BATHURST
REGIONAL COUNCIL

RURAL ROADS
ASSET MANAGEMENT PLAN

Version 5.1
February 2021

Montevella Road, November 2018

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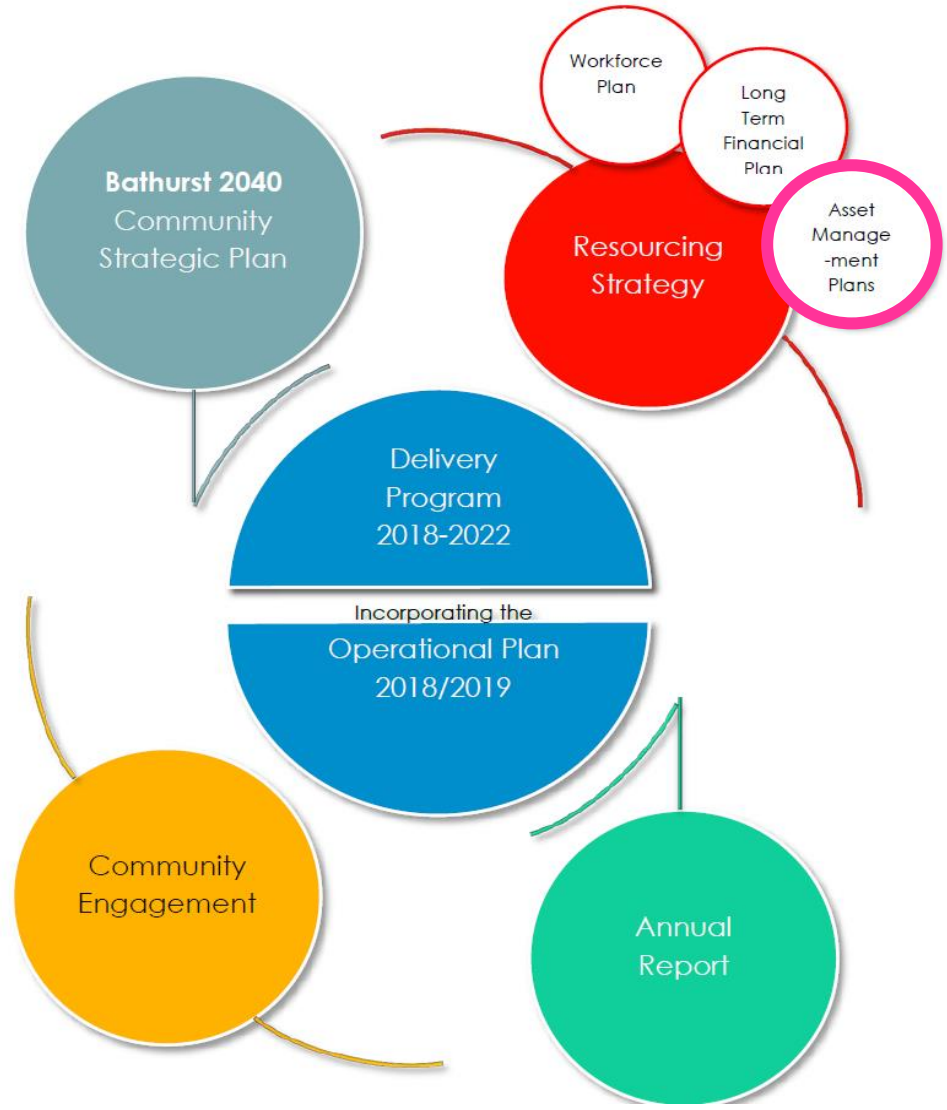
Integrated Planning and Reporting Framework



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ABBREVIATIONS

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

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 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 months.

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 asset OR by dividing the Fair Value (Depreciated Replacement Cost) by the Remaining Life and totalled for each 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 discretional 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, e.g. 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 re-sheeting 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 discretional 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 based on 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 cycle ways. 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 is 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 **

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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 and Objectives; 2.2, 2.4, 3.3, 4.2, 4.3, 4.5, 5.2, 5.5, 6.1, 6.4 and 6.6 within Council's adopted 2040 Community Strategic Plan.

The rural network consists of **50.42km** of roads of regional significance and **960km** of local rural roads. Of these roads **530km** are sealed and **430km** 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 network is estimated at **$9,034 million** per annum. Council's planned life cycle expenditure for year 1 of the asset management plan is **$5,103 million** which gives a life cycle sustainability index of **1.03**, resulting in a shortfall of -$3,932 million for year 1.

The total maintenance and capital renewal expenditure required to provide the Rural Road network in the next 10 years is estimated at **$90,344 million.** This is an average of **$9,034 million** per annum.

Council's maintenance and capital renewal expenditure for the first 10 years of the asset management plan of **$61,241 million or $6,124 million** per annum giving a 10-year sustainability index of **0.83**, resulting in an anticipated funding shortfall of -$10,213 million over the medium term and an average of -$1,021 million per annum.

Plans

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.

What we cannot do

We currently do **not** allocate enough funding to sustain these services at the desired standard or to provide all new Road network improvements being sought. Examples of work that is not able to be done with current funding include, but is not limited to the following:

- Freemantle Road - $350,000
- Eusdale Road - $250,000
- Tarana Road - $200,000
- Caloola Road - $200,000
- Limekilns Road - $300,000
- Bridle Track - $250,000
- Wambool Road - $200,000
- Lachlan Road - $300,000

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 Revenue Policy 2018
- Strategy for the resealing of Council roads
- Guidelines for Engineering Works
- Community Strategic Plan 2040
- 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

Asset category	Length (km) Sealed	Length (km) Unsealed	Replacement Value ($)
Rural Roads – access	94.39	274.04	$103,954,115
Rural Roads - collector	117.30	116.49	$66,661,239
Rural Roads - distributor	316.93	40.94	$143,914,706
Total	**528.62**	**431.47**	**$314,530,060**

Key stakeholders in the preparation and implementation of this asset management plan are:

The Councillors	Formulate policy for the allocation of resources to maximise benefit to the community whilst minimising the Council's exposure to risk.
The Council	To manage the implementation of policy in a timely and cost-effective manner. To ensure resources are effectively utilised.
Transport for NSW	Responsibility for all State-owned roads and the funding of Regional roads.
Crown Lands Office	Responsibility for all Crown owned land and roads.
General Public	End user of the network.
Local Businesses	Allows access to local business.
Freight transport companies	Require access to designated heavy traffic routes that are constructed to standards relevant to heavy vehicles.
Land developers	Rely on adequate road infrastructure for access to new developments.

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:
"Bathurst: A vibrant and innovative region that values our heritage, culture, diversity and strong economy."

Relevant Council goals and objectives from the adopted 2040 Community Strategic Plan and how these are addressed in this asset management plan are:

Table 2.2 Council Goals and how these are addressed in this Plan

Community Strategic Plan Objective	How Objectives are addressed in AMP
2.2 Grow Local employment, Investment and attract new business by nurturing and supporting entrepreneurs, partnerships and local skills development	Ensure adequate road infrastructure is in place to provide for future economic development of the Bathurst Regional area.
2.4 Support Agriculture, Local Manufacturing, food production and education as significant contributors to the region's economy	Providing extra strength pavement in industrial areas. Ensure road network is maintained to a standard appropriate for a road usage.
3.3 Minimise the city's environmental footprint, live more sustainably and use resources more wisely	Any improvements/upgrades to council's assets will incorporate preservation or minimised environmental measures.
4.2 Provide safe and efficient road, cycleway and pathway networks to improve accessibility	Maintain and improve existing road infrastructure throughout the network. Meeting the appropriate level of service of council's assets.
4.3 Ensure services, facilities and infrastructure to meet the changing needs of the region	Maintain and improve existing road infrastructure throughout the network and ensure there's adequate road infrastructure is in place to provide for future economic development of the Bathurst Regional area.
4.5 Work with partners to improve public transport and passenger and freight transport connections	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.
5.2 Help make the Bathurst CBD, neighbourhoods and the regions villages attractive and full of life	Maintain and improve existing road infrastructure throughout the network, facilitating tourism of the region.
5.5 Plan and respond to demographic changes in the community	Maintain and improve existing road infrastructure throughout the network ensuring adequate road infrastructure is in place to provide for future economic development of the Bathurst Regional area.

1 IIMM 2006 Sec 1.1.3, p 1.3

Community Strategic Plan Objective	How Objectives are addressed in AMP
6.1 Communicate and engage with the community, government and business groups on important matters affecting the Bathurst Region	Along with conducting community surveys of council's assets, consultation of relevant renewal/upgrade projects with the community to ensure acceptable level of service is met.
6.4 Meet legislative and compliance requirements	All works conducted completed under relevant policies and standards. Following correct procedures.
6.6 Manage our money and our assets to be sustainable now and into the future	Communication between Council's Departments to manage expenditure for renewal/upgrade works.

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.

2.4 Concise and Comprehensive Asset Management

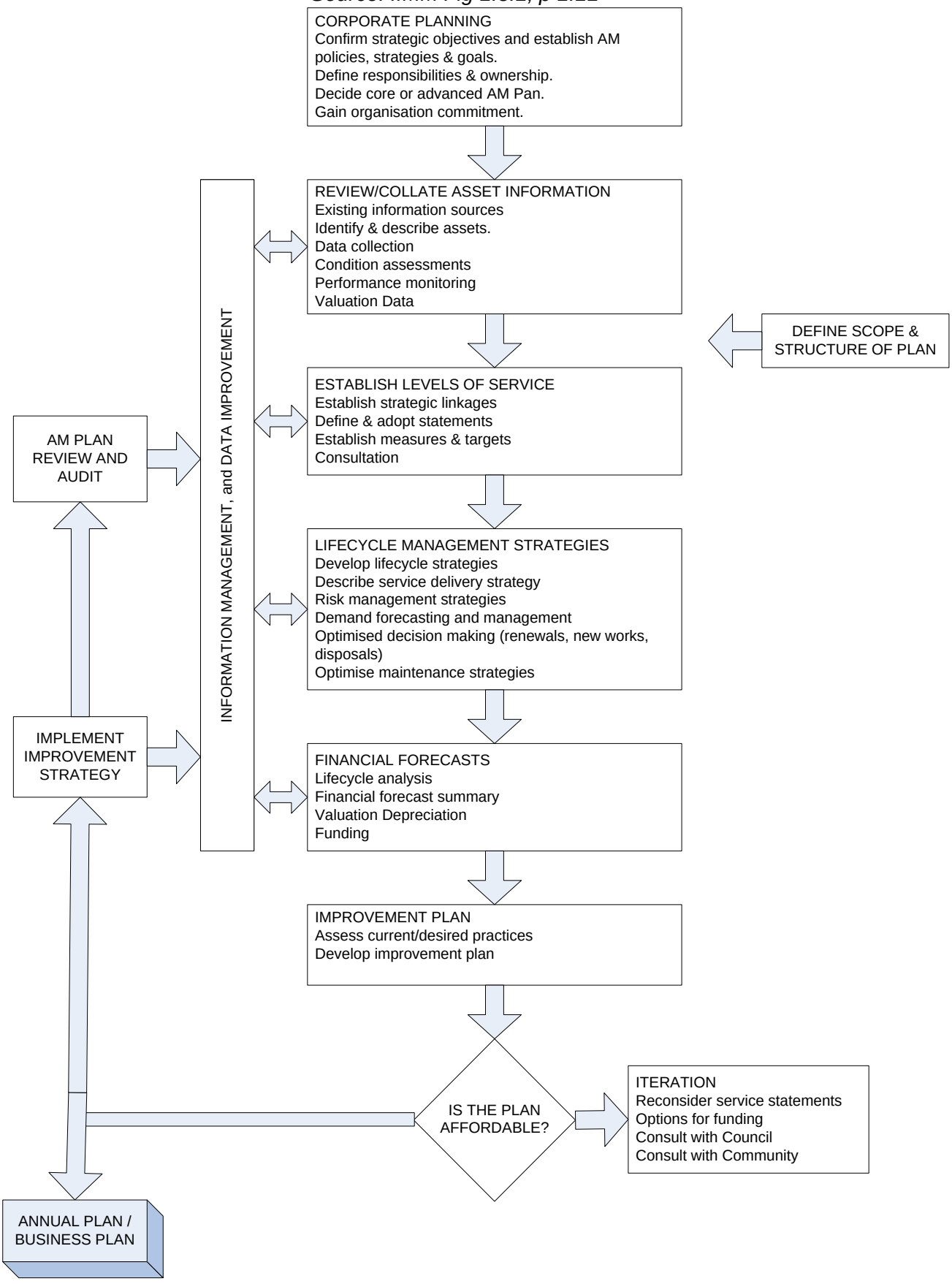
This asset management plan is prepared as a 'core' asset management plan in accordance with the International Infrastructure Management Manual. It is prepared to meet minimum legislative and organisational requirements for sustainable service delivery and long-term financial planning and reporting. Core 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.

See page over.

Road Map for preparing an Asset Management Plan

Source: IIMM Fig 1.5.1, p 1.11

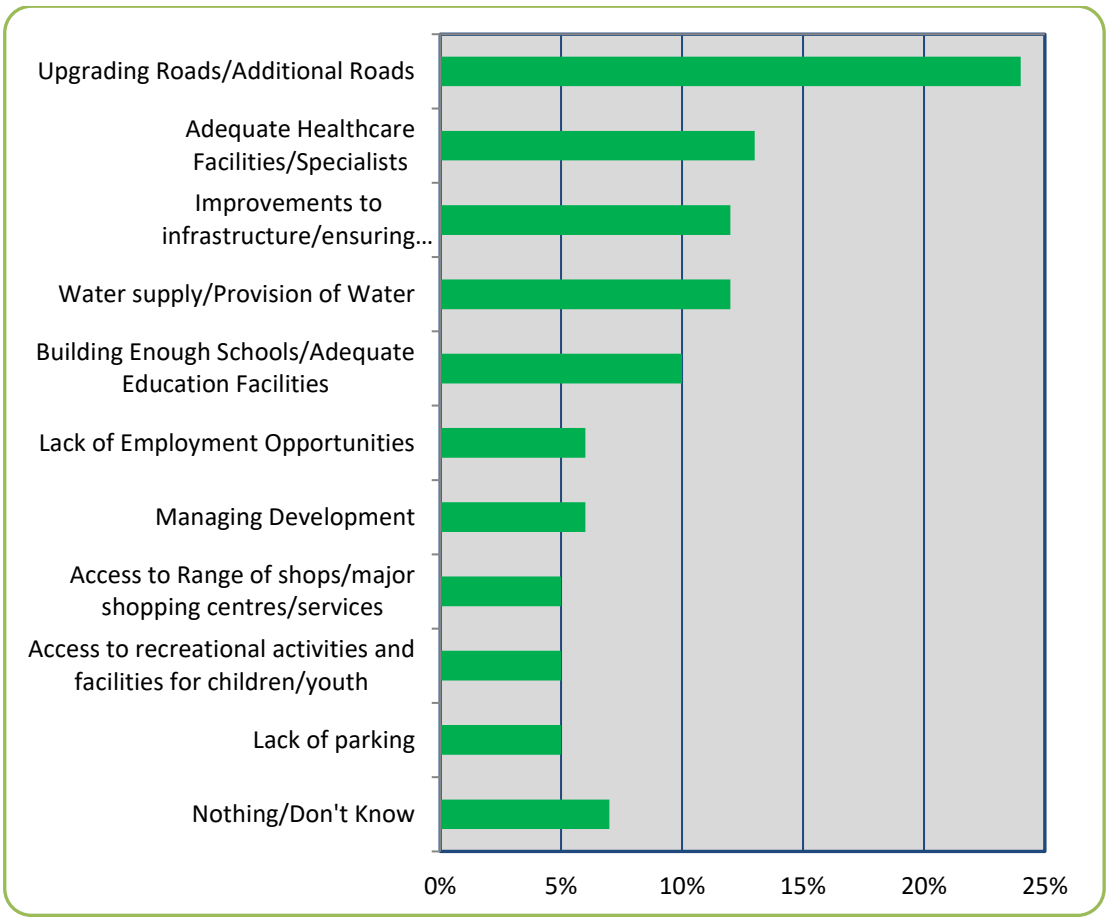


3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

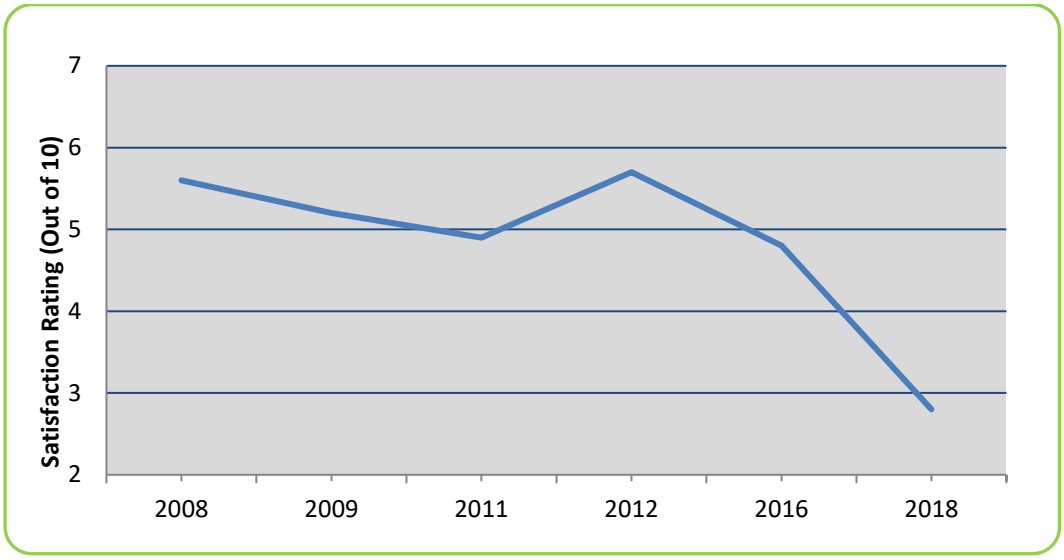
The Council undertakes community surveys on an annual basis to gauge community expectations and satisfaction with the service Council provides. A series of questions are put to a broad cross section of the community including residents from rural and urban areas each year. The survey for 2009 has changed the method of data collection from telephone survey to a mailed written survey. Using the data from the Community Survey helps council meet Objectives; 2.2, 2.4, 3.3, 4.2, 4.3, 4.5, 5.2, 5.5, 6.1, 6.4 and 6.6 within Council's adopted 2040 Community Strategic Plan.

Respondents were asked to select and rank priorities for Bathurst Regional Council in the Community Survey, conducted in 2018. The results in order of priority are:



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 Improving Roads Infrastructure as the highest priority.

Fig 3.1 Community Satisfaction Levels for Condition of Rural Road Infrastructure.



The data for the above table has been collaborated from past Community Surveys which show satisfaction levels relating to the condition of rural road infrastructure. The levels shown are taken from targeted questions relating to Rural Road Infrastructure and as shown in the above chart the community's satisfaction level has declined since the previous survey conducted in 2018.

3.1.1 Rural Road Surfaces

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 an implemented programme or assess the need for a particular programme.

Fig 3.1.1 Customer Requests related to Roads

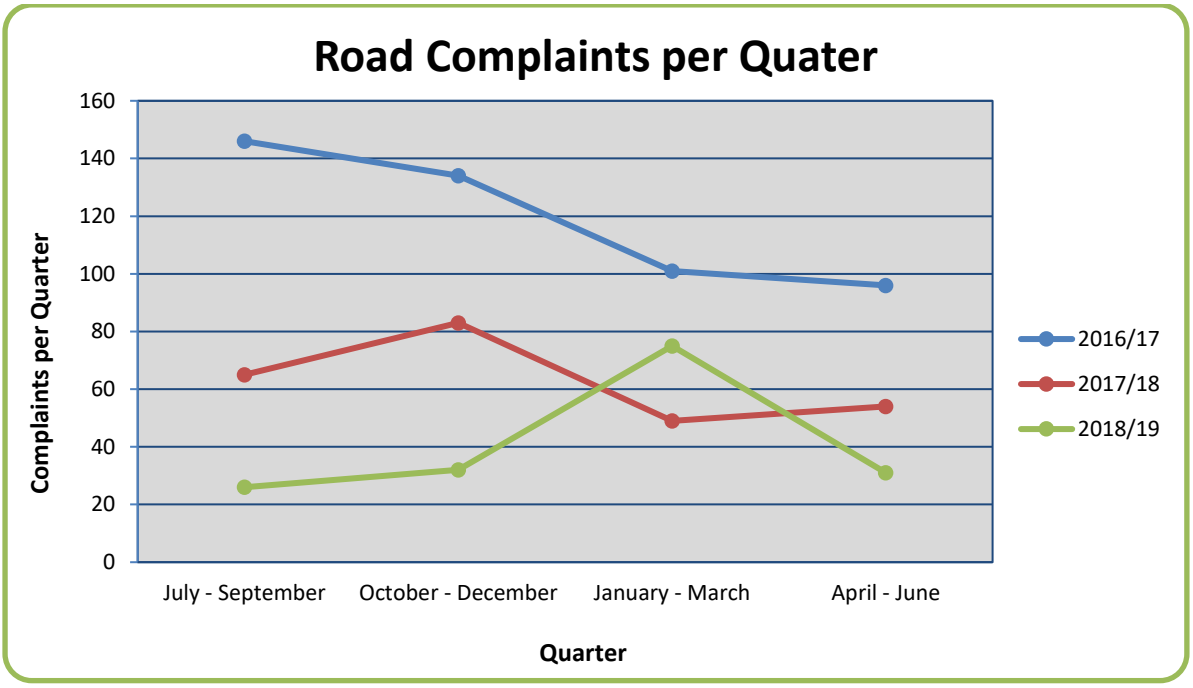


Figure 3.1.1 shows a decline in the number average number of complaints per quarter since July 2016, despite, a large number of complaints for 2018/19 FY January – March quarter. The average of complaints have declined from 119 in 2016/17, to 63 in 2017/18 and finally to 41 complaints in 2018/19.

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

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. Details Council's role as custodian and trustee of public assets, and its associated responsibility to effectively account for and manage these assets.
Roads Act 1993	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.
Civil Liabilities Act 2002	Sets out the provisions that give protection from civil liability and the responsibilities of Council and public alike.
Environmental Planning and Assessment Act 1979	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.
Protection of the Environment Operations Act 1997	To protect, restore and enhance the quality of the environment having regard to the need to maintain ecologically sustainable development.
RMS Standards	Provides industry standards for road design
Australian Standards	Provides a minimum standard in many areas including road design, road signage, provision of guard rails, etc.
Work Health & Safety Act 2011	To secure and promote the health, safety and welfare of people at work.
Bathurst Regional Council Policies	• Bathurst City Traffic Study 2018 • Bathurst Community Access and Cycling Plan 2011 • Community Strategic Plan 2040

Montevella Road, November 2018

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	Technical measures may relate to
Quality	Smoothness of road surface
Quantity/Capacity	Total length of road network/Road network meets Traffic level requirements
Availability	The areas accessible and the ease of access to and from the road network
Safety	Number of injury accidents

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

Table 3.3. Current Service Levels

COMMUNITY LEVELS OF SERVICE

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
Quality	Rural Road Assets meet the perceived Customer Level of Service	Satisfaction Level of Council's Assets, (Relating to condition of Rural road surface) Scored out of 5, based on Community Survey Results.	**>3/5**	**2.75/5**
		Organisation measure of % of Rural Road Assets in Excellent/Good (1,2) and poor/bad (4,5) Condition	**50% Excellent/Good 10% Poor/Bad**	**50% Excellent/Good ✓ 12% Poor/Bad**
Function	Rural Road Assets meet appropriate requirements for: - Width - Accessibility - Traffic control devices including signs and line markings - Appropriate levels of traffic	Customer service requests relating to the perceived Functionality of the Rural Road Assets	**<200 p.a.**	**133* (2018/19 FY)**
Capacity	Rural Road Assets meet appropriate Capacity/Utilisation levels	Traffic count data across Rural Roads to assess Traffic Volume.	**Expected 10year Position 5% of roads have traffic greater than design level**	**5% of roads have traffic greater than design level**
Safety	Reduce hazards and increase safety for users in Rural areas	Police reports of car accidents within the Rural areas of the LGA.	**<90 p.a.**	**Avg. 5 p.a.**

*Denotes number of service requests are only shown until the end of the January - March Quarter for the 2018/19 FY

TECHNICAL LEVELS OF SERVICE

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target		Current Performance	
Condition	Condition rating of Rural Road Assets	Regular Condition/ Defect Inspections	**Network Condition** **50% Excellent/Good** **40% Fair** **10% Poor/Bad**		**Network Condition** **50% Excellent/Good** **39% Fair** **12% Poor/Bad**	
		Organisation measure of average per annum Maintenance and Operations Budget Expenditure	**Maintenance/Operational Budget for Optimum***		**2018/19 Budget**	
			Avg. Maintenance	**$4,593,000 p.a.**	**Avg. Maintenance**	**$4,374,688**
			Avg. Operations	**$410,000 p.a.**	**Avg. Operations**	**$400,000**
			Total	**$5,003,000**	**Total**	**$4,774,688**
	Maintain seal – Reseal/Sealing Un-sealed Roads	% of Network length sealed p.a. (Based on network length – 960km)	**7.0% p.a.**		**4% (2018)**	
		Average age of seal	**7 years**		**10 years**	
	Maintain pavement of Rural Roads	Maximum pavement age	**<10% of Rural Road Network Pavement age > 30 years**		**3% >30 years**	
		Organisation measure of average per annum Renewal and Upgrade Budget Expenditure	**Upgrade/Renewal Budget for Optimum***		**2018/19 Budget**	
			Avg. Renewal	**$985,566**	**Avg. Renewal**	**$785,650**
			Avg. Upgrade	**$3,133,102**	**Avg. Upgrade**	**$1,619,094**
			Total	**$4,118,668**	**Total**	**$2,404,744**
Function	Road traffic is maintained at the design level	Traffic levels are at or below expected for road class	**<15% of roads have traffic greater than design level**		**5% of roads have traffic greater than design level**	

***Performance Target Budgets shown;**

Upgrade/Renewal Optimum Budget
Avg. Renewal = Average Renewal expenditure extrapolated from 2018/19 Budget over the long term (20yrs).
Avg. Upgrade = Average Upgrade expenditure extrapolated from 2018/19 Budget over the long term (20yrs) and Average per annum replacement cost of assets in Poor/Bad condition (over 20yrs) to bring them to Excellent condition.

Upgrade/Renewal Budget figures do not include current Asset Backlog, refer to appendices.

The optimum average expenditure has been determined from the 2018/19 budget and extrapolated with a 2.6% PPI factor over the next 20yrs. Assets due for upgrade/renewal during this period vary greatly and the optimum average expenditure shown is indicative to show the expenditure required for desired levels of service.
Refer to Fig 6.1.1 Projected and Planned Renewal Expenditure Comparison.

Maintenance/Operational Optimum Budget
Avg. Maintenance = Average Maintenance budget expenditure from previous four years.
Avg. Operations = Average Operational budget expenditure from previous four years.

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

Demand factor	Present position	Projection	Impact on services
Population	42,389 (2016 census)	52,500 (2031)	**Increased population means increased demand upon existing infrastructure and produce a higher expectation for improvement on the pre-existing network.**
Households with 2 or more cars	7,568 (2016 census)	10,684 (2031)	**The extra vehicle movements will accelerate the deterioration of the road layers 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.**
Increased road freight task	National volume 1.7billion tonnes p.a.	2.9 billion tonnes p.a. by 20202	**Increased heavy vehicle activity on Rural roads, especially in industrial areas causes extra stress on pavement.**

4.2 Changes in Technology

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

Technology Change	Effect on Service Delivery
Increasing size and weight of trucks allowable on the road[3].	An increase of heavy vehicle movement on a greater % of the rural road network and sections of road in poor/bad condition may deteriorate at an increased rate as a result.
New road construction techniques and plant efficiencies	Road construction costs may be reduced while pavement life may be extended
Improved methods of in situ pavement stabilisation	An increase in pavement life and a reduction in overall reconstruction cost
Improvements in asset management techniques, including inspection and forecasting	Funds are better directed to areas requiring maintenance resulting in longer asset life

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*

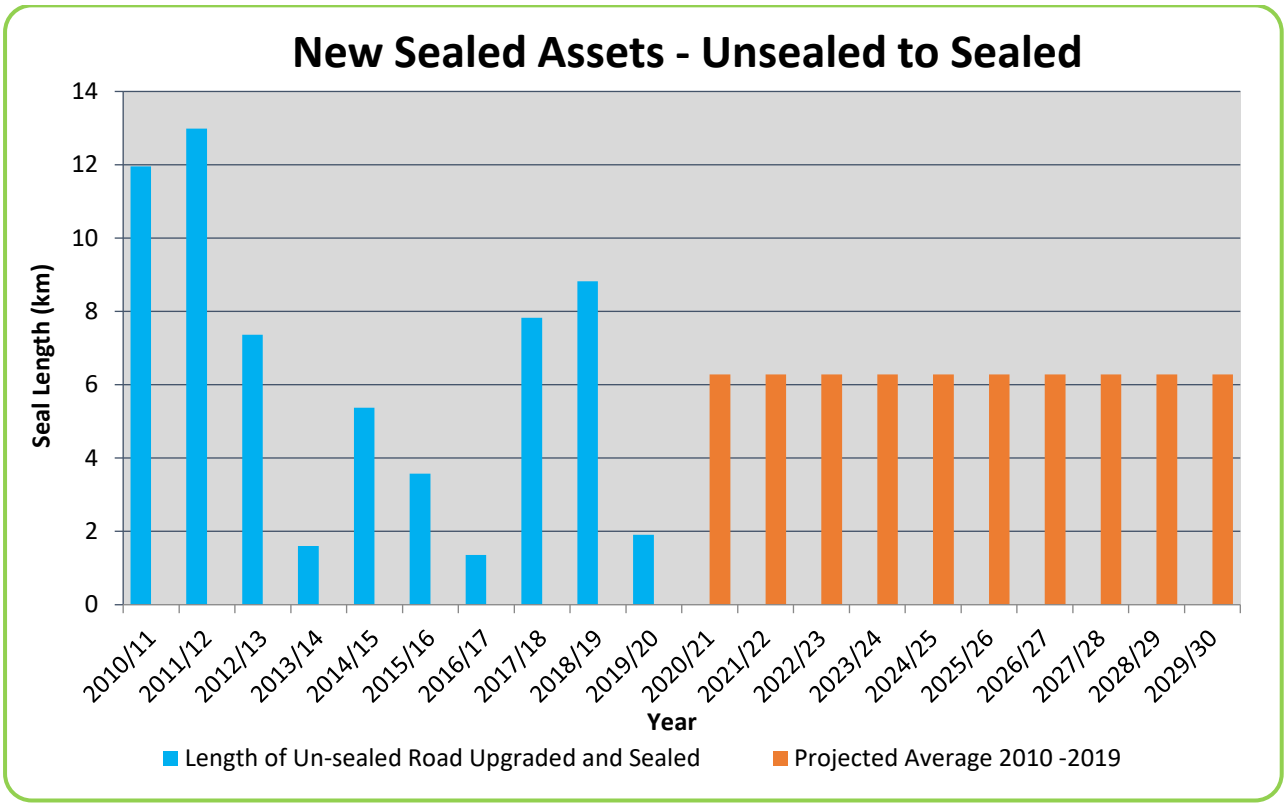
Table 4.3. Demand Management Plan Summary

Demand Driver	Impact on Services	Demand Management Plan
Increased Heavy Vehicle Traffic/Households with 2 or more cars	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.	• Restrictions of vehicle types to be applied to roads of poor/bad condition or with tight curves. Specific Load Limits to also be placed upon these roads, each road to be assessed individually. • Review of Hierarchy – As the usage of roads changes, it may be moved to a different hierarchy level. • Re-construction - Extending the interval between pavement reconstructions where possible. This reduces the level of service but may be acceptable on specific segments. • Re-surfacing - Re-surfacing an original surface with the appropriate sprayed seal. Extension of seals usable life.
Population	Increased population means increased infrastructure. In this case more roads will be built predominantly in Rural areas.	• Review of Hierarchy – As the usage of roads changes, it may be moved to a different hierarchy level.
Overdue/Un-budgeted Sections of Road Identified which require Renewal/Upgrade works	Funding sourced from other projects or dependant on available funding from Federal Grants.	• Review of Hierarchy - For future Budgets • Re-construction - Extending the interval between pavement reconstructions where possible. This reduces the level of service but may be acceptable on specific segments. • Re-surfacing - Re-surfacing an original surface with the appropriate sprayed seal. Extension of seals usable life.
Reseal- Cyclic Works/ Renewal Work	Improving Road Surface/pavement to the agreed level of service	• Re-surfacing - Re-surfacing an original surface with the appropriate sprayed seal. Extension of seals usable life. • Routine Inspections of Rural Road Assets to determine condition and planning renewal works.
Major Highway Road Closure Diversion Routes	Sealing Un-sealed roads which have been identified as alternate routes in the event of major highway closure.	• Review of Hierarchy - For future Budgets • Re-construction - Extending the interval between pavement reconstructions where possible. This reduces the level of service but may be acceptable on specific segments. • Re-surfacing - Re-surfacing an original surface with the appropriate sprayed seal. Extension of seals usable life.

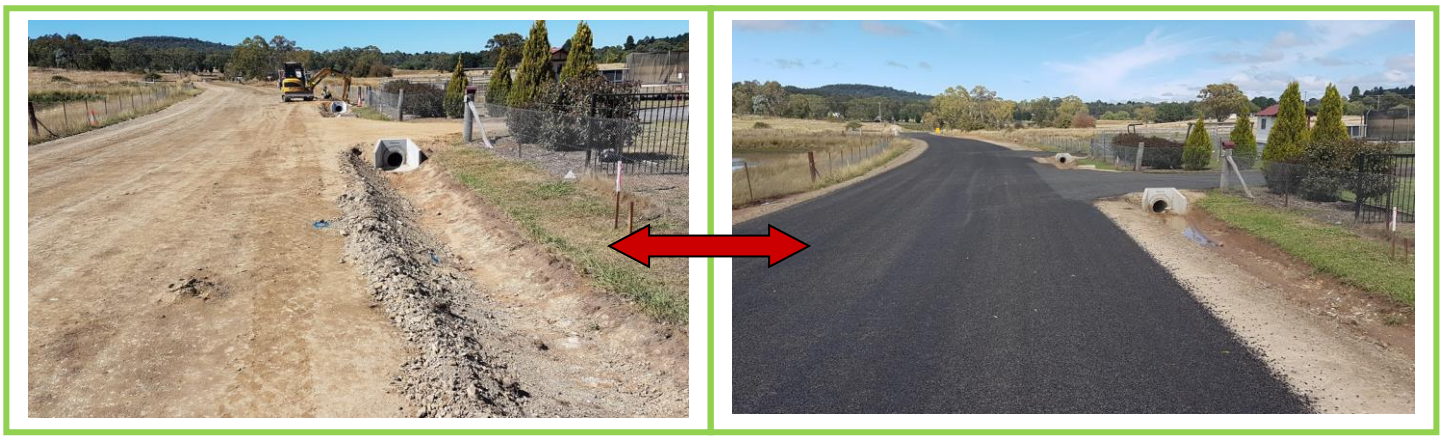
4.4 New Sealed Assets from Demand & Growth

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 Sealed Assets



The above graph shows large spikes in 2010//11 & 2011/12 FY and sealing a total of **62.8km** of previously unsealed roads over the previous ten financial years. This is separate to the resealing program and is capital work upgrades. From 2010/11 to present the average increase of **6.3km** of sealed road to the rural road network is an indicative representation to show future projections. The increase in overall network seal length will impact capital renewal/upgrades, maintenance expenditure and increase future replacement costs.



Limekilns Road – Segment 38km – 39km

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.

Asset category	Length (km) Sealed	Length (km) Unsealed
Rural Roads – access	94.39	274.04
Rural Roads - collector	117.30	116.49
Rural Roads - distributor	316.93	40.94
Total	**528.62**	**431.47**

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, Spray seal & Asphalt Concrete surface useful life 15 years, & Unsealed Road useful life 30 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
- Causeways and culverts
- Guardrails, Guideposts
- Property access (culverted) aprons, Table drains
- Medium capital costs, nil operational costs, medium maintenance cost
- Pavement useful life of 65 years, Spray seal & Asphalt Concrete surface useful life 15 years, & Unsealed Road useful life 30 years

Distributor Roads –

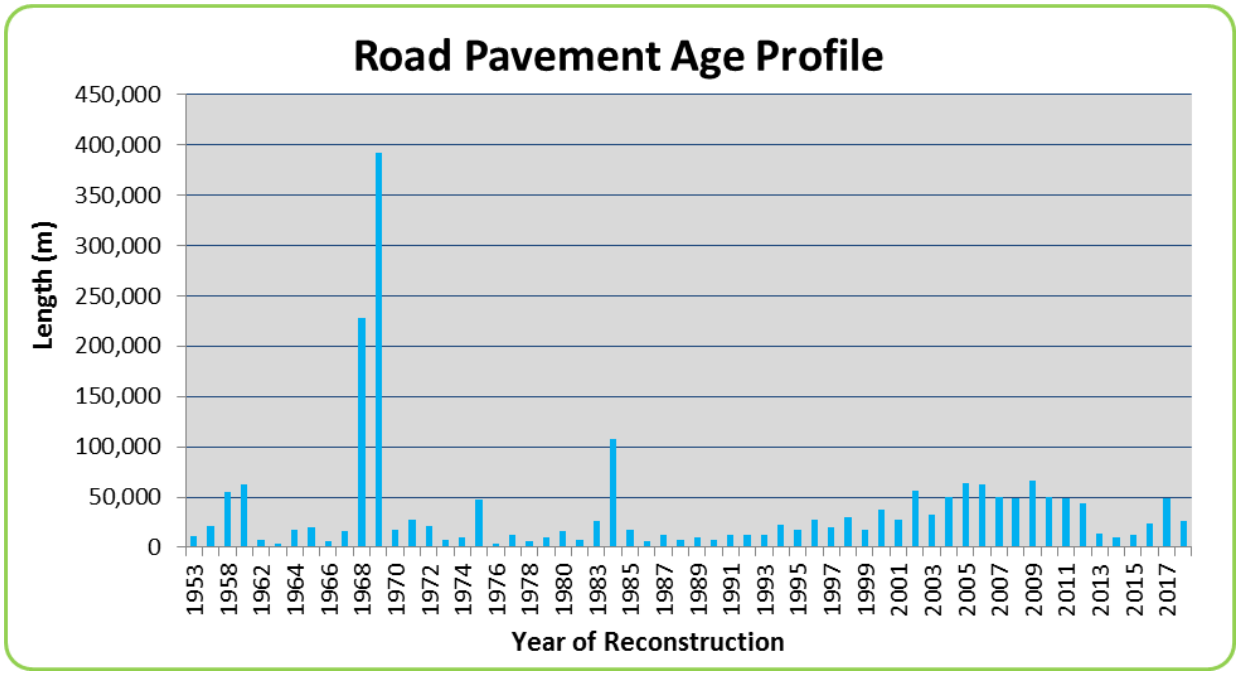
- Allow vehicular travel within the region and linking trips with adjoining local government areas
- Roads have 2 travelling lanes with a minimum carriage width of 6.5 metres
- Traffic volumes between 125 and 2500 AADT
- Speed environment of 80-100km/h (50km/h through semi-rural residential areas)
- Pavement surface may be paved or unpaved – predominantly paved
- Direction, warning and road name signs
- Bridges, culvert structures & Graded table drains
- Guardrails Guideposts
- High capital costs, low operational costs, high maintenance costs
- Pavement useful life of 55 years, Spray seal & Asphalt Concrete surface useful life 15 years, & Unsealed Road useful life 30 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 are 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



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 oversimplification of the number and quantity of rural roads requiring renewal and the time span in which they will require renewal.

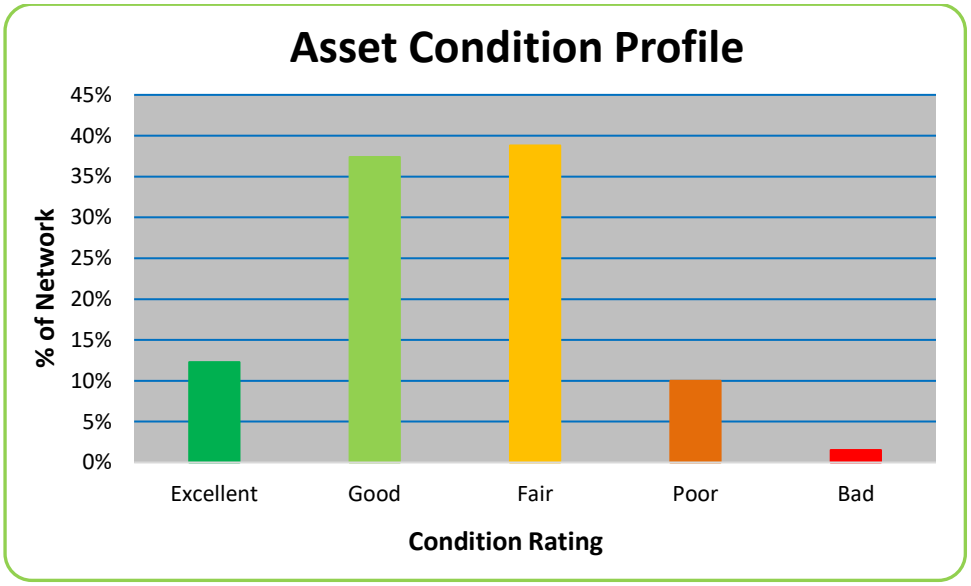
5.1.2 Asset capacity and performance

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

Location	Service Deficiency
Root Hog Road	Steep topography makes maintenance levels higher than usual.
Hill End Road	Cockatoo Hill segment – poor alignment, tight curves making unsuitable for coach traffic.

Fig 5.1.2 Asset Condition Profile



The above graph shows the percentage of the network in **Excellent to Fair** condition is **89%** with the remaining **11%** in **Poor/Bad** condition as of 2017 condition rating. The last condition rating of the rural road network was completed 2017 and will be due to be completed in 2021.

Condition is measured using a 1 – 5 rating system.

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

5.1.3 Asset valuations

The value of assets as at 30 June 2018 covered by this asset management plan is summarised below.

Current Replacement Cost	**$314,530 million**
Depreciable Amount	**$96,706 million**
Depreciated Replacement Cost	**$217,823 million**
Annual Depreciation Expense	**$15,536 million**

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 5.2. Critical Risks and Treatment Plans

Asset at Risk	What can Happen	Risk Rating	Risk Treatment Plan	Residual Risk	Treatment Costs
Road Pavement	Large defect that compromises road seal and affects pavement within traffic lane on a collector or distributor road.	**EXTREME**	Effect appropriate temporary repairs or barriers within specified response time to make safe. Programme defect for permanent repair as soon as possible.	Defect may cause accident or deterioration may increase pending repair works.	• Estimated Average cost of Materials = **$4/sq.m** • Estimated Average cost of Operations = **$200/hr**
	Any defect that compromises road seal and affects pavement within traffic lane on a collector or distributor road.	**HIGH**	Effect appropriate temporary repairs until such time as a permanent repair can be programmed. Programme defect for permanent repair.		
Road seal	Any large defect that compromises road seal within traffic lanes on a collector or distributor road	**HIGH**	Programme defect for repair.		
Traffic lane	Any spillage of any substance that can affect the slip resistance of the road surface.	**EXTREME**	Remove substance within specified response time.	Residue of substance can still be present	• Estimated Operational Cost to remove substances = **$250/hr**
	Any object within the traffic lanes on any Rural road.	**EXTREME**	Remove obstruction within specified response time.	Partial debris from obstruction may be still be on road	• Estimated Operation Costs to remove obstacles = **$250/hr**
Road Signage/ Guideposts	Regulatory or Warning sign (AS1742.1) has been removed or damaged beyond legibility.	**HIGH**	Sign/Guidepost to be replaced within specified response time.	Accident may still occur at site, pending repair works.	• Estimated Average Cost of Sign = **$180 per sign** • Estimated Average Cost of Guide-posting = **$30 per post** • Estimated Average cost of Operations = **$200/hr**
Guard Rail /Wire-Rope Fencing	Guard rail or Wire-Rope Fencing is damaged so as to affect its function.	**HIGH**	Repair or replace guard rail/wire-rope fencing as necessary within specified response time.		• Estimated Average cost of Guardrail/Wire Rope Fencing = **$100/m** • Estimated Average cost of Operations = **$200/hr**

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

Table 5.3.1 Maintenance Expenditure Trends

Year	Planned (Capital Works)	Cyclic (Reseals)	Reactive (Maintenance Budget)	TOTAL
2015/16	$1,257,443	$592,951	$687,106	**$2,537,501**
2016/17	$2,307,443	$612,519	$709,781	**$3,629,742**
2017/18	$690,000	$612,000	$1,239,400	**$2,541,400**
2018/19 Budget	$2,526,374	$642,600	$1,585,800	**$4,754,774**

Cyclic Reseal expenditure is **5.5%** 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

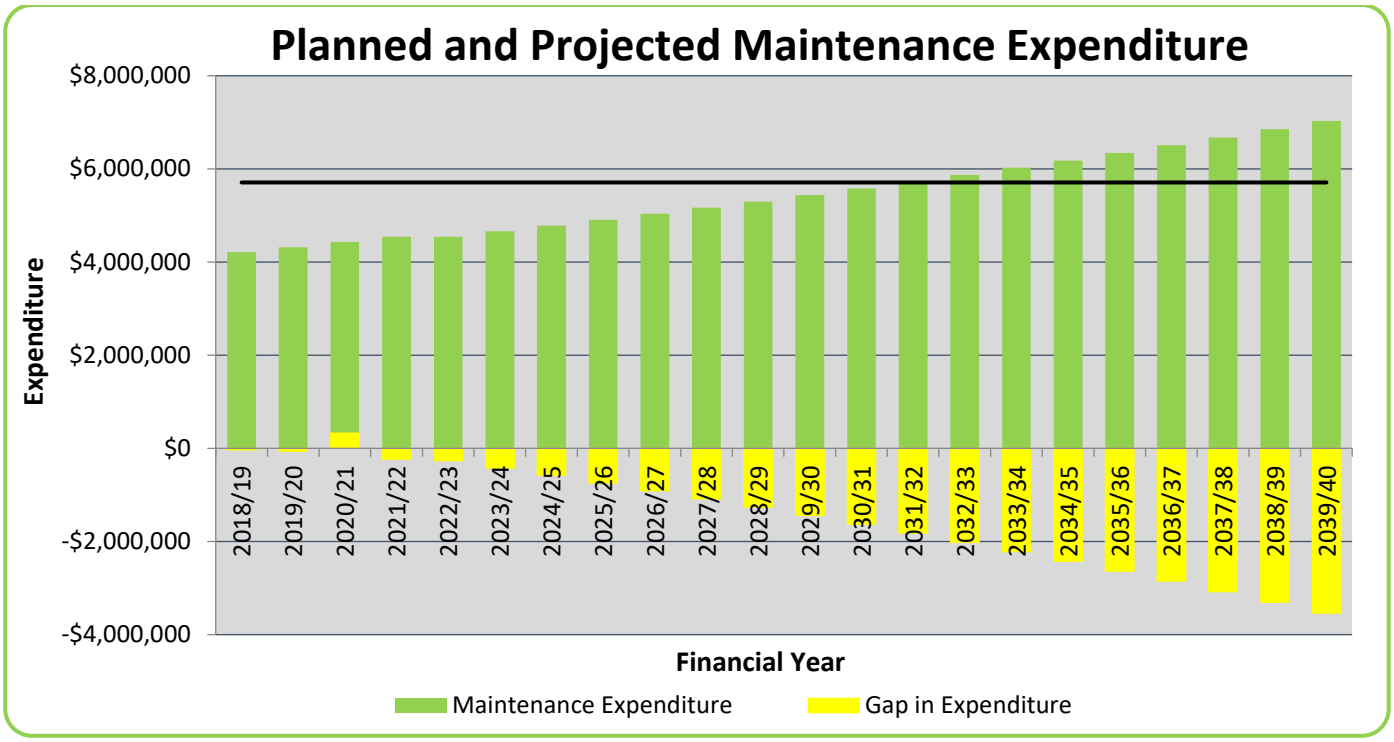
Maintenance work is carried out in accordance with the following Standards and Specifications.

- Asset Management Policy 2018
- 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 5.3.3. 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.

Fig 5.3.3 Planned and Projected Maintenance Expenditure



The above graph shows;

- Planned Maintenance expenditure 2018/19 to 2039/40 FY (Projected)
- The Average maintenance expenditure required to maintain levels of service over 20yrs.
- Maintenance Budget from 2021/22 onwards has been extrapolated with a 2.6% PPI factor Over 20yrs.

Rural Road Network Current Position;

- Total maintenance expenditure (required over 20yrs) = **$157,876,298**
- Average Maintenance Expenditure (required over 20yrs) = **$7,176,195 p.a.**
- Average Capital Renewals = **$985,566**
- Average Cyclic Maintenance = **$731,704**
- Average Maintenance = **$5,458,925**
- Increase in Expenditure from 2018/19 to 2039/40 = **$377,221**
- 2018/19 Maintenance Budget = **$5,708,488 Avg. p.a.**
- Average Gap in Expenditure = -$1,467,707 p.a.

5.3.4 Resealing

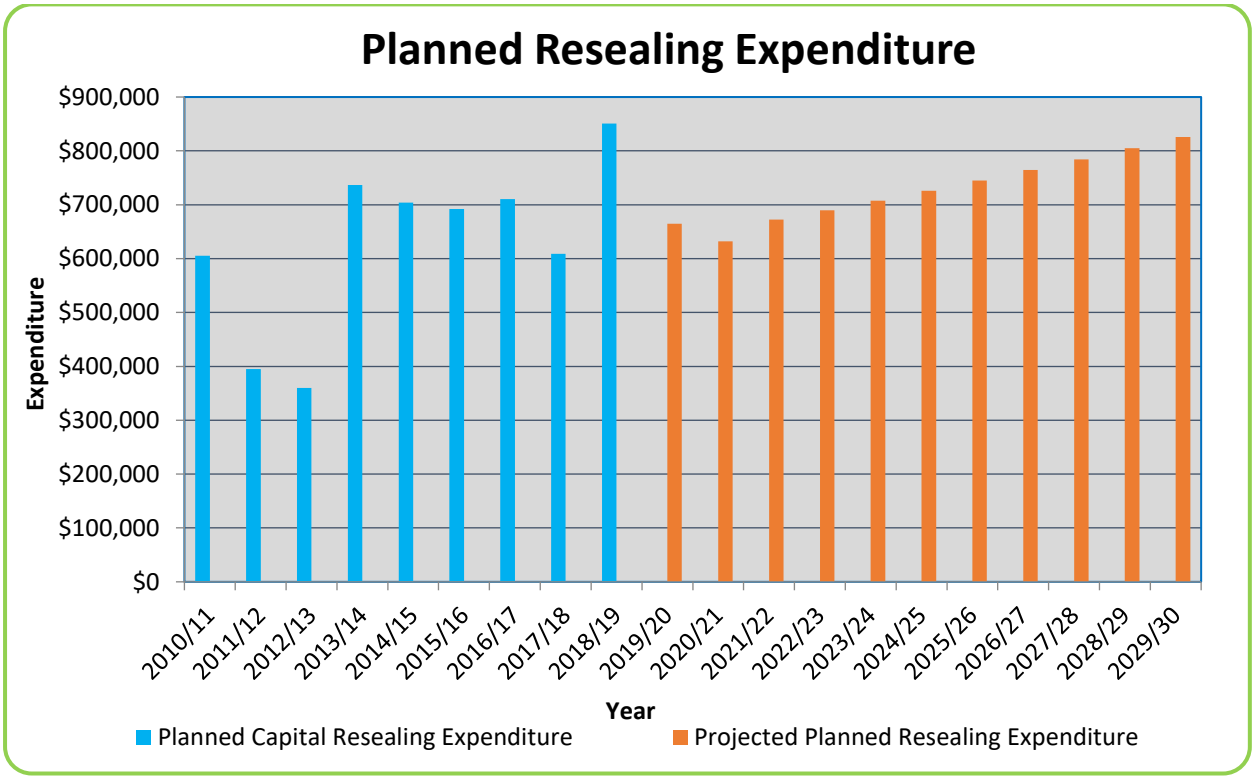
Rural roads are generally sealed where the function (Access/Collector/Distributor) of the road warrants it. The surface may be a sprayed seal or asphaltic concrete seal. The sealed surface provides:

- 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 15 years and an asphaltic concrete surface of 18 to 20 years.

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.

Fig 5.3.4 Planned Resealing Expenditure



The above graph shows planned resealing expenditure required over the long term from the Works Re-sealing program. The average expenditure from 2010 to present is **$629,173 p.a.** with a larger spike in 2018/19 consisting of the following larger sections; Lachlan Road - 9.2km to 11km, Napoleon Reef Road - 0km to 2km, Sunny Corner Road - 0km to 2.3km, Tarana Road - 2km to 4km and Walang Drive - 0km to 2km. The projected planned expenditure shown has been extrapolated with 2.6% PPI factor over the medium term (10yrs) showing an average of **$728,858 p.a.** The above figures show only planned expenditure as an indicator of future resealing funding and does not allow for any upgrades, only minor renewal works of pre-existing infrastructure.

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 5.4.1 Renewal Priority Ranking Criteria

Criteria	Weighting
Traffic Volume (AADT)	30%
Number of houses	30%
Condition	20%
Width of carriageway	10%
Alignment	10%
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.

5.4.2 Renewal standards

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

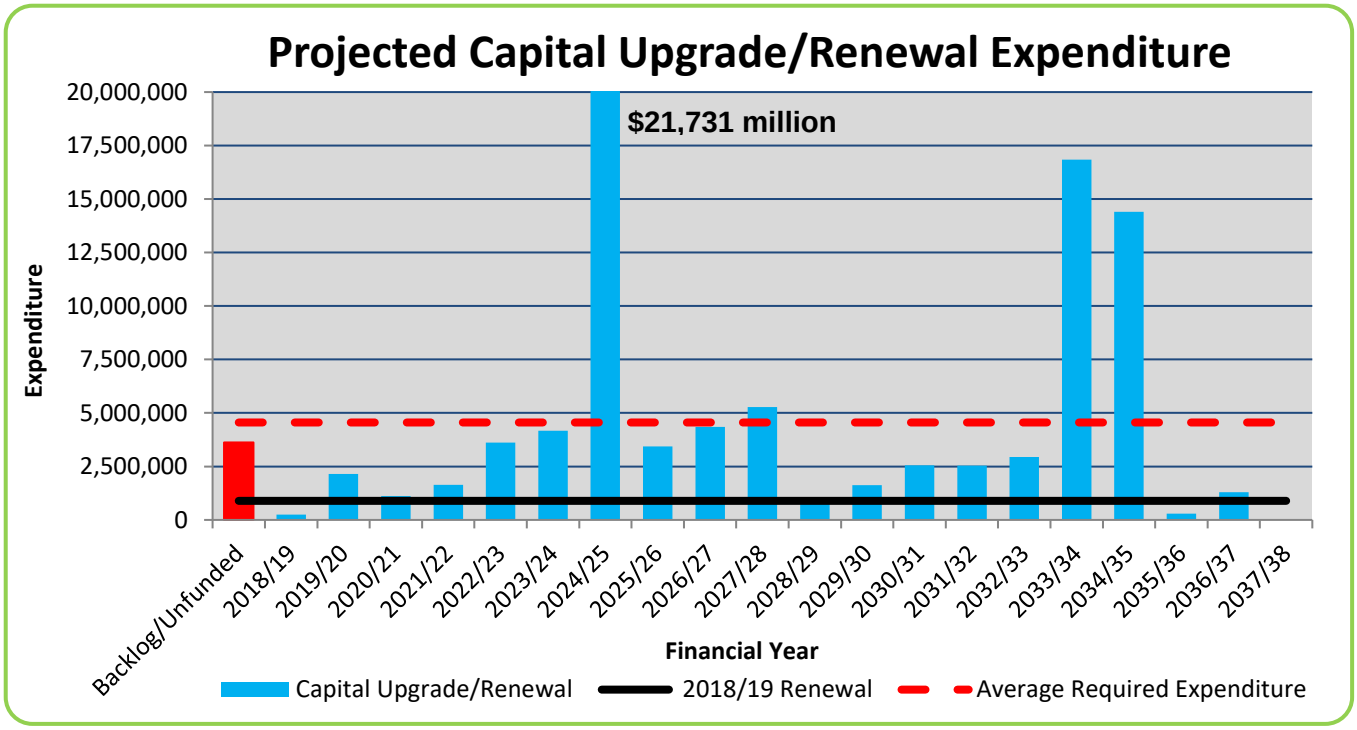
- Austroads 2002 Rural Road Design: a guide to the geometric design of major Rural roads Austroads Incorporated, Sydney
- Roads and Traffic Authority NSW 2000 Road design guide RTA Parramatta
- Bathurst Regional Council 2004 Guidelines for engineering works BRC, Bathurst

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 5.4.3 Note that all costs are shown in current 2018 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.

Fig 5.4.3. Projected Capital Renewal Expenditure



The above graph shows;

- Projected Capital Renewal Expenditure due over the long term (20yrs). (Consisting of Surface and Pavement Assets).
- Average 2018/19 Budget Capital Renewal expenditure as a baseline comparison.
- Average expenditure for Capital Renewals due over the long term (20yrs).

Rural Road Network Current Position;

- Backlog of Capital Renewals = $3,621,228.
- Average Capital Renewals Required Expenditure (over 20yrs) = **$4,556 million.**
- 2018/19 Budget (Year 1) Capital Renewals = **$892,600**
- Total Capital Renewals expenditure (over 20yrs, Including Backlog) = **$94,353 million.**

Over period shown, shows large capital renewal spikes for 2024/25, 2033/34 and 2034/35 and these consist of the following larger areas;

Renewal Due	Road	Total Length	Road Segment Descriptions (Managed in 1km Sections)
2024/25	Freemantle Road	16km	3km to 13km and 31km to 38km
	Lagoon Road	10km	4km to 6km, 9km to 10km and 24km to 33km
	Triangle Flat Road	10.34km	8km to 9km and 14km to 23.34km
2033/34	Box Ridge Road	10.42km	5km to 6km. 7km to 8km, 9km to 17.42km
	Red Hill Road	12.79km	1km to 13.79km
	Upper Turon	5.3km	0km to 3km and 7.7km to 10km (Causeway)
2034/35	The Bridle Track	8km	34km to 42km
	Bald Ridge Road	9.48km	0km to 9.48km
	Old Trunk Road	9.04km	1km to 10.04km

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, 2011.

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

Criteria	Weighting
Traffic Volume (AADT)	30%
Number of houses	30%
Condition	20%
Width of carriageway	10%
Alignment	10%
Total	**100%**

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 2018-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.

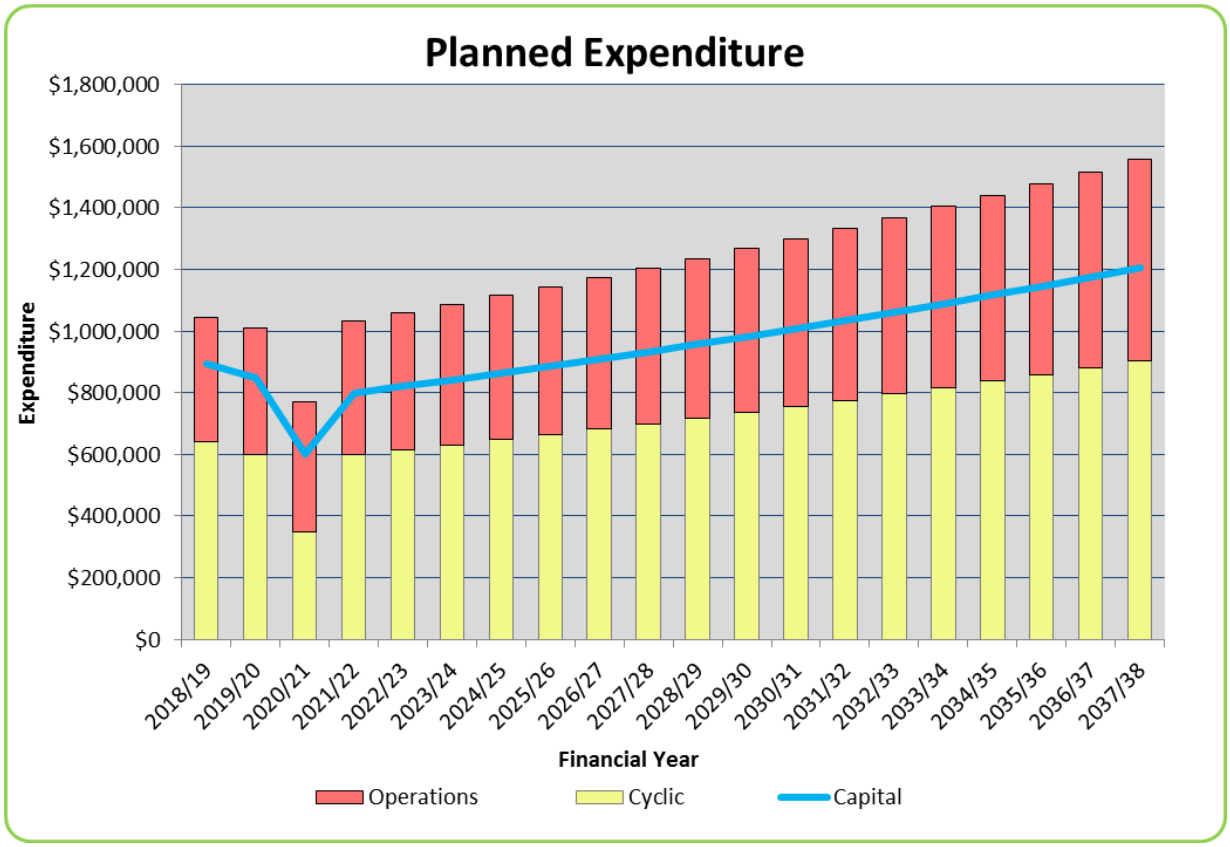
6. FINANCIAL SUMMARY

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



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 **$6,594 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 **$5,103 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.

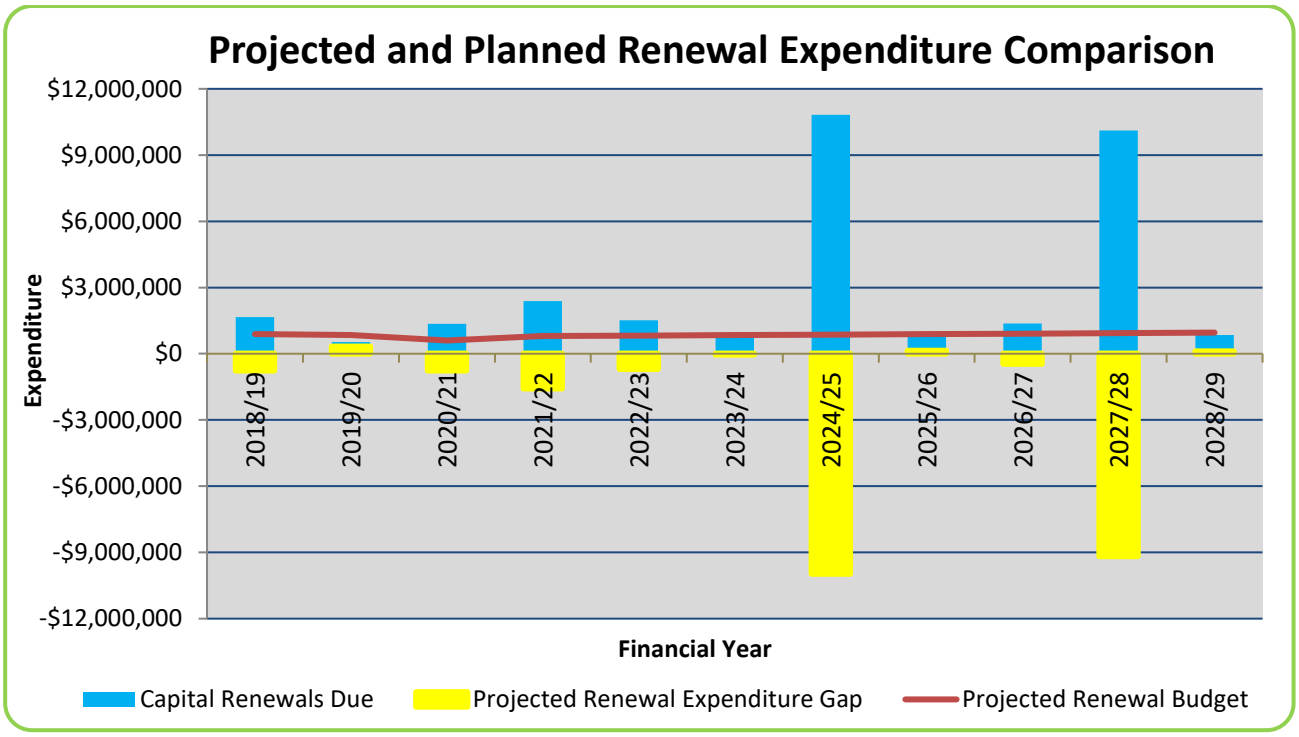
Medium term – 10-year financial planning period

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.

Fig 6.1.1. Projected and Planned Renewals and Current Renewal Expenditure



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 (refer to Fig 5.4.3 for 2024/25 & 2027/28 spikes in capital renewal).

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 **$61,241 million**.

This is an average expenditure of **$6,124 million p.a**. Estimated maintenance and capital renewal expenditure in year 1 is **$5,103 million**. The 10-year sustainability index is **0.83**
(i.e. an average -$1,021 million p.a. shortfall without allowances for upgrades/renewals).

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[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 because 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.

[4] Australian Bureau of Statistics, 2007 3105.0.65.001 Australian Historical Population Statistics, 2008

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/m^2 – 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 PPI of 2.6% 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

Bridle Track, March 2018

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 19.00e.AM.12665.

CONFIRM team:

Team leader:	Administration Engineer
Administrator:	Asset Engineer
Data entry:	3 x Asset Technicians
Field inspections:	Asset Inspector

Confirm consists of:

- A comprehensive road inventory;
- Condition rating for the road network;
- Defect inspection and recording via the ConfirmConnect mobile solution;
- 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 Road network is **960km** 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 **33** years (54 expected) while the average seal age is **10** years (15 year expected). These network ages have been determined from the construction date in the asset register and the useful life (refer to 5.1.1 Physical parameters).

Approximately **21%** of the network is rated at condition P**oor/Bad** and to restore to excellent condition will cost **$29,175 million** (Based upon replacement cost within the asset register).

The current replacement cost is **$312,530 million.** The annual depreciation expense is **$15,536 million p.a**. Assets will be re-valued in line with DLG requirements as at **30 June 2018**.

The current maintenance budget is approximately **$17,499 million p.a.**

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. 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 PPI at the time of budget preparation. The 'inputs' to road maintenance (e.g. materials/fuel) have consistently increased at above PPI. 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 PPI 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 capital renewal budget for **2018/19 FY** is **$892,600** and the current capital renewal budget required is **$1,655,434** creating a shortfall of -$762,834 for year 1 of the planning period. The shortfall in funding does not allow for any upgrades of road infrastructure, only maintaining the pre-existing infrastructure.

In the medium term (10yrs) the average maintenance and capital renewal expenditure required is **$6,124 million p.a.** and the current maintenance and capital renewal budget is **$5,103 million**. This is average shortfall of -$1,021 million p.a. 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 cash flows 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 consider 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.

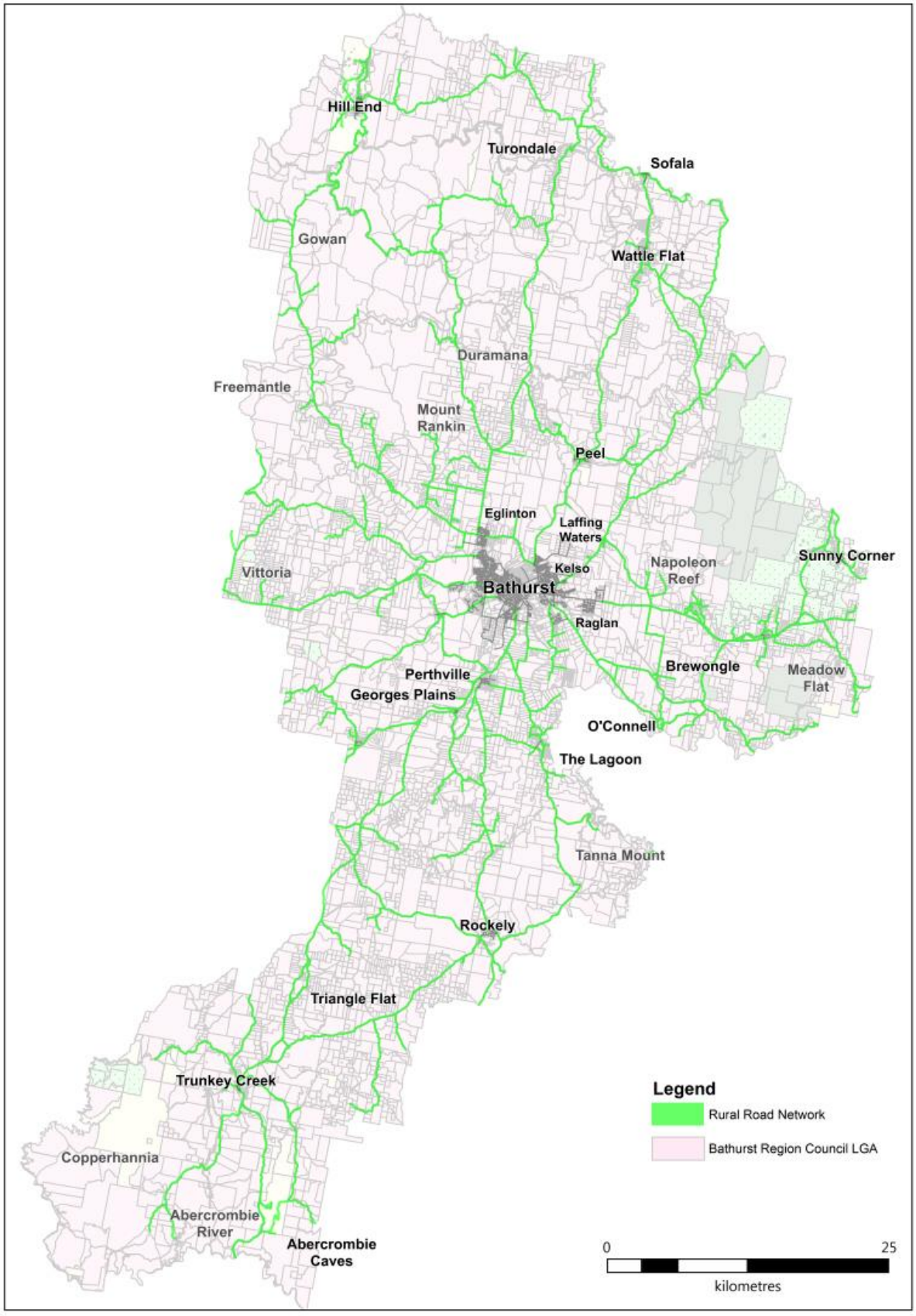
9.2 Improvement Plan

Task	Responsibility	Resources Required	Timeline
Program for scheduling overdue renewals – incorporate into Asset Register	Asset Technician/Supervisor	Accurate Works Program Data	4 Years
More specific categorisation of Budget items into Operations/Maintenance/Upgrade/Renewal	Finance Section/Asset Section	Communication between sections	
Upgrade inaccurate Re-construction & Reseal Dates within Asset Register	Asset Technician	Accurate documentation of works	
Targeted questions within Community Surveys relating to functionality and capacity of Rural Roads	Corporate and Engineering Sections	Consultation on Question Subjects	

REFERENCES

- Bathurst Regional Council, Revenue Policy 2018/19,
- Bathurst Regional Council, 'Detailed Management Plan – 2018/19.
- Bathurst Regional Council Community Strategic Plan 2040
- DVC, 2006, 'Asset Investment Guidelines', 'Glossary', Department for Victorian Communities, Local Government Victoria, Melbourne, http://www.dvc.vic.gov.au/web20/dvclgv.nsf/allDocs/RWP1C79EC4A7225CD2FCA257170003259F6?OpenDocument
- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australia, Sydney, www.ipwea.org.au

APPENDICES - Rural Road Network Map



APPENDICES – Backlogged Assets

Capital Works	Road Name	Location	Replacement $	Year Due
Upgrade	Rising Light Lane	Rising Light Lane, 0 - 724	$103,445	1981
Renewal	Mount Rankin Road	Mount Rankin Road, 2990 - 3000 sealed, 3000 - 3500 Unsealed, 3500 - 3800 sealed, 3800 - 4000 Unsealed	$17,285	1995
Renewal	Tarana Road	Tarana Road, 22000 - 23000	$28,373	
Renewal	Freemantle Road	Freemantle Road, 16000 - 17000	$15,073	1998
Renewal	Kirkconnell School Road	Kirkconnell School Road, 0 - 770	$16,905	1999
Renewal	Freemantle Road	Freemantle Road, 22000 - 23000	$12,455	2002
Renewal	Freemantle Road	Freemantle Road, 23000 - 24000	$13,821	
Renewal	Kings Creek Road	Kings Creek Rd, 0 - 1000	$21,550	2005
Renewal	Kings Creek Road	Kings Creek Rd, 1000 - 1574	$12,370	
Renewal	Old Sunny Corner Rd	Sunny Corner Rd to end	$8,425	
Renewal	McGregors Lane	McGregors Lane, 0 - 70 sealed, 70 - 1000 Unsealed	$22,260	2006
Renewal	Tarana Road	Tarana Road, 19000 - 20000	$24,347	2007
Renewal	Tarana Road	Tarana Road, 20000 - 21000	$21,407	
Renewal	Tarana Road	Tarana Road, 21000 - 22000	$22,497	
Renewal	Kinghorne Falls Road	Kinghorne Falls Road, 0 - 850	$19,658	2010
Renewal	Molybdonite Road	Molybdonite Road, 0 - 100 sealed, 100 - 1000 Unsealed	$34,318	
Renewal	Native Home Road	Native Home Road, 0 - 200	$8,197	
Renewal	Websters Lane	Sheep & Cattle Drome Entrance	$2,543	
Renewal	Walang Hwy Access	Walang Hwy Access, 0 - 120	$2,898	
Renewal	Lagoon Road	Lagoon Road, 3000 - 4000	$19,579	
Renewal	Ophir Road	Ophir Road, 4000 - 5000	$18,140	
Renewal	White Rock Road	White Rock Road, 4000 - 5000	$16,036	
Renewal	White Rock Road	White Rock Road, 5000 - 6000	$14,304	
Renewal	White Rock Road	White Rock Road, 7000 - 7663	$8,573	
Renewal	Killongbutta Road	Killongbutta Road, 0 - 1000	$26,333	2012
Renewal	Killongbutta Road	Killongbutta Road, 1000 - 2000	$25,451	
Renewal	Killongbutta Road	Killongbutta Road, 2000 - 2130 Sealed, 2130 - 3000 Unsealed	$23,329	
Renewal	Winburndale Dam Road	Winburndale Dam Road, 0 - 26 sealed, 26 - 1000 Unsealed	$40,897	
Renewal	Limekilns Road	Limekilns Road, 2000 - 3000	$19,593	2013
Renewal	Dark Corner Road	Dark Corner Road, 1580 - 3000	$19,142	2014
Renewal	Dark Corner Road	Dark Corner Road, 3000 - 4000	$20,220	
Renewal	Dark Corner Road	Dark Corner Road, 4000 - 4480	$9,059	
Upgrade	Lagoon Road	Lagoon Road, 29000 - 30000	$321,480	
Upgrade	Turondale Road	Turondale Road, 2000 - 3000	$321,480	
Upgrade	Turondale Road	Turondale Road, 3000 - 4000	$321,480	
Upgrade	Turondale Road	Turondale Road, 4000 - 5000	$321,480	
Upgrade	White Rock Road	White Rock Road, 7000 - 7663	$213,141	
		Subtotal	**$2,167,544**	

Note:

- Renewal – denotes Surface Reseal or Gravel Re-sheeting works
- Upgrade – denotes Pavement reconstruction works
  (Both Renewal and Upgrade works are subject to individual assessment)
- Backlogged replacement costs shown are as of 30/06/2018

APPENDICES – Backlogged Assets (Continued)

Capital Works	Road Name	Location	Replacement $	Year Due
Renewal	Yetholme Drive	Yetholme Drive, 5000 - 5228	$10,007	
Renewal	Freemantle Road	Freemantle Road, 24000 - 25000	$13,845	2015
Renewal	Ophir Road	Ophir Road, 5000 - 6000	$20,565	
Renewal	Fitzgeralds Valley Road	Fitzgeralds Valley Road, 0 - 27 sealed, 27 - 1000 Unsealed	$22,880	
Renewal	The Bridle Track	Bridle Track, 14000 - 15000	$23,992	2016
Renewal	Eleven Mile Drive	Eleven Mile Drive, 0 - 1000	$27,566	
Renewal	Saint Johns Road	St Johns Road, 0 - 780	$31,792	
Renewal	Wests Lane	Wests Lane, 1000 - 1400 Unsealed, 1400 - 1477 sealed	$10,383	
Renewal	Paling Yards Road	Paling Yards Road, 3000 - 3700 Unsealed, 3700 - 4000 sealed	$17,867	
Upgrade	Diamond Swamp Road	Diamond Swamp Road, 0 - 1000	$250,040	
Upgrade	Ophir Road	Ophir Road, 6000 - 7000	$285,760	
Upgrade	Ophir Road	Ophir Road, 7000 - 8000	$285,760	
Upgrade	Ophir Road	Ophir Road, 8000 - 9000	$285,760	
Renewal	Freemantle Road	Freemantle Road, 15000 - 16000	$22,385	2017
Renewal	Limekilns Road	Limekilns Road, 1065 - Cambewarra St.	$31,050	
Renewal	Limekilns Road	Limekilns Road, 26000 - 27000	$16,794	
Renewal	Triangle Flat Road	Triangle Flat Road, 6000 - 7000	$12,458	
Renewal	Turondale Road	Turondale Road, 15000 - 16000	$14,690	
Renewal	Turondale Road	Turondale Road, 16000 - 17000	$16,612	
Renewal	Turondale Road	Turondale Road, 17000 - 18000	$14,680	
Renewal	Turondale Road	Turondale Road, 18000 - 19000	$19,818	
Renewal	Turondale Road	Turondale Road, 19000 - 20000	$18,982	
		Subtotal	**$1,453,686**	
		Grand total	**$3,621,228**	

Note:

- Renewal – denotes Surface Reseal or Gravel Re-sheeting works
- Upgrade – denotes Pavement reconstruction works
  (Both Renewal and Upgrade works are subject to individual assessment)
- Backlogged replacement costs shown are as of 30/06/2018

APPENDICES – Reseals/Gravel Re-sheeting Due 2020

Capital Renewal	Road Name	Location	Replacement $	Year Due
Reseal	Crawford Lane	Crawford Lane, 0 - 244	$4,161	
Reseal/Gravel Re-sheeting	Littles Access Road	Littles Access Road, 0 - 325 sealed, 325 - 670 Unsealed	$5,059	
Reseal	Mersing Road	Mersing Road, 0 - 1000	$22,125	
Reseal	O'Connell Plains Road	O'Connell Plains Road, 0 - 572	$8,884	
Reseal	Pine Ridge Road	Pine Ridge Road, 1000 - 2000	$19,320	
Reseal	Pine Ridge Road	Pine Ridge Road, 2000 - 3136	$21,117	
Reseal	Quarry Road	Quarry Road, 0 - 1000	$19,299	
Reseal	Quarry Road	Quarry Road, 1000 - 2000	$17,716	
Reseal	Quarry Road	Quarry Road, 2000 - 3000	$16,936	
Reseal	Cow Flat Road	Cow Flat Road, 0 - 1000	$34,190	
Reseal	Evans Plains Road	Evans Plains Road, 0 - 1000	$55,610	
Reseal/Gravel Re-sheeting	Evans Plains Road	Evans Plains Road, 4000 - 4671 Unsealed, 4671 - 5017 sealed	$48,261	
Reseal	Lachlan Road	Lachlan Road, 13000 - 14000	$24,605	
Reseal	Napoleon Reef Road	Napoleon Reef Road, 0 - 1000	$17,561	**2020**
Reseal	Napoleon Reef Road	Napoleon Reef Road, 1000 - 2000	$43,021	
Reseal	Walang Drive	Walang Drive, 2000 - 3000	$18,164	
Reseal/Gravel Re-sheeting	Walang Drive	Walang Drive, 4000 - 4330 sealed, 4330 - 4400 Unsealed	$8,884	
Reseal	Burraga Road	Burraga Road, 5000 - 6000	$20,031	
Reseal	Burraga Road	Burraga Road, 7000 - 7677	$13,859	
Reseal	Hobbys Yards Road	Hobbys Yards Road, 3000 - 4000	$20,534	
Reseal	Lagoon Road	Lagoon Road, 9000 - 10000	$17,195	
Reseal	Limekilns Road	Limekilns Road, 37000 - 38000	$14,338	
Reseal	Sunny Corner Road	Sunny Corner Road, 0 - 1000	$60,857	
Reseal	Sunny Corner Road	Sunny Corner Road, 1000 - 2000	$57,907	
Reseal	Tarana Road	Tarana Road, 6000 - 7000	$24,088	
Reseal	Tarana Road	Tarana Road, 7000 - 8000	$25,554	
Reseal	Tarana Road	Tarana Road, 23000 - 24000	$21,776	
Reseal	Triangle Flat Road	Triangle Flat Road, 8000 - 9000	$14,631	
		Total	**$675,683**	

APPENDICES – Reseals/Gravel Re-sheeting Due 2021

Capital Renewal	Road Name	Location	Replacement $	Year Due
Reseal/Gravel Re-sheeting	Barnetts Road	Barnetts Road, 0 - 250 sealed, 250 - 1000 Unsealed	$34,644	
Reseal	Howards Drive	Howards Drive, 0 - 1000	$20,910	
Reseal	Howards Drive	Howards Drive, 1000 - 2000	$20,652	
Reseal	Howards Drive	Howards Drive, 2000 - 2980	$20,227	
Reseal/Gravel Re-sheeting	Rockley Cemetery Road	Rockley Cemetery Road, 0 - 25 sealed, 25 - 685 Unsealed	$23,985	
Reseal/Gravel Re-sheeting	Sibleys Road	Sibleys Road, 0 - 540 sealed, 540 - 1000 Unsealed	$62,238	
Reseal	Station Street	Brewongle Station Road, 0 - 320	$15,546	
Reseal	The Bridle Track	Bridle Track, 0 - 1000	$19,756	
Reseal	The Bridle Track	Bridle Track, 15000 - 16000	$17,310	
Reseal	The Bridle Track	Bridle Track, 16000 - 17000	$23,096	
Reseal	The Bridle Track	Bridle Track, 20000 - 21000	$37,060	
Reseal	Wylchris Lane	Wylchris Lane, 0 - 620	$32,798	
Reseal	Hen and Chicken Lane	Hen and Chicken Lane, 8000 - 8255	$13,186	
Reseal	Lachlan Road	Lachlan Road, 0 - 1000	$17,733	
Reseal	Lachlan Road	Lachlan Road, 1000 - 2000	$17,837	
Reseal	Lachlan Road	Lachlan Road, 2000 - 3000	$16,460	
Reseal	Lachlan Road	Lachlan Road, 3000 - 4000	$19,913	
Reseal	O'Regans Road	Perthville Road, 670 - 1000	$17,912	
Reseal	O'Regans Road	Perthville Road, 1000 - 2000	$39,995	**2021**
Reseal	Rivulet Road	Rivulet Road, 3000 - 4000	$21,559	
Reseal	Walang Drive	Walang Drive, 3000 - 4000	$16,984	
Reseal	Willow Tree Lane	Willow Tree Lane, 3000 - 4000	$35,755	
Reseal	Lagoon Road	Lagoon Road, 1000 - 2000	$52,668	
Reseal	Lagoon Road	Lagoon Road, 16000 - 17000	$20,804	
Reseal	Lagoon Road	Lagoon Road, 20000 - 21000	$22,734	
Reseal	Lagoon Road	Lagoon Road, 24000 - 25000	$17,709	
Reseal	Limekilns Road	Limekilns Road, 27000 - 28000	$17,526	
Reseal	Ophir Road	Ophir Road, 24000 - 25000	$43,816	
Reseal	Tarana Road	Tarana Road, 8000 - 9000	$30,060	
Reseal	Tarana Road	Tarana Road, 9000 - 10000	$27,223	
Reseal	Triangle Flat Road	Triangle Flat Road, 2000 - 3000	$14,318	
Reseal	Triangle Flat Road	Triangle Flat Road, 3000 - 4000	$18,312	
Reseal	Triangle Flat Road	Triangle Flat Road, 11000 - 12000	$15,045	
Reseal	Turondale Road	Turondale Road, 4000 - 5000	$19,575	
Reseal	Turondale Road	Turondale Road, 5000 - 6000	$20,286	
Reseal	Turondale Road	Turondale Road, 10000 - 11000	$42,827	
Reseal	Turondale Road	Turondale Road, 30000 - 31000	$29,694	
Reseal	White Rock Road	White Rock Road, 0 - 1000	$19,893	
		Total	**$958,046**	

APPENDICES – Reseals/Gravel Re-sheeting Due 2022

Capital Renewal	Road Name	Location	Replacement $	Year Due
Reseal	Montavella Road	Montavella Road, 0 - 1000	$51,752	
Reseal/Gravel Re-sheeting	The Bridle Track	Bridle Track, 52000 - 52100 Unsealed, 52100 - 52160 sealed	$8,238	
Reseal	Burraga Road	Burraga Road, 0 - 1000	$10,962	
Reseal	Freemantle Road	Freemantle Road, 25000 - 26000	$14,876	
Reseal	Freemantle Road	Freemantle Road, 26000 - 27000	$20,258	
Reseal	Freemantle Road	Freemantle Road, 27000 - 28000	$18,799	
Reseal	Freemantle Road	Freemantle Road, 28000 - 29000	$39,010	
Reseal	Lagoon Road	Lagoon Road, 6000 - 7000	$21,649	
Reseal	Limekilns Road	Limekilns Road, 17000 - 18000	$19,641	
Reseal	Limekilns Road	Limekilns Road, 18000 - 19000	$22,894	
Reseal	Limekilns Road	Limekilns Road, 19000 - 20000	$24,002	
Reseal	Rockley Road	Rockley Road, 14000 - 15000	$24,171	
Reseal	Rockley Road	Rockley Road, 15000 - 16000	$25,903	
Reseal	Sunny Corner Road	Sunny Corner Road, 2000 - 3000	$38,177	**2022**
Reseal	Sunny Corner Road	Sunny Corner Road, 3000 - 4000	$55,881	
Reseal	Sunny Corner Road	Sunny Corner Road, 4000 - 5000	$62,037	
Reseal	Sunny Corner Road	Sunny Corner Road, 5000 - 6000	$62,044	
Reseal	Sunny Corner Road	Sunny Corner Road, 6000 - 7000	$68,435	
Reseal	Sunny Corner Road	Sunny Corner Road, 7000 - 8000	$52,328	
Reseal	Sunny Corner Road	Sunny Corner Road, 11000 - 12000	$46,769	
Reseal	Sunny Corner Road	Sunny Corner Road, 12000 - 13000	$51,044	
Reseal	Sunny Corner Road	Sunny Corner Road, 13000 - 13457	$14,532	
Reseal	Tarana Road	Tarana Road, 10000 - 11000	$24,281	
Reseal	Triangle Flat Road	Triangle Flat Road, 1000 - 2000	$15,484	
Reseal	Triangle Flat Road	Triangle Flat Road, 12000 - 13000	$13,986	
Reseal/Gravel Re-sheeting	Triangle Flat Road	Triangle Flat Road, 13000 - 13926 sealed, 13926 - 14000 Unsealed	$15,532	
Reseal	Turondale Road	Turondale Road, 11000 - 12000	$22,542	
Reseal	Turondale Road	Turondale Road, 31000 - 32000	$22,480	
		Total	**$867,707**	

Note:

- Replacement costs shown are as of 30/06/2018.

APPENDICES – Reseals/Gravel Re-sheeting Due 2023

Capital Renewal	Road Name	Location	Replacement $	Year Due
Reseal/Gravel Re-sheeting	Black Mountain Road	Black Mountain Road, 0 - 40 sealed, 40 - 1000 Unsealed	$26,434	
Reseal/Gravel Re-sheeting	Messners Road	Messners Road, 0 - 50 sealed, 50 - 1000 Unsealed	$38,031	
Reseal/Gravel Re-sheeting	Sinclairs Lane	Sinclairs Lane, 0 - 75 sealed, 75 - 840 Unsealed	$38,219	
Reseal	The Bridle Track	Bridle Track, 2000 - 3000	$19,261	
Reseal	The Bridle Track	Bridle Track, 3000 - 4000	$14,507	
Reseal	The Bridle Track	Bridle Track, 12000 - 13000	$12,765	
Reseal	The Bridle Track	Bridle Track, 13000 - 14000	$24,387	
Reseal	Thompsons Hill Retreat	Thompsons Hill Retreat, 0 - 1330	$7,801	
Reseal/Gravel Re-sheeting	Evans Plains Road	Evans Plains Road, 1000 - 1142 sealed, 1142 - 2000 Unsealed	$47,810	
Reseal/Gravel Re-sheeting	Red Hill Road	Red Hill Road, 0 - 80 sealed, 80 - 1000 Unsealed	$42,855	
Reseal/Gravel Re-sheeting	Ryans Road	Ryans Road, 0 - 785 Unsealed, 785 - 1000 sealed	$25,285	
Reseal	Ryans Road	Ryans Road, 1000 - 2000	$20,179	
Reseal	Ryans Road	Ryans Road, 2000 - 3000	$18,102	**2023**
Reseal	West Mitchell Road	West Mitchell Road, 0 - 1000	$47,705	
Reseal	Diamond Swamp Road	Diamond Swamp Road, 7000 - 8000	$23,581	
Reseal	Diamond Swamp Road	Diamond Swamp Road, 8000 - 9000	$21,983	
Reseal	Freemantle Road	Freemantle Road, 17000 - 18000	$13,772	
Reseal	Freemantle Road	Freemantle Road, 18000 - 19000	$14,200	
Reseal	Freemantle Road	Freemantle Road, 20000 - 21000	$24,491	
Reseal	Hill End Road	Hill End Road, 22000 - 23000	$69,289	
Reseal	Hill End Road	Hill End Road, 23000 - 24000	$67,304	
Reseal	Hill End Road	Hill End Road, 24000 - 25000	$69,213	
Reseal	Hill End Road	Hill End Road, 33000 - 34000	$59,705	
Reseal	Hill End Road	Hill End Road, 34000 - 35000	$58,976	
Reseal	Limekilns Road	Limekilns Road, 20000 - 21000	$19,072	
Reseal	Limekilns Road	Limekilns Road, 21000 - 22000	$24,147	
Reseal	Limekilns Road	Limekilns Road, 34000 - 35000	$35,144	
Reseal	Sunny Corner Road	Sunny Corner Road, 8000 - 9000	$28,425	
		Total	**$912,643**	

Note:

- Replacement costs shown are as of 30/06/2018.
- Years beyond 2023 omitted and will be covered in future versions of this asset management plan.

APPENDICES – Pavement Reconstruction Due 2020 to 2023

Capital Works	Road Name	Location	Replacement $	Year Due
Upgrade	Freemantle Road	Freemantle Road, 13000 - 14000	$321,480	2020
Upgrade	Ophir Road	Ophir Road, 9000 - 10000	$321,480	
Upgrade	Ophir Road	Ophir Road, 10000 - 11000	$321,480	
Upgrade	Rockley Road	Rockley Road, 7000 - 8000	$250,040	
Upgrade	Rockley Road	Rockley Road, 8000 - 9000	$250,040	
Upgrade	Rockley Road	Rockley Road, 10000 - 11000	$250,040	
Upgrade	Freemantle Road	Freemantle Road, 14000 - 15000	$321,480	2022
Upgrade	Freemantle Road	Freemantle Road, 38000 - 39000	$321,480	
Upgrade	Freemantle Road	Freemantle Road, 39000 - 40000	$321,480	
Upgrade	Freemantle Road	Freemantle Road, 40000 - 41000	$321,480	
Upgrade	Freemantle Road	Freemantle Road, 41000 - 42070	$321,480	
Upgrade	Ophir Road	Ophir Road, 11000 - 12000	$232,180	
Upgrade	Ophir Road	Ophir Road, 12000 - 13000	$321,480	
Upgrade	Ophir Road	Ophir Road, 13000 - 14000	$321,480	
Upgrade	Box Ridge Road	Box Ridge Road, 6000 - 7000	$250,040	2023
Upgrade	Dark Corner Road	Dark Corner Road, 0 - 1000	$250,040	
Upgrade	Willow Tree Lane	Willow Tree Lane, 7000 - 7263	$65,761	
Upgrade	Freemantle Road	Freemantle Road, 15000 - 16000	$321,480	
Upgrade	Freemantle Road	Freemantle Road, 16000 - 17000	$321,480	
Upgrade	Freemantle Road	Freemantle Road, 17000 - 18000	$321,480	
Upgrade	Triangle Flat Road	Triangle Flat Road, 5000 - 6000	$214,320	
Upgrade	Triangle Flat Road	Triangle Flat Road, 6000 - 7000	$214,320	

Note:

- Replacement costs shown are as of 30/06/2018.
- Years beyond 2023 omitted and will be covered in future versions of this asset management plan.

APPENDICES - List of Rural Road Network

Road No	Name	Locality	Road No	Name	Locality
204	23 Mile Ln	Wattle Flat	111	Duramana Rd	Eglinton
320	Ardsley Lane	Laffing Waters	457	Eleven Mile Drive	Eglinton
285	Arrow Lane	Rock Forest	49	Elmswood Rd	Caloola
169	Back Creek Rd	Sunny Corner	83	English's Rd	Caloola
47	Back Swamp Rd	The Rocks	158	Eusdale Rd	Yetholme
123	Bald Hill Lookout Rd	Hill End	851	Evans Plains Creek Road	Dunkeld
36	Bald Ridge Rd	Abercrombie River	64	Evernden Lane	Rockley Mount
164	Barnetts Rd	Yetholme	85	Falls Rd	Abercrombie River
76	Bartons Rd	Cow Flat	46	Fitzgeralds Valley Rd	Bathampton
48	Bathampton Rd	Bathampton	185	Forge Rd	Duramana
208	Batterham Lane	Wattle Flat	106	Freemantle Rd	Eglinton
126	Beaufoy Merlin Rd	Hill End	485	Frys Lane	White Rock
68	Bidgeribbin Rd	The Lagoon	17	Garthowen Rd	Tannas Mount
187	Billywillinga Rd	Billywillinga	146	Gemalla Scout Camp Rd	Gemalla
212	Black Mountain Rd	Fosters Valley	246	George Thomas Close	The Lagoon
182	Blacks Mill Lane	O'Connell	52	Gestingthorpe Rd	Perthville
116	Box Ridge Rd	Turondale	141	Glanmire Lane	Glanmire
154	Brewongle Lane	Glanmire	69	Glazebrooks Rd	The Lagoon
176	Brewongle School Rd	Brewongle	190	Glen Outram Lane	Duramana
112	Bridle Track	Duramana	163	Goldies Rd	Tarana
183	Broken Bridge Rd	Yetholme	500	Gormans Hill Road	Gormans Hill
218	Bullocks Flat Rd	Wattle Flat	103	Gowan Rd	Gowan
73	Burges Rd	Caloola	196	Green Gully Rd	Mount Rankin
155	Burkes Lane	Brewongle	35	Grove Creek Rd	Trunkey Creek
74	Burraga Rd	Rockley	39	Grovedale Rd	Trunkey Creek
11	Callans Rd	Vittoria	519	Harris Road	Raglan
40	Caloola Rd	Caloola	529	Hen & Chicken Lane	Evans Plains
184	Campbells Rd	Sunny Corner	113	Hodges Rd	Bruinbun
80	Carr Creek Rd	Caloola	71	Hollis Lane	Perthville
63	Cashens Lane	Vittoria	65	Houses Lane	The Rocks
206	Cave Gully Rd	Napoleon Reef	100	Howards Dr	Mount Rankin
96	Caves Access Rd	Abercrombie River	104	Howarths Rd	Freemantle
77	Caves Rd	Abercrombie River	217	James White Drive	Fosters Valley
56	Chifley Dam Rd	The Lagoon	251	Jones Ln	Wattle Flat
81	Clarkes Rd	Caloola	92	Kellys Rd	Fitzgeralds Mount
138	Clear Creek Rd	Clear Creek	105	Killongbutta Rd	Killongbutta
133	Colleen Hagney Lane	Peel	145	Kinghorne Falls Rd	Locksley
25	Colo Rd	Trunkey Creek	172	Kirkconnell School Rd	Kirkconnell
37	Common Rd	Rockley	583	Koonong Place	Forest Grove
20	Cow Flat Rd	Cow Flat	21	Lachlan Rd	Rockley
238	Crawford Ln	Wattle Flat	13	Lagoon Rd	Orton Park
209	Cresent Orchard Rd	Locksley	137	Limekilns Rd	Kelso
129	Crudine Rd	Crudine	177	Littles Access Rd	Napoleon Reef
153	Curly Dick Rd	Tarana	180	Locksley Station Rd	Locksley
26	Curragh Rd	Trunkey Creek	195	Longridge Rd	Billywillinga
168	Dark Corner Rd	Sunny Corner	79	Loudoun-Shand Rd	Caloola
255	Diamond Swamp Rd	Meadow Flat	160	Macabees Rd	Yetholme
118	Dingers Lane	Duramana	220	Marion Close	Wimbledon
42	Dog Rocks Rd	Rockley	61	Martin Bird Lane	Vittoria
127	Doughertys Junction Rd	Sallys Flat	44	Marys Lane	Dunkeld
447	Dunkeld Road	Dunkeld	59	Matchetts Rd	Bald Ridge

APPENDICES - List of Rural Road Network (Continued)

Road No	Name	Locality	Road No	Name	Locality
210	McGregors Lane	Eglinton	144	Solitary Lane	Wattle Flat
862	McIntosh Lane	Freemantle	120	Spring Close	Mount Rankin
171	McManus Rd	Meadow Flat	197	Saint Anthonys Creek Rd	Glanmire
110	Mersing Rd	Glanmire	51	Saint Johns Rd	Georges Plains
89	Messners Rd	Fosters Valley	175	Station St	Brewongle
647	Mill Lane	Eglinton	771	Strathmore Drive	Forest Grove
157	Molybdonite Rd	Yetholme	115	Stuarts Access Rd	Bruinbun
653	Montavella Road	Gormans Hill	167	Sunny Corner Rd	Sunny Corner
161	Mount Homer Rd	Yetholme	12	Sutherland Dr	Georges Plains
134	Mount Horrible Rd	Limekilns	136	Tabberatong Rd	Limekilns
107	Mount Rankin Rd	Mount Rankin	148	Tarana Rd	Brewongle
62	Murphys Rd	Rock Forest	863	Tarrella Rd	Peel
162	Napoleon Reef Rd	Napoleon Reef	193	The Ridgeway	Napoleon Reef
202	Native Home Rd	Georges Plains	781	Thomas Drive	Eglinton
86	Oakey Creek Rd	Vittoria	156	Timber Ridge Rd	Walang
70	O'Connell Plains Rd	The Lagoon	22	Triangle Flat Rd	Triangle Flat
58	Old Trunk Rd	Arkell	43	Trunkey Cemetery Rd	Trunkey Creek
9	Ophir Rd	Abercrombie	117	Turondale Rd	Duramana
75	O'Sheas Rd	Fosters Valley	130	Upper Turon Rd	Sofala
132	Paling Yards Rd	Wattle Flat	192	Valley View Close	Napoleon Reef
95	Parnells Rd	The Rocks	181	Walang Dr	Napoleon Reef
207	Peregrine Rd	Billywillinga	198	Walang Hwy Access	Napoleon Reef
852	Perthville Rd	Perthville	150	Wambool Rd	O'Connell
10	Pine Ridge Rd	Rock Forest	122	Warrys Rd	Hill End
125	Posey Hill Rd	Hill End	816	Websters Lane	Kelso
41	Pratleys Lane	Caloola	143	Wells Access Rd	Wattle Flat
194	Priors Lane	Billywillinga	166	West Mitchell Rd	Sunny Corner
139	Pymonts Lane	Peel	72	West Wimbledon Rd	Wimbledon
128	Pyramul Rd (Sallys Flat Road)	Sallys Flat	147	Wests Lane	Brewongle
18	Quarry Rd	Cow Flat	119	Whalans Lane	Duramana
188	Quartz Ridge Rd	Turondale	213	White Rock Rd	White Rock
131	Red Hill Rd	Paling Yards	832	Williams Lane	Perthville
24	Redbank Rd	Triangle Flat	8	Williamson Rd	Rock Forest
149	Ridge Rd	O'Connell	108	Willow Tree Lane	Mount Rankin
114	Riley & Yorkes Rd	Gowan	66	Wimbledon Rd	Georges Plains
151	River Rd	Wambool	173	Winburndale Dam Rd	Napoleon Reef
174	Rivulet Rd	Peel	837	Wingeretta Close	Forest Grove
87	Rockley Garbage Tip	Rockley	189	Wingeretta Rd	Turondale
252	Rockley Rd	Perthville	191	Woodside Dr	Mount Rankin
102	Root Hog Rd	Gowan	286	Wylchris Lane	Mount Rankin
82	Rowendene Rd	Arkell	140	Yarras Lane	Forest Grove
15	Ryans Rd	Rockley Mount	159	Yetholme Dr	Walang
215	Samuel Way	The Lagoon	871	Rockley Cemetery Road	Rockley
23	Schumachers Rd	Triangle Flat	884	Thompsons Hill Retreat	White Rock
165	Sherwood Rd	Kirkconnell	890	Briar Ln	Mt Rankin
178	Sibleys Rd	Walang	896	Armitage Rd	Kelso
78	Simmons Rd	Wisemans Creek	899	Bullock Hollow Rd	Peel
16	Sinclairs Ln	The Lagoon	900	Warai Ln	Peel
186	Slatterys Rd	Sallys Flat	901	Burdens Ln	White Rock
179	Slingsbys Rd	Walang	912	Haines Ln	Perthville
28	Smiths Rd	Curragh	913	Rising Light Lane	Wattle Flat

APPENDICES - List of Rural Road Network (Continued)

Road No	Name	Locality
914	Brae Lane	Wattle Flat
946	Croft Close	Lagoon
1025	Kings Creek Rd	Billywillinga
1034	Arcadia Place (Private Road)	Meadow Flat
1035	Mount Haven Way (Private Road)	Meadow Flat
1036	Wild Wood Road (Private Road)	Meadow Flat
1037	Hat Hill Lane (Private Road)	Meadow Flat
1038	Borrowpit Road (Private Road)	Meadow Flat

* List of Rural Road Network sourced from the Asset Section Road Register*