### Bathurst Regional Council

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<th>Author</th>
<th>Reviewer</th>
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GF: Greg Fraser Asset Engineer - 2010
BDO: Ben O'Regan Asset Engineer 2010 -
PB: Peter Benson Administration Engineer
SA: Simon Armitage Manager Bathurst Works
DP: Doug Patterson Director Engineering Services

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## ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>AAAC</td>
<td>Average annual asset consumption</td>
</tr>
<tr>
<td>AMP</td>
<td>Asset management plan</td>
</tr>
<tr>
<td>ARI</td>
<td>Average recurrence interval</td>
</tr>
<tr>
<td>BOD</td>
<td>Biochemical (biological) oxygen demand</td>
</tr>
<tr>
<td>CRC</td>
<td>Current replacement cost</td>
</tr>
<tr>
<td>CPI</td>
<td>Consumer Price Index</td>
</tr>
<tr>
<td>CWMS</td>
<td>Community wastewater management systems</td>
</tr>
<tr>
<td>DA</td>
<td>Depreciable amount</td>
</tr>
<tr>
<td>DoH</td>
<td>Department of Health</td>
</tr>
<tr>
<td>EF</td>
<td>Earthworks/formation</td>
</tr>
<tr>
<td>IRMP</td>
<td>Infrastructure risk management plan</td>
</tr>
<tr>
<td>LCC</td>
<td>Life Cycle cost</td>
</tr>
<tr>
<td>LCE</td>
<td>Life cycle expenditure</td>
</tr>
<tr>
<td>MMS</td>
<td>Maintenance management system</td>
</tr>
<tr>
<td>PCI</td>
<td>Pavement condition index</td>
</tr>
<tr>
<td>RV</td>
<td>Residual value</td>
</tr>
<tr>
<td>SS</td>
<td>Suspended solids</td>
</tr>
<tr>
<td>vph</td>
<td>Vehicles per hour</td>
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GLOSSARY

Annual service cost (ASC)
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 operating, maintenance, depreciation, finance/ opportunity and disposal costs, less revenue.

Asset class
Grouping of assets of a similar nature and use in an entity’s operations (AASB 166.37).

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
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.

Assets
Future economic benefits controlled by the entity as a result of past transactions or other past events (AAS27.12).

Property, plant and equipment including infrastructure and other assets (such as furniture and fittings) with benefits expected to last more than 12 month.

Average annual asset consumption (AAAC)*
The amount of a local government’s asset base consumed during a year. This may be calculated by dividing the Depreciable Amount (DA) by the Useful Life and totalled for each and every asset OR by dividing the Fair Value (Depreciated Replacement Cost) by the Remaining Life and totalled for each and every asset in an asset category or class.

Brownfield asset values**
Asset (re)valuation values based on the cost to replace the asset including demolition and restoration costs.

Capital expansion expenditure
Expenditure that extends an existing asset, at the same standard as is currently enjoyed by residents, to a new group of users. It is discretionary expenditure, which increases future operating, and maintenance costs, because it increases council’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
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 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

Capital new expenditure
Expenditure which creates a new asset providing a new service to the community that did not exist beforehand. As it increases service potential it may impact revenue and will increase future operating and maintenance expenditure.

Capital renewal expenditure
Expenditure on an existing asset, which returns the service potential or the life 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 has no impact on revenue, but may reduce future operating and maintenance expenditure if completed at the optimum time, e.g. 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. Where capital projects involve a combination of renewal, expansion and/or upgrade expenditures, the total project cost needs to be allocated accordingly.

Capital upgrade expenditure
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 operating and maintenance expenditure in the future because of the increase in the council’s asset base, e.g. widening the sealed area of an existing road, replacing drainage pipes.
with pipes of a greater capacity, enlarging a grandstand at a sporting facility. Where capital projects involve a combination of renewal, expansion and/or upgrade expenditures, the total project cost needs to be allocated accordingly.

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
An individual part of an asset which contributes to the composition of the whole and can be separated from or attached to an asset or a system.

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, plus 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.

Current replacement cost “As New” (CRC)
The current cost of replacing the original service potential of an existing asset, with a similar modern equivalent asset, i.e. the total cost of replacing an existing asset with an as NEW or similar asset expressed in current dollar values.

Cyclic Maintenance**
Replacement of higher value components/sub-components 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.

Depreciable amount
The cost of an asset, or other amount substituted for its cost, less its residual value (AASB 116.6)

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 arm’s length transaction.

Greenfield asset values**
Asset (re)valuation values based on the cost to initially acquire the asset.

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 of the entity or of another entity that contribute to meeting the public’s need for access to major economic and social facilities and services, e.g. 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 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 (AASB 140.5)
Level of service
The defined service quality for a particular service against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental, acceptability and cost).

Life Cycle Cost **
The life cycle cost (LCC) is average cost to provide the service over the longest asset life cycle. It comprises annual 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 maintenance and capital renewal expenditure incurred in providing the service in a particular year. Life Cycle Expenditure may be compared to Life Cycle Cost to give an initial indicator of life cycle sustainability.

Loans / borrowings
Loans result in funds being received which are then repaid over a period of time with interest (an additional cost). Their primary benefit is in 'spreading the burden' of capital expenditure over time. Although loans enable works to be completed sooner, they are only ultimately cost effective where the capital works funded (generally renewals) result in operating and maintenance cost savings, which are greater than the cost of the loan (interest and charges).

Maintenance and renewal gap
Difference between estimated budgets and projected expenditures for maintenance and renewal of assets, 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
An item is material in its omission or misstatement could influence the economic decisions of users taken on the basis of the financial report. Materiality depends on the size and nature of the omission or misstatement judged in the surrounding circumstances.

Modern equivalent asset.
A structure similar to an existing structure and having the equivalent productive capacity, which could be built using modern materials, techniques and design. Replacement cost is the basis used to estimate the cost of constructing a modern equivalent asset.

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, e.g. parks and playgrounds, footpaths, roads and bridges, libraries, etc.

Operating expenditure
Recurrent expenditure, which is continuously required excluding maintenance and depreciation, e.g. power, fuel, staff, plant equipment, on-costs and overheads.

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

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.

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).

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

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 operating and maintenance expenditure.
**Recurrent funding**
Funding to pay for recurrent expenditure.

**Rehabilitation**
See capital renewal expenditure definition above.

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

**Renewal**
See capital renewal expenditure definition above.

**Residual value**
The net amount which an entity expects to obtain for an asset at the end of its useful life after deducting the expected costs of disposal.

**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 capacity to provide goods and services in accordance with the entity’s objectives, whether those objectives are the generation of net cash inflows or the provision of goods and services of a particular volume and quantity to the beneficiaries thereof.

**Service potential remaining**
A measure of the remaining life of assets expressed as a percentage of economic life. It is also a measure of the percentage of the asset’s potential to provide services that are still available for use in providing services (DRC/DA).

**Strategic Management Plan (SA)**
Documents Council objectives for a specified period (3-5 yrs), the principle activities to achieve the objectives, the means by which that will be carried out, estimated income and expenditure, measures to assess performance and how rating policy relates to the Council’s objectives and activities.

**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. It is the same as the economic life.

**Value in Use**
The present value of estimated future cash flows expected to arise from the continuing use of an asset and from its disposal at the end of its useful life. 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 new cash flows, where if deprived of the asset its future economic benefits would be replaced.

Source: DVC 2006, Glossary
Note: Items shown * modified to use DA instead of CRC
Additional glossary items shown **
1. EXECUTIVE SUMMARY

What Council Provides
Council provides a rural road network to enable the infrastructure necessary for the safe and efficient transport of people and goods within and throughout the Bathurst Region to meet the changing needs of the community.

The rural network consists of 50,420km of roads of regional significance and 917km of local rural roads. Of these roads 518,420km are sealed and 398,917km are unsealed.

State Highways 5, 6 and 7 also traverse the Bathurst Regional Council area and are maintained in the Urban areas by Council, funded by the NSW Roads and Maritime Authority (RMS).

What does it Cost?
There are two key indicators of cost to provide the road service.

- The life cycle cost being the average cost over the life cycle of the asset, and
- The total maintenance and capital renewal expenditure required to deliver existing service levels in the next 10 years covered by Council’s long term financial plan.

The life cycle cost to provide the road service is estimated at $5.192 million per annum. Council’s planned life cycle expenditure for year 1 of the asset management plan is $4.281 million which gives a life cycle sustainability index of 0.82.

The total maintenance and capital renewal expenditure required to provide the Rural road network in the next 10 years is estimated at $41.181 million. This is an average of $4.111 million per annum.

Council’s maintenance and capital renewal expenditure for the first 10 years of the asset management plan is $41.181 million giving a 10 year sustainability index of 0.79.

Plans for the Future
Council plans to operate and maintain the road network to achieve the following strategic objectives.

1. To provide the infrastructure necessary for the safe and efficient transport of people and goods within and throughout the Bathurst Region to meet the changing needs of the community.

2. To provide resources for the continuing maintenance of the roads network and to provide new transport network systems in accordance with identified needs.

Measuring our Performance
Quality
Road assets will be maintained in a reasonably usable condition. Defects found or reported that are outside our service standard will be repaired.

Function
Our intent is that an appropriate road network is maintained in partnership with other levels of government to provide a safe and efficient network.

Road asset attributes will be maintained at a safe level and associated signage and equipment be provided as needed to ensure public safety. We need to ensure key functional objectives are met:
- Maintain roads in a safe condition
- Prolong life of assets through effective maintenance

Safety
Council’s asset team inspects all roads on a cycle of 3 years. In addition, Council relies on observations by Council staff and calls from the Public to report defects. Reported defects are recorded on the Customer Request Maintenance System (CRMS) and sent to the appropriate manager for assessment. Repairs are carried out in accordance CRMS timeframes and available funding.

The Next Steps
This actions resulting from this asset management plan are:
- Implement a systemised approach to defect recording/maintenance co-ordination.
- Make use of available financial data to produce accurate input to future budgets
2. INTRODUCTION

2.1 Background

This asset management plan is to demonstrate responsive management of assets (and services provided from assets), compliance with regulatory requirements, and to communicate funding needed to provide the required levels of service.

The asset management plan is to be read with the following associated planning documents:

- Asset Management Policy 2013,
- Strategy for the resealing of Council roads,
- Guidelines for Engineering Works,
- Community Strategic Plan 2013,
- Bathurst City Traffic Study 1997,
- Bathurst Community Access and Cycling Plan 2011,

This Asset Management Plan is for Rural roads within the Bathurst Regional Council local government area. These assets include the road surface, the layers of road pavement beneath the surface, cuttings, embankments and all civil works supporting the carriageway. This plan does not include bridges, major culverts and causeways which are covered by a separate Asset Management Plan.

Table 2.1. Assets covered by this Plan

<table>
<thead>
<tr>
<th>Asset category</th>
<th>Length (km) Sealed</th>
<th>Length (km) Unsealed</th>
<th>Replacement Value ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Roads – access</td>
<td>89.123</td>
<td>236.799</td>
<td>$84.002</td>
</tr>
<tr>
<td>Rural Roads - collector</td>
<td>115.355</td>
<td>112.394</td>
<td>$67.657</td>
</tr>
<tr>
<td>Rural Roads - distributor</td>
<td>315.171</td>
<td>43.764</td>
<td>$140.920</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>$292.580</strong></td>
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Key stakeholders in the preparation and implementation of this asset management plan are:

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Role Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Councillors</td>
<td>Formulate policy for the allocation of resources to maximise benefit to the community whilst minimising the Council’s exposure to risk</td>
</tr>
<tr>
<td>The Council</td>
<td>To manage the implementation of policy in a timely and cost effective manner. To ensure resources are effectively utilised</td>
</tr>
<tr>
<td>Roads &amp; Maritime Services</td>
<td>Responsibility for all State owned roads and the funding of Regional roads</td>
</tr>
<tr>
<td>Crown Lands Office</td>
<td>Responsibility for all Crown owned land and roads</td>
</tr>
<tr>
<td>General Public</td>
<td>End user of the network</td>
</tr>
<tr>
<td>Local Businesses</td>
<td>Allows access to local business</td>
</tr>
<tr>
<td>Freight transport companies</td>
<td>Require access to designated heavy traffic routes that are constructed to standards relevant to heavy vehicles</td>
</tr>
<tr>
<td>Land developers</td>
<td>Rely on adequate road infrastructure for access to new developments</td>
</tr>
</tbody>
</table>
2.2 Goals and Objectives of Asset Management

The Council exists to provide services to its community. Some of these services are provided by infrastructure assets. Council has acquired infrastructure assets 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 required 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.\(^1\)

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

Council’s vision:
"To enhance the lifestyle and environment through effective leadership, community involvement and commitment to service."

Council’s mission:
"The equitable development and maintenance of services provided for the general health and well-being of the citizens of the Bathurst Region and the adjustment of these services to meet changing needs."

Relevant Council goals and objectives and how these are addressed in this asset management plan are:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Objective</th>
<th>How Goal and Objectives are addressed in IAMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>To enhance lifestyle [...] optimise health and safety</td>
<td>Maintain and improve existing road infrastructure throughout the network</td>
<td>By implementing a program of road network improvements and continuing an extensive maintenance program and securing long term funding for both, the overall quality of the network will be improved</td>
</tr>
<tr>
<td>To create a progressive economic environment that facilitates job creation and is responsive to changing demands.</td>
<td>Ensure adequate road infrastructure is in place to provide for future economic development of the Bathurst Regional area.</td>
<td>Providing extra strength pavement in industrial areas. Ensure road network is maintained to a standard appropriate for a road usage.</td>
</tr>
<tr>
<td>Adequate infrastructure for projected population 80,000 by 2050</td>
<td>To have in place quality infrastructure that meets the needs of the community by providing adequate facilities for a population of 80,000 by the year 2050.</td>
<td>The construction of new road assets to adequately serve the expected rise in population. This includes any upgrading of existing roads required to meet the expected growth</td>
</tr>
<tr>
<td>To provide a road [...] infrastructure network that provides safe and convenient [...] vehicular travel to, from and within the council area.</td>
<td>To maintain and improve existing road infrastructure throughout the network</td>
<td>By implementing a program of road network improvements and continuing an extensive maintenance program and securing long term funding for both the overall quality of the network will be improved</td>
</tr>
</tbody>
</table>

\(^1\) IIMM 2006 Sec 1.1.3, p 1.3
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 Council 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 Council’s objectives.
- Asset management improvement plan

A road map for preparing an asset management plan is shown over.
Road Map for preparing an Asset Management Plan

Source: IIMM Fig 1.5.1, p 1.11

CORPORATE PLANNING
Confirm strategic objectives and establish AM policies, strategies & goals.
Define responsibilities & ownership.
Decide core or advanced AM Pan.
Gain organisation commitment.

REVIEW/COLLABORATE ASSET INFORMATION
Existing information sources
Identify & describe assets.
Data collection
Condition assessments
Performance monitoring
Valuation Data

DEFINE SCOPE & STRUCTURE OF PLAN

IS THE PLAN AFFORDABLE?

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2.4 Core and Advanced Asset Management

This asset management plan is prepared as a ‘core’ asset management plan 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.

It is hoped that future revisions of this asset management plan will move towards ‘advanced’ asset management using a ‘bottom up’ approach for gathering asset information for individual assets to support the optimisation of activities and programs to meet agreed service levels.
3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

The 2012 Bathurst Regional Council Community Survey was conducted between 15 November 2012 and 1 February 2013. The survey aimed to gauge resident satisfaction with a broad range of Council provided services and facilities and to determine the importance of a variety of local issues. A total of 269 surveys were completed.

Respondents were asked to nominate their top five priorities from a list of fourteen options.

Respondents also were asked to rate their satisfaction on a scale of 1 to 10 with 10 being the highest score, with a range of services provided by Council. The Graph at Fig 3.1 shows the trend of satisfaction with the Condition of Rural Road surfaces over the last 6 surveys.
3.1.1 Rural Road Surfaces

Respondent satisfaction with Rural road surfaces has not varied a lot in the past six years, averaging 5.3 out of 10 with an ongoing upward trend.

Council uses this information in developing the Strategic Management Plan and in allocation of resources in the budget. Specific issues regarding the Rural road network may be included in future community surveys to ascertain the success of a particular implemented programme or assess the need for a particular programme.

*Fig 3.1.1 Customer Requests related to Roads*

Figure 3.1 shows a decline in the number average number of complaints per quarter from January 2011 to September 2013. The higher number of road complaints for 2012 can be attributed to the higher than average rainfall for that year, particularly in the first quarter when Bathurst experienced flooding.
3.2 Legislative Requirements

Council has to meet many legislative requirements including Australian and State legislation and State regulations. These include:

**Table 3.2. Legislative Requirements**

<table>
<thead>
<tr>
<th>Legislation</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Government Act 1993</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Details Council’s role as custodian and trustee of public assets, and its associated responsibility to effectively account for and manage these assets.</td>
</tr>
<tr>
<td>Roads Act 1993</td>
<td>To confer certain functions (in particular, the function of carrying out road work) on Council and other roads authorities and to regulate the carrying out of various activities on Council.</td>
</tr>
<tr>
<td>Civil Liabilities Act 2002</td>
<td>Sets out the provisions that give protection from civil liability and the responsibilities of Council and public alike.</td>
</tr>
<tr>
<td>Environmental Planning and Assessment Act 1979</td>
<td>The proper management, development and conservation of natural resources, including agricultural land, natural areas, forests, minerals, water, the city, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment.</td>
</tr>
<tr>
<td>Protection of the Environment Operations Act 1997</td>
<td>To protect, restore and enhance the quality of the environment having regard to the need to maintain ecologically sustainable development.</td>
</tr>
<tr>
<td>RMS Standards</td>
<td>Provides industry standards for road design</td>
</tr>
<tr>
<td>Australian Standards</td>
<td>Provides a minimum standard in many areas including road design, road signage, provision of guard rails, etc.</td>
</tr>
<tr>
<td>Work Health &amp; Safety Act 2011</td>
<td>To secure and promote the health, safety and welfare of people at work.</td>
</tr>
</tbody>
</table>
| Bathurst Regional Council Policies                                           | • Bathurst City Traffic Study 1997  
                          • Bathurst Community Access and Cycling Plan 2011  
                          • Community Strategic Plan 2013                                                          |
3.3 Current Levels of Service

Council has defined service levels in two terms.

Community Levels of Service relate to how the community receives the service in terms of safety, quality, quantity, reliability, responsiveness, cost/efficiency and legislative compliance.

Supporting the community service levels are operational or technical measures of performance developed to ensure that the minimum community levels of service are met. These technical measures relate to service criteria such as:

- **Service Criteria**
  - Quality
  - Quantity
  - Availability
  - Safety

- **Technical measures may relate to**
  - Smoothness of road surface
  - Total length of road network
  - The areas accessible and the ease of access to and from the road network
  - Number of injury accidents

Council’s current service levels are detailed in Table 3.3.

### Table 3.3. Current Service Levels

<table>
<thead>
<tr>
<th>Key Performance Measure</th>
<th>Level of Service</th>
<th>Performance Measure Process</th>
<th>Performance Target</th>
<th>Current Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COMMUNITY LEVELS OF SERVICE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality</td>
<td>Perceived level of comfort</td>
<td>Community satisfaction survey – specifically – condition of Rural road surface</td>
<td>&gt;6/10 community satisfaction</td>
<td>5.7/10</td>
</tr>
<tr>
<td>Function</td>
<td>Meets appropriate requirements for</td>
<td>Customer service requests relating to the function and perceived function of the road</td>
<td>&lt;8 p.a.</td>
<td>16 (2013)</td>
</tr>
<tr>
<td></td>
<td>- width</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- accessibility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- traffic control devices including signs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>and line markings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- appropriate levels of traffic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>Reduce hazards and increase safety</td>
<td>Police reports of car accidents within the Rural area</td>
<td>&lt;90 p.a.</td>
<td>61 (2012)</td>
</tr>
</tbody>
</table>

| **TECHNICAL LEVELS OF SERVICE** |                                           |                                                                                            |                    |                     |
| Key Performance Measure   | Level of Service                          | Performance Measure Process                                                                 | Performance Target | Current Performance |
| Condition                | Condition rating Rural Roads              | Condition rating survey 2012                                                             | <3% <= condition 4, balance >= condition 3 | 2%                  |
|                         | Maintain seal                             | % of network length sealed p.a. (based on network length)                               | 7.0% p.a.          | 12% (2012)          |
|                         |                                         | Average age of seal                                                                      | 7 years            | 9 years             |
|                         | Maintain pavement                         | Maximum pavement age                                                                     | <10% > 50 years    | 7.21% >50 years     |
| Function                | Road traffic is maintained at the         | Traffic levels are at or below expected for road class                                    | <15% of roads have traffic greater than design level | 13.7% of roads have traffic greater than design level |
|                         | design level                              |                                                                                            |                    |                     |
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, environmental awareness, etc.

**Table 4.1. Demand Factors, Projections and Impact on Services**

<table>
<thead>
<tr>
<th>Demand factor</th>
<th>Present position</th>
<th>Projection</th>
<th>Impact on services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>40,253 (2011)</td>
<td>51,482 (2031)</td>
<td>Increased population means increased infrastructure. In this case more roads will be built predominantly in Rural areas.</td>
</tr>
<tr>
<td>Households with 2 or more cars</td>
<td>7,568 (2011)</td>
<td>10,684 (2031)</td>
<td>The extra vehicle movements will accelerate the deterioration of the road layers particular the wearing surface which will need to be resurfaced more often. More trucks on the road will require more roads to be constructed to higher standards.</td>
</tr>
<tr>
<td>Increased road freight task</td>
<td>National volume</td>
<td>2.9 billion tonnes p.a. by 2020²</td>
<td>Increased heavy vehicle activity on Rural roads, especially in industrial areas causes extra stress on pavement</td>
</tr>
</tbody>
</table>

### 4.2 Changes in Technology

**Table 4.2. Changes in Technology and Forecast effect on Service Delivery**

<table>
<thead>
<tr>
<th>Technology Change</th>
<th>Effect on Service Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing size and weight of trucks allowable on the road³</td>
<td>An increase in the allowable load limits of trucks introduces extra stress to pavements subject to heavy vehicle movement</td>
</tr>
<tr>
<td>New road construction techniques and plant efficiencies</td>
<td>Road construction costs may be reduced while pavement life may be extended</td>
</tr>
<tr>
<td>Improved methods of in situ pavement stabilisation</td>
<td>An increase in pavement life and a reduction in overall reconstruction cost</td>
</tr>
<tr>
<td>Improvements in asset management techniques, including inspection and forecasting</td>
<td>Funds are better directed to areas requiring maintenance resulting in longer asset life</td>
</tr>
</tbody>
</table>

### 4.3 Demand Management Plan

Demand for different levels of service for Rural roads is likely to be driven by a change in the expectations of the users of the network for greater safety and better riding quality. This would primarily be achieved through changes to the existing network rather (e.g. alignment modification, different or more seal treatment) than new roads. Demand for new Rural roads is unlikely as the existing network connects the different parts of the LGA (and those areas outside of it) satisfactorily.

Demand management practices include non-asset solutions, insuring against risks and managing failures. Opportunities identified to date for demand management are shown in Table 4.3. Further opportunities will be developed in future revisions of this asset management plan.

---

² Bureau of Infrastructure, Transport and Regional Economics
³ Truck Industry Council, 2004 *Trucks to Meet the Future Road Freight Task challenges and directions*
Table 4.3. Demand Management Plan Summary

<table>
<thead>
<tr>
<th>Service Activity</th>
<th>Demand Management Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Re-surfacing</td>
<td>Resurfacing an original asphaltic concrete surface with the appropriate sprayed seal. Extension of seals usable life.</td>
</tr>
<tr>
<td>Re-construction</td>
<td>Extending the interval between pavement reconstruction where possible. This reduces the level of service but may be acceptable on specific segments.</td>
</tr>
<tr>
<td>Review of Hierarchy</td>
<td>As the usage of roads changes, it may be moved to a different hierarchy level.</td>
</tr>
</tbody>
</table>

4.4 New Assets from Growth

It is unlikely that any new roads will be required to meet growth due to new developments or wholesale changes in road routes. Any changes are more likely to be in alignment, pavement width/capacity or seal (new or updated). This would increase the total area (square metres) being maintained, rather than the network length and these increased areas will commit council to fund ongoing operations and maintenance costs.

Fig 4.4. New Assets from Growth

NOTE

- Previous 5 years averaged 0km new Rural road per year.
- The projected population growth rate is 1.5%.
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 Physical parameters

The assets covered by this asset management plan are shown below.

<table>
<thead>
<tr>
<th>Asset category</th>
<th>Length (km) Sealed</th>
<th>Length (km) Unsealed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Roads – access</td>
<td>89.123</td>
<td>236.799</td>
</tr>
<tr>
<td>Rural Roads - collector</td>
<td>115.355</td>
<td>112.394</td>
</tr>
<tr>
<td>Rural Roads - distributor</td>
<td>315.171</td>
<td>43.764</td>
</tr>
<tr>
<td>Total</td>
<td>519.649</td>
<td>392.957</td>
</tr>
</tbody>
</table>

Assets can be characterised as:

Access Roads –
- No through roads providing access to properties and connecting to collector or distributor roads
- 1 to 1.5 travelling lanes – carriage width typically 3.5m
- Traffic volumes typically < 50 AADT
- Maybe sealed or unsealed – typically unsealed
- Direction, warning and road name signs
- Guideposts may or may not be present
- Low capital costs, nil operational costs, low maintenance costs
- Pavement useful life of 80 years

Collector Roads –
- Through roads servicing properties and connecting with distributor roads
- Maybe 1 or 2 travelling lanes – carriage width typically of 5.0 - 6.0m
- Traffic volumes typically < 150 AADT
- Speed environment 70-90km/h
- Pavement surface may be paved or unpaved
- Direction, warning and road name signs
- Guideposts
- Causeways and culverts
- Guardrails
- Property access (culverted) aprons
- Table drains
- Medium capital costs, nil operational costs, medium maintenance cost
- Pavement useful life of 65 years

Distributor Roads –
- Allow vehicular travel within the region and linking trips with adjoining local government areas
- Roads have 2 travelling lanes with a minimum carriage width of 6.5 metres
- Traffic volumes between 125 and 2500 AADT
- Speed environment of 80-100km/h (50km/h through semi-rural residential areas)
- Pavement surface may be paved or unpaved – predominantly paved
- Direction, warning and road name signs
- Guideposts
- Bridges and culvert structures
- Guardrails
- Graded table drains
• High capital costs, low operational costs, high maintenance costs
• Pavement useful life of 55 years

With this Asset Management Plan, it has been decided to align pavement useful lives based on their function as described above. This results in useful lives of either 80, 65 or 55 years depending on the Asset Category. These lives have been determined by observation of performance of existing assets as well as discussion to draw on the experience of other CENTROC Council Engineering staff.

The ‘surface’ portion of Unsealed Roads is considered to be part of the pavement which is valued as such. Therefore no separate valuation of the Unsealed Road surface is made.

**Fig 5.1.1. Asset Age Profile**

![Asset Age Profile](image)

**NOTE**
- The age profile of Council’s roads has been determined by using various sources of information. Predominately the information has been gathered from the Deposited Plans that have dedicated the roads to Council. Other sources have been historic parish maps and Council reconstruction records. Where no accurate data is known an estimate has been recorded.
- The age profile for the rural road network is not easily assessed. Many of the roads, particularly the smaller access roads have evolved from early transport corridors and may never have been constructed to any recognised standard. In lieu of accurate dates for the construction of the rural roads a system using condition ratings and inferring a remaining useful life from these has been used. This tends to produce an over simplification of the number and quantity of rural roads requiring renewal and the time span in which they will require renewal.

**5.1.2 Asset capacity and performance**

Council’s rural road network has evolved over the last 100-150 years. As a result much of the existing network is not constructed to modern standards. All new work is designed and constructed to or close to the RMS road construction guidelines or the Austroads Rural roads design guidelines.

Locations where deficiencies in service performance are known are detailed in Table 5.1.2.
Table 5.1.2. Known Service Performance Deficiencies

<table>
<thead>
<tr>
<th>Location</th>
<th>Service Deficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Root Hog Road</td>
<td>Steep topography makes maintenance levels higher than usual.</td>
</tr>
</tbody>
</table>

Fig 5.1.2 Asset Condition Profile

NOTE
The last condition rating was completed in December 2013. The next condition ratings will be performed in 2015.

Condition is measured using a 1 – 5 rating system.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description of Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Excellent condition: Sound condition, well maintained, no defects.</td>
</tr>
<tr>
<td>2</td>
<td>Good: Minor surface deterioration, no significant impact on road integrity or safety. Minor maintenance required (5%).</td>
</tr>
<tr>
<td>3</td>
<td>Fair: Functionally sound, deterioration beginning to impact on road integrity or safety. Significant maintenance is required (10 – 20%).</td>
</tr>
<tr>
<td>4</td>
<td>Poor: Significant defects, marked deterioration in asset integrity and safety. Significant renewal/upgrade required (20 – 40%).</td>
</tr>
<tr>
<td>5</td>
<td>Bad: Failure or near failure. Over 50% of the road requires replacement.</td>
</tr>
</tbody>
</table>
5.1.3 Asset valuations

The value of assets as at 30 June 2013 covered by this asset management plan is summarised below.

<table>
<thead>
<tr>
<th>Asset Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Replacement Cost</td>
<td>$292.6 million</td>
</tr>
<tr>
<td>Depreciable Amount</td>
<td>$214.4 million</td>
</tr>
<tr>
<td>Depreciated Replacement Cost</td>
<td>$157.4 million</td>
</tr>
<tr>
<td>Annual Depreciation Expense</td>
<td>$0.827 million</td>
</tr>
</tbody>
</table>

5.2 Risk Management Plan

An assessment of risks associated with service delivery from infrastructure assets has identified critical risks to Council. 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 5.2.

<table>
<thead>
<tr>
<th>Asset at Risk</th>
<th>What can Happen</th>
<th>Risk Rating</th>
<th>Risk Treatment Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road pavement</td>
<td>Large defect that compromises road seal and affects pavement within traffic lane on a collector or distributor road</td>
<td>EXTREME</td>
<td>Effect appropriate temporary repairs or barriers within specified response time to make safe. Programme defect for permanent repair as soon as possible.</td>
</tr>
<tr>
<td>Road pavement</td>
<td>Any defect that compromises road seal and affects pavement within traffic lane on a collector or distributor road</td>
<td>HIGH</td>
<td>Effect appropriate temporary repairs until such time as a permanent repair can be programmed. Programme defect for permanent repair.</td>
</tr>
<tr>
<td>Road seal</td>
<td>Any large defect that compromises road seal within traffic lanes on a collector or distributor road</td>
<td>HIGH</td>
<td>Programme defect for repair</td>
</tr>
<tr>
<td>Traffic lane</td>
<td>Any spillage of any substance that can affect the slip resistance of the road surface</td>
<td>EXTREME</td>
<td>Remove substance within specified response time</td>
</tr>
<tr>
<td>Traffic lane</td>
<td>Any object within the traffic lanes on any Rural road</td>
<td>EXTREME</td>
<td>Remove obstruction within specified response time</td>
</tr>
<tr>
<td>Road Sign</td>
<td>Regulatory or Warning sign (AS1742.1) has been removed or damaged beyond legibility</td>
<td>HIGH</td>
<td>Sign to be replaced within specified response time</td>
</tr>
<tr>
<td>Guard Rail</td>
<td>Guard rail is damaged so as to affect its function</td>
<td>HIGH</td>
<td>Repair or replace guard rail as necessary within specified response time</td>
</tr>
</tbody>
</table>

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 cyclic maintenance work activities.

Reactive maintenance is unplanned repair work carried out in response to service requests and management/supervisory directions. Reactive road maintenance consists primarily of:
- Repair of surface defects considered by the appropriate officer to require urgent action
- Replacement of damaged or missing warning and regulatory signs
- Removal of any obstructions

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.

Planned road maintenance consists of:
- Inspections of road network for overall condition
- Inspections for road defects
- Resealing road surface within the expected life of the seal – 12 years for sprayed seals and 15 to 18 years for AC seals
- Heavy patching of surface defects
- Programmed surface maintenance by the bitumen gangs
- Repair of kerb and guttering
- Repair or replacement of signs other than warning and regulatory signs

Cyclic maintenance is repetitive maintenance performed without specific programming. Cyclic Rural road maintenance is limited to road side mowing.

Table 5.3.1. Maintenance Expenditure Trends

<table>
<thead>
<tr>
<th>Year</th>
<th>Planned (Capital Works)</th>
<th>Cyclic (Reseals)</th>
<th>Reactive (Maintenance Budget)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/14</td>
<td>$3,082,147</td>
<td>$555,672</td>
<td>$643,907</td>
<td>$4,281,726</td>
</tr>
<tr>
<td>2014/15</td>
<td>$1,657,443</td>
<td>$574,009</td>
<td>$665,156</td>
<td>$2,896,608</td>
</tr>
<tr>
<td>2015/16</td>
<td>$1,257,443</td>
<td>$592,951</td>
<td>$687,106</td>
<td>$2,537,501</td>
</tr>
<tr>
<td>2016/17</td>
<td>$2,307,443</td>
<td>$612,519</td>
<td>$709,781</td>
<td>$3,629,742</td>
</tr>
</tbody>
</table>

Planned and cyclic maintenance work is 39% of total maintenance expenditure (average over 4 years).

Assessment and prioritisation of reactive maintenance is undertaken by Council staff using experience and judgement.

5.3.2 Standards and specifications

Maintenance work is carried out in accordance with the following Standards and Specifications.
- Asset Management Policy 2013
- Bathurst Regional Council - Guidelines for Engineering Works
• Austroads 2002 *Rural Road Design: a guide to the geometric design of major Rural roads* Austroads Incorporated, Sydney
• Roads and Traffic Authority NSW 2000 *Road design guide* RTA Parramatta
5.3.3 Summary of future maintenance expenditures

Future maintenance expenditure is forecast to trend in line with the value of the asset stock as shown in Fig 4.

**Fig 5.3.3 Planned Maintenance Expenditure**

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

5.3.4 Resealing

Rural roads are generally sealed where the function (Access/Collector/Distributor) of the road warrants it. The surface may be a sprayed seal or asphaltic concrete seal. The sealed surface provides:

- A waterproof covering for the road surface. This prevents water ingress and slows pavement deterioration.
- A skid resistant wearing surface.

As the surface deteriorates it requires resealing. A spray seal is generally used for resealing due to the cost advantages over asphaltic concrete. The spray seal has a useful life of 12 years and an asphaltic concrete surface of 15 to 18 years.
5.4 **Capital 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 from estimates of remaining life obtained from the asset register. Remaining life is currently based on the pavement age or an estimation of pavement age. Candidate proposals are inspected to verify accuracy of remaining life estimate and to develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds are scheduled in future works programmes. The priority ranking criteria is detailed in Table 5.4.1.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Volume (AADT)</td>
<td>30%</td>
</tr>
<tr>
<td>Number of houses</td>
<td>30%</td>
</tr>
<tr>
<td>Condition</td>
<td>20%</td>
</tr>
<tr>
<td>Width of carriageway</td>
<td>10%</td>
</tr>
<tr>
<td>Alignment</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

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.
5.4.2 Renewal standards

Renewal work is carried out in accordance with the following Standards and Specifications.

- Austroads 2002 Rural Road Design: a guide to the geometric design of major Rural roads Austroads Incorporated, Sydney
- Roads and Traffic Authority NSW 2000 Road design guide RTA Parramatta
- Bathurst Regional Council 2004 Guidelines for engineering works BRC, Bathurst

5.4.3 Summary of future renewal expenditure

Projected future renewal expenditures are forecast to increase over time as the asset stock ages. The costs are summarised in Fig 5. Note that all costs are shown in current 2013 dollar values.

For financial valuation purposes a design life of 55 years for Distributor roads, 65 years for Collector roads and 80 years for Access roads pavements. In reality this value is highly variable and depends on many factors, including, but not limited to traffic numbers, the traffic composition, the strength of the sub-grade, the drainage capacity of the sub-grade and the pavement surface and the adequacy of the maintenance to the pavement seal (on sealed roads). Condition ratings, traffic counts and assessment of the attributes of the road are used to formulate a reconstruction and renewal program. Remaining useful life is generally a function of the road’s condition.

In 2012/13 Council used stabilising as a method of rehabilitating road pavements within the Urban network. This method proved a much cheaper way of restoring to pavement to original condition. The long term success remains to be seen. Some of the pavements renewed were Colville Street (Bradwardine Rd to Evernden Rd), Durham St (Beddie St to Macquarie St) and Macquarie St (Durham St to High St).

Fig 5.4.3. Projected Capital Renewal Expenditure

Deferred renewal, i.e. those assets identified for renewal and not scheduled for renewal in capital works programs are to be included in the risk assessment process in the risk management plan. Renewals are to be funded from Council’s capital works program and grants where available.
5.5 **Creation/Acquisition/Upgrade Plan**

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.

5.5.1 **Selection criteria**

New road assets are constructed as new development dictates. This is a function of the forward planning area of Council and as such the decisions involved in new road construction are not part of this asset management plan. New roads are constructed to Council specifications as set out in the Guidelines for Engineering Works, 2004.

An upgrade of a road asset occurs when a road is reconstructed to a level of hierarchy above its present rating, for example a collector road reconstructed as a distributor road would be classified as an upgrade. The upgrade or expansion of existing road assets is identified from various sources such as community requests and proposals identified by strategic plans or partnerships with other organisations. Candidate proposals are inspected to verify need and to develop a preliminary renewal estimate. Verified proposals are ranked on criteria similar to those for ranking renewal, by priority and available funds and scheduled in future works programmes. The priority ranking criteria is detailed below.

### Table 5.5.1 Upgrade Priority Ranking Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Volume (AADT)</td>
<td>30%</td>
</tr>
<tr>
<td>Number of houses</td>
<td>30%</td>
</tr>
<tr>
<td>Condition</td>
<td>20%</td>
</tr>
<tr>
<td>Width of carriageway</td>
<td>10%</td>
</tr>
<tr>
<td>Alignment</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

5.5.2 **Standards and specifications**

Standards and specifications for new assets and for upgrade/expansion of existing assets are the same as those for renewal shown in Section 5.4.2.

Summary of future upgrade/new assets expenditure

Planned upgrade/new asset expenditures are summarised in Fig 6. The planned upgrade/new capital works program is shown in Appendix C. All costs are shown in current 2008 dollar values. Roads constructed by Council as part of land development programs are constructed at no net cost to Council and are not considered in the new asset expenditure.

5.6 **Disposal Plan**

Roads are not subject to disposal. Occasionally a road will be closed or re-aligned and ownership transferred to the surrounding land holder at value of the land.
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 Fig 7 for planned operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets).

**Fig 6.1. Planned Operating and Capital Expenditure**

![Planned Expenditure Diagram](image)

6.1.1 Sustainability of service delivery

There are two 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 and medium term costs over the 10 year financial 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 maintenance and asset consumption (depreciation expense). The annual average life cycle cost for the services covered in this asset management plan is $5.307 million p.a.

Life cycle costs can be compared to life cycle expenditure to give an indicator of sustainability in service provision. Life cycle expenditure includes maintenance plus capital renewal expenditure. Life cycle expenditure will vary depending on the timing of asset renewals. The life cycle expenditure at the start of the plan is $4.281 million.

A gap between life cycle costs and life cycle expenditure gives an indication as to whether present consumers are paying their share of the assets they are consuming each year. The purpose of this Rural road network asset management plan is to identify levels of service that the community needs and can afford and develop the necessary long term financial plans to provide the service in a sustainable manner.

**Medium term – 10 year financial planning period**

This asset management plan identifies the estimated maintenance and capital expenditures required to provide an agreed level of service to the community over a 10 year period for input into a 10 year financial plan and funding plan to provide the service in a sustainable manner.
This may be compared to existing or planned expenditures in the 10 year period to identify any gap. In a core asset management plan, a gap is generally due to increasing asset renewals.

Fig 6.1.1 shows the projected asset renewals in the 10 year planning period from the asset register. The projected asset renewals are compared to planned renewal expenditure in the capital works program and capital renewal expenditure in year 1 of the planning period as shown in Fig 8.

**Fig 6.1.1. Projected and Planned Renewals and Current Renewal Expenditure**

![Projected and Planned Renewals](image)

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.

Council’s long term financial plan covers the first 10 years of the 20 year planning period. The total maintenance and capital renewal expenditure projected over the 10 years is **$23.839 million**.

This is an average expenditure of **$2.383 million p.a.** Estimated maintenance and capital renewal expenditure in year 1 is **$4.281 million**. The 10 year sustainability index is **0.81**.

### 6.2 Funding Strategy

Council’s current management practices are resulting in a level of service acceptable to the customer as indicated by the general level of satisfaction shown in the community surveys. There is, however, a growing gap in the funding of road renewal (pavement reconstruction) required according to pavement age and condition data held in the asset register and the actual funding applied to the reconstruction programme. This is detailed in section 6.1. There are some issues to consider before concluding that funding is insufficient.

- Are the useful lives for pavement and seal realistic? Using condition ratings to determine the reconstruction programme will help ensure that optimum life is achieved for both. Current experience suggests the pavement life of 50 to 55 years and a seal life of 12 years (spray type) are close to those actually experienced. Changing traffic conditions may extend or reduce this number and all segments are to be considered as individual assets.

- Will a (relatively) small increase in maintenance funding provide a measurable increase in the pavement life?
• Bathurst was subject to strong growth from 1950 through to the 1980s\textsuperscript{4}. The road assets resulting from this period of growth are due for renewal now and in the near future. The rate of renewal required to adequately address these renewals is substantially higher than the long term average.

• Is the level of service offered to the customer appropriate? The public may be prepared to accept a lower level of service once the consequences (especially increased cost) have been clearly explained.

If the current level of service is to be maintained an increase in the funding applied to the renewal of the road pavements is required.

Projected expenditure identified in Section 6.1 is to be funded from Council’s operating and capital budgets. The funding strategy is detailed in the Council’s 10 year long term financial plan.

The current funding strategies for maintenance and renewal of the road network are adequate in the mid-term. However, as the network ages and grows in length an increase in funding (in real terms) will be required to manage the maintenance and renewal of the Rural roads. This, in effect is funding the long term depreciation on the road network.

A number of State and Federal grant systems are available to Council to assist in the funding of road maintenance, renewal and upgrade. The grants are not specifically allocated for expenditure on the Rural road network.

Each financial year the NSW Department of Local Government allocates funds to Bathurst Regional Council under the Financial Assistance Grants (FAGS) programme. Of the total amount there is a portion specifically for local roads. The local roads component is assessed on the basis of councils’ proportion of the state’s population and the lengths of local roads and bridges. The formula was developed by the NSW Roads and Traffic Authority.

The Federal Government assists local government road maintenance through the ‘Roads to Recovery’ programme.

Financial assistance is also provided to improve the physical condition or management of sites noted for a high incidence of accidents involving death and injury, often termed ‘black spots’. Funding assistance is reliant on Council’s ability to prove a significant reduction in accidents will be the result of the funding.

**The level of funding council provides to the upkeep of the Rural road network to ensure the level of service is maintained is reliant on the continuation of the funding assistance provided by higher levels of government.**

A system of developer security deposits based on property frontage similar to the kerb and gutter deposit currently in place could be investigated for implementation to ensure new road that is damaged (particularly the seal) as a result of development activity can be repaired to as new standard. This would extend the pavement life and reduce Council's funding burden on newly developed road.

### 6.3 Valuation Forecasts

Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by Council and from assets constructed by land developers and others and donated to Council.

The depreciated replacement cost (current replacement cost less accumulated depreciation) will vary over the forecast period depending on the rates of addition of new assets, disposal of old assets and consumption and renewal of existing assets.

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:

- Road construction to engineering guidelines is approximately $60/m² – this includes bulk earthworks, lay and compact pavement and lay surface (see appendix 2 for details)
- Kerb and gutter construction to engineering guidelines is approximately $50/m
- Maximum expected pavement life is 55 years
- A continued annualised CPI of 3.3% over the 20 year long term planning period.
- Depreciation is calculated on a straight line method, with revaluation of entire network every 5 years.

Accuracy of future financial forecasts may be improved in future revisions of this asset management plan by the following actions.

- Improving the accuracy of unit rates by collecting more detailed financial information from construction work
- Gain a better picture of the remaining pavement life through longitudinal monitoring of the pavement condition
- Improved monitoring of the relationship between traffic numbers, age and pavement condition.
- Development of condition based depreciation method that satisfies accounting standards
7. **ASSET MANAGEMENT PRACTICES**

7.1 **Accounting/Financial Systems**

Council currently uses Civica Authority as the primary Corporate System Administrator: IT manager

Relevant accounting standard is AAS 27 “Financial Reporting by Local Governments”

Actions required the finance system resulting from the asset management plan:

- Obtaining new road assets for take-up at the conclusion of the financial year from the asset section rather than from the financial system.

7.2 **Asset Management Systems**

Council uses CONFIRM asset management software. The current version is 12.10a.AM.4172.

CONFIRM team:
- Team leader: Administration Engineer
- Administrator: Asset Engineer
- Data entry: 2 x Asset Technicians
- Field inspections: Asset Inspector

Confirm consists of:
- A comprehensive road inventory;
- Condition rating for the road network;
- Data Management, with reporting procedure to present inventory and assessment information;
- Asset Accounting, AAS27 reporting capability and life cycle costing
- MapInfo GIS system linked to CONFIRM.

As a result of this plan it is intended to improve the Asset management system by:

- Ascertaining more accurate unit rates for work performed in the Rural road network.
- Implementation of a dedicated road pavement management system (as a council or as part of the CENTROC group).
- Linking of Confirm to Financial Software to gain more accurate costs of works.

7.3 **Information Flow Requirements and Processes**

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

- The asset register data on size, age, value, remaining life of the network;
- The unit rates for categories of work/material;
- The adopted service levels;
- Projections of various factors affecting future demand for services;
- Correlations between maintenance and renewal, including decay models;
- Data on new assets acquired by council.

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

- The assumed Works Program and trends;
- The resulting budget, valuation and depreciation projections;
- The useful life analysis.

These will impact the Long Term Financial Plan, Strategic Business Plan, annual budget and departmental business plans and budgets. The current communication between financial and asset systems is limited to manually entering the relevant data. It is expected that CONFIRM will provide asset valuations and capitalisations. These figures will be supplied to the finance system for reporting purposes.
8. CONCLUSION

Provision of the Rural road network is an integral part of Council’s vision for Bathurst.

The total length of the Rural network is 913km and includes the roads in the Rural area of Bathurst Regional LGA. Over the last 5 years the network has not increased in length. The average age of the pavement component of the network is 30.2 years (67 expected) while the average seal age is 9 years (15 year expected). Approximately 11% of the network is rated at condition poor or bad.

The current replacement cost is $292.580 million. The annual depreciation expense is $0.827 million p.a. Assets will be revalued in line with DLG requirements as at 30 June 2015.

The current maintenance budget is approximately $13.943 million p.a.

Complaints regarding the condition of the Rural road network have decreased from an average of 26 per month (Q1 2011) to 15 per month (Q4 2013). In customer service terms the maintenance of the network appears to be adequate.

In technical terms the maintenance budget is proving adequate for the network in its current form. Individual defects identified as requiring repair are being actioned within a reasonable period of time. A more thorough maintenance management system will better allow the Council to ascertain the effectiveness of the budget allocation.

Future budgets have been estimated by adding a factor for CPI at the time of budget preparation. The ‘inputs’ to road maintenance (e.g. materials/fuel) have consistently increased at above CPI. Additionally, maintenance costs of a road increases as the road ages. Therefore the maintenance load will increase as the network ages. If the current level of maintenance funding is not increased in above the traditional CPI figure and as the aging road infrastructure requires, a real and measurable drop in the overall Rural road condition could be expected.

The Rural road network pavement component has a useful life of 55, 60 or 80 years depending on function (Distributor, Collector or Access). Although the final assessment on capital renewal of Rural road segments will be based on the criteria listed is table 5.4.1, asset age is the best indicator available to predict the future expenditure required to replace Rural road infrastructure that has deteriorated to a point where it is no longer serviceable.

The current road renewal budget for FY2014 is $0.45 million. The difference in the required budget when compared to the actual budget indicates that the overall Rural road network average age will continue to increase and the overall condition could be expected to deteriorate.
9. PLAN IMPROVEMENT AND MONITORING

9.1 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 council’s long term financial plan and Strategic Management Plan;
- 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;

9.2 Monitoring and Review Procedures
This asset management plan will be reviewed during annual budget preparation and amended to recognise any 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 2 years of each Council election.

REFERENCES
Bathurst Regional Council, ‘Strategic Asset Management Policy’ 20XX – 20XX,


APPENDIX

Bathurst Rural road network

a. Map
Appendix 1.a Map of Rural road network