

# ASSET MANAGEMENT PLAN - ROADS (2023 – 2027)

Shire of York – Asset Management System

## Document Control

<b>Document Name:</b>	Shire of York Asset Management Plan – Roads (AM Plan)
<b>Document ID:</b>	TA22017_3_York_AMP_Roads_6.0
<b>Document Owner:</b>	Executive Manager Infrastructure and Development Services
<b>Document Status:</b>	Draft
<b>Document Authority:</b>	Administrative
<b>Review Scheduled for:</b>	July 2028 (5 years)

## Revision Schedule

Rev No	Date	Revision Details	Author	Reviewer	Approver
V1.0	Nov 2022	First draft – not issued	Talis	Not reviewed	n/a
V2.0	Nov 2022	Second Draft	Talis	Shire staff	n/a
V3.0	Jan 2023	Third draft	Talis	Not reviewed	n/a
V4.0	Feb 2023	Fourth Draft	Talis	Shire staff	EMIDS
V5.0	May 2023	Draft for Exec Review	Talis	ELT	EMIDS
V6.0	June 2023	Final for Council Information	Talis	EMIDS	EMIDS

## Contents

<b>Acknowledgement of Country .....</b>	<b>5</b>
<b>1 Executive Summary .....</b>	<b>2</b>
1.1 The Purpose of the Plan .....	2
1.2 Asset Description .....	2
1.3 Levels of Service .....	3
1.4 Future Demand .....	5
1.5 Lifecycle Management Plan .....	6
1.6 Financial Summary .....	6
1.7 Asset Management Planning Practices .....	1
1.8 Monitoring and Improvement Program .....	2
<b>2 Introduction .....</b>	<b>4</b>
2.1 Background .....	4
2.2 Goals and Objectives of Asset Ownership .....	8
<b>3 Levels of Service .....</b>	<b>10</b>
3.1 Customer Research and Expectations .....	10
3.2 Legislative Requirements .....	12
3.3 Customer Values .....	13
3.4 Customer Levels of Service .....	14
3.5 Technical Levels of Service .....	17
<b>4 Future Demand .....</b>	<b>20</b>
4.1 Demand Drivers .....	20
4.2 Demand Forecasts .....	20
4.3 Demand Impact and Demand Management Plan .....	20
4.4 Asset Programs to meet Demand .....	22
4.5 Climate Change Adaptation .....	22
<b>5 Lifecycle Management Plan .....</b>	<b>24</b>
5.1 Background Data .....	24
5.2 Operations and Maintenance Plan .....	26
5.3 Renewal Plan .....	30
5.4 Summary of future renewal costs .....	31
5.5 Acquisition Plan .....	33
5.6 Disposal Plan .....	35
5.7 Summary of asset forecast costs .....	35

---

<b>6</b>	<b>Risk Management</b> .....	<b>38</b>
6.1	Critical Assets .....	38
6.2	Risk Assessment .....	43
6.3	Infrastructure Resilience Approach .....	47
6.4	Service and Risk Trade-Offs .....	47
<b>7</b>	<b>Financial Summary</b> .....	<b>48</b>
7.1	Financial Sustainability and Projections.....	48
7.2	Funding Strategy .....	49
7.3	Valuation Forecasts.....	50
7.4	Key Assumptions Made in Financial Forecasts .....	50
7.5	Forecast Reliability and Confidence .....	51
<b>8</b>	<b>Plan Improvement and Monitoring</b> .....	<b>53</b>
8.1	Status of Asset Management Practices .....	53
8.2	Improvement Plan .....	53
8.3	Monitoring and Review Procedures .....	54
8.4	Performance Measures.....	54
<b>9</b>	<b>References</b> .....	<b>55</b>
<b>Appendix A</b>	<b>Acquisition Forecast</b> .....	<b>56</b>
<b>Appendix B</b>	<b>Operation Forecast</b> .....	<b>57</b>
<b>Appendix C</b>	<b>Maintenance Forecast</b> .....	<b>58</b>
<b>Appendix D</b>	<b>Renewal Forecast Summary</b> .....	<b>59</b>
<b>Appendix E</b>	<b>Disposal Summary</b> .....	<b>60</b>

---

## **Acknowledgement of Country**

*The Shire of York acknowledge the Traditional Custodians of the land, the Ballardong people of the Noongar nation and pays respects to Elders past, present and emerging. We recognise the unique and valuable contribution the Ballardong Noongar people have made and continue to make to our culture and in our community. The land on which we live, meet, and thrive as a community always was and always will be Noongar land.*

<b>Definitions</b>	
Term	Description
<b>Asset Register</b>	Means a record of asset information considered worthy of separate identification including inventory, historical, condition, construction, technical, and financial
<b>Acquisition</b>	Means the creation of a new asset to meet additional service requirements
<b>Capex</b>	Means Capital Expenditure
<b>Contractor</b>	Means the person or persons, corporation, or corporations whose Response is accepted by the principal, and includes the executors or administrators, successors and assigns of such person or persons, corporation, or corporations
<b>Council</b>	Means the Council of the Shire of York
<b>Grant</b>	Means external funding/monies that are received by the Shire that contribute towards capital works and/or maintenance and operational activities.
<b>Level of Service (LOS)</b>	means meeting community expectations in relation to the quality and quantity of services delivered by Council required to meet the agreed or expected performance. In some contexts, it could be an adjusted performance expectations/standards of an asset in coordination with stakeholders due to limited financial resources.
<b>Lifecycle</b>	Means the cycle of activities that an asset goes through while it retains an identity as a particular asset
<b>Lifecycle Cost</b>	Means the total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, disposal, and renewal costs
<b>Local Government</b>	Means the Shire of York
<b>Maintenance</b>	Means actions taken to preserve, repair or restore condition and functionality of assets. For ex: corrective repairs, inspection, repair of potholes and cracks on road etc. Maintenance can be reactively performed or proactively performed as part of a planned preventative program of works.
<b>Municipal Funds</b>	Means funds approved for expenditure as part of the annual budget adoption process through Council.
<b>Operations</b>	Means the regular activities to provide public health, safety, and amenity and to enable the assets to function e.g., road sweeping, grass mowing, cleaning, street lighting and graffiti removal and support services for the performance of maintenance and asset management services.
<b>Opex</b>	Means Operating Expenditure
<b>Renewal</b>	Means restores, rehabilitates, replaces existing asset to its original capacity. This may include the fitment of new components necessary to meet new legislative requirements in order that the asset may achieve compliance and remain in use
<b>Risk</b>	Means probability and consequence of an event that could impact on the Council's ability to meet its corporate objectives
<b>Shire</b>	Means the Shire of York
<b>Transport Assets</b>	Means to include roads, bridges, drainage, and footpaths
<b>Upgrade</b>	Means enhances existing asset to provide a significantly higher level of service
<b>Useful Life</b>	Means the period over which a depreciable asset is expected to be used.
<b>Principal</b>	Shire of York
<b>SoY</b>	Shire of York

## 1 Executive Summary

### 1.1 The Purpose of the Plan

This document ‘**Asset Management Plan-Roads**’ (AM Plan) provides key information on road infrastructure assets within the Shire of York (the Shire). This AM Plan has been developed for the management of road assets. The AM Plan combines multi-disciplinary management techniques (technical and financial) for the performance of services across four (4) key phases of the lifecycle of the asset, this is known as the ‘Asset Management Lifecycle’.

The four (4) key phases of the Asset Management Lifecycle and their associated services are summarised in **Table 1- Asset Management Lifecycle Phases**. This AM Plan establishes key parameters for the management of Road assets that include Levels of Service, Future Demand, Lifecycle Management Plans, Financial Projections alongside the implementation of Asset Management Practices including Performance Monitoring and Improvement. This AM Plan links with the Shire’s Long-Term Financial Plan (LTFP) to ensure funding is aligned to meet infrastructure requirements over the same ten (10) year period and to ensure that road assets meet Council’s priorities for service delivery.

**Table 1- Asset Management Lifecycle Phases**

Phases	1- Plan	2- Acquire	3- Operate & maintain	4- Dispose
Services	Asset Management Planning	Investment of funds to acquire new asset or renew asset – Capital funds are typically allocated for these activities.	Allocation of funds to maintain and operate existing assets- Operational funds are typically allocated for these activities across the “useful life” of the asset*	Asset disposal-removal of the asset from service through unpredictable failure or planned decommissioning.
*Useful Life of the asset is the period over which a depreciable asset is expected to perform				

### 1.2 Asset Description

This document (AM Plan) is limited to discussing road assets that are owned or controlled by Council, i.e., it excludes private roads or roads managed by Main Roads. **Table 2- Shire of York Road Assets** below summarises the types of roads and car park services, quantity, material construction and kilometres of roads within the Shire of York boundary.

**Table 2-Shire of York Road Assets**

Class	Sub Class	Quantity	Unit
Road	Sealed	268	Km
	Unsealed	467	Km
	Car Park	15	each

The above infrastructure assets have a replacement value estimated at **\$155,916 Million** as at **30 June 2022**.

## 1.3 Levels of Service

A 'Level of service' typically means the expectation of the quality and quantity of services required to be performed to realize an agreed condition and/or service provision. The types of services required to be performed vary depending on the phase of the Asset Management Lifecycle.

Key programs that assist with managing the Level of Service include:

- Asset Management Planning and Monitoring (Asset Performance)
- Asset Renewal or Acquisition (Construction)
- Operational and Maintenance Services (Service Standards)
- Asset Disposal (Asset Acquittal)

This AM plan assumes that the Shire holds the objective of maintaining existing Levels of Service across all road assets and that key programs are developed across the asset management lifecycle to reflect this objective. The current financial allocation for planned maintenance works in the Long-Term Financial Plan (LTFP) is insufficient to continue to provide maintain existing Levels of Service at current levels for the planning period.

Maintaining existing Levels of Service means the asset will maintain current strength, width, speed, delineation, guideposts, barriers, and trafficable surface conditions. The budget assumptions for maintaining service levels do not make provision for any future demand changes as outlined in section **1.4 Future Demand** in this document.

Key consequences of not allocating sufficient funds to ensure that the existing Level of Service is maintained are summarized below:

### Key consequences of underfunded planned maintenance budget:

- Current maintenance practices (reactive mobilisations), continue without improvement and with restrictions on the desired standard, absence of prioritisation and allocation of dedicated resources to planned maintenance works.
- Repeat Reactive mobilisations have the potential to absorb funds from planned works budgets compromising required levels of renewal works including resurfacing works.
- Whilst the regional road program is a funded program and set out in the Long-Term Financial Plan, renewal timelines for these roads may not match community expectation and/or an acceptable level of service may not be able to be maintained unless intensive maintenance works and funds are allocated to achieve this.
- Underfunded planned maintenance budgets may mean funding is limited for re-sheeting of unsealed roads except at the expense of the resurfacing program (and vice versa).
- The backlog of road pavement works will not be addressed, and these roads will remain understrength and rough to travel on.

**Table 3- Works Programs across the Asset Management lifecycle** identifies the key works programs though the four (4) phases of the Asset Management Lifecycle.

**Table 3-Works Programs Across the Asset Management Lifecycle**

Phases	1-Plan	2-Acquire	3-Operate & Maintain	4-Dispose
--------	--------	-----------	----------------------	-----------

Programs	<b>Asset Management Planning</b>	<b>Lifecycle Renewal</b> (partial asset replacement)	<b>Operational Services</b> ("soft" services)	<b>Asset Disposal</b> (removal of asset from service)
	<b>Asset Monitoring</b> (demand monitoring, condition monitoring)	<b>Acquisition</b> (Full asset replacement)	<b>Maintenance Services</b> (Planned/Preventative) ("hard services")	
			<b>Maintenance Services</b> (Reactive Maintenance Services) ("hard services")	

The programs to maintain existing Levels of Service are typically divided into two (2) funding types these are the Operating Budget (Opex) and Capital Budget (Capex). **Table 4- Road Works Programs and Table 5- Car Park Works Programs**, identifies key service tasks required to be performed in each program in order that current Levels of Service are maintained. **Table 4 and 5** also identify funding types and funding sources for each program.

**Table 4-Road Works Programs (Plans)**

Lifecycle Phase	Program	Service Task	Frequency	Funding Type	Funding Source
1	<b>Asset Management Planning</b>	Strategic Planning	Annual Review	Opex	Municipal
1	<b>Demand Monitoring (Counter Program)</b>	Strategic Planning	subject to asset criticality	Opex	Municipal
2	<b>Lifecycle Renewal</b>	Capital Program (resealing or resheeting)	subject to asset criticality, condition rating	Capex	Grant*
2	<b>Acquisition</b>	Capital Program (upgrade i.e., widening etc.)	subject to asset criticality, condition rating	Capex	Grant*
3	<b>Operational Services</b>	Street sweeping & Inspections	Annual works program	Opex	Municipal
3	<b>Maintenance Services</b>	Planned Maintenance Works	Annual works program	Opex	Municipal
3	<b>Maintenance Services</b>	Reactive Maintenance works	Annual works as required	Opex	Municipal
4	<b>Asset Disposal</b>	Asset disposal as part of renewal	As required	Capex	Grant*

**Table 5- Car Park- Works Program (Plans)**

Lifecycle Phase	Program	Service Task	Frequency	Funding Type	Funding Source
-----------------	---------	--------------	-----------	--------------	----------------

1	<b>Asset Management Planning</b>	Strategic Planning	Annual Review	Opex	Municipal
2	<b>Lifecycle Renewal</b>	Capital Program (resealing)	subject to asset condition	Capex	Grant**
2	<b>Acquisition</b>	Capital Program (new carpark)	subject to asset demand	Capex	Grant**
3	<b>Operational Services</b>	Street sweeping, Inspections	Annual works program	Opex	Municipal
3	<b>Maintenance Services</b>	Planned Maintenance Works (line marking, potholes)	Annual works program	Opex	Municipal
3	<b>Maintenance Services</b>	Reactive Maintenance works	Annual works as required	Opex	Municipal
4	<b>Asset Disposal</b>	Asset disposal as part of renewal	As required	Capex	Grant**

\*Grant funding through LRCI, Roads to Recovery, Black Spot, regional Road Safety Program

\*\*Grant funding through LRCI or other grants

## 1.4 Future Demand

Service levels across road network assets may be influenced by future demand. Key factors that influence demand are summarised in **Table 6- Key Factors Influencing Demand**.

**Table 6- Key Factors Influencing Demand**

Item no.	Factor
1.	Infill residential development
2	Precinct development
3	Service Expectation increases (heavy vehicles)
4	Service Expectation increases (seal more unsealed roads)
5	Service expectation increases (safety standards)
6	Economy tightening
7	Changing Environmental conditions

It is important that Asset Managers monitor factors that may change and impact demand in order that asset management programs can be adjusted to maintain agreed service levels.

Along with demand management (monitoring), asset managers may develop risk management strategies to deal with unpredictable changes in demand levels that may impact on service levels and/or impact on asset failures. **Table 7- Key Tasks to Manage Asset Failure Risk**, summarizes the types of strategies or tasks that asset managers may perform to manage demand and service levels.

**Table 7- Key Tasks to Manage Asset Failure Risk**

Item no.	Task
----------	------

1.	Complete Regular Asset Valuations
2	Insure Assets
3	Develop Emergency Response Plans/Procedures for service outages
4	Assess Asset Criticality and timelines for grant funding
5	Regular Demand Monitoring including the development of a Counter Program

Importantly the impact of the failure of some road assets may be higher than others as they form critical parts of the local or regional transport network. Demand monitoring helps to inform asset managers of the potential need for an increase in service level, the associated economic impact and timelines for asset renewal works. Demand monitoring allows the asset manager to be proactive and ensure that works schedules can be adjusted to changing demand conditions to ensure the asset does not fail or reduce the severity of unpredictable failures.

## 1.5 Lifecycle Management Plan

### 1.5.1 What does it Cost?

This AM Plan forecasts costs necessary to manage the delivery of works programs through each phase of the asset management lifecycle. Costs are assigned to each asset lifecycle phase, these phases include the operational and maintenance phase, lifecycle renewal or acquisition phase, and disposal phase.

The AM Plan may be adjusted for a range of time periods and to suit available budgets. The AM Plan typically helps to inform Long-Term Financial Planning periods of ten (10) years.

This AM Plan estimates that the gross funding requirement over the 10-year period to meet all desired service levels is \$38.589 Million, as compared to a committed funding in the LTFP of \$22.800 Million. (Both amounts include capital and operational expenses).

The \$15.789 Million differential will require the development of key operational strategies and the development of operational plans to manage the differential whilst also maintaining the existing Level of Service.

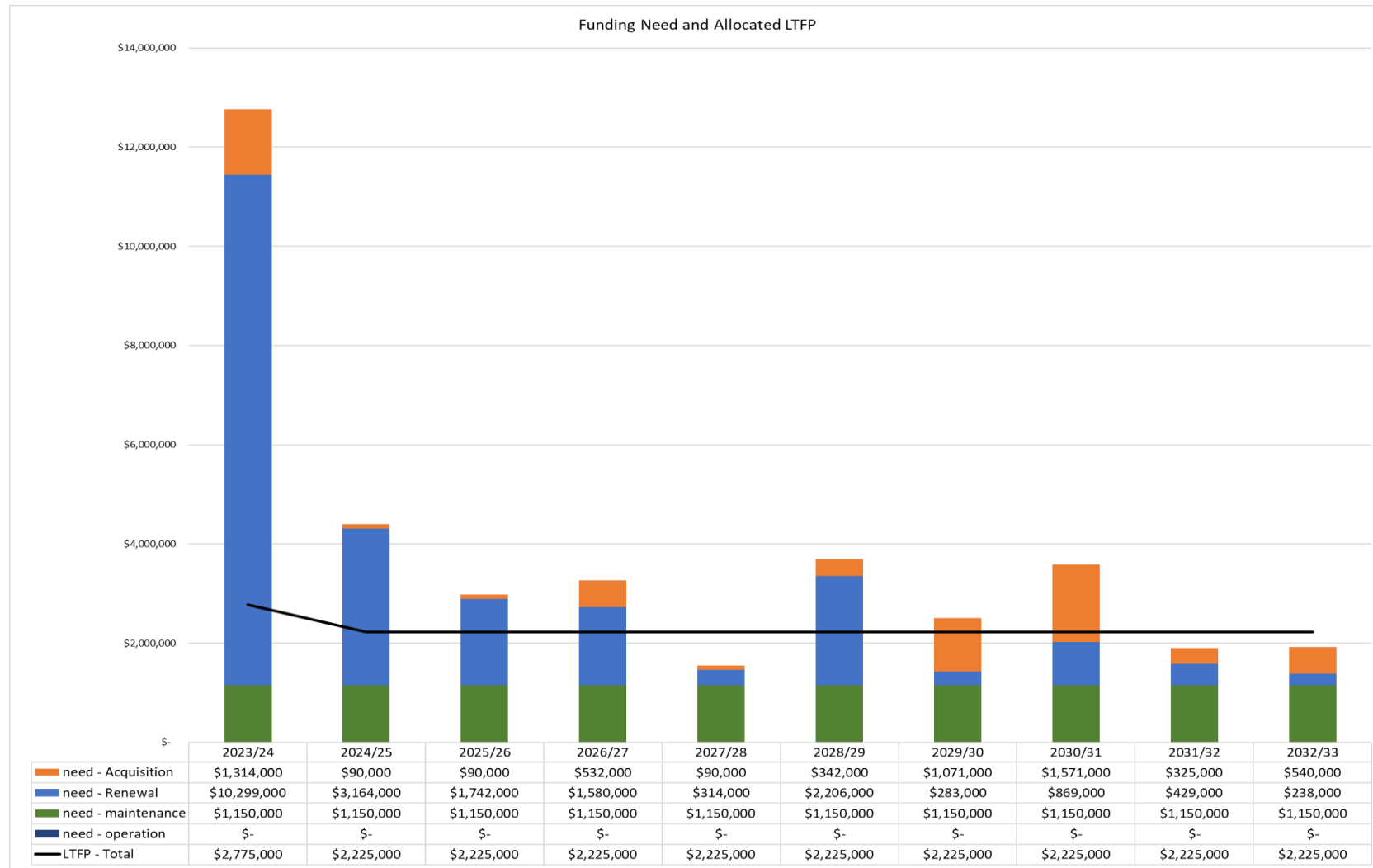
## 1.6 Financial Summary

### 1.6.1 What we will do

The estimated available funding for the 10-year period is \$22.8 Million (or \$2.28 Million on average per year) as per the Long-Term Financial plan or Planned Budget. This figure equates to 59% of the cost to sustain the current level of service at the lowest lifecycle cost including address the current works backlog.

The financial reality is that only what is funded in the long-term financial plan can be expended. And key decision making is required around the operational strategy, service levels and financial requirements in the development and planning of operational and capital budgets.

**Figure 1-Forecast Life cycle Costs and Planned Budget**



Note: Figure Values shown are at 30 June 2022.

**Table 8** summarises key tasks with the capital and maintenance works programs for the road network

**Table 8- Capital and Maintenance Works Programs Roads & Carparks**

Asset Class	Program	Program Name	Program Description	Adopted Service levels
car park	Operation (Opex)	Car park operations	Included in maintenance,	Routine inspect car parks weekly,
car park	Maintenance (Opex)	Car park maintenance	Routine maintenance. Patching, signs, line marking, fences and other repairs.	Sweep town centre car parks
car park	Renewal (Capex)	Car park renewal	Resurfacing in spray seal, pavement repairs but no pavement rehab or replacement	Resurface sealed car parks and resheet gravel carparks when condition rating exceeds 4.0
car park	Acquisition (Capex)	Car park upgrade or new	Sealing, widening, landscaping, etc	No specified improvement projects identified. No car parking standards defined.
road	Support (Opex)	Transport Strategy	10 yearly plan to identify road service requirements, freight routes, gap analysis and priorities, consultation.	Not defined. However the purpose of this project would be to define and agree the expected service standards for roads with the community
road	Support (Opex)	Valuation & FWP update	Condition rating, valuation and update of FWP	Complete condition survey and data update every 5 years as a specified requirement of the DLGSC and financial reporting
road	Support (Opex)	Material Supply	Cost to find, develop and operate gravel supply pits and water sources	No service standard defined. However note that almost all projects rely on a continued supply of road building material (gravel)
road	Maintenance (Opex)	Urgent and safety repairs	Item reserved for urgent and unplanned significant works in response to unexpected events or concerns (weather, traffic accident, asset failure, flood, bushfire, etc)	Shire to respond to dangerous situations, extreme events, traffic accidents, significant asset failures and other issues within 2 hours.

Asset Class	Program	Program Name	Program Description	Adopted Service Levels
road	Support (Opex)	Traffic count program	Traffic counts	Traffic counts on all regional roads and other significant roads per Regional Road Program requirements. (generally 4 weeks of data collection on each road at multiple points)
road	Maintenance (Opex)	Unsealed roads summer grading	Light Maintenance grading - grader alone	Light maintenance (summer) grade minor unsealed roads once annually, and significant gravel roads twice annually
road	Maintenance (Opex)	Unsealed roads winter grading	Heavy winter maintenance grade - full team	Heavy maintenance (winter) grade all unsealed roads once annually.
road	Maintenance (Opex)	General Road Maintenance	General maintenance activities not included elsewhere. Generally funding of the patrol truck for find and fix, customer complaints	Inspect every sealed road at least 6 monthly. Generic service levels to fix damaged signs, potholes, debris on road and similar. Nominally on a find and fix basis.
road	Maintenance (Opex)	Shoulder & drain reinstatements	Edgebreak, shoulder grading and clearing of table drains	Repair edge breaks on sealed roads exceeding MRWA standard (60mm) within 52 weeks.
road	Maintenance (Opex)	Kerb repairs	Repair of kerbs.	Replace broken kerbing sections (condition 5)
road	Maintenance (Opex)	Vegetation Pruning	Tree pruning	Prune trees on regional roads to maintain traffic free envelope, prune other trees for fall safety, conflict with power lines and traffic envelope on selected basis
road	Maintenance (Opex)	Weed control	verge spraying and slashing	Weed spray all road shoulders once per annum
road	Renewal (Capex)	Unsealed roads resheeting	Unsealed road resheeting program	Resheet all unsealed paved roads when condition is worse than 4.0. Does not include paving of unsealed formed roads.

Asset Class	Program	Program Name	Program Description	Adopted Service levels
road	Renewal (Capex)	Resurfacing	Sealed road resurfacing	Resurface sealed roads when surface condition is worse than 4.0. No differentiation made between road hierarchy. Excludes Regional roads.
road	Renewal (Capex)	Pavement rehabilitation	Pavement rehabilitation and resurfacing	Rehabilitate pavement and replace seal on roads when pavement condition is worse than 4.0
road	Renewal (Capex)	Town Centre renewal program	Resurfacing, kerb replacements, landscaping and other aesthetic and rehabilitation activities	Council resolution. No specification or scope of works provided. Suggest commission a streetscape concept plan including landscaping, traffic control, parking, lighting, etc.
road	Acquisition (Capex)	Regional Road Program	Upgrading or renewal of regional roads	(i) All regional roads to be designed and built to 7m seal, 9m pavement; (ii) sealed all weather access; (iv)pavement and seal condition better than rating 4.0
road	Acquisition (Capex)	Local Roads improvement program	Upgrading of Local Roads (including Local Distributors, Access places, laneways)	No specific requirements. This program is intended for surfacing of unsealed town streets, significant unsealed rural roads, realignment, and other improvements
road	Acquisition (Capex)	Black Spot (Safety) Program	Identify and improve road safety problems	Annually identify 1 to 2 worst safety intersections or road sections by road safety audit and address safety risks

**Table 8 Key Points:**

- If there is insufficient capital to renew assets, then typically there will need to be an increased expenditure in Maintenance & Operations (Opex) to preserve and extend the service life of the asset which will result in increased timeframes/frequencies and funding amounts required to complete Maintenance and Operational activities.
- If there is limited Opex funds, then there will need to be a focus on prioritizing assets in greatest need. The development of road hierarchies, demand analysis and risk assessments help to prioritize expenditure.

### 1.6.2 What we cannot do

We currently do **not** allocate enough funds within the budget to sustain existing Service Levels. services at the proposed standard or to provide all new services being sought. Works and services that cannot be provided under present funding levels are:

- Complete all of the above within the available budget
- Improvement or sealing of unsealed roads

### 1.6.3 Managing the Risks

Our present budget levels are sufficient to continue to manage risks in the medium term.

The main risk consequences are:

- Aged and deteriorated roads contribute to an accident
- Roads not designed or built-in accordance with standards contribute to an accident
- An unexpected consequence (e.g., asset failure) of not being aware of the condition of the roads,
- demand for roads changing
- Public dissatisfaction with the function, condition, amenity, value for money or other concern

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

- Regular inspections and maintenance
- Prioritising renewal of worst roads, roads servicing vulnerable users and high traffic roads
- Apply standards to acquisition and renewal projects

## 1.7 Asset Management Planning Practices

Key assumptions made in this AM Plan are:

- The asset register, condition data and other source information is a true reflection of the real world (see confidence statement)
- The assets are of sufficiently uniform design, construction, quality, and usage that reliable statistical forecasts can be made.
- The assets are being (and have been) maintained and operated appropriately, such that useful lives will be achieved.
- No data was available to estimate a maintenance budget and an estimated based on historical expenditure was assumed.
- Costs of assets are estimated on average project costs, without project plans or site inspection. On the average these are statistically reliable, but in the individual case variation can be expected
- Funding levels in the current LTFP will be continued
- Grant funding continues to be available at the same level from the various grant programs including FAGS, FAGS-Roads, Roads to recovery, Direct Grant, Regional Road Funds, Blackspot program and similar.

- There are sufficient gravel, water, contractor and other resources to deliver all of the proposed works within the annual budget cycle, and those resources are of sufficient quality

Assets requiring renewal are identified from either the asset register or an alternative method.

- The timing of capital renewals based on the asset register is applied by adding the useful life to the year of acquisition or year of last renewal,
- Alternatively, an estimate of renewal lifecycle costs is projected from external condition modelling systems and may be supplemented with, or based on, expert knowledge.

The asset registers and condition data were used to forecast the renewal lifecycle costs for this AM Plan.

This AM Plan is based on a reliable level of confidence information.

## 1.8 Monitoring and Improvement Program

The next steps resulting from this AM Plan to improve asset management practices are:

Item	Description	Responsibility	Resources required	Priority	Timeline
1	Establish a firm annual commitment to road renewal funding in the LTFP, with a focus on improving older and degraded sections of road.	Council	TBA	Very high	June 2023
2	Identify and pursue grant funding opportunities for road works.	EMIDS	TBA	High	June 2024
3	Develop and adopt a Road Network strategy including consideration of current and emerging needs, service gaps and improvement plan.	EMIDS	TBA	High	June 2024
4	Adopt the proposed service levels for a 12-month trial basis and then review with Council and Community	EMIDS	TBA	Medium	June 2026
5	Establish separate cost centres for the reporting of road maintenance and capital works, with consideration to defining activity and asset identification of works	Finance	TBA	Medium	June 2024
6	Undertake Internal reviews of performance and issues- June 2023,2024,2025.	EMIDS	TBA	Medium	June 2023, 2024, 2025
7	Undertake external AMS audit June 2026.	EMIDS	TBA	Medium	June 2026

8	Adopt a data management plan including scheduled updates of road data.	EMIDS	TBA	Low	June 2025
9	Review service levels.	EMIDS	TBA	Very Low	June 2027
10	Develop and document processes for key functions such as valuation, acceptance of new assets, inspection, forward works planning and similar.	EMIDS	TBA	Very Low	Future
11	Secure road building supply sources sufficient to meet need (Gravel Pits, contractors)	EMIDS	TBA	Low	June 2025

---

## 2 Introduction

### 2.1 Background

This AM Plan communicates the requirements for the sustainable delivery of services through management of assets, compliance with regulatory requirements, and required funding to provide the appropriate levels of service over the planning period.

The AM Plan is to be read with the Shire of York planning documents. This should include the Asset Management Policy and Asset Management Strategy, where developed, along with other key planning documents:

- Operational Policy – Asset Management
- Shire of York – Strategic Community plan 2020-2030
- Shire of York – Long Term Financial Plan 2016-2026
- Shire of York – Annual Budget 2022-23
- Shire of York Corporate Business Plan 2020-2024

The Shire is currently undergoing a comprehensive review and update of all its asset management planning documentation. The main objective being to implement a suite of transparent and workable documents that will assist Council and Executive Management with effective and purposeful decision making.

The infrastructure assets covered by this AM Plan includes roads. For a detailed summary of the assets covered in this AM Plan refer to Table in Section 5.

These assets are used to provide road access services (including car parks).

The infrastructure assets included in this plan have a total replacement value of \$155.916 Million.

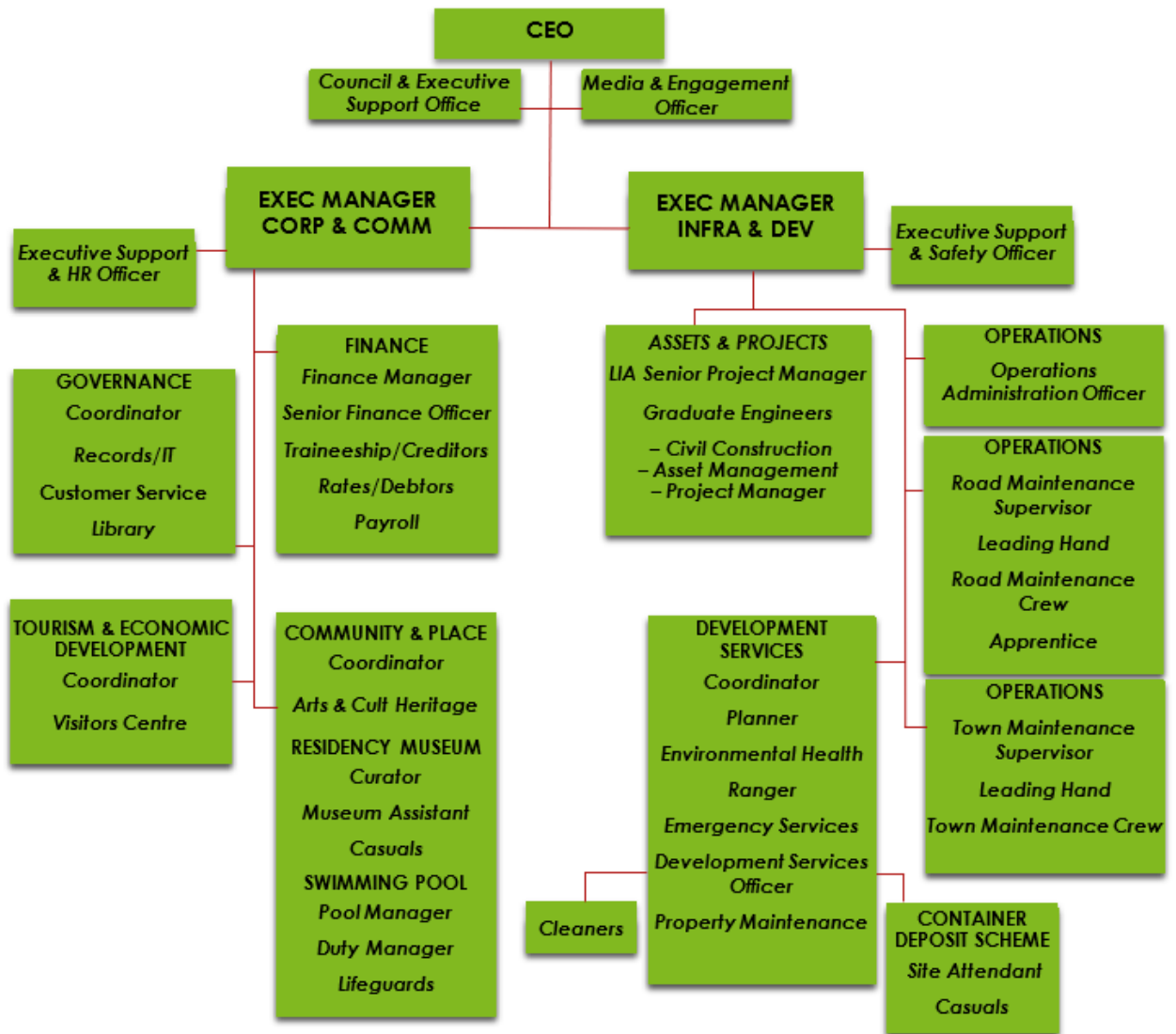
Key stakeholders in the preparation and implementation of this AM Plan are shown in **Table 2.1**.

**Table 2.1: Key Stakeholders in the AM Plan**

Key Stakeholder	Role in Asset Management Plan
Councillors	<ul style="list-style-type: none"> <li>• Represent needs of community/shareholders,</li> <li>• Allocate resources to meet planning objectives in providing services while managing risks,</li> <li>• Ensure service sustainable.</li> <li>• Funding of roads and road services</li> </ul>
Executive Leadership Team	<ul style="list-style-type: none"> <li>• Prioritise and support the development of a suite of asset management plans</li> <li>• Utilise the findings and recommendations from asset management plans to better inform forward planning, including considerations for budget and updating long term financial plan</li> </ul>
Corporate Services	<ul style="list-style-type: none"> <li>• Regularly review and update asset register, ensuring valuations are current and accurate</li> <li>• Comply with the Shire’s significant accounting Policies document</li> <li>• Provision of administration support</li> </ul>
Infrastructure Services	<ul style="list-style-type: none"> <li>• Provide local knowledge and detailed condition reports on all the Road assets</li> <li>• Provide information around maintenance schedules and ability to meet technical and customer levels of service</li> </ul>
External Parties	<ul style="list-style-type: none"> <li>• Main Roads WA –             <ul style="list-style-type: none"> <li>○ own &amp; manage the interconnected highway system,</li> <li>○ overall governance of roads,</li> <li>○ Regulatory control functions</li> <li>○ grant funding administration</li> </ul> </li> <li>• Department of Biodiversity, Conservation and Attractions –             <ul style="list-style-type: none"> <li>○ own and manage an interconnected system of forestry roads,</li> <li>○ conservation of roadside vegetation</li> </ul> </li> <li>• Neighbouring Local Governments – interconnected road management, regional road strategy, knowledge and experience sharing</li> <li>• Community residents, local and farming businesses –             <ul style="list-style-type: none"> <li>○ provision of feedback and desired levels of service</li> <li>○ community use of the road space</li> </ul> </li> <li>• Tourists and ad hoc visitors –             <ul style="list-style-type: none"> <li>○ provision of feedback and desired levels of service</li> </ul> </li> </ul>

Key Stakeholder	Role in Asset Management Plan
	<ul style="list-style-type: none"> <li>○ Tourist drives and driving experience.</li> <li>● Transport Industry, Grain Bulk Handling, Livestock traders – provision of feedback on desired levels of service, access to freight transport</li> <li>● Emergency Services –               <ul style="list-style-type: none"> <li>○ provision of feedback and desired levels of service</li> <li>○ Disaster management planning</li> </ul> </li> <li>● Public Transport Authority – School bus routes               <ul style="list-style-type: none"> <li>○ provision of feedback and approval of routes</li> </ul> </li> <li>● Federal and State Government authorities and agencies               <ul style="list-style-type: none"> <li>○ legislative and best practice guidance,</li> <li>○ grant funding</li> <li>○ transport reform agenda</li> </ul> </li> <li>● Service utility agencies (Telstra Western Power, etc.) – use the road corridor for delivery of their services               <ul style="list-style-type: none"> <li>○ Protection of access rights and infrastructure</li> <li>○ Dial before you dig</li> </ul> </li> <li>● Railway owners and operators – interfaces with railways</li> </ul>

Our organisational structure for service delivery from infrastructure assets is detailed below,



---

## 2.2 Goals and Objectives of Asset Ownership

Our goal for managing infrastructure assets is to meet the defined level of service (as amended from time to time) in the most cost-effective manner for present and future consumers. The key elements of infrastructure asset management are:

- Providing a defined level of service and monitoring performance,
- Managing the impact of growth through demand management and infrastructure investment,
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service,
- Identifying, assessing, and appropriately controlling risks, and
- Linking to a Long-Term Financial Plan which identifies required, affordable forecast costs and how it will be allocated.

Key elements of the planning framework are

- Levels of service – specifies the services and levels of service to be provided,
- Risk Management,
- Future demand – how this will impact on future service delivery and how this is to be met,
- Lifecycle management – how to manage its existing and future assets to provide defined levels of service,
- Financial summary – what funds are required to provide the defined services,
- Asset management practices – how we manage provision of the services,
- Monitoring – how the plan will be monitored to ensure objectives are met,
- Asset management improvement plan – how we increase asset management maturity.

Other references to the benefits, fundamentals principles and objectives of asset management are:

- International Infrastructure Management Manual 2015 1
- ISO 55002

---

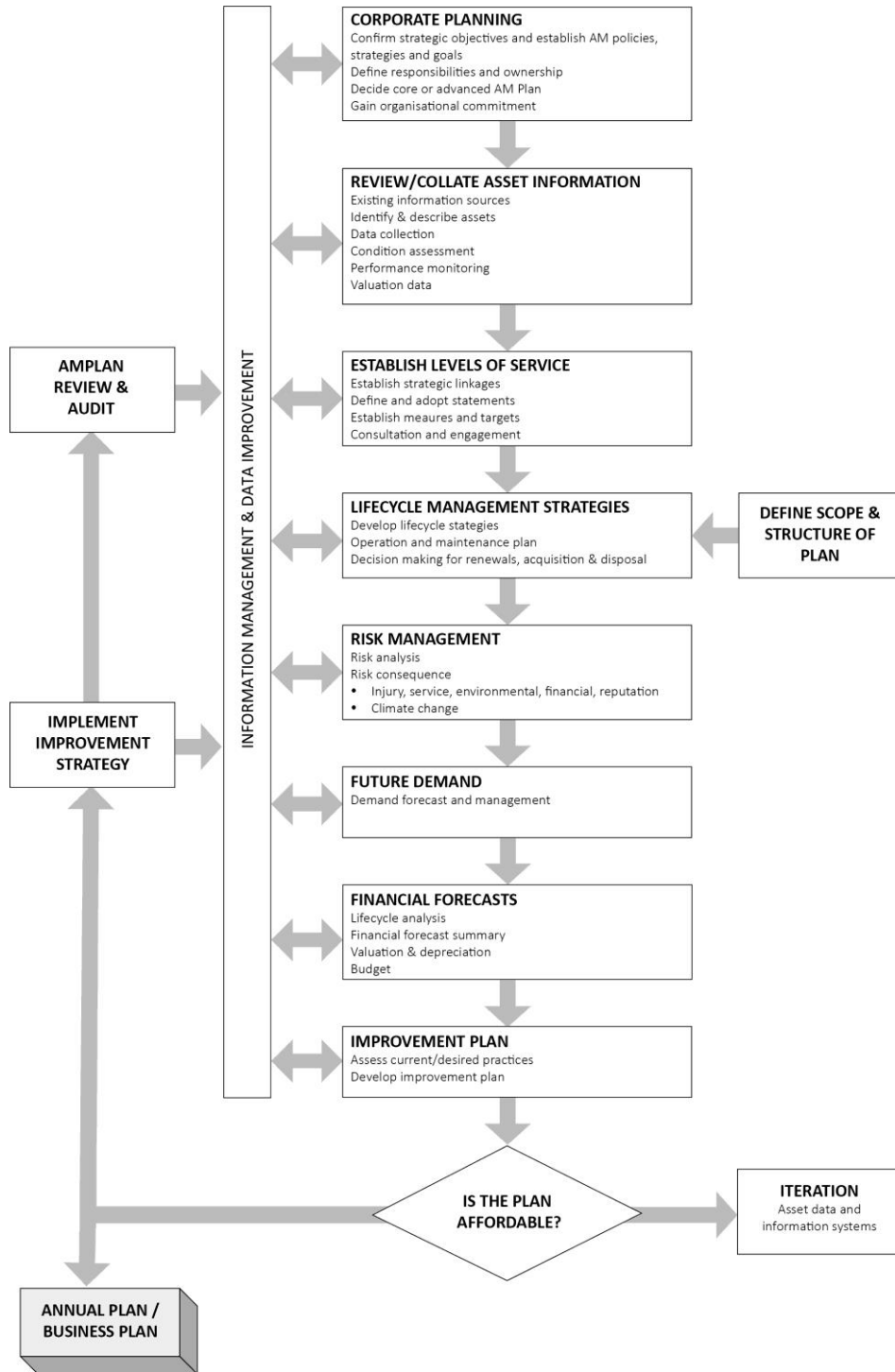
<sup>1</sup> Based on IPWEA 2015 IIMM, Sec 2.1.3, p 2| 13

<sup>2</sup> ISO 55000 Overview, principles, and terminology

A road map for preparing an AM Plan is shown below.

### Road Map for preparing an Asset Management Plan

Source: IPWEA, 2006, IIMM, Fig 1.5.1, p 1.11



---

## 3 Levels of Service

### 3.1 Customer Research and Expectations

There is no formal research on customer expectations for roads. However, the Shire is in constant communication with road users via various forums. Expectations are therefore known, for the most part. Consultation with stakeholders within 1 year of adoption of this plan is proposed.

This AM Plan is prepared under the direction of the Shire of York's vision, mission, goals, and objectives.

#### **Our vision is:**

*Community, Councillors and Council staff all contributed to the vision and stated that they wanted the Shire of York to be:*

- *A proud community, which values and preserves its history, heritage, rural character, and country lifestyle.*
- *A cohesive and vibrant community, respecting diversity and working together with a strategic vision*
- *A friendly and safe place with strong community spirit*
- *An economically strong community, with growth in employment, businesses, agriculture, and tourism*
- *A place with easy access to a full range of social services, including medical, education, law, and order*
- *A unique and beautiful place, attractive to residents, businesses, and visitors – a town where people can come to learn and experience different things away from the city*
- *A place with hope for the next generation, where heritage, the natural environment, farming, and new developments are in balance*
- *A place of opportunity where our young people have a sense of what it means to belong to a community and be included*
- *A community recognised locally, nationally, and internationally for its heritage, arts and crafts, and approach to tourism*
- *A Council, which provides leadership and vision, and is committed to working with all the diverse elements of the community to create a future of promise.*

#### **Our mission is:**

- *To Build our history*
- *To Create our Future*

Strategic goals have been set by the Shire. The relevant goals and objectives and how these are addressed in this AM Plan are summarised in Table 3.2.

**Table 3.2: Goals and how these are addressed in this Plan**

Goal	Objective	How Goal and Objectives are addressed in the AM Plan
The Place to Be	To be a close-knit community full of life, in a welcoming and accessible place for all.	Connect places of living, business, industry, and activity with road access
Driving the York Economy Forward	To have a vibrant, diverse, and prosperous local economy which creates local jobs, business opportunities and a positive image for the Shire	Allow effective and efficient transport of people, goods, and services (including service utilities)
A leader in sustainable environment	To be a place which is renowned for the quality of its natural environment, the astounding beauty of the landscape, and the care taken by the community	Conserve remnant vegetation Minimise environmental impacts
Built for lifestyle and resilience	To have a built environment which supports community, economy, and the environment, respects the past and creates a resilient future.	Safe, inclusive and people friendly streetscapes
Strong Leadership and Governance	To have an effective and responsive leadership and governance, where a sense of collective purpose and shared direction combine to work together.	Provide well managed and sustainable assets.

## 3.2 Legislative Requirements

There are many legislative requirements relating to the management of assets. Legislative requirements that impact the delivery of the Road service are outlined in Table 3.3.

**Table 3.3: Legislative Requirements**

Acts	Subordinate Requirements	Requirement
<i>Local Government Act 1995</i>	Regulations, 1996 Functions and General Regulations, 1996 Financial Management Regulations, 1996 Administration Regulations, 1996	Annual Valuation Budget and Approval Financial Planning Financial Reporting Governance Procurement Rules IPR Framework Accounting standards
<i>Main Roads Act 1930</i>	Responsibility for State Highways Works on highways Signage and line marking requirements	Signs and line marking State Highways and Main Roads Integrated road transport network Design and construction standards Speed zoning Network reporting
<i>Road Traffic Code (Traffic Act 1974 and various other Acts)</i>	Design Standards As of right usage	Road Infrastructure requirements to meet as of right use Road Safety Requirements
<i>Work Health and Safety Act 2020</i>	Occupational Health and Safety Regulations	Safe work practices Safety at worksites Public Safety
<i>Limitation (of Public Liability) Act 2005</i>	Common law Insurance Requirements	Asset inspection and management requirements Evidence based maintenance system addressing risks appropriately
<i>Disability Services Act 1993</i>	Universal Access	Universal access provisions Design Standards
<i>State Records Act 2000</i>	Preservation of public records	Record keeping
<i>Environmental Protection Act 1995</i>	Native Vegetation Clearing	Conservation of roadside vegetation Environmental impacts, waterways protections

### 3.3 Customer Values

Service levels are defined in three(3) key ways these are:

1. **Customer Values**- aspects of the service that are important to the customer
2. **Customer levels of service**- where the customer sees value in the service (requirements)
3. **Technical levels of service**- what is provided and the likely trend over time based on budget provisions.

**Table 3.4** provides a summary of customer values, current satisfaction levels and feedback.

**Table 3.4: Customer Values**

Customer Values	Customer Satisfaction Measure	Current Feedback	Expected Trend Based on Planned Budget
Functional, trafficable	Action requests	General feedback is that roads are passable but not well maintained	Deteriorating service quality and risks of service interruptions increasing.
Functional, link places	Customer satisfaction survey	General feedback is roads need to cater better to traffic, especially heavy vehicles	Unable to achieve all customer expectations
Functional, parking	Complaints	Satisfactory	Satisfactory
Affordable	Sustainably funded	Sustainable funding not available, including provision for grant	Unable to achieve
Value for Money	Customer satisfaction survey Best whole of lifecycle investment strategy	unknown	Unknown. Expectations not aligned with funding and capability
Compliant (including safe)	No accidents caused by faulty roads	Satisfactory	Satisfactory
	“As of right” access compliance	Satisfactory	Satisfactory
	Speed restrictions and use constraints	Satisfactory	Satisfactory
Amenable	Complaints received	unknown	Satisfactory

Environmentally Conscious	No applicable to roads	unknown	Unknown “Green” champions and “road function” champions not aligned
Environmental impacts	Dust and noise complaints	unknown	unknown
Socially enhancing	Customer satisfaction survey	Satisfactory	Satisfactory

### 3.4 Customer Levels of Service

The Customer Levels of Service can be measured using the following three (3) service measure parameters:

1. **Condition**-How good is the service and what is the condition or quality of the service?
2. **Function**-Is it suitable for its intended purpose and/or is it the right service?
3. **Capacity/Use**- Is the service over or under used and/or do we need more or less of these assets?

**Table 3.5** summarises each of the service measure types (Condition, Function, Capacity/Use), the current performance, and the expected performance based on the current budget allocation.

The information in **Table 3.5** aims to measure fact related to the service delivery outcome (e.g., number of occasions when service is not available or proportion of replacement value by condition %'s) to provide a balance in comparison to the customer perception that may be considered more subjective.

**Table 3.5: Customer Level of Service Measures**

Type of Measure	Level of Service	Performance Measure	Current Performance	Expected Trend Based on Planned Budget
Condition	90% of assets to be in average or better condition	Percent of portfolio in poor or better condition	Currently 73.5%	If renewal and maintenance funding is sustained at the proposed level, target will be achieved in 10 years
	Asset Integrity	% of Sealed roads resurfaced before end of service life	Unknown	Achieve
	Roadside Drainage	Drains clear and operating, edge breaks, shoulder shape managed	Unknown	Achieve
	Signs and Line marking	Signs and line marking inspected and maintained	Unknown	Achieve
	<i>Confidence levels</i>		High (Professional Judgement supported by extensive data)	Medium (Professional judgement supported by data sampling)
Function	Safe Roads	No significant design or construction defects	No known safety defects	Continue to find and fix problems as a priority
	Sealed roads to properties	Currently no target – for discussion	Unknown	Set criteria within available budget
	Assets to be well maintained	Annual inspection and defects rectified in due time	No formal measurement. Mostly satisfactory	Satisfactory
	Driver comfort (sealed roughness)	Customer complaints	Unknown	Unknown
	Driver comfort (unsealed roads)	No less than 1 summer maintenance grade and 1 winter	Unknown	Achieve

		maintenance grade each year		
	Vegetation Control	Traffic Envelope clear of vegetation	Unknown	Unknown
	Car Parking sufficient	Complaints	Unknown	Unknown
	<i>Confidence levels</i>		High (Professional Judgement supported by extensive data)	Medium (Professional judgement supported by data sampling)
Capacity	Rural Roads accessible to heavy vehicles	Percentage of roads by length	Target 70% of roads by length open to class B Double	Ongoing commitment
	<i>Confidence levels</i>		Low (Professional Judgement with no data evidence)	Low (Professional Judgement with no data evidence)

---

### 3.5 Technical Levels of Service

**Technical Levels of Service** – To deliver the customer values, and impact the achieved Customer Levels of Service, are operational or technical measures of performance. These technical measures relate to the activities and allocation of resources to best achieve the desired customer outcomes and demonstrate effective performance.

Technical service measures are linked to the activities and annual budgets covering:

- **Acquisition** – 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).
- **Operation** – the regular activities to provide services (e.g., opening hours, cleansing, mowing grass, energy, inspections, etc).
- **Maintenance** – the activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life (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 provided (e.g., road resurfacing and pavement reconstruction, pipeline replacement and building component replacement),

Service and asset managers plan, implement and control technical service levels to influence the service outcomes.<sup>3</sup>

**Table 3.6** shows the activities expected to be provided under the current 10 year Planned Budget allocation, and the Forecast activity requirements being recommended in this AM Plan.

---

<sup>3</sup> IPWEA, 2015, IIMM, p 2|28.

**Table 3.6: Technical Levels of Service**

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
Acquisition	Upgrade regional roads	Road upgraded	No requirements identified	1.5 km of regional road upgrade each year
	Black Spot improvements	Fix black spot sites	Fix 1 site per annum	Fix 1 site per annum
		Budget	<i>\$variable</i>	<i>\$750,000 per annum</i>
Operation	Operate the road network	Roads inspected and kept clean and clear.	Quarterly inspection and clearing, respond to action requests	Quarterly inspection and clearing, respond to action requests
		Budget	<i>included in maintenance</i>	<i>Included in maintenance</i>
Maintenance	Sealed Trafficable surfaces	Patrol and fix defects	Quarterly maintenance	Quarterly maintenance
	Unsealed trafficable surfaces	Maintenance Grading	Unknown	Annual winter maintenance grade, 0-2 annual summer grades
	Shoulders, edges, verges, signs & other repairs	Shoulder and edge grading	One treatment as required	Fix as required
	Vegetation Control	Clear trafficable envelope	Unknown	Clear traffic envelope approx. once per 10 years.
		Budget		<i>\$1,150,000 per annum</i>
Renewal	Reseal Program	Proportion of sealed road resurfaced annually	Unknown	Nominally 2.5% per annum
	Pavement Rehabilitation	Proportion of sealed road resurfaced annually	Unknown	Nominally 1.25% per annum
	Unsealed Road Re-sheeting	Proportion of paved but unsealed network re-sheeted	Minimal	Reseal 5% of paved unsealed roads annually
	Vegetation Control – tree pruning, weed	Proportion of distributor	unknown	10% of distributor roads annually

	management, fire risk	roads pruned annually		
		Budget		<i>\$2,176,100 per annum</i>
Disposal	No disposal planned	n/a	n/a	n/a
		Budget	<i>\$0 per annum</i>	<i>\$0 per annum</i>

Note:

- \* Current activities related to Planned Budget.
- \*\* Expected performance related to forecast lifecycle costs.
- \*\*\* There is likely a need for annual Reactive Maintenance works in FY23/24 as part of backlog maintenance works. As regular inspections and works are completed reactive maintenance works should typically decrease, however it is reasonable to expect that reactive maintenance works resulting from storm damage or significant weather events may be required.

It is important to monitor the performance of all services and activities to ensure that there is no threat or potential decrease in the expected service life of the asset, decrease in service level or risk of asset failure.

The performance of all services and activities are reliant upon existing resource provisions and work efficiencies. Changing circumstances such as efficiency gains, changing technology and customer priorities may alter the performance of services and activities.

---

## 4 Future Demand

### 4.1 Demand Drivers

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

### 4.2 Demand Forecasts

The present position and projections for demand drivers that may impact future service delivery and use of assets have been identified and documented.

### 4.3 Demand Impact and Demand Management Plan

The impact of demand drivers that may affect future service delivery and use of assets are shown in **Table 4.3**.

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. Demand management practices can include non-asset solutions, insuring against risks and managing failures.

Opportunities identified to date for demand management are shown in Table 4.3. Further opportunities will be developed in future revisions of this AM Plan.

**Table 4.3: Demand Management Plan**

Changes	Current provision	Projection	Impact on Services	Demand Management Plan
Population Growth	No provision	Very slow growth or slight contraction is currently identified	No substantive impact	No requirement
Changing Age Demographic	No provision	Increasing older demographic	Increase focus on safety and universal access	Design new and replacement work
Infill Residential Development	No provision	Minimal infill development expected.	No substantive impacts	No requirement
Precinct Development	No provision	None planned	No substantive impact	No requirement
Service Expectation increases	Included in AM PLAN	Expected demand for increased connectivity and quality of service Expected demand for increased access to heavy freight transport Expected demand for safer roads	Increased service expectations Roads built to higher standards Increased road damage requiring increased maintenance	Set service levels, monitor and update
Economy tightening	No Provision	Tightening of availability of finance Need to prioritise, justify, and demonstrate value for money from investments Aging asset portfolio requires greater investment	Reduced funding and/or more competition for available funds	Better investment and decision making Source grant funding and developer contribution support
Environmental Concerns	No provision	Increasing expectations to protect and increase vegetation and greenspace Shift to non-motorised transport will increase pedestrian traffic	Increased project and maintenance costs	Incorporate environmental management requirements in project planning

## 4.4 Asset Programs to meet Demand

The new assets required to meet demand may be acquired, donated or constructed. Additional assets are discussed in **Section 5.4**.

Acquiring new assets will commit the Shire to ongoing operations, maintenance and renewal 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, maintenance and renewal costs for inclusion in the long-term financial plan (Refer to Section 5).

## 4.5 Climate Change Adaptation

The impacts of climate change may have a significant impact on the assets we manage and the services they provide. In the context of the Asset Management Planning process climate change can be considered as both a future demand and a risk.

How climate change impacts on assets will vary depending on the location and the type of services provided, as will the way in which we respond and manage those impacts.<sup>4</sup>

As a minimum we consider how to manage our existing assets given potential climate change impacts for our region.

Risk and opportunities identified to date are shown in Table 4.5.1

**Table 4.5.1 Managing the Impact of Climate Change on Assets and Services**

Climate Change Description	Projected Change	Potential Impact on Assets and Services	Management
Rainfall	Higher intensity rainfall events during winter	Roads may be flooded more frequently Possible impacts of water runoff or standing water	No requirement
Extended Dry periods	Longer periods without rain	No expected impacts on roads	No requirement
Temperature	Higher temperatures and more frequent hot days	Shorter bitumen road lifespans May need to consider shade structures in the POS plan	Review bitumen specification in line with emerging understanding
Fire risk	Increased fire risk	No expected impacts on roads	Manage roadside vegetation

<sup>4</sup> IPWEA Practice Note 12.1 Climate Change Impacts on the Useful Life of Infrastructure

Additionally, the way in which we construct new assets should recognise that there is opportunity to build in resilience to climate change impacts. Building resilience can have the following benefits:

- Assets will withstand the impacts of climate change.
- Services can be sustained; and
- Assets that can endure may potentially lower the lifecycle cost and reduce their carbon footprint

**Table 4.5.2** summarises some asset climate change resilience opportunities.

**Table 4.5.2 Building Asset Resilience to Climate Change**

New Asset Description	Climate Change impact These assets?	Build Resilience in New Works
Roads	None identified	No requirement

The impact of climate change on assets is a new and complex discussion and further opportunities will be developed in future revisions of this AM Plan.

The stormwater plan could inform placement of road infrastructure

## 5 Lifecycle Management Plan

The lifecycle management plan details how the Shire plans to manage and operate the assets at the agreed levels of service (Refer to Section 3) while managing life cycle costs.

### 5.1 Background Data

#### 5.1.1 Physical parameters

The assets covered by this AM Plan are shown in Table 5.1.1.

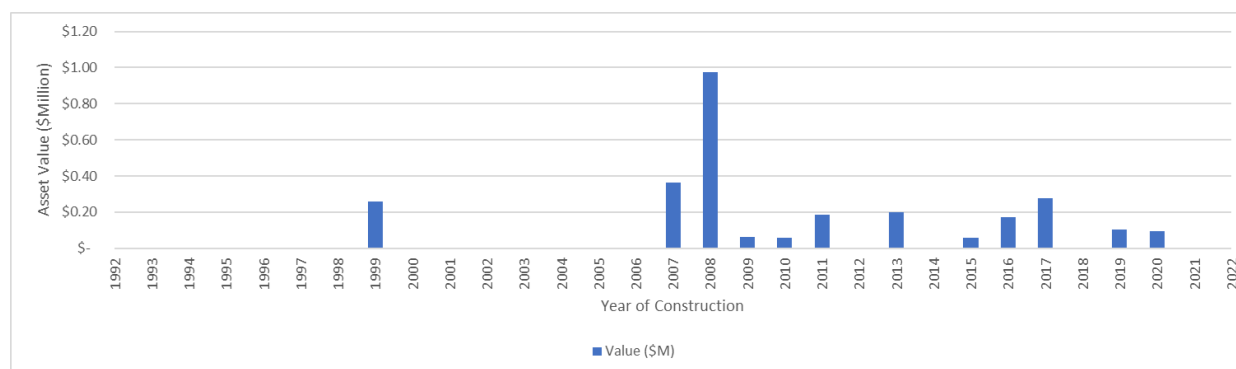
The Shire has a basic road network inclusive of main street and other linkages

The age profile of the assets included in this AM Plan are shown in Figure 5.1.1.

**Table 5.1.1: Assets covered by this Plan**

Class	Sub Class	Quantity	Unit
Road	Sealed	268	Km
Road	Unsealed	467	Km
Road	Car Park	12	each

**Figure 5.1.1: Asset Age Profile**



All figure values are shown in current day dollars.

#### 5.1.2 Asset capacity and performance

Assets are generally provided to meet design standards where these are available. However, there is insufficient resources to address all known deficiencies. Locations where deficiencies in service performance are known are detailed in Table 5.1.2.

**Table 5.1.2: Known Service Performance Deficiencies**

Location	Service Deficiency
Old Pavements	Older pavements are thinner and narrower than current design standards. They have also deteriorated over time leaving them rougher and lower ride comfort. This affects many roads.
Substandard Geometry	Older roads often have substandard width, vertical, horizontal and crossfall geometry. This affects many roads.
Pavement Strengths	Older roads have been designed and built for older. Smaller and lighter classes of vehicles and are often not suited to modern heavy vehicles or agricultural implements

The above service deficiencies were identified from the road condition survey (2022)

### 5.1.3 Asset condition

Condition is currently monitored by a formal condition survey in 2022.

Condition is measured using a 1 – 5 grading system<sup>5</sup> as detailed in Table 5.1.3. It is important that a consistent approach is used in reporting asset performance enabling effective decision support. A finer grading system may be used at a more specific level, however, for reporting in the AM plan results are translated to a 1 – 5 grading scale for ease of communication.

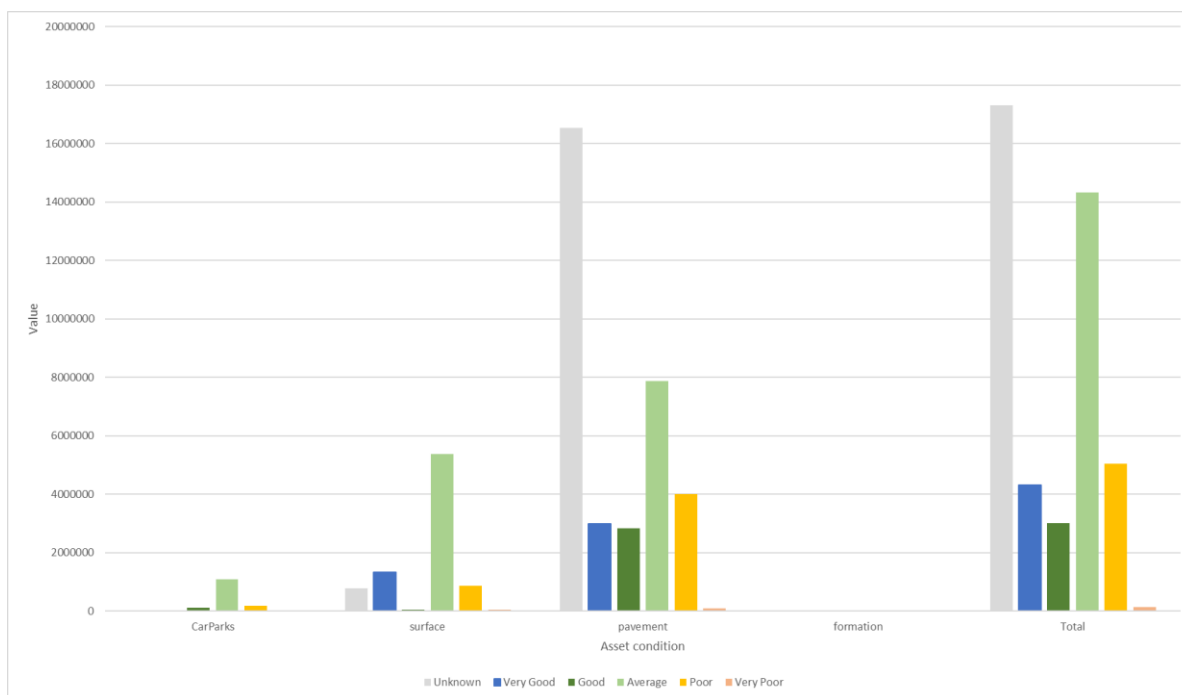
**Table 5.1.3: Condition Grading System**

Condition Grading	Description of Condition
1	Very Good: free of defects, only planned and/or routine maintenance required
2	Good: minor defects, increasing maintenance required plus planned maintenance
3	Fair: defects requiring regular and/or significant maintenance to reinstate service
4	Poor: significant defects, higher order cost intervention likely
5	Very Poor: physically unsound and/or beyond rehabilitation, immediate action required

The condition profile of our assets is shown in Figure 5.1.3.

<sup>5</sup> IPWEA, 2015, IIMM, Sec 2.5.4, p 2|80.

Figure 5.1.3: Asset Condition Profile



Road condition was assessed in 2022. Approximately 1.35% by value (\$2.1 Million) road assets are in very poor condition and below the standard of intervention adopted in this plan.

All figure values are shown in current day dollars.

## 5.2 Operations and Maintenance Plan

Operations include regular activities to provide services. Examples of typical operational activities include cleaning, street sweeping, asset inspection, and utility costs.

Maintenance includes all actions necessary for retaining an asset as near as practicable to an appropriate service condition including regular ongoing day-to-day work necessary to keep assets operating. Examples of typical maintenance activities include pipe repairs, asphalt patching, and equipment repairs.

The trend in maintenance budgets are shown in Table 5.2.1.

Table 5.2.1: Maintenance Budget Trends

Year	Maintenance Budget
2021-2022	\$1,051,252
2022-2023	\$989,804
2023-2024	\$792,000

Note that this tables shows historical expense, current budget and budget proposed in this plan. Historical investment data is estimated as road costs were included in the same budget allocation and reporting as drainage, paths, and other asset classes.

Maintenance budget levels are considered to be inadequate to meet projected service levels, which may be less than or equal to current service levels. Where maintenance budget allocations are such that they will result in a lesser level of service, the service consequences and service risks have been

identified and are highlighted in this AM Plan and service risks considered in the Infrastructure Risk Management Plan.

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

### 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.

Asset Hierarchy for roads is determined in three ways

- Service Hierarchy – referring to the nature of use of the road
- Location – referring to urban or rural character
- Construction standard – refers to the state of construction

Note the term “as of right” refers to a legally compliant (with the Traffic Code) vehicle, but not including any special permit, oversize or over mass vehicles

The service hierarchy is shown in Table 5.2.2.

**Table 5.2.2: Asset Service Hierarchy**

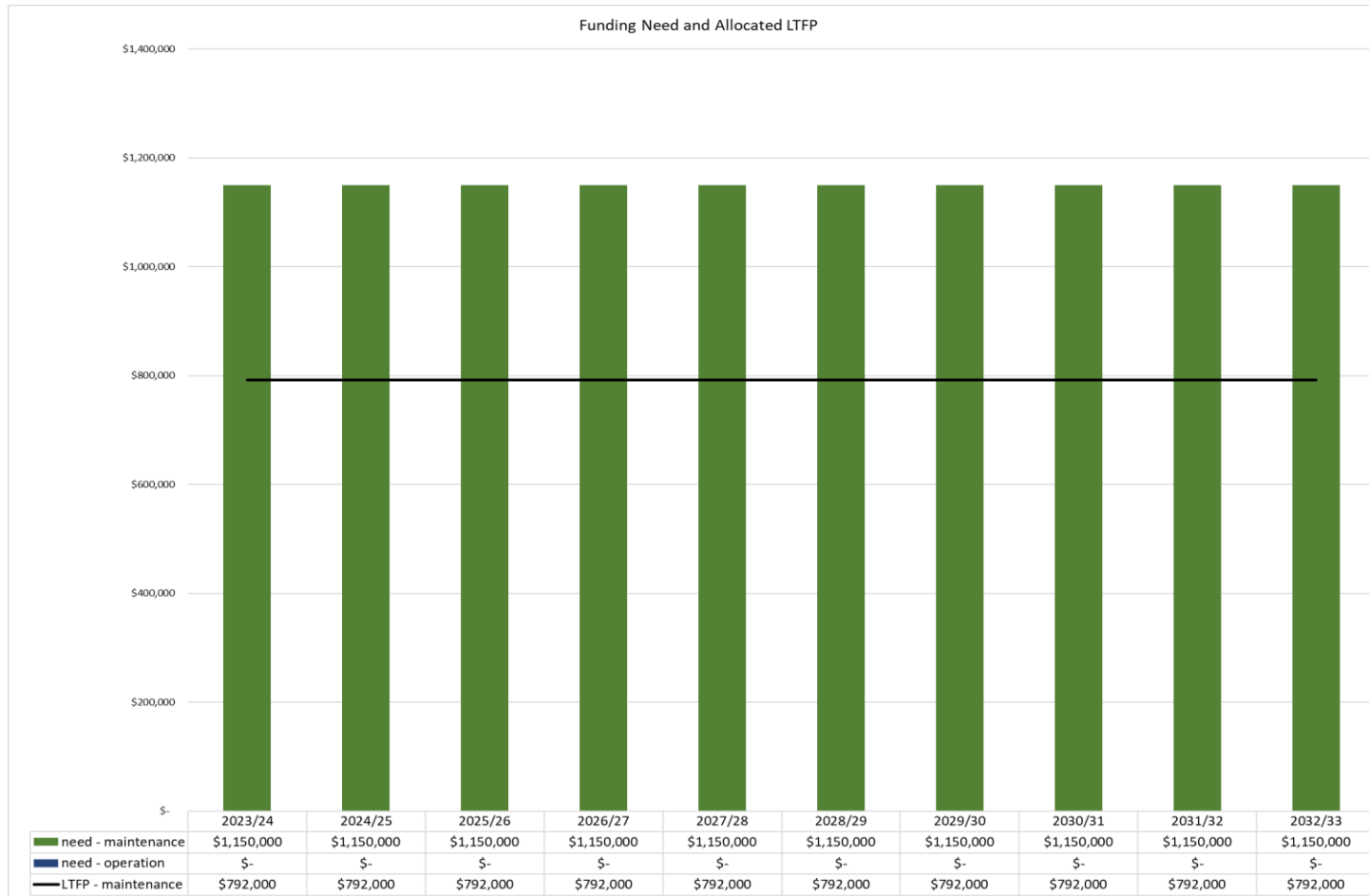
Service Hierarchy	Location	Construction Standard	Service Level Objective
Primary Road	x	x	Primary roads are state highways under the care and control of Main Roads. They do not form part of this AM Plan
Regional Road	x	x	Regional Roads are roads of regional significance identified in the Roads 2040 strategy (WALGA, Main Roads). The objective is to provide safe efficient and effective movement of vehicles including oversize and over mass
Local Distributor	x	x	Local distributor roads are roads linking multiple other lower order roads or providing connections between localities. The objective
Access Road	x	x	Access roads are minor roads serving nominally 10-30 properties (town) or 3 or more properties (rural) Objective is to provide safe, effective “as of right” vehicle access at moderate speed
Minor	x	x	Minor roads serving less than 10 properties (town) 1-2 properties (rural). Objective is to provide safe and effective as of right vehicle access at limited speed
Car Park	x	x	Space solely intended for the parking and unparking of vehicles. The purpose is to provide

			parking within proximity to point of interest and suited to the intended vehicle types
Closed	x	x	Closed roads are roads that have been officially closed to traffic
Gated	x	x	Gated roads are roads which have been closed pursuant to schedule 9.1 of the Local Government Act 1995 (generally for the use of the adjoining landowner)
Forestry	x	x	Forestry roads refers to roads under the care and control of the Department of Biodiversity, conservation, and Attractions. They do not form part of this AM Plan
x	Town	x	Town roads are generally roads located within the Town Boundary. Town roads have additional objectives of safe speeds (less than 50km/h) and creating an appropriate social environment
x	Rural	x	Rural roads are roads outside townsites. Rural roads are focussed on transport function including access for farm machinery and trucks.
x	x	Sealed	A sealed road is a road with a bitumen, asphalt, concrete or other flexible pavement with surface
x	x	Paved	Paved roads are unsealed roads with an imported gravel or aggregate pavement to provide a trafficable carriageway
x	x	Formed	Formed roads are cleared and shaped roads that have not been paved with imported material
x	x	Track	Tracks are cleared, or partially cleared, roads that do not have a formal alignment, shape, or pavement.
x	x	Unmade	Unmade roads are designated road reserve alignments with no track and only natural and uncleared vegetation or farmland

### Summary of forecast operations and maintenance costs

Forecast operations and maintenance costs are expected to vary in relation to the total value of the asset stock. If additional assets are acquired, the future operations and maintenance costs are forecast to increase. If assets are disposed of the forecast operation and maintenance costs are expected to decrease. **Figure 5.2** shows the forecast operations and maintenance costs relative to the proposed operations and maintenance Planned Budget.

**Figure 5.2: Operations and Maintenance Summary**



All figure values are shown in current day dollars.

Deferred maintenance (i.e. works that are identified for maintenance activities but unable to be completed due to available resources) is included in the infrastructure risk management plan.

### 5.3 Renewal Plan

Renewal is major capital work which does not significantly alter the original service provided by the asset, 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 an acquisition resulting in additional future operations and maintenance costs.

Assets requiring renewal are identified from one of two approaches in the Lifecycle Model.

- The first method uses Asset Register data to project the renewal costs (current replacement cost) and renewal timing (acquisition year plus updated useful life to determine the renewal year), or
- The second method uses an alternative approach to estimate the timing and cost of forecast renewal work (i.e., condition modelling system, staff judgement, average network renewals, or other).

The typical useful lives of assets used to develop projected asset renewal forecasts are shown in Table 5.3. Asset useful lives were last reviewed on 30 June 2022.

**Table 5.3: Useful Lives of Assets**

Asset (Sub)Category	Useful life
Road, Subgrade	999 years
Road, Sealed, Pavement	80 years
Road, Unsealed, Pavement	20 years
Road, Surface, Asphalt	25 years
Road, Surface, Seal	20 years
Road, Surface, Concrete	70 years
Car Park, Sealed	25 years
Car Park, Unsealed	20 years

The estimates for renewals in this AM Plan were based on the asset register, as updated 2022.

#### 5.3.1 Renewal ranking criteria

Asset renewal is typically undertaken to ensure the reliability of the asset and the service it facilitates (e.g., e.g., resealing a sealed road), or to maintain a quality standard to meet the service requirements.

It is possible to prioritise renewals by identifying assets or asset groups that have different criticality levels and risk rankings in the consequence of failure. The consequence of an asset failure may have subsequent impacts such as, impact on users, higher costs for emergency mobilisations and operational service outages and or other essential operational activities.

Other reasons may for prioritising renewals may be because of higher than expected operational or maintenance costs where renewal works may reduce life cycle costs by replacement with a modern equivalent asset that would provide the equivalent service. (e.g., new LED lighting in lieu of incandescent fittings).

Ranking criteria used to determine priority of identified renewal proposals is detailed in **Table 5.3.1**.

**Table 5.3.1: Renewal Priority Ranking Criteria**

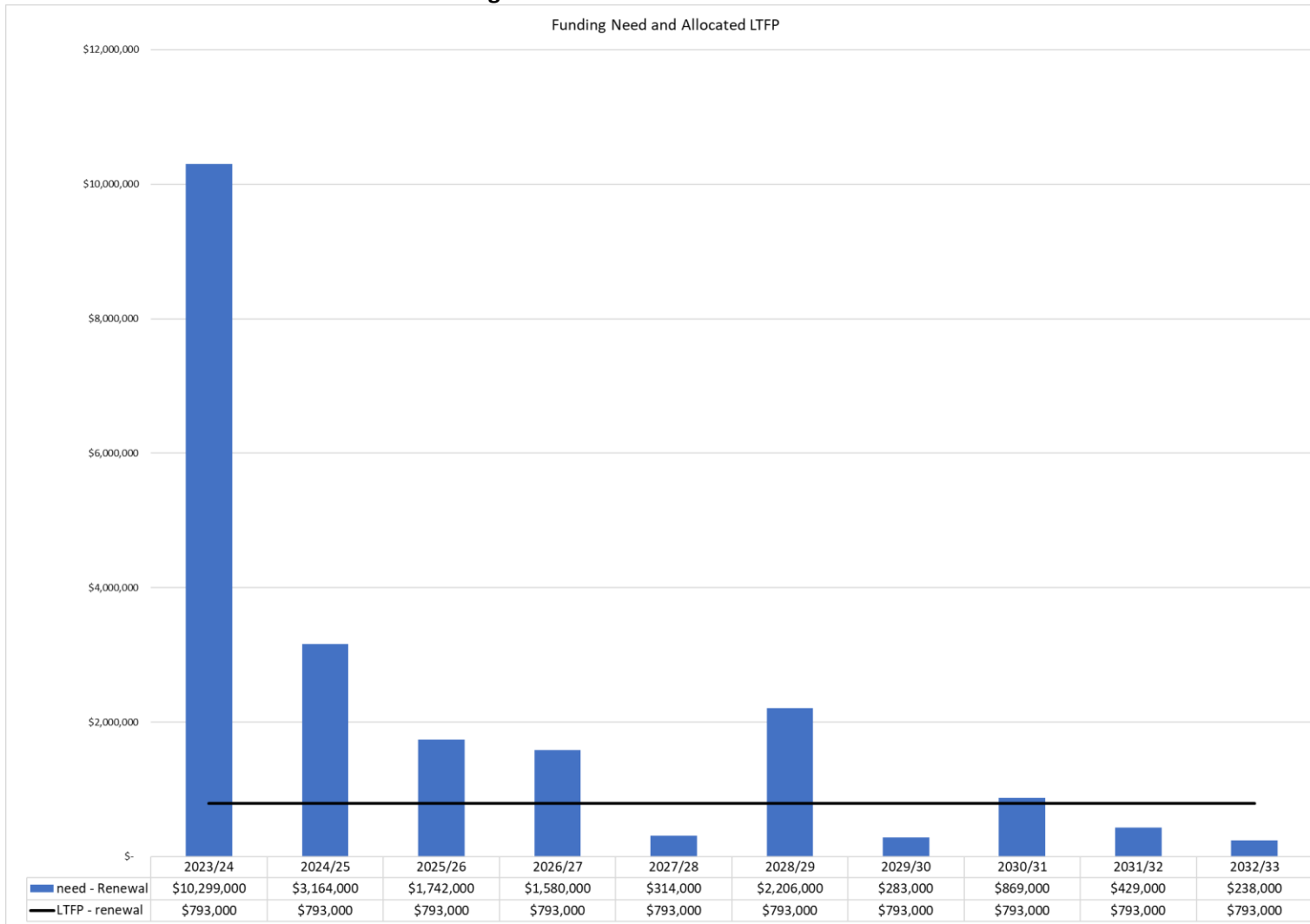
Criteria	Weighting
Compliance (safety)	Takes immediate priority 100%
Risk	25% out of 100%
Condition	40% out of 100%
Service Benefit	35% out of 100%

Note that no provision has been made in the renewal plan for prioritization of service benefits, community demand. This plan is based on “safety first”, “worst condition second”.

## 5.4 Summary of future renewal costs

Forecast renewal costs are projected to increase over time if the asset stock increases. The forecast costs associated with renewals are shown relative to the proposed renewal budget in **Figure 5.4.1**. A detailed summary of the forecast renewal costs is shown in **Appendix D**.

**Figure 5.4.1: Forecast Renewal Costs**



All figure values are shown in current day dollars. Only resurfacing need is shown

Note that there will be variation from estimate for individual projects when project scoping, site inspections and project requirements are detailed. It is expected that some projects might be completed over two years to smooth the budget from year to year

There is a substantial shortfall of funding and not all resurfacing works will be delivered. Other renewal works will not be delivered and are not shown in the graph.

## 5.5 Acquisition Plan

Acquisition reflects are new assets that did not previously exist or works which will upgrade or improve an existing asset beyond its existing capacity. They may result from growth, demand, social or environmental needs. Assets may also be donated to the Shire.

### 5.5.1 Selection criteria

Proposed acquisition of new assets, and upgrade of existing assets, are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Potential upgrade and new works should be reviewed to verify that they are essential to the Entities needs. Proposed upgrade and new work analysis should also include the development of a preliminary renewal estimate to ensure that the services are sustainable over the longer term. Verified proposals can then be ranked by priority and available funds and scheduled in future works programs. The priority ranking criteria is detailed in **Table 5.5.1**.

**Table 5.5.1: Acquired Assets Priority Ranking Criteria**

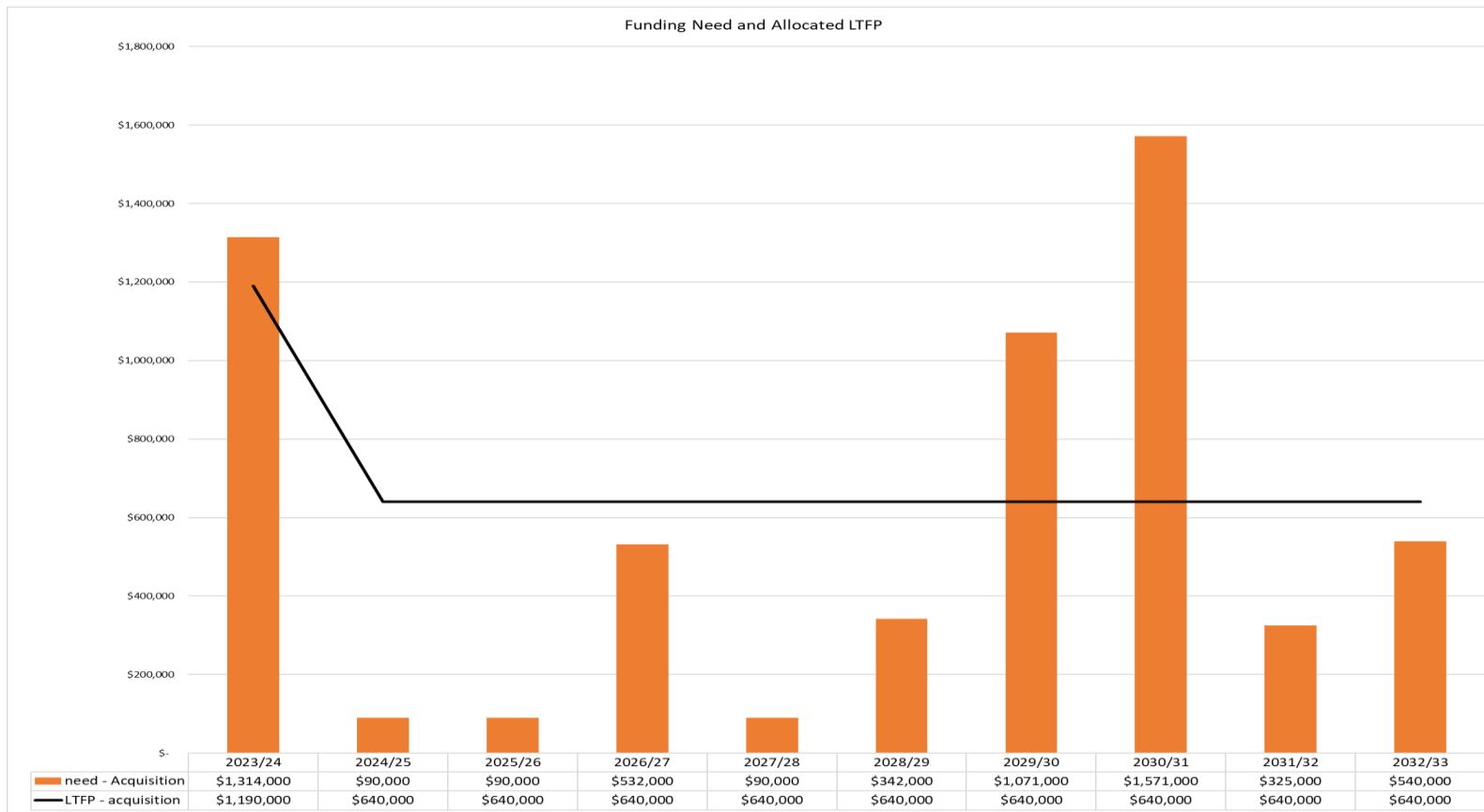
Criteria	Weighting
Regional Road Program (Roads 2040 Strategy)	100%
Total	100%

Note that during annual business Council will receive ongoing requests for new or improved road assets. There is a limited budget to allocate, and not every request can be met. It would be normal for the Council to have and apply a strategy to be updated from time to time which identifies the agreed priority commitments of the Council. The DAIP currently represents that strategy. This is not to prevent the Council reviewing and updating that strategy.

### Summary of future asset acquisition costs

Forecast acquisition asset costs are summarised / summarized in **Figure 5.5.1** and shown relative to the proposed acquisition budget. The forecast acquisition capital works program is shown in **Appendix A**.

**Figure 5.5.1: Acquisition (Constructed) Summary**



All figure values are shown in current day dollars.

It is proposed in both this asset management plan and the LTFP to allocate \$550,000 per annum to improvements to the regional road network, as identified in the State Roads 2045 strategy. Two thirds of regional road costs might be grant funded on a competitive bid basis through the State Road Funds to Local Government agreement

There is no provision made in the LTFP for road safety improvements and this AMP therefore does not include any allocation. A recommendation is made to implement an intersection upgrade program of nominally \$0.09 Million per year, funded two thirds by the black spot program.

When a Shire commits to new assets, they must be prepared to fund future operations, maintenance, and renewal costs. They must also account for future depreciation when reviewing long term sustainability. When reviewing the long-term impacts of asset acquisition, it is useful to consider the cumulative value of the acquired assets being taken on by the Shire.

Expenditure on new assets and services in the capital works program will be accommodated in the long-term financial plan, but only to the extent that there is available funding.

Additional maintenance costs for the new acquisitions are individually minimal but add up over time. Maintenance budget should be increased annually proportional to the additional acquisitions.

## 5.6 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition, or relocation. Assets identified for decommissioning and disposal are shown in Table 5.6. A summary of the disposal costs and estimated reductions in annual operations and maintenance of disposing of the assets are also outlined in **Table 5.6**. Any costs or revenue gained from asset disposals is included in the long-term financial plan.

**Table 5.6: Assets Identified for Disposal**

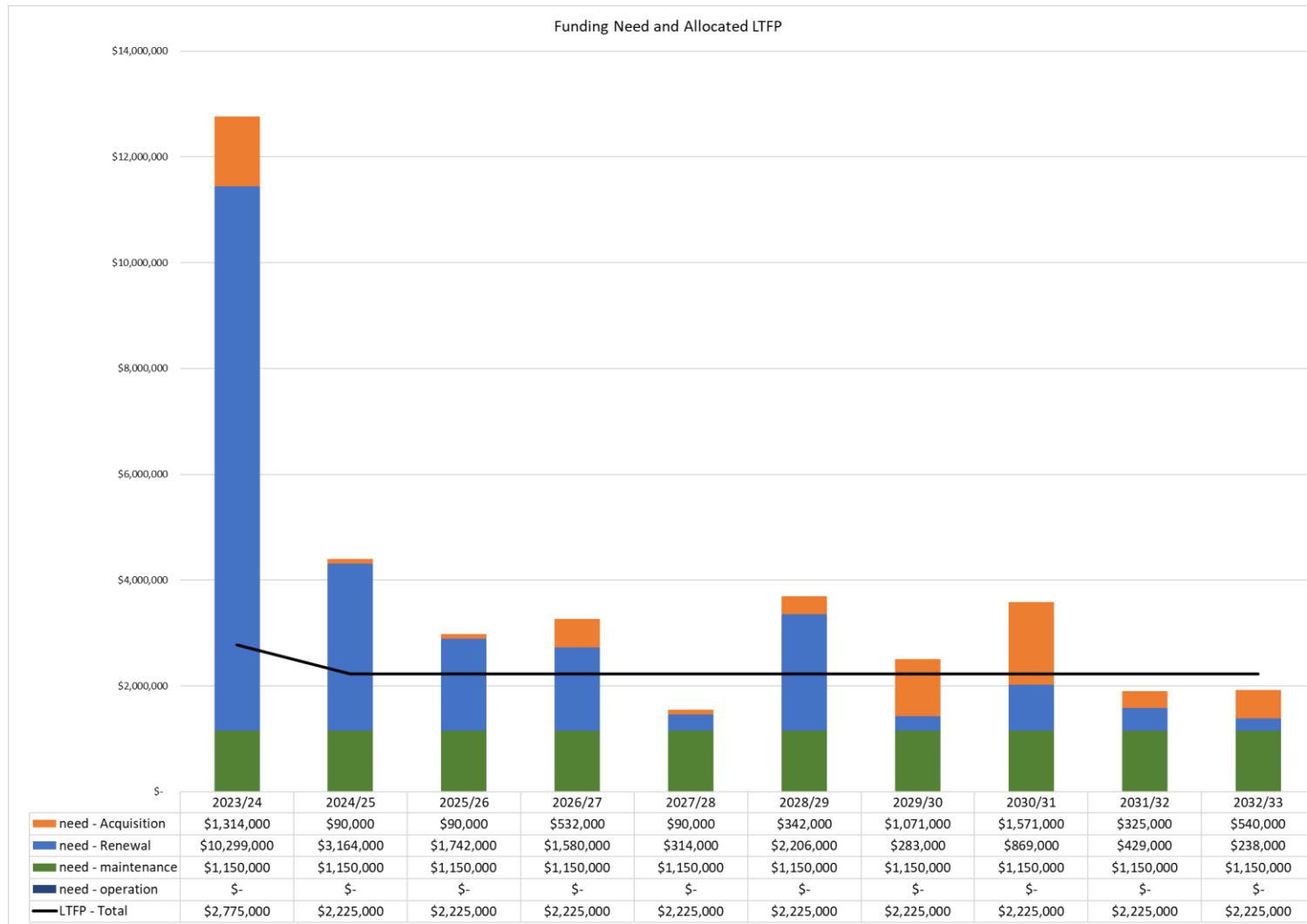
Asset	Reason for Disposal	Timing	Disposal Costs	Operations & Maintenance Annual Savings
No disposal planned	n/a	n/a	n/a	n/a

## 5.7 Summary of asset forecast costs

The financial projections from this asset plan are shown in **Figure 5.7.1**. These projections include forecast costs for acquisition, operation, maintenance, renewal, and disposal. These forecast costs are shown relative to the proposed budget.

The bars in the graphs represent the forecast costs needed to minimise the life cycle costs associated with the service provision. The proposed budget line indicates the estimate of available funding. The gap between the forecast work and the proposed budget is the basis of the discussion on achieving balance between costs, levels of service and risk to achieve the best value outcome.

**Figure 5.7.1: Lifecycle Summary**



---

All figure value are current dollars.

The currently allocated budget is insufficient to meet need. A drop in service levels and increased maintenance practice is required.

## 6 Risk Management

The purpose of infrastructure risk management is to document the findings and recommendations resulting from the periodic identification, assessment and treatment of risks associated with providing services from infrastructure, using the fundamentals of International Standard ISO 31000:2018 Risk management – Principles and guidelines.

Risk Management is defined in ISO 31000:2018 as: ‘coordinated activities to direct and control with regard to risk’.

An assessment of risks associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a ‘financial shock,’ reputational impacts, or other consequences. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, and the consequences should the event occur. The risk assessment should also include the development of a risk rating, evaluation of the risks and development of a risk treatment plan for those risks that are deemed to be non-acceptable.

### 6.1 Critical Assets

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Critical assets have been identified and along with their typical failure mode, and the impact on service delivery, are summarised in **Table 6.1**. Failure modes may include physical failure, collapse, or essential service interruption.

**Table 6.1 Critical Regional Road Group Assets and Other Shire Roads**

Critical Asset	Failure Mode	Impact
All Regional Road Group Road network <ul style="list-style-type: none"> <li>• Avon Terrace (SLK 0 -SLK 2.32)</li> <li>• Knotts Road (SLK 0-SLK 4.68)</li> <li>• Marwick Road (SLK 0 to 4.04)</li> <li>• Quellington Road (SLK -SLK 19.36)</li> <li>• Spencers Brook Road (SLK 0-SLK 20.83)</li> <li>• Talbot West Road (SLK 0-SLK 32.69)</li> <li>• Goldfields Road (SLK 0-SLK 33.1)</li> <li>• Top Beverley York Road (SLK 0 -SLK 14.08)</li> </ul>	Erosion of edges and shoulder	Reduced Road Capacity, Drainage issues and flooding, Negative image on Reputation and Perception
	Localised Potholes, Erosion of road surface	Negative perception impacting investment decisions, and quality of road users experience.
	Deterioration of pavement by heavy vehicles	Impact on road users experience, Reduced Road capacity
	Vegetation Encroachment	Reduced accessibility and mobility
Mannavale Road	Same as above	Same as above
Assets in very poor or poor condition (requiring attention in Inspection, operation	Same as above	Same as above

and maintenance works) include (numbers indicate sections)-

Sealed Road

Road Name	SLK-Start	SLK-Finish
QUALEN WEST ROAD	4120	5330
MANNAVALE ROAD	6370	8750
MANNAVALE ROAD	9960	12710
TALBOT ROAD	0	990
TALBOT ROAD	14440	15580
BURGES SIDING ROAD	250	730
GWAMBYGINE EAST ROAD	2540	5700
DOODENANNING ROAD	6110	6670
DOODENANNING ROAD	6670	10070
MOKINE ROAD	50	2400
WAMBYN ROAD	9880	10140
WAMBYN ROAD	10140	10180
GREENHILLS SOUTH ROAD	0	1460
QUALEN WEST ROAD	9360	13280
CUT HILL ROAD	250	1140
ULSTER ROAD	700	930
GREY STREET	30	120
GREY STREET	120	270
GREY STREET	270	380
TENTH ROAD	520	700
TENTH ROAD	700	1070
TENTH ROAD	1100	1400
FORD STREET	390	410
FORD STREET	680	810
FORD STREET	1090	1160
CENTENNIAL DRIVE	600	640
HENRY ROAD	160	320
OSNABURG ROAD	0	450
OSNABURG ROAD	450	560
BLAND ROAD	1320	1610
BLAND ROAD	2050	2080
CARTER ROAD	1600	1610
NORTH ROAD	0	180
NORTH ROAD	1390	1600
NORTH ROAD	1600	4000
ELEVENTH ROAD	350	710
KNIGHT STREET	0	500
SIXTH ROAD	0	450
NEWCASTLE STREET	240	680
NEWCASTLE STREET	710	1100
BARKER STREET	0	80

GEORGE STREET	0	60														
GEORGE STREET	160	220														
MEARES STREET	210	280														
MEARES STREET	280	350														
CLIFFORD STREET	0	180														
STEERE ROAD	210	360														
BOUVERIE ROAD	0	270														
BOUVERIE ROAD	420	540														
COWAN ROAD	520	730														
GREENHILLS ROAD	3500	4860														
DINSDALE ROAD	0	120														
BAYLY ROAD	0	480														
MANSFIELD STREET	170	320														
BLAND STREET	0	20														
PRUNSTER ROAD	0	1660														
MONGER STREET	0	200														
HARVEY STREET	0	60														
WILLIAM STREET	0	350														
LITTLE STREET	220	350														
MORRIS EDWARDS DRIVE	0	50														
LEE CRESCENT	0	50														
LIGHTLY PLACE	0	280														
FISHER STREET	0	240														
HOOPS ROAD	0	20														
HOOPS ROAD	20	430														
RIVERSIDE COURT	0	280														
PENNY DRIVE	0	3090														
RAILWAY CIRCLE	0	50														
ANDREWS AVENUE	20	360														
ANDREWS AVENUE	730	820														
CUBBINE ROAD	2415	2690														
CUBBINE ROAD	6700	7420														
DOODENANNING ROAD	4700	6110														
OVENS ROAD	8000	8320														
TALBOT ROAD	5980	6720														
MANNAVALE ROAD	12710	13350														
Assets in very poor or poor condition (requiring attention in Inspection, operation and maintenance works) include (numbers indicate sections)- <u>Unsealed Road</u>			Surface Erosion, Loss of shape and camber, washouts and flooding, Loss of gravel aggregates, Corrugations. Uneven Road Surface	Same as above												
<table border="1"> <thead> <tr> <th>Road Name</th> <th>SLK-Start</th> <th>SLK-Finish</th> </tr> </thead> <tbody> <tr> <td>BERRY BROW ROAD</td> <td>2940</td> <td>3940</td> </tr> <tr> <td>BERRY BROW ROAD</td> <td>3940</td> <td>4940</td> </tr> <tr> <td>BLAND STREET</td> <td>20</td> <td>150</td> </tr> </tbody> </table>	Road Name	SLK-Start	SLK-Finish	BERRY BROW ROAD	2940	3940	BERRY BROW ROAD	3940	4940	BLAND STREET	20	150				
Road Name	SLK-Start	SLK-Finish														
BERRY BROW ROAD	2940	3940														
BERRY BROW ROAD	3940	4940														
BLAND STREET	20	150														

BOGLING ROAD	5790	2800
BOGLING ROAD	1000	2000
BOYERCUTTY ROAD	1770	2100
BOYERCUTTY ROAD	6100	7180
BOYLE ROAD	1260	2060
BUCKINGHAM ROAD	3000	3010
BUCKINGHAM ROAD	3010	3600
BURGES SIDING ACCESS	0	150
CALJIE ROAD	1000	1750
CARTER ROAD	1610	2120
CLIFTON ROAD	2760	3560
COWRING ST	600	650
DOODENANNING ROAD	11940	12030
DOODENANNING ROAD	18760	19090
DOODENANNING ROAD	11110	11940
DOODENANNING ROAD	10110	11110
DUCK POOL ROAD	2000	3000
FISH STREET	0	90
GRASS VALLEY SOUTH ROAD	0	1000
GRASS VALLEY SOUTH ROAD	1000	2130
GREENHILLS RAIL ACCESS	0	410
GUNAPIN RIDGE ROAD	5700	6200
GWAMBYGINE EAST ROAD	7580	8010
GWAMBYGINE EAST ROAD	12680	12690
GWAMBYGINE EAST ROAD	12690	12700
GWAMBYGINE EAST ROAD	8010	9010
GWAMBYGINE EAST ROAD	6700	7580
GWAMBYGINE EAST ROAD	10010	10660
HAMERSLEY SIDING ROAD	8360	9280
HAMERSLEY SIDING ROAD	660	1660
HAMERSLEY SIDING ROAD	1660	2660
HAMERSLEY SIDING ROAD	4660	5660
HAMERSLEY SIDING ROAD	5660	6660
HAMERSLEY SIDING ROAD	7660	8360
HARDY ROAD	1000	2000
HELENA ROAD	10000	11000
HELENA ROAD	11000	12000
HELENA ROAD	12000	13000
HELENA ROAD	13000	14000
HELENA ROAD	14000	15000
HELENA ROAD	15000	16000
HELENA ROAD	16000	17000

HERBERT ROAD	0	70
KITTLERS ROAD	2000	3000
LEE CRESCENT	190	260
LENNARD ROAD	2000	3000
LENNARD ROAD	6300	7550
LENNARD ROAD	3000	4000
LU ELF ROAD	3240	3590
MACKIE ROAD	0	1000
MCDOUGALL ROAD	1000	1970
MERCER ROAD	0	470
MERCER ROAD	4600	5400
MERCER ROAD	5400	5900
MERCER ROAD	2810	3780
MILLS ROAD	4500	5090
MORRIS EDWARDS TRACK	0	610
MT HARDEY ROAD	6130	7120
NARRALOGGAN ROAD	3030	3560
NEVILLE STREET	60	140
New Road Added By Talis	0	328
NOCKINE ROAD (F)	2040	3040
PARKER ROAD	970	1630
PARKER ROAD	1630	2100
PARKER ROAD D:2	0	120
PARKER STREET	0	260
PICCADILLY ROAD	1900	2900
PICCADILLY ROAD	4900	5900
REVETT PLACE	0	130
REVETT PLACE	190	250
ROEDIGER ROAD	2000	2560
SEES ROAD	0	900
SEES ROAD	2130	3130
SEES ROAD	3130	4130
SEES ROAD	5130	6000
SEES ROAD	4130	5130
SEVENTH ROAD	0	30
SIDNEY ROAD	0	120
ST JACKS ROAD	1000	1360
STATION ROAD	3110	4000
STATION ROAD	4000	4970
TALBOT HALL ACCESS	0	440
TALBOT HALL ROAD	5160	6160
TAYLOR ROAD	0	1000
UNKNOWN RD	0	400
UNKNOWN RD	400	730
WAMBYN ROAD	6620	7620
WAMBYN ROAD	7620	8620

WAMBYN ROAD	5000	5620		
WAMBYN ROAD	4000	5000		
WARDING DAM ROAD	1000	1800		
WARDING DAM ROAD	0	1000		
WARDING ROAD	0	1000		
WARDING ROAD	1000	2000		
WARDING ROAD	4340	5340		
WATER STREET	0	160		
WATERFALL ROAD	0	1000		
WATERFALL ROAD	2000	3000		
WILBERFORCE ROAD	3760	4760		
WILBERFORCE ROAD	4760	5840		
YARRA ROAD (F)	12740	13560		
YARRA ROAD (F)	0	1000		
YARRA ROAD (F)	1000	2000		
YARRA ROAD (F)	5000	6000		
YARRA ROAD (F)	6000	7000		
YARRA ROAD (F)	8000	9000		
YARRA ROAD (F)	11000	12000		
YARRA ROAD (F)	14560	15560		
YARRA ROAD (F)	13000	12740		
YARRA ROAD (F)	22860	18860		
YOUNG ROAD	740	1740		

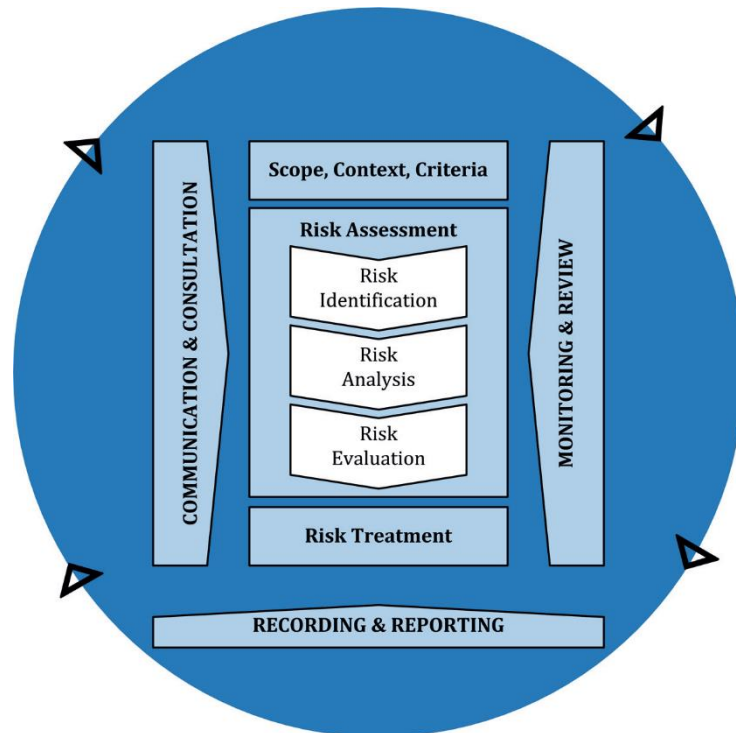
By identifying critical assets and failure modes an organisation can ensure that investigative activities, condition inspection programs, maintenance and capital expenditure plans are targeted at critical assets.

## 6.2 Risk Assessment

The risk management process used is shown in **Figure 6.2** below.

It is an analysis and problem-solving technique designed to provide a logical process for the selection of treatment plans and management actions to protect the community against unacceptable risks.

The process is based on the fundamentals of International Standard ISO 31000:2018.



**Fig 6.2 Risk Management Process**

Source: ISO 31000:2018, Figure 1, p9

The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, development of a risk rating, evaluation of the risk and development of a risk treatment plan for non-acceptable risks.

An assessment of risks<sup>6</sup> associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock,' reputational impacts, or other consequences.

Critical risks are those assessed with 'Very High' (requiring immediate corrective action), and 'High' (requiring corrective action) risk ratings identified in the Infrastructure Risk Management Plan. The residual risk and treatment costs of implementing the selected treatment plan is shown in **Table 6.2**. It is essential that these critical risks and costs are reported to management and the Council.

---

<sup>6</sup> REPLACE with Reference to the Corporate or Infrastructure Risk Management Plan as the footnote

**Table 6.2: Risks and Treatment Plans**

Identified Risk	Consequence	Likelihood	Consequence Rating	Assessed Risk	Treatment	Residual Risk
Asset failure causes loss of service. Failure may include a loss of function, damage, obstruction, or poor performance	Loss of service, loss of reputation.	Likely	Minor	Moderate	Regular inspections Provide timely maintenance Replace assets prior to failure	Low
Lack of knowledge of assets	Unexpected event, loss of service, loss of reputation.	Likely	Minor	Moderate	Regular inspections	Low
Asset defect contributes to major accident	Major accident up to and including death.	Unlikely	Severe	High	Conform to design and construction standards	Moderate
Asset defect contributes to minor accident.	Minor accident including personal injury or property damage.	Probable	Medium	Moderate	Conform to design and construction standards Maintain and inspect assets regularly	Low
Access to road building materials is compromised	Increased costs and delays in road building	Probable	Medium	Moderate	Investigate gravel supply options	Low
New technology (e.g., driverless vehicles)	Requires improved construction and maintenance standards	Probable	Medium	Moderate	Monitor and respond to changing requirements	Low
Public Liability claim	Financial Cost, Reputational damage.	Possible	Major	High	Conform to design and construction standards Maintain and inspect assets regularly	Moderate

Identified Risk	Consequence	Likelihood	Consequence Rating	Assessed Risk	Treatment	Residual Risk
Universal access requirements not met	Disabled access restricted, reputation damage, potential damage claim, potential admin penalties.	Unlikely	Medium	Moderate	Conform to universal access standards	Low
Loss of Budget	Unable to fully complete improvement, replacement or maintenance works costs incurred.	Unlikely	Major	Moderate	Prioritise expenditure with focus on operation and preservation of existing assets Adopt LTFP	Low
Change in demand - Shire Growth	New residents not provided with access.	Rare	Minor	Low	Include road network planning in scheme and development approval considerations	Low
Change in demand – service standards	Residents demand higher service standards or new assets.	Possible	Major	High	Set service standards and budget in agreement with ratepayers	Moderate
Change in demand – external requirements	Unexpected need to construct new or upgrade road linkages.	Possible	Major	High	Active involvement in regional planning	Low

**Note** \* The residual risk is the risk remaining after the selected risk treatment plan is implemented.

## 6.3 Infrastructure Resilience Approach

The resilience of our critical infrastructure is vital to the ongoing provision of services to customers. To adapt to changing conditions we need to understand our capacity to 'withstand a given level of stress or demand,' and to respond to possible disruptions to ensure continuity of service.

Resilience recovery planning, financial capacity, climate change risk assessment and crisis leadership.

We do not currently measure our resilience in service delivery. This will be included in future iterations of the AM Plan.

## 6.4 Service and Risk Trade-Offs

The decisions made in adopting this AM Plan are based on the objective to achieve the optimum benefits from the available resources.

### 6.4.1 What we cannot do

There are some operations and maintenance activities and capital projects that are unable to be undertaken within the next 10 years. These include:

- Immediately renew the entire backlog of required renewal works.

### 6.4.2 Service trade-off

If there is forecast work (operations, maintenance, renewal, acquisition, or disposal) that cannot be undertaken due to available resources, then this will result in service consequences for users. These service consequences include:

- Functional requirements on older roads, past recommended intervention point will be met, but the standard of service will be less than minimum specified

### 6.4.3 Risk trade-off

The operations and maintenance activities and capital projects that cannot be undertaken may sustain or create risk consequences. These risk consequences include:

- Older sections of roads, past recommended intervention point, will have escalated risk factors and will require more inspection and maintenance. (See risk)

These actions and expenditures are considered and included in the forecast costs, and where developed, the Risk Management Plan.

---

## 7 Financial Summary

This section contains the financial requirements resulting from the information presented in the previous sections of this AM Plan. The financial projections will be improved as the discussion on desired levels of service and asset performance matures.

### 7.1 Financial Sustainability and Projections

#### 7.1.1 Sustainability of service delivery

There are two key indicators of sustainable service delivery that are considered in the AM Plan for this service area. The two indicators are the:

- asset renewal funding ratio (proposed renewal budget for the next 10 years / forecast renewal costs for next 10 years), and
- medium term forecast costs/proposed budget (over 10 years of the planning period).

##### Asset Renewal Funding Ratio

Asset Renewal Funding Ratio<sup>7</sup> 37.54%

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years we expect to have 37.54% of the funds required for the optimal renewal of assets.

The forecast renewal work along with the proposed renewal budget, and the cumulative shortfall, is illustrated in **Appendix D**.

##### Medium term – 10-year financial planning period

This AM Plan identifies the forecast operations, maintenance and renewal costs 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.

This forecast work can be compared to the proposed budget over the first 10 years of the planning period to identify any funding shortfall.

The forecast operations, maintenance, and renewal costs over the 10-year planning period is \$0.19 Million on average per year.

The proposed (budget) operations, maintenance and renewal funding is \$0.19 Million (assuming maintenance costs) on average per year giving a 10-year funding balanced budget each year. This indicates that 100% of the forecast costs needed to provide the services documented in this AM Plan are accommodated in the proposed budget. Note, these calculations exclude acquired assets.

---

<sup>7</sup> AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

Providing sustainable services from infrastructure requires the management of service levels, risks, forecast outlays and financing to achieve a financial indicator of approximately 1.0 for the first years of the AM Plan and ideally over the 10-year life of the Long-Term Financial Plan.

### 7.1.2 Forecast Costs (outlays) for the long-term financial plan

**Table 7.1.2** shows the forecast costs (outlays) required for consideration in the 10-year long-term financial plan.

Providing services in a financially sustainable manner requires a balance between the forecast outlays required to deliver the agreed service levels with the planned budget allocations in the long-term financial plan.

A gap between the forecast outlays and the amounts allocated in the financial plan indicates further work is required on reviewing service levels in the AM Plan (including revising the long-term financial plan).

We will manage the ‘gap’ by developing this AM Plan to provide guidance on future service levels and resources required to provide these services in consultation with the community.

**Table 7.1.2: Forecast Costs (Outlays) for the Long-Term Financial Plan**

Year	Acquisition	Operation & Maintenance	Renewal	Disposal
2023	\$2,100,000	\$ 1,150,000	\$10,942,000	\$ -
2024	\$640,000	\$ 1,150,000	\$3,164,000	\$ -
2025	\$640,000	\$ 1,150,000	\$1,742,000	\$ -
2026	\$640,000	\$ 1,150,000	\$1,580,000	\$ -
2027	\$640,000	\$ 1,150,000	\$274,000	\$ -
2028	\$640,000	\$ 1,150,000	\$2,206,000	\$ -
2029	\$640,000	\$ 1,150,000	\$ 283,000	\$ -
2030	\$640,000	\$ 1,150,000	\$869,000	\$ -
2031	\$640,000	\$ 1,150,000	\$501,000	\$ -
2032	\$640,000	\$ 1,150,000	\$200,000	\$ -

Forecast costs are shown in 2022-dollar values.

Note the plan has not been balanced at this time pending Council consideration of priorities

## 7.2 Funding Strategy

The proposed funding for assets is outlined in the Shire’s budget and Long-Term financial plan.

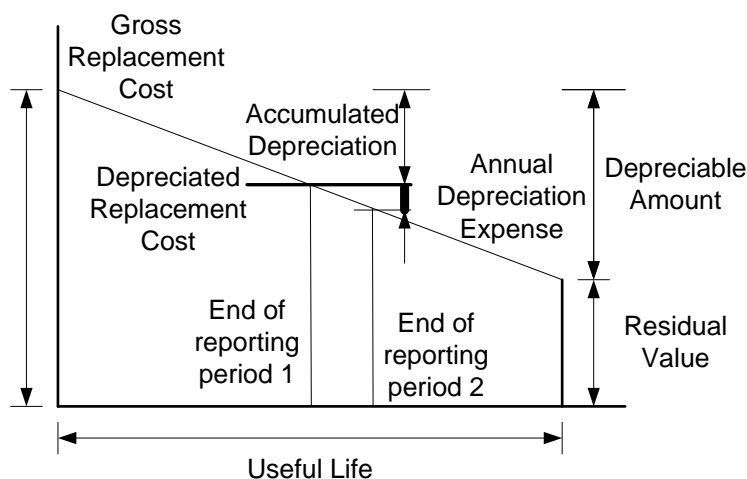
The financial strategy of the Shire determines how funding will be provided, whereas the AM Plan communicates how and when this will be spent, along with the service and risk consequences of various service alternatives.

## 7.3 Valuation Forecasts

### 7.3.1 Asset valuations

The best available estimate of the value of assets included in this AM Plan are shown below. The assets are valued at Fair value by cost replacement method, as of 30 June 2022.

- Replacement Cost (Current/Gross)      \$155,915,509
- Depreciated Replacement Cost<sup>8</sup>      \$112,748,027
- Cumulative Depreciation                \$ 43,167,483
- Annual Depreciation                      \$ 4,053,690



### 7.3.2 Valuation forecast

Asset values are forecast to increase as additional assets are added.

Additional assets will add to the operations and maintenance needs in the longer term. Additional assets will also require additional costs due to future renewals. Any additional assets will also add to future depreciation forecasts.

## 7.4 Key Assumptions Made in Financial Forecasts

In compiling this AM Plan, it was necessary to make some assumptions. This section details the key assumptions made in the development of this AM plan and should provide readers with an understanding of the level of confidence in the data behind the financial forecasts.

<sup>8</sup> Also reported as Written Down Value, Carrying or Net Book Value.

Key assumptions made in this AM Plan are:

- The asset register, condition data and other source information is a true reflection of the real world (see confidence statement)
- The assets are of sufficiently uniform design, construction, quality, and usage that reliable statistical forecasts can be made.
- The assets are being (and have been) maintained and operated appropriately, such that useful lives will be achieved.
- No data was available to estimate a maintenance budget and an estimated based on minimal data was provided.
- Costs of assets are estimated on average project costs, without project plans or site inspection. On the average these are statistically reliable, but in the individual case variation can be expected
- Funding levels in the current LTFP will be continued
- Grant funding continues to be available at the same level from the various grant programs including FAGS, FAGS-Roads, Roads to recovery, Direct Grant, Regional Road Funds, Blackspot program and similar.
- There are sufficient gravel, water, contractor and other resources to deliver all of the proposed works within the annual budget cycle, and those resources are of sufficient quality

## 7.5 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this AM Plan are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is classified on an A - E level scale<sup>9</sup> in accordance with Table 7.5.1.

**Table 7.5.1: Data Confidence Grading System**

Confidence Grade	Description
A. Very High	Data based on sound records, procedures, investigations, and analysis, documented properly, and agreed as the best method of assessment. Dataset is complete and estimated to be accurate $\pm 2\%$
B. High	Data based on sound records, procedures, investigations, and analysis, documented properly but has minor shortcomings, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate $\pm 10\%$
C. Medium	Data based on sound records, procedures, investigations, and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is complete but up to 50% is extrapolated data and accuracy estimated $\pm 25\%$

<sup>9</sup> IPWEA, 2015, IIMM, Table 2.4.6, p 2 | 71.

D. Low	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete, and most data is estimated or extrapolated. Accuracy $\pm$ 40%
E. Very Low	None or very little data held.

The estimated confidence level for and reliability of data used in this AM Plan is shown in **Table 7.5.2**.

**Table 7.5.2: Data Confidence Assessment for Data used in AM Plan**

Data	Confidence Assessment	Comment
Demand drivers	C	Demand drivers are minimal, evidence is limited
Growth projections	B	Growth is projected as minimal
Acquisition forecast	B	This depends on whether this plan is followed or needs to be adjusted
Operation forecast	D	This is an estimated based on no data and limited understanding
Maintenance forecast	D	This is an estimated based on no data and limited understanding
Renewal forecast - Asset values	C	Based on a comprehensive condition survey (2022), assessment of needs and forecast of works needed
- Asset useful lives	C	Industry standards have been adopted
- Condition modelling	C	Modelling was unsophisticated and based on generic assumptions. Condition data is recent but other data for more complete modelling is generic and untested
Disposal forecast	A	No disposals forecast

The estimated confidence level for and reliability of data used in this AM Plan is medium.

## 8 Plan Improvement and Monitoring

### 8.1 Status of Asset Management Practices

#### 8.1.1 Accounting and financial data sources

This AM Plan utilises accounting and financial data. The source of the data is the adopted Long term Financial Plan, extracts from Annual budgets and Annual reports and the 2022 Asset Valuation Report.

#### 8.1.2 Asset management data sources

This AM Plan also utilises asset management data. The source of the data is extracts from the Asset Register, as updated 2022.

### 8.2 Improvement Plan

It is important that a shire recognise areas of their AM Plan and planning process that require future improvements to ensure effective asset management and informed decision making. The improvement plan generated from this AM Plan is shown in **Table 8.2**.

**Table 8.2: Improvement Plan**

Item	Description	Responsibility	Resources required	Priority	Timeline
1	Establish a firm annual commitment to road renewal funding in the LTFFP, with a focus on improving older and degraded sections of road.	Council	TBA	Very high	June 2023
2	Identify and pursue grant funding opportunities for road works.	EMIDS	TBA	High	June 2024
3	Develop and adopt a Road Network strategy including consideration of current and emerging needs, service gaps and improvement plan.	EMIDS	TBA	High	June 2024
4	Adopt the proposed service levels for a 12-month trial basis and then review with Council and Community	EMIDS	TBA	Medium	June 2026
5	Establish separate cost centres for the reporting of road maintenance and capital works, with consideration to defining activity and asset identification of works	Finance	TBA	Medium	June 2024
6	Undertake Internal reviews of performance and issues- June 2023,2024,2025.	EMIDS	TBA	Medium	June 2023, 2024, 2025
7	Undertake external AMS audit June 2026.	EMIDS	TBA	Medium	June 2026

8	Adopt a data management plan including scheduled updates of road data.	EMIDS	TBA	Low	June 2025
9	Review service levels.	EMIDS	TBA	Very Low	June 2027
10	Develop and document processes for key functions such as valuation, acceptance of new assets, inspection, forward works planning and similar.	EMIDS	TBA	Very Low	Future
11	Secure road building supply sources sufficient to meet need (Gravel Pits, contractors)	EMIDS	TBA	Low	June 2025

### 8.3 Monitoring and Review Procedures

This AM Plan will be reviewed during the annual budget planning process and revised to show any material changes in service levels, risks, forecast costs and proposed budgets because of budget decisions.

The AM Plan will be reviewed and updated annually to ensure it represents the current service level, asset values, forecast operations, maintenance, renewals, acquisition and asset disposal costs and planned budgets. These forecast costs and proposed budget are incorporated into the Long-Term Financial Plan or will be incorporated into the Long-Term Financial Plan once completed.

The AM Plan has a maximum life of 4 years and is due for complete revision and updating within 12 months of each Council election.

### 8.4 Performance Measures

The effectiveness of this AM Plan can be measured in the following ways:

- The degree to which the required forecast costs identified in this AM Plan are incorporated into the long-term financial plan,
- The degree to which the 1–5-year detailed works programs, budgets, business plans and corporate structures consider the 'global' works program trends provided by the AM Plan,
- The degree to which the existing and projected service levels and service consequences, risks and residual risks are incorporated into the Strategic Planning documents and associated plans,
- The Asset Renewal Funding Ratio achieving the Organisational target (this target is often 90 – 100%).

## 9 References

1. IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/IIMM](http://www.ipwea.org/IIMM)
2. IPWEA, 2015, 3rd edn., 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/IIMM](http://www.ipwea.org/IIMM)
3. IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/namsplus](http://www.ipwea.org/namsplus).
4. IPWEA, 2015, 2nd edn., 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/AIFMM](http://www.ipwea.org/AIFMM).
5. IPWEA, 2020 'International Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney
6. IPWEA, 2018, Practice Note 12.1, 'Climate Change Impacts on the Useful Life of Assets', Institute of Public Works Engineering Australasia, Sydney
7. IPWEA, 2012, Practice Note 6 Long-Term Financial Planning, Institute of Public Works Engineering Australasia, Sydney, <https://www.ipwea.org/publications/ipweabookshop/practicenotes/pn6>
8. IPWEA, 2014, Practice Note 8 – Levels of Service & Community Engagement, Institute of Public Works Engineering Australasia, Sydney, <https://www.ipwea.org/publications/ipweabookshop/practicenotes/pn8>
9. ISO, 2014, ISO 55000:2014, Overview, principles, and terminology
10. ISO, 2018, ISO 31000:2018, Risk management – Guidelines
11. Long Term Financial Plan, Shire of York, 2016
12. Corporate Business Plan, Shire of York, 2020
13. Operational Policy Asset Management, Shire of York, 2016
14. Strategic Community Plan 2020-2030, Shire of York, 2020
15. Annual Budget 2021-22, Shire of York, 2021
16. Annual Budget 2022-23, Shire of York, 2022
17. Disability and Inclusion Plan, Shire of York, 2016

## Appendix A Acquisition Forecast

### A.1 – Acquisition Forecast Assumptions and Source

Acquisition of new assets is focussed on regional road upgrades.

Other specific projects may be identified at the expense of the renewal budget

### A.2 – Acquisition Project Summary

Specific project sites not identified

**Table A3 - Acquisition Forecast Summary**

Year	Constructed	Donated	Growth
2023	\$2,100,000	\$-	\$-
2024	\$640,000	\$-	\$-
2025	\$640,000	\$-	\$-
2026	\$640,000	\$-	\$-
2027	\$640,000	\$-	\$-
2028	\$640,000	\$-	\$-
2029	\$640,000	\$-	\$-
2030	\$640,000	\$-	\$-
2031	\$640,000	\$-	\$-
2032	\$640,000	\$-	\$-

## Appendix B      Operation Forecast

### B.1 – Operation Forecast Assumptions and Source

Operation costs are included in the maintenance budget

Operation costs (inspection, cleaning) do not require separate accounting)

### B.2 – Operation Forecast Summary

See Maintenance budget

**Table B2 - Operation Forecast Summary**

Year	Operation Forecast	Additional Operation Forecast	Total Operation Forecast
n/a	See maintenance		

## Appendix C Maintenance Forecast

### C.1 – Maintenance Forecast Assumptions and Source

Limited evidence available

Maintenance budget of \$792,000 per annum has been estimated from the historical allocation recorded in 2022.

A zero base estimate on limited data indicates a budget need in the order of \$1.15 Million per annum to meet the basic service standards, and higher to meet the specified requirement of Main Roads standards

### C.2 – Maintenance Forecast Summary.

Table C2 - Maintenance Forecast Summary

Year	Maintenance Forecast	Additional Maintenance Forecast	Total Maintenance Forecast
2023	\$ 1,150,000	\$0	\$ 1,150,000
2024	\$ 1,150,000	\$0	\$ 1,150,000
2025	\$ 1,150,000	\$0	\$ 1,150,000
2026	\$ 1,150,000	\$0	\$ 1,150,000
2027	\$ 1,150,000	\$0	\$ 1,150,000
2028	\$ 1,150,000	\$0	\$ 1,150,000
2029	\$ 1,150,000	\$0	\$ 1,150,000
2030	\$ 1,150,000	\$0	\$ 1,150,000
2031	\$ 1,150,000	\$0	\$ 1,150,000
2032	\$ 1,150,000	\$0	\$ 1,150,000

All costs are in 2022 dollars

## Appendix D Renewal Forecast Summary

### D.1 – Renewal Forecast Assumptions and Source

The renewal forecast is based on an existing backlog of works and planned completion of all backlog and emerging need over a 10-year period

### D.2 – Renewal Project Summary

A draft renewal plan is under consideration

The renewal forecast is based on Main Roads standards and includes rehabilitation of older road pavements that do not meet the proposed intervention levels. It includes resurfacing program, unsealed road re-sheeting program, car park resurfacing and pavement rehabilitation

### D.3 – Renewal Forecast Summary

Table D3 - Renewal Forecast Summary

Year	Renewal Forecast	Renewal Budget
2023	\$10,942,000	\$10,942,000
2024	\$3,164,000	\$3,164,000
2025	\$1,742,000	\$1,742,000
2026	\$1,580,000	\$1,580,000
2027	\$274,000	\$274,000
2028	\$2,206,000	\$2,206,000
2029	\$ 283,000	\$ 283,000
2030	\$869,000	\$869,000
2031	\$501,000	\$501,000
2032	<b>\$200,000</b>	<b>\$200,000</b>

### D.4 –Renewal Plan

DA detail renewal plan identifying projects and priorities is under consideration

## Appendix E Disposal Summary

### E.1 – Disposal Forecast Assumptions and Source

No disposals forecast.

### E.2 – Disposal Project Summary

No disposals forecast

### E.3 – Disposal Forecast Summary

Table E3 – Disposal Activity Summary

Year	Disposal Forecast	Disposal Budget
all	No activity planned	\$-

