



Government of **Western Australia**  
Department of **Local Government and Communities**

SHIRE OF BOYUP BROOK

ROADS AND BRIDGES

# Asset Management Plan





Version 1.2

November 2012



Institute of  
Public Works  
Engineering  
Australia  
AM4SRRC

<b>Document Control</b>		<b>Asset Management for Small, Rural or Remote Communities</b>				 
BOYUP BROOK ROADS AND BRIDGES ASSET MANAGEMENT PLAN						
Rev No	Date	Revision Details	Author	Reviewer	Approver	
1.0	11/10/2011	First Draft of Transport AMP based on data from RoMan provided by Howson Management	DL			
1.1	13/3/2012	Update of Road Hierarchy data	DL			
1.2	14/8/2012	Review Road Data and remodel based on revised works program	DL			

This Asset Management Plan was prepared by Dominic Carbone & Associates, and DL Consulting.

# DCA

**DOMINIC CARBONE AND ASSOCIATES**  
**SUITE 7, 64 CANNING HIGHWAY**  
**VICTORIA PARK, WA 6100**  
**PHONE: (08) 9472 0184**  
**MOBILE: 0448 120 652**  
**EMAIL: d.carbone@bigpond.com**

# DL

**Consulting**

**16 Granada Loop**  
**Seville Grove WA 6112**  
**Phone – (08) 9399 8840**  
**Mobile – 0430 553 675**  
**Email – darren@dlconsulting.biz**

Development of this plan has been supported by funding from the Department of Local Government and Communities.



**Government of Western Australia**  
**Department of Local Government and Communities**

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

The Institute of Public Works Engineering Australia.

[www.ipwea.org.au/AM4SRRC](http://www.ipwea.org.au/AM4SRRC)

© Copyright 2011 – All rights reserved.



## TABLE OF CONTENTS

1. EXECUTIVE SUMMARY .....	iii
2. INTRODUCTION.....	1
2.1 Background .....	1
2.2 Goals and Objectives of Asset Management .....	2
2.3 Plan Framework .....	2
2.4 Core and Advanced Asset Management .....	3
2.5 Community Consultation .....	3
3. LEVELS OF SERVICE .....	4
3.1 Customer Research and Expectations.....	4
3.2 Legislative Requirements .....	4
3.3 Current Levels of Service.....	5
3.4 Desired Levels of Service.....	8
4. FUTURE DEMAND .....	9
4.1 Demand Forecast .....	9
4.2 Changes in Technology.....	10
4.3 Demand Management Plan .....	10
4.4 New Assets from Growth .....	10
5. LIFECYCLE MANAGEMENT PLAN .....	12
5.1 Background Data .....	12
5.2 Risk Management Plan.....	19
5.3 Routine Maintenance Plan.....	20
5.4 Renewal/Replacement Plan .....	21
5.5 Creation/Acquisition/Upgrade Plan .....	22
5.6 Disposal Plan .....	23
6. FINANCIAL SUMMARY .....	25
6.1 Financial Statements and Projections .....	25
6.2 Funding Strategy .....	28
6.3 Valuation Forecasts.....	28
6.4 Key Assumptions made in Financial Forecasts.....	30
7. ASSET MANAGEMENT PRACTICES .....	31
7.1 Accounting/Financial Systems.....	31
7.2 Asset Management Systems .....	31
7.3 Information Flow Requirements and Processes .....	32
7.4 Standards and Guidelines .....	32
8. PLAN IMPROVEMENT AND MONITORING .....	33
8.1 Performance Measures.....	33
8.2 Improvement Plan.....	33
8.3 Monitoring and Review Procedures.....	33
REFERENCES.....	34
APPENDICES.....	35
Appendix A Maintenance Response Levels of Service .....	36
Appendix B Projected 10 year Capital Renewal Works Program .....	37
Appendix C Planned Upgrade/Exp/New 10 year Capital Works Program.....	50
Appendix D Abbreviations.....	52
Appendix E Glossary .....	53

This page is left intentionally blank.

## 1. EXECUTIVE SUMMARY

### Context

The Shire of Boyup Brook is located on the raised inland Darling Plateau. The main population and administrative centre is the town of Boyup Brook, which has a population of around 500, and is situated on the upper reaches of the Blackwood River, approximately 270 kilometres (by road) south/south-east of Perth.

The Shire is predominantly rural in nature and consists of a transition area ranging from smaller holdings near the western boundary to large broad acre farms to the east. However, there is a current trend toward more intensive agricultural pursuits, including viticulture, aquaculture, vegetable production, olive production and tree farming.

The Shire of Boyup Brook occupies an area of 283,800 hectares and has within its boundaries several smaller localities, such as Wilga, Mayanup, Dinninup, Chowerup, Tonebridge, McAlinden and Kulikup.

During the late 1980's through to today, there has been an increasing number of more intensive agricultural pursuits being established in the shire. Vineyards at Dinninup and Kulikup were introduced in the late 1980's and substantial deer and goat farms have been established. There were significant plantings of wine and table grape vines during 1994 to 1997. During this same period, as returns from wool and cattle have diminished, a significant proportion of the shire's arable land has been planted to eucalyptus globulus (Tasmanian bluegums).

The objective of this Roads and Bridges Asset Management Plan is to outline all the tasks and resources required to manage and maintain Council's roads and bridges portfolio to an agreed standard. This Asset Management Plan provides a detailed overview of the ongoing management of the Roads and Bridges assets.

This plan acts as a tool to support the ability of Council to deliver well targeted, responsive and value for money maintenance and operational services for customers and the community as a whole.

### The Transport Service

The Transport network comprises:

- Urban Roads consisting of-
  - Sealed roads – 10.43kms
  - Paved roads - 1.68kms
  - Formed roads - 0.52kms
- Rural Roads consisting of-
  - Sealed roads – 202.09kms
  - Paved roads – 442.67kms
  - Formed roads – 382.69kms

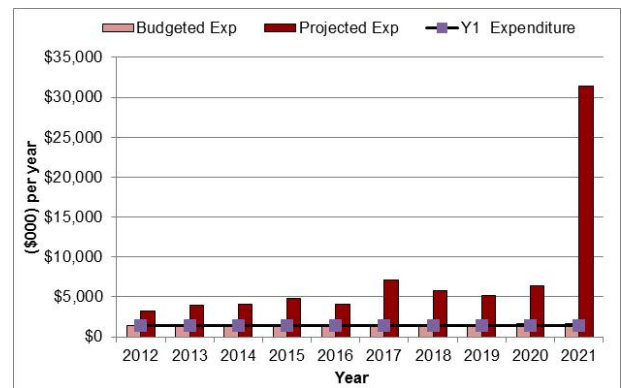
- Unformed roads - 17.51kms
- Unconstructed roads- 1.40kms
- Kerbing 10.51kms
- Bridges 4,442m<sup>2</sup>

These infrastructure assets have a replacement value of \$85,514,048.

### What does it Cost?

The projected cost to provide the services covered by this Asset Management Plan includes operations, maintenance, renewal and upgrade of existing assets over the 10 year planning period is \$76,005,000 or \$7,600,500 per year.

Council's estimated available funding for this period is \$15,229,000 or \$1,523,000 per year. This is a funding shortfall of \$6,077,500 per year, or 80% of the cost to provide the service. Projected and budgeted expenditure are shown in the graph below.



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

### What we will do

Council plans to provide Transport services for the following:

- Operation, maintenance, renewal and upgrade of Roads and Bridges assets to meet service levels set by council in annual budgets.
- Major renewals to roads classified as Regionally Significant Local Roads within the 10 year planning period.

### What we cannot do

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

- A significant proportion of the projected renewal works that have been identified in the RoMan 10 Year Works Program.

- A significant proportion of the projected reconstruction works that have been identified in the RoMan 10 Year Works Program.

### **Managing the Risks**

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

- Poor condition of asset causes vehicle damage;
- Poor condition of asset causes injury;
- Flooding causing damage to asset;
- Damage to asset caused by natural disaster.

We will endeavour to manage these risks within available funding by:

- Establish routine inspection regimes;
- Evaluate appropriate designs for flood prone areas;
- Monitor weather forecasting and general preparedness.

### **The Next Steps**

The actions resulting from this asset management plan are:

- Assess first years costs against actual.
- Prepare ranking system for renewals.
- Review maintenance practices and align with service level requirements.
- Review latest road building technologies and practices and train staff in contemporary techniques.
- Ongoing rolling program of data collection.
- Community consultation on service level provision.

### **Questions you may have**

#### **What is this plan about?**

This asset management plan covers the infrastructure assets that serve the Shire of Boyup Brook Community's Roads and Bridges, and Footpaths needs. These assets include sealed roads, unsealed roads, bridges and footpaths throughout the Council area that enable people to have access to a safe and suitable road transport network.

#### **What is an Asset Management Plan?**

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

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

provided, how the services are provided and what funds are required to provide the services.

#### **Why is there a funding shortfall?**

Most of the Council's roads and bridges network was constructed from government grants often provided and accepted without consideration of ongoing operations, maintenance and replacement needs.

Many of these assets are approaching the later years of their life and require replacement, services from the assets are decreasing and maintenance costs are increasing.

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

#### **What options do we have?**

Resolving the funding shortfall involves several steps:

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

#### **What happens if we don't manage the shortfall?**

It is likely that council will have to reduce service levels in some areas, unless new sources of revenue are found. For Transport, the service level reduction may include reverting a sealed road back to gravel, or reducing the number of times a road is graded per year.

#### **What can we do?**

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

## 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 Council's Asset Management Policy, Asset Management Strategy and the following associated planning documents:

- Plan for the Future
- Forward Capital Works Plan
- Annual Budget
- Risk Management Policy
- Department of Local Government Asset Management Framework and Guidelines

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

**Table 2.1: Assets covered by this Plan**

Asset Category	Dimension	Replacement Value	Written Down Value
Roads – Urban (Built-Up)	Sealed: 10.43kms	\$1,808,512	\$770,155
	Paved: 1.68kms	\$96,305	\$67,361
	Formed: 0.52kms	\$18,195	\$18,195
	Unformed: 0.17kms	\$408	\$408
Roads - Rural	Sealed: 202.09kms	\$21,478,705	\$12,454,988
	Paved: 442.67ms	\$25,513,698	\$18,687,474
	Formed: 382.69kms	\$12,153,903	\$12,153,903
	Unformed: 17.51kms	\$74,367	\$74,367
	Unconstructed 1.40kms	\$0	\$0
<b>Sub-Total Roads</b>	<b>1,059.16kms</b>	<b>\$61,144,093</b>	<b>\$44,226,851</b>
Kerbing	Concrete: 10.51kms	\$378,360	\$17,957
Bridges	4,442.89m <sup>2</sup>	\$23,991,595	\$23,991,595
<b>TOTAL</b>		<b>\$85,514,048</b>	<b>\$68,236,403</b>

**Note:** The figures in the above table are the full cost of the asset (formation plus pavement plus seal, where applicable) and do not represent the individual components of each asset.

Key stakeholders in the preparation and implementation of this Transport Asset Management Plan can be divided into internal and external stakeholders.

#### Internal stakeholders include:

The Shire of Boyup Brook Council

Custodian of the assets, community representation and administration

Chief Executive

Council representation and administration, Identification and definition of level of service requirements

Operations Team

Design parameters, standards, operation and administration

#### External stakeholders include:

Shire of Boyup Brook Community

Asset users, service level expectations

Visitors to the Shire of Boyup Brook

Asset users

Local Government Insurance Services

Minimisation of risk

Fire and Emergency Services Authority

Road Rescue and Emergency Services



## 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 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.<sup>1</sup>

The goal of this asset management plan is to:

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

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

Council's vision is:

***"A local government that acknowledges our heritage, whilst embracing the changing needs and expression of the past and future expectations of our community"***

Council's mission is:

***"To serve the residents of the Boyup Brook district through the provision of effective and efficient services and good governance that will enhance the community's quality of life"***

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

**Table 2.2: Organisation Goals and how these are addressed in this Plan**

Goal	Objective	How Goal and Objectives are addressed in AMP
Provision of a high standard of transport infrastructure for the community at an acceptable standard of presentation, useability and safety.	<ul style="list-style-type: none"><li>▪ To provide, maintain and replace transport infrastructure as necessary.</li></ul>	<ul style="list-style-type: none"><li>▪ Maintenance, capital renewal and capital upgrade requirements are identified and implemented.</li><li>▪ To ensure that all unsealed rural roads throughout the shire receive maintenance attention on a regular cyclical basis.</li></ul>

## 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.

<sup>1</sup> IPWEA, 2006, *IIMM* Sec 1.1.3, p 1.3.

- Life cycle management – how the organisation will manage its existing and future assets to provide the required services
- Financial summary – what funds are required to provide the required services.
- Asset management practices
- Monitoring – how the plan will be monitored to ensure it is meeting the organisation’s objectives.
- Asset management improvement plan

## **2.4 Core and Advanced Asset Management**

This asset management plan is prepared as a first cut ‘core’ asset management plan in accordance with the International Infrastructure Management Manual<sup>2</sup> and the Asset Management Framework and Guidelines<sup>3</sup>. It is prepared to meet minimum legislative and organisational requirements for sustainable service delivery and long term financial planning and reporting. Core asset management is a ‘top down’ approach where analysis is applied at the ‘system’ or ‘network’ level.

## **2.5 Community Consultation**

The Asset Management Framework and Guidelines require local governments to consult with the community on their service requirements, expectations and satisfaction levels as part of the community’s ongoing engagement in relation to asset management.

The local government is required to report annually on its asset management; with the community providing feedback on the local government’s asset management performance.

This ‘core’ asset management plan is prepared to facilitate community consultation initially through feedback on public display of draft asset management plans prior to adoption by Council. Future revisions of the asset management plan will incorporate community consultation on existing and future service needs, service levels and costs of providing the service.

This will assist Council and the community in matching the level of service needed by the community, service risks and consequences with the community’s ability to pay for the service.

---

<sup>2</sup> IPWEA, 2006.

<sup>3</sup> Department of Local Government (WA), 2011.

### 3. LEVELS OF SERVICE

#### 3.1 Customer Research and Expectations

Council has not carried out any research on customer expectations. This will be investigated for future updates of the asset management plan.

#### 3.2 Legislative Requirements

Council has to meet many legislative requirements including Australian and State legislation and State regulations. Relevant legislation is shown in Table 3.2.

**Table 3.2: Legislative Requirements**

Legislation	Requirement
Aboriginal Heritage Act 1972	Preservation of the community places and objects used by traditional owners.
Aboriginal Heritage Regulations 1974	Preservation of the community places and objects used by traditional owners.
Disability Services Act 1993	An Act for the establishment of the Disability Services Commission and the Ministerial Advisory Council on Disability, for the progress of principles applicable to people with disabilities, for the funding and provision of services to such people that meet certain objectives, for the resolution of complaints by such people and for related purposes.
Disability Services Regulations 2004	Current amendments to Disability Services Act (1993)
Environmental Protection Act 1986 and associated regulations	To provide for an Environmental Protection Authority, for the prevention, control and abatement of environmental pollution, conservation, preservation, protection, enhancement and management of the environment.
Environmental Protection and Biodiversity Act 1999 (Cwth)	To provide for the prevention, control and abatement of environmental pollution, conservation, preservation, protection, enhancement and management of the environment.
Land Administration Act 1997	To make provision for the management and reservation of Crown Land.
Local Government Act 1995	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by asset management plans for sustainable service delivery.
Local Government (Financial Assistance) Act 1995	Sets out the allocation of how financial assistance for local government by means of grants will be provided to the States, Capital Territory and the Northern Territory.
Local Government (Miscellaneous Provisions) Act 1960	To provide for the good rule, government, convenience, comfort and safety of persons in local government districts.
Main Roads Act 1930	To provide for the construction, maintenance and supervision of highways, main and secondary roads, and other roads, the control of access to roads and for other relative purposes.
Native Title Act 1999	Sets out the requirement for the protection and recognition of native title, which local governments must take into consideration where there is the involvement of Crown Land that is subject to a native title claim.
Occupational Health and Safety Act 1984 and associated regulations	Administered in part by local governments to promote and improve standards for occupational health, safety and welfare and to coordinate administration of the laws relating to occupational safety and health for incidental and other purposes.
Planning and Development Act 2005	To provide a system for land use planning and development in the State of WA.

Legislation	Requirement
Road Traffic Act 1974	To provide for the regulation of road traffic
Roads to Recovery Act 2000	Sets out the provisions on how the Australian Government will provide funding to supplement expenditure on roads, including to local governments.

### 3.3 Current Levels of Service

Council has defined service levels in two terms.

**Community Levels of Service** relate to the service outcomes that the community wants in terms of safety, quality, quantity, reliability, responsiveness, cost effectiveness and legislative compliance.

Community levels of service measures used in the asset management plan are:

Quality	How good is the service?
Function	Does it meet users' needs?
Safety	Is the service safe?

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

Technical service measures are linked to annual budgets covering:

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

Council's current service levels are detailed in the Tables below.

**Table 3.3A: Current Service Levels – Sealed Roads**

Key Performance Measure	Level of Service Objective	Performance Measure Process	Desired Level of Service	Current Level of Service (2012)
<b>COMMUNITY LEVELS OF SERVICE</b>				
Quality	Provide a smooth ride	Customer service requests	To be determined	Not currently measured.
Function	Ensure that the road meets the user requirements for travel time and availability	Customer service requests	To be determined	Not currently measured.
Safety	Provide safe suitable roads, free from hazards	<ul style="list-style-type: none"> <li>▪ Customer reported accidents.</li> <li>▪ Customer requests for curve realignments and safety signage.</li> </ul>	To be determined	Not currently measured.
<b>TECHNICAL LEVELS OF SERVICE</b>				
Operations	Urban sealed roads are clean	Street sweeping frequency	3 times per annum	Not currently measured.
Maintenance	Transport network is suitable for purpose.	<ul style="list-style-type: none"> <li>▪ Average maintenance cost per km of road.</li> <li>▪ Pothole patching frequency</li> </ul>	<ul style="list-style-type: none"> <li>▪ Less than 10% variation between actual and 4 Year average maintenance cost.</li> <li>▪ Potholes do not exceed 150mm in diameter</li> </ul>	Not currently measured.
		<ul style="list-style-type: none"> <li>▪ Cost effectiveness</li> </ul>	<ul style="list-style-type: none"> <li>▪ \$3,000/km</li> </ul>	Not currently measured
		<ul style="list-style-type: none"> <li>▪ Budget</li> </ul>	<ul style="list-style-type: none"> <li>▪ \$365,600</li> </ul>	<ul style="list-style-type: none"> <li>▪ \$321,480</li> </ul>
Renewal	Ensure roads are replaced/renewed so that roads continue to be fit for purpose	<ul style="list-style-type: none"> <li>▪ No of renewals identified in Renewal Plan (reseals) completed per year.</li> <li>▪ Useful life of Infrastructure Assets</li> </ul>	<ul style="list-style-type: none"> <li>▪ 70% of renewals identified in first generation Renewal Plan completed per annum.</li> <li>▪ Sealed surfaces 20 years.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Not currently measured.</li> <li>▪ Sealed surfaces 30-35 years.</li> </ul>
		<ul style="list-style-type: none"> <li>▪ Condition of sealed pavements</li> </ul>	<ul style="list-style-type: none"> <li>▪ Less than 5% of roads with a condition rating of 4 or 5.</li> </ul>	2.3% of Roads with a condition rating of 4 or 5.
Upgrade/New	Ensure roads are upgraded to meet current standards and modern needs	No of upgrades identified in Upgrade Plan completed per annum.	80% of upgrades identified in first generation Upgrade Plan completed per annum.	Not currently measured.

**Table 3.3B: Current Service Levels – Unsealed Roads**

Key Performance Measure	Level of Service Objective	Performance Measure Process	Desired Level of Service	Current Level of Service
<b>COMMUNITY LEVELS OF SERVICE</b>				
Quality	<ul style="list-style-type: none"> <li>▪ Provide a smooth ride.</li> <li>▪ Road does not have excessive loose material or dust.</li> </ul>	Customer service requests	To be determined	Not currently measured.
Function	Ensure that the road meets the user requirements for travel time and availability	<ul style="list-style-type: none"> <li>▪ Customer service requests relating to travel time &amp; availability</li> </ul>	To be determined	Not currently measured.
Safety	Provide safe suitable roads, free from hazards	<ul style="list-style-type: none"> <li>▪ Customer reported accidents.</li> <li>▪ Customer requests for curve realignments and safety signage.</li> </ul>	<ul style="list-style-type: none"> <li>▪ To be determined</li> </ul>	Not currently measured.
<b>TECHNICAL LEVELS OF SERVICE</b>				
Operations				
Maintenance	<ul style="list-style-type: none"> <li>▪ Maintain transport network in an efficient and cost effective manner.</li> <li>▪ Conduct routine maintenance grading as per service level standards</li> </ul>	<ul style="list-style-type: none"> <li>▪ Average maintenance cost per km of road.</li> <li>▪ No of times each road is graded, according to Hierarchy.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Less than 10% variation between actual and 4 Year average maintenance cost.</li> <li>▪ Grading –                             <ul style="list-style-type: none"> <li>○ Regional – 4/yr</li> <li>○ Local – 2/yr</li> <li>○ Bus routes – 2/yr</li> <li>○ Access roads – 1/yr</li> </ul> </li> </ul>	Not currently measured.
		<ul style="list-style-type: none"> <li>▪ Budget</li> </ul>	<ul style="list-style-type: none"> <li>▪ \$650,000</li> </ul>	\$571,520
Renewal	<ul style="list-style-type: none"> <li>▪ Ensure roads are replaced/renewed so that road continues to be fit for purpose</li> </ul>	<ul style="list-style-type: none"> <li>▪ No of renewals identified in Renewal Plan (resheets) completed per year.</li> </ul>	<ul style="list-style-type: none"> <li>▪ 70% of renewals identified in first generation Renewal Plan completed per annum.</li> </ul>	Not currently measured.
Upgrade/New	<ul style="list-style-type: none"> <li>▪ Ensure roads are upgraded to meet current standards and modern needs</li> </ul>	<ul style="list-style-type: none"> <li>▪ No of upgrades identified in Upgrade Plan completed per annum.</li> </ul>	<ul style="list-style-type: none"> <li>▪ 80% of upgrades identified in first generation Upgrade Plan completed per annum.</li> </ul>	Not currently measured.

**Table 3.3C: Current Service Levels – Bridges**

Key Performance Measure	Level of Service Objective	Performance Measure Process	Desired Level of Service	Current Level of Service
<b>COMMUNITY LEVELS OF SERVICE</b>				
Quality	<ul style="list-style-type: none"> <li>Ensure bridges provide a smooth ride.</li> </ul>	<ul style="list-style-type: none"> <li>Customer service requests</li> </ul>	<ul style="list-style-type: none"> <li>To be determined</li> </ul>	Not currently measured.
Function	<ul style="list-style-type: none"> <li>Ensure bridges meet road users needs in relation to accessibility, weight requirements and availability</li> </ul>	<ul style="list-style-type: none"> <li>Customer service requests relating to availability.</li> </ul>	<ul style="list-style-type: none"> <li>To be determined.</li> </ul>	Not currently measured.
Safety	<ul style="list-style-type: none"> <li>Provide safe suitable bridges for vehicular traffic</li> </ul>	<ul style="list-style-type: none"> <li>Customer reported accidents.</li> </ul>	<ul style="list-style-type: none"> <li>To be determined.</li> </ul>	Not currently measured.
<b>TECHNICAL LEVELS OF SERVICE</b>				
Operations				
Maintenance	<ul style="list-style-type: none"> <li>Ensure bridges are maintained in working condition.</li> </ul>	<ul style="list-style-type: none"> <li>Inspections conducted per annum.</li> <li>No of defects outstanding.</li> <li>Average maintenance cost per annum</li> </ul>	<ul style="list-style-type: none"> <li>One inspection conducted per annum.</li> <li>Less than 3 defect items per inspection.</li> <li>Less than 10% variation between actual and 4 Year average maintenance cost.</li> </ul>	Not currently measured.
		<ul style="list-style-type: none"> <li>Budget</li> </ul>	<ul style="list-style-type: none"> <li>\$67,000</li> </ul>	\$64,000
Renewal	Ensure bridges are replaced/renewed so that they continue to be fit for purpose	No of renewals identified in Renewal Plan (overlays) completed per year.	<ul style="list-style-type: none"> <li>70% of renewals identified in first generation Renewal Plan completed per annum.</li> </ul>	Not currently measured.
Upgrade/New	Ensure bridges are upgraded/constructed to meet current standards and modern needs	No of bridge upgrades identified in Upgrade/New Plan completed per annum.	<ul style="list-style-type: none"> <li>80% of upgrades identified in first generation Upgrade Plan completed per annum.</li> </ul>	Not currently measured.

### 3.4 Desired Levels of Service

At present, indications of desired levels of service are obtained from various sources including residents’ feedback to Councillors and staff, service requests and correspondence. Council has yet to quantify desired levels of service. This will be done in future revisions of this asset management plan.

## 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.

Demand factor trends and impacts on service delivery are summarised in Table 4.1.

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

Demand factor	Present position	Projection	Impact on services
Population	<ul style="list-style-type: none"> <li>The population as at 30 June 2011 was 1,558<sup>4</sup>.</li> </ul>	<ul style="list-style-type: none"> <li>1,900 by 2026<sup>5</sup> (Band C), equates to 22% increase.</li> </ul>	<ul style="list-style-type: none"> <li>Increased demand on community and facilities.</li> </ul>
Demographics	<ul style="list-style-type: none"> <li>2011 Census over 65 made up 19.0% of population.</li> </ul>	<ul style="list-style-type: none"> <li>Projected to increase to 20.8% over 65 by 2026.</li> </ul>	<ul style="list-style-type: none"> <li>Require smoother roads to facilitate access for the elderly.</li> </ul>
Climate change		<ul style="list-style-type: none"> <li>Flooding and storm frequency increasing.</li> </ul>	<ul style="list-style-type: none"> <li>Emergency Services</li> <li>Infrastructure damage creating higher frequency of loss of service.</li> <li>More requirement for Water Sensitive Urban Design principles to be incorporated into rural roads, resulting in higher design costs.</li> <li>Fuel costs increasing.</li> </ul>
Agricultural Practices	<ul style="list-style-type: none"> <li>Standard sized farm holdings.</li> </ul>	<ul style="list-style-type: none"> <li>Aggregation of farms into larger holdings.</li> <li>Greater use of larger farm equipment and mobility between land holdings.</li> </ul>	<ul style="list-style-type: none"> <li>Higher standard roads for larger, heavier transport vehicles.</li> </ul>
	<ul style="list-style-type: none"> <li>Timber plantations planted, first harvesting cycle completed and entering further cycle harvesting</li> </ul>	<ul style="list-style-type: none"> <li>Plantation second cycle harvesting will commence in near future.</li> </ul>	<ul style="list-style-type: none"> <li>Plantation harvesting will result in higher heavy vehicle movements to transport logs and timber chips to port facilities from the local industry and surrounding local governments.</li> </ul>
Material sources	<ul style="list-style-type: none"> <li>Gravel pavement used for roads</li> <li>Water supplies getting difficult to source.</li> </ul>	<ul style="list-style-type: none"> <li>Gravel supplies becoming scarce in the local area.</li> <li>Limited water supplies to water bind roads.</li> </ul>	<ul style="list-style-type: none"> <li>Greater lead transport costs for importing gravel construction materials.</li> <li>Greater lead transport costs getting water to site, or develop strategic water sites around the Shire.</li> </ul>

<sup>4</sup> Source: ABS 2011 Census.

<sup>5</sup> Source: "WA Tomorrow Report", 2012 - WA Planning Commission



## 4.2 Changes in Technology

Technology changes are forecast to affect the delivery of services covered by this plan in the following areas.

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

Technology Change	Effect on Service Delivery
Larger Heavy Vehicles	Wider roads with sealed shoulders
Pavement Recycling Methods	Less reliance on virgin material – resulting in less haulage of material and disposal. Potential for greater efficiencies and lower road rehabilitation and renewal costs.
Pavement preservation techniques	Longer lasting gravel paved roads due to use of stabilisation additives.

The Shire of Boyup Brook will monitor and investigate advances in technology, and introduce them as appropriate.

## 4.3 Demand Management Plan

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management.

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.

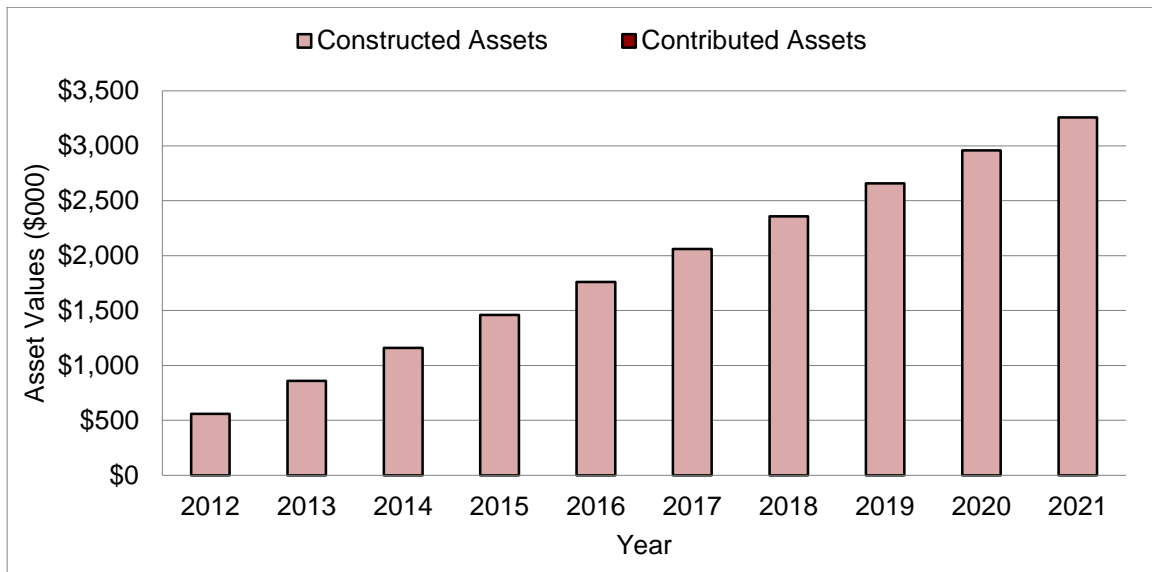
**Table 4.3: Demand Management Plan Summary**

Service Activity	Demand Management Plan
Regional Distributors	Upgrade and renewal of regional roads that will be impacted by increased heavy traffic volumes from increased agricultural activity and transporting product to port.
Local Distributors	Upgrade and renewal of local roads that experience increased heavy traffic volumes from increase agricultural activity, timber harvesting life cycle (once every 7-10 years).
Local Distributors	Renewal and maintenance priority to school bus routes.

## 4.4 New Assets for Growth

The new assets required to meet growth will be acquired free of cost from land developments and constructed/acquired by Council. The new contributed and constructed asset values are summarised in Figure 1.

**Figure 1: New Assets for Growth**



Acquiring these new assets will commit council to fund ongoing operations and maintenance costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations and maintenance costs.

## 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 in Table 2.1.

Asset category	Length (kms)	Dimension (M <sup>2</sup> )
Built Up Roads – Sealed	10.43	96,673 M <sup>2</sup>
Built-Up Roads – Paved	1.68	9,539 M <sup>2</sup>
Built-Up Roads – Formed	0.52	3,140 M <sup>2</sup>
Built Up Roads - Unformed	0.17	510 M <sup>2</sup>
Rural Roads – Sealed	202.09	1,143,675 M <sup>2</sup>
Rural Roads – Paved	442.67	2,561,118 M <sup>2</sup>
Rural Roads - Formed	382.69	2,196,428 M <sup>2</sup>
Rural Roads - Unformed	17.51	72,300 M <sup>2</sup>
Rural Roads - Unconstructed	1.40	0 M <sup>2</sup>
<b>Sub-Total</b>	<b>1,059.16</b>	<b>6,083,383 M<sup>2</sup></b>
Kerbing	10.51	10,510 LM
Bridges	18	4,442.89 M <sup>2</sup>

The age profile of the assets include in this Asset Management Plan is shown in Figures 2A, 2B and 2C.

**Figure 2A: Sealed Roads Asset Age Profile**

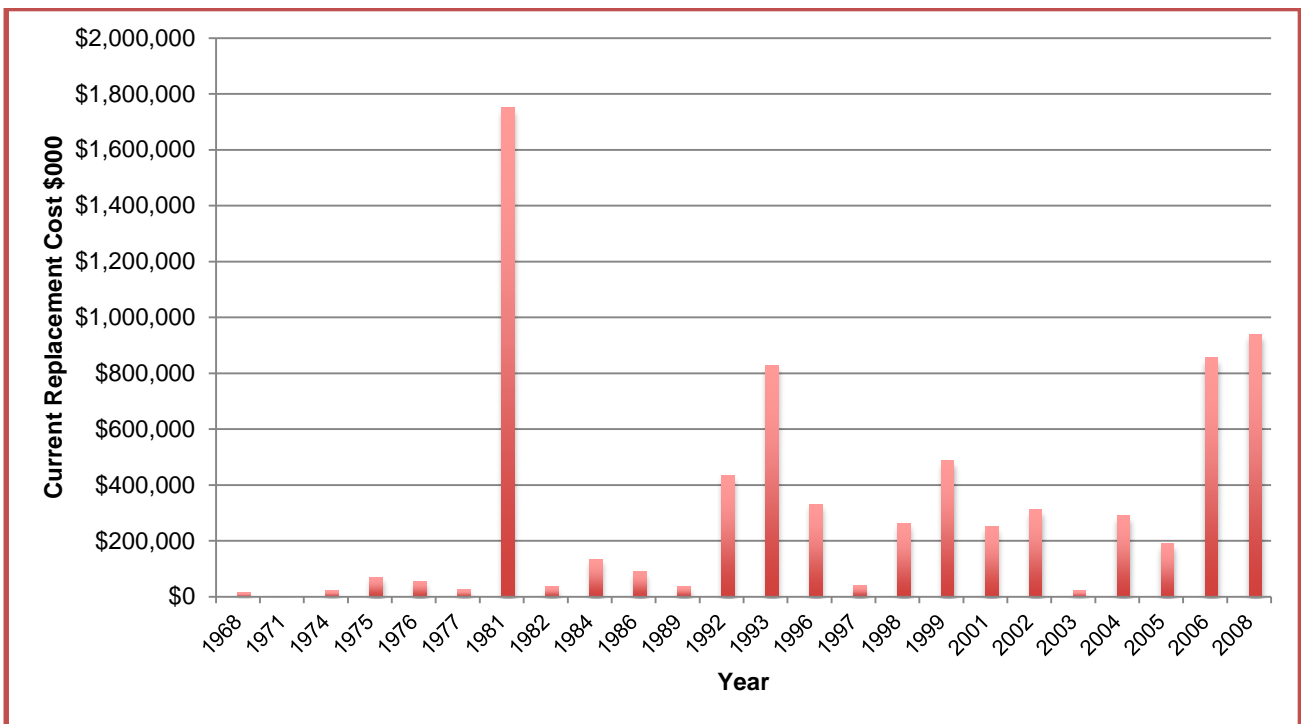


Figure 2B: Paved Roads Asset Age Profile

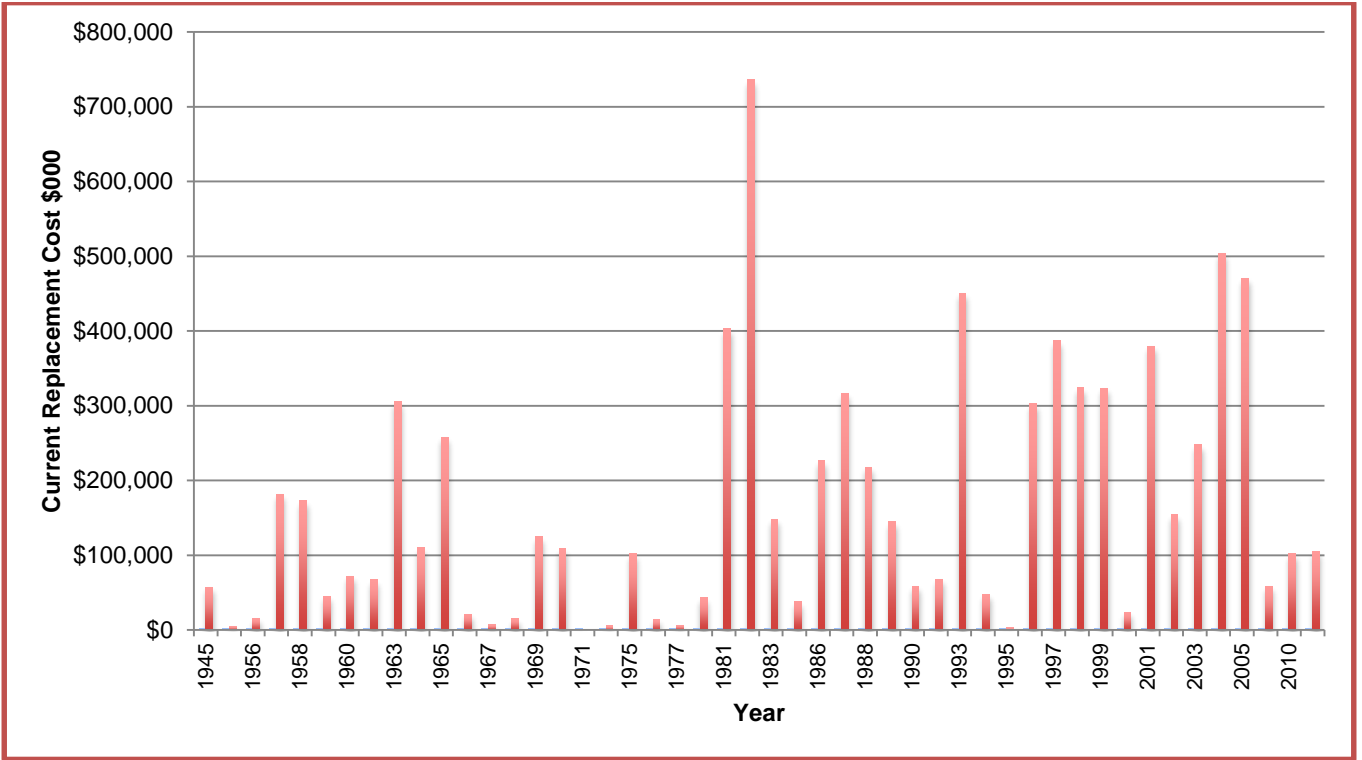
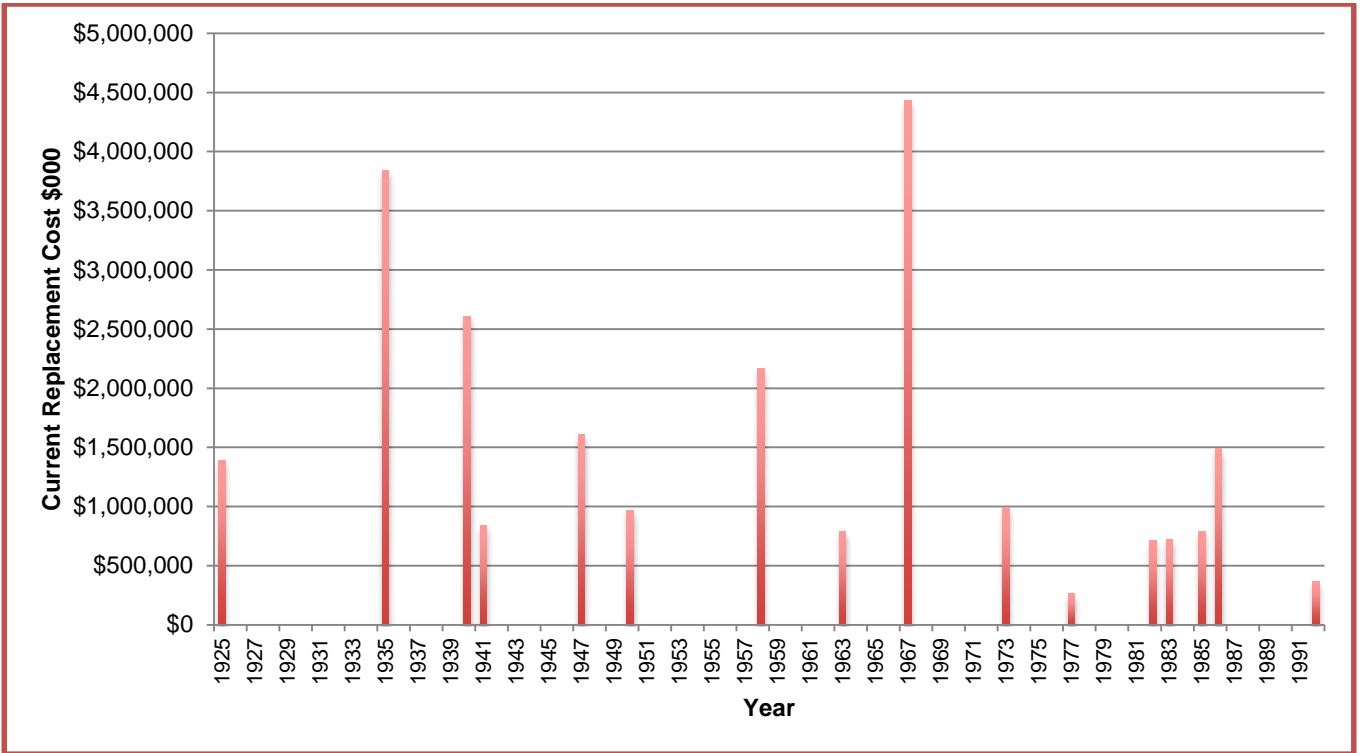


Figure 2C: Bridges Asset Age Profile



5.1.2 Asset capacity and performance

Council's services are generally provided to meet design standards where these are available.

Locations where deficiencies in service performance are known are detailed in Table 5.1.2.

**Table 5.1.2: Known Service Performance Deficiencies**

Location	SLK From	SLK To	Service Deficiency
Forbes Street	0.27	0.45	Condition rating of Fair-Minus. This section of road is unconstructed.
Scotts Brook Road	45.00	47.00	Condition rating of Fair-Minus. This section of road has major defects to the local surface.
Greenfields Road	12.65	16.90	Condition rating of Fair-Minus. This section of road has major defects to the local surface.
Craigie Road	5.78	6.30	Condition rating of Fair-Minus. This section of road has major defects to the local surface.
Lodge Road	3.10	5.24	Condition rating of Fair-Minus. This section of road has major defects to the local surface.
Condinup Crossing	0.80	0.95	Condition rating of Fair-Minus. This section of road has major defects to the local surface.
Rhodes Road	0.00	2.25	Condition rating of Fair-Minus. This section of road has major defects to the local surface.
Loveland Road	3.28	4.21	Condition rating of Fair-Minus. This section of road has major defects to the local surface.
Wooding Road	0.00	1.61	Condition rating of Fair-Minus. This section of road has major defects to the local surface.
Walton Road	0.00	1.30	Condition rating of Fair-Minus. This section of road has major defects to the local surface.
Hamersley Road	0.50	1.85	Condition rating of Fair-Minus. This section of road has major defects to the local surface.
McLarty Road	1.15	2.90	Condition rating of Fair-Minus. This section of road has major defects to the local surface.
Wallace Road	0.00	1.40	Condition rating of Fair-Minus. This section of road has major defects to the local surface.
Corker Road	0.00	2.20	Condition rating of Fair-Minus. This section of road has major defects to the local surface.
Boyup Brook – Arthur River Road	1.60	1.81	Condition rating of Fair-Minus. This section of road has significant deformations, the binder is showing signs of significant deterioration and there are some local surface defects present.
Brown Road	0.00	2.20	Condition rating of Fair-Minus. This section of road has major defects to the local surface.

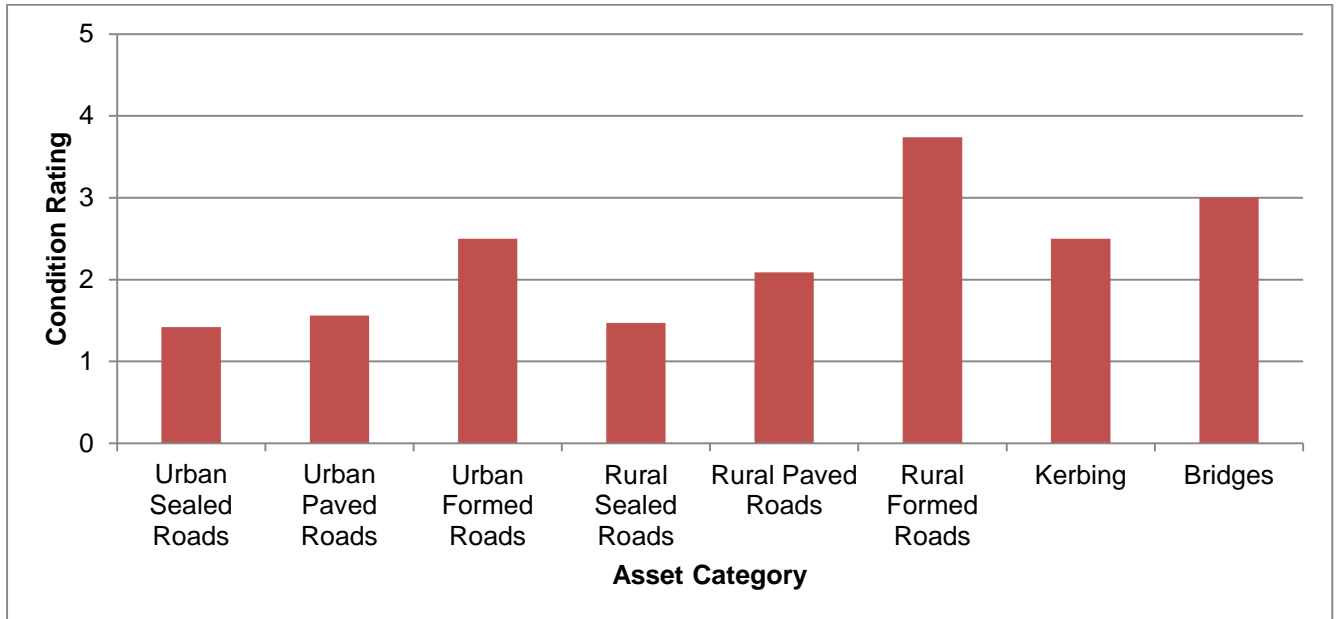
The above service deficiencies were identified from road condition ratings provided by Howson Management sourced from the RoMan Road Management System for the Shire of Boyup Brook.

With the exception of Boyup Brook – Arthur River Road and Scotts Brook Road, all other road sections listed in Table 5.1.2 have very low traffic volumes, and are not considered high priority roads within the Council’s existing Road Hierarchy classification.

5.1.3 Asset condition

The condition profile of assets included within this AM Plan is shown in Figure 3.

**Figure 3: Asset Group Average Condition Profile**



Condition is measured using a 1 – 5 rating system<sup>6</sup> as detailed in Table 5.1.3.

**Table 5.1.3: IIMM Description of Condition**

Condition Rating	Description
1	Good condition: Only planned maintenance required.
2	Fair-Plus condition: Minor defects only, minor maintenance required plus planned maintenance (5%).
3	Fair condition: Significant maintenance required to return to acceptable level of service (10-20%).
4	Fair-Minus condition: Significant renewal/upgrade required (20-50%).
5	Poor condition: Asset unserviceable, over 50% of asset requires replacement.

5.1.4 Asset valuations

The value of assets recorded in the asset register as at 2012 covered by this asset management plan is shown below. Assets were last revalued at June 2012.

Current Replacement Cost	\$85,514,048
Depreciable Amount	\$43,584,956
Depreciated Replacement Cost	\$26,307,311
Annual Depreciation Expense	\$403,000

<sup>6</sup> IIMM 2006, Appendix B, p B:1-3 ('cyclic' modified to 'planned', 'average' changed to 'fair')

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

Asset Consumption (Depreciation/Depreciable Amount)	0.9%
Asset renewal (Capital renewal exp/Depreciable amount)	1.1%
Annual Upgrade/New (Capital upgrade exp/Depreciable amount)	1.3%
Annual Upgrade/New (including contributed assets)	1.3%

Council is currently renewing assets at 118.6% of the rate they are being consumed and increasing its asset stock by 1.3% each year.

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

#### 5.1.5 Asset hierarchy

An asset hierarchy provides a framework for structuring data in an information system to assist in collection of data, reporting information and making decisions. The hierarchy includes the asset class and component used for asset planning and financial reporting and service level hierarchy used for service planning and delivery.

Council's Road Asset Hierarchy, based on the Main Roads WA Road Hierarchy for WA, is shown in Table 5.1.5.

**Table 5.1.5: Road Asset Hierarchy**

Asset Category	Service Hierarchy	Function	Service Level Objective
<b>Rural Roads</b>	Primary Distributor (PD)	Predominant purpose is the movement of inter-regional and/or cross town/city traffic (freeways, highways and main roads) Primary Distributors have a high degree of connectivity, connecting other Primary and Distributor roads.	Nil – These designated roads are the responsibility of Main Roads Western Australia.
	Regional Distributor Road (RD)	Predominant purpose is the linking of significant destinations and designed for efficient movement of people and goods between and within regions. Regional distributors have a high degree of connectivity, connecting to primary and other distributor roads.	2 lanes constructed to a pavement width of 10m, with a bitumen seal width of 7m and a left and right shoulder width of 1.5m. Design characteristics support an Average Annual Daily Traffic volume greater than 100 vehicles per day (vpd). Heavy vehicles permitted on road. Intersection treatments are controlled with measures such as signs and line marking. Road marked with centrelines, speed signs and guide signs.
	Local Distributor Road (LD)	Predominant purpose is the movement of traffic within local areas and connecting to high order Distributor Roads. Local Distributors have a medium degree of connectivity, connecting to Distributors and Access Roads.	Road constructed to a pavement width of 8m, and a left and right shoulder width of 1.0m. Design characteristics support an Average Annual Daily Traffic volume of up to 100 vpd. Heavy vehicle's permitted, but only to service properties and subject to designated as a permitted heavy vehicle route. Intersection treatments are controlled with minor local area traffic management such as signing. Road marked with speed and guide signs only.
	Paved Access Road (PA)	Predominant purpose is provision of vehicle access to abutting properties. Paved Access Roads have a low degree of connectivity, provided mainly for property access.	Road constructed to a pavement width of 7m, with a left and right shoulder width of 1.0m. Design characteristics support a maximum Average Annual Daily Traffic volume of up to 75 vpd. Heavy vehicles only permitted access to service local properties if road is designated as a permitted heavy vehicle route. Intersection treatments are self controlling. Road marked with guide signs only.
	Formed Access Road (FA)	Predominant purpose is provision of vehicle access to abutting properties. Paved Access Roads have a low degree of connectivity, provided mainly for property access.	Road formed to a width of 6m, with a left and right shoulder width of 1.0m. Design characteristics support a maximum Average Annual Daily Traffic volume of up to 50 vpd. Heavy vehicles only permitted access to service local properties if road is designated as a permitted heavy vehicle route. Intersection treatments are self controlling. Road marked with guide signs only.



Asset Category	Service Hierarchy	Function	Service Level Objective
<b>Urban Roads</b>	Primary Distributor (PD)	Predominant purpose is the movement of inter-regional and/or cross town/city traffic (freeways, highways and main roads) Primary Distributors have a high degree of connectivity, connecting other Primary and Distributor roads.	Nil – These designated roads are the responsibility of Main Roads Western Australia.
	District Distributor Road A (DA)	Predominant purpose is the high capacity movement of traffic between industrial, commercial and residential areas. District Distributor A roads have a high degree of connectivity, connecting to Primary and/or other Distributor Roads.	2 to 4 lane road constructed and sealed. Design characteristics support an Average Annual Daily Traffic volume greater than 8,000 vehicles per day (vpd). Heavy vehicles permitted on road. Intersection treatments are controlled with appropriate measures such as traffic signals. Pedestrian access controlled with positive measures (pedestrian signals) for safety. Road marked with centrelines, speed signs and guide signs. Speed 60-80km/hr.
	District Distributor Road B (DB)	Predominant purpose is the reduced capacity but high movement of traffic between industrial, commercial and residential areas. District Distributor B roads have a high degree of connectivity, connecting to Primary and/or other Distributor Roads.	2 lane road constructed and sealed. Design characteristics support an Average Annual Daily Traffic volume greater than 6,000 vehicles per day (vpd). Heavy vehicles permitted on road. Intersection treatments are controlled with appropriate Local Area Traffic Management. Pedestrian access controlled with appropriate measures (medians, island refuges) for safety. Road marked with centrelines, speed signs and guide signs. Speed 60-70km/hr.
	Local Distributor Road (LD)	Predominant purpose is the movement of traffic within local areas and connecting to high order Distributor Roads. Local Distributors have a medium degree of connectivity, connecting to Distributors and Access Roads.	Road constructed to a pavement width of 8m. Design characteristics support an Average Annual Daily Traffic volume of up to 6,000 vpd. Heavy vehicle's permitted, but only to service properties and subject to designated as a permitted heavy vehicle route. Intersection treatments are controlled with minor local area traffic management such as signing. Road marked with speed and guide signs only. Speed 50-60 km/hr.
	Paved Access Road (PA)	Predominant purpose is provision of vehicle access to abutting properties. Paved Access Roads have a low degree of connectivity, provided mainly for property access.	Road constructed to a width of 8m. Design characteristics support a maximum Average Annual Daily Traffic volume of up to 3,000 vpd. Heavy vehicles only permitted access to service local properties if road is designated as a permitted heavy vehicle route. Intersection treatments are self controlling. Speed 50-60 km/hr.

## 5.2 Risk Management Plan

An assessment of risks<sup>7</sup> associated with service delivery from infrastructure assets has identified critical risks that will result in loss or reduction in service from infrastructure assets or a 'financial shock' to the organisation. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

Critical risks, being those assessed as 'Very High' - requiring immediate corrective action and 'High' – requiring prioritised corrective action identified in the Infrastructure Risk Management Plan are summarised in Table 5.2.

**Table 5.2: Critical Risks and Treatment Plans**

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Associated Costs
Road and/or Bridge	Poor condition of road and/or bridge causes damage to vehicle.	M	Establish routine inspection regime and customer request management system for capturing and analysis of reported problems and incidents.	TBC
Road and/or Bridge	Poor condition of asset causes injury	H	Establish routine inspection regime and customer request management system for capturing and analysis of reported problems and incidents.	TBC
Road	Poor road surface causing dust/noise complaints	M	Establish routine inspection regime and customer request management system for capturing and analysis of reported problems and incidents.	TBC
Road	Damage/injury caused by utility provider assets or work	M-H	Formalise process for recording defects and develop standard process for notification to utility provider.	TBC
Road	Loose material on surface, loose material on shoulders causing damage or injury	H	<ul style="list-style-type: none"> <li>▪ Monitor sediment deposits from rainfall events.</li> <li>▪ Monitor degradation of gravel road surface during summer periods.</li> </ul>	TBC
Road and/or Bridge	Flooding causing damage to road and/or bridge	H	Evaluate appropriate designs for flood prone areas.	TBC
Road and/or Bridge	Damage caused by natural disaster	M	Monitor weather forecasting and general preparedness	TBC
Road	Road pavement irregularities causing complaints	M	Formalise level of service standards in consultation with community.	TBC

<sup>7</sup> Shire of Boyup Brook Infrastructure Risk Management Plan

### 5.3 Routine Maintenance Plan

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

#### 5.3.1 Maintenance plan

Maintenance includes reactive, planned and specific maintenance work activities. Reactive maintenance is unplanned repair work carried out in response to service requests and management/supervisory directions.

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

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

Actual past maintenance expenditure is shown in Table 5.3.1.

**Table 5.3.1: Maintenance Expenditure Trends**

Year	Maintenance Expenditure
2009/2010	\$802,128
2010/2011	\$807,734
2011/2012	\$727,185

Current maintenance expenditure levels are based on historical data to meet the basic level of service, and are considered to be inadequate to meet required service levels. Future revision of this asset management plan will include linking required maintenance expenditures with required service levels.

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

#### 5.3.2 Standards and specifications

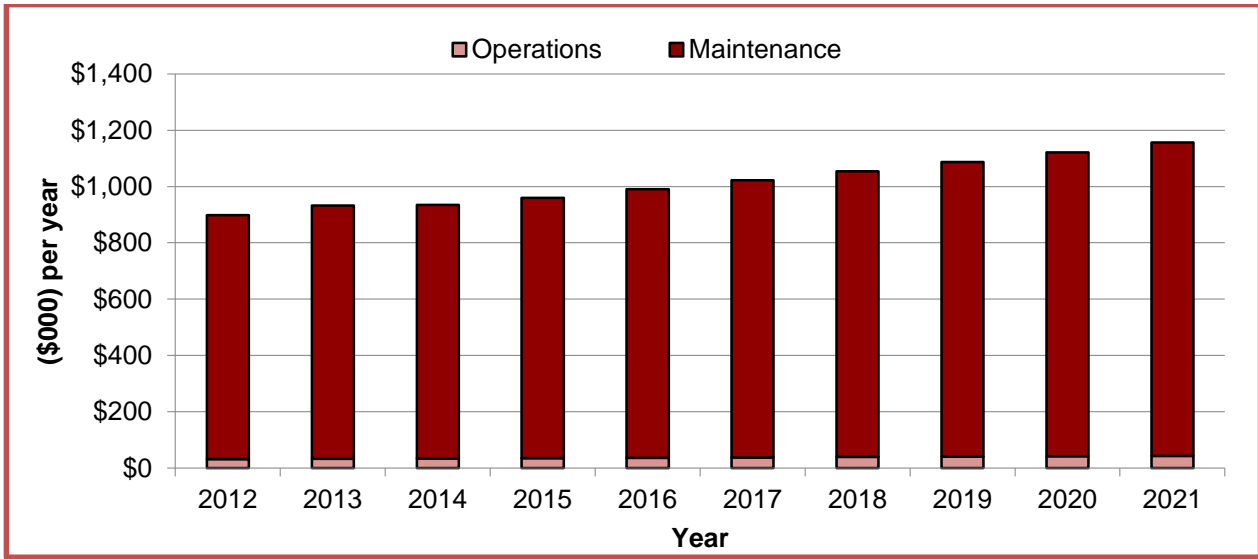
Maintenance work is carried out in accordance with the following Standards and Specifications.

- Internal practices
- Accepted Industry Standards
- IPWEA standards.

#### 5.3.3 Summary of future operations and maintenance expenditures

Future operations and maintenance expenditure is forecast to trend in line with the value of the asset stock as shown in Figure 4. Note that all costs are shown in 2012 dollar values.

**Figure 4: Projected Operations and Maintenance Expenditure**



Deferred maintenance, i.e. works that are identified for maintenance and unable to be funded are to be included in the risk assessment process in the infrastructure risk management plan. Maintenance is funded from the operating budget and grants where available. This is further discussed in Section 6.2.

**5.4 Renewal/Replacement Plan**

Renewal expenditure is major work that 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 one of three methods provided in the ‘Expenditure Template’.

- Method 1 uses Asset Register data to project the renewal costs for renewal years using acquisition year and useful life, or
- Method 2 uses capital renewal expenditure projections from external condition modelling systems (such as Pavement Management Systems), or
- Method 3 uses a combination of average *network renewals plus defect repairs* in the *Renewal Plan* and *Defect Repair Plan* worksheets on the ‘Expenditure template’.

Method 2 was used for this asset management plan. The ranking criteria used to determine priority of identified renewal proposals is detailed in Table 5.4.1.

**Table 5.4.1: Renewal Priority Ranking Criteria**

Criteria	Weighting
Regional Distributor Roads (Rural)	No current weighting or ranking
Rural School Bus Routes	No current weighting or ranking
Local Distributor Roads (Rural)	No current weighting or ranking
Local Distributor Roads (Urban)	No current weighting or ranking
Access Roads (Rural)	No current weighting or ranking
Access Roads (Urban)	No current weighting or ranking
<b>Total</b>	<b>%</b>

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

Examples of low cost renewal include will be included in future updates of this Plan.

#### 5.4.2 Renewal standards

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

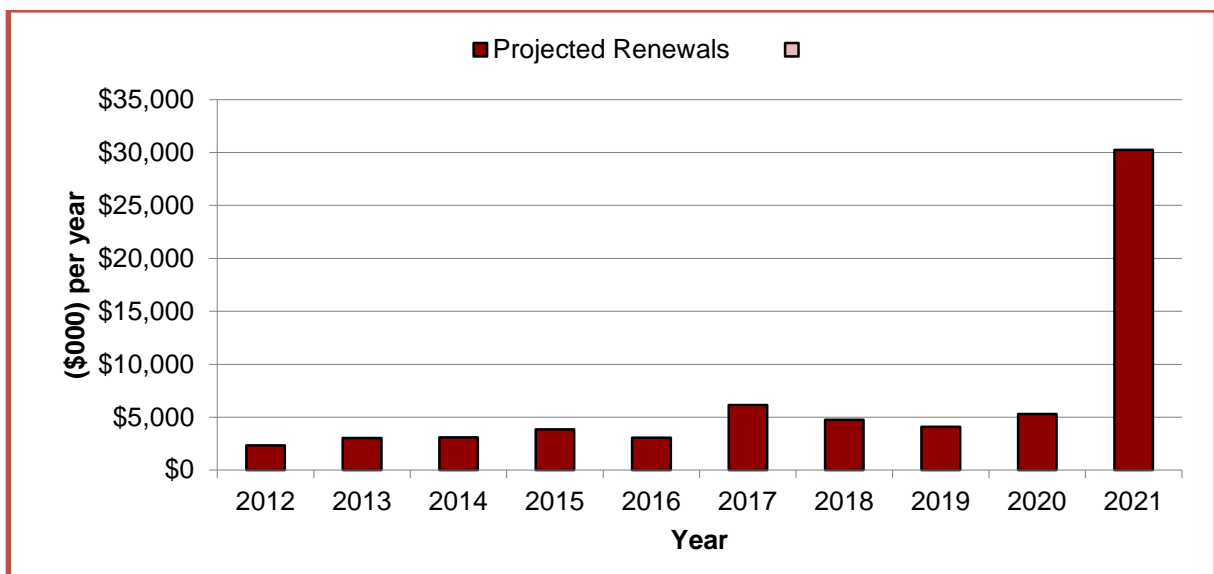
- Sealed Local Roads Manual, ARRB July 2005
- Unsealed Roads Manual, ARRB April 2009
- Occupational Health and Safety Standards
- Australian Asphalt Pavement Association Standards
- Acceptable Industry Standards

#### 5.4.3 Summary of projected renewal expenditure

Projected future renewal expenditures are forecast to increase over time as the asset stock ages. The costs are summarised in Figure 5. Note that all costs are shown in 2012 dollar values.

The projected capital renewal program is shown in Appendix B.

**Figure 5: Projected Capital Renewal Expenditure**



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

Renewals are to be funded from capital works programs and grants where available. This is further discussed in Section 6.2.

### 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 assets and upgrade/expansion of existing assets are identified from various sources such as councillor or community requests, proposals identified by strategic plans or partnerships with other organisations. Candidate proposals are inspected to verify need and to develop a preliminary estimate. Verified proposals are ranked by priority and available funds and scheduled in future works programmes. The priority ranking criteria is detailed in Table 5.5.1.

**Table 5.5.1: Upgrade/New Assets Priority Ranking Criteria**

Criteria	Weighting
	No current weighting or ranking
	No current weighting or ranking
	No current weighting or ranking
	No current weighting or ranking
	No current weighting or ranking
	No current weighting or ranking
<b>Total</b>	<b>%</b>

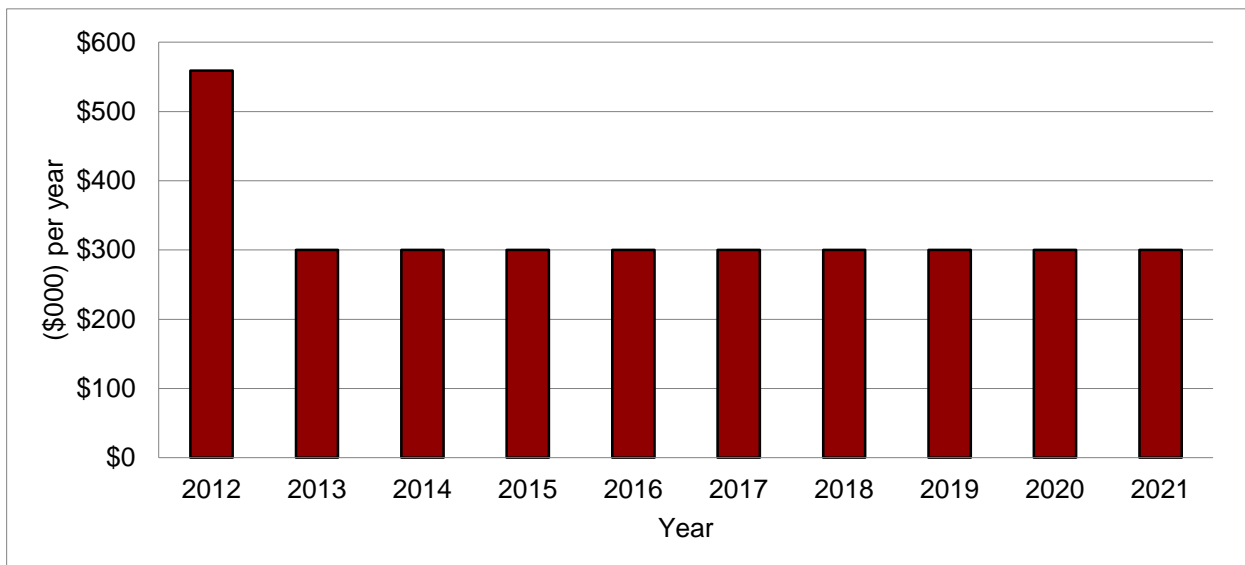
**5.5.2 Standards and specifications**

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.

**5.5.3 Summary of projected upgrade/new assets expenditure**

Projected upgrade/new asset expenditures are summarised in Figure 6. The projected upgrade/new capital works program is shown in Appendix C. All costs are shown in current 2012 dollar values.

**Figure 6: Projected Capital Upgrade/New Asset Expenditure**



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

**5.6 Disposal Plan**

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. Assets identified for possible decommissioning and disposal are shown in Table 5.6, together with estimated annual savings from not having to fund operations and maintenance of the assets. These assets will be

further reinvestigated to determine the required levels of service and see what options are available for alternate service delivery, if any.

Where cashflow projections from asset disposals are not available, these will be developed in future revisions of this asset management plan.

**Table 5.6: Assets identified for Disposal**

Asset	Reason for Disposal	Timing	Net Disposal Expenditure (Expend +ve, Revenue -ve)	Operations & Maintenance Annual Savings
Nil.	Nil.	Nil.	Nil.	Nil

## 6. FINANCIAL SUMMARY

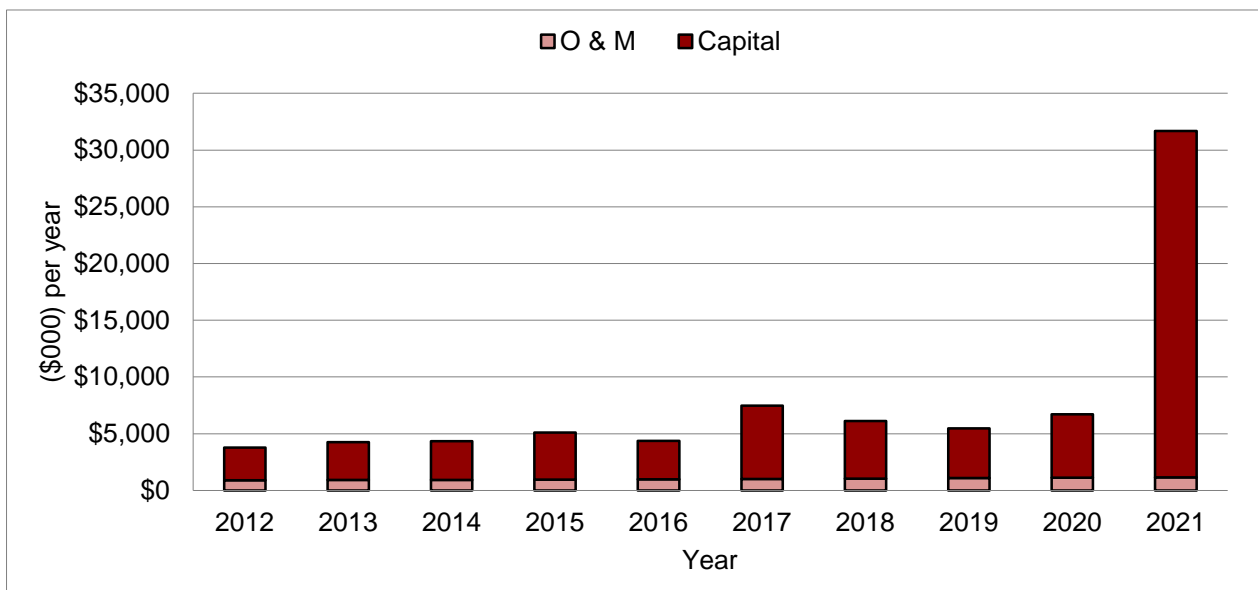
This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset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

### 6.1 Financial Statements and Projections

The financial projections are shown in Figure 7 for projected operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets), net disposal expenditure and estimated budget funding.

Note that all costs are shown in 2012 dollar values.

**Figure 7: Projected Operating and Capital Expenditure and Budget**



#### 6.1.1 Financial sustainability in service delivery

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

##### **Long term - Life Cycle Cost**

Life cycle costs (or whole of life costs) are the average costs that are required to sustain the service levels over the longest asset life. Life cycle costs include operations and maintenance expenditure and asset consumption (depreciation expense). The life cycle cost for the services covered in this asset management plan is \$1,302,000 per year (operations and maintenance expenditure plus depreciation expense in year 1).

Life cycle costs can be compared to life cycle expenditure to give an indicator of sustainability in service provision. Life cycle expenditure includes operations, maintenance and capital renewal expenditure in year 1. Life cycle expenditure will vary depending on the timing of asset renewals. The life cycle expenditure at the start of the plan is \$1,377,000 (operations and maintenance expenditure plus budgeted capital renewal expenditure in year 1).

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

The long term life cycle gap for services covered by this asset management plan is \$75,000 per year (-ve = gap, +ve = surplus).



Life cycle expenditure is 106% of life cycle costs giving a life cycle sustainability index of 1.06.

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

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

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

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

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

The projected operations, maintenance and capital renewal expenditure required over the 10 year planning period is \$7,601,000 per year.

Estimated (budget) operations, maintenance and capital renewal funding is \$1,523,000 per year giving a 10 year funding shortfall of (\$6,078,000) per year and a 10 year sustainability indicator of 0.20. This indicates that Council has 20% of the projected expenditures needed to provide the services documented in the asset management plan.

**Medium Term – 5 year financial planning period**

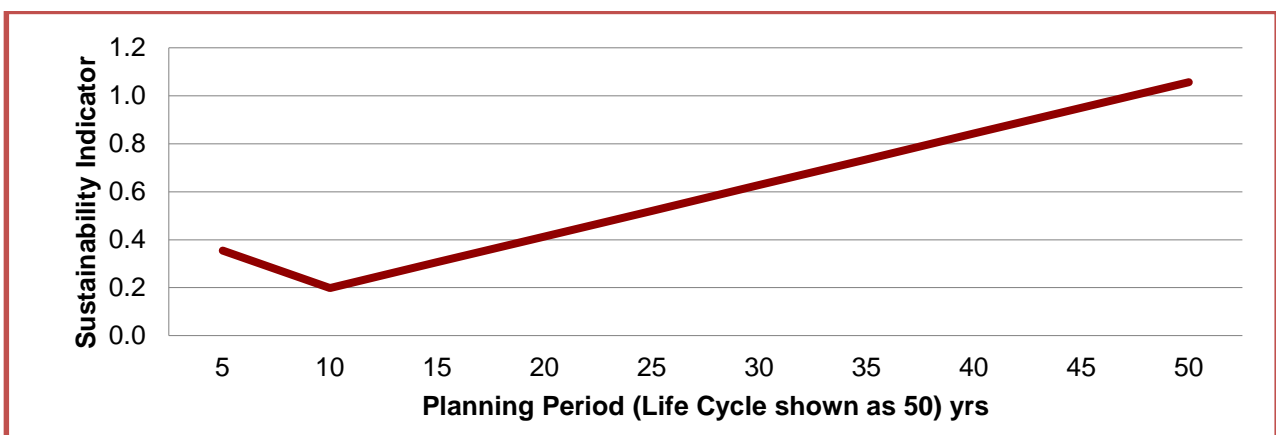
The projected operations, maintenance and capital renewal expenditure required over the first 5 years of the planning period is \$4,014,000 per year.

Estimated (budget) operations, maintenance and capital renewal funding is \$1,453,000 per year giving a 5 year funding shortfall of (\$2,560,000). This is 36% of projected expenditures giving a 5 year sustainability indicator of 0.36.

**Financial Sustainability Indicators**

Figure 7A shows the financial sustainability indicators over the 10 year planning period and for the long term life cycle.

**Figure 7A: Financial Sustainability Indicators**



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

Figure 8 shows the projected asset renewals in the 10 year planning period from Appendix B. The projected asset renewals are compared to budgeted renewal expenditure in the capital works program and capital renewal expenditure in year 1 of the planning period in Figure 8.

**Figure 8: Projected and Budgeted Renewal Expenditure**

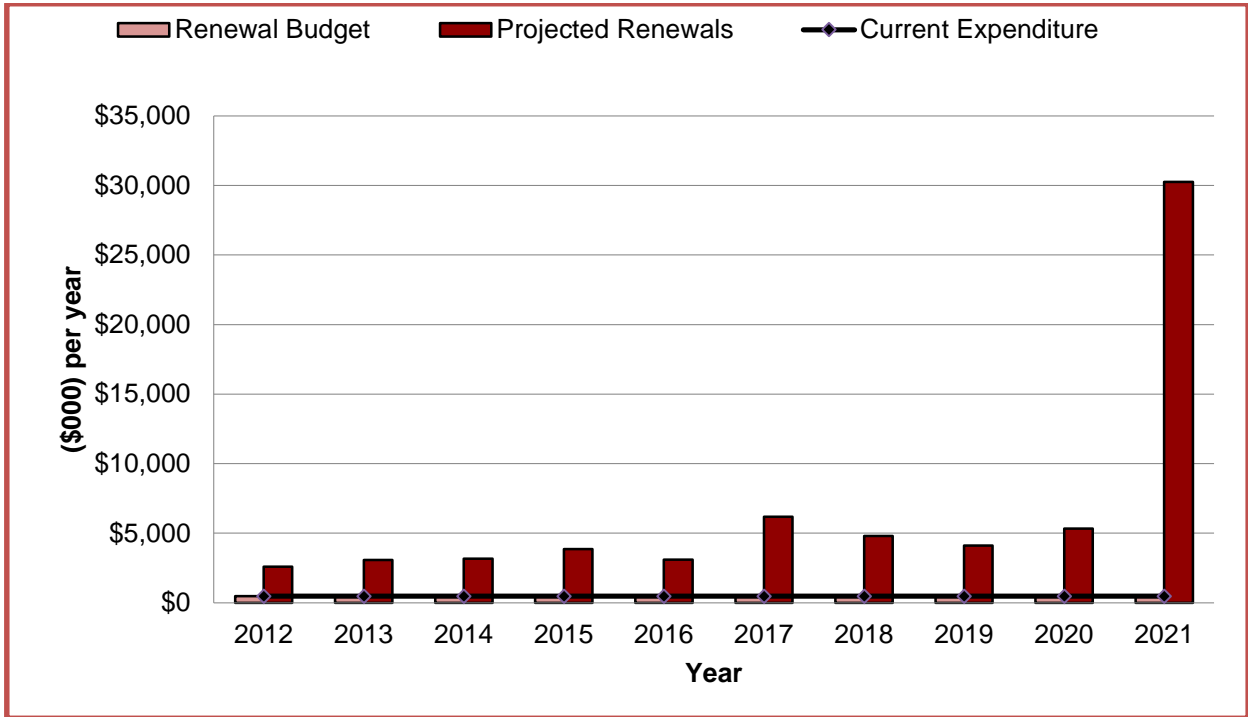


Table 6.1.1 shows the shortfall between projected and budgeted renewals

**Table 6.1.1: Projected and Budgeted Renewals and Expenditure Shortfall**

Year	Projected Renewals (\$000)	Planned Renewal (Budget) (\$000)	Renewal Funding Shortfall (\$000) (-ve Gap, +ve Surplus)	Cumulative Shortfall (\$000) (-ve Gap, +ve Surplus)
2012	\$2,324	\$478	-\$1,846	-\$1,846
2013	\$3,029	\$529	-\$2,500	-\$4,346
2014	\$3,099	\$529	-\$2,570	-\$6,916
2015	\$3,834	\$529	-\$3,305	-\$10,221
2016	\$3,067	\$529	-\$2,538	-\$12,759
2017	\$6,148	\$529	-\$5,619	-\$18,378
2018	\$4,753	\$529	-\$4,224	-\$22,602
2019	\$4,075	\$529	-\$3,546	-\$26,148
2020	\$5,296	\$529	-\$4,767	-\$30,915
2021	\$30,224	\$529	-\$29,695	-\$60,610

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

Providing services in a sustainable manner will require matching of projected asset renewals to meet agreed service levels with planned capital works programs and available revenue.

A gap between projected asset renewals, planned asset renewals and funding indicates that further work is required to manage required service levels and funding to eliminate any funding gap.

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

### 6.1.2 Expenditure projections for long term financial plan

Table 6.1.2 shows the projected expenditures for the 10 year long term financial plan.

Expenditure projections are in current (non-inflated) values. Disposals are shown as net expenditures (revenues are negative).

**Table 6.1.2: Expenditure Projections for Long Term Financial Plan (\$000)**

Year	Operations (\$000)	Maintenance (\$000)	Projected Capital Renewal (\$000)	Capital Upgrade/ New (\$000)	Disposals (\$000)
2012	\$33	\$866	\$2,324	\$559	\$0
2013	\$34	\$899	\$3,029	\$300	\$0
2014	\$35	\$900	\$3,099	\$300	\$0
2015	\$36	\$923	\$3,834	\$300	\$0
2016	\$37	\$953	\$3,067	\$300	\$0
2017	\$38	\$984	\$6,148	\$300	\$0
2018	\$40	\$1,014	\$4,753	\$300	\$0
2019	\$41	\$1,046	\$4,075	\$300	\$0
2020	\$42	\$1,079	\$5,296	\$300	\$0
2021	\$44	\$1,112	\$30,224	\$300	\$0

**Note:** All projected expenditures are in 2012 values

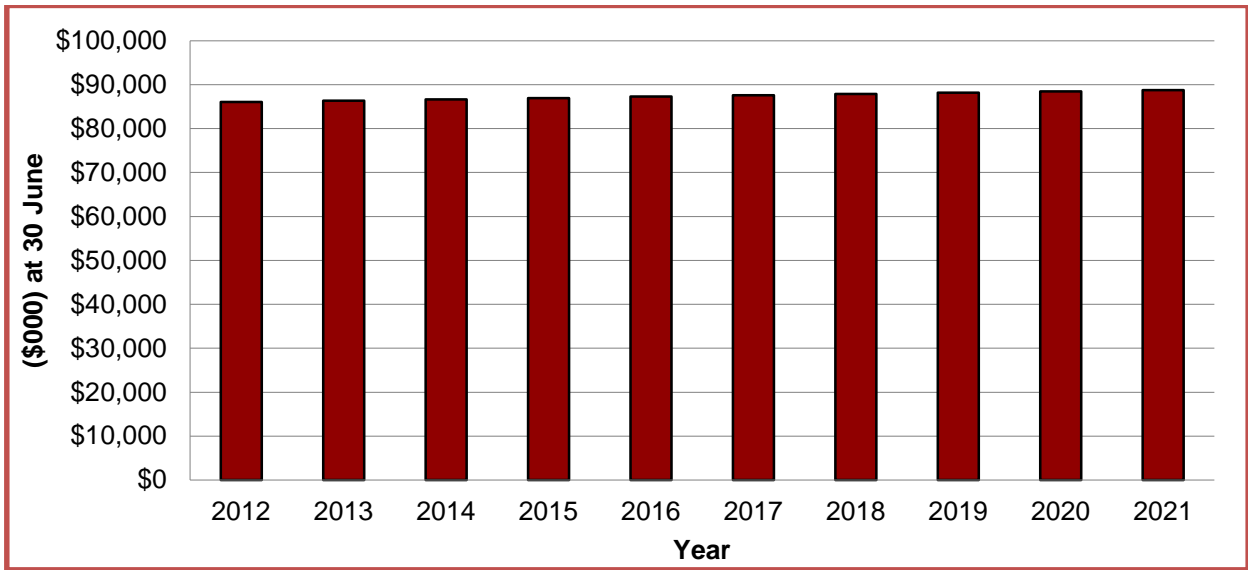
## 6.2 Funding Strategy

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

## 6.3 Valuation Forecasts

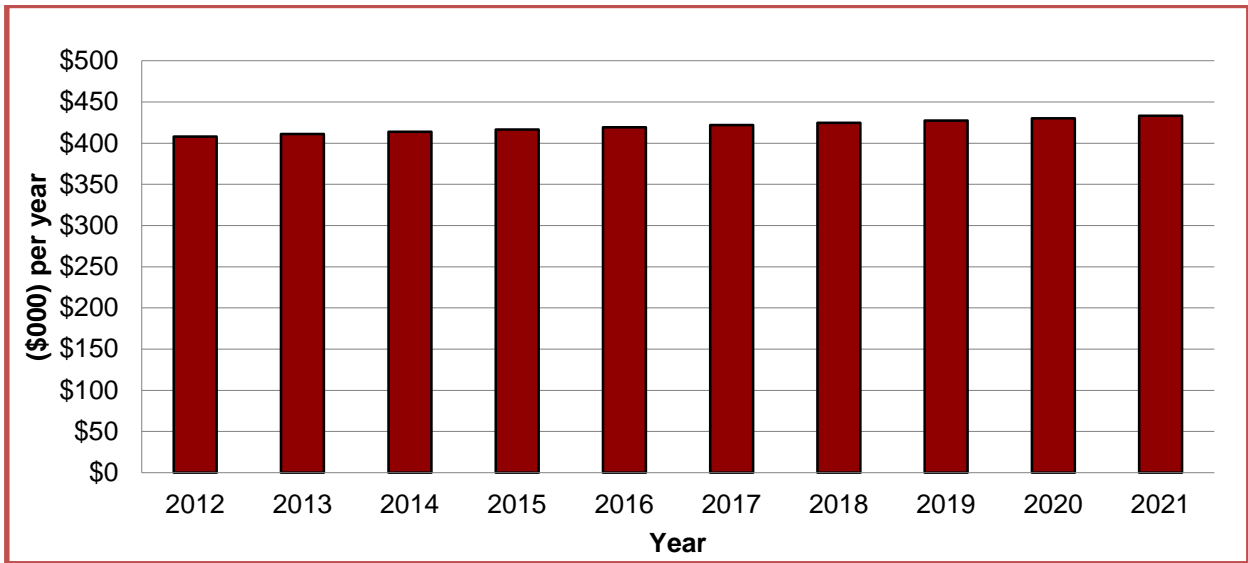
Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by Council and from assets constructed by land developers and others and donated to Council. Figure 9 shows the projected replacement cost asset values over the planning period in 2012 dollar values.

**Figure 9: Projected Asset Values**



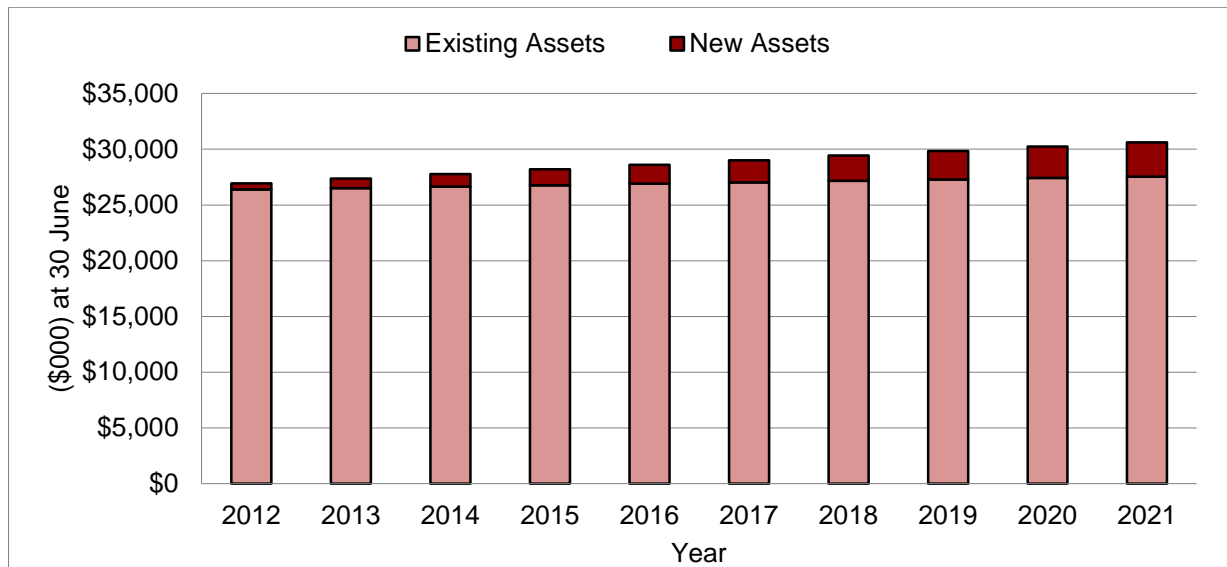
Depreciation expense values are forecast in line with asset values as shown in Figure 10.

**Figure 10: Projected Depreciation Expense**



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. Forecast of the assets' depreciated replacement cost is shown in Figure 11. The effect of contributed and new assets on the depreciated replacement cost is shown in the light colour bar.

**Figure 11: Projected Depreciated Replacement Cost**



#### **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:

- Roads and Bridges assets will remain in Council's care, control and management throughout the planning period.
- Maintenance costs are largely based on historical expenditure and it is assumed there will be no significant increases in service requirements.
- Valuation and condition information prepared by Howson Management in October 2012 has determined the asset values

## **7. ASSET MANAGEMENT PRACTICES**

### **7.1 Accounting/Financial Systems**

#### **7.1.1 Accounting and financial systems**

The Shire of Boyup Brook uses the QuickBooks financial software for its financial management system and uses Excel spreadsheets for asset accounting purposes.

#### **7.1.2 Accountabilities for financial systems**

Accountabilities and responsibilities are divided between the Chief Executive Officer and Finance Staff.

#### **7.1.3 Accounting standards and regulations**

As well as complying with Australian Accounting Standards, the Shire must comply with the Western Australia Local Government Act 1995 and the Local Government (Finance) Regulations 1996. Accounting Standard AASB116 – “Property, Plant and Equipment” is the significant regulatory requirement relevant to accounting for assets.

#### **7.1.4 Capital/maintenance threshold**

The Shire, as a general rule, applies a Capital Threshold limit of \$1,000 for expenditure that is expensed in the current year. Expenditure over \$1,000 on an asset is classed as capital expenditure and capitalised against the asset.

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

The general ledger may require recoding to allow Council to differentiate between operational costs, maintenance costs, upgrades/expansion, new and renewal costs. The Shire is examining the feasibility on introducing new financial accounting software during 2012/13. Should a new system be purchased and implemented, consideration needs to be given to the structure of the Chart of Accounts to ensure the collection and differentiation of operational and maintenance data is possible.

### **7.2 Asset Management Systems**

#### **7.2.1 Asset management system**

The Asset Management system is the RoMan database and current operating procedures.

#### **7.2.2 Asset registers**

The Shire maintains a detailed Asset Register for this asset class on the RoMan database.

#### **7.2.3 Linkage from asset management to financial system**

The linkage from the financial system to the asset register is manual, with officers inputting data into both the QuickBooks financial system, and then utilises a bureau service from Howson Management to manage the input into the RoMan system.

#### **7.2.4 Accountabilities for asset management system and data**

Accountabilities and responsibilities are divided between the Finance staff and the Works Manager. The Works Manager provides information on the relevant assets and allocates costs associated with payroll and purchasing systems. The Finance staff create the records within the Asset Register and post expenditure direct to the Asset Register.

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

No changes have been identified to the asset management system, but subsequent revisions of this Transport Asset Management Plan may identify further improvements to the existing system.

### **7.3 Information Flow Requirements and Processes**

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

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

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

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

These will impact the Long Term Financial Plan, Corporate Business Plan, Annual Budget and Departmental Business Plans and Budgets.

### **7.4 Standards and Guidelines**

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

- Shire of Boyup Brook Asset Capitalisation Threshold Policy
- Shire of Boyup Brook Asset Management Policy
- Shire of Boyup Brook Asset Management Strategy
- Australian Standards
- Australian Road Research Board Sealed and Unsealed Roads Management Manuals

## 8. PLAN IMPROVEMENT AND MONITORING

### 8.1 Performance Measures

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

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

### 8.2 Improvement Plan

The asset management improvement plan generated from this asset management plan is shown in Table 8.2.

**Table 8.2: Improvement Plan**

Task No	Task	Responsibility	Resources Required	Timeline
1	Conduct detailed inspection of all Roads and Bridges assets with a Fair-Minus and Poor condition rating to determine renewal requirements.	Works Manager	Internal	June 2013
2	Assess the first year of the Plan against actual costs	Works Manager	Internal	June 2013
3	Prepare and prioritise a long term plan and ranking systems for renewal & upgrade/new expenditure	CEO/Works Manager	Internal	June 2013
4	Review of road maintenance practices to ensure alignment with service level requirements.	CEO/Works Manager	Internal	Annually
5	Ongoing rolling program of data collection (every 4 years).	Works Manager	External Contractor	Every 4 Yrs
6	Review service levels and commence internal and Elected Member consultation on service level provision	CEO/Works Manager	Internal	June 2014
7	Community consultation on service level provision	CEO	TBA	June 2015

### 8.3 Monitoring and Review Procedures

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

The Plan has a life of 4 years and a major revision is to be done within six months of its expiry.



## REFERENCES

Shire of Boyup Brook Plan for the Future

Shire of Boyup Brook 2011/12 Annual Budget

Shire of Boyup Brook Forward Capital Works Plan 2010/11 – 2014/15

Shire of Boyup Brook RoMan 10 Year Predicted Works Program, October 2011

Shire of Boyup Brook RoMan Road Asset Valuations and Condition Ratings, October 2011

DVC, 2006, *Asset Investment Guidelines*, Glossary, Department for Victorian Communities, Local Government Victoria, Melbourne, <http://www.dpcd.vic.gov.au/localgovernment/publications-and-research/asset-management-and-financial>

IPWEA, 2006, *International Infrastructure Management Manual*, Institute of Public Works Engineering Australia, Sydney, [www.ipwea.org.au](http://www.ipwea.org.au)

IPWEA, 2008, *NAMS.PLUS Asset Management* Institute of Public Works Engineering Australia, Sydney, [www.ipwea.org.au/namsplus](http://www.ipwea.org.au/namsplus)

IPWEA, 2009, *Australian Infrastructure Financial Management Guidelines*, Institute of Public Works Engineering Australia, Sydney, [www.ipwea.org.au/AIFMG](http://www.ipwea.org.au/AIFMG)

IPWEA, 2011, *Asset Management for Small, Rural or Remote Communities* Practice Note, Institute of Public Works Engineering Australia, Sydney, [www.ipwea.org.au/AM4SRRC](http://www.ipwea.org.au/AM4SRRC)

DLG, 2011, *Asset Management Framework and Guidelines*, Department of Local Government, Western Australia, <http://integratedplanning.dlg.wa.gov.au/DeliverAssetManagement.aspx>

WAPC, 2012, *WA Tomorrow Report 2012*, Western Australian Planning Commission, Western Australia

ABS, 2012, *2011 Census Community Profiles – Boyup Brook Local Government Area*, Australian Bureau of Statistics, [http://www.censusdata.abs.gov.au/census\\_services/getproduct/census/2011/communityprofile/LGA50770?opendocument&navpos=230](http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/communityprofile/LGA50770?opendocument&navpos=230)

## **APPENDICES**

- Appendix A Maintenance Response Levels of Service
- Appendix B Projected 10 year Capital Renewal Works Program
- Appendix C Planned Upgrade/Exp/New 10 year Capital Works Program A
- Appendix D Abbreviations
- Appendix E Glossary

**Appendix A Maintenance Response Levels of Service**

ROUTINE MAINTENANCE ITEMS	INTERVENTION LEVELS	RESPONSE TIME BY CLASS				
		Regional	Distributor	Access	Local	Formed
<b>1.0 - UNSEALED ROADS &amp; SHOULDERS</b>						
1.1 Pothole Maintenance	Any pothole with depth > 300mm	2 Weeks	4 Weeks	12 Weeks	16 Weeks	20 Weeks
1.2 Repair of general pavement defects	Scouring or corrugations > 100mm depth and length < 20m	6 Weeks	10 Weeks	12 Weeks	12 Weeks	N/A
1.3 Management of loose material	Loose material > 100mm depth at any location on the pavement and < 20m <sup>2</sup>	2 Weeks	4 Weeks	4 Weeks	4 Weeks	N/A
1.4 Maintenance of shoulders and verges	Any scouring, corrugations or potholing with depth > 100mm	2 Weeks	2 Weeks	4 Weeks	4 Weeks	N/A
<b>2.0 - SEALED ROADS</b>						
2.1 Pothole Maintenance	Any pothole with depth > 75mm	2 Weeks	4 Weeks	8 Weeks	12 Weeks	N/A
	Any pothole with depth > 40mm and dimension of 350mm	2 Weeks	4 Weeks	8 Weeks	12 Weeks	N/A
2.2 Seal Texture Maintenance	Crocodile cracking > 10m <sup>2</sup>	8 Weeks	8 Weeks	16 Weeks	16 Weeks	N/A
	Longitudinal cracking > 20m <sup>2</sup>	16 Weeks	16 Weeks	32 Weeks	52 Weeks	N/A
	Flushing > 5m <sup>2</sup>	16 Weeks	16 Weeks	32 Weeks	52 Weeks	N/A
	Stripping > 5m <sup>2</sup>	16 Weeks	16 Weeks	32 Weeks	52 Weeks	N/A
2.3 Edge Break Maintenance	Edge break > 250mm from nominal seal edge	1 Week	1 Week	2 Weeks	4 Weeks	N/A
2.4 Edge Drop Off Maintenance	Edge drop with depth > 100mm and > 20m length	1 Week	1 Week	2 Weeks	4 Weeks	N/A
<b>3.0 - DRAINAGE</b>						
3.1 Table drain and open drain maintenance	Isolated blockages (> 10 lm and/or > 2m <sup>3</sup> )	4 Weeks	8 Weeks	12 Weeks	16 Weeks	24 Weeks
3.2 Kerb and gutter maintenance	> 50% of cross sectional area blocked	8 weeks	8 Weeks	16 Weeks	16 Weeks	N/A
	Isolated blockages (< 5 lm and/or > 30% cross sectional area)	16 Weeks	16 Weeks	24 Weeks	24 Weeks	N/A
<b>4.0 - ROADSIDE, VERGE &amp; SAFETY</b>						
4.1 Guideposts Replacement	Identify & replace all missing or damaged guideposts	4 Weeks	8 Weeks	12 Weeks	16 Weeks	N/A
4.2 Delineator Replacement	For all traffic devices that have delineators, replace any missing or damaged delineators	4 Weeks	8 Weeks	12 Weeks	16 Weeks	N/A
4.3 Sign Straightening	Intervention require when sign is: (a) leaning from vertical and/or rotated from correct position > 45°. (b) vertically displaced by > 0.5m.	4 Weeks	4 Weeks	6 Weeks	8 Weeks	N/A
4.4 Management of sight distance to signs	Vegetation that impedes sight distance to signs from distance of 200m from approaching vehicle	4 Weeks	6 Weeks	8 Weeks	12 Weeks	N/A

**Appendix B Projected 10 year Capital Renewal Works Program**

Asset ID	Asset Name	Works Description	From SLK	To SLK	Renewal Year	Renewal Cost
1	Area Road	Reconstruct & widen	5.25	13.35	2013	\$104,000
2	Boyup Brook North Rd	Crack Patching	0.00	21.24	2013	\$23,890
3	Scotts Brook Rd	Widen Shoulders	0.00	2.70	2013	\$84,625
7	Kulikup South Rd	Reconstruct & widen	0.48	23.95	2013	\$101,000
7	Kulikup South Rd	Widen Shoulders	0.00	0.48	2013	\$25,679
8	Jayes-Bridgetown Rd	Gravel Resheet	0.00	5.15	2013	\$96,889
10	McAlinden Rd	Widen Shoulders	0.00	12.05	2013	\$47,370
12	Gibbs Rd	Reconstruct & widen	1.81	17.20	2013	\$159,390
12	Gibbs Rd	Widen Shoulders	0.00	1.81	2013	\$45,327
13	Westbourne Rd	Reconstruct & widen	0.00	35.30	2013	\$174,520
14	Dinninup East Rd	Crack Patching	0.00	0.64	2013	\$9,008
14	Dinninup East Rd	Reseal	0.00	0.64	2013	\$5,045
18	Westcliffe Rd	Reconstruct & widen	0.15	9.25	2013	\$126,300
35	Howards Rd	Gravel Resheet	2.20	5.45	2013	\$68,250
39	Asplins Rd	Gravel Resheet	0.00	1.40	2013	\$29,400
43	Condinup Rd	Gravel Resheet	0.00	13.42	2013	\$184,591
54	Asplin Siding Rd	Gravel Resheet	0.00	10.55	2013	\$232,275
59	Eulin Siding Rd	Widen Shoulders	0.00	14.50	2013	\$86,655
64	Hacks Rd	Widen Shoulders	0.00	1.61	2013	\$196,352
77	Meredith Rd	Gravel Resheet	0.00	1.10	2013	\$19,635
93	Basford Rd	Gravel Resheet	0.00	1.50	2013	\$31,500
134	Corbalup Rd	Widen Shoulders	0.00	5.79	2013	\$70,980
139	Unicup Rd	Gravel Resheet	0.00	1.18	2013	\$33,474
160	Reid Place	Crack Patching	0.00	0.15	2013	\$3,307
160	Reid Place	Crack Patching	0.00	0.15	2013	\$1,852
210	Boyup Brook - Arthur River Rd	Reconstruct & widen	22.30	36.15	2013	\$188,250
210	Boyup Brook - Arthur River Rd	Crack Patching	0.00	36.15	2013	\$65,780
211	Mananup - Tonebridge Rd	Reconstruct & widen	15.27	15.98	2013	\$22,029
211	Mananup - Tonebridge Rd	Crack Patching	0.00	46.60	2013	\$87,150
						<b>\$2,324,523</b>

**Appendix B Projected 10 year Capital Renewal Works Program (continued)**

Asset ID	Asset Name	Works Description	From SLK	To SLK	Renewal Year	Renewal Cost
1	Area Road	Reconstruct & widen	5.25	13.35	2014	\$104,000
1	Area Road	Crack Patching	0.00	5.25	2014	\$99,225
2	Boyup Brook North Rd	Reconstruct & widen	21.24	27.36	2014	\$286,921
2	Boyup Brook North Rd	Crack Patching	0.00	21.24	2014	\$23,890
3	Scotts Brook Rd	Crack Patching	0.00	2.70	2014	\$42,525
4	Winnejuip Rd	Widen Shoulders	0.00	8.40	2014	\$44,900
5	Kulikup North Rd	Widen Shoulders	0.00	12.16	2014	\$72,100
7	Kulikup South Rd	Reconstruct & widen	0.48	23.95	2014	\$101,000
9	Six Mile Rd	Widen Shoulders	0.00	1.67	2014	\$54,862
9	Six Mile Rd	Crack Patching	0.00	1.67	2014	\$25,042
9	Six Mile Rd	Reseal	0.00	1.67	2014	\$14,023
9	Six Mile Rd	Gravel Resheet	0.00	1.67	2014	\$254,289
10	McAlinden Rd	Widen Shoulders	0.00	12.05	2014	\$47,370
12	Gibbs Rd	Reconstruct & widen	1.81	17.20	2014	\$159,390
12	Gibbs Rd	Crack Patching	0.00	1.81	2014	\$25,656
12	Gibbs Rd	Reseal	0.00	1.81	2014	\$14,367
13	Westbourne Rd	Reconstruct & widen	0.00	35.30	2014	\$174,520
18	Westcliffe Rd	Reconstruct & widen	0.15	9.25	2014	\$126,300
29	Terry Rd	Gravel Resheet	0.36	1.90	2014	\$32,340
29	Terry Rd	Gravel Resheet	2.57	10.80	2014	\$222,600
33	Greenbushes - Boyup Brook Rd	Widen Road	0.00	2.60	2014	\$153,726
42	Yates Rd	Gravel Resheet	3.40	11.20	2014	\$163,800
59	Eulin Siding Rd	Widen Road	0.00	14.50	2014	\$86,655
62	Red Hill Rd	Widen Road	0.00	3.30	2014	\$40,660
78	Evans Siding Rd	Gravel Resheet	0.50	3.60	2014	\$42,640
115	Beatty St	Crack Patching	0.00	0.76	2014	\$19,814
115	Beatty St	Reseal	0.00	0.76	2014	\$11,095
122	Mitchell Ave	Crack Patching	0.00	0.24	2014	\$5,576
122	Mitchell Ave	Reseal	0.00	0.24	2014	\$3,121
123	Dickson St	Crack Patching	0.00	0.24	2014	\$7,465
123	Dickson St	Reseal	0.00	0.24	2014	\$4,181
126	Flaxmill St	Crack Patching	0.00	0.48	2014	\$9,544
126	Flaxmill St	Reseal	0.00	0.48	2014	\$5,344
134	Corbalup Rd	Widen Road	0.00	5.79	2014	\$70,980
145	Dezotti Rd	Gravel Resheet	0.00	3.22	2014	\$67,620
150	McAlister Rd	Widen Road	0.00	3.00	2014	\$36,770
155	Rusmore Rd	Gravel Resheet	0.02	0.83	2014	\$13,356
210	Boyup Brook - Arthur River Rd	Reconstruct & widen	22.30	36.15	2014	\$188,250
210	Boyup Brook - Arthur River Rd	Crack Patching	0.00	36.15	2014	\$65,780
211	Mananup - Tonebridge Rd	Reconstruct & widen	15.27	15.98	2014	\$20,788
211	Mananup - Tonebridge Rd	Crack Patching	0.00	46.60	2014	\$87,150
						<b>\$3,029,635</b>

**Appendix B Projected 10 Year Capital Renewal Works Program (continued)**

Asset ID	Asset Name	Works Description	From SLK	To SLK	Renewal Year	Renewal Cost
1	Area Road	Reconstruct & widen	5.25	13.35	2015	\$104,000
1	Area Road	Crack Patching	5.25	6.10	2015	\$9,371
2	Boyup Brook North Rd	Crack Patching	0.00	21.24	2015	\$23,890
3	Scotts Brook Road	Reconstruct & widen	25.50	31.78	2015	\$287,828
3	Scotts Brook Road	Crack Patching	2.70	3.40	2015	\$13,230
4	Winnejuip Rd	Widen Shoulders	0.00	8.40	2015	\$44,900
5	Kulikup North Rd	Widen Shoulders	0.00	12.16	2015	\$72,100
7	Kulikup South Rd	Reconstruct & widen	0.48	23.95	2015	\$101,000
8	Jayes - Bridgetown Rd	Gravel Resheet	5.50	21.00	2015	\$108,960
10	McAlinden Rd	Widen Shoulders	0.00	12.05	2015	\$47,370
12	Gibbs Rd	Reconstruct & widen	1.81	17.20	2015	\$159,390
13	Westbourne Rd	Reconstruct & widen	0.00	35.30	2015	\$174,520
14	Dinninup East Rd	Widen Shoulders	0.00	0.64	2015	\$24,471
15	Pretty Gully Rd	Gravel Resheet	0.00	8.53	2015	\$159,412
18	Westcliffe Rd	Reconstruct & widen	0.15	9.25	2015	\$126,300
30	Brown Seymour Rd	Gravel Resheet	0.15	6.60	2015	\$176,085
31	Abels Rd	Reconstruct & widen	0.00	8.85	2015	\$156,600
36	Longs Rd	Gravel Resheet	0.00	3.30	2015	\$69,300
45	Reservoir Rd	Gravel Resheet	1.20	9.60	2015	\$115,543
59	Eulin Siding Rd	Widen Road	0.00	14.50	2015	\$86,655
62	Red Hill Rd	Widen Road	0.00	3.30	2015	\$40,660
79	Cumming Rd	Widen Road	0.00	2.41	2015	\$296,954
107	Bridge St	Crack Patching	0.00	0.12	2015	\$5,292
107	Bridge St	Reseal	0.00	0.12	2015	\$2,964
118	Knapp St	Crack Patching	0.00	0.40	2015	\$11,339
118	Knapp St	Reseal	0.00	0.40	2015	\$6,351
127	Henderson St	Crack Patching	0.00	0.15	2015	\$3,780
127	Henderson St	Reseal	0.00	0.15	2015	\$2,117
134	Corbalup Rd	Widen Road	0.00	5.79	2015	\$70,980
147	Rielys Creek Rd	Gravel Resheet	0.00	1.24	2015	\$18,228
148	Boyup Brook - Cranbrook Rd	Reconstruct & widen	0.35	15.54	2015	\$146,950
150	McAlister Rd	Widen Road	0.00	3.00	2015	\$36,770
210	Boyup Brook - Arthur River Rd	Reconstruct & widen	22.30	36.15	2015	\$188,250
210	Boyup Brook - Arthur River Rd	Crack Patching	0.00	36.15	2015	\$65,780
211	Mananup - Tonebridge Rd	Reconstruct & widen	19.92	21.00	2015	\$33,510
211	Mananup - Tonebridge Rd	Crack Patching	0.00	46.60	2015	\$87,150
211	Mananup - Tonebridge Rd	Widen Road	15.27	15.98	2015	\$21,412
						<b>\$3,099,412</b>

**Appendix B Projected 10 Year Capital Renewal Works Program (continued)**

Asset ID	Asset Name	Works Description	From SLK	To SLK	Renewal Year	Renewal Cost
1	Area Road	Reconstruct & widen	5.25	13.35	2016	\$104,000
1	Area Road	Crack Patching	6.10	13.35	2016	\$137,025
2	Boyup Brook North Rd	Crack Patching	0.00	21.24	2016	\$23,890
3	Scotts Brook Road	Reconstruct & widen	25.50	31.78	2016	\$268,853
3	Scotts Brook Road	Crack Patching	3.40	6.15	2016	\$43,313
4	Winnejuip Rd	Widen Shoulders	0.00	8.40	2016	\$44,900
5	Kulikup North Rd	Widen Shoulders	0.00	12.16	2016	\$72,100
5	Kulikup North Rd	Widen Road	13.50	14.60	2016	\$134,153
7	Kulikup South Rd	Reconstruct & widen	0.48	23.95	2016	\$101,000
8	Jayes - Bridgetown Rd	Gravel Resheet	5.50	21.00	2016	\$108,960
10	McAlinden Rd	Widen Shoulders	0.00	12.05	2016	\$47,370
10	McAlinden Rd	Crack Patching	0.00	12.05	2016	\$38,745
12	Gibbs Rd	Reconstruct & widen	1.81	17.20	2016	\$159,390
13	Westbourne Rd	Reconstruct & widen	0.00	35.30	2016	\$174,520
14	Dinninup East Rd	Widen Road	0.64	14.16	2016	\$63,370
17	Tuckett Rd	Reconstruct & widen	0.00	7.76	2016	\$100,250
18	Westcliffe Rd	Reconstruct & widen	0.15	9.25	2016	\$126,300
18	Westcliffe Rd	Gravel Resheet	0.15	9.25	2016	\$191,100
19	Dwalganup Rd	Gravel Resheet	0.00	2.80	2016	\$58,800
19	Dwalganup Rd	Gravel Resheet	3.00	9.05	2016	\$127,050
26	Bowelling - McAlinden Rd	Gravel Resheet	0.00	5.83	2016	\$113,248
31	Abels Rd	Reconstruct & widen	0.00	8.85	2016	\$156,600
31	Abels Rd	Gravel Resheet	0.00	8.85	2016	\$157,972
39	Asplins Rd	Gravel Resheet	5.10	6.50	2016	\$26,565
48	W Tree Gully	Widen Road	0.17	10.05	2016	\$94,460
50	Condinup Crossing Rd	Gravel Resheet	0.00	2.41	2016	\$54,406
59	Eulin Siding Rd	Widen Road	0.00	14.50	2016	\$86,655
62	Red Hill Rd	Widen Road	0.00	3.30	2016	\$40,660
68	Minninup Rd	Gravel Resheet	0.00	5.15	2016	\$70,838
70	Cootayerup Rd	Gravel Resheet	0.00	10.70	2016	\$182,786
81	Chapman Rd	Gravel Resheet	0.58	5.05	2016	\$65,568
108	Railway Pde	Crack Patching	0.00	0.95	2016	\$46,935
108	Railway Pde	Reseal	0.00	0.95	2016	\$26,283
134	Corbalup Rd	Widen Road	0.00	5.79	2016	\$70,980
148	Boyup Brook - Cranbrook Rd	Reconstruct & widen	0.35	15.54	2016	\$146,950
149	Rosewood Rd	Widen Road	0.00	7.25	2016	\$89,410
150	McAlister Rd	Widen Road	0.00	3.00	2016	\$36,770
210	Boyup Brook - Arthur River Rd	Crack Patching	0.00	36.15	2016	\$65,780
211	Mananup - Tonebridge Rd	Reconstruct & widen	21.70	22.16	2016	\$14,272
211	Mananup - Tonebridge Rd	Crack Patching	0.00	46.60	2016	\$87,150
211	Mananup - Tonebridge Rd	Widen Shoulders	15.98	18.95	2016	\$74,377
						<b>\$3,833,754</b>

**Appendix B Projected 10 Year Capital Renewal Works Program (continued)**

Asset ID	Asset Name	Works Description	From SLK	To SLK	Renewal Year	Renewal Cost
1	Area Road	Reconstruct & widen	5.25	13.35	2017	\$104,000
1	Area Road	Reseal	0.00	5.25	2017	\$55,567
1	Area Road	Reseal	5.25	6.10	2017	\$5,248
1	Area Road	Reseal	6.10	13.35	2017	\$76,734
2	Boyup Brook North Rd	Crack Patching	0.00	21.24	2017	\$23,890
3	Scotts Brook Rd	Crack Patching	6.15	11.30	2017	\$81,113
4	Winnejuup Rd	Widen Shoulders	0.00	8.40	2017	\$44,900
5	Kulikup North Rd	Widen Shoulders	0.00	12.16	2017	\$72,100
7	Kulikup South Rd	Reconstruct & widen	0.48	23.95	2017	\$101,000
7	Kulikup South Rd	Crack Patching	0.00	0.48	2017	\$7,560
7	Kulikup South Rd	Reseal	0.00	0.48	2017	\$4,234
8	Jayes - Bridgetown Rd	Reconstruct & widen	0.00	21.00	2017	\$99,400
8	Jayes - Bridgetown Rd	Gravel Resheet	5.50	21.00	2017	\$108,960
10	McAlinden Rd	Widen Shoulders	0.00	12.05	2017	\$47,370
10	McAlinden Rd	Reseal	0.00	2.05	2017	\$21,697
12	Gibbs Rd	Reconstruct & widen	1.81	17.20	2017	\$159,390
13	Westbourne Rd	Reconstruct & widen	0.00	35.30	2017	\$174,520
13	Westbourne Rd	Widen Road	0.00	35.30	2017	\$180,160
14	Dinninup East Rd	Reconstruct & widen	0.64	14.16	2017	\$63,350
14	Dinninup East Rd	Widen Road	0.64	14.16	2017	\$63,370
17	Tuckett Rd	Reconstruct & widen	0.00	7.76	2017	\$100,250
31	Abels Rd	Reconstruct & widen	0.00	8.85	2017	\$156,600
34	Greenfields Rd	Gravel Resheet	12.65	16.90	2017	\$62,475
41	Whistlers Rd	Gravel Resheet	0.00	4.10	2017	\$86,100
48	W Tree Gully Rd	Widen Road	0.17	10.05	2017	\$94,460
59	Eulin Siding Rd	Widen Road	0.00	14.50	2017	\$86,655
62	Red Hill Rd	Widen Road	0.00	3.30	2017	\$40,660
66	Stanton Rd	Gravel Resheet	0.00	3.50	2017	\$73,500
82	Fisher Rd	Gravel Resheet	0.40	1.77	2017	\$18,844
89	Offer Rd	Widen Road	0.00	1.29	2017	\$154,887
96	Rogers Rd	Gravel Resheet	0.00	0.50	2017	\$10,500
96	Rogers Rd	Gravel Resheet	1.30	3.15	2017	\$37,637
109	Forrest St	Crack Patching	0.00	0.19	2017	\$7,182
109	Forrest St	Reseal	0.00	0.19	2017	\$4,022
134	Corbalup Rd	Widen Road	0.00	5.79	2017	\$70,980
148	Boyup Brook - Cranbrook Rd	Reconstruct & widen	0.35	15.54	2017	\$146,950
149	Rosewood Rd	Widen Road	0.00	7.25	2017	\$89,410
150	McAlister Rd	Widen Road	0.00	3.00	2017	\$36,770
168	Gale Rd	Widen Road	0.00	0.60	2017	\$73,181
175	Wilga Rd	Gravel Resheet	0.00	0.72	2017	\$10,584
176	Barron Court	Crack Patching	0.00	0.30	2017	\$6,615
176	Barron Court	Reseal	0.00	0.30	2017	\$3,704



**Appendix B Projected 10 Year Capital Renewal Works Program (continued)**

Asset ID	Asset Name	Works Description	From SLK	To SLK	Renewal Year	Renewal Cost
177	Wilga South Rd	Gravel Resheet	0.00	1.05	2017	\$18,742
210	Boyup Brook - Arthur River Rd	Crack Patching	0.00	36.15	2017	\$65,780
211	Mayanup - Tonebridge Rd	Crack Patching	0.00	46.60	2017	\$87,150
211	Mayanup - Tonebridge Rd	Widen Road	18.95	19.62	2017	\$20,206
211	Mayanup - Tonebridge Rd	Widen Shoulders	19.62	19.92	2017	\$7,513
						<b>\$3,065,920</b>

Asset ID	Asset Name	Works Description	From SLK	To SLK	Renewal Year	Renewal Cost
2	Boyup Brook North Rd	Widen Shoulders	0.00	21.24	2018	\$113,600
3	Scotts Brook Rd	Crack Patching	11.30	23.80	2018	\$196,876
4	Winnejup Rd	Widen Shoulders	0.00	8.40	2018	\$44,900
5	Kulikup North Rd	Widen Shoulders	0.00	12.16	2018	\$72,100
6	Wilga East Rd	Crack Patching	0.00	3.78	2018	\$72,009
6	Wilga East Rd	Crack Patching	3.78	3.90	2018	\$2,268
7	Kulikup South Rd	Reconstruct & widen	0.48	23.95	2018	\$101,000
7	Kulikup South Rd	Gravel Resheet	0.48	23.95	2018	\$92,870
8	Jayes - Bridgetown Rd	Reconstruct & widen	0.00	21.00	2018	\$99,400
9	Six Mile Rd	Reconstruct & widen	1.67	13.23	2018	\$50,740
10	McAlinden Rd	Widen Shoulders	0.00	12.05	2018	\$47,370
10	McAlinden Rd	Crack Patching	2.05	6.10	2018	\$59,378
12	Gibbs Rd	Reconstruct & widen	1.81	17.20	2018	\$159,390
12	Gibbs Rd	Widen Road	1.81	17.20	2018	\$159,200
13	Westbourne Rd	Reconstruct & widen	0.00	35.30	2018	\$174,520
13	Westbourne Rd	Widen Road	0.00	35.30	2018	\$180,160
14	Dinninup East Rd	Reconstruct & widen	0.64	14.16	2018	\$63,350
14	Dinninup East Rd	Widen Road	0.64	14.16	2018	\$63,370
17	Tuckett Rd	Reconstruct & widen	0.00	7.76	2018	\$100,250
17	Tuckett Rd	Gravel Resheet	0.00	7.76	2018	\$211,848
17	Tuckett Rd	Gravel Resheet	8.15	17.06	2018	\$243,243
19	Dwalganup Rd	Reconstruct & widen	0.00	2.80	2018	\$156,040
20	Walshaws Rd	Gravel Resheet	0.00	8.69	2018	\$169,858
21	Terrace Rd	Reconstruct & widen	0.00	15.25	2018	\$181,500
22	Camballan Rd	Reconstruct & widen	0.00	10.94	2018	\$83,020
22	Camballan Rd	Gravel Resheet	0.00	6.10	2018	\$128,100
23	Balgarup Rd	Gravel Resheet	6.20	10.30	2018	\$86,100
32	Flax Rd	Widen Road	0.00	4.80	2018	\$588,420
33	Greenbushes - Boyup Brook Rd	Reconstruct & widen	0.00	2.60	2018	\$156,019
34	Greenfields Rd	Gravel Resheet	1.90	12.65	2018	\$158,025
38	Lodge Rd	Widen Road	0.00	5.24	2018	\$145,600
41	Whistlers Rd	Gravel Resheet	8.00	9.00	2018	\$21,000
48	W Tree Gully Rd	Widen Road	0.17	10.05	2018	\$94,460

**Appendix B Projected 10 Year Capital Renewal Works Program (continued)**

Asset ID	Asset Name	Works Description	From SLK	To SLK	Renewal Year	Renewal Cost
51	Hicks Lane	Widen Road	0.00	2.83	2018	\$147,800
53	Harrison Rd	Gravel Resheet	0.00	4.11	2018	\$90,720
56	Banks Rd	Widen Road	0.00	2.90	2018	\$155,500
59	Eulin Siding Rd	Widen Road	0.00	14.50	2018	\$86,655
62	Red Hill Rd	Widen Road	0.00	3.30	2018	\$40,660
63	Redgum Pool Rd	Widen Road	0.00	7.38	2018	\$90,700
76	Imrie Rd	Gravel Resheet	1.40	3.88	2018	\$34,111
84	Coonac Rd	Gravel Resheet	0.00	2.00	2018	\$42,000
100	Gifford Rd	Widen Road	0.00	1.50	2018	\$182,936
110	Cowley St	Crack Patching	0.00	0.54	2018	\$17,782
110	Cowley St	Reseal	0.00	0.54	2018	\$9,957
124	Gibbs St	Widen Road	0.03	0.64	2018	\$61,063
129	Doust St	Crack Patching	0.00	0.62	2018	\$11,718
129	Doust St	Reseal	0.00	0.62	2018	\$6,562
129	Doust St	Widen Shoulders	0.00	0.62	2018	\$15,359
129	Doust St	Widen Road	0.62	1.10	2018	\$59,150
134	Corbalup Rd	Reconstruct & widen	0.00	5.79	2018	\$134,070
134	Corbalup Rd	Widen Road	0.00	5.79	2018	\$70,980
148	Boyup Brook - Cranbrook Rd	Gravel Resheet	0.35	15.54	2018	\$41,400
149	Rosewood Rd	Widen Road	0.00	7.25	2018	\$89,410
150	McAlister Rd	Widen Road	0.00	3.00	2018	\$36,770
159	Harley Rd	Widen Road	0.00	1.20	2018	\$143,339
188	Lee Steere Drive	Crack Patching	0.00	2.10	2018	\$39,690
188	Lee Steere Drive	Reseal	0.00	2.10	2018	\$22,226
196	Grimwade - Wilga Rd	Gravel Resheet	0.00	2.15	2018	\$38,378
210	Boyup Brook - Arthur River Rd	Crack Patching	0.00	36.15	2018	\$65,780
211	Mayanup - Tonebridge Rd	Crack Patching	0.00	46.60	2018	\$87,150
211	Mayanup - Tonebridge Rd	Widen Road	19.92	21.00	2018	\$32,570
211	Mayanup - Tonebridge Rd	Widen Shoulders	21.00	21.70	2018	\$17,530
						<b>\$6,147,950</b>

**Appendix B Projected 10 Year Capital Renewal Works Program (continued)**

Asset ID	Asset Name	Works Description	From SLK	To SLK	Renewal Year	Renewal Cost
2	Boyup Brook North Rd	Widen Shoulders	0	21.24	2019	\$113,600
3	Scotts Brook Rd	Reseal	0	11.3	2019	\$100,901
4	Winnejup Rd	Crack Patching	0	8.4	2019	\$114,219
5	Kulikup North Rd	Crack Patching	0	12.16	2019	\$153,373
6	Wilga East Rd	Widen Shoulders	0.09	4	2019	\$95,863
7	Kulikup South Rd	Reconstruct & widen	0.48	23.95	2019	\$101,000
7	Kulikup South Rd	Gravel Resheet	0.48	23.95	2019	\$92,870
8	Jayes - Bridgetown Rd	Reconstruct & widen	0	21	2019	\$99,400
9	Six Mile Rd	Reconstruct & widen	1.67	13.23	2019	\$50,740
10	McAlinden Rd	Widen Shoulders	0	12.05	2019	\$47,370
10	McAlinden Rd	Reseal	2.05	6.1	2019	\$33,252
12	Gibbs Rd	Reconstruct & widen	1.81	17.2	2019	\$159,390
12	Gibbs Rd	Widen Road	1.81	17.2	2019	\$159,200
13	Westbourne Rd	Reconstruct & widen	0	35.3	2019	\$174,520
13	Westbourne Rd	Widen Road	0	35.3	2019	\$180,160
14	Dinninup East Rd	Reconstruct & widen	0.64	14.16	2019	\$63,350
14	Dinninup East Rd	Widen Road	0.64	14.16	2019	\$63,370
19	Dwalganup Rd	Reconstruct & widen	3	9.05	2019	\$284,374
21	Terrace Rd	Reconstruct & widen	0	15.25	2019	\$181,500
22	Camballan Rd	Reconstruct & widen	0	10.94	2019	\$83,020
26	Bowelling - McAlinden Rd	Reconstruct & widen	0	5.83	2019	\$289,884
27	Eulin Crossing Rd	Gravel Resheet	0	8.68	2019	\$182,280
36	Longs Rd	Reconstruct & widen	0	3.3	2019	\$154,712
38	Lodge Rd	Widen Road	0	5.24	2019	\$145,600
41	Whistlers Rd	Gravel Resheet	10.5	11.5	2019	\$21,000
48	W Tree Gully Rd	Widen Road	0.17	10.05	2019	\$94,460
51	Hicks Lane	Widen Road	0	2.83	2019	\$147,800
56	Banks Rd	Widen Road	0	2.9	2019	\$155,500
59	Eulin Siding Rd	Widen Road	0	14.5	2019	\$86,655
62	Red Hill Rd	Widen Road	0	3.3	2019	\$40,660
63	Redgum Pool Rd	Widen Road	0	7.38	2019	\$90,700
67	Muir Rd	Gravel Resheet	0	0.3	2019	\$5,355
67	Muir Rd	Gravel Resheet	4.55	6.2	2019	\$29,452
89	Offer Rd	Reconstruct & widen	0	1.29	2019	\$154,887
111	Inglis St	Crack Patching	0	0.17	2019	\$8,813
111	Inglis St	Reseal	0	0.17	2019	\$4,935
119	Treloar St	Crack Patching	0	0.24	2019	\$4,913
119	Treloar St	Reseal	0	0.24	2019	\$2,752
134	Corbalup Rd	Reconstruct & widen	0	5.79	2019	\$134,070
134	Corbalup Rd	Widen Road	0	5.79	2019	\$70,980
148	Boyup Brook - Cranbrook Rd	Gravel Resheet	0.35	15.54	2019	\$41,400
149	Rosewood Rd	Widen Road	0.00	7.25	2019	\$89,410

**Appendix B Projected 10 Year Capital Renewal Works Program (continued)**

Asset ID	Asset Name	Works Description	From SLK	To SLK	Renewal Year	Renewal Cost
150	McAlister Rd	Widen Road	0.00	3.00	2019	\$36,770
166	Hamersley Rd	Reconstruct & widen	0	1.85	2019	\$227,511
210	Boyup Brook - Arthur River Rd	Crack Patching	0.00	36.15	2019	\$65,780
211	Mayanup - Tonebridge Rd	Crack Patching	0.00	46.60	2019	\$87,150
211	Mayanup - Tonebridge Rd	Widen Road	19.92	21.00	2019	\$13,873
211	Mayanup - Tonebridge Rd	Widen Shoulders	21.00	21.70	2019	\$14,732
						<b>\$4,753,506</b>

Asset ID	Asset Name	Works Description	From SLK	To SLK	Renewal Year	Renewal Cost
2	Boyup Brook North Rd	Widen Shoulders	0	21.24	2020	\$113,600
2	Boyup Brook North Rd	Gravel Resheet	0	21.24	2020	\$128,520
3	Scotts Brook Rd	Reseal	11.3	23.8	2020	\$110,250
4	Winnejup Rd	Reseal	0	8.4	2020	\$63,962
7	Kulikup South Rd	Reconstruct & widen	0.48	23.95	2020	\$101,000
7	Kulikup South Rd	Gravel Resheet	0.48	23.95	2020	\$92,870
8	Jayes - Bridgetown Rd	Reconstruct & widen	0	21	2020	\$99,400
9	Six Mile Rd	Reconstruct & widen	1.67	13.23	2020	\$50,740
10	McAlinden Rd	Widen Shoulders	0	12.05	2020	\$47,370
10	McAlinden Rd	Crack Patching	6.1	12.05	2020	\$103,083
11	McAlinden Continuation Rd	Widen Shoulders	0	2.86	2020	\$176,228
12	Gibbs Rd	Reconstruct & widen	1.81	17.2	2020	\$159,390
12	Gibbs Rd	Widen Road	1.81	17.2	2020	\$159,200
13	Westbourne Rd	Reconstruct & widen	0	35.3	2020	\$174,520
13	Westbourne Rd	Widen Road	0	35.3	2020	\$180,160
14	Dinninup East Rd	Reconstruct & widen	0.64	14.16	2020	\$63,350
14	Dinninup East Rd	Widen Road	0.64	14.16	2020	\$63,370
15	Pretty Gull Rd	Reconstruct & widen	0	8.53	2020	\$47,560
21	Terrace Rd	Reconstruct & widen	0	15.25	2020	\$181,500
22	Camballan Rd	Reconstruct & widen	0	10.94	2020	\$83,020
38	Lodge Rd	Widen Road	0	5.24	2020	\$145,600
47	Benjinup Siding Rd	Reconstruct & widen	0	1.17	2020	\$140,110
48	W Tree Gully Rd	Widen Road	0.17	10.05	2020	\$94,460
51	Hicks Lane	Widen Road	0	2.83	2020	\$147,800
52	Sandalwood Rd	Reconstruct & widen	0	4.4	2020	\$205,160
56	Banks Rd	Widen Road	0	2.9	2020	\$155,500
59	Eulin Siding Rd	Widen Road	0	14.5	2020	\$86,655
63	Redgum Pool Rd	Widen Road	0	7.38	2020	\$90,700
93	Basford Rd	Reconstruct & widen	0	3.1	2020	\$265,456
112	Barron St	Crack Patching	0	0.89	2020	\$16,821
112	Barron St	Reseal	0	0.89	2020	\$9,419
120	Connolly St	Crack Patching	0	0.3	2020	\$9,450

**Appendix B Projected 10 Year Capital Renewal Works Program (continued)**

Asset ID	Asset Name	Works Description	From SLK	To SLK	Renewal Year	Renewal Cost
120	Connolly St	Reseal	0	0.3	2020	\$5,292
134	Corbalup Rd	Reconstruct & widen	0	5.79	2020	\$134,070
134	Corbalup Rd	Widen Road	0	5.79	2020	\$70,980
148	Boyup Brook - Cranbrook Rd	Gravel Resheet	0.35	15.54	2020	\$41,400
149	Rosewood Rd	Widen Road	0	7.25	2020	\$89,410
210	Boyup Brook Arthur River Rd	Crack Patching	0	36.15	2020	\$65,780
211	Mayanup - Tonebridge Rd	Crack Patching	0	46.6	2020	\$87,150
300	Hospital Rd	Crack Patching	0	0.25	2020	\$4,725
300	Hospital Rd	Reseal	0	0.25	2020	\$2,646
300	Hospital Rd	Widen Shoulders	0	0.25	2020	\$7,137
						<b>\$4,074,814</b>

Asset ID	Asset Name	Works Description	From SLK	To SLK	Renewal Year	Renewal Cost
2	Boyup Brook North Rd	Widen Shoulders	0	21.24	2021	\$113,600
3	Scotts Brook Rd	Widen Road	23.8	24.8	2021	\$45,833
5	Kulikup North Rd	Reseal	0	1.62	2021	\$9,103
5	Kulikup North Rd	Reseal	1.62	10.3	2021	\$63,664
5	Kulikup North Rd	Reseal	10.3	12.16	2021	\$13,124
6	Wilga East Rd	Reseal	0	3.9	2021	\$41,595
7	Kulikup South Rd	Reconstruct & widen	0.48	23.95	2021	\$101,000
7	Kulikup South Rd	Gravel Resheet	0.48	23.95	2021	\$92,870
8	Jayes - Bridgetown Rd	Reconstruct & widen	0	21	2021	\$99,400
9	Six Mile Rd	Reconstruct & widen	1.67	13.23	2021	\$50,740
10	McAlinden Rd	Widen Shoulders	0	12.05	2021	\$47,370
10	McAlinden Rd	Reseal	6.1	12.05	2021	\$57,727
11	McAlinden Continuation Rd	Crack Patching	0	2.86	2021	\$30,530
11	McAlinden Continuation Rd	Reseal	0	2.86	2021	\$17,097
12	Gibbs Rd	Reconstruct & widen	1.81	17.2	2021	\$159,390
12	Gibbs Rd	Widen Road	1.81	17.2	2021	\$159,200
13	Westbourne Rd	Reconstruct & widen	0	35.3	2021	\$174,520
13	Westbourne Rd	Widen Road	0	35.3	2021	\$180,160
14	Dinninup East Rd	Reconstruct & widen	0.64	14.16	2021	\$63,350
14	Dinninup East Rd	Widen Road	0.64	14.16	2021	\$63,370
15	Pretty Gull Rd	Reconstruct & widen	0	8.53	2021	\$47,560
21	Terrace Rd	Reconstruct & widen	0	15.25	2021	\$181,500
22	Camballan Rd	Reconstruct & widen	0	10.94	2021	\$83,020
28	Aegers Rd	Gravel Resheet	0	5.35	2021	\$103,923
34	Greenfields Rd	Reconstruct & widen	16.9	19.6	2021	\$329,284
38	Lodge Rd	Widen Road	0	5.24	2021	\$145,600
40	Parsons Swamp Rd	Gravel Resheet	0	10.4	2021	\$202,649

**Appendix B Projected 10 Year Capital Renewal Works Program (continued)**

<b>Asset ID</b>	<b>Asset Name</b>	<b>Works Description</b>	<b>From SLK</b>	<b>To SLK</b>	<b>Renewal Year</b>	<b>Renewal Cost</b>
48	W Tree Gully Rd	Widen Road	0	1.17	2021	\$94,460
52	Sandalwood Rd	Gravel Resheet	0	4.4	2021	\$68,274
59	Eulin Siding Rd	Widen Road	0	14.5	2021	\$86,655
63	Redgum Pool Rd	Widen Road	0	7.38	2021	\$90,700
64	Hacks Rd	Reconstruct & widen	0	1.61	2021	\$196,352
79	Cumming Rd	Reconstruct & widen	0	2.41	2021	\$296,954
100	Gifford Rd	Reconstruct & widen	0	1.5	2021	\$182,936
104	Foster Glen Rd	Widen Road	0	3.2	2021	\$391,271
113	Proctor St	Crack Patching	0	0.3	2021	\$10,867
113	Proctor St	Reseal	0	0.3	2021	\$6,087
121	Robinson Ave	Crack Patching	0	0.16	2021	\$5,191
121	Robinson Ave	Reseal	0	0.16	2021	\$2,907
134	Corbalup Rd	Reconstruct & widen	0	5.79	2021	\$134,070
134	Corbalup Rd	Widen Road	0	5.79	2021	\$70,980
136	Nix St	Crack Patching	0	0.21	2021	\$5,953
136	Nix St	Reseal	0	0.21	2021	\$3,334
148	Boyup Brook - Cranbrook Rd	Gravel Resheet	0.35	15.54	2021	\$41,400
149	Rosewood Rd	Widen Road	0	7.25	2021	\$89,410
164	Introvigne Rd	Widen Road	0	1.5	2021	\$180,561
210	Boyup Brook - Arthur River Rd	Crack Patching	0	36.15	2021	\$65,780
210	Boyup Brook - Arthur River Rd	Reseal	0	36.15	2021	\$368,389
211	Mayanup - Tonebridge Rd	Crack Patching	0	46.6	2021	\$87,150
212	Wingebellup Rd	Gravel Resheet	0.17	2.94	2021	\$75,621
212	Wingebellup Rd	Widen Road	0.17	2.94	2021	\$63,293
						<b>\$5,295,774</b>

Asset ID	Asset Name	Works Description	From SLK	To SLK	Renewal Year	Renewal Cost
2	Boyup Brook North Rd	Reseal	0	21.24	2022	\$133,807
2	Boyup Brook North Rd	Widen Shoulders	0	21.24	2022	\$113,600
3	Scotts Brook Rd	Widen Shoulders	3.4	23.8	2022	\$1,064,761
3	Scotts Brook Rd	Reshape & Seal	24.8	38	2022	\$971,133
3	Scotts Brook Rd	Widen Road	38	45	2022	\$268,853
3	Scotts Brook Rd	Reshape & Seal	45	47	2022	\$299,356
7	Kulikup South Rd	Reconstruct & widen	0.48	23.95	2022	\$101,000
7	Kulikup South Rd	Gravel Resheet	0.48	23.95	2022	\$92,870
8	Jayes - Bridgetown Rd	Reconstruct & widen	0	21	2022	\$99,400
9	Six Mile Rd	Reconstruct & widen	1.67	13.23	2022	\$50,740
10	McAlinden Rd	Widen Shoulders	0	12.05	2022	\$47,370
12	Gibbs Rd	Reconstruct & widen	1.81	17.2	2022	\$159,390
12	Gibbs Rd	Widen Road	1.81	17.2	2022	\$159,200
13	Westbourne Rd	Reconstruct & widen	0	35.3	2022	\$174,520
13	Westbourne Rd	Widen Road	0	35.3	2022	\$180,160
14	Dinninup East Rd	Reconstruct & widen	0.64	14.16	2022	\$63,350
14	Dinninup East Rd	Widen Road	0.64	14.16	2022	\$63,370
15	Pretty Gull Rd	Reconstruct & widen	0	8.53	2022	\$47,560
17	Tuckett Rd	Reconstruct & widen	0	7.76	2022	\$215,144
20	Walshaws Rd	Reconstruct & widen	0	8.69	2022	\$423,831
21	Terrace Rd	Reconstruct & widen	0	15.25	2022	\$181,500
21	Terrace Rd	Widen Road	0	15.25	2022	\$1,859,852
22	Camballan Rd	Reconstruct & widen	0	10.94	2022	\$83,020
28	Aegers Rd	Reconstruct & widen	0	5.35	2022	\$266,017
30	Brown Seymour Rd	Reconstruct & widen	0	6.6	2022	\$214,072
34	Greenfields Rd	Reconstruct & widen	0	12.65	2022	\$995,386
34	Greenfields Rd	Widen Road	16.9	19.6	2022	\$329,284
35	Howards Rd	Reconstruct & widen	0	5.45	2022	\$415,130
38	Lodge Rd	Reconstruct & widen	0	5.24	2022	\$483,561
38	Lodge Rd	Widen Road	0	5.24	2022	\$145,600
39	Asplins Rd	Reconstruct & widen	0	6.5	2022	\$582,235
40	Parsons Swamp Rd	Reconstruct & widen	0	10.4	2022	\$563,545
41	Whistlers RD	Reconstruct & widen	0	11.5	2022	\$831,940
43	Condinup Rd	Reconstruct & widen	0	13.42	2022	\$1,025,512
45	Reservoir Rd	Reconstruct & widen	0	9.6	2022	\$720,427
46	Rainoli Rd	Reconstruct & widen	0	6.45	2022	\$775,568
47	Benjinup Siding Rd	Widen Road	0	1.17	2022	\$140,110
48	W Tree Gull Rd	Reconstruct & widen	0.17	10.05	2022	\$951,374
48	W Tree Gull Rd	Widen Road	0.17	10.05	2022	\$94,600
51	Hicks lane	Reconstruct & widen	0	2.83	2022	\$347,814
53	Harrison Rd	Reconstruct & widen	0	4.11	2022	\$228,336
59	Eulin Siding Rd	Reconstruct & widen	0	14.5	2022	\$1,786,655



Asset ID	Asset Name	Works Description	From SLK	To SLK	Renewal Year	Renewal Cost
59	Eulin Siding Rd	Widen Road	0	14.5	2022	\$86,655
62	Red Hill Rd	Reconstruct & widen	0	3.3	2022	\$406,617
63	Redgum Pool Rd	Reconstruct & widen	0	7.38	2022	\$907,020
63	Redgum Pool Rd	Widen Road	0	7.38	2022	\$90,700
67	Muir Rd	Reconstruct & widen	0	6.2	2022	\$639,579
69	Woodonbillup Rd	Reshape & Seal	0	4.18	2022	\$373,021
75	De Landgraft Rd	Reconstruct & widen	0	5.15	2022	\$631,325
75	De Landgraft Rd	Widen Road	0	5.15	2022	\$631,325
77	Meredith Rd	Reconstruct & widen	0	7.72	2022	\$857,597
99	Newgalup Rd	Reconstruct & widen	0	6.39	2022	\$774,192
99	Newgalup Rd	Widen Road	0	6.39	2022	\$774,192
104	Foster Glen Rd	Reconstruct & widen	0	3.2	2022	\$391,271
105	Norlup Rd	Reconstruct & widen	0	4.9	2022	\$601,466
105	Norlup Rd	Widen Road	0	4.9	2022	\$601,466
116	William St	Crack Patching	0	0.64	2022	\$11,083
116	William St	Reseal	0	0.64	2022	\$6,206
116	William St	Widen Road	0	0.64	2022	\$32,642
130	Witham St	Crack Patching	0	0.19	2022	\$2,394
130	Witham St	Reseal	0	0.19	2022	\$1,341
134	Corbalup Rd	Reconstruct & widen	0	5.79	2022	\$134,070
134	Corbalup Rd	Widen Road	0	5.79	2022	\$70,980
137	Purse Terrace	Crack Patching	0	0.19	2022	\$3,591
137	Purse Terrace	Reseal	0	0.19	2022	\$2,011
148	Boyup Brook - Cranbrook Rd	Gravel Resheet	0.35	15.54	2022	\$41,400
149	Rosewood Rd	Reconstruct & widen	0	7.25	2022	\$894,012
149	Rosewood Rd	Widen Road	0	7.25	2022	\$89,410
150	McAlister Rd	Reconstruct & widen	0	3	2022	\$367,762
151	Broockmann Rd	Reconstruct & widen	0	3.4	2022	\$416,797
151	Broockmann Rd	Widen Road	0	3.4	2022	\$416,839
154	Walton Rd	Reconstruct & widen	0	1.3	2022	\$157,030
154	Walton Rd	Widen Road	0	1.3	2022	\$157,045
159	Harley Rd	Reconstruct & widen	0	1.2	2022	\$143,325
164	Introvigne Rd	Reconstruct & widen	0	1.5	2022	\$180,543
166	Hamersley Rd	Widen Road	0	1.85	2022	\$227,534
210	Boyup Brook Arthur River Rd	Widen Shoulders	21.9	22.3	2022	\$10,017
210	Boyup Brook Arthur River Rd	Widen Road	22.3	36.15	2022	\$382,344
211	Mayanup - Tonebridge Rd	Crack Patching	0	46.6	2022	\$87,150
211	Mayanup - Tonebridge Rd	Reseal	0	46.6	2022	\$488,065
211	Mayanup - Tonebridge Rd	Widen Shoulders	0	15.27	2022	\$382,398
						<b>\$30,223,368</b>



**Appendix C Planned Upgrade/Exp/New 10 year Capital Works Program**

Asset ID	Asset Name	Works Description	From SLK	To SLK	Upgrade Year	Renewal Cost
210	Boyup Brook Arthur River Rd	Widen & Reconstruct			2012	\$244,000
10	McAlinden Rd	Widen & Reconstruct			2012	\$176,000
5	Kulikup North Rd	Widen & Reconstruct			2012	\$139,000
						<b>\$559,000</b>

Asset ID	Asset Name	Works Description	From SLK	To SLK	Upgrade Year	Renewal Cost
	Forecast Expenditure Amount	No projects detailed			2013	\$300,000

Asset ID	Asset Name	Works Description	From SLK	To SLK	Upgrade Year	Renewal Cost
	Forecast Expenditure Amount	No projects detailed			2014	\$300,000

Asset ID	Asset Name	Works Description	From SLK	To SLK	Upgrade Year	Renewal Cost
	Forecast Expenditure Amount	No projects detailed			2015	\$300,000

Asset ID	Asset Name	Works Description	From SLK	To SLK	Upgrade Year	Renewal Cost
	Forecast Expenditure Amount	No projects detailed			2016	\$300,000

Asset ID	Asset Name	Works Description	From SLK	To SLK	Upgrade Year	Renewal Cost
	Forecast Expenditure Amount	No projects detailed			2017	\$300,000

Asset ID	Asset Name	Works Description	From SLK	To SLK	Upgrade Year	Renewal Cost
	Forecast Expenditure Amount	No projects detailed			2018	\$300,000

Asset ID	Asset Name	Works Description	From SLK	To SLK	Upgrade Year	Renewal Cost
	Forecast Expenditure Amount	No projects detailed			2019	\$300,000

Asset ID	Asset Name	Works Description	From SLK	To SLK	Upgrade Year	Renewal Cost
	Forecast Expenditure Amount	No projects detailed			2020	\$300,000

**Appendix C Planned Upgrade/Exp/New 10 year Capital Works Program (Continued)**

<b>Asset ID</b>	<b>Asset Name</b>	<b>Works Description</b>	<b>From SLK</b>	<b>To SLK</b>	<b>Upgrade Year</b>	<b>Renewal Cost</b>
	Forecast Expenditure Amount	No projects detailed			2021	\$300,000

<b>Asset ID</b>	<b>Asset Name</b>	<b>Works Description</b>	<b>From SLK</b>	<b>To SLK</b>	<b>Upgrade Year</b>	<b>Renewal Cost</b>
	Forecast Expenditure Amount	No projects detailed			2022	\$300,000

## Appendix D Abbreviations

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

## Appendix E Glossary

### Annual service cost (ASC)

- 1) Reporting actual cost  
The annual (accrual) cost of providing a service including operations, maintenance, depreciation, finance/opportunity and disposal costs less revenue.
- 2) For investment analysis and budgeting  
An estimate of the cost that would be tendered, per annum, if tenders were called for the supply of a service to a performance specification for a fixed term. The Annual Service Cost includes operations, maintenance, depreciation, finance/opportunity and disposal costs, less revenue.

### Asset

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

### Asset class

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

### Asset condition assessment

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

### Asset management (AM)

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

### Average annual asset consumption (AAAC)\*

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

### Borrowings

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

### Capital expenditure

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

### Capital expenditure - expansion

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

### Capital expenditure - new

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

### Capital expenditure - renewal

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

**Capital expenditure - upgrade**

Expenditure, which enhances an existing asset to provide a higher level of service or expenditure that will increase the life of the asset beyond that which it had originally. Upgrade expenditure is discretionary and often does not result in additional revenue unless direct user charges apply. It will increase operations and maintenance expenditure in the future because of the increase in the organisation's asset base, 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.

**Capital funding**

Funding to pay for capital expenditure.

**Capital grants**

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

**Capital investment expenditure**

See capital expenditure definition

**Capitalisation threshold**

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

**Carrying amount**

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

**Class of assets**

See asset class definition

**Component**

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

**Cost of an asset**

The amount of cash or cash equivalents paid or the fair value of the consideration given to acquire an asset at the time of its acquisition or construction, including any costs necessary to place the asset into service. This includes one-off design and project management costs.

**Current replacement cost (CRC)**

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

**Depreciable amount**

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

**Depreciated replacement cost (DRC)**

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

**Depreciation / amortisation**

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

**Economic life**

See useful life definition.

**Expenditure**

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

**Fair value**

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

**Funding gap**

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

### **Heritage asset**

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

### **Impairment Loss**

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

### **Infrastructure assets**

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

### **Investment property**

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

- (a) use in the production or supply of goods or services or for administrative purposes; or
- (b) sale in the ordinary course of business.

### **Key performance indicator**

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

### **Level of service**

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

### **Life Cycle Cost**

1. **Total LCC** The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal costs.
2. **Average LCC** The life cycle cost (LCC) is average cost to provide the service over the longest asset life cycle. It comprises annual operations, maintenance and asset consumption expense, represented by depreciation expense. The Life Cycle Cost does not indicate the funds required to provide the service in a particular year.

### **Life Cycle Expenditure**

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

### **Loans / borrowings**

See borrowings.

### **Maintenance**

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

#### • **Planned maintenance**

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

#### • **Reactive maintenance**

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

#### • **Significant maintenance**

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

#### • **Unplanned maintenance**

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

### **Maintenance and renewal gap**

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

### **Maintenance and renewal sustainability index**

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

### **Maintenance expenditure**

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

### **Materiality**

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

### **Modern equivalent asset**

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

### **Net present value (NPV)**

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

### **Non-revenue generating investments**

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

### **Operations expenditure**

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

### **Operating expense**

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

### **Pavement management system**

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

### **PMS Score**

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

### **Rate of annual asset consumption**

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

### **Rate of annual asset renewal**

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

### **Rate of annual asset upgrade**

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

### **Recoverable amount**

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

### **Recurrent expenditure**

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

**Recurrent funding**

Funding to pay for recurrent expenditure.

**Rehabilitation**

See capital renewal expenditure definition above.

**Remaining useful life**

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

**Renewal**

See capital renewal expenditure definition above.

**Residual value**

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

**Revenue generating investments**

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

**Risk management**

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

**Section or segment**

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

**Service potential**

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

**Service potential remaining**

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

**Strategic Longer-Term Plan**

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

**Specific Maintenance**

Replacement of higher value components/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.

**Sub-component**

Smaller individual parts that make up a component part.

**Useful life**

Either:

- (a) the period over which an asset is expected to be available for use by an entity, or
- (b) the number of production or similar units expected to be obtained from the asset by the entity.

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

**Value in Use**

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

Source: IPWEA, 2009, Glossary