

29 May 2020

**ASSET MANAGEMENT PLAN**  
**ROADS**  
**2019/20 to 2048/49**

Adopted: 22<sup>nd</sup> October 2020 Minute No. 226.10.20

File Ref: A13-2,



## Table of Contents

<b>Executive summary</b>	<b>2</b>
<b>1 Introduction and strategic objectives</b>	<b>5</b>
1.1 Introduction	5
1.2 Strategic objectives for the road network	5
1.3 Definitions	7
<b>2 Services provided and classification</b>	<b>8</b>
2.1 Road network: categories and value	8
2.2 Road network hierarchy	9
2.3 Managing future demand for the Shire’s road assets	11
<b>3 Levels of service</b>	<b>13</b>
<b>4 Condition of our assets</b>	<b>17</b>
<b>5 Operations</b>	<b>23</b>
5.1 Lifecycle costs	23
5.2 Operational activities	23
<b>6 Maintenance</b>	<b>24</b>
<b>7 Capital renewal / rehabilitation</b>	<b>26</b>
<b>8 Capital expansion – upgrades and new assets</b>	<b>29</b>
<b>9 Disposal plan</b>	<b>30</b>
<b>10 Financial plan</b>	<b>31</b>
10.1 Road network asset lifecycle expenditure	31
10.2 Funding plan for the road network	33
10.3 Summary of expenditure and funding sources	34
<b>11 Key performance benchmarks</b>	<b>35</b>
<b>12 Risk management plan</b>	<b>36</b>
12.1 Critical risks	36
12.2 Critical assets	36
<b>13 Asset management improvement program</b>	<b>38</b>
<b>Appendices</b>	<b>39</b>
Appendix 1: Listing of sealed regional and rural roads (including frequency in which capital renewal, maintenance and operational activities are undertaken)	39
Appendix 2: Listing of unsealed regional and rural roads (including frequency in which capital renewal and maintenance activities are undertaken)	40
Appendix 3: Listing of sealed urban streets (including frequency in which capital renewal, maintenance and operational activities are undertaken)	42
Appendix 4: Listing of unsealed urban streets (including frequency in which capital renewal and maintenance activities are undertaken)	44

## Executive summary

The road network in the Warren Shire is comprised of Council’s sealed and unsealed roads (regional, rural and urban), bridges, footpaths and kerbs and gutters. This is our largest asset class and represents 64.9% of the value of all Council assets.

The total length of road in the Shire is 1,325 km. These roads are valued at \$131.6m (estimated gross replacement cost). 673 km of these roads are sealed and 652 km are unsealed.

As well as the roads themselves, the road network also includes the Shire’s bridges, footpaths and kerbs and gutters. These are valued at \$28.8m (estimated gross replacement cost).

The estimated gross replacement cost of the total road network is \$160.4m.

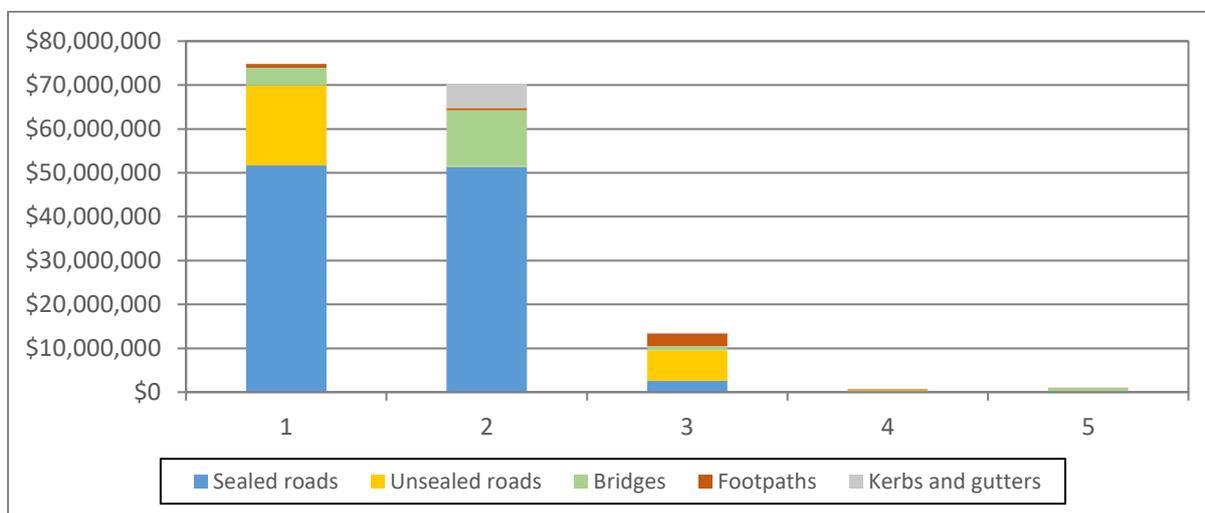
Council’s strategic objectives for the road network are to ensure that the roads, bridges and pathways are maintained to acceptable community standards in a cost-effective, efficient and safe manner.

Council is not anticipating any significant change in the size of our road network, especially given that an extensive road network already exists within the Shire. Overall, we will be focussing our limited budgetary funding on maintaining and renewing our road assets rather than expanding the network of roads.

The community has certain expectations as to the level of service it requires from the road network. These expectations are classified under the categories of sealed roads, unsealed roads, bridges, footpaths, and kerbs and gutters. This asset management plan outlines how Council delivers against these expectations and how we measure our performance.

Overall, most of our road network assets are in an acceptable condition, i.e., they have a condition rating between 1 and 3 on a scale of 1 to 5. See figure ES1 below.

**Figure ES1: Condition ratings, road assets (estimated gross replacement cost) as at 30 June 2019**



Condition scale: 1=Excellent; 2=Good; 3=Average; 4=Poor; 5=Very poor

However, some assets are in condition 4 and 5. These assets include three old timber bridges and two cycleways.

In this asset management plan, the lifecycle costs of the road network are estimated and projected. There are four lifecycle categories. These categories are operations, maintenance, capital renewal and capital expansion.

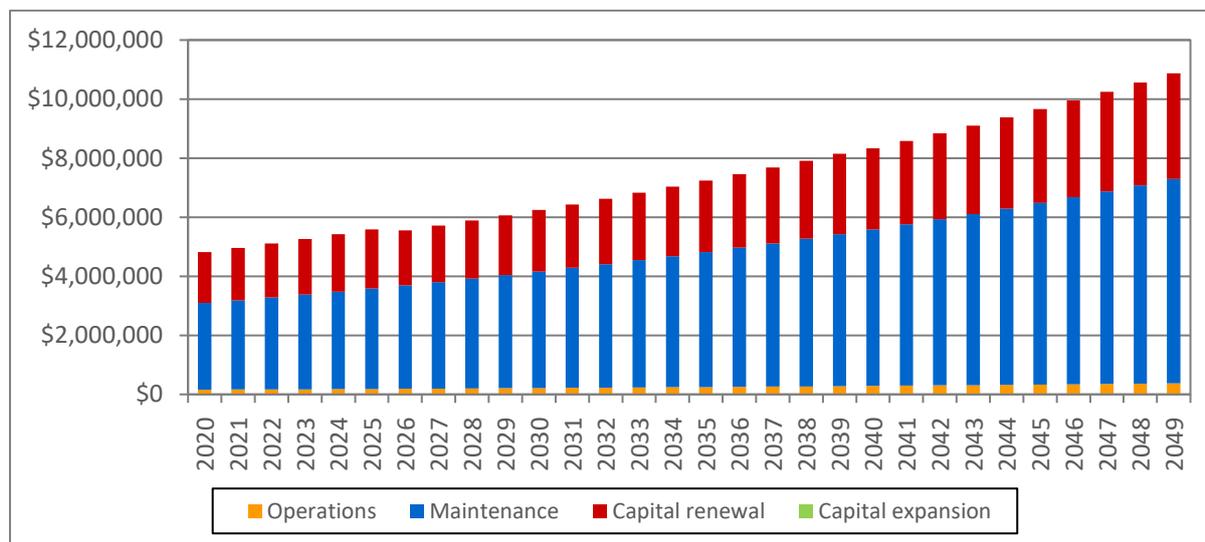
A summary of the operational and maintenance activities which are undertaken is provided together with the frequency in which these activities are undertaken.

An analysis of the capital renewal funding needs over the next thirty years has been undertaken. Council will be allocating funds to an asset renewal reserve each year to ensure that it is saving money from the day it purchases an asset to allow it to replace the asset at the end of its life.

No significant road capital expansion projects are currently planned over the next thirty years.

The projected lifecycle expenditure on operations, maintenance, renewal and expansion activities for the road network over the next thirty years is shown in the following graph.

**Figure ES2: Thirty-year projected lifecycle expenditure on Council’s road assets, 2020 to 2049**



Our annual operations and maintenance costs are not expected to fluctuate significantly over the next thirty years as our road network is not expected to be expanded. However, these costs have been indexed by 3.0% p.a. for inflation.

Our road assets have long estimated useful lives. The projected lifecycle expenditure includes funds to be allocated to an asset renewal reserve each year to ensure that assets can be replaced when they reach the end of their life. As with operations and maintenance costs, this asset renewal reserve allocation has been indexed by 3.0% p.a. for inflation.

Based on the size of our communities, managing our road network is not sustainable. A large portion of the funding for our road network is sourced from grants. These grants include:

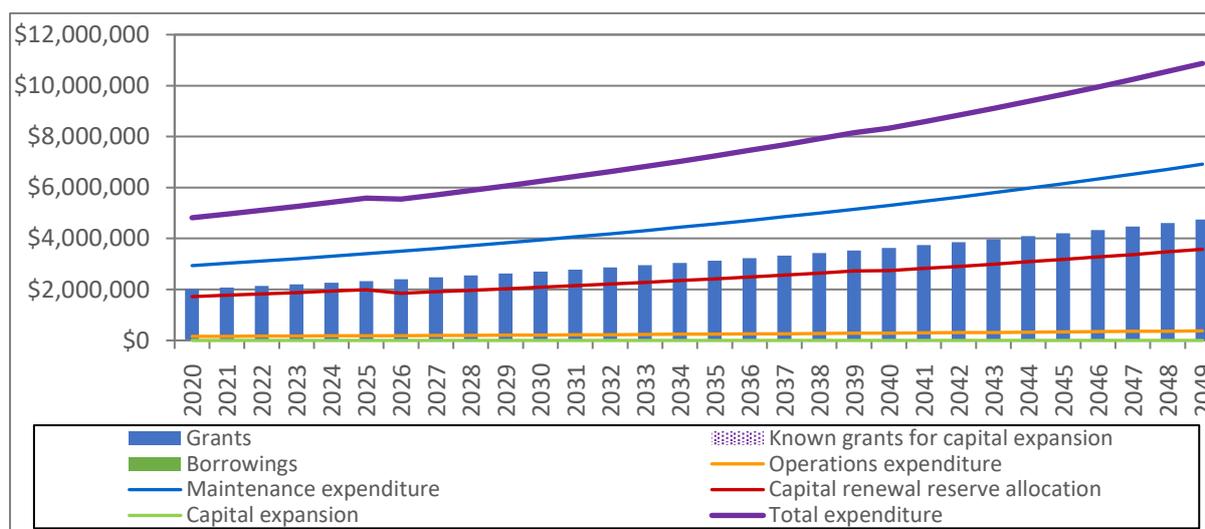
- Roads to Recovery grants for local roads
- Block grants for regional roads
- REPAIR program grants for the renewal of regional roads.

Council applies for grant funding when significant road renewal projects need to be undertaken due to the poor condition of those roads.

General funds are also used to fund our road network. General funds are used in two ways. Firstly, they are used to support the maintenance of our rural and urban local road network. Secondly, they are used to build an asset renewal reserve each year. This will help in reducing Council’s reliance on grant funding for renewal projects.

Council also has the option of borrowing to support investments in our road network.

The projected expenditure and funding picture for the road network over the next thirty years is shown in figure ES3 below.

**Figure ES3: Thirty-year financial plan for Council’s road assets, 2020 to 2049**

This graph highlights the gap in the required funding for the road network over the next thirty years.

It is anticipated that there will be a shortfall, i.e. total income will be less than our operations, maintenance and capital expenses. This is shown in figure ES3 as the gap between the purple total expenditure line and the top of the income bars. Whilst both income and total expenditure are indexed at 3.0% p.a. for inflation, the gap widens over time as income starts from a lower base.

Council has developed a series of performance benchmarks to help in assessing how well it is meeting the community’s expectations in relation to the condition of its assets.

Critical risks have been identified for the road network. These include the risk that roads and road assets are damaged by a severe storm or fire and that roads and road assets deteriorate over time and become deformed. Risk treatment plans have been developed to reduce the likelihood of these risks and to limit their impact.

Several initiatives have been identified to improve Council’s asset management capabilities in relation to its road network. These include:

- Implementing an integrated asset management system and associated processes to support Council’s engineering and finance functions; this will also provide Council with much needed predictive capabilities to assist with decisions on where it should be allocating asset funding or if it should be seeking additional funding
- Regularly capturing accurate and complete asset condition data
- Tracking Council’s performance against relevant community expectation benchmarks
- Implementing a productivity improvement program.

## 1 Introduction and strategic objectives

### 1.1 Introduction

Warren Shire is located in Central West NSW and covers an area of 10,860 square kilometres. Within the Shire is the town of Warren and the villages of Nevertire and Collie. According to the 2016 census, the total population for the Shire is 2,732 with 1,530 people living in Warren. In 2019 it is estimated that 92 people live in Nevertire and 46 people live in Collie.

The town of Warren is situated on the banks of the Macquarie River and is located 120 km from the regional centre of Dubbo and 515 km from Sydney. Nevertire is 20 km to the south west of Warren. Collie is located 51 km to the east of Warren.

Warren Shire Council owns and maintains \$247.0m (estimated gross replacement cost as at 30 June 2019) of community assets including roads, bridges, public buildings, the water supply network, the sewerage network and recreational assets. Council's road assets comprise \$160.4m of this asset base. The road network includes Council's sealed and unsealed roads (regional, rural and urban), bridges, footpaths and kerbs and gutters.

The efficient management of our assets is vital to ensure that Council provides safe and reliable services for the community. To achieve this, Council has developed several integrated tools. These tools form the Integrated Planning and Reporting (IP&R) framework which includes Council's:

- Community strategic plan (CSP)
- Resourcing strategy
  - Long-term financial planning (LTFP)
  - Asset management planning
    - Asset management policy
    - Asset management strategy
    - Asset management plans (of which this is one).

Together, these tools guide Council and hold it to account with respect to delivering on its asset management strategic objectives.

Council has developed asset management plans for each class of asset under its control. This asset management plan for our road network identifies our asset service standards and contains the long-term projected costs for the operations, maintenance, renewal and expansion of our assets.

### 1.2 Strategic objectives for the road network

The strategic objectives of Council in operating, maintaining and improving its road network are as follows.

**Table 1.1: Strategic objectives for the road network**

No.	Strategic objectives for the road network	Link with the CSP
1	Maintain high standards of street cleanliness, vacant block management	Strategy 1.4.5
2	Maintain town streets and footpaths	Strategy 1.4.6
3	Ensure local roads and bridges are maintained/constructed to acceptable community standards in a cost effective, efficient and safe manner	Strategy 3.1.1
4	Ensure regional main roads and highways are maintained to acceptable community standards	Strategy 3.1.2

<b>No.</b>	<b>Strategic objectives for the road network</b>	<b>Link with the CSP</b>
5	Maintain and enhance local pathway networks to meet needs of all sections of community	Strategy 3.1.4
6	Ensure the efficient and cost-effective operation of Council's road making materials (e.g. gravel pits)	Strategy 4.2.3

## 1.3 Definitions

To ensure consistency between this document and the other documents in Council's IP&R framework, the following definitions are used.

**Accumulated depreciation** – The total depreciation of an asset's estimated replacement cost. Depreciation of an asset will continue to be accumulated until it is replaced. At this point, the original asset will be written off and the depreciation of the new asset will commence from zero.

**Asset** – A physical facility, which has value, and enables services to be provided to the community. The economic life of an asset is greater than twelve months.

**Asset management** – The combination of management, financial, economic and engineering practices applied to a physical asset with the objective of providing the required levels of service in the most cost-effective manner.

**Estimated gross replacement cost** – The estimated cost of replacing an asset calculated by multiplying estimated unit rates for each component of an asset by the size of the asset. Estimated gross replacement costs are calculated every five years when Council's assets are revalued.

**Expansion** – Activities associated with upgrading or improving an asset or creating a new asset.

**Level of service** – The ability of an asset to provide services to the community. A minimum level of service is set by Council for each asset. Community levels of service are based around the minimum required condition rating of an asset. Technical levels of service refer to the frequency in which maintenance and capital works are undertaken on an asset by Council.

**Lifecycle** – The phases in the life of an asset from acquisition, operations, maintenance, renewal and disposal.

**Maintenance** – Planned or unplanned activities required to ensure that the asset can continue to deliver the services required of it by the community.

**Net carrying value** – Estimated gross replacement cost minus accumulated depreciation. This is the equivalent of the written down value of an asset.

**Operations** – Regular, planned activities to keep the asset in service.

**Renewal** – Activities which involve restoring, refurbishing or replacing an asset to bring it back to its original capacity and performance capability. Renewal costs are treated as capital expenditure.

**Renewal backlog** – The cost to renew those assets within the Shire that do not achieve the required minimum level of service.

**Useful life** – The period over which an asset is expected to be available for use by Council (in the context of its service to Council, not to its actual physical life). The useful life of each asset is used by Council to determine the depreciation of the asset.

## 2 Services provided and classification

### 2.1 Road network: categories and value

The road network in the Warren Shire is comprised of Council's sealed and unsealed roads (regional, rural and urban), bridges, footpaths and kerbs and gutters. The components of the road network are summarised in the following table.

**Table 2.1: Council's road assets (with road length and value) as at 30 June 2019**

Roads asset category	Length km	Net carrying value \$	Estimated gross replacement cost \$
<b>Sealed roads</b>			
Regional roads	328.05	47,843,389	54,974,108
Rural roads			
- Arterial	103.56	13,764,602	15,365,042
- Primary collector	67.50	7,813,666	9,538,377
- Local collector	131.01	16,577,043	18,898,161
- Access	19.18	2,145,414	2,289,423
Urban streets	23.32	3,862,965	4,721,940
<b>Total sealed roads</b>	<b>672.62</b>	<b>92,007,079</b>	<b>105,787,051</b>
<b>Unsealed roads</b>			
Regional roads	31.92	2,223,826	2,614,035
Rural roads			
- Arterial	37.90	1,689,008	1,956,218
- Primary collector	77.37	2,587,270	2,949,925
- Local collector	62.26	2,118,941	2,423,519
- Access	432.66	13,841,286	15,376,446
Urban streets	9.79	395,743	437,916
<b>Total unsealed roads</b>	<b>651.90</b>	<b>22,856,074</b>	<b>25,758,060</b>
<b>Total roads</b>	<b>1,324.53</b>	<b>114,863,153</b>	<b>131,545,111</b>
<b>Bridges</b>	<b>Number</b>		
Regional	19	3,563,839	5,500,037
Rural	34	8,126,235	12,995,666
Urban	-	-	-
<b>Total bridges</b>	<b>53</b>	<b>11,690,074</b>	<b>18,495,703</b>
<b>Footpaths</b>			
Urban		2,719,395	4,609,374
<b>Total footpaths</b>		<b>2,719,395</b>	<b>4,609,374</b>
<b>Kerbs and gutters</b>			
Urban		4,126,531	5,726,210
<b>Total kerbs and gutters</b>		<b>4,126,531</b>	<b>5,726,210</b>
<b>Total all road assets</b>		<b>133,399,153</b>	<b>160,376,398</b>
<b>Total all Council assets</b>		<b>179,662,545</b>	<b>247,025,077</b>
<b>Percent of all Council assets</b>		<b>74.2%</b>	<b>64.9%</b>

The roads within the road network are broadly categorised as follows:

**Table 2.2: Road network categories**

Road category	Description
State highways	State significant roads controlled by the Roads and Maritime Services (RMS). These roads are not included in this asset management plan.
Regional roads	Major roads controlled and maintained by Council but funded through RMS grant monies.
Rural roads	Roads controlled and maintained by Council with funding from general grants, rates revenue and Roads to Recovery (R2R) monies. Rural roads are roads located outside the town speed limit zones.
Urban streets	Roads controlled and maintained by Council with funding from general grants, rates revenue and R2R monies. Urban streets are roads located within the town speed limit zones of Warren, Nevertire and Collie.

Regional roads, rural roads and urban streets can be sealed, unsealed or partly sealed and unsealed.

## 2.2 Road network hierarchy

In addition to the categories shown in table 2.2, Council has also established a road network hierarchy. This hierarchy is used to prioritise the allocation of our limited financial resources to the maintenance and renewal of each road in the Shire.

Each hierarchy element has its own levels of service and asset management practices. The levels of service assist in the funding prioritisation process.

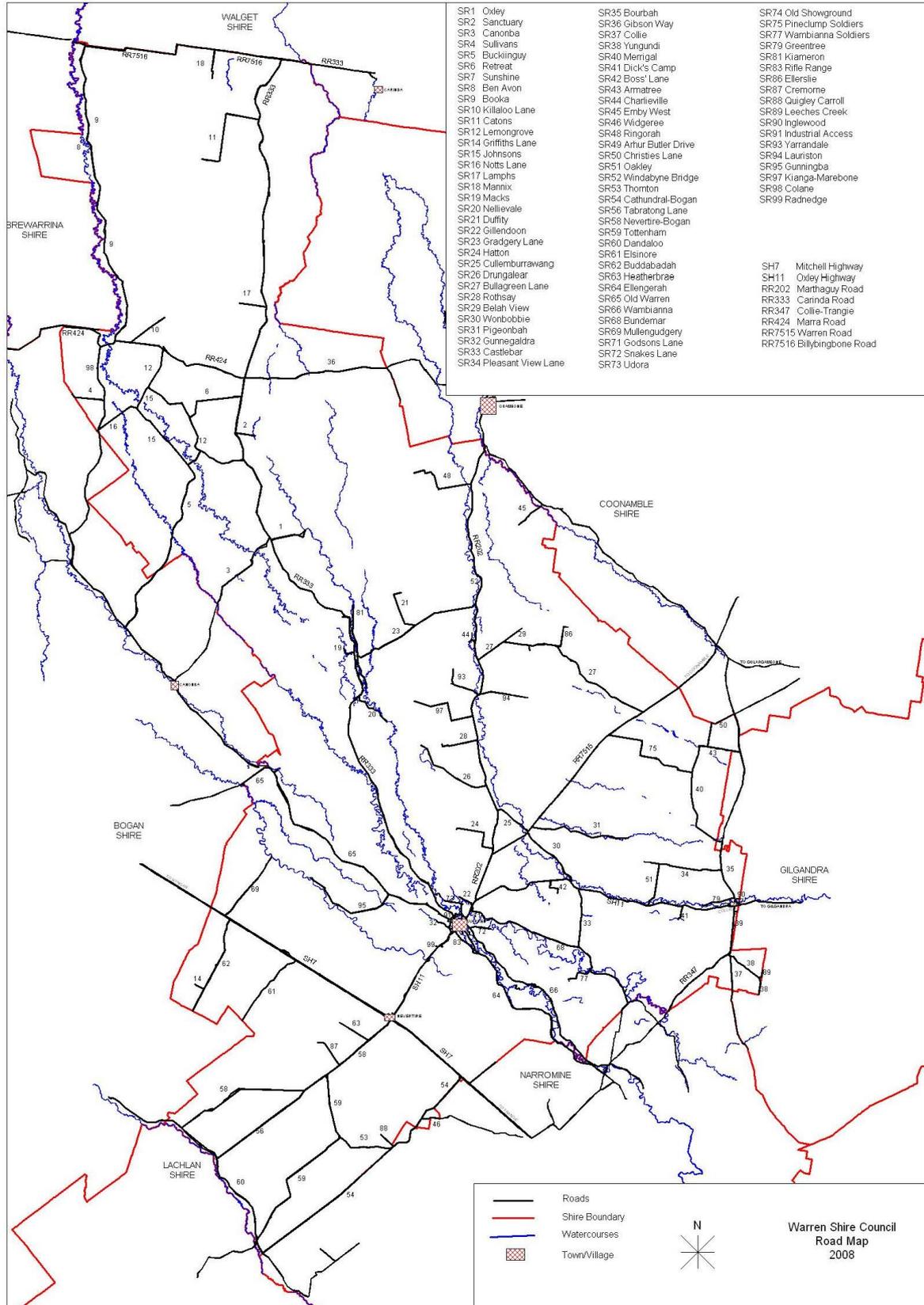
**Table 2.3: Road network hierarchy**

No.	Road hierarchy element	Description
1	Regional	These are major arterial roads that provide the highest traffic movements between regions, industrial, commercial or residential areas. They are declared as regional roads with a funding contribution by RMS.
2	Arterial	These are major arterial roads that provide linkage between areas of industrial, commercial or residential importance and the regional road network.
3	Primary collector	These roads provide connections between arterial roads and the local collector network. They generally have key traffic generators on them for an area and/or are strategically important. These are through roads only (they have no dead ends).
4	Local collector	These roads provide access to the primary collector network from access roads. These roads generally do not have key traffic generators on them. These can be a through or non-through road (dead end).
5	Access	These roads provide access to individual properties in a rural setting. These are generally no through roads or dead ends.
6	Urban streets	These are the roads within towns and villages. They include the roads in the Central Business District (CBD) of a town, the roads that feed traffic to residential roads and major facilities and the roads that provide access to individual properties and rear lanes in an urban setting.

The hierarchy for bridges, footpaths and kerbs and gutters is determined by the roads that these components are on.

A map of Council’s road network is provided below.

**Figure 2.1: Map of the Warren Shire Council road network**



## 2.3 Managing future demand for the Shire's road assets

Drivers affecting the demand for our roads include changes in demographics, growth in tourism, changes in agricultural practices and the growth of new industries.

These drivers of demand and the factors affecting the supply of the road network are considered below.

### 2.3.1 Drivers of demand for the road network

#### **A flat or declining demographic trend**

As is the case with the majority of rural inland local government areas, the population of the Warren Shire has been declining steadily for several years as a result of outward migration from the Shire (especially amongst young adults). The demand for road assets is expected to remain relatively constant over the coming years due to this trend and Council forecasts that there will be limited demand for expansion of the network in the foreseeable future because of this demographic trend.

#### **Heavier transport movements in the agricultural sector**

Increases in the size of farm machinery and weight loads in the transport sector have placed additional pressure on Council's road assets in recent years. It is expected that the trend to higher weight loads will continue. The inland rail (once completed) is unlikely to change the demand for adequate roads from the agricultural sector as produce will still need to be transported across the length and breadth of the Shire.

#### **Strong vehicle-based tourism**

The Shire continues to see strong numbers of vehicle-based tourists visiting or passing through the Shire. With the increasing numbers of caravans and campers on our roads who are visiting tourist sites, or travelling through the Shire, it is forecast that there will be increasing demand for an adequate road network.

#### **The potential increase in intensive industries**

The Shire has already seen the development of a new solar farm in Nevertire. Additional intensive industries might also be developed in the future such as intensive agriculture (e.g. feedlots, green houses, etc.), mining and additional power generation (e.g. solar or wind farms, etc.). These developments are generally high generators of vehicle movements and can place significant pressure on the road network. Intensive industries may also increase demand for the upgrade of Council's road network (e.g. sealing of road infrastructure leading to intensive industry sites)

### 2.3.2 Factors affecting the supply of the road network

#### **Funding uncertainties**

Warren Shire Council is highly reliant on grant funding and its rates revenues are limited.

Based on the size of our communities, supporting our road network is not sustainable. We need to seek ongoing government funding, where available, to maintain and enhance our road network.

#### **Council's asset renewal backlog**

Assets that are below the minimum condition rating do not meet Council's minimum levels of service. Such assets will require renewal. These assets form part of Council's renewal backlog and Council should be ensuring that these assets are brought up to the agreed levels of service.

Council's asset renewal backlog will need to be funded.

### **Damage from natural disasters**

Council's road network is often subject to considerable damage from natural disasters, mostly from floods and fires. Maintaining these roads after an event places considerable strain on Council resources, both financial and physical, often delaying Council's planned maintenance program and capital program. Some funding is often available from other levels of government to deal with such disasters but funding is not always adequate to compensate for the damage caused by the natural disaster event.

### **Staff and resource shortages**

As with financial constraints on the provision of the road network, difficulties in recruiting and retaining staff has been a challenge for Council in recent years. Council, as a western rural Council, often faces challenges in filling technical and managerial positions. When technical or managerial positions are vacant it can affect Council's ability to provide some of the services expected by the community.

### **Disruptive technological change**

One of the future challenges for the community is the potential of disruptive technologies and the unknown affect that these technologies will have on Council's road network and level of service expectations. With advances in driverless technologies, intelligent communication systems and drone technology, just to name a few trends, it is likely that Council's supply of road services will be disrupted in ways that it has not yet even thought of.

### 3 Levels of service

One of the strategic objectives for the road network is to ensure that local roads and bridges are maintained and constructed to acceptable community standards in a cost effective, efficient and safe manner.

Council has defined a set of measurable levels of service that are used to assess its performance in meeting this objective. Levels of service are grouped into:

- **Community levels of service** – These relate to what the community wants from our road network in terms of the minimum required condition rating for each road
- **Technical levels of service** – These refer to the frequency in which renewal, maintenance and operational works are undertaken on each road by Council.

Table 3.1 outlines what the community desires from our roads and how Council will deliver against this. Key performance benchmarks are also provided. These benchmarks will enable us to determine whether we are delivering on what the community wants.

**Table 3.1: Community expectations, road network**

<b>The community wants (Community level of service) (1)</b>	<b>How Council delivers this (Technical level of service)</b>	<b>Key performance benchmark</b>
<p><b>Sealed roads</b> Roads allow safe, comfortable and efficient travel</p> <p>Roads are smooth with no potholes or ponding of water</p> <p>Roads are always open</p>	<p>Sealed roads will be resealed or rehabilitated when their condition deteriorates below the minimum required condition rating</p> <p>Roads receive planned maintenance as scheduled and reactive (unplanned) maintenance as required</p>	<p>90% of sealed roads always maintain a condition rating above the minimum requirement</p> <p>95% of planned maintenance is completed on schedule</p> <p>Reactive maintenance is completed within 2 weeks of notification 90% of the time</p>
<p><b>Unsealed roads</b> Roads are smooth with no potholes, corrugations or ponding of water</p> <p>All weather access is always provided</p>	<p>Unsealed roads will be re-sheeted or graded as scheduled or when their condition deteriorates below the minimum required condition rating</p> <p>Roads receive reactive (unplanned) maintenance as required</p>	<p>90% of unsealed roads always maintain a condition rating above the minimum requirement</p> <p>95% of planned maintenance is completed on schedule</p> <p>Reactive maintenance is completed within 3 weeks of notification 90% of the time</p>

<b>The community wants (Community level of service) (1)</b>	<b>How Council delivers this (Technical level of service)</b>	<b>Key performance benchmark</b>
<b>Bridges</b> Bridges are accessible during periods of moderate rainfall	Hydraulic capacity caters for at least a 1 in 20 year storm	95% of bridges remain open during storms
<b>Footpaths</b> Footpaths are sound and non-slippery to enable safe usage	Trip hazards are managed by rehabilitating the concrete surface at or prior to the stepping height reaching 30 mm	90% of footpaths always maintain a condition rating above the minimum requirement
<b>Kerbs and gutters</b> Water does not pond in driveways for more than two days after a storm	Kerbs and gutters are rehabilitated at or prior to them reaching condition rating 5	90% of kerbs and gutters always maintain a condition rating above the minimum requirement

(1) Condition ratings are used to indicate whether the community levels of service are being met; condition ratings are explained in section 4 of this plan

The minimum required community levels of service and technical levels of service, by road hierarchy, are provided in the tables below. Condition ratings are used to indicate the minimum required levels of service.

**Table 3.2: Sealed roads minimum levels of service**

Road hierarchy	Community level of service		Technical level of service								
	Minimum condition rating (1)	Timing for renewals			Timing for planned maintenance			Response times for unplanned maintenance		Timing for operational activities	
		Reseals	New seals	Pavement rehabilitation	Shoulder grading	Patching	Line marking	Patching (2)	Edge breaks (3)	Slashing	Street sweeping
Regional roads	3	14 years	60 years	60 years	2 years	2 years	3 years	7 days	7 days	Twice yearly	n/a
Arterial roads	3	20 years	80 years	80 years	2 years	2 years	3 years	7 days	7 days	Twice yearly	n/a
Primary collector roads	3	20 years	100 years	100 years	2 years	2 years	5 years	14 days	14 days	Yearly	n/a
Local collector roads	3	25 years	100 years	100 years	2 years	2 years	5 years	28 days	28 days	n/a	n/a
Access roads	4	25 years	100 years	100 years	2 years	2 years	5 years	60 days	60 days	n/a	n/a
Urban streets	3	25 years	60 years	100 years	2 years	2 years	3 years	14 days	n/a	Twice yearly	Warren - three times a week Nevertire – once per fortnight

(1) Condition ratings are explained in section 4 of this plan

(2) The intervention level for pothole patching is &gt;30 mm depth and/or &gt;150 mm diameter

(3) The intervention level for edge break treatment is &gt;50 mm depth and encroaching on the carriageway

**Table 3.3: Unsealed roads minimum levels of service**

Road hierarchy	Community level of service		Technical level of service			
	Minimum condition rating (1)	Minimum driving speed	Timing for renewals	Timing for planned maintenance	Response times for unplanned maintenance	Timing for operational activities
			Re-sheeting	Grading (2)	Grading (3)	
Regional roads	3	60 – 69 km per hr	15 years	Every 15 months	14 days	n/a
Arterial roads	3	60 – 69 km per hr	15 years	Every 15 months	14 days	n/a
Primary collector roads	3	60 – 69 km per hr	15 years	Every 15 months	28 days	n/a
Local collector roads	3	60 – 69 km per hr	20 years	Every 3 years	60 days	n/a
Access roads	4	50 – 59 km per hr	25 years	Every 5 years	120 days	n/a
Urban streets	3	30 – 39 km per hr	15 years	Every 15 months	28 days	n/a

(1) Condition ratings are explained in section 4 of this plan

(2) This grading is done according to a set program of work

(3) This grading might be required, for example, after a storm or a flood

**Table 3.4: Bridges, footpaths and kerbs and gutters**

Road hierarchy	Community level of service		Technical level of service			
	Minimum condition rating (1)	Timing for renewals		Timing for planned maintenance	Response times for unplanned maintenance	Timing for operational activities
		Surface rehabilitation	Formation rehabilitation		Patching	
Bridges	3	80 years	80 years	n/a	14 days	n/a
Footpaths – on road sides	3	60 years	80 years	n/a	60 days	n/a
Footpaths – cycleways	3	10 years	30 years	n/a	28 days	n/a
Kerbs and gutters	3	60 years	60 years	n/a	60 days	n/a

(1) Condition ratings are explained in section 4 of this plan

## 4 Condition of our assets

The condition of Council’s assets is currently assessed every five years. This asset condition information is then used to plan the timing of our maintenance and capital renewal activities.

The current condition of Council’s road network is provided in this section of this plan.

Assets are rated from condition 1 to condition 5, as shown in table 4.1 below.

**Table 4.1: Condition ratings for assessing the condition of our assets**

Condition rating	Condition	Description
1	Excellent	No work required (normal maintenance)
2	Good	Only minor maintenance work required
3	Average	Maintenance work required
4	Poor	Renewal required
5	Very poor	Urgent renewal / upgrading required

The condition ratings for the components of the road network are represented in the photos in the figures below.

**Table 4.2: Representative photos of the condition ratings for sealed roads**

Condition 1	Condition 2	Condition 3	Condition 4	Condition 5
				
<b>Excellent condition</b>	<b>Good condition</b>	<b>Average condition</b>	<b>Poor condition</b>	<b>Very poor condition</b>
<ul style="list-style-type: none"> <li>▪ A newly sealed road with new line marking</li> <li>▪ Edges are also in excellent condition</li> </ul>	<ul style="list-style-type: none"> <li>▪ Some of the wearing surface (granite) is coming away</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cracks across road and on the edges indicate deterioration in the pavement layer, below the surface layer</li> </ul>	<ul style="list-style-type: none"> <li>▪ Deterioration in both the surface and the pavement</li> <li>▪ Wearing surface (granite) is coming away</li> </ul>	<ul style="list-style-type: none"> <li>▪ Major deterioration of both the surface and pavement</li> <li>▪ Edges are cracked and falling away</li> </ul>

**Table 4.3: Representative photos of the condition ratings for unsealed roads**

Condition 1	Condition 2	Condition 3	Condition 4	Condition 5
				
<b>Excellent condition</b>	<b>Good condition</b>	<b>Average condition</b>	<b>Poor condition</b>	<b>Very poor condition</b>
<ul style="list-style-type: none"> <li>▪ Evenly graded road</li> <li>▪ Edges are also in excellent condition</li> </ul>	<ul style="list-style-type: none"> <li>▪ The pavement of road is wearing well</li> </ul>	<ul style="list-style-type: none"> <li>▪ Smooth surface</li> <li>▪ Some bare patches of earthworks are exposed</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pavement has become corrugated</li> </ul>	<ul style="list-style-type: none"> <li>▪ Major deterioration of the pavement</li> <li>▪ Large potholes make road unserviceable</li> </ul>

**Table 4.4: Representative photos of the condition ratings for bridges**

Condition 1	Condition 2	Condition 3	Condition 4	Condition 5
				
<b>Excellent condition</b>	<b>Good condition</b>	<b>Average condition</b>	<b>Poor condition</b>	<b>Very poor condition</b>
<ul style="list-style-type: none"> <li>Well presented bridge and approaches</li> <li>Excellent barriers, gutters and line markings</li> </ul>	<ul style="list-style-type: none"> <li>Bridge surface is wearing well</li> <li>Bridge infrastructure is in good condition</li> </ul>	<ul style="list-style-type: none"> <li>Some cracking in the surface</li> <li>Some corrosion in bridge infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Rough road surface and approaches</li> <li>Significant corrosion is visible</li> </ul>	<ul style="list-style-type: none"> <li>Major deterioration of the bridge surface</li> <li>Structure is potentially unsound</li> </ul>

**Table 4.5: Representative photos of the condition ratings for footpaths**

Condition 1	Condition 2	Condition 3	Condition 4	Condition 5
				
<b>Excellent condition</b>	<b>Good condition</b>	<b>Average condition</b>	<b>Poor condition</b>	<b>Very poor condition</b>
<ul style="list-style-type: none"> <li>Newly constructed footpath</li> </ul>	<ul style="list-style-type: none"> <li>Footpath is wearing well and still in good condition</li> </ul>	<ul style="list-style-type: none"> <li>Some cracks and holes evident but still satisfactory</li> </ul>	<ul style="list-style-type: none"> <li>Significant cracking and unevenness in the footpath level</li> </ul>	<ul style="list-style-type: none"> <li>Major breakup of the footpath with large missing pieces</li> </ul>

**Table 4.6: Representative photos of the condition ratings for kerbs and gutters**

Condition 1	Condition 2	Condition 3	Condition 4	Condition 5
				
<p><b>Excellent condition</b></p>	<p><b>Good condition</b></p>	<p><b>Average condition</b></p>	<p><b>Poor condition</b></p>	<p><b>Very poor condition</b></p>
<ul style="list-style-type: none"> <li>▪ Newly constructed kerb and gutter</li> </ul>	<ul style="list-style-type: none"> <li>▪ Kerbs and gutters are wearing well with only minor surface cracking</li> </ul>	<ul style="list-style-type: none"> <li>▪ Some cracking and surface deterioration in kerb and gutter</li> </ul>	<ul style="list-style-type: none"> <li>▪ Significant deterioration and cracking with ground movement</li> </ul>	<ul style="list-style-type: none"> <li>▪ Major breakup of the kerb and gutter with large missing pieces</li> </ul>

The intent of Council is not to undertake renewal on an asset until it reaches its intervention level. The intervention level is the condition level below which renewal is required based on the community's level of service expectations.

Typically, road network assets in condition 4 will provide a poor level of service and will need to be renewed in the short- to medium- term. Assets in condition 5 may require urgent and immediate renewal or replacement. Funding may be needed to support the required level of renewals each year. Council will be allocating funds to an asset renewal reserve each year to help in managing these funding needs. This is discussed further in section 7 of this plan.

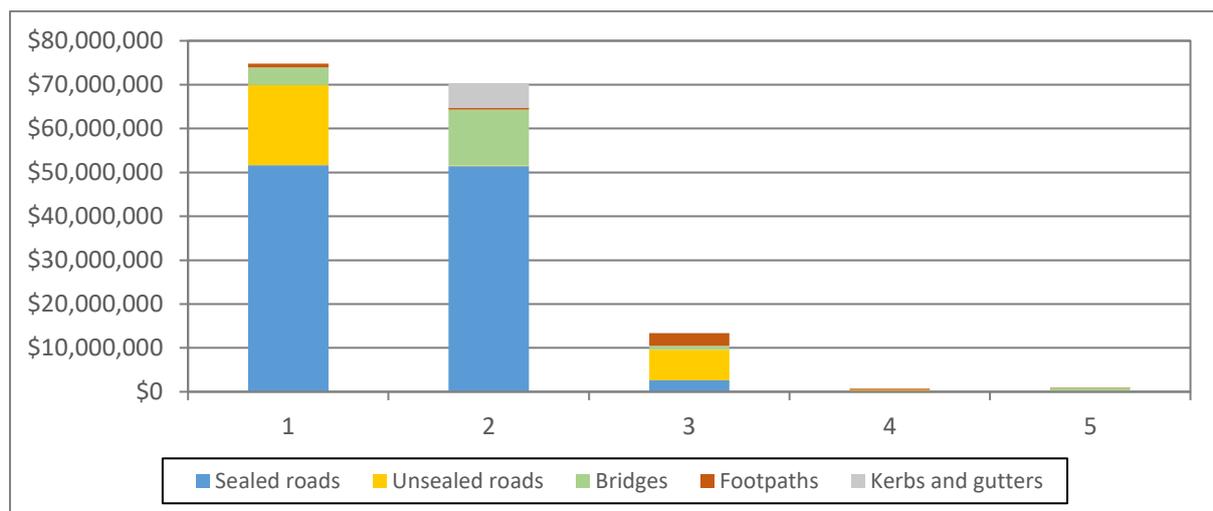
The condition of each road segment and road network component has been assessed by estimating the proportion of each road component's expected useful life that has been consumed.

The estimated current condition ratings of the assets in Council's road network are summarised in the table and graph below.

**Table 4.2: Condition ratings, road assets (estimated gross replacement cost) as at 30 June 2019**

Roads asset category	Condition rating \$					Total \$
	1	2	3	4	5	
<b>Sealed roads</b>						
Regional roads	22,468,040	32,506,067	-	-	-	54,974,108
Rural roads						
- Arterial	9,904,620	5,460,422	-	-	-	15,365,042
- Primary collector	3,207,544	4,361,055	1,969,778	-	-	9,538,377
- Local collector	13,105,496	5,323,115	469,550	-	-	18,898,161
- Access	1,957,820	309,221	-	22,382	-	2,289,423
Urban streets	1,002,981	3,445,568	182,197	-	91,195	4,721,940
<b>Total sealed roads</b>	<b>51,646,501</b>	<b>51,405,448</b>	<b>2,621,525</b>	<b>22,382</b>	<b>91,195</b>	<b>105,787,051</b>
<b>Unsealed roads</b>						
Regional roads	1,727,920	-	486,348	399,767	-	2,614,035
Rural roads						
- Arterial	1,239,168	-	717,050	-	-	1,956,218
- Primary collector	2,019,353	-	930,572	-	-	2,949,925
- Local collector	1,691,646	-	731,873	-	-	2,423,519
- Access	11,302,026	-	4,074,419	-	-	15,376,446
Urban streets	294,601	143,315	-	-	-	437,916
<b>Total unsealed roads</b>	<b>18,274,715</b>	<b>143,315</b>	<b>6,940,262</b>	<b>399,767</b>	<b>-</b>	<b>25,758,060</b>
<b>Total roads</b>	<b>69,921,216</b>	<b>51,548,763</b>	<b>9,561,787</b>	<b>422,149</b>	<b>91,195</b>	<b>131,545,111</b>
<b>Bridges</b>						
Regional	1,258,185	3,352,297	889,555	-	-	5,500,037
Rural	2,765,680	9,393,791	-	-	836,195	12,995,666
Urban	-	-	-	-	-	-
<b>Total bridges</b>	<b>4,023,865</b>	<b>12,746,088</b>	<b>889,555</b>	<b>-</b>	<b>836,195</b>	<b>18,495,703</b>
<b>Footpaths</b>						
Urban	875,283	483,000	2,907,536	267,715	75,840	4,609,374
<b>Total footpaths</b>	<b>875,283</b>	<b>483,000</b>	<b>2,907,536</b>	<b>267,715</b>	<b>75,840</b>	<b>4,609,374</b>
<b>Kerbs and gutters</b>						
Urban	-	5,537,653	188,557	-	-	5,726,210
<b>Total kerbs and gutters</b>	<b>-</b>	<b>5,537,653</b>	<b>188,557</b>	<b>-</b>	<b>-</b>	<b>5,726,210</b>
<b>Total all road assets</b>	<b>74,820,364</b>	<b>70,315,503</b>	<b>13,547,435</b>	<b>689,865</b>	<b>1,003,230</b>	<b>160,376,397</b>

**Figure 4.1: Condition ratings, road assets (estimated gross replacement cost) as at 30 June 2019**



The table and graph above show that our road network assets are mostly in an acceptable condition, i.e., they have a condition rating between 1 and 3. However, some assets are in condition 4 and 5. These are providing a poor level of service and will need to be renewed in the short- to medium-term. These assets include three old timber bridges and two cycleways.

## 5 Operations

### 5.1 Lifecycle costs

Council allocates the costs associated with the provision of its assets into four lifecycle categories:

**Table 5.1: Lifecycle cost allocation for the provision of asset services**

Activity	Description
Operations	Regular, planned activities to keep the asset in service
Maintenance	Planned or unplanned activities to ensure that the asset reaches its useful life
Renewal	The like-for-like replacement of an asset or asset component
Expansion	The upgrade or improvement of an asset The creation of a new asset

Operations and maintenance costs are current-year expenditure. Renewal and expansion costs are treated as capital expenditure.

### 5.2 Operational activities

Operational activities are those regular activities that are required to continuously provide the service expected of the asset. For our road network, these activities include the following.

**Table 5.2: Operational activities, road network**

Activity	Frequency
Mowing, slashing and vegetation control on sealed roads	See table 3.2
Street sweeping	See table 3.2
Responding to customer complaints	When received

Projected operational expenditure for the next thirty years is provided in table 10.1.

## 6 Maintenance

Routine maintenance is the regular ongoing work that is necessary to keep assets operating to ensure they reach their useful life. It includes work on an asset where a portion may fail and needs immediate repair to make it operational again.

Council's maintenance activities for our road network include the following.

**Table 6.1: Maintenance activities, road network**

Activity	Frequency
<b>Planned</b>	
Shoulder grading sealed roads	See table 3.2
Patching sealed roads	See table 3.2
Line marking sealed roads	See table 3.2
Grading unsealed roads (1)	See table 3.3
Inspecting roads for maintenance issues	Regional and arterial roads – once per fortnight Primary collector roads – once per month Local collector roads – once per quarter Access roads – annually Urban streets – once per week
Repairing guideposts and signs	Annually or as required
<b>Unplanned</b>	
Repairing (i.e. patching) sealed road surfaces (2)	See table 3.2
Repairing the shoulder and edges of a road (3)	See table 3.2
Grading unsealed roads (4)	See table 3.3
Repairing (i.e. patching) bridges, footpaths and kerbs and gutters	See table 3.4
Removing unsafe trees and other vegetation	As required
Clearing table drains, mitre drains and catch drains and repairing drain blocks	As required
Responding to incidents	As required

(1) This grading is done according to a set program of work

(2) The intervention level for pothole patching is >30 mm depth and/or >150 mm diameter

(3) The intervention level for edge break treatment is >50 mm depth and encroaching on the carriageway

(4) This grading might be required, for example, after a storm or a flood

Planned maintenance refers to maintenance that is defined and scheduled over the medium-term.

In addition to planned maintenance Council must also address road maintenance requirements resulting from emergencies and other unplanned events. This type of road maintenance is referred to as either unplanned or reactive road maintenance.

Examples of unplanned road maintenance include potholes or pavement failures resulting from storms or flash flooding, the removal of debris and maintenance required to address imminent safety issues that may present during the year.

Although Council does have a planned maintenance program for grading, grading activities can also be unplanned in nature. When unsealed roads meet a certain intervention point then there may be grading required (which is unplanned) to ensure that the road is brought up to the appropriate condition for its road hierarchy. For example, this may be required following a storm which severely damages an unsealed road.

Council's unplanned maintenance works are often carried out because of issues identified through customer requests.

Projected maintenance expenditure for the next thirty years is provided in table 10.2.

## 7 Capital renewal / rehabilitation

Capital renewal activities involve restoring, refurbishing or replacing an asset to bring it back to its original capacity and performance capability.

Renewal costs are treated as capital expenditure.

Typical capital renewal activities for roads include the following.

**Table 7.1: Typical capital renewal activities for road assets**

Activity	Description
Reseals	Capping an existing seal of a sealed road. <ul style="list-style-type: none"> <li>The seal is the top layer of a sealed road.</li> </ul>
New seals	Replacing the existing seal of a sealed road.
Heavy patching	Removing and replacing pavement material. <ul style="list-style-type: none"> <li>The pavement is the layer below the seal layer in a sealed road.</li> <li>The pavement is the top layer of an unsealed road.</li> </ul>
Pavement rehabilitation	Removing existing pavement and replacing it with a new pavement. <ul style="list-style-type: none"> <li>Applies to sealed roads.</li> </ul>
Gravel re-sheeting	Replenishing the gravel pavement on an unsealed road with new compacted gravel pavement after the existing pavement has worn away. <ul style="list-style-type: none"> <li>Applies to unsealed roads.</li> </ul>
Bridge renewal or replacement	Conducting major renewal works on an existing bridge or replacing an existing bridge
Footpath replacement	Removing an existing footpath and replacing it with a new one
Kerbs and gutters replacement	Removing an existing kerb and gutter and replacing it with a new one

The annual required renewal costs reflect the amount needed to be spent on assets that have deteriorated to a point at which renewal is required based on the community's level of service expectations.

Typically, road network assets and segments in condition 4 will provide a poor level of service and will need to be renewed in the short-to medium-term and assets in condition 5 may require urgent and immediate renewal or replacement.

Assessing the condition of our assets is not easy and is based on broad assumptions and the quality of the currently available data. Work will continue to improve the quality of our asset registers and systems to increase the accuracy of our condition data.

The process of assessing the condition of our assets starts by estimating the expected remaining useful life of each asset. This is done using long-term averages and the age of the asset. Useful lives are based on industry standards and are then adjusted, where relevant, to align with local conditions (e.g. ground movements). The range of expected useful lives for our road asset components is shown below.

**Table 7.2: Expected useful life of road asset components (years)**

Road asset category	Expected useful life (years) of asset components
Sealed roads	25-100
Unsealed roads	30-100
Bridges	50-100
Footpaths	30-100
Kerbs and gutters	80

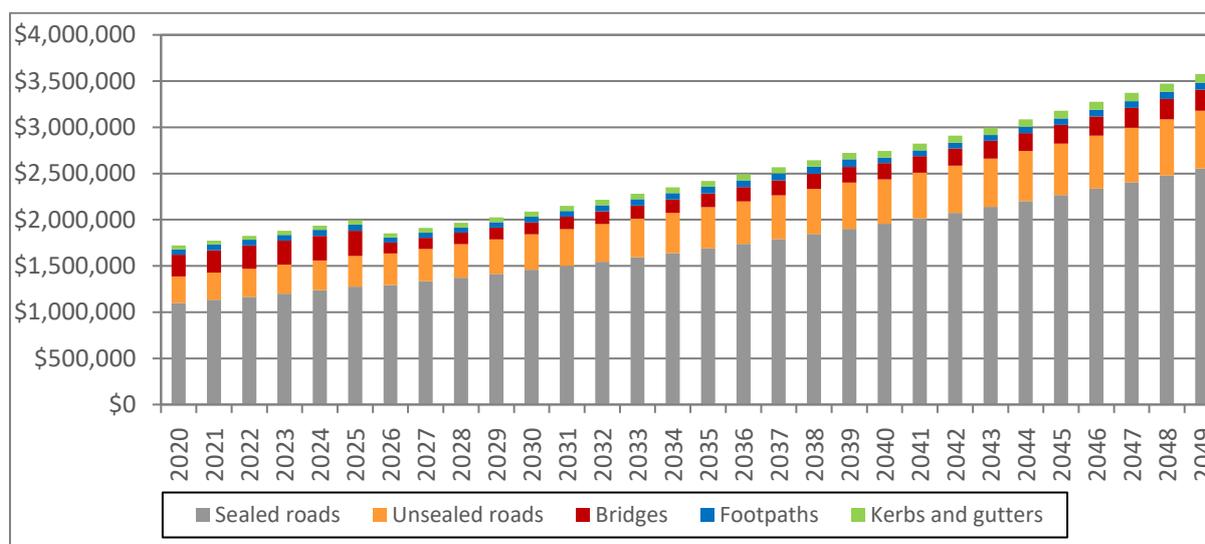
We supplement remaining useful life data with an assessment of each asset's actual condition. This is done through visible inspections.

To manage the funding needs for renewing or replacing assets that are in condition 4 or 5 each year, Council will be allocating funds to an asset renewal reserve each year. This will ensure that we are saving money from the day we install an asset to allow us to replace the asset at the end of its life. The allocation will be made against each asset on a sliding scale basis. Assets that are in condition 1 will have a small asset renewal allocation and assets that are in condition 5 will have the highest asset renewal allocation as these assets need urgent renewal or replacement. The sliding scale for the allocation of funds to the asset renewal reserve is shown below.

**Table 7.3: Allocation of funds to the asset renewal reserve each year, road assets**

Useful life	Condition rating \$				
	1	2	3	4	5
100	0.500%	0.556%	0.667%	5.000%	16.667%
80	0.625%	0.694%	0.833%	5.000%	16.667%
60	0.833%	0.926%	1.111%	5.000%	16.667%
50	1.000%	1.111%	1.333%	5.000%	16.667%
30	1.667%	1.852%	2.222%	5.000%	16.667%
25	2.000%	2.222%	2.667%	5.000%	16.667%

Using this analysis, Council has identified an asset renewal allocation for each year over the next thirty years. This is summarised in the graph below. Detailed numbers are provided in table 10.3. The asset renewal reserve allocations are indexed by 3.0% p.a. for inflation.

**Figure 7.1: Estimated annual required asset renewal reserve allocation for Council’s road assets, 2020 to 2049**

Some of the specific capital renewal projects that will be undertaken include the following.

**Table 7.4: Specific future capital renewal projects, road assets**

No.	Asset	Comment	Estimated cost* \$
1	Wonbobbie Bridge	Replacement	TBD
2	Tenandra Bridge	Replacement	TBD
3	Newe Park Bridge	Replacement	TBD
4	Carinda Road (road 333)	Road rehabilitation and widening of segments 58 to 72 (14 km)	TBD
5	Sealed rural roads	Resealing under the resealing work program	TBD
6	Sealed urban streets	Resealing under the resealing work program	TBD
7	Unsealed rural roads	Gravel re-sheeting under the re-sheeting work program	TBD
	<b>Total</b>		<b>TBD</b>

\* Estimates need to be confirmed

## 8 Capital expansion – upgrades and new assets

Capital expansion can refer to either the upgrade of existing assets or the acquisition of new assets.

Upgrades are improvements of existing assets to provide a higher level of service.

New assets are assets that have been built to support growth, new social or environmental needs or to create additional service level capacity.

Council is not anticipating any significant changes in the populations of Warren, Nevertire or Collie. Therefore, there will be little change in the demand for our road network and it is unlikely that the size of our road network will be expanded. Further, an extensive road network already exists within the Shire.

Overall, we will be focussing our limited budgetary funding on maintaining and renewing our road assets rather than expanding the network of roads.

Any capital expansion of our road network would fall into one of the following categories.

**Table 8.1: Typical capital expansion activities for road assets**

Activity	Description
New road seals	Sealing an unsealed road
New road construction	Constructing a completely new road
New bridge	Constructing a new bridge where none previously existed
New footpath	Constructing a completely new footpath
New kerbs and gutters	Constructing a completely new kerb and gutter

No significant road capital expansion projects are currently planned over the next thirty years, as shown in table 10.4.

## 9 Disposal plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation.

No road assets are identified for possible decommissioning and disposal.

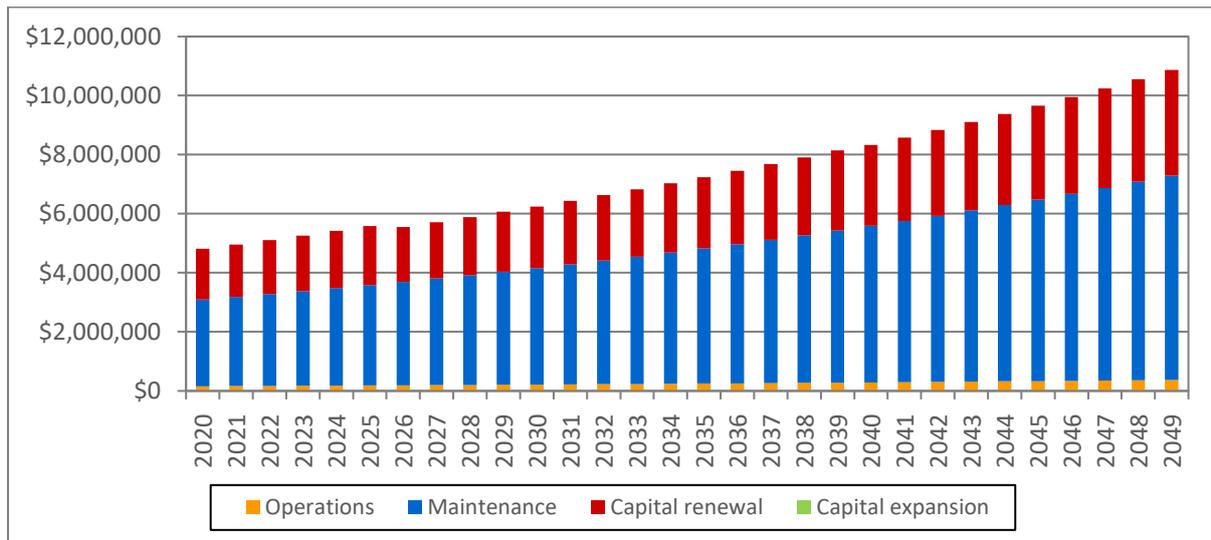
## 10 Financial plan

The financial plan for the road network projects the lifecycle expenditure for the network over the next thirty years and considers a funding plan to support these costs.

### 10.1 Road network asset lifecycle expenditure

The projected lifecycle expenditure on operations, maintenance, renewal and expansion activities for the road network over the next thirty years is shown in the following graph.

**Figure 10.1: Thirty-year projected lifecycle expenditure on Council’s road assets, 2020 to 2049**



This graph shows where our funds will be allocated to our road network over the next thirty years.

Our annual operations and maintenance costs are not expected to fluctuate significantly over the next thirty years as our road network is not expected to be expanded. However, these costs have been indexed by 3.0% p.a. for inflation.

Our road assets have long estimated useful lives. The projected lifecycle expenditure includes funds to be allocated to an asset renewal reserve each year to ensure that assets can be replaced when they reach the end of their life. As with operations and maintenance costs, this asset renewal reserve allocation has been indexed by 3.0% p.a. for inflation.

No significant road capital expansion projects are currently planned over the next thirty years.

The detailed projected lifecycle costs for the road network over the next thirty years are shown in the following tables.

**Table 10.1: Operations costs for Council’s road assets, 2020 to 2049 (\$000)**

Description	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
<b>Operations (1)</b>																														
Sealed roads	159	164	169	174	180	185	190	196	202	208	214	221	227	234	241	248	256	264	272	280	288	297	306	315	324	334	344	354	365	376
Unsealed roads	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bridges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Footpaths	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kerbs and gutters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total operations</b>	<b>159</b>	<b>164</b>	<b>169</b>	<b>174</b>	<b>180</b>	<b>185</b>	<b>190</b>	<b>196</b>	<b>202</b>	<b>208</b>	<b>214</b>	<b>221</b>	<b>227</b>	<b>234</b>	<b>241</b>	<b>248</b>	<b>256</b>	<b>264</b>	<b>272</b>	<b>280</b>	<b>288</b>	<b>297</b>	<b>306</b>	<b>315</b>	<b>324</b>	<b>334</b>	<b>344</b>	<b>354</b>	<b>365</b>	<b>376</b>

(1) Operations costs are indexed by 3.0% p.a. for inflation

**Table 10.2: Maintenance costs for Council’s road assets, 2020 to 2049 (\$000)**

Description	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
<b>Maintenance (1)</b>																														
Sealed roads	1,179	1,215	1,251	1,289	1,328	1,367	1,408	1,451	1,494	1,539	1,585	1,633	1,682	1,732	1,784	1,838	1,893	1,949	2,008	2,068	2,130	2,194	2,260	2,328	2,398	2,470	2,544	2,620	2,699	2,780
Unsealed roads	1,675	1,726	1,777	1,831	1,886	1,942	2,000	2,060	2,122	2,186	2,252	2,319	2,389	2,460	2,534	2,610	2,688	2,769	2,852	2,938	3,026	3,117	3,210	3,306	3,406	3,508	3,613	3,721	3,833	3,948
Bridges	41	43	44	45	47	48	50	51	53	54	56	57	59	61	63	65	67	69	71	73	75	77	79	82	84	87	89	92	95	98
Footpaths	35	36	37	38	40	41	42	43	45	46	47	49	50	52	53	55	56	58	60	62	64	65	67	69	71	74	76	78	80	83
Kerbs and gutters	4	4	4	4	5	5	5	5	5	5	5	6	6	6	6	6	6	7	7	7	7	7	8	8	8	8	9	9	9	9
<b>Total maintenance</b>	<b>2,936</b>	<b>3,024</b>	<b>3,114</b>	<b>3,208</b>	<b>3,304</b>	<b>3,403</b>	<b>3,505</b>	<b>3,610</b>	<b>3,719</b>	<b>3,830</b>	<b>3,945</b>	<b>4,063</b>	<b>4,185</b>	<b>4,311</b>	<b>4,440</b>	<b>4,573</b>	<b>4,711</b>	<b>4,852</b>	<b>4,997</b>	<b>5,147</b>	<b>5,302</b>	<b>5,461</b>	<b>5,625</b>	<b>5,793</b>	<b>5,967</b>	<b>6,146</b>	<b>6,331</b>	<b>6,521</b>	<b>6,716</b>	<b>6,918</b>

(1) Maintenance costs are indexed by 3.0% p.a. for inflation

**Table 10.3: List of capital renewal reserve allocations for Council’s road assets, 2020 to 2049 (\$000)**

Description	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
<b>Capital renewal (1)</b>																														
Sealed - Regional	539	555	571	589	606	624	643	662	682	703	724	746	768	791	815	839	864	890	917	944	973	1,002	1,032	1,063	1,095	1,128	1,162	1,196	1,232	1,269
Sealed - Rural	491	505	521	536	552	569	586	604	622	640	660	679	700	721	742	765	788	811	835	861	884	911	938	966	995	1,025	1,056	1,088	1,120	1,154
Sealed - Urban	70	72	74	77	79	81	66	68	70	72	74	76	78	81	83	86	88	91	94	96	99	102	105	109	112	115	119	122	126	130
Unsealed - Regional	39	41	42	43	44	46	47	49	50	51	53	55	56	58	60	61	63	65	67	69	35	36	37	38	40	41	42	43	44	46
Unsealed - Rural	241	249	256	264	272	280	288	297	306	315	324	334	344	355	365	376	387	399	411	423	436	449	463	476	491	505	521	536	552	569
Unsealed - Urban	5	5	5	5	6	6	6	6	6	6	7	7	7	7	8	8	8	8	8	9	9	9	10	10	10	10	11	11	11	12
Bridges - Regional	31	32	33	34	35	36	37	38	39	40	41	43	44	45	47	48	49	51	53	54	56	57	59	61	63	65	67	69	71	73
Bridges - Rural	205	212	218	224	231	238	79	81	84	86	89	91	94	97	100	103	106	109	112	116	119	123	126	130	134	138	142	147	151	156
Footpaths	59	60	62	64	66	68	55	56	58	60	62	64	65	67	69	71	74	76	78	80	59	60	62	64	66	68	70	72	74	77
Kerbs and gutters	40	41	42	44	45	46	48	49	51	52	54	55	57	59	61	62	64	66	68	70	72	74	77	79	81	84	86	89	92	94
<b>Total capital renewal</b>	<b>1,720</b>	<b>1,772</b>	<b>1,825</b>	<b>1,880</b>	<b>1,936</b>	<b>1,994</b>	<b>1,854</b>	<b>1,910</b>	<b>1,967</b>	<b>2,026</b>	<b>2,087</b>	<b>2,150</b>	<b>2,214</b>	<b>2,281</b>	<b>2,349</b>	<b>2,419</b>	<b>2,492</b>	<b>2,567</b>	<b>2,644</b>	<b>2,723</b>	<b>2,742</b>	<b>2,825</b>	<b>2,909</b>	<b>2,997</b>	<b>3,087</b>	<b>3,179</b>	<b>3,275</b>	<b>3,373</b>	<b>3,474</b>	<b>3,578</b>

(1) Capital renewal reserve allocations are indexed by 3.0% p.a. for inflation

**Table 10.4: List of capital expansion projects for Council’s road assets, 2020 to 2049 (\$000)**

Description	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
<b>Capital expansion</b>																														
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total capital expansion</b>	<b>-</b>																													

## 10.2 Funding plan for the road network

Funding for our road network is derived from various sources. These include:

- Grants
- General funds
- Borrowings.

Based on the size of our communities, managing our road network is not sustainable. A large portion of the funding for our road network is sourced from grants. These grants include:

- Roads to Recovery grants for local roads
- Block grants for regional roads
- REPAIR program grants for the renewal of regional roads.

Council applies for grant funding when significant road renewal projects need to be undertaken due to the poor condition of those roads.

General funds are used in two ways for our road network. Firstly, they are used to support the maintenance of our rural and urban local road network. Secondly, they are used to build an asset renewal reserve each year. This will help in reducing Council's reliance on grant funding for renewal projects.

Council also has the option of borrowing to support investments in our road network. This option requires careful monitoring of Council's debt service ratio.

### 10.3 Summary of expenditure and funding sources

Table 10.5 is the financial plan for the road network for the next thirty years. It summarises the projected asset lifecycle expenditure and projected funding.

**Table 10.5: Thirty-year financial plan for Council’s road assets, 2020 to 2049 (\$’000)**

Description	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
<b>Income</b>																														
Grants (1)	2,011	2,072	2,134	2,198	2,264	2,332	2,401	2,473	2,548	2,624	2,703	2,784	2,867	2,953	3,042	3,133	3,227	3,324	3,424	3,527	3,632	3,741	3,854	3,969	4,088	4,211	4,337	4,467	4,601	4,739
Known grants for capital expansion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Borrowings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total income</b>	<b>2,011</b>	<b>2,072</b>	<b>2,134</b>	<b>2,198</b>	<b>2,264</b>	<b>2,332</b>	<b>2,401</b>	<b>2,473</b>	<b>2,548</b>	<b>2,624</b>	<b>2,703</b>	<b>2,784</b>	<b>2,867</b>	<b>2,953</b>	<b>3,042</b>	<b>3,133</b>	<b>3,227</b>	<b>3,324</b>	<b>3,424</b>	<b>3,527</b>	<b>3,632</b>	<b>3,741</b>	<b>3,854</b>	<b>3,969</b>	<b>4,088</b>	<b>4,211</b>	<b>4,337</b>	<b>4,467</b>	<b>4,601</b>	<b>4,739</b>
<b>Expenditure</b>																														
Operations (2)	159	164	169	174	180	185	190	196	202	208	214	221	227	234	241	248	256	264	272	280	288	297	306	315	324	334	344	354	365	376
Maintenance (3)	2,936	3,024	3,114	3,208	3,304	3,403	3,505	3,610	3,719	3,830	3,945	4,063	4,185	4,311	4,440	4,573	4,711	4,852	4,997	5,147	5,302	5,461	5,625	5,793	5,967	6,146	6,331	6,521	6,716	6,918
Capital renewal (4)	1,720	1,772	1,825	1,880	1,936	1,994	1,854	1,910	1,967	2,026	2,087	2,150	2,214	2,281	2,349	2,419	2,492	2,567	2,644	2,723	2,742	2,825	2,909	2,997	3,087	3,179	3,275	3,373	3,474	3,578
Capital expansion (5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total expenditure</b>	<b>4,815</b>	<b>4,960</b>	<b>5,108</b>	<b>5,262</b>	<b>5,419</b>	<b>5,582</b>	<b>5,550</b>	<b>5,716</b>	<b>5,888</b>	<b>6,064</b>	<b>6,246</b>	<b>6,434</b>	<b>6,627</b>	<b>6,826</b>	<b>7,030</b>	<b>7,241</b>	<b>7,459</b>	<b>7,682</b>	<b>7,913</b>	<b>8,150</b>	<b>8,332</b>	<b>8,582</b>	<b>8,840</b>	<b>9,105</b>	<b>9,378</b>	<b>9,659</b>	<b>9,949</b>	<b>10,248</b>	<b>10,555</b>	<b>10,872</b>
<b>Surplus / (shortfall)</b>	<b>-2,804</b>	<b>-2,888</b>	<b>-2,974</b>	<b>-3,064</b>	<b>-3,155</b>	<b>-3,250</b>	<b>-3,149</b>	<b>-3,243</b>	<b>-3,340</b>	<b>-3,440</b>	<b>-3,543</b>	<b>-3,650</b>	<b>-3,760</b>	<b>-3,873</b>	<b>-3,988</b>	<b>-4,108</b>	<b>-4,232</b>	<b>-4,358</b>	<b>-4,489</b>	<b>-4,623</b>	<b>-4,700</b>	<b>-4,841</b>	<b>-4,986</b>	<b>-5,136</b>	<b>-5,290</b>	<b>-5,448</b>	<b>-5,612</b>	<b>-5,781</b>	<b>-5,954</b>	<b>-6,133</b>

(1) Road grants are indexed at 3.0% p.a. for inflation

(2) Details of operations costs are provided in table 10.1 above

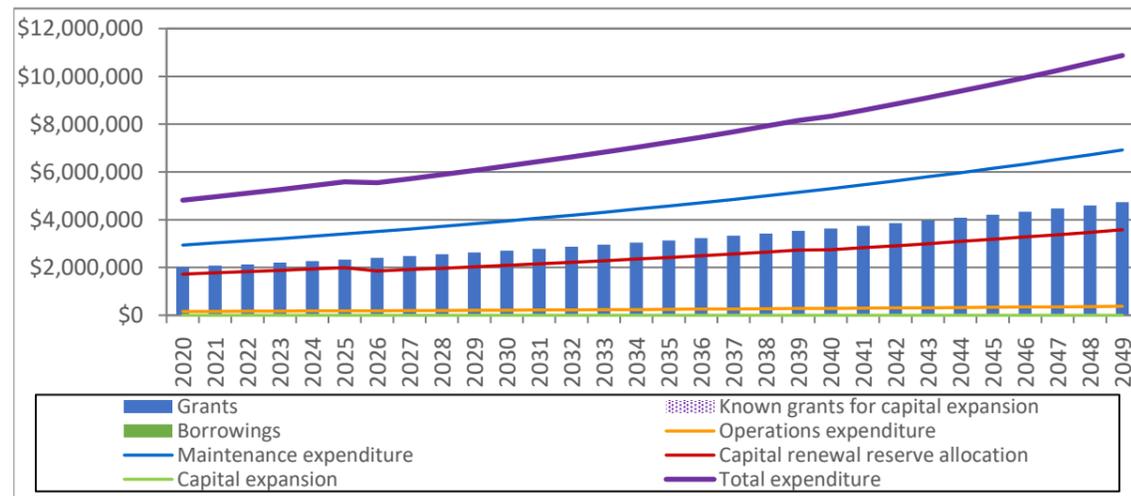
(3) Details of maintenance costs are provided in table 10.2 above

(4) Details of specific capital renewal reserve allocations are provided in table 10.3 above

(5) Details of specific capital expansion projects are provided in table 10.4 above

Figure 10.2 summarises the projected expenditure and funding picture for the road network over the next thirty years.

**Figure 10.2: Thirty-year financial plan for Council’s road assets, 2020 to 2049**



The table and graph above highlight the gap in the required funding for the road network over the next thirty years.

It is anticipated that there will be a shortfall, i.e. total income will be less than our operations, maintenance and capital expenses. This is shown in the last line of table 10.5 and in figure 10.2 as the gap between the purple total expenditure line and the top of the income bars. Whilst both income and total expenditure are indexed at 3.0% p.a. for inflation, the gap widens over time as income starts from a lower base.

## 11 Key performance benchmarks

Council monitors and assesses its performance with respect to maintaining and renewing its assets using key performance benchmarks. These benchmarks are used to measure how well Council is meeting the community's expectations in relation to the condition of its assets.

Council recognises the importance of working with the local community when managing the Shire's assets on behalf of the community. Council works with the community in two important ways. Firstly, it creates community service expectations. These summarise what the community wants. Secondly, it measures its progress in meeting these community service expectations against key performance benchmarks.

By using community-focussed performance benchmarks, Council can ensure that everything it does in maintaining and improving its road network is directly relevant to the community.

The key performance benchmarks that have been established for the road network are outlined in table 3.1.

Council will be incorporating these benchmarks into its Customer Relationship Management (CRM) system so that performance against these benchmarks can be tracked, measured and improved.

## 12 Risk management plan

### 12.1 Critical risks

Council is committed to the identification and elimination or reduction of risks associated with hazards that arise throughout Council's operations as far as reasonably practicable. Our risk assessment process:

- Identifies credible risks
- Analyses the likelihood of the risk event occurring
- Assesses the consequences should the event occur
- Develops a risk rating ('likelihood' times 'consequences')
- Evaluates the risk
- Details a risk treatment plan for non-acceptable risks.

The critical risks identified for our road network are summarised in the following table. The table includes the risk treatment plans that have been developed to reduce the likelihood of these risks and to limit their impact.

**Table 12.1: Critical risks for our road network**

No.	Description	Likelihood / frequency	Consequence	Risk rating	Risk treatment plan
1	Roads and road assets are damaged by a severe storm or fire	Unlikely / 15 years for regional roads 10 years for local sealed roads 5 years for local unsealed roads	<ul style="list-style-type: none"> <li>• Roads becomes impassable or unsafe for road users</li> </ul>	High	<ul style="list-style-type: none"> <li>• Obtain funding for repair</li> <li>• Repair</li> </ul>
2	Roads and road assets deteriorate over time and become deformed	Rare / 30 years for regional roads 20 years for local sealed roads 10 years for local unsealed roads	<ul style="list-style-type: none"> <li>• Roads become unsafe for road users</li> <li>• Travelling times are increased</li> </ul>	Moderate	<ul style="list-style-type: none"> <li>• Obtain additional funding for renewal</li> <li>• Renew</li> </ul>

### 12.2 Critical assets

Critical assets are specific assets which have a high consequence of failure. For example, failure would cause a financial loss within the community or a marked reduction of service. Generally, critical assets do not necessarily have a high likelihood of failure.

By identifying critical assets and critical failure modes, Council can appropriately target and refine inspection regimes, maintenance plans and capital expenditure plans.

Operations and maintenances activities may also be targeted to mitigate critical assets failure and maintain service levels. These activities may include increased inspection frequency and higher maintenance intervention levels.

Council has determined that any road that meets one or more of the following criteria is deemed to be a critical asset:

- Shire fire breaks (generally regional and rural arterial roads)
- Single road access (for times where there is fire or flood)
- Evacuation roads (for times where there is fire or flood)
- Access to the hospital
- Access to airstrips
- Access to Council infrastructure (e.g. sewer, water and dump facilities, etc.)
- Access to critical authority assets (towers, exchanges, gas facilities, etc.)
- Access into neighbouring Shires.

## 13 Asset management improvement program

Council has identified several initiatives to improve its asset management capabilities in relation to its road network. These are outlined below.

**Table 13.1: Asset management improvement program, road network**

Area	Task	Who	When
1. Systems and processes	<p>Implement an integrated asset management system and associated processes. This will enable Council to:</p> <ul style="list-style-type: none"> <li>Integrate its engineering and finance functions</li> <li>Store and access all asset management data from a single source</li> <li>Manage, upload and retrieve asset condition ratings more regularly and in a consistent format</li> <li>Track patterns of asset deterioration</li> <li>Produce timely and accurate reports including:               <ul style="list-style-type: none"> <li>The annual financial reports</li> <li>Detailed asset costing and valuation reports</li> <li>Asset component reports</li> <li>Financial and sustainability benchmark reports</li> <li>Reports supporting the LTFP</li> </ul> </li> <li>Simplify all asset management decision making</li> <li>Enhance Council's predictive capabilities (using up-to-date condition data and unit rates) to assist with decisions on where it should be allocating its asset funding or if it should be seeking additional funding</li> <li>Support the engineering services division by producing and tracking work orders and then transferring the costs of this work to the general ledger in real time</li> </ul>	Divisional Manager Finance and Administration Services / Divisional Manager Engineering Services	December 2021
2. Accuracy and completeness of asset condition data	<p>Capture accurate and complete asset condition data regularly. This will allow Council to:</p> <ul style="list-style-type: none"> <li>Improve its understanding of asset deterioration patterns over time</li> <li>Allocate capital renewal funding according to the actual condition of Council's assets</li> </ul>	Divisional Manager Engineering Services	May 2021
3. Community expectation benchmarks	<p>Track Council's performance against its community expectation benchmarks. This will ensure that it will:</p> <ul style="list-style-type: none"> <li>Maintain its assets at the level that is required by the community</li> </ul>	Divisional Manager Engineering Services	May 2021
4. Productivity improvements	<p>Implement a productivity improvement program to:</p> <ul style="list-style-type: none"> <li>Reduce Council's unit rate costs for asset renewal</li> <li>Increase the time between rehabilitation work</li> <li>Ensure that Council is only renewing assets that need renewing</li> </ul>	Divisional Manager Engineering Services	December 2021

## Appendices

### Appendix 1: Listing of sealed regional and rural roads (including frequency in which capital renewal, maintenance and operational activities are undertaken)

Sealing	Road category	Hierarchy	Confirm code	Name	Length km	Net carrying value \$	Estimated gross replacement cost \$	Reseals (renewal)	Pavement rehabilitation (renewal)	Shoulder grading (planned maintenance)	Patching (planned maintenance)	Line marking (planned maintenance)	Slashing (operational)
Sealed road	Regional road	Regional road	R0202	Marthaguy Road	77.610	10,675,624	12,056,382	14 years	60 years			3 years	Twice yearly
Sealed road	Regional road	Regional road	R0333	Carinda Road	164.880	24,189,480	27,982,804						
Sealed road	Regional road	Regional road	R0347	Collie-Trangie Road	21.670	3,065,026	3,547,226						
Sealed road	Regional road	Regional road	R0424	Marra Road	22.400	3,117,401	3,716,916						
Sealed road	Regional road	Regional road	R7515	Warren Road	41.490	6,795,859	7,670,780						
Sealed road	Rural road	Arterial	RL058	Nevetire-Bogan Road	40.460	5,157,470	5,705,047	20 years	80 years				
Sealed road	Rural road	Arterial	RL059	Tottenham Road	34.100	4,675,844	5,289,044						
Sealed road	Rural road	Arterial	RL065	Old Warren Road	23.400	3,079,437	3,435,531						
Sealed road	Rural road	Arterial	RL091	Industrial Access Road	5.600	851,851	935,419						
Sealed road	Rural road	Primary collector	RL012	Lemongrove Road	29.760	3,578,881	4,304,285						
Sealed road	Rural road	Primary collector	RL027	Bullagreen Lane	32.210	3,548,437	4,474,046	25 years	100 years	2 years	2 years	5 years	n/a
Sealed road	Rural road	Primary collector	RL037	Collie Road	5.530	686,348	760,045						
Sealed road	Rural road	Local collector	RL005	Buckiinguy Road	22.820	2,604,054	3,121,493						
Sealed road	Rural road	Local collector	RL035	Bourbah Road	9.240	1,308,188	1,438,742						
Sealed road	Rural road	Local collector	RL060	Dandaloo Road	3.000	317,132	348,128						
Sealed road	Rural road	Local collector	RL064	Ellengerah Road	20.130	2,941,606	3,409,412						
Sealed road	Rural road	Local collector	RL066	Wambianna Road	35.675	4,659,004	5,247,258						
Sealed road	Rural road	Local collector	RL068	Bundemar Road	22.800	2,729,301	3,019,337						
Sealed road	Rural road	Local collector	RL073	Udora Road	5.965	870,646	959,232						
Sealed road	Rural road	Local collector	RL075	Pineclump Soldiers Road	5.920	590,685	714,382						
Sealed road	Rural road	Local collector	RL083	Rifle Range Road	5.460	556,427	640,178						
Sealed road	Rural road	Access	RL007	Sunshine Road	0.995	94,351	118,826						
Sealed road	Rural road	Access	RL032	Gunnegaldra Road	3.500	255,162	295,273						
Sealed road	Rural road	Access	RL046	Widgeree Road	3.168	366,109	408,088						
Sealed road	Rural road	Access	RL049	Arthur Butler Drive	0.525	-	-						
Sealed road	Rural road	Access	RL053	Thornton Road	9.300	1,408,247	1,439,075						
Sealed road	Rural road	Access	RL054	Cathundral-Bogan Road	1.693	21,545	28,162						
Total sealed regional and rural roads					649.301	88,144,114	101,065,110						

Part of these roads in yellow are also unsealed

## Appendix 2: Listing of unsealed regional and rural roads (including frequency in which capital renewal and maintenance activities are undertaken)

Sealing	Road category	Hierarchy	Confirm code	Name	Length km	Paved	Net carrying value \$	Estimated gross replacement cost \$	Re-sheeting (renewal)	Grading (planned maintenance)
Unsealed road	Regional road	Regional road	R0424	Marra Road	10.660	Yes	1,018,084	1,215,687	15 years	Every 15 months
Unsealed road	Regional road	Regional road	R7516	Billybingbone Road	21.262	Yes	1,205,742	1,398,348		
Unsealed road	Rural road	Arterial	RL065	Old Warren Road	23.600	Yes	1,145,676	1,305,556		
Unsealed road	Rural road	Arterial	RL098	Colane Road	14.300	Yes	543,332	650,662		
Unsealed road	Rural road	Primary collector	RL003	Canonba Road	14.550	No	351,576	351,576	15 years (where paved)	
Unsealed road	Rural road	Primary collector	RL023	Gradgery Lane	22.900	Yes	826,290	989,514		
Unsealed road	Rural road	Primary collector	RL036	Gibson Way	23.360	Partly	779,077	853,995		
Unsealed road	Rural road	Primary collector	RL062	Buddabadah Road	16.560	Yes	630,326	754,840	20 years (where paved)	3 years
Unsealed road	Rural road	Local collector	RL033	Castlebar Road	9.700	Yes	376,807	442,886		
Unsealed road	Rural road	Local collector	RL060	Dandaloo Road	23.350	Partly	641,691	659,344		
Unsealed road	Rural road	Local collector	RL064	Ellengerah Road	6.362	Yes	193,454	238,875		
Unsealed road	Rural road	Local collector	RL068	Bundemar Road	11.000	Yes	454,764	542,417		
Unsealed road	Rural road	Local collector	RL075	Pineclump Soldiers Road	10.972	Yes	418,483	499,590	25 years (where paved)	5 years
Unsealed road	Rural road	Local collector	RL089	Leeches Creek Road	0.880	Yes	33,742	40,408		
Unsealed road	Rural road	Access	RL001	Oxley Road	6.558	No	127,200	127,200		
Unsealed road	Rural road	Access	RL002	Sanctuary Road	3.100	No	76,296	76,296		
Unsealed road	Rural road	Access	RL004	Sullivans Road	5.300	No	126,984	126,984		
Unsealed road	Rural road	Access	RL006	Retreat Road	10.480	No	251,016	251,016		
Unsealed road	Rural road	Access	RL008	Ben Avon Road	1.680	No	42,168	42,168		
Unsealed road	Rural road	Access	RL009	Booka Road	51.130	Partly	1,509,918	1,599,890		
Unsealed road	Rural road	Access	RL010	Killaloo Lane	6.885	No	165,600	165,600		
Unsealed road	Rural road	Access	RL011	Catons Road	16.090	No	386,400	386,400		
Unsealed road	Rural road	Access	RL014	Griffiths Lane	1.676	No	39,936	39,936		
Unsealed road	Rural road	Access	RL015	Johnsons Road	16.630	No	397,656	397,656		
Unsealed road	Rural road	Access	RL016	Notts Lane	7.595	No	181,752	181,752		
Unsealed road	Rural road	Access	RL017	Lamphs Road	4.370	No	104,952	104,952		
Unsealed road	Rural road	Access	RL018	Mannix Road	4.845	No	116,136	116,136		
Unsealed road	Rural road	Access	RL019	Macks Road	6.640	No	159,360	159,360		
Unsealed road	Rural road	Access	RL020	Nellievale Road	6.820	No	111,816	111,816		
Unsealed road	Rural road	Access	RL021	Duffity Road	6.795	No	164,712	164,712		
Unsealed road	Rural road	Access	RL022	Gillendoon Road	2.530	Yes	96,745	106,568		
Unsealed road	Rural road	Access	RL024	Hatton Lane	8.300	Yes	328,011	392,806		
Unsealed road	Rural road	Access	RL025	Cullemburrawang Road	6.400	No	153,840	153,840		
Unsealed road	Rural road	Access	RL026	Drunglear Road	10.100	Yes	493,064	580,871		
Unsealed road	Rural road	Access	RL028	Rothsay Road	6.190	Partly	205,222	235,212		
Unsealed road	Rural road	Access	RL029	Belah View Road	6.072	No	145,728	145,728		

Sealing	Road category	Hierarchy	Confirm code	Name	Length km	Paved	Net carrying value \$	Estimated gross replacement cost \$	Re-sheeting (renewal)	Grading (planned maintenance)
Unsealed road	Rural road	Access	RL030	Wonbobbie Road	11.000	Partly	321,526	351,516	25 years (where paved)	5 years
Unsealed road	Rural road	Access	RL031	Pigeonbah Road	21.690	Yes	561,892	672,888		
Unsealed road	Rural road	Access	RL032	Gunnegaldra Road	0.500	No	-	-		
Unsealed road	Rural road	Access	RL034	Pleasant View Lane	11.840	Yes	481,484	561,881	25 years	
Unsealed road	Rural road	Access	RL038	Yungundi Road	8.780	Yes	334,463	400,533		
Unsealed road	Rural road	Access	RL040	Merrigal Road	17.300	Yes	748,475	880,609		
Unsealed road	Rural road	Access	RL041	Dicks Camp Road	2.000	Yes	97,014	116,178		
Unsealed road	Rural road	Access	RL042	Boss Lane	4.370	No	75,168	75,168		
Unsealed road	Rural road	Access	RL043	Armatree Road	5.445	Yes	118,876	142,359	25 years	
Unsealed road	Rural road	Access	RL044	Charliewille Road	2.062	No	49,488	49,488		
Unsealed road	Rural road	Access	RL045	Emby West Road	4.760	No	114,792	114,792		
Unsealed road	Rural road	Access	RL048	Ringorah Road	11.555	Yes	440,852	527,938	25 years	
Unsealed road	Rural road	Access	RL050	Christies Lane	3.895	Yes	345,201	382,690		
Unsealed road	Rural road	Access	RL051	Oakley Road	7.315	Yes	290,174	342,443		
Unsealed road	Rural road	Access	RL052	Windabyne Bridge Road	0.515	No	13,416	13,416		
Unsealed road	Rural road	Access	RL054	Cathundral-Bogan Road	9.780	Yes	733,206	815,680	25 years	
Unsealed road	Rural road	Access	RL056	Tabratong Lane	18.070	Yes	686,538	822,156		
Unsealed road	Rural road	Access	RL061	Elsinore Road	13.570	Yes	538,379	635,409		
Unsealed road	Rural road	Access	RL063	Heatherbrae Road	4.000	Yes	151,252	181,131		
Unsealed road	Rural road	Access	RL069	Mullengudgerly Road	8.030	Yes	306,490	367,034		
Unsealed road	Rural road	Access	RL071	Godsons Lane	2.760	Yes	-	-		
Unsealed road	Rural road	Access	RL072	Snakes Lane	2.400	No	57,888	57,888		
Unsealed road	Rural road	Access	RL077	Wambianna Soldiers Road	5.355	Yes	167,232	200,266	25 years	
Unsealed road	Rural road	Access	RL079	Greentree Road	4.455	No	64,584	64,584		
Unsealed road	Rural road	Access	RL081	Kiameron Road	10.183	No	244,392	244,392		
Unsealed road	Rural road	Access	RL086	Ellerslie Road	2.311	Yes	87,715	105,042	25 years	
Unsealed road	Rural road	Access	RL087	Cremorne Road	5.460	Yes	156,756	187,721		
Unsealed road	Rural road	Access	RL088	Quigley Carroll Road	2.800	No	67,920	67,920		
Unsealed road	Rural road	Access	RL090	Inglewood Road	0.780	No	18,600	18,600		
Unsealed road	Rural road	Access	RL093	Yarrandale Road	3.195	Yes	244,807	270,866	25 years	
Unsealed road	Rural road	Access	RL094	Lauriston Road	5.100	No	122,400	122,400		
Unsealed road	Rural road	Access	RL095	Gunningba Road	13.800	Yes	534,079	634,844	25 years	
Unsealed road	Rural road	Access	RL097	Kianga-Marebone Road	10.965	No	232,320	232,320		
Unsealed road	Rural road	Access	RL099	Radnedge Road	0.430	No	10,416	10,416		
Unsealed road	Rural road	Access		Not classified	-	n/a	38,976	38,976		
Total unsealed regional and rural road					642.113		22,460,330	25,320,144		

Part of these roads in yellow are also sealed

## Appendix 3: Listing of sealed urban streets (including frequency in which capital renewal, maintenance and operational activities are undertaken)

Sealing	Road category	Hierarchy	Confirm code	Name	Length km	Net carrying value \$	Estimated gross replacement cost \$	Reseals (renewal)	Pavement rehabilitation (renewal)	Shoulder grading (planned maintenance)	Patching (planned maintenance)	Line marking (planned maintenance)	Slashing (operational)
Sealed road	Urban street	Urban street	RU002	Azar Place	0.060	8,662	10,360	25 years	100 years	2 years	2 years	3 years	Twice yearly
Sealed road	Urban street	Urban street	RU004	Banks Street	0.160	35,383	40,930						
Sealed road	Urban street	Urban street	RU008	Boss Avenue	0.170	22,068	26,395						
Sealed road	Urban street	Urban street	RU010	Boston Street	0.350	88,523	105,883						
Sealed road	Urban street	Urban street	RU012	Brennan Place	0.040	6,326	7,566						
Sealed road	Urban street	Urban street	RU014	Bruce Street	0.200	41,544	48,033						
Sealed road	Urban street	Urban street	RU016	Bundemar Street	0.675	140,422	167,959						
Sealed road	Urban street	Urban street	RU018	Burton Street	0.960	172,985	206,907						
Sealed road	Urban street	Urban street	RU020	Chester Street	1.138	255,829	305,997						
Sealed road	Urban street	Urban street	RU024	Cobb Street	0.400	43,489	52,017						
Sealed road	Urban street	Urban street	RU028	Cook Street	0.180	31,448	37,616						
Sealed road	Urban street	Urban street	RU030	Coonamble Road	1.200	219,960	263,094						
Sealed road	Urban street	Urban street	RU032	Deacon Drive	0.497	72,242	86,408						
Sealed road	Urban street	Urban street	RU034	Doctor Kater Drive	0.299	30,191	36,111						
Sealed road	Urban street	Urban street	RU036	Dubbo Street	2.805	512,942	610,772						
Sealed road	Urban street	Urban street	RU038	Frawley Street	0.210	24,763	29,620						
Sealed road	Urban street	Urban street	RU040	Garden Avenue	0.675	106,961	127,936						
Sealed road	Urban street	Urban street	RU042	Gillendoon Street	0.500	101,498	121,402						
Sealed road	Urban street	Urban street	RU044	Glen Street	0.440	88,297	100,828						
Sealed road	Urban street	Urban street	RU048	Hale Street	0.520	76,543	89,132						
Sealed road	Urban street	Urban street	RU052	Hume Street	0.100	14,808	17,712						
Sealed road	Urban street	Urban street	RU054	Johns Avenue	0.360	42,015	50,254						
Sealed road	Urban street	Urban street	RU056	Lawson Street	0.415	115,515	138,167						
Sealed road	Urban street	Urban street	RU058	Mabel Street	0.137	28,609	34,219						
Sealed road	Urban street	Urban street	RU060	Macquarie Drive	0.285	45,933	54,940						
Sealed road	Urban street	Urban street	RU062	Magiebra Place	0.045	5,787	6,921						
Sealed road	Urban street	Urban street	RU064	Milson Street	0.560	118,691	137,403						
Sealed road	Urban street	Urban street	RU066	Myra Street	0.160	28,780	34,051						
Sealed road	Urban street	Urban street	RU070	Old Showground Road	0.786	65,916	78,842						
Sealed road	Urban street	Urban street	RU072	Orchard Street	0.570	88,739	106,140						
Sealed road	Urban street	Urban street	RU074	Oxley Parade	0.320	50,857	60,830						
Sealed road	Urban street	Urban street	RU076	Pittman Parade	0.375	68,863	82,367						
Sealed road	Urban street	Urban street	RU078	Railway Parade	0.236	25,662	30,694						
Sealed road	Urban street	Urban street	RU080	Readford Street	0.515	156,200	186,831						
Sealed road	Urban street	Urban street	RU082	Reinhard Way	0.200	18,653	22,311						
Sealed road	Urban street	Urban street	RU084	River Avenue	0.550	80,796	96,640						

Sealing	Road category	Hierarchy	Confirm code	Name	Length km	Net carrying value \$	Estimated gross replacement cost \$	Reseals (renewal)	Pavement rehabilitation (renewal)	Shoulder grading (planned maintenance)	Patching (planned maintenance)	Line marking (planned maintenance)	Slashing (operational)
Sealed road	Urban street	Urban street	RU086	River View Street	0.071	11,250	13,456	25 years	100 years	2 years	2 years	3 years	Twice yearly
Sealed road	Urban street	Urban street	RU090	Roland Street	0.255	39,931	47,761						
Sealed road	Urban street	Urban street	RU094	Stafford Street	0.640	194,765	232,959						
Sealed road	Urban street	Urban street	RU096	Stubbs Avenue	0.175	33,393	37,962						
Sealed road	Urban street	Urban street	RU098	Sturt Street	0.120	19,193	22,956						
Sealed road	Urban street	Urban street	RU102	Thornton Avenue	1.138	129,604	155,019						
Sealed road	Urban street	Urban street	RU104	Wilson Street	0.380	87,409	104,550						
Sealed road	Urban street	Urban street	RU106	Zora Street	0.500	124,892	143,146						
Sealed road	Urban street	Urban street	RU208	Clyde Street	0.140	23,494	44,064						
Sealed road	Urban street	Urban street	RU212	Gobabla Street	0.140	8,811	16,525						
Sealed road	Urban street	Urban street	RU216	Narromine Street	0.480	83,414	156,444						
Sealed road	Urban street	Urban street	RU218	Trangie Street	0.480	23,912	44,847						
Sealed road	Urban street	Urban street	RU	Warren Street	0.400								
Sealed road	Urban street	Urban street	RU306	Bundemar Street	0.485	30,586	57,891						
Sealed road	Urban street	Urban street	RU310	Curban Street	0.125	5,741	10,867						
Sealed road	Urban street	Urban street	RU316	Wonbobbie Street	0.120	10,675	20,204						
Sealed road	Urban street	Urban street	RU	Coonamble Street	0.580								
Total sealed urban streets					23.322	3,862,965	4,721,940						

Part of these streets in yellow are also unsealed

**Appendix 4: Listing of unsealed urban streets (including frequency in which capital renewal and maintenance activities are undertaken)**

Sealing	Road category	Town	Hierarchy	Confirm code	Name	Length km	Paved	Net carrying value \$	Estimated gross replacement cost \$	Re-sheeting (renewal)	Grading (planned maintenance)
Unsealed road	Urban street	Warren	Urban street	RU006	Blomfield Avenue	0.086	Yes	-	-	15 years	Every 15 months
Unsealed road	Urban street	Warren	Urban street	RU022	Chester Lane	0.630	Yes	24,436	27,304		
Unsealed road	Urban street	Warren	Urban street	RU026	Colley Place	0.100	Yes	-	-		
Unsealed road	Urban street	Warren	Urban street	RU046	Gunningba Parkway	0.910	Yes	35,297	39,440		
Unsealed road	Urban street	Warren	Urban street	RU048	Hale Street	0.135	Yes	5,237	5,852		
Unsealed road	Urban street	Warren	Urban street	RU050	Hilton Lane	0.640	Yes	24,823	27,737		
Unsealed road	Urban street	Warren	Urban street	RU068	Oates Avenue	0.191	Yes	7,409	8,278		
Unsealed road	Urban street	Warren	Urban street	RU088	Robert Ney Crescent	0.108	Yes	4,799	5,362		
Unsealed road	Urban street	Warren	Urban street	RU092	Silo Row	0.908	Yes	40,342	45,077		
Unsealed road	Urban street	Warren	Urban street	RU100	Thomas Sullivan Crescent	0.258	Yes	-	-		
Unsealed road	Urban street	Warren	Urban street	RU104	Wilson Street	0.200	Yes	7,756	8,666		
Unsealed road	Urban street	Warren	Urban street	RU	Stephens Avenue		Yes				
Unsealed road	Urban street	Nevertire	Urban street	RU204	Belerenga Lane	0.260	Yes	13,719	14,892		
Unsealed road	Urban street	Nevertire	Urban street	RU206	Belerenga Street	0.260	Yes	14,430	15,665		
Unsealed road	Urban street	Nevertire	Urban street	RU208	Clyde Street	0.255	Yes	34,015	36,925		
Unsealed road	Urban street	Nevertire	Urban street	RU210	Cremorne Street	0.265	Yes	19,854	21,552		
Unsealed road	Urban street	Nevertire	Urban street	RU212	Gobabla Street	0.125	Yes	4,835	5,249		
Unsealed road	Urban street	Nevertire	Urban street	RU214	Gunningbar Street	0.485	Yes	34,694	37,662		
Unsealed road	Urban street	Nevertire	Urban street	RU216	Narromine Street	0.225	Yes	13,734	14,909		
Unsealed road	Urban street	Nevertire	Urban street	RU	Egelabra Street	0.500	Yes				
Unsealed road	Urban street	Collie	Urban street	RU304	Boonara Street	0.258	Yes	9,095	10,165		
Unsealed road	Urban street	Collie	Urban street	RU306	Bundemar Street	0.815	Yes	35,289	39,440		
Unsealed road	Urban street	Collie	Urban street	RU308	Calga Street	0.390	Yes	13,422	15,000		
Unsealed road	Urban street	Collie	Urban street	RU310	Curban Street	0.265	Yes	9,363	10,465		
Unsealed road	Urban street	Collie	Urban street	RU312	Inglega Street	0.410	Yes	15,705	17,552		
Unsealed road	Urban street	Collie	Urban street	RU314	Wambianna Street	0.345	Yes	6,028	6,737		
Unsealed road	Urban street	Collie	Urban street	RU316	Wonbobbie Street	0.765	Yes	21,463	23,987		
Total unsealed urban streets						9.789		395,743	437,916		

Part of these streets in yellow are also sealed