniture) are recognized at the following asset level (each item) (useful life ~ 5 to 50 yrs) 					
Work Activity					
Operations		Maintenance & Repair	Capital Renewal	Capital New	
•	Service delivery management including condition assessment, defect inspection and management systems. Supervision Cleaning Utility costs	 Reactive maintenance Programmed maintenance (painting, etc) Replacement of furniture items 		New assets	
•	All new road & reserve furniture assets are recognised as new assets. Replacement of road & furniture assets is expensed as maintenance. Depreciated replacement value of road & asset furniture assets is held at 25% of replacement value.				

7.1.5. Required changes to accounting financial systems arising from this AM Plan

- A review of Council's capital/maintenance thresholds.
- Clarification of renewal expenditure within the maintenance budget by creating a special "renewal" job number.

7.2. Asset management systems

7.2.1. Asset management system

Council employs the Conquest asset management module of the Authority enterprise Business System provided by Civica. Additional asset management registers are maintained in the Engineering Department by the Asset Manager and are included in the RNMP.

7.2.2. Asset registers

Copies of Council's Asset Registers are included in the RNMP, with the exception of the Kerb and Gutter register which is included with the SWAMP.

7.2.3. Linkage from asset management to financial system

The Conquest asset management and accounting systems are integrated internally within the Authority system. Updating of data in Conquest from registers and independent valuations is manual.

7.2.4. Accountabilities for asset management system and data

The GIS officer is responsible for updating the Conquest system up to date. The Asset Manager is responsible for ensuring data in Conquest is as accurate as possible and concords with the Engineering Asset Registers.

7.2.5. Required changes to asset management system arising from this AM Plan

Improved integration of the Engineering Asset Registers and the asset management components managed by Finance is required. The current implementation of a replacement system called Horizon is expected to dramatically improve this integration.

7.3. Information flow requirements and processes

The key information flows into this asset management plan are:

• Council strategic and operational plans,

- Service requests from the community,
- Network assets information,
- The unit rates for categories of work/materials,
- Current levels of service, expenditures, service deficiencies and service risks,
- Projections of various factors affecting future demand for services and new assets acquired by Council,
- Future capital works programs,
- Financial asset values.

The key information flows *from* this asset management plan are:

- The projected Works Program and trends,
- The resulting budget and long term financial plan expenditure projections,
- Financial sustainability indicators.

These will impact the Long Term Financial Plan, Strategic Longer-Term Plan, annual budget and departmental business plans and budgets.

7.4. Standards and guidelines

Standards, guidelines and policy documents referenced in this asset management plan are:

- 2011 Stormwater Assets Revaluation provided by CPA Associates Pty Ltd
- IMEA National Manual, 1994
- Australian Rainfall & Runoff.
- Tenterfield Shire Council Policy 1.014 Asset Management
- Tenterfield Shire Council Road Network Management Plan 2013

8. Plan improvement and monitoring

8.1. Performance measures

The effectiveness of the asset management plan can be measured in the following ways:

- The degree to which the required cashflows identified in this asset management plan are incorporated into the organisation's long term financial plan and Community/Strategic Planning processes and documents,
- The degree to which 1-5 year detailed works programs, budgets, business plans and organisational structures take into account the 'global' works program trends provided by the asset management plan;

8.2. Improvement plan

The asset management improvement plan generated from this asset management plan is shown in Table 8-1.

Table 8-1 Improvement plan

Task No	Task	Responsibility	Resources Required	Timeline
1	Improve seal condition rating	Asset Manager	Asset Inspector	6 months
2	Improve gravel condition rating	Asset Manager	Asset Inspector	12 months
3	Improve causeway condition rating	Asset Manager	Asset Inspector	12 months
4	Establish rural culvert and drainage rating system	Asset Manager	Asset Inspector	12 months
5	Establish improved valuation and condition rating for signs and road furniture	Asset Manager	Asset Inspector	12 months
6	Review renewal program based on updated ratings	Asset Manager / Dep Director Eng	Items 1-5	18 months

8.3. Monitoring and review procedures

This asset management plan will be reviewed during annual budget preparation and amended to recognise any material changes in service levels and/or resources available to provide those services as a result of the budget decision process.

The Plan has a life of 4 years and is due for revision and updating within 1 year of each Council election.

9. References

Tenterfield Shire Council, 2013, Road Network Management Plan www.tenterfield.nsw.gov.au

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IPWEA, 2006, International Infrastructure Management Manual, Institute of Public Works Engineering Australia, Sydney, <u>www.ipwea.org.au</u>.

IPWEA, 2008, *NAMS.PLUS Asset Management* Institute of Public Works Engineering Australia, Sydney, <u>www.ipwea.org.au/namsplus</u>

IPWEA, 2009, Australian Infrastructure Financial Management Guidelines, Institute of Public Works Engineering Australia, Sydney, <u>www.ipwea.org.au/AIFMG</u>.

IPWEA, 2011, Asset Management for Small, Rural or Remote Communities Practice Note No. 4, Institute of Public Works Engineering Australia, Sydney, <u>www.ipwea.org.au/AM4SRRC</u>.

IPWEA, 2011, International Infrastructure Management Manual, Institute of Public Works Engineering Australia, Sydney, <u>www.ipwea.org.au</u>.

10. Appendices

Appendix A	Projected 10 year Capital Renewal Works Program
Appendix B	Planned Upgrade/Exp/New 10 year Capital Works Programs
Appendix C	Abbreviations
Appendix D	Glossary

10.1. Appendix A: Projected 10 year capital renewal works program

10.2. Appendix B: Planned upgrade/exp/new 10 year capital works program

10.3. Appendix C Abbreviations

AAAC	Average annual asset consumption
AMP	Asset management plan
ARI	Average recurrence interval
BOD	Biochemical (biological) oxygen demand
CRC	Current replacement cost
CWMS	Community wastewater management systems
DA	Depreciable amount
EF	Earthworks/formation
IRMP	Infrastructure risk management plan
LCC	Life Cycle cost
LCE	Life cycle expenditure
MMS	Maintenance management system
PCI	Pavement condition index
RNMP	Road network management plan
RNAMP	Road network asset management plan (this plan)
RV	Residual value
SWAMP	Stormwater asset management plan
vph	Vehicles per hour

10.4. Appendix E Glossary

Annual service cost (ASC)

1) Reporting actual cost

The annual (accrual) cost of providing a service including operations, maintenance, depreciation, finance/opportunity and disposal costs less revenue.

2) For investment analysis and budgeting

An estimate of the cost that would be tendered, per annum, if tenders were called for the supply of a service to a performance specification for a fixed term. The Annual Service Cost includes operations, maintenance, depreciation, finance/ opportunity and disposal costs, less revenue.

Asset

A resource controlled by an entity as a result of past events and from which future economic benefits are expected to flow to the entity. Infrastructure assets are a sub-class of property, plant and equipment which are non-current assets with a life greater than 12 months and enable services to be provided.

Asset class

A group of assets having a similar nature or function in the operations of an entity, and which, for purposes of disclosure, is shown as a single item without supplementary disclosure.

Asset condition assessment

The process of continuous or periodic inspection, assessment, measurement and interpretation of the resultant data to indicate the condition of a specific asset so as to determine the need for some preventative or remedial action.

Asset management (AM)

The combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost effective manner.

Average annual asset consumption (AAAC)*

The amount of an organisation's asset base consumed during a reporting period (generally a year). This may be calculated by dividing the depreciable amount by the useful life (or total future economic benefits/service potential) and totalled for each and every asset OR by dividing the carrying amount (depreciated replacement cost) by the remaining useful life (or remaining future economic benefits/service potential) and totalled for each and every asset in an asset category or class.

Borrowings

A borrowing or loan is a contractual obligation of the borrowing entity to deliver cash or another financial asset to the lending entity over a specified period of time or at a specified point in time, to cover both the initial capital provided and the cost of the interest incurred for providing this capital. A borrowing or loan provides the means for the borrowing entity to finance outlays (typically physical assets) when it has insufficient funds of its own to do so, and for the lending entity to make a financial return, normally in the form of interest revenue, on the funding provided.

Capital expenditure

Relatively large (material) expenditure, which has benefits, expected to last for more than 12 months. Capital expenditure includes renewal, expansion and upgrade. Where capital projects involve a combination of renewal, expansion and/or upgrade expenditures, the total project cost needs to be allocated accordingly.

Capital expenditure - expansion

Expenditure that extends the capacity of an existing asset to provide benefits, at the same standard as is currently enjoyed by existing beneficiaries, to a new group of users. It is discretionary expenditure, which increases future operations and maintenance costs, because it increases the organisation's asset base, but may be associated with additional revenue from the new user group, eg. extending a drainage or road network, the provision of an oval or park in a new suburb for new residents.

Capital expenditure - new

Expenditure which creates a new asset providing a new service/output that did not exist beforehand. As it increases service potential it may impact revenue and will increase future operations and maintenance expenditure.

Capital expenditure - renewal

Expenditure on an existing asset or on replacing an existing asset, which returns the service capability of the asset up to that which it had originally. It is periodically required expenditure, relatively large (material) in value compared with the value of the components or sub-components of the asset being renewed. As it reinstates existing service potential, it generally has no impact on revenue, but may reduce future operations and maintenance expenditure if completed at the optimum time, eg. resurfacing or resheeting a material part of a road network, replacing a material section of a drainage network with pipes of the same capacity, resurfacing an oval.

Capital expenditure - upgrade

Expenditure, which enhances an existing asset to provide a higher level of service or expenditure that will increase the life of the asset beyond that which it had originally. Upgrade expenditure is discretionary and often does not result in additional revenue unless direct user charges apply. It will increase operations and maintenance expenditure in the future because of the increase in the organisation's asset base, eg. widening the sealed area of an existing road, replacing drainage pipes with pipes of a greater capacity, enlarging a grandstand at a sporting facility.

Capital funding

Funding to pay for capital expenditure.

Capital grants

Monies received generally tied to the specific projects for which they are granted, which are often upgrade and/or expansion or new investment proposals.

Capital investment expenditure

See capital expenditure definition

Capitalisation threshold

The value of expenditure on non-current assets above which the expenditure is recognised as capital expenditure and below which the expenditure is charged as an expense in the year of acquisition.

Carrying amount

The amount at which an asset is recognised after deducting any accumulated depreciation / amortisation and accumulated impairment losses thereon.

Class of assets

See asset class definition

Component

Specific parts of an asset having independent physical or functional identity and having specific attributes such as different life expectancy, maintenance regimes, risk or criticality.

Cost of an asset

The amount of cash or cash equivalents paid or the fair value of the consideration given to acquire an

asset at the time of its acquisition or construction, including any costs necessary to place the asset into service. This includes one-off design and project management costs.

Current replacement cost (CRC)

The cost the entity would incur to acquire the asset on the reporting date. The cost is measured by reference to the lowest cost at which the gross future economic benefits could be obtained in the normal course of business or the minimum it would cost, to replace the existing asset with a technologically modern equivalent new asset (not a second hand one) with the same economic benefits (gross service potential) allowing for any differences in the quantity and quality of output and in operating costs.

Depreciable amount

The cost of an asset, or other amount substituted for its cost, less its residual value.

Depreciated replacement cost (DRC)

The current replacement cost (CRC) of an asset less, where applicable, accumulated depreciation calculated on the basis of such cost to reflect the already consumed or expired future economic benefits of the asset.

Depreciation / amortisation

The systematic allocation of the depreciable amount (service potential) of an asset over its useful life.

Economic life

See useful life definition.

Expenditure

The spending of money on goods and services. Expenditure includes recurrent and capital.

Fair value

The amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties, in an arms length transaction.

Funding gap

A funding gap exists whenever an entity has insufficient capacity to fund asset renewal and other expenditure necessary to be able to appropriately maintain the range and level of services its existing asset stock was originally designed and intended to deliver. The service capability of the existing asset stock should be determined assuming no additional operating revenue, productivity improvements, or net financial liabilities above levels currently planned or projected. A current funding gap means service levels have already or are currently falling. A projected funding gap if not addressed will result in a future diminution of existing service levels.

Heritage asset

An asset with historic, artistic, scientific, technological, geographical or environmental qualities that is held and maintained principally for its contribution to knowledge and culture and this purpose is central to the objectives of the entity holding it.

Impairment Loss

The amount by which the carrying amount of an asset exceeds its recoverable amount.

Infrastructure assets

Physical assets that contribute to meeting the needs of organisations or the need for access to major economic and social facilities and services, eg. roads, drainage, footpaths and cycleways. These are typically large, interconnected networks or portfolios of composite assets. The components of these assets may be separately maintained, renewed or replaced individually so that the required level and standard of service from the network of assets is continuously sustained. Generally the components and hence the assets have long lives. They are fixed in place and are often have no separate market value.

Investment property

Property held to earn rentals or for capital appreciation or both, rather than for:

(a) use in the production or supply of goods or services or for administrative purposes; or

(b) sale in the ordinary course of business.

Key performance indicator

A qualitative or quantitative measure of a service or activity used to compare actual performance against a standard or other target. Performance indicators commonly relate to statutory limits, safety, responsiveness, cost, comfort, asset performance, reliability, efficiency, environmental protection and customer satisfaction.

Level of service

The defined service quality for a particular service/activity against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental impact, acceptability and cost.

Life Cycle Cost

Total LCC The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal costs.

Average LCC The life cycle cost (LCC) is average cost to provide the service over the longest asset life cycle. It comprises annual operations, maintenance and asset consumption expense, represented by depreciation expense. The Life Cycle Cost does not indicate the funds required to provide the service in a particular year.

Life Cycle Expenditure

The Life Cycle Expenditure (LCE) is the actual or planned annual operations, maintenance and capital renewal expenditure incurred in providing the service in a particular year. Life Cycle Expenditure may be compared to average Life Cycle Cost to give an initial indicator of life cycle sustainability.

Loans / borrowings

See borrowings.

Maintenance

All actions necessary for retaining an asset as near as practicable to its original condition, including regular ongoing day-to-day work necessary to keep assets operating, e.g. road patching but excluding rehabilitation or renewal. It is operating expenditure required to ensure that the asset reaches its expected useful life.

Planned maintenance

Repair work that is identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/breakdown criteria/experience, prioritising scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.

Reactive maintenance

Unplanned repair work that is carried out in response to service requests and management/supervisory directions.

Significant maintenance

Maintenance work to repair components or replace sub-components that needs to be identified as a specific maintenance item in the maintenance budget.

Unplanned maintenance

Corrective work required in the short-term to restore an asset to working condition so it can continue to deliver the required service or to maintain its level of security and integrity.

Maintenance and renewal gap

Difference between estimated budgets and projected required expenditures for maintenance and renewal of assets to achieve/maintain specified service levels, totalled over a defined time (e.g. 5, 10 and 15 years).

Maintenance and renewal sustainability index

Ratio of estimated budget to projected expenditure for maintenance and renewal of assets over a defined time (e.g. 5, 10 and 15 years).

Maintenance expenditure

Recurrent expenditure, which is periodically or regularly required as part of the anticipated schedule of works required to ensure that the asset achieves its useful life and provides the required level of service. It is expenditure, which was anticipated in determining the asset's useful life.

Materiality

The notion of materiality guides the margin of error acceptable, the degree of precision required and the extent of the disclosure required when preparing general purpose financial reports. Information is material if its omission, misstatement or nondisclosure has the potential, individually or collectively, to influence the economic decisions of users taken on the basis of the financial report or affect the discharge of accountability by the management or governing body of the entity.

Modern equivalent asset

Assets that replicate what is in existence with the most cost-effective asset performing the same level of service. It is the most cost efficient, currently available asset which will provide the same stream of services as the existing asset is capable of producing. It allows for technology changes and, improvements and efficiencies in production and installation techniques

Net present value (NPV)

The value to the organisation of the cash flows associated with an asset, liability, activity or event calculated using a discount rate to reflect the time value of money. It is the net amount of discounted total cash inflows after deducting the value of the discounted total cash outflows arising from e.g. the continued use and subsequent disposal of the asset after deducting the value of the discounted total cash outflows.

Non-revenue generating investments

Investments for the provision of goods and services to sustain or improve services to the community that are not expected to generate any savings or revenue to the Council, eg. parks and playgrounds, footpaths, roads and bridges, libraries, etc.

Operations expenditure

Recurrent expenditure, which is continuously required to provide a service. In common use the term typically includes, e.g. power, fuel, staff, plant equipment, oncosts and overheads but excludes maintenance and depreciation. Maintenance and depreciation is on the other hand included in operating expenses.

Operating expense

The gross outflow of economic benefits, being cash and non cash items, during the period arising in the course of ordinary activities of an entity when those outflows result in decreases in equity, other than decreases relating to distributions to equity participants.

Pavement management system

A systematic process for measuring and predicting the condition of road pavements and wearing surfaces over time and recommending corrective actions.

PMS Score

A measure of condition of a road segment determined from a Pavement Management System.

Rate of annual asset consumption

A measure of average annual consumption of assets (AAAC) expressed as a percentage of the depreciable amount (AAAC/DA). Depreciation may be used for AAAC.

Rate of annual asset renewal

A measure of the rate at which assets are being renewed per annum expressed as a percentage of depreciable amount (capital renewal expenditure/DA).

Rate of annual asset upgrade

A measure of the rate at which assets are being upgraded and expanded per annum expressed as a percentage of depreciable amount (capital upgrade/expansion expenditure/DA).

Recoverable amount

The higher of an asset's fair value, less costs to sell and its value in use.

Recurrent expenditure

Relatively small (immaterial) expenditure or that which has benefits expected to last less than 12 months. Recurrent expenditure includes operations and maintenance expenditure.

Recurrent funding

Funding to pay for recurrent expenditure.

Rehabilitation

See capital renewal expenditure definition above.

Remaining useful life

The time remaining until an asset ceases to provide the required service level or economic usefulness. Age plus remaining useful life is useful life.

Renewal

See capital renewal expenditure definition above.

Renewal sustainability

The proportion of the annual depreciation expense that is covered by renewal of assets = Renewal Expense / Annual Depreciation Cost.

Residual value

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

Revenue generating investments

Investments for the provision of goods and services to sustain or improve services to the community that are expected to generate some savings or revenue to offset operating costs, e.g. public halls and theatres, childcare centres, sporting and recreation facilities, tourist information centres, etc.

Risk management

The application of a formal process to the range of possible values relating to key factors associated with a risk in order to determine the resultant ranges of outcomes and their probability of occurrence.

Section or segment

A self-contained part or piece of an infrastructure asset.

Service potential

The total future service capacity of an asset. It is normally determined by reference to the operating capacity and economic life of an asset. A measure of service potential is used in the not-for-profit sector/public sector to value assets, particularly those not producing a cash flow.

Service potential remaining

A measure of the future economic benefits remaining in assets. It may be expressed in dollar values (Fair Value) or as a percentage of total anticipated future economic benefits. It is also a measure of the percentage of the asset's potential to provide services that is still available for use in providing services (Depreciated Replacement Cost/Depreciable Amount).

Strategic Longer-Term Plan

A plan covering the term of office of councillors (4 years minimum) reflecting the needs of the community for the foreseeable future. It brings together the detailed requirements in the council's longer-term plans such as the asset management plan and the long-term financial plan. The plan is prepared in consultation with the community and details where the council is at that point in time, where it wants to go, how it is going to get there, mechanisms for monitoring the achievement of the outcomes and how the plan will be resourced.

Specific Maintenance

Replacement of higher value components/subcomponents of assets that is undertaken on a regular cycle including repainting, building roof replacement, cycle, replacement of air conditioning equipment, etc. This work generally falls below the capital/ maintenance threshold and needs to be identified in a specific maintenance budget allocation.

Sub-component

Smaller individual parts that make up a component part.

Useful life

Either:

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

(b) the number of production or similar units expected to be obtained from the asset by the entity.

It is estimated or expected time between placing the asset into service and removing it from service, or the estimated period of time over which the future economic benefits embodied in a depreciable asset, are expected to be consumed by the council.

Value in Use

The present value of future cash flows expected to be derived from an asset or cash generating unit. It is deemed to be depreciated replacement cost (DRC) for those assets whose future economic benefits are not primarily dependent on the asset's ability to generate net cash inflows, where the entity would, if deprived of the asset, replace its remaining future economic benefits.