

Asset Management Plan 2020 Road Infrastructure

QUALITY ASSURANCE

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EXECUTIVE SUMMARY

1 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

The Road Infrastructure Asset Management Plan (plan) has been developed to guide Council and the community in the provision and development of road infrastructure currently managed by Council. The purpose of this plan is to document the Council's asset management practices and present a lifecycle strategy for road and associated infrastructure for the next ten years.

The plan considers all relevant levels of service, the current Council Plan and other key planning processes and documents. This plan determines the manner by which Council undertakes the management of road infrastructure assets to achieve the required levels of service to the community and meet regulatory requirements.

1.2 Asset Description

The Road Management Act 2004 defines a municipal road as "any road which is not a State road, including any road which

- a) is a road referred to in section 205 of the Local Government Act 1989, or
- b) is a road declared by VicRoads to be a municipal road under section 14(1)(b), or
- c) is part of a Crown land reserve under the Crown Land (Reserves) Act 1978 and has the relevant municipal council as the committee of management;" p.7 Road Management Act 2004.

This definition is still valid with the amendment to the Road Management Act 2004 as below;

Sec 5 (2) If a road authority is a municipal council, the provisions of Division 1 of Part 2 of the **Local Government Act 2020** and Division 2 of Part 9 and Schedules 10 and 11 of the **Local Government Act 1989** apply and are to be construed for the purposes of this Act as if those provisions formed part of this Act.

The assets covered in this plan include;

- 9 million m² or 1,678 km length of local sealed road pavement¹
- 4.1 million m² or 1,111 km length of local gravel road pavement¹
- 217 km of kerb and channel¹

Total replacement value of these key asset components as at May 2019 was \$294 million².

The infrastructure assets within Council's road reserves consist broadly of the following six sub assets.

¹ Asset Management System, May 2019

² Asset Management System Valuation Summary Report, May 2019

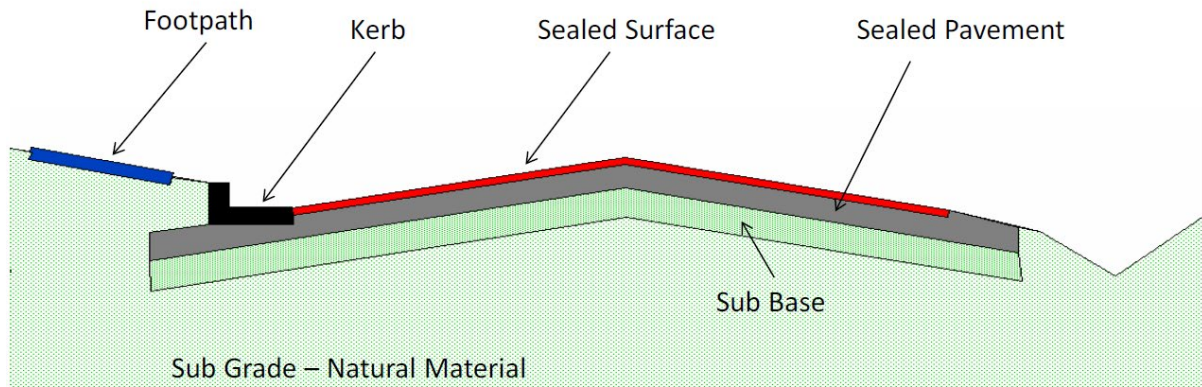


Figure 1: The Road Sub Asset components³

The Sealed Surface

The sealed surface is the thin sprayed bitumen seal or asphalt surfacing that seals off the underlying pavement from the intrusion of water. Its primary purpose is to waterproof the underlying pavement as well as maintain a more constant moisture content within the pavement layer. It also provides a smooth wearing surface. With a typical service life of 15 - 30 years.

The Sealed Pavement

The sealed road pavement is made up of a granular material (crushed rock, gravel or the like) that is used to distribute the imposed vehicle wheel load to the underlying subgrade over a greater area than the wheel contact area, such that there is little or no deformation or movement in the underlying soil. With a typical service life of 50 - 150 years.

The Unsealed Pavement

The unsealed road pavement performs the same role as the sealed pavement except that it does not have the additional protection of a sealed surface. With a typical service life of 15 - 35 years.

The Kerb

Kerbs in urban areas are normally constructed of concrete and are used to drain water away from the pavement. They also assist in retaining the pavement edge in place. With a typical service life of 50 - 150 years.

The Footpath

Discussed in Council's Pathway Infrastructure Asset Management Plan.

The Sub Base

A second pavement layer that may or may not be present.

The Sub Grade

The natural material that the road infrastructure is built on.

1.3 Levels of Service

General Road Asset Condition Intervention Levels also known as renewal limits are shown in the following table. (Factors that can impact on the intervention levels include, bus routes, schools, playgrounds and it is at Council's discretion upon when to intervene).

³ Moloney Asset Management Report 2019

Table 1: Road Asset Condition Intervention Levels and Estimated Life of Asset in Years

Asset Type	Intervention Levels*	Estimated Asset Life Years^
Urban and Rural Seal	Condition 7	19.9
Urban Sealed Pavement	Condition 7	115
Rural Sealed Pavement	Condition 7	65
Unsealed Pavement	Condition 7	35
Kerb and Channel	Condition 7	126.9
* refer sections 4.2.2, 5.2.2, 6.2.2 and 7.2.2 Moloney Asset Management Report 2019		

1.4 Future Demand

Council is expecting to see increased use of the road networks by larger and heavier vehicles for agricultural and manufacturing purposes, a possible increase in visitor traffic through the area with a decrease in ratepayers to fund maintenance and expansion projects.

Southern Grampians is projected to experience a slow population decline throughout the next 20 years. Any new subdivisions in the shire will create new roads to service the allotments. These new roads will increase the maintenance and renewal burden and must be considered in forecasting future expenditure.

1.5 Lifecycle Management Plan

As per Council's Asset Management Policy, works are undertaken with the understanding that we renew assets before upgrading or creating a new asset. This means that areas within the shire that are serviced with gravel roads or without kerb and channel would likely be maintained to existing conditions only. To upgrade an asset would require investigation as outlined in the Policy.

Council employs dedicated resources to undertake physical inspections of all road infrastructure in accordance with Council's Road Management Plan.

General maintenance strategies include:

- Ensuring the road network is maintained in accordance with agreed levels of service.
- Deferring non-safety related maintenance work if road pavement rehabilitation is imminent.
- Ensuring isolated pavement failures are rectified in advance of pavement resealing works.

During subdivision of land, developers/owners may be required to construct road and associated infrastructure as per the Infrastructure Design Manual as part of the Planning process. Once the subdivision is finalised, these assets are then handed over to Council for continued maintenance. All creations and disposals are managed in accordance with the relevant Council policies.

1.6 Financial Summary

Council's Road Infrastructure Asset Management Plan describes the way road infrastructure is managed throughout its lifecycle. The Service Plan in conjunction with the Road Management Plan are key documents used to inform this Plan's Financial Summary.

The predicted average renewal demand for the next 20 years was calculated by a consultant during the condition and revaluation assessment contract in September and October 2019. Currently Council's budget is set based on historic costs and expected grant funding as calculated each year.

The figure below shows the expected renewal demand to treat all road infrastructure as they reach intervention level.

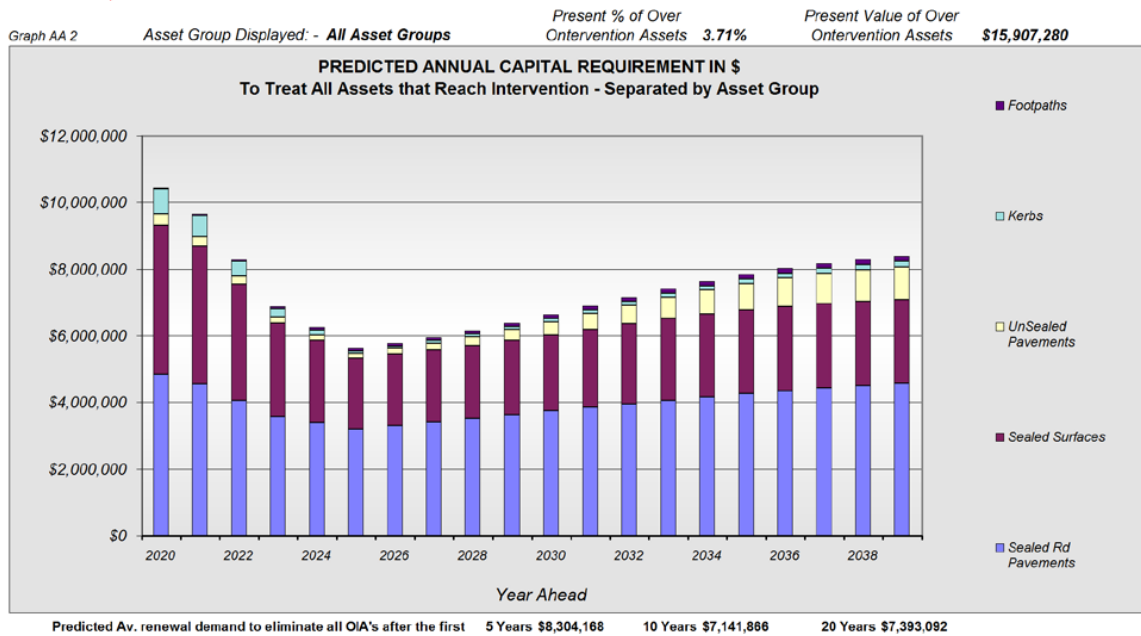


Figure 2: Predicted Average Renewal Demand to treat all assets that reach the Intervention level (Moloney Asset Management Report 2019)

1.7 Asset Management Practices

This plan aligns with key organisational documents including the current Council Plan, Strategic Resource Plan, Annual Plan and Asset Policy. The Road Management Plan and Accounting for Assets Policy are referred to when setting capital and operational budgets and undertaking condition assessments and revaluations of the assets.

Council uses Conquest 3 to store asset related data including recording inspections, condition ratings and valuations and to report on the state of the assets. Road data was assessed and cleaned during the 2019/20 financial year to remove duplicate sections and realign segments, wherever possible, to run between cross roads. Confidence in road data is considered high with associated infrastructure rated low.

1.8 Monitoring and Improvement Program

This plan is a living document and will be internally reviewed by the Assets Team annually during the creation of a one page state of the asset report. A full review will be undertaken every fourth year to coincide with revaluation and condition assessments as per the Accounting for Assets Policy.

Key areas of improvement include:

1. Increase the accuracy of kerb and channel data.
2. Capture of roadside objects including signage and street trees.
3. Increase use of mobile tools to allow real time capture of defects and works in the field.
4. Creation of a single page state of the asset annual overview.
5. Create an audit process for design and construction works to ensure compliance with the Road Management Plan.

INTRODUCTION

2 INTRODUCTION

2.1 Background

2.1.1 Purpose of the Plan

The Road Infrastructure Asset Management Plan (plan) has been developed to guide Council and the community in the provision and development of road infrastructure currently managed by Council. The purpose of this plan is to document the Council's asset management practices and present a lifecycle strategy for road and associated infrastructure for the next ten years.

The plan considers all relevant levels of service, the current Council Plan and other key planning processes and documents. This plan determines the manner by which Council undertakes the management of road infrastructure assets to achieve the required levels of service to the community and meet regulatory requirements.

The emphasis of this plan has been:

- To identify all road infrastructure assets and existing management arrangements.
- To give an overall estimate of the cost of owning and maintaining the assets over the long term (10 year) period.
- To document management goals whilst allowing for the varying service levels affecting the assets.

2.1.2 Relationship with Other Planning Documents

The following internal documents have a direct relationship with this plan:

- Current Road Management Plan.
- Current Register of Public Roads.
- Current joint boundary roads agreements.
- Southern Grampians Shire Council Long-Term Financial Plan.
- Current Council Plan.
- Accounting for Assets Policy.
- Current Strategic Resource Plan.
- Railway Reserves Agreement.

The Southern Grampians Shire Council Strategic Asset Management Framework is depicted in the Figure below:

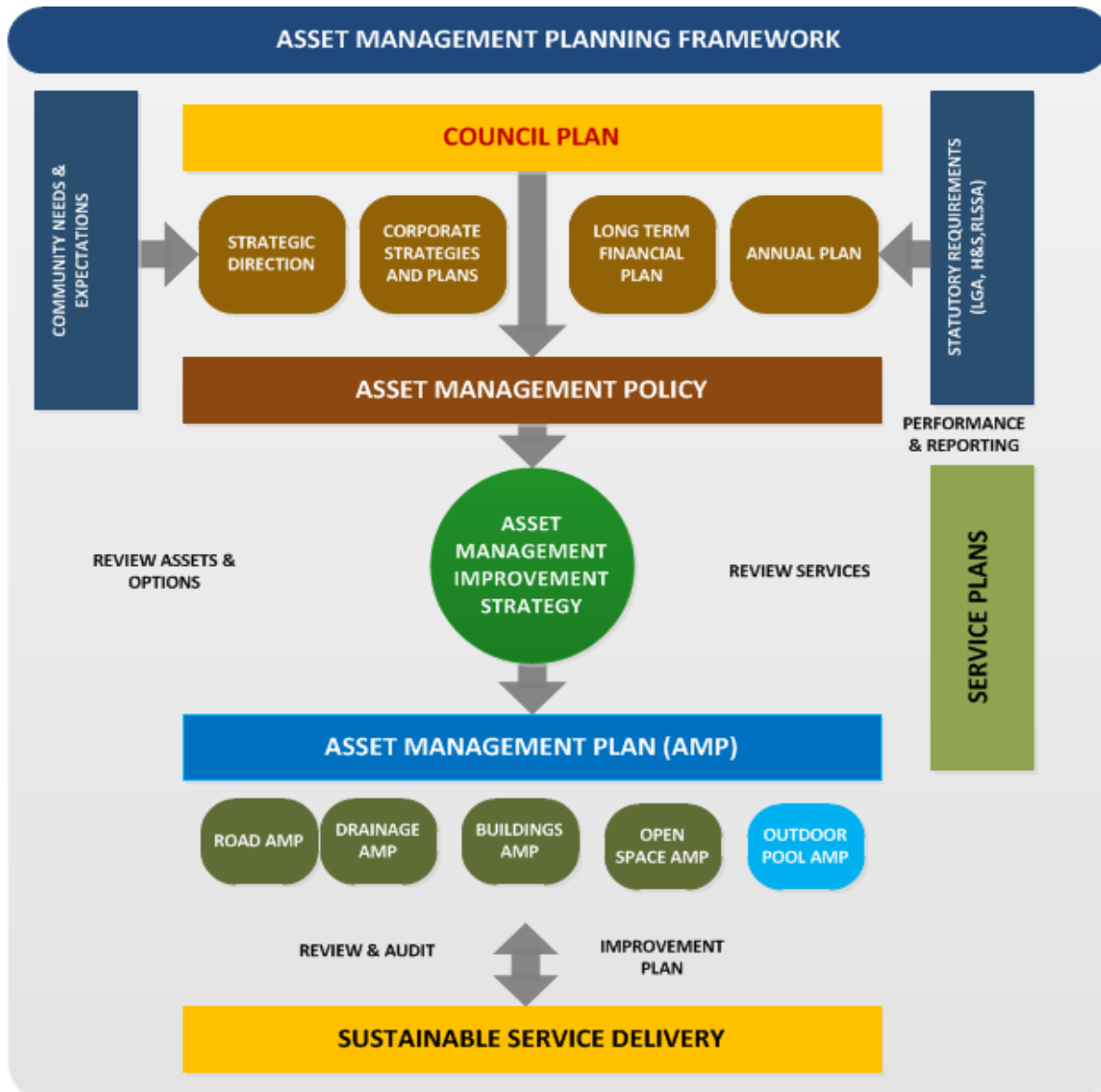


Figure 3: Asset Management Planning Framework

2.1.3 Infrastructure Assets Included in the Plan

This plan covers the asset management of the below assets:

Table 2: Assets Covered in Plan

Asset Category	Asset Component	Total Asset Length
Road Infrastructure	Sealed pavement	1,678 km
	Sealed surface	1,678 km
	Kerb and channel	217 km
	Road formation	
	Road shoulders	
	Unsealed road pavement	1,111 km

2.1.3.1 Assets Council Maintained - Not Included in the Plan

There are several other assets within the road reserve which are the responsibility of Council to maintain. These assets are generally not deemed to hold a substantial value, and as such are provided for on an operational basis. These assets are as follows.

Street Trees

Street tree maintenance occurs in accordance with Council's Street Tree Asset Management Plan 2019.

Signage

Street name signage is the responsibility of Council.

Railway signage as below.

Emergency Services Assets

Council has an obligation to maintain stand pipes and fireplugs in the road reserve and firefighting dams in rural areas. A separate Roadside Furniture Asset Management Plan is still required for Assets that would fall into this category.

2.1.3.2 Assets Not Council Maintained- Not Included in the Plan

There are several assets within the road reserve that Council does not have an obligation to maintain. However Council has a duty of care to ensure that these assets are in a safe condition for the public in general and may serve a notice on the property owner to have defects repaired. These assets and the responsibility for addressing their defects are as follows:

Vehicle Crossings/Driveways

The portion of a vehicle crossing located between the carriageway and the property boundary is the responsibility of the adjoining property owner to maintain.

This area should only be repaired by Council if Council activities have caused their damage or it is part of a reinstatement operation. Works carried out on a vehicle crossing at the owners' request shall be treated as private works at the owner's cost.

Single Property Storm Water Drains

These stormwater drains are constructed on the roadside from the property boundary to a discharge outlet. They are the responsibility of the owner of the property being served to maintain.

Nature Strip

The residual roadside areas between the edge of the road or back of the kerb and the property boundary not occupied by the footpath and private road crossings. These are normally sown to grass, the property owner has responsibility for maintenance.

Where the adjoining property owner has 'landscaped' or otherwise created a situation that is hazardous to the public using the nature strip area Council may, after inspection, require the property owner to rectify it.

Private Vegetation

In urban areas, road side and private vegetation which extends into the road reserve must not provide an obstruction to the line of the footpath or the carriageway.

In rural areas, road side and private vegetation which extends into the road reserve must not encroach onto the roadway or hinder sight distance.

Where private vegetation creates a situation which is hazardous, Council may, after inspection, require the property owner to rectify it.

Railway Level Crossings and Railway Bridges

Council is responsible for road maintenance up to three metres from the nearest rail track, and all signage on the approach to level crossings on local roads.

The land around train lines – known as rail reserves – is VicTrack's responsibility to maintain and upgrade.

Utility Assets

Utility assets such as telecommunications, electricity, water supply, sewerage and gas mains remain the responsibility of the utility company.

Assets Controlled By Other Authorities Or On Private Land.

Following identification, in all such instances, the owner must be notified and directed to make the area safe and repair the defect within a period of two weeks and that in the event the defect is not repaired Council will repair it as a charge against the property.

2.1.4 Key Stakeholders

The table below identifies the key stakeholders and their responsibilities with regards road infrastructure.

Table 3: Stakeholders and Role

Stakeholder	Responsibilities
Council	Owner and maintainer. Legislator (local laws).
State and Federal Government	Owner and maintainer (non-council assets) Legislators. Funders.
The community including but not limited to; <ul style="list-style-type: none"> • Residents. • Visitors. • Emergency services. • Business owners / suppliers. • Pedestrians. • Drivers, commercial or private. • Cyclists. 	User of network.
Traffic & Transportation managers;	User of network.
Construction & maintenance personnel who build and maintain asset components;	As contracted.
Aboriginal/Cultural Heritage	Advisors.
Utility agencies that utilise the road reserve for their infrastructure (Water, sewerage, gas, electricity, telecommunications);	Interested party. Management of assets within the road reserve.

2.1.5 Organisation structure

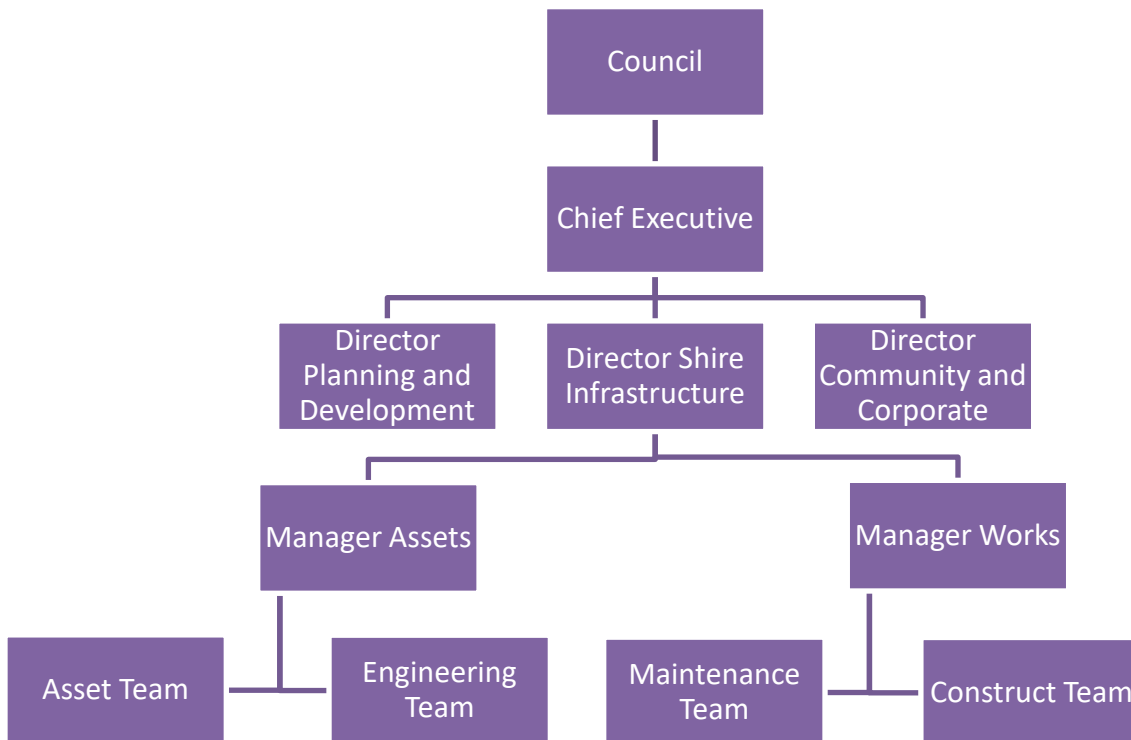


Figure 4: Road Infrastructure Organisational Structure

2.2 Goals and Objectives of Asset Ownership

2.2.1 Reasons and Justification of Asset Ownership

Local Government's (Council) exist to provide core services to meet the needs of its community. Some of these services are provided by infrastructure assets. Council acquires infrastructure assets by purchase, contract, gifting/donation following subdivision and construction by staff.

Under the Road Management Act 2004, Council is the designated 'Co-ordinating Road Authority' for municipal roads within the municipality and is responsible for their care and management. This means Council must ensure that if a road is required for public traffic, it is kept open for public use, and may carry out work on the road.

2.2.2 Links to Organisation Vision, Mission, Goals and Objectives

Asset management plans are vital components of Council's overall strategic planning process. It is guided by Council's Vision from the 2017-2021 Council Plan:

"That Southern Grampians Shire will be recognised as a well-connected, dynamic Regional Centre, supporting a vibrant, healthy and inclusive community" and Key Priorities from the Council Plan (Priority 1 'Support our Community' and Priority 3 'Plan for our Built Environment and Infrastructure').

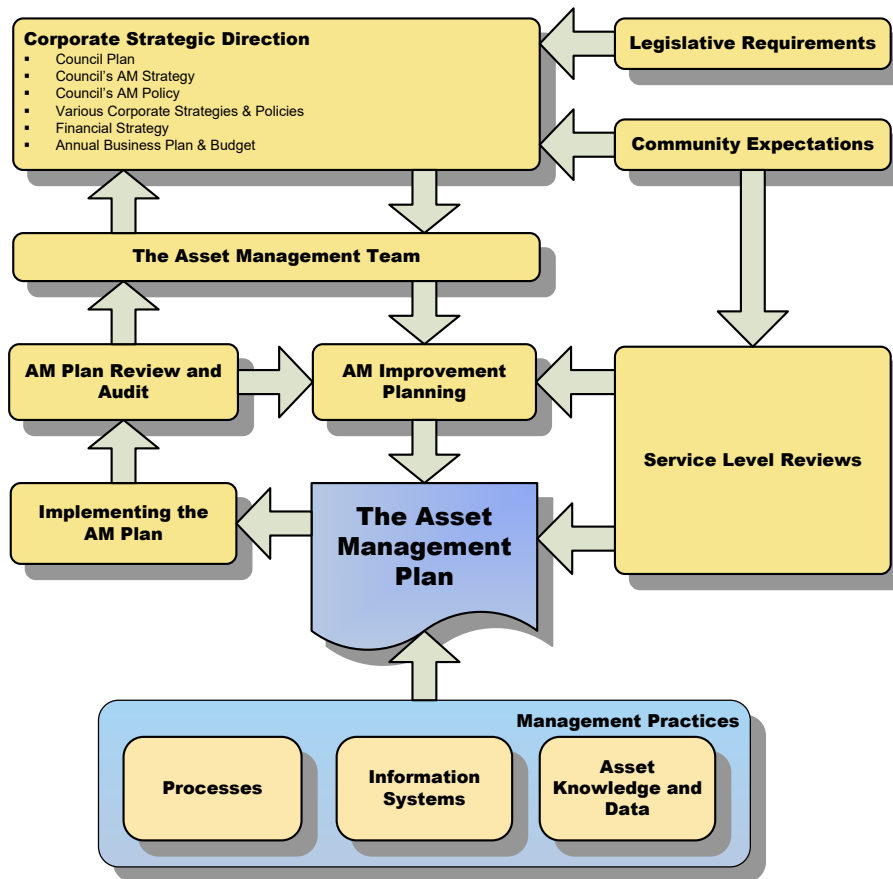


Figure 5: Structure of an Asset Management Plan

2.3 Core and Advanced Asset Management

Guidance in the development process of this Plan has been taken from the International Infrastructure Management Manual (IIMM) 2015, and the ISO55000 Asset Management Standards.

Council uses core asset management and some advanced asset management principles with respect to their road infrastructure. Road pavements and seals are currently the best documented asset class with the most accurate asset management data.

It should be noted that advanced principles are aspirational for SGSC and not all are currently employed as part of the Asset Management arsenal. Council aims to transition to a largely advanced asset management system as skill and data integrity allow. Notable improvements in the following areas are required or occurring;

- Data validation and cleansing of the asset register.
- Implementation of a maintenance management system.
- Development of prioritisation tool.
- SGSC officer training in predictive and long term financial modelling.
- Application of risk management in accordance with Council's Risk Management Policy.
- Development and introduction of optimised decision making techniques.

LEVELS OF SERVICE

3 LEVELS OF SERVICE

3.1 Customer Research and Expectations

This section of the plan documents the methodology and the levels of service to be delivered by the road assets through the implementation of the plan. Council is keen to enhance the management of road assets to better meet community expectations within financial and other practical constraints. Achievement of this objective will require the establishment of service level measures and performance targets that guide future asset management decision-making.

Council participates annually in a state wide Community Satisfaction Survey that measures Council performance against other Municipalities. Whilst Council had a modest increase of 9% with regards condition of the sealed road network, it is still 15% below the state average.

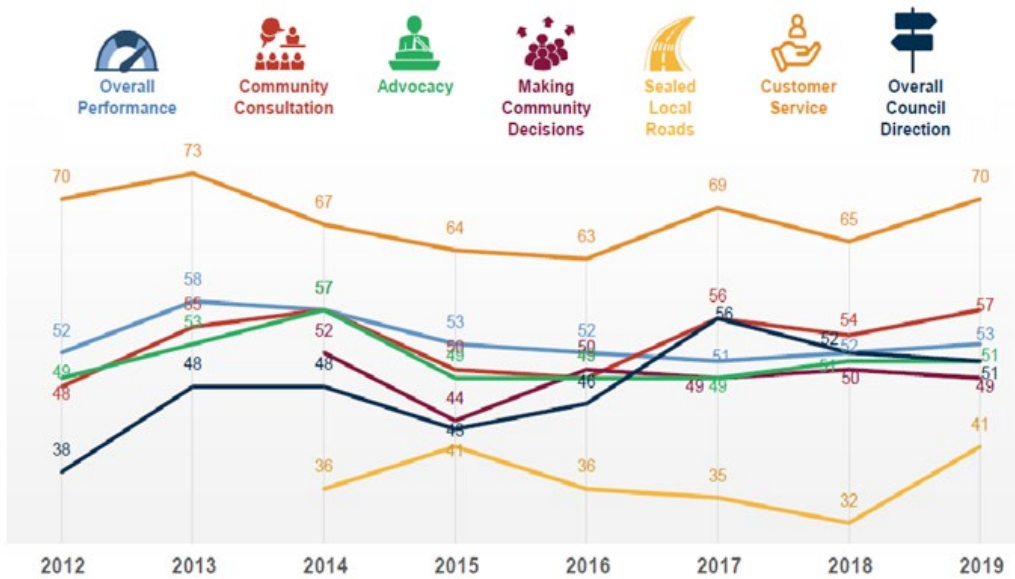


Figure 6: 2019 Community Satisfaction Survey Core Measures Summary

The figure below shows the breakdown in percentage of community responses specific to sealed road conditions for 2019. Southern Grampians is clearly below not only the State average for satisfaction but also those of Large Rural Council's which have similar compositions to Southern Grampians Shire. 18-34 and over 65 year olds have a more favourable view of road conditions than their 35-64 year old counterparts. More work is required to improve road conditions and community perception.

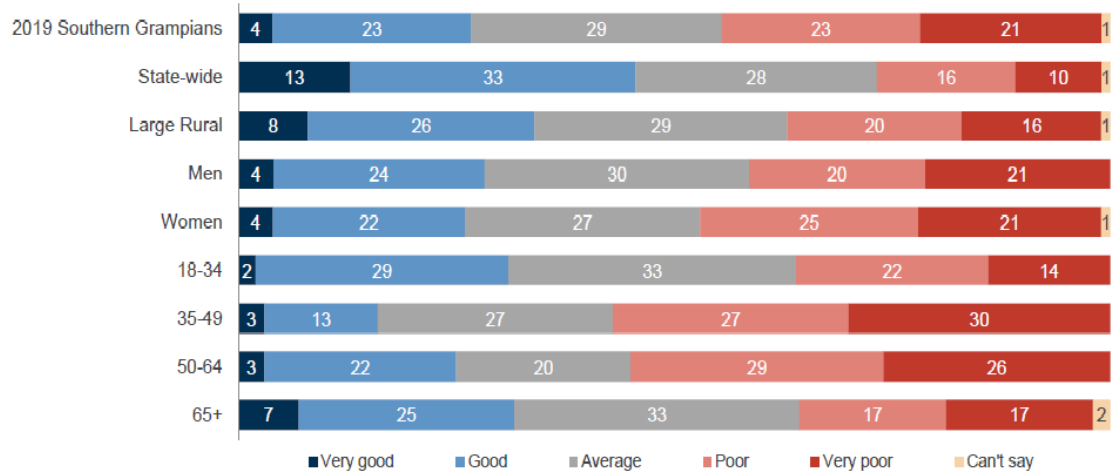


Figure 7: 2019 Community Satisfaction Survey Sealed Road Condition Results

3.2 Strategic and Corporate Goals

A strategic objective of the Council Plan is to develop Service and Asset management plans for the ongoing management of Council's assets. In conjunction with the asset management framework, this plan has been developed to focus on the strategic replacement of Council assets to ensure that risks are minimised, and that the best cost/benefit outcomes are achieved for the community. The table below identifies how this plan links to Council's Annual Plan Key Strategies, Objectives and Strategies.

Table 4: Strategic Objectives and Priorities

Key Strategy	Objective	Strategy	Plan Connections
1. Support our Community	1.2 A healthy and vibrant community	1.2.1 Provide appropriate, accessible and equitable Council services, facilities and activities	The plan identifies practices and priorities for cycleway, disabled parking and other community road infrastructure
		1.2.4 Provide, promote and support appropriate and accessible services, facilities and activities for young people	The plan prioritises work based on road hierarchy, consumption (usage counts), condition and best practice across the network
3. Plan for our Built Environment and Infrastructure	3.1 Plan and provide for sustainable assets and infrastructure	3.1.2 Review and adopt AMP to align with future service levels and prioritise sustainability	The plan identifies service levels consistent with Council objectives
		3.2 Plan, advocate and provide for safe and well maintained transport routes and infrastructure	The plan prioritises work and identifies road infrastructure that is not Council's to allow advocacy through appropriate channels
		3.3 Develop and maintain attractive and vibrant Council owned and managed open spaces and streetscapes	Upgrade road infrastructure throughout the Shire to promote economic growth and meeting changing demands of road transport
5. Provide Governance and Leadership	5.1 Provide transparent and responsible governance	5.1.3 Continue to increase the transparency of Council's decision making processes	The plan records decision making criteria for road infrastructure in a single document for easy reference and transparency

3.3 Legislative Requirements

This plan has been prepared in accordance with the following Acts, Regulations, Codes of Practice and related documentation as presented in the table below.

Table 5: Legislation and its Impact on Level of Services for Road Infrastructure

Legislation / Documentation	Levels of Service Requirement
Local Government Act 2020	The principal legislation in Victoria governing the establishment and operation of Councils
Constitution Act 1975	The Victorian Constitution recognises local councils as a distinct and essential tier of government. It requires local government to ensure the peace, order and good government of each municipal district
Disability Discrimination Act 1992	Makes it unlawful to discriminate against people with disabilities including exclusion
Road Management Act 2004	Prescribes the requirements of Council with regards road infrastructure, community consultation, Register of Public Roads and other items. Including; <ul style="list-style-type: none"> Road Management (Works and Infrastructure) - Regulations – 2015 Road Management Act 2004 Code of Practice – Management of Road & Utility Infrastructure in Road Reserves 2016 Road Management Act 2004 Code of Practice – Operational Responsibilities for Public Roads 2017
Ministerial Code of Practice – Road Management Plans 2004	Victorian Government Gazette S 201 16th September 2004.
Heavy Vehicle National Law Application Act 2013	<ul style="list-style-type: none"> Heavy Vehicle (Vehicle Standards) National Regulation 2013 Heavy Vehicle (Mass, Dimension and Loading) National Regulation 2013 Heavy Vehicle (Fatigue Management) National Regulation 2013. Heavy Vehicle (General) National Regulation 2013
Southern Grampians Shire Council Plan 2017–2021	
Road Management Plan 2017-2021	Details the various legislative requirements, standards and codes of practice applicable to management of the road network
Southern Grampians Shire Strategic Resource Plan (2018/19 to 2021/22)	Long Term Financial Planning of Council
Asset Management Policy	<ul style="list-style-type: none"> Asset Management Strategy Roles and Responsibility Matrix Accounting for Assets Policy
ISO 55000 and subsequent	Prescribes the international standards for asset management planning

Legislation / Documentation	Levels of Service Requirement
International Infrastructure Management Manual 2015 (IIMM)	Provides guidance on how to comply with ISO 55000
Asset Management Accountability Framework (AMAF)	Victorian review of Council's asset management practices
Workplace Health and Safety	<ul style="list-style-type: none"> • Road Safety Act 1986 • Electricity Safety Act 1998 • Occupational Health & Safety Regulations 2017 • Victorian Worksite Safety – Traffic Management Code of Practice • Working at Heights – Worksafe Victoria • Confined Spaces – Worksafe Victoria Compliance Code 15/03/2018 • 'No Go' Zone – Worksafe Victoria and Energy Safe Victoria • Manual Handling – Worksafe Victoria • Worksafe Victoria Noise Guidelines
Legislation that may impact on site preparation, work methods and project costs	<ul style="list-style-type: none"> • Transport Act (Compliance and Miscellaneous)1983 • Australian Standard 1742.3 (2009) – Traffic Control Devices for Works on Roads • Plant and Machinery Regulations • Environmental Protection (Residential Noise) Regulations 2018 • Vegetation & Planning Controls • Flora and Fauna Guarantee Act 1988 • Planning and Environment Act 1987 (esp. Clause 52.17 of the Victorian Planning Provisions as updated from time to time) administered by Local Government • Environment Protection Act 1970 • Commonwealth Environment Protection and Biodiversity Conservation Act 1999

3.4 Current Levels of Service

3.4.1 Asset Functional Hierarchy

The current Road Management Plan sets out the road hierarchy for the Shire. The primary purpose of the road hierarchy is to ensure that appropriate management, engineering standards and planning practices are applied to a road based on its function. It also enables more efficient use of limited resources by allocating funding to those roads that experience greater use.

A four tier system was determined to best suit the shire. These classifications are Link, Collector, Access and Limited Access roads. Attachment 1 provides the description and a photograph of a typical road or street in each classification. The following tables define the difference between the road class types.

3.4.1.1 Urban Area Roads

Table 6: Road Classification in Urban Areas

Class Type	Service Function Description
Link Street	Connecting urban centres, local areas and the State arterial road network
Collector Street	Large-scale movement of traffic within urban centres and local areas. Connecting Access Streets with Link Streets
Access Street	Small-scale direct access to properties, recreational areas and industrial areas
Limited Access Street	Access to the rear of properties or within recreational parks. Not intended for through traffic

3.4.1.2 Rural Area Roads

Table 7: Road Classification in Rural Areas

Class Type	Service Function Description
Link Road	Connecting town, local areas and the State arterial road network
Collector Road	Large-scale movement of traffic within towns and local areas. Connecting Access Roads with Link Roads
Access Roads	Access to small numbers of properties or to recreational areas. Not intended for through traffic
Limited Access Road	Dry-weather obstacle-free passage to areas containing few or no structures

The following descriptions provide general information on the design characteristics of local roads.

Urban Streets

Link Street – will generally be constructed as a two lane sealed street with parking on both sides of the street.

Collector Street – will generally be constructed as a two lane sealed street which may or may not have on street parking.

Access Street – will generally be constructed as a two lane sealed street with parking on one side, but may be a gravel street with no allocated parking areas.

Limited Access Street – will generally provide rear access to property, may not provide all weather access, and may not be constructed.

Rural Roads

Link Road – will generally be constructed as a two lane sealed road.

Collector Road – will generally be constructed as a two lane sealed road, but may be a single lane sealed road depending on traffic volume.

Access Road – will generally be a single lane sealed road, or a two lane gravel road which provides all weather access. Things such as traffic type and volume, risk and safety issues will usually determine whether a road is sealed or unsealed.

Limited Access Road – will generally be an unsealed road or a cleared bladed track without any pavement, which will not necessarily provide all weather access.

The Southern Grampians Shire Council has a wide variation in the geometry of its existing road assets. This has resulted from the amalgamation of four former municipalities in September 1994. Existing road reserve widths vary from 10m to 60m. Sealed road pavement widths vary from 3m to 20m. Different road dimensions are evident between townships such as Hamilton in comparison to towns such as Dunkeld, Peshurst, and Branxholme. Roads may be formed, gravel or sealed and may or may not have kerb and channel, footpaths or underground drainage. It should be noted that many roads are not at the target level but the intention is that when they are reconstructed, it will be to the target level where practicable. The table below outlines the levels of service outlined in this plan.

Table 8: Service Requirements

Basis	Service Requirements
Legislative or Statutory Requirements.	Legislation, Regulations, Acts/ Standards and Council by-laws that impact on the way assets are managed. These are the objectives/standards that must be met, set by regulations.
Strategic Goals and Priorities.	The lifecycle management of assets will be consistent with goals and values stated in the Council Plan.
Customer Expectations.	Information gathered from customers on expected quality and cost of services. These expectations (quality) must be balanced with funding and budgetary constraints.

Council faces many demands from the community and has limited resources to deliver on these demands. The challenge for Council is to use resources where they will deliver the most benefit whilst also meeting legislative requirements. In order to do this, Council must determine, based on use and types of properties serviced by the network, where to concentrate funding. This allows Council to continue to maintain the infrastructure to its agreed levels as identified in the current Road Management Plan.

3.5 Desired Level of Service

Table 9: Road Service Level

Level of Service	Road Service Level	
Target Performance.	100% compliance with current Road Management Plan	
Actions Required.	<ul style="list-style-type: none"> Inspecting the network. 	<ul style="list-style-type: none"> Manager Assets.
	<ul style="list-style-type: none"> Monitoring and updating of the SGSC asset register for condition, defects and improvements. 	<ul style="list-style-type: none"> Manager Assets.
	<ul style="list-style-type: none"> Produce draft capital and operational works lists annually in January. 	<ul style="list-style-type: none"> Manager Assets.
	<ul style="list-style-type: none"> Review and amend as required draft list and prepare a business case. 	<ul style="list-style-type: none"> Manager Assets.
	<ul style="list-style-type: none"> Schedule and resource program. 	<ul style="list-style-type: none"> Manager Works.

Table 10: Road Safety

Level of Service.	Road Safety	
Target Performance.	VicRoads Crash Statistics	
Actions Required.	<ul style="list-style-type: none"> Use of data to seek funding for Capital renewal program as required. 	<ul style="list-style-type: none"> Manager Assets.

General maintenance works such as patching, grading, premix, resealing etc are to maintain the infrastructure as built. Therefore a road which is 1.2m wide will not be extended to 1.5m wide to

comply with the Road Management Plan unless it is a capital project. An audit process is required to be developed to ensure designs and subsequent construction are within Australian Standards and meet our Road Management Plan targets. Council currently does not monitor compliance with the targets as above.

In January 2020, Council resolved to develop a policy for identifying and prioritising local road upgrades, to be integrated into the Southern Grampians Asset Management Policy. This work is currently being undertaken.

FUTURE DEMAND

4 FUTURE DEMAND

4.1 Demand Drivers

This section provides details of municipal population and growth forecasts which may affect the management and utilisation of assets.

Key factors that directly impact the demand for services and related infrastructure include:

- Ageing population.
- Mobile population.
- Climate change.
- Internet of Things.

The Australian Government's Trends – Transport and Australia's Development to 2040 and Beyond describes the largest impacts for regional areas such as Southern Grampians as an ageing population and mobile population trends. This report advises that the population under 65 years is decreasing approximately twice as fast as in metropolitan centres. This is in part caused by a higher rate of younger individuals relocating to metropolitan areas or overseas. On the whole it is an issue because the workforce size is decreasing forcing pressure on services to remain viable to attract new growth.

Furthermore with increased volatility of Australia's weather patterns, caused by global warming, it is increasing the likelihood of infrastructure damage by natural disasters such as flood or fire. When natural disasters occur, the damaged infrastructure needs to be assessed and replaced/renewed adding to the workload of Council.

A more positive trend is the availability of the Internet of Things, WIFI and smart devices. Council already has parking sensors and mobile devices that connect via apps to our asset register. This makes capturing data faster and more user-friendly for the works team. Technology will also assist Council to share and report more easily to residents and government and increase transparency of decision making.

It is also worth noting that world freight is growing to accommodate the manufacturing and consumer markets. Currently over $\frac{3}{4}$ of Australia's non-bulk freight is carried on roads which dominate freight movements between Adelaide, Melbourne, Sydney and Brisbane (Transport and Australia's Development to 2040, pg. 21). Hamilton being a gateway centre between Melbourne and Adelaide and also joining north and south west Victoria, is a key road route for private, agricultural and business traffic.

4.2 Demand Forecast

From the above advice, Council is expecting to see increased use of the road networks by larger and heavier vehicles for agricultural and manufacturing purposes, a possible increase in visitor traffic through the area with a decrease in ratepayers to fund maintenance and expansion projects.

One of the major influences impacting on the shire's roads is the harvesting of blue gum plantations. The blue gum plantation harvesters utilise a number of local roads the plantations are not adjacent to main roads. The roads that will require use to access these plantations have not been constructed to handle such heavy vehicle movement, and as such require close monitoring.

There is also an intention by Parks Victoria to create a ring road around the Grampians National Park as a tourist route. While the ring road will be on main roads within our Shire, there is the possibility that

increased tourist traffic will create additional demand on local roads in the vicinity of the Grampians National Park.

Parks Victoria is also currently in the process of completing the Grampians Peak Trail due for completion in late 2020. This will create additional demand on local roads and pathways in the township of Dunkeld and the vicinity of the Grampians National Park.

Changing farm practices are causing an increased demand on local roads. Over time, the standard of heavy vehicles which are used for transport (i.e. grain, livestock, fodder, etc.); along with other farm machinery (i.e. tractors, crop headers, etc.) has increased. Truck usage has increased from 20 ton, tri-axle trucks to 44 ton 6 axle semi's, with the usage of 65 ton B-doubles and larger vehicles is becoming more prevalent.

The issue is that while the generation of new jobs and income for some within the community is important, the impact of increased maintenance on those roads can cause a significant financial burden to all ratepayers if maintenance is not managed.

Any new developments will be examined closely as to their impact on the road network and overall management of the same. Conditions will be applied to address the impacts wherever practicable.

In particular, input will be sought into development proposals in neighbouring municipalities that will use Southern Grampians Shire roads in an endeavour to minimise or remove any negative impacts.

This input is not intended to halt such developments but instead to seek to come to suitable arrangements to protect Southern Grampians Shire ratepayers from subsidising developments where there is little or no return to them to offset costs of road maintenance arising from the proposed development.

Such arrangements could include an annual payment to Council, a fee/toll levied against the usage, or perhaps a maintenance agreement whereby the business concerned takes over responsibility to maintain particular lengths of road to the standards as specified in the Southern Grampians Shire Road Management Plan.

4.3 Demand Impacts on Assets

Council has to be able to sustain the level of maintenance and renewals of the road asset over the long term if it is to provide the community with the road network that the community desires. A commitment to providing a level of service has a consequential funding obligation.

Opportunities for funding are generally limited to income from Government Grants and from Council rates. Where practicable an alternative is perhaps an imposition of road tolls for special use groups that may be causing damage outside what is reasonable for the type of road being used.

The other alternative is to reduce maintenance costs. Reductions can result from use of improved work techniques and practices, new technology and materials, and reducing the level of service being provided.

Where new development or redevelopment is proposed within the Shire, any impacts on Council's assets are considered within the business case (internal) or approval (external) process. At a minimum this includes application of appropriate infrastructure design standards as referenced in designs, scope or planning conditions by the Asset Team.

It is vital that Council strengthen communications with neighbouring Councils so consultation occurs when developments adjoining the municipal boundary may impact Council's road infrastructure.

Government actions, such as highway realignment proposals, are usually undertaken in consultation with the Shire so impacts on Council's assets is addressed within the development and processing of the proposal.

Changing environmental, community safety and health and safety and other standards can also add to the cost of maintaining and operating Council assets and must be accounted for in the annual budget process.

4.4 Demand Management Plan

The objective of demand management is to actively seek to modify customer demands for services in order to:

- Optimise the utilisation / performance of existing assets.
- Reduce or defer the need for new assets.
- Meet the organisation's strategic objectives.
- Deliver a more sustainable service.
- Respond to customer needs.

It is vital to the success of the plan that demand factors be analysed comprehensively, and their impact quantified in terms of the following:

- The effect of the growth of the asset network.
- Any possible future need to increase or decrease infrastructure.
- The implementation of non-asset solutions, such as managing demand.

The table below shows the key road infrastructure demand drivers, expected impact on service and the plan to reduce that impact on the network.

Table 11: Demand Management Impact on Council Roads

Asset Category	Factor Influencing Demand	Impact on the service, cost, timing	Demand Management Plan: Actions
Urban and Rural Roads	Heavy Vehicle Truck Routes	Increased freight movement. Increased freight weight	Restrict to Link and Collector roads
	National Heavy Vehicle Route Program	Identify suitable freight routes. Previously gazetted routes may not be suitable for larger vehicle types and weights	Road upgrades are considered as part of the Capital Works Program New model for funding requirements and fees to meet actual usage
	Hamilton Structure Plan	Upgrades required at key locations to meet VicRoads standards	Road upgrades are considered as part of the Capital Works Program
	Timber Harvesting	Shortened asset life. Increased safety issues	Manage relationship with harvesters better so they meet legislated responsibilities to reinstate rods

4.5 Asset Programs to Meet Demand

Council will continue to fund road infrastructure investment to meet our targets as outlined in the current Road Management Plan. Council will also continue to apply for funding from all appropriate State and Federal Government sources including but not limited to Roads to Recovery, Fixing Country Roads, Black Spot and Building Better Regions Fund.

LIFECYCLE MANAGEMENT PLAN

5 LIFECYCLE MANAGEMENT

5.1 Background Data

5.1.1 Physical Parameters

The table below identifies the quantities of assets currently known and captured in the asset register.

Table 12: Asset Quantities as at May 2019

Asset Component	Asset Quantity (sqm)
All Urban Sealed Rd Pavements	1,604,508
Rural Link and Collector Sealed Rd Pavements	1,440,045
Rural Access Sealed Rd Pavements	5,950,627
All Asphalt Surfaces	65,864
All Urban Spray Seals	1,238,866
Rural Link and Collector Spray Seals	1,182,089
Rural Access Rd Spray Seals	4,396,667
Unsealed Pavements Limited Access	331,636
All Unsealed Pavements	4,109,260
All Kerbs	217,100

5.1.2 Asset Capacity/Performance

5.1.2.1 Roads

The general ability of the road network to meet traffic demands is acceptable, with only minimal congestion at peak times.

The general ability of the road infrastructure to meet demand of traffic using it is reasonably good. However with the increased use and size of heavy vehicles, some rural access roads have, especially in wet periods, deteriorated at a much higher rate. This has increased the maintenance requirement of these roads. A concern is that the increased logging of the blue gum plantations may compound the failure of rural access roads.

5.1.2.2 Kerb and Channel

The prime purpose of providing kerb and channel is to carry the drainage flow away from the road to protect the structural integrity of the adjacent and underlying road pavement. An important secondary benefit is to remove nuisance ponding in front of properties.

The extent of kerb and channel is extensive in Hamilton, and is considerable in Coleraine. As the urban areas of Hamilton expand and new developments occur, additional kerb and channel will be required.

While the kerb and channel is generally performing well, there are a small number of sections which require attention to remove nuisance ponding and to carry the drainage flow away. Council is currently in the process of rectifying failed sections of kerb and channel to maintain the existing level of service. New sections of kerb and channel are only delivered following consultation with affected land owners.

5.1.3 Asset Condition

The figure below shows the condition of Council's road pavements by asset class in percentage as at September 2019.

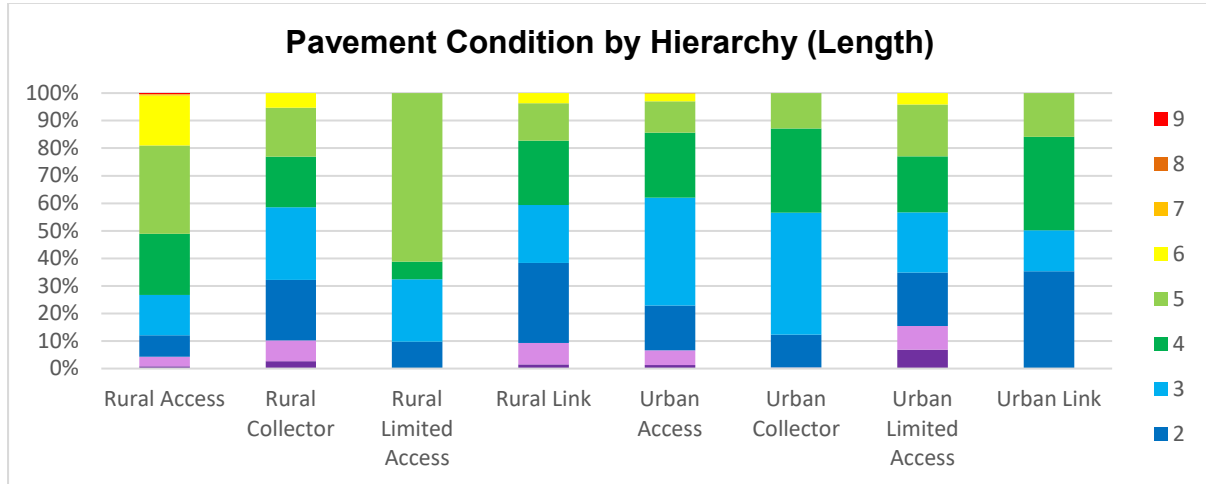


Figure 8: Pavement Condition Rating by Asset Class (percentage)

The figure below shows the condition of Council's road seals by asset class in percentage as at September 2019. Please note there are currently no road seals with a condition rating greater than 8.

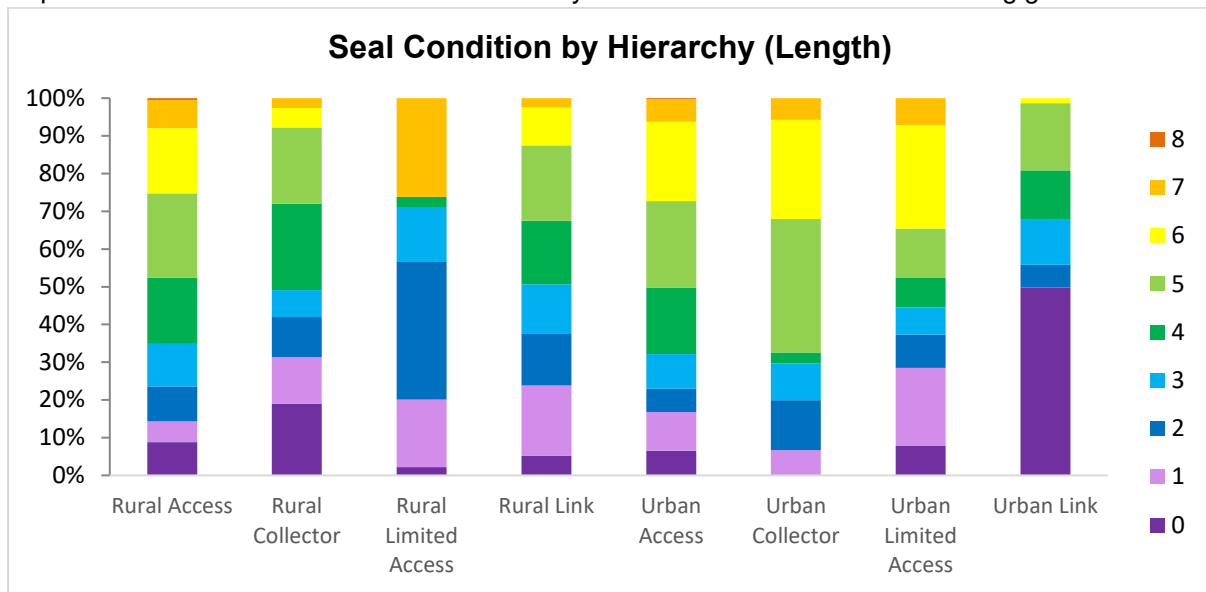


Figure 9: Seal Condition Rating by Asset Class (percentage)

The table below shows the description of condition ratings as used by the contractor when assessing the road network.

Table 13: Condition Rating Description

Rating	Description	
0 = GOOD	New	An asset recently rehabilitated back to new condition
1	Near new	No visible signs of deterioration; often based upon the time since construction rather than observed condition decline
2	Excellent	Very slight condition decline obvious, no longer in new condition
3	Very good	Early stages of deterioration, minor or no serviceability problems
4	Good	Some obvious deterioration evident, slightly impaired serviceability
5	Fair	Obvious deterioration, some serviceability loss

6	Fair to poor	Quite obvious deterioration; serviceability would be affected and rising maintenance cost
7	Poor.	Severe deterioration; serviceability limited, high maintenance cost
8	Very poor.	Serviceability heavily impacted. Very high Maintenance cost needed to be rehabilitated
9	Extremely poor	Severe serviceability problems needing rehabilitation immediately. Could also be a risk to remain in service
10 = POOR	Failed.	No longer serviceable and should not remain in service extreme risk

Council undertakes revaluation and condition assessments of asset classes in accordance with the Accounting for Assets Policy. Road infrastructure is undertaken on a four yearly cycle.

In 2004, 2006, 2009, 2012, 2015 and 2019 Council engaged Peter Moloney from Moloney Asset Management Systems to conduct a comprehensive inspection of the sealed local road network and provide both current valuations and condition ratings. This data is kept in Council's asset register and Moloney Asset Management System and is used to assist in prioritising future capital works and maintenance programs.

The next Condition Assessment is scheduled for 2022.

5.1.3.1 Asset Degradation

As the same system has been used since 2004 to rate the shires road infrastructure, trends and patterns can be analysed. The condition change between surveys is used to predict the annual statistical probability of an asset degrading from one asset condition to the next. In turn this equates to an expected average life within each condition rating. The degradation curves serve two very important functions. Firstly they are used within the financial modelling section of the Moloney system to predict future asset condition movement and financial demand. Secondly they should form the basis of the justification for the selection of depreciation life cycles within the accounting system.

5.1.4 Asset Valuations

As at May 2019 road infrastructure has a total replacement cost of \$293,637,863 with written down value of \$156,209,377.

Key elements of the process include:

Class Description

Complete listing of sealed roads within the shire broken down into segments, and includes;

- Length.
- Pavement width.
- Pavement condition.
- Seal type.
- Seal width.
- Seal condition.

Asset Categories

The sealed road assets are broken down into;

- Urban pavement.
- Rural pavement.

- CBA pavement.
- Aggregate seal.
- CBA seal.

Fair Value

The fair value is defined in AASB1041 as being “the replacement cost of the assets remaining future economic benefit”. This was determined by calculating the replacement value, and multiplying it by the remaining useful life, divided by the total useful life. This written down replacement cost is then used as a measure of fair value.

Example: Qty x Unit Replacement Value = Replacement Value

$$\text{Replacement Value} \times \frac{\text{Remaining Useful Life}}{\text{Total Useful Life}} = \text{Fair Value}$$

5.2 Operations and Maintenance Plan

5.2.1 Operations and Maintenance Plan

Road maintenance services are undertaken by Council's own Works Team. The basis of Council's Maintenance Specification is VicRoads 750 Routine Maintenance (Schedule of Rates), the specification for the undertaking of maintenance on roads managed by VicRoads.

This is not a strict contractual specification because expenditures are governed by the availability of funding through the annual Council road maintenance budget.

The VicRoads 750 Routine Maintenance (Schedule of Rates) establishes maintenance activities work requirements for road pavements, roadsides and bridges.

5.2.2 Operations and Maintenance Strategies

5.2.2.1 Maintenance Activities

The table below identifies the standard maintenance activities associated with road infrastructure. Service levels associated with these jobs are outlined in **Attachment 4**.

Table 14: Standard Maintenance Activities

Routine Maintenance Component	Asset Feature	Standard Jobs
Pavement Maintenance	Sealed Surface	Pothole Patching
		Regulation
		Crack Sealing
		Minor Surface Treatment
		Pavement Cleaning
		Edge Repair
		Digouts
	Shoulder	Sealed Shoulder Repair
		Unsealed Shoulder
	Unsealed Road	Maintenance grading
	Drainage	Surface Drains
		Sub-Surface Drains
		Culverts and Pits Cleaning
		Culverts and Pits Repair
	Operational Servicing	Kerb & Channel/Pits
Emergency Works and Services		

		Emergency Repair
Roadside Maintenance	Vegetation	Grass Mowing
		Edge Trimming
		Vegetation Control
		Tree Planting
		Tree Management
		Noxious Weed Control
	Road Furniture	Signs General
		Guard Rails/Fence
		Guide Posts
		Sign Replace
		Footpaths
		Shared Paths & Cycle-paths
		Traffic Islands & Walkways
		Fencing
	Operational Servicing	Vandalism Repair
		Rest Areas
		Litter Control
		Electrical Hardware

5.2.2.2 Maintenance Strategies

General maintenance strategies include:

- Ensuring the road network is maintained in accordance with agreed levels of service.
- Deferring non-safety related maintenance work if road pavement rehabilitation is imminent.
- Ensuring isolated pavement failures are rectified in advance of pavement resealing works.

The table below identifies the objective of the road infrastructure to be maintained.

Table 15: Functional Requirements of Maintenance

Asset Feature	Functional Requirements of Maintenance
Pavement Maintenance	
Sealed Surface	<ul style="list-style-type: none"> ▪ Provide all weather access to properties
Unsealed Road	<ul style="list-style-type: none"> ▪ Provide access to properties
Roadside Maintenance	
Road Furniture	Signs:
	Provide clear messages to motorists in day and night conditions and be aesthetically sound.
	Guard Fence:
	Provide required structural resistance to errant vehicles to minimise accident severity.
	Paved Islands & Footpaths:
	Provide visual guidance.
	Road Markings:
Provide clear delineation of the road and traffic movements.	
Vegetation	Street Trees & other decorative plantings:
	Allow for appropriate visibility of roadways and signage.
	Provide for safe travel.
	Roadside Verges:
Minimise weed infestations, sight distance hazards, fire hazard while recognising important roadside vegetation environmental issues.	

5.2.3 Summary of Future Costs

Where under-funding of maintenance continues for any length of time the network will deteriorate more rapidly and therefore reducing its intended life-span. This will bring forward replacement or renewal requirements. Generally the unit cost of replacement or renewal of an asset is considerably more expensive than the cost to maintain it. This will place greater demand on Council's financial resources or alternatively Council will need to reduce the level of service.

Future maintenance costs are outlined in the adopted annual budget.

5.3 Renewal/Replacement Plan

5.3.1 Renewal Strategies

5.3.1.1 Renewal Strategy

As per Council's Asset Management Policy, we renew before upgrade or new, with some exclusions for safety and increased use of roads. The general renewals strategy is to rehabilitate or replace assets when justified by assessing;

- Risk: The risk of failure and associated financial and social impact justifies action including impact and extent of resulting inability to use the road, probable extent of damage to business, and any health risk arising from reduced useability.
- Asset performance: Renewal of an asset when it fails to meet the required level of service. Non-performing assets are identified by the monitoring of asset reliability, capacity and efficiency during planned maintenance inspections and operational activity. Indicators of non-performing assets include;
 - Constant closures due to impassability;
 - Roughness causing damage to vehicles and produce;
 - Risk to safety is rated high on an increasing frequency.
- Economics: It is no longer economic to continue repairing the asset (i.e., the annual cost of repairs exceeds the annualised cost of renewal).
- Service:
 - The value of the service the asset provides to the community.
 - Is the current service level appropriate or should it be reduced or increased to better meet demand.

5.3.1.2 Renewal Priority Ranking

The table below outlines Council's process for identifying and undertaking renewal works.

Table 16: Renewal Program Identification Process

Step	Description
1	Potential renewal projects identified from the: <ul style="list-style-type: none"> • Condition survey outcome based on condition rating and remaining life • As required condition inspections
2	Projects are inspected to verify the current condition rating
3	Projects are prioritised into a draft program according to the established weighting system and justified by the completion of a Capital Works Business Case. Supporting documentation showing condition status (0-10) should be included as an attachment to the Business Case
4	The Long Term Renewal Works Program is referred to the Long Term Financial Plan for inclusion as projected cash-flow expenditure. The actual program is dependent upon the annual funding provided in the LTFP based on the renewal modelling outcomes
5	As part of the Annual Budget process the Long Term Renewal Works Program is rationalized to match the available budget expenditure. This Annual Renewal Works Program may be further modified to provide greater efficiency by allowing for factors including: <ul style="list-style-type: none"> • Economies of scale • Project location • Asset service value • Works department knowledge
6	Capital works actions are raised in Council's Asset Register and completed along with the project by the Works Team
7	Project Completion forms are completed for each project for updating the asset register

5.3.1.3 Renewal Capital Works Program

The Capital Works Business Case document should be completed for all renewal programs being scheduled. Finance provide advice annually on completing the documentation and the evaluation process that is undertaken.

5.3.1.4 Treatment Options

The following factors have a significant effect on renewal costs.

- Pavement material
 - Sourcing strategically located natural gravels can reduce transport costs.
 - Use of high quality material can increase the life of a pavement.
 - Salvage of existing pavement material can reduce the amount of new pavement required.
- Alternative Treatments
 - Full reconstruction is not always necessary and lesser treatment such as patching, stabilisation and special surface treatments can increase the life of the pavement.
- Load Limits
 - These can be imposed on some roads to extend the life if Council is not able to fund the replacement.
- Contributions
 - Others may make contributions to have works undertaken.
- Maintenance practices
 - Timely and appropriate maintenance can increase pavement life and the opposite is also true. Current funding levels for roadside vegetation and rural drainage don't permit optimum service levels to be maintained. The Moloney Asset Management system predicts that less than optimal renewal rates can also increase the demand in levels of maintenance.

5.3.2 Summary of Future Costs

5.3.2.1 Renewal Requirement

The financial modelling functions within the Moloney Asset Management system have been used to predict the future renewal demand.

The below figure shows the required expenditure on pavements to maintain all assets that reach intervention level from 2020.

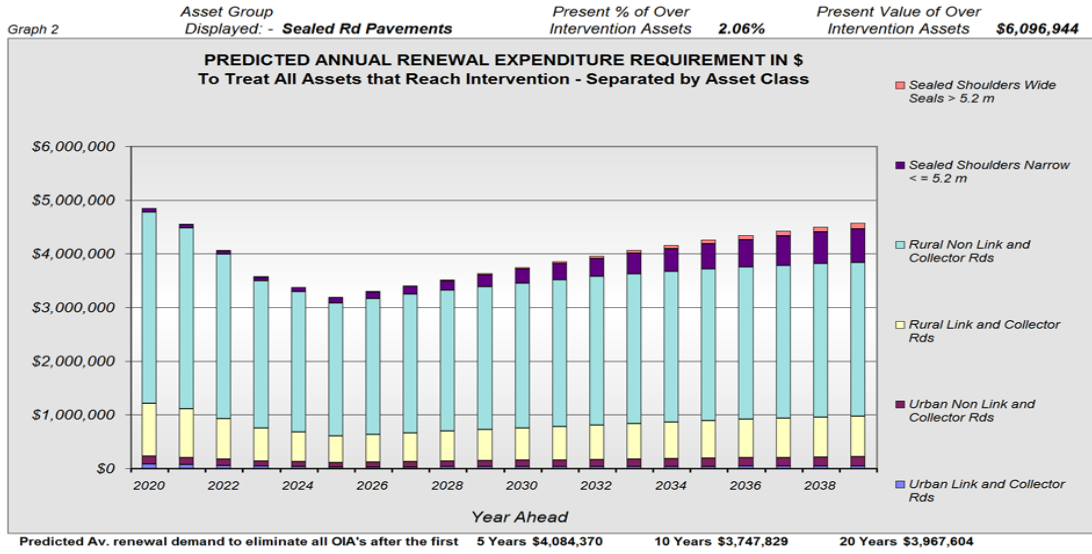


Figure 10: Predicted Renewal Demand to treat all assets that reach the Intervention level in future years (Moloney Asset Management Report 2019)

The below figure shows the predicted condition of the pavement network if Council maintains existing funding levels.

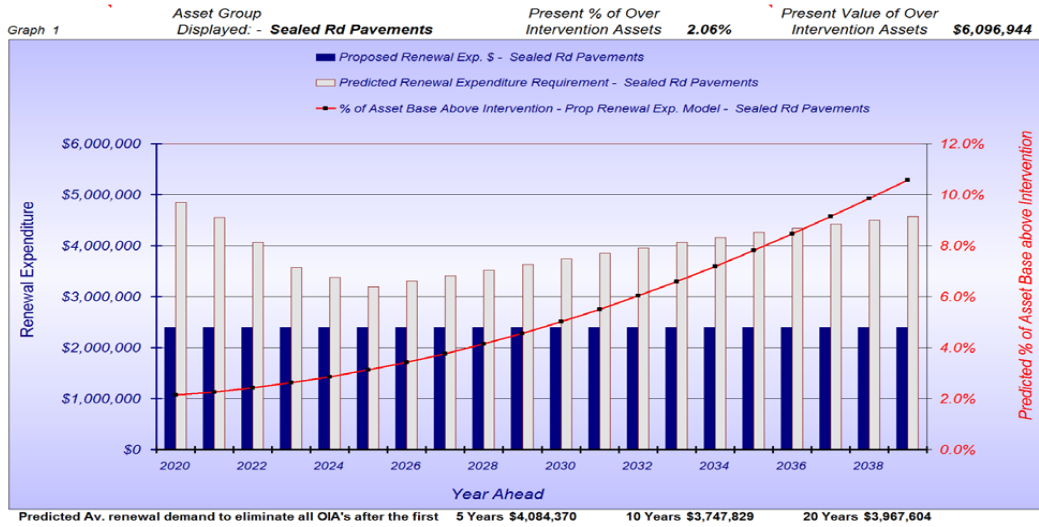


Figure 11: Future Predicted Condition Based on adoption of planned expenditure profile (Moloney Asset Management Report 2019)

The below figure shows the recommended expenditure on pavements to maintain the network within intervention levels.

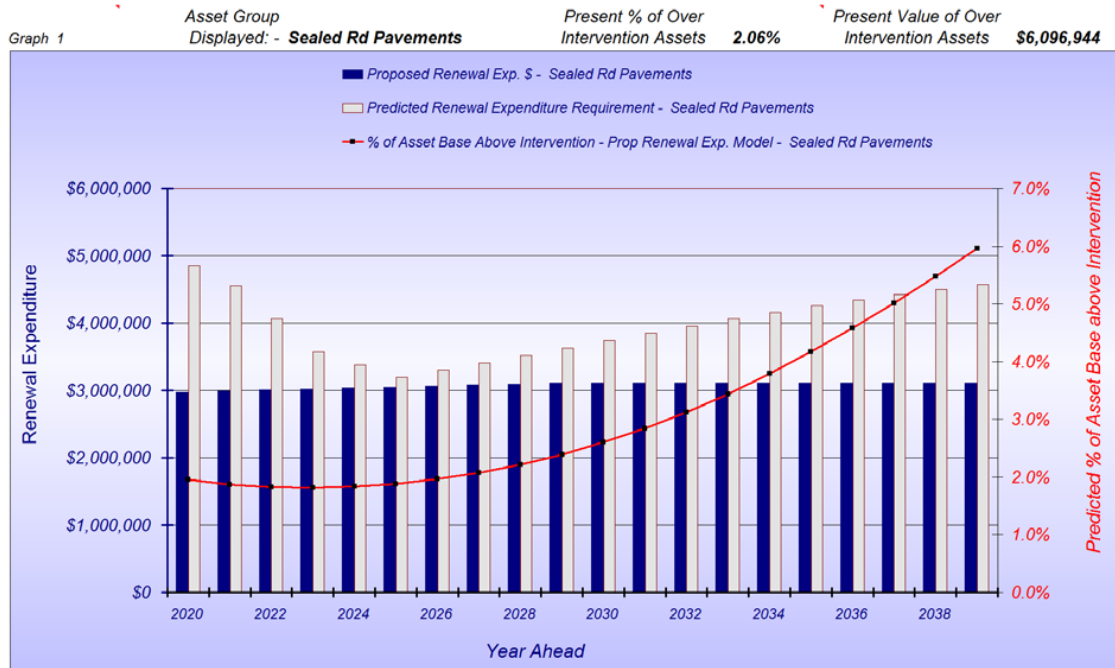


Figure 12: Recommended Renewal Funding Strategy (Moloney Asset Management Report 2019)

The below figure shows the required expenditure on sealed surfaces to maintain all assets that reach intervention level from 2020.

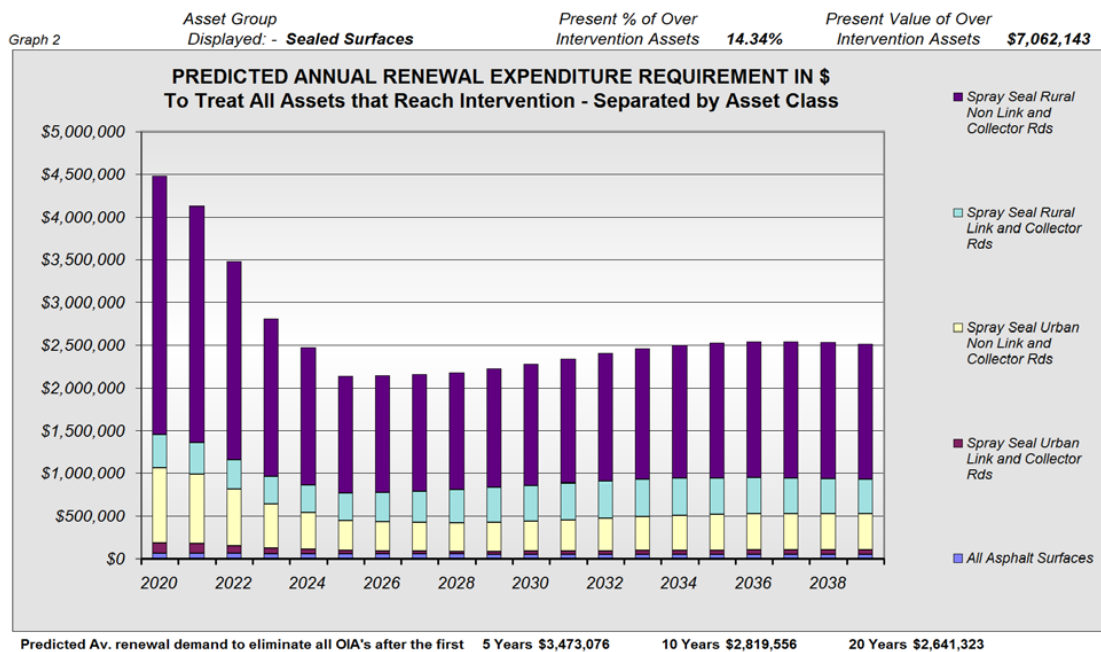


Figure 13: Predicted Renewal Demand to treat all assets that reach the Intervention level in future years (Moloney Asset Management Report 2019)

The below figure shows the predicted condition of the sealed surfaces network if Council maintains existing funding levels.

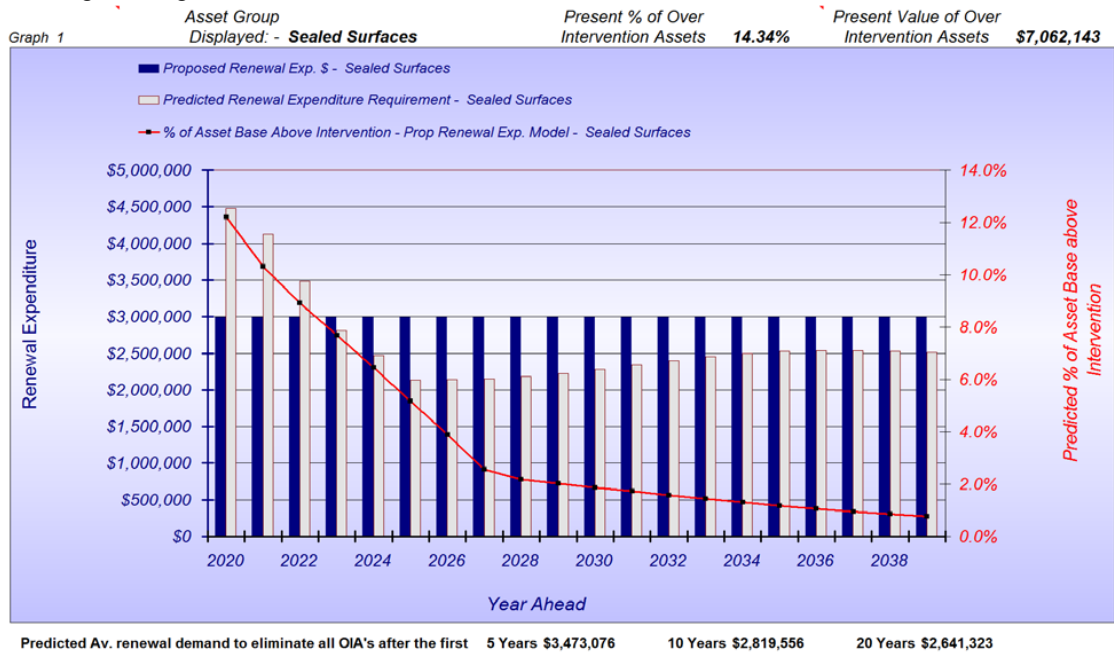


Figure 14: Future Predicted Condition Based on planned expenditure profile (Moloney Asset Management Report 2019)

The below figure shows the recommended expenditure on sealed surfaces to maintain the network within intervention levels.

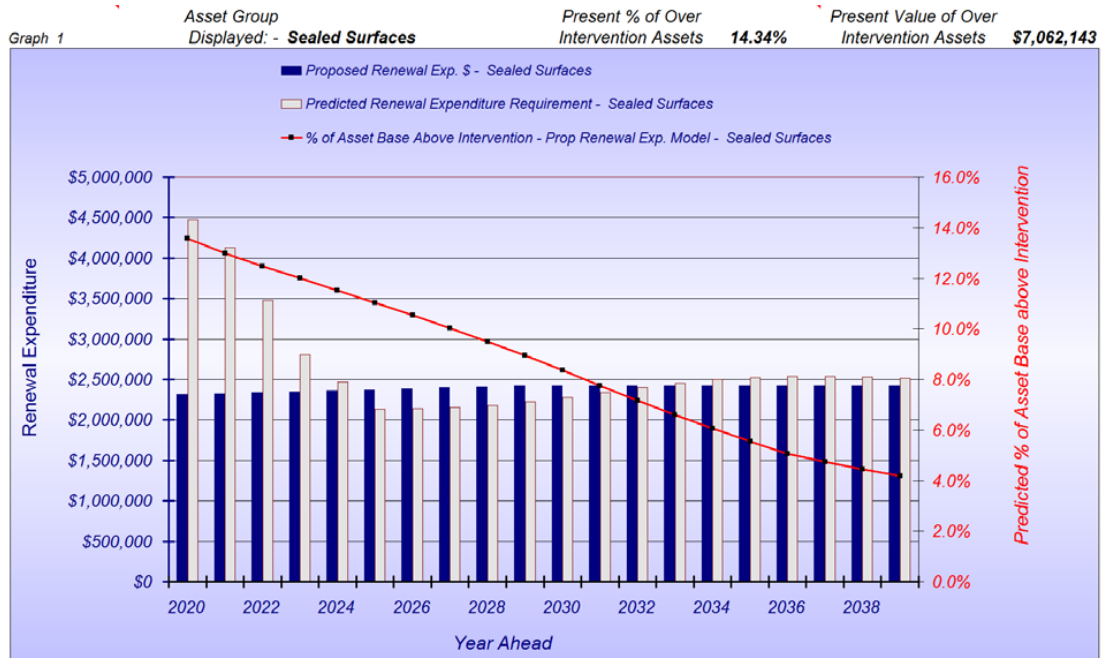


Figure 15: Recommended Renewal funding Strategy (Moloney Asset Management Report 2019)

The below figure shows the required expenditure on unsealed pavements to maintain all assets that reach intervention level from 2020.

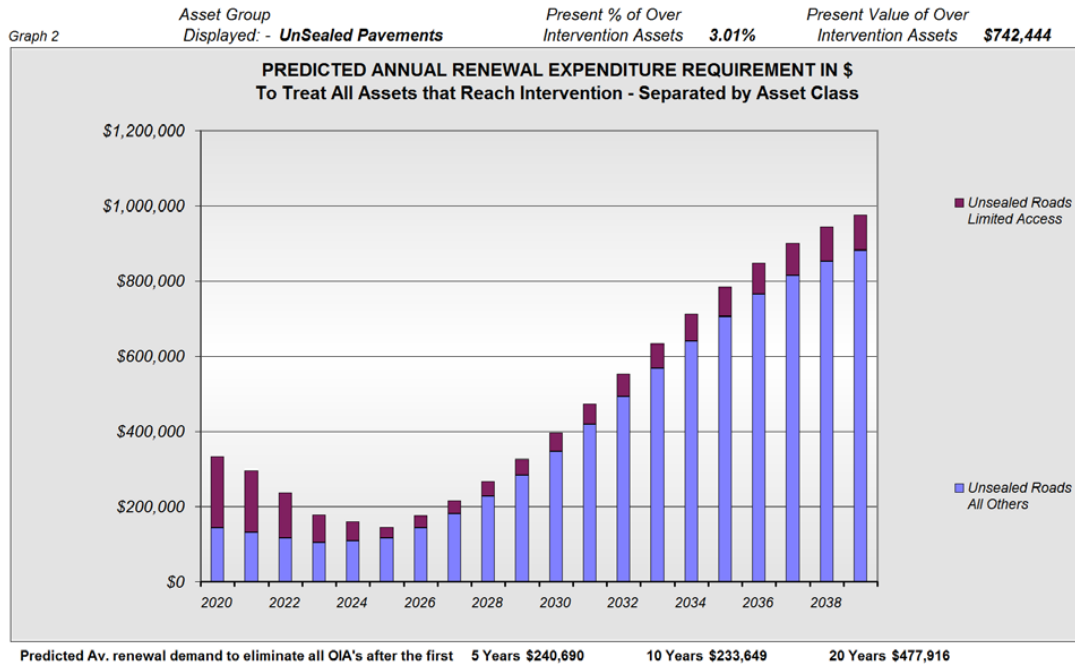


Figure 16: Predicted Renewal Demand to treat all assets that reach the intervention level in future years (Moloney Asset Management Report 2019)

The below figure shows the predicted condition of the unsealed pavement network if Council maintains existing funding levels.

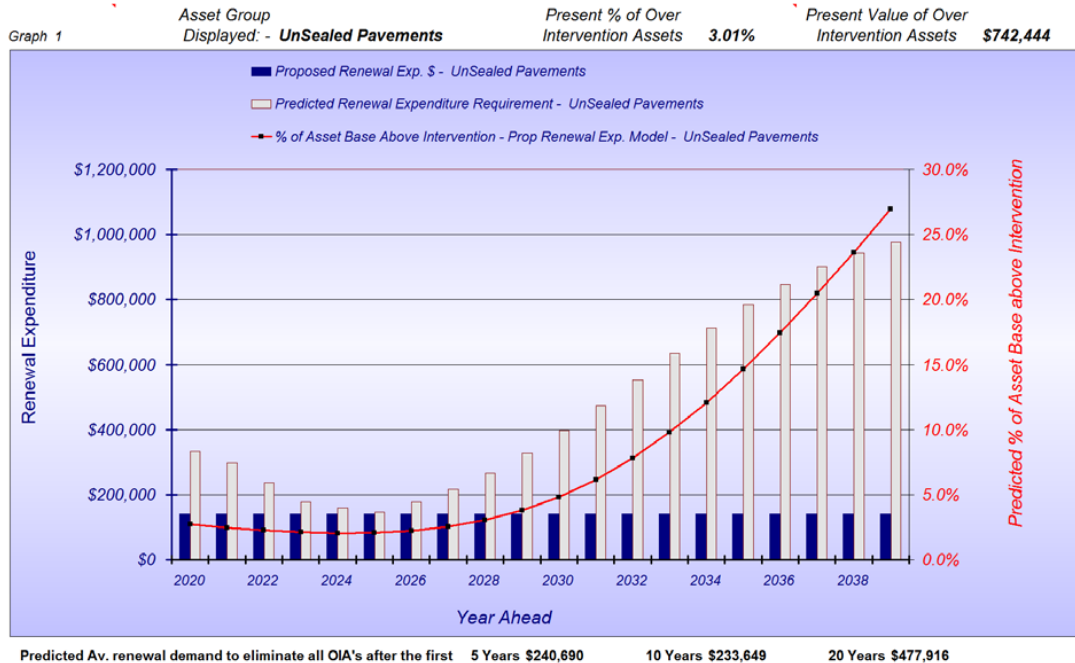


Figure 17: Future Predicted Condition Based on planned expenditure profile (Moloney Asset Management Report 2019)

The below figure shows the recommended expenditure on unsealed pavements to maintain the network within intervention levels.

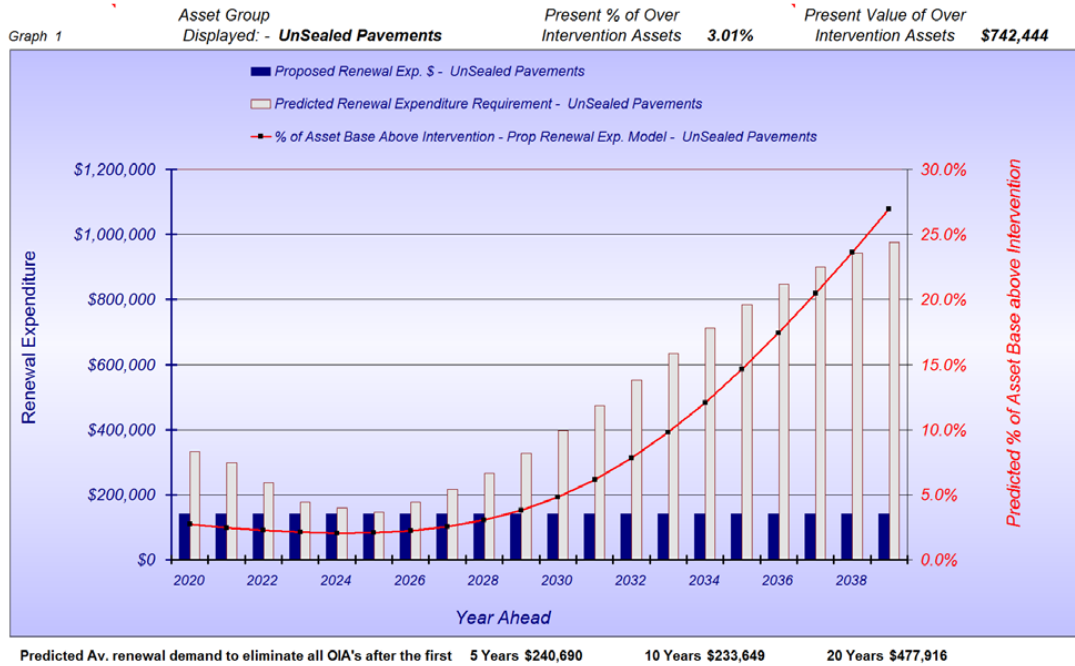


Figure 18: Recommended Renewal funding Strategy (Moloney Asset Management Report 2019)

The below figure shows the required expenditure on kerbs to maintain all assets that reach intervention level from 2020.

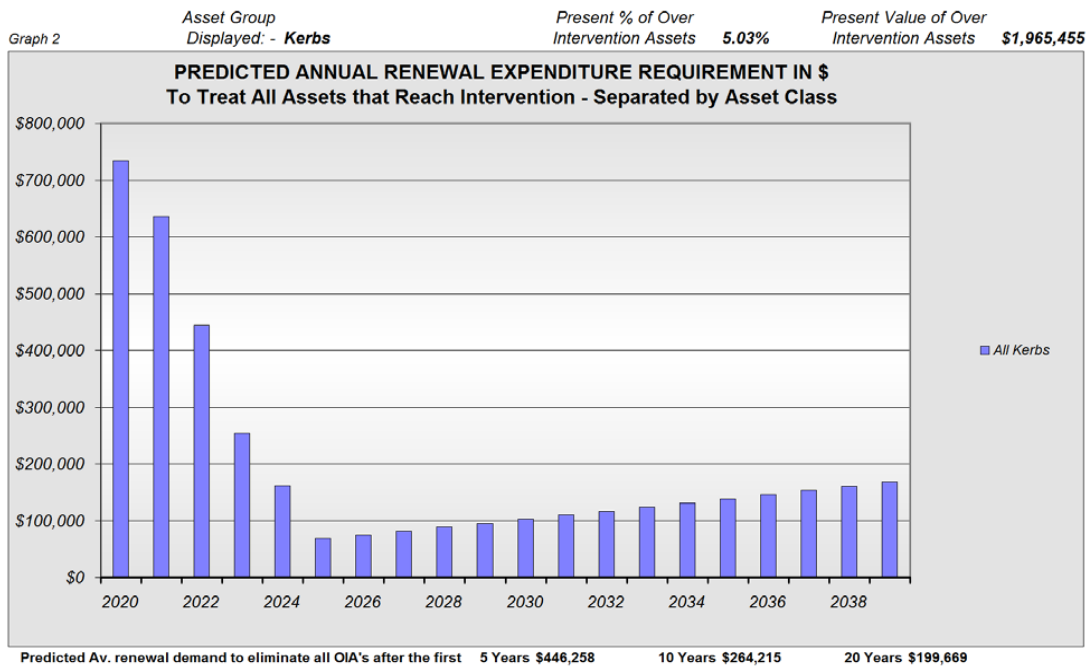


Figure 19: Predicted Renewal Demand to treat all assets that reach the Intervention level through normal decay (Moloney Asset Management Report 2019)

The below figure shows the predicted condition of the kerbs network if Council maintains existing funding levels.

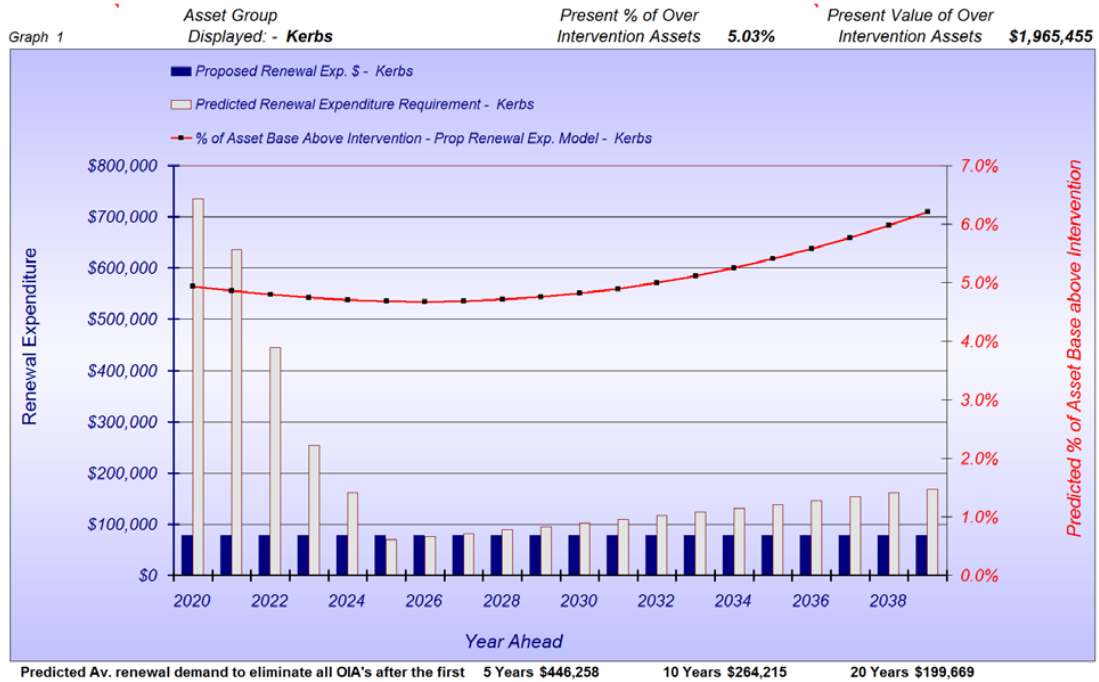


Figure 20: Future Predicted Condition Based on planned expenditure profile (Moloney Asset Management Report 2019)

The below figure shows the recommended expenditure on kerbs to maintain the network within intervention levels.

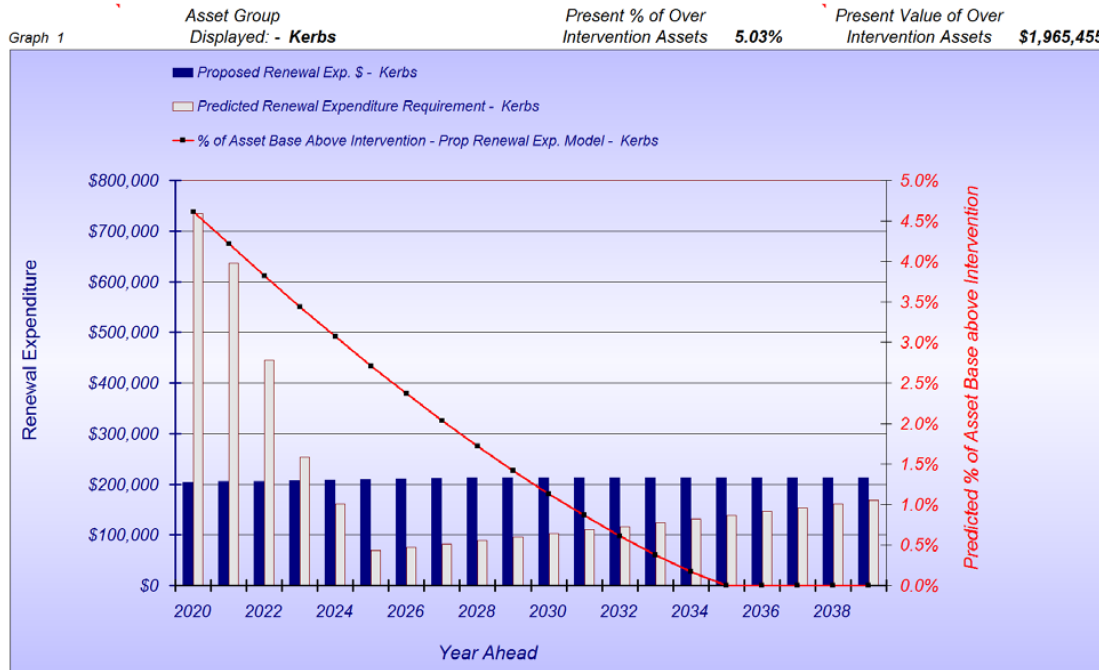


Figure 21: Recommended future Renewal funding strategy (Moloney Asset Management Report 2019)

The following table identifies the current predicted Budgeted Statement of Capital Works for the next 4 years as identified in the Strategic Resources Plan 2019/20 – 2023/24.

Table 17: Council's Current Forecast Road Infrastructure Renewal Budget

	Budget	Strategic Resource Plan Projections		
	2019/20	2020/21	2021/22	2022/23
Roads	5,537,000	3,278,000	3,318,000	3,481,000

5.4 Creation/Acquisition/Augmentation Plan

Council's Roads – Construction and Maintenance Policy, identifies that sealed roads will be maintained as sealed roads, and unsealed roads will be maintained as gravel roads unless:

- The road hierarchy level has been changed to a higher or lower priority because of service demand, usage or a Council determination; and
- Council and/or external funding is available.

The Shire is cognisant of the difficulty for funding the existing road network assets, both maintenance and renewals, therefore is very cautious about undertaking creation of new or upgrading existing assets. Where requests are received for upgrade or new infrastructure, it is considered as per Council's Asset Management Policy.

Where possible, developers of new subdivisions are required, as part of the development approvals process, to provide the basic road infrastructure to the standard appropriate for that development as per the Infrastructure Design Manual. Council will not accept ownership of the road infrastructure if it does not meet the standards as set out in the Infrastructure Design Manual.

5.5 Disposal Plan

5.5.1 Forecast Disposal of Assets and Future Disposal Costs

There are at present no road or kerb and channel assets within the Shire under Council jurisdiction that are proposed for disposal without replacement.

Disposal of roads could occur where they are:-

- Requested by residents and approved by Council.
- Given or returned for use by another authority.
- Where usage demonstrates that insufficient or no use is occurring and the continued existence of the asset is not justified.

Generally there is little opportunity to dispose of a road. In some instances where a 'no through road' passes through a property to provide access to a single user, there is a possibility that the road could be considered a drive-way and the responsibility of the road passed to the land owner. Another possibility is for a road to be closed if it does not singularly provide access to freehold land.

There is not considered to be any opportunity to dispose of kerb and channel without replacement.

Generally a road, including the seal and base material, is 'disposed of' at the time of reconstruction. At that time, some or all of the material is removed and recycled or disposed of as part of the reconstruction process.

Council's asset register is adjusted to reflect the change in asset value as a result of reconstruction by the creation of a 'new' asset with a higher value than the one disposed of.

The costs of disposal are included in the renewal works cost projections. There is generally no income stream from disposal as there is a limited market for used road materials.

Conversely from time to time there may be opportunities to re-categorise a road within the functional hierarchy and hence reduce maintenance costs. For example returning a sealed road to gravel significantly reduces all costs associated with that road.

RISK MANAGEMENT PLAN

6 RISK MANAGEMENT

This document utilises principles established in the **ISO 31000:2018 – Standards Australia**. The process of risk assessment follows principles outlined in the 2002 document from Civic Mutual Plus “**Road Reserve Risk Management – Statement of Principles**”.

The overall objectives of a formal risk management approach are to:

- Outline the process by which Council manages risk associated with its assets, so that all risks can be identified and evaluated in a consistent manner.
- Identify operational and organisational risks at a broad level.
- Allocate responsibility for managing risks to specific staff to improve accountability.
- Prioritise the risks to identify the highest risks that should be addressed in the short to medium term.

6.1 Critical Assets

Critical assets are defined in the International Infrastructure Management Manual (2015, pg. xviii) as assets that are likely to result in a more significant financial, environment and social cost in terms of impact on organisational objectives.

The below table identifies types of critical assets and the justification for their identification.

Table 18: Critical Road Infrastructure Assets

Impact on Infrastructure	Critical Impact	Critical Justification
Significant deterioration for road surface.	Financial. Social.	Potential to cause injury or death. Inconvenience for user.
Blocked kerb and channel / pooling on roads.	Environmental. Social.	Potential to cause injury. Inconvenience for user / neighbours.
Tree or debris on road.	Social.	Potential to cause injury or death.

6.2 Risk Assessment

The only practical means of readily identifying risk is by undertaking regular inspections of our assets. This process should enable significant risks to be discovered and remedied in advance of possible injury. Council's Asset Inspector does routine inspections of all Council's road infrastructure as per the current Road Management Plan. They also inspect following concerns raised via the community.

Risks are to be analysed in terms of consequence and likelihood in the context of those controls. The analysis should consider the range of potential consequences and how likely those consequences are to occur. Consequence and likelihood may be combined to produce an estimated level of risk.

The risk assessment of a specific asset component is determined by the specific defect or hazard likely to occur and the function, location, types of users and user numbers.

6.2.1 Key Risks

6.2.1.1 Recording and Analysis of Significant Road Crashes

VicRoads provides a regular report, updated on the Internet of serious and fatal crashes on arterial as well as local Council roads. Council has no specifically dedicated traffic engineers to analyse this information so it undertakes any reviews in conjunction with VicRoads in order to determine remedial measures where required.

6.2.1.2 Singular Use of the Moloney Asset Management Software

The Moloney Asset Management Software System is a bespoke system developed by Peter Moloney. This presents two significant risks that SGSC can take steps to mitigate. These risks are:

1. When Peter Moloney retires the system may retire with him.
2. A bespoke system of this type has limited support and the intellectual property resides within very few people.

The mitigation of the risks involved would be to seek an alternate means of valuations and condition assessments that can utilise the data already obtained thereby maintaining the consistency of the established degradation curves.

6.3 Infrastructure Resilience Approach

The road infrastructure portfolio has a core level of resilience with regards risk management. Council has significant detailed inspection and maintenance requirements including intervention levels as outlined in the Road Management Plan. Council's Risk Department manage the Business Continuity, Risk Policy and Risk Management Strategy on behalf of the organisation. The Assets Team is relatively newly developed and are working on embedding better processes and plans into the future.

FINANCIAL SUMMARY

7 FINANCIAL SUMMARY

7.1 Financial Statements and Projections

Financial projections are summarized in this section for:

- Maintenance.
- Renewal.
- New and Upgrade.
- Operations.
- Disposal.

7.1.1 Current Financial Position

This outlines the funding required for Council to meet the life-cycle renewal funding based on uniform rate of decay of the various asset components. It also includes the on-going maintenance requirements.

It is difficult to be precise in determining true maintenance needs. Even if a process of zero-based budgeting was undertaken, maintenance is subject to many variables including extremes of weather and unpredictable loadings during adverse weather.

The Shire will base its maintenance budget on historic experience with the needs of the varying road types and usage patterns. The needs will vary if Council is to change the hierarchy of its road network. For the purpose of modelling future funding needs, current funding levels will be taken as the base requirement until such time as a business case is presented to Council that demonstrates the need for change.

The financial modelling establishes the full funding needs for Council to maintain the asset with the required level of service. The modelling does not account for any inflationary increases, with all amounts being in Net Present Value (NPV) terms.

The below table is a summary of previous years maintenance and capital works funding to maintain, renew and upgrade the road infrastructure network at current agreed levels.

Table 19: Summary of Previous Years Maintenance and Capital Works Funding

Budget Year	Maintenance	Capital (Renewal, New, Upgrade)	Total Expenditure
2009/10	\$2,792,439	\$2,226,305	\$5,018,744
2010/11	\$2,094,000	\$3,480,000	\$5,574,000
2011/12	\$2,420,000	\$5,985,028	\$8,405,028
2012/13	\$2,246,773	\$4,510,820	\$6,757,593
2013/14	\$3,641,692	\$4,143,885	\$7,785,577
2014/15	\$4,085,414	\$4,267,719	\$8,353,133
2015/16	\$3,339,943	\$4,198,000	\$7,537,943
2016/17	\$3,020,953	\$4,360,000	\$7,380,953
2017/18	\$2,949,871	\$9,750,000	\$12,699,871

7.2 Funding Strategy

Renewal expenditure has been historically funded from the following;

- Rates.
- Roads to Recovery –Federal funding.
- Country Roads and Bridges – State funding.

Future alternate sources of funding could come from;

- Special charge schemes.
- Localised usage tolls.
- Timber Harvest levy (New plantations only).
- Windfarm Levy.

7.3 Forecast Reliability and Confidence

7.3.1 Accuracy of the Information

The following assumptions have been made in developing the financial forecast:

- Moloney modelling has used current life expectancy, intervention and unit rate levels as per the (Infrastructure Assets Revaluation Justification document) in its modelling when completing the 2019 review.
- Asset Register used by Council is accurate and contains all relevant details such as names, lengths, widths, depth, condition scores, age, value, depreciation, remaining depreciation, capital works.

7.3.2 Actions for Improving Future Financial Forecasts

Future financial forecast may be improved by the following Improvement Actions;

1. Completing an audit review of all Council's assets on a regular basis.
2. Complete strategic financial modelling on road segments.
3. Conduct a cost and service review on gravel roads.
4. End to end process development to ensure repeatedly consistent outcomes

Confidence is growing organizationally towards the skills and reliability of the Asset Register, however the Asset Management Team has significant work to undertake with the Finance Team to improve reliability and confidence in the data.

PLAN IMPROVEMENT AND MONITORING

8 PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices

8.1.1 Asset Management Systems

The key Asset Management practices needed to support robust AMP includes the following:

- **Processes:** The necessary processes, analysis and evaluation techniques needed for life cycle asset management.
- **Management Systems:** The information support systems which support the above processes and which store, analyse and manipulate asset data.
- **Asset Data:** Data available for manipulation by information systems to support AM decision-making. Practices in all of these areas, as well as the AM Plan itself, are assessed. Finally, implementation tactics, covering service delivery, procurement, and organisational arrangements are also part of the review process.

Many processes to ensure repeatable consistent outcomes have yet to be developed and implemented at Council.

8.1.2 Geographic Information System (Mapping)

Council uses IntraMaps to record and store its mapping information.

8.1.3 Asset Register

Council uses Conquest 3 to record its asset management data. This is linked to IntraMaps.

The system records and can report on both the Register of Public Roads and the Register of Public Road Assets for which Council is responsible.

The asset register includes physical data e.g. description, size condition, unit costs, location, age, asset values and depreciation rate.

The system can be used to generate work orders however this is functionally is currently undertaken by Council's financial system Civica.

The asset register together with the Moloney Asset Management Software is used to generate financial modelling to assist with the development of Council's strategic financial plan and should be used to support business cases for annual and future capital works programs.

The data is captured in the asset register for all roads, bridges, culverts, footpaths, kerb and channel, pathways, buildings and other minor infrastructure.

Each Asset Group is reviewed on a regular basis to insure the asset register, CIVICA and IntraMaps record the same information. Condition and valuation data is captured in line with Council's Accounting for Assets Policy.

As improved data comes to hand it will be uploaded into the database.

8.2 Improvement Program

Key areas of improvement include:

1. Increase the accuracy of kerb and channel data.
2. Capture of roadside objects including signage and street trees.
3. Increase use of mobile tools to allow real time capture of defects and works in the field.
4. Creation of a single page state of the asset annual overview.
5. Create an audit process for design and construction works to ensure compliance with the Road Management Plan.

REFERENCES

Council's reference documents are available for public inspection at the office of Council's Engineering Department, Hamilton. They include:

- Road Management Plan 2004, updated 2005, 2009, 2013, 2017
- Moloney Road Report September 2019;
- SGSC Infrastructure Assets Revaluation Justification Document updated 2019

REFERENCES

APPENDICES

Attachment 1: Road Hierarchy Functional Road Classification System

Attachment 2: Inspection Management Flow Chart

Attachment 3: Customer Request Management System

Attachment 4: Maintenance Service Levels



Attachment 5: Risk Assessment – Roads

Attachment 6: Shared Asset Maintenance Agreements



APPENDICES

Attachment 1: - Road Hierarchy Functional Road Classification System

A. Rural Roads

Road Class [†]	Class Type*	Service Function Description	Typical Road Type Description and Performance Requirements	Typical Image
4A	Link Road Greater than 150 vpd	<ul style="list-style-type: none"> Provides primarily for the main connection from, town centres and local rural areas to the wider State main road network, Provides the main connectivity to significant urban, town and rural industries, including farm produce, quarries, and tourists activities Generally includes access to abutting properties Caters generally for higher traffic volumes, heavy vehicles and travel speeds 	<ul style="list-style-type: none"> Typically sealed two-lane road Roads of local priority and good quality* of service Operating speed of 100 - 80 km/h according to terrain Typical sealed width is 6.2 m and 9.2 m formation Delineation often provided by centre line marking and guide posts Direct access generally permitted Good quality riding surface Roads maintained to a good standard and on a regular basis 	
4B	Collector Road Up to 150 vpd	<ul style="list-style-type: none"> Provides for collecting and distributing traffic and acting as a feeder service to link roads Provides access to local properties in rural areas Provides access to moderate local rural industries, including farm produce, quarry and tourists activities Caters for moderate travel speeds 	<ul style="list-style-type: none"> Typically two lane sealed road A fair quality of service road Operation speed of 80 - 50 km/h according to terrain Typical sealed width is 3.7m to 6.2m Delineation generally provided by guide posts in rural areas Direct access permitted Fair quality riding surface with some rough sections Roads maintained to a fair standard on a needs basis 	

Attachment 1A –Functional Road Classification System for Rural Roads continued

Road Class [‡]	Class Type*	Service Function Description	Typical Road Type Description and Performance Requirements	Typical Image
4C	Access Road Less than 50 vpd	<ul style="list-style-type: none"> Provides predominantly for direct access to properties and industries in rural areas Provides access to limited local rural industries, including farm produce, quarry, and tourists activities Caters for low travel speeds 	<ul style="list-style-type: none"> Substantially a two-way sealed or unsealed road A low quality of service road Operating speeds of 70 – 30 km/h according to terrain Typical pavement width is 4 m Delineation provided by guide posts at critical safety areas Direct access permitted Low quality riding surface with some rougher sections Roads maintained to a low standard on a needs basis 	
4D	Limited Access Road Less than 10 vpd	<ul style="list-style-type: none"> Provides primarily for limited access May be used for fire and property access Caters for very low travel speed Access may be restricted 	<ul style="list-style-type: none"> Predominantly a single lane two-way earth formation A very low quality of service track Not conforming to any geometric design standards Minimum cleared width is 3m Delineation not provided Poor quality riding surface Tracks not maintained except for occasional grading 	



[‡] The prefix 4 is related to the AustRoads National Functional Road Classification categories

Quality of service is defined in terms of the level of convenience, (geometric standards), comfort (ride qualities) and safety (travel consistency) provided



* Traffic volumes are provided only as a guide

Attachment 1 – Functional Road Classification System

B. Urban Streets

Road Class [‡]	Class Type*	Service Function Description	Typical Road Type Description and Performance Requirements	Typical Image
8A	<p>Link Street</p> <p>Greater than 1000 vpd</p>	<ul style="list-style-type: none"> Provides primarily for the main connection from, urban areas and to the wider State main road network, Provides the main connectivity to significant urban, industrial and major tourist’s centres. Generally includes access to abutting properties Caters generally for higher traffic volumes, heavy vehicles and moderate travel speeds 	<ul style="list-style-type: none"> Typically two traffic lanes wide with parking both sides Roads of local priority and good quality* of service Operating speed of 40 - 60 km/h Typical carriageway width in urban areas is 12 m Direct access generally permitted Good quality riding surface Roads maintained to a good standard and on a regular basis 	
8B	<p>Collector Street</p> <p>Up to 1000 vpd</p>	<ul style="list-style-type: none"> Provides for collecting and distributing traffic and acting as a feeder service to local arterial roads Provides access to local properties in urban areas Provides access to urban properties and tourists activities Caters for moderate travel speeds 	<ul style="list-style-type: none"> Typically two lane sealed road with parking provisions A fair quality of service road Operating speed of at 60 -50 km/h Typical carriageway width in urban areas is 10m to 12m Direct access permitted Fair quality riding surface with some rough sections Roads maintained to a fair standard on a needs basis 	

Attachment 1B –Functional Road Classification System for Urban Streets continued

Road Class [‡]	Class Type*	Service Function Description	Typical Road Type Description and Performance Requirements	Typical Image
8C	<p>Access Street</p> <p>Greater than 100 vpd</p>	<ul style="list-style-type: none"> • Provides predominantly for direct access to properties and industries in urban areas • Caters for low travel speeds 	<ul style="list-style-type: none"> • Typically two lane sealed or unsealed road • A low quality of service road • Operating speed of 50 km/h • Typical carriageway width is 4.0m to 10m • Direct access permitted • Low quality riding surface with some rougher sections • Roads maintained to a lower standard on a needs basis 	
8D	<p>Limited Access Street</p> <p>Less than 100 vpd</p>	<ul style="list-style-type: none"> • Provides primarily for limited access • May be used for rear lane access or for informal tacks in recreational areas fire protection purposes and management access • Caters for very low travel speed 	<ul style="list-style-type: none"> • Predominantly a single lane two-way sealed or unsealed road • A very low quality of service road • Predominantly not conforming to any geometric design standards • Minimum rear lane widths 4 m • Restricted direct access • Fair quality riding surface 	

Reference sources for descriptions:

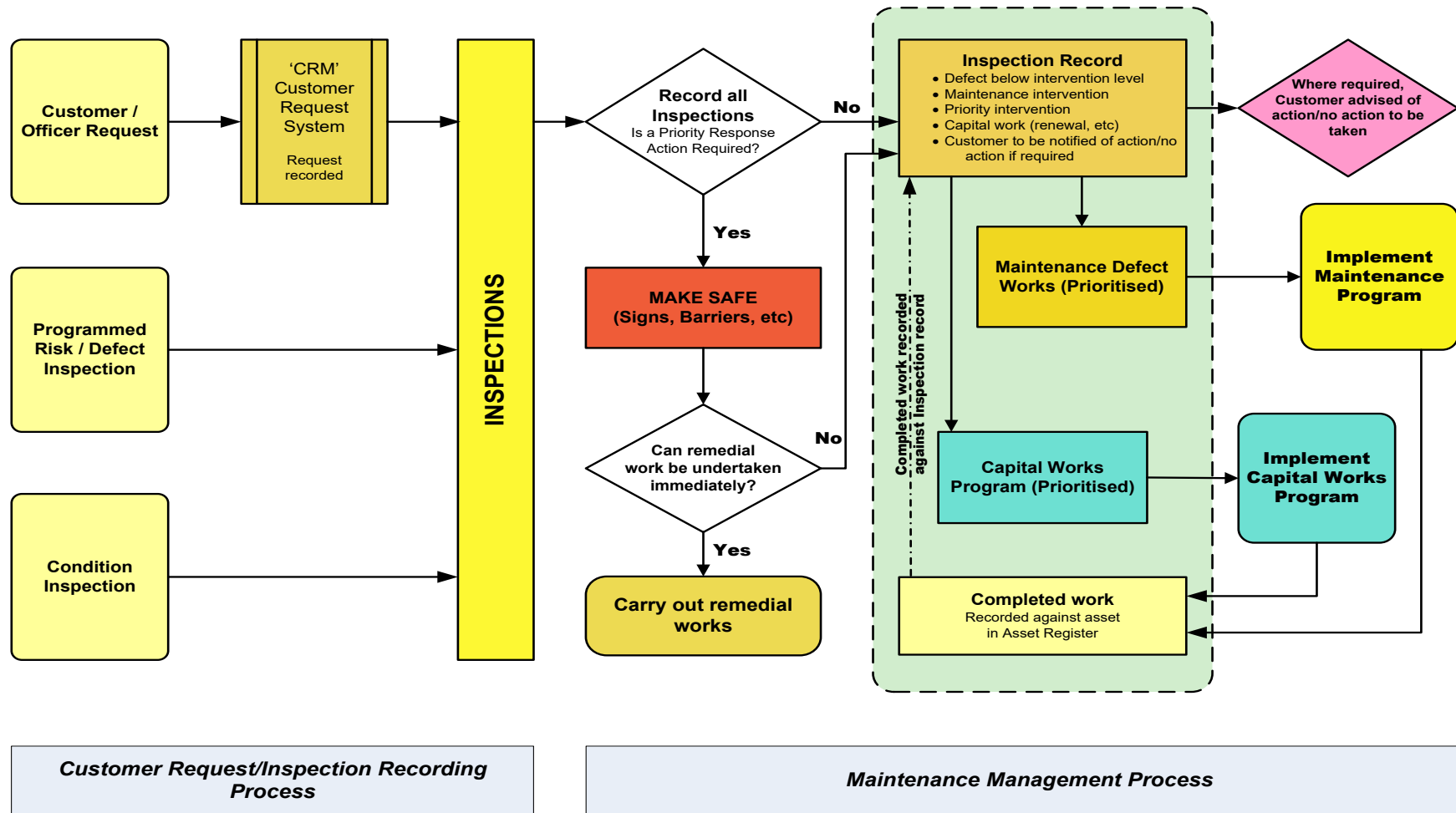
- Road Management Act 2004
- International Infrastructure Management Manual – Australia/NZ Edition 2011
- UK Highway Code of Practice for Maintenance Management 2001

‡ The prefix 8 is related to the AustRoads National Functional Road Classification categories

Quality of service is defined in terms of the level of convenience, (geometric standards), comfort (ride qualities) and safety (travel consistency) provided

* Traffic volumes are provided only as a guide

Attachment 2: - Inspection Management Flow Chart



Attachment 3: - CRM Customer Request Management System

System Data Entry Screen

Source of Request

Telephone
 Correspondence
 Councillor
 Counter
 EDM
 Email
 In Person
 Internal
 Progress Association
 Web

Description

Check Spelling

Category

Category Search

OR [Show all](#) OR [Popular categories](#)

Showing 121 to 140 of 158 results

[Show all categories](#)

A B C D E F G H I J K L M N O P Q R **S** T U V W X Y Z

Category	Statistic	Category	Statistic
Rural Roads Bitumen Patching	statistic	Rural Roads Sucker Removal	statistic
Rural Roads Fallen Timber Removal	statistic	Rural Roads Tree Pruning	statistic
Rural Roads Grass Mowing and Slashing	statistic	Rural Roads Vegetation Spraying	statistic
Rural Roads Gravel Maintenance	statistic	Rural Roads Weed Removal	statistic
Rural Roads Gravel Patching	statistic	Strategic Planning General Enquiry	statistic
Rural Roads Guide Posts and Guard Rail	statistic	Street Lighting - General	statistic
Rural Roads Material on Roads	statistic	Street Lighting - Hamilton CBD	statistic
Rural Roads Potholes and Digouts	statistic	Stubble Burn Permit	statistic
Rural Roads Rubbish Removal	statistic	Tourism General Enquiry	statistic
Rural Roads Shoulder Maintenance	statistic	Township Street Vegetation Spraying	statistic

Results page | << < 1 2 3 4 5 6 7 8 >> >

Attachment 4: - Maintenance Service Levels

Activity Descriptions and Target Levels

REFERENCE NO	ACTIVITY	DESCRIPTION	TARGET LEVEL
Sealed Surface			
LRM001	Pothole Patching	Surface patching of potholes <0.25m ² in pavement using bituminous and other appropriate materials to restore the riding surface to a smooth condition.	Repair when pothole exceeds 25mm in depth and or 300mm in diameter, or likely to deteriorate rapidly.
LRM002	Pavement Regulation	Application of a levelling course using bituminous materials to badly distorted and rutted areas of pavement.	Regulate if rutting depression holds water or exceeds 25 mm in depth under a 1.2 m straight edge transverse, or a 3.0m straight edge longitudinal.
LRM003	Crack Sealing	The routing, cleaning and filling of cracks using liquid bituminous sealants.	Program to seal cracks 2 mm and wider
LRM004	Minor Surface Retreatment	The treatment of small sections of bituminous surfaces with one application of bitumen and cover aggregates.	Treat when stripping (50% loss of aggregate), bleeding and/or crazing exceeds 5 m ² in area and the surface has not failed to the extent to where it requires replacing.
LRM005	Pavement Sweeping	Mechanical or hand sweeping of roadway including intersections to remove debris	Clean pavement and intersections when the accumulation of aggregate, dirt and debris becomes a danger to traffic or pedestrians or prevents free drainage of the pavement.
LRM006	Edge Repair	Repair of broken edges of seal to line and level, to maintain correct overall sealed width.	Repair when edge break exceeds 75 mm laterally over 1 m length.
LRM007	Digouts	The treatment of small isolated failed pavement areas >0.25 m ² by replacement with new approved material. Includes reinstatement with new bituminous surface. Min. depth 250 mm to max. depth 400mm.	Repair when failed areas is >0.25m ² and other treatments have failed to solve the problem or are inappropriate.
LRM008	Preparation for Resealing	Repairing of all potholes and edges to existing road profile	As per Sealing Program.
Shoulder			
LRM009	Unsealed Shoulder Grading	Spot gravelling, grading and reshaping of gravel and earth shoulders to correct crossfall, pavement drop off, rutting, and build-up of shoulder material.	Grade shoulders and compact when the drop or rise exceeds 50mm or ponding occurs over 20 m in length or shoulder becomes rough or scoured. Trim to lower edge of shoulder when build up holds water
LRM010	Unsealed Shoulder Patching	Patching of pavement drop-off, potholes, ruts, and scours in unsealed shoulders with approved material.	Patch where lack of material causes rutting, or slippery surface, or material has eroded to depth of 50 mm or more.

Attachment 4: - Maintenance Service Levels continued**Activity Descriptions and Target Levels**

REFERENCE NO	ACTIVITY	DESCRIPTION	TARGET LEVEL
Unsealed Road			
LRM011	Unsealed Pavement Grading	Grading of unsealed roads to correct crossfall, ruts, corrugations, and potholes.	Grade unsealed roads when rutting, potholing and corrugations exceed 50 mm over 20% of the road, and when lack of cross fall causes water to pond on pavement.
LRM012	Unsealed Pavement Patching	Patching of potholes, ruts, and scours in pavement with approved material prior to maintenance grading to provide minimum -*pavement depth of 50mm after grading.	Patch any area up to 50 m ² where lack of material exposes subgrade or causes rutting, or slippery surface, or has scoured to depth of 50 mm or more
LRM013	Unsealed Pavement	Resheeting of unsealed pavements where loss of material causes weakening of pavement in areas between 50 m ² and 500 m ² to provide minimum pavement depth of 50mm after grading	Resheet any area over 50 m ² where lack of material causes rutting, or slippery surface, or has scoured to depth of 50 mm or greater.
Traffic Facilities			
LRM018	Road Markings	The replacement of missing or damaged RRPM's in critical areas.	RRPM'S should be replaced when more than 30% of the RRPM's are missing or not reflecting on curves or barriers lines only.

Attachment 4: - Maintenance Service Levels continued**Activity Descriptions and Target Levels**

REFERENCE NO	ACTIVITY	DESCRIPTION	TARGET LEVEL
	Operational Servicing		
LRM022	Reinstate Road Openings	The reinstatement of road openings carried out by utilities and private bodies using hotmix, premix or other approved material.	Inspect road openings while works are in progress and within 24 hours of notification of completion to ensure that appropriate standards are met.
LRM023	Litter Control	Removal of litter from within road reserve.	Pick up all litter within the road reserve, visible from the roadway, prior to grass mowing and if deemed a health hazard or visually intrusive.
	Signs		
LRM024	Signs	Signs shall be cleaned or replaced when reflectivity is <50%.	<ul style="list-style-type: none"> i) Signs shall be cleaned using a suitable detergent when reflectivity is reduced by 50% . ii) Signs shall be replaced if after cleaning the sign is not clearly visible from 150 metres at night on low beam.
LRM025	Sign Posts	Sign posts shall be maintained in good condition and vertical.	<ul style="list-style-type: none"> i) All posts shall be straight and plumb. ii) All posts shall be repainted when paint work is badly faded, cracking and the surface is rusting.
LRM026	Signs	Signs to be visible at all times.	Vegetation other signs or objects are to be removed if obscuring any sign.
	Other		
LRM027	Emergency Works	All works arising from emergency incidents to ensure safety of the public and protection to infrastructure.	When detected or made known, and is a safety hazard.
LRM028	Vandalism Repair	Repair or reinstatement of isolated damage caused by vandalism including graffiti.	If hazardous, as per LRM027, otherwise repair/reinstate.

Attachment 5: - Risk Assessment for Roads

Defect Type	Level of Defect	Location	Risk Event & Potential Consequence	Consequence Rating	Road Cat.	Likelihood Ranking	Assessed Risk
Pothole	Beyond the point where intervention is required – maintenance is now a priority.	Urban (lower speeds)	Loss of control causing vehicle crash, serious injuries to several people	4 - Major	4	C - Possible	H
					3	D - Unlikely	H
					2	E - Rare	M
					1	E - Rare	M
		Rural (higher speeds)	Loss of control causing vehicle crash, multiple fatalities	5 - Catastrophic	4	C - Possible	VH
					3	C - Possible	VH
					2	D - Unlikely	M
					1	D - Unlikely	L
		Urban (lower speeds)	Loss of control causing vehicle crash, minor injuries to several people	3 - Moderate	4	C - Possible	H
					3	D - Unlikely	M
					2	E - Rare	L
					1	E - Rare	L
		Rural (higher speeds)	Loss of control causing vehicle crash, serious injuries to several people	4 - Major	4	C - Possible	H
					3	C - Possible	H
	2				D - Unlikely	M	
1	D - Unlikely				L		
At intervention level	Urban (lower speeds)	Vehicle sustains damage	2 - Minor	4	C - Possible	H	

			Vehicle sustains damage	2 - Minor	3	C - Possible	H
					2	D - Unlikely	M
					1	E - Rare	L
		Rural (higher speeds)			4	B - Likely	VH
					3	B - Likely	H
					2	C - Possible	M
					1	D - Unlikely	L

Attachment 5 continued: Risk Assessment – Roads Inc Kerb & Channel

Defect Type	Level of Defect	Location	Risk Event & Potential Consequence	Consequence Rating	Road Cat.	Likelihood Ranking	Assessed Risk
Edge Breaks, Drop offs, Wheel Ruts & Depressions, and Pavement Shoving	Beyond the point where intervention is required – maintenance is now a priority.	Urban (lower speeds)	Loss of control causing vehicle crash, serious injuries to several people	4 - Major	4	D - Unlikely	H
					3	D - Unlikely	H
					2	E - Rare	M
					1	E - Rare	M
		Rural (higher speeds)	Loss of control causing vehicle crash, multiple fatalities	5 - Catastrophic	4	C - Possible	VH
					3	C - Possible	VH
					2	D - Unlikely	V
					1	N/A	N/A
		Urban (lower speeds)	Loss of control causing vehicle crash, minor injuries to several people	3 - Moderate	4	D - Unlikely	M
					3	D - Unlikely	M
					2	E - Rare	L
					1	E - Rare	L
	Rural (higher speeds)	Loss of control causing vehicle crash, serious injuries to several people	4 - Major	4	C - Possible	H	
				3	C - Possible	H	
				2	D - Unlikely	M	
				1	D - Unlikely	L	
At intervention level	Urban (lower speeds)	Vehicle sustains damage	2 - Minor	4	C - Possible	H	
				3	C - Possible	H	
				2	D - Unlikely	H	
				1	N/A	N/A	
	Rural (higher speeds)	Vehicle sustains damage	2 - Minor	4	B - Likely	H	
				3	B - Likely	H	
				2	B - Likely	H	
				1	N/A	N/A	
Crack Sealing	Risk is assessed as being the same whether at or beyond the Intervention Level	Urban (lower speeds)	Structural risk only	2 - Minor	4	D - Unlikely	H
		Rural (higher speeds)	Structural risk only	2 - Minor	4	D - Unlikely	H

Attachment 5 continued: Risk Assessment – Roads Inc Kerb & Channel Roads

Defect Type	Level of Defect	Location	Risk Event & Potential Consequence	Consequence Rating	Road Cat.	Likelihood Ranking	Assessed Risk
Delamination	Risk is assessed as being the same whether at or beyond the Intervention Level	Urban (lower speeds)	Vehicle sustains damage	2 - Low	4	E - Rare	M
		Rural (higher speeds)	Vehicle sustains damage	2 - Low	4	E - Rare	M
Stripped Seals & Slick Surfaces	Risk is assessed as being the same whether at or beyond the Intervention Level	Urban (lower speeds)	Loss of control causing vehicle crash, serious injuries to several people	4 - Major	4	D - Unlikely	H
		Rural (higher speeds)	Loss of control causing vehicle crash, multiple fatalities	5 - Catastrophic	4	D - Unlikely	H
Bleeding Seals	Risk is assessed as being the same whether at or beyond the Intervention Level	Urban (lower speeds)	Loss of control causing vehicle crash, serious injuries to several people; also a public nuisance in urban areas	4 - Major	4	E - Rare	M
		Rural (higher speeds)	Loss of control causing vehicle crash, serious injuries to several people	4 - Major	4	E - Rare	M

Attachment 5 continued: Risk Assessment – Roads Inc Kerb & Channel

Defect Type	Level of Defect	Location	Risk Event & Potential Consequence	Consequence Rating	Road Cat.	Likelihood Ranking	Assessed Risk
Potholes, rutting and scouring	Beyond the point where intervention is required – maintenance is now a priority.	Urban (lower speeds)	Loss of control causing vehicle crash, serious injuries to several people	4 - Major	4	N/A	
					3	N/A	
					2	E - Rare	L
					1	E - Rare	L
		Rural (higher speeds)	Loss of control causing vehicle crash, multiple fatalities	5 - Catastrophic	4	C - Possible	H
					3	C - Possible	H
					2	D - Unlikely	M
					1	E - Rare	L
		Urban (lower speeds)	Loss of control causing vehicle crash, minor injuries to several people	3 - Moderate	4	N/A	
					3	N/A	
					2	D - Unlikely	M
					1	D - Unlikely	L
	Rural (higher speeds)	Loss of control causing vehicle crash, serious injuries to several people	4 - Major	4	C - Possible	H	
				3	C - Possible	H	
				2	D - Unlikely	M	
				1	E - Rare	L	
	At intervention level	Urban (lower speeds)	Vehicle sustains damage	2 - Low	4	N/A	
					3	N/A	
					2	D - Unlikely	M
					1	E - Rare	L
Rural (higher speeds)		Vehicle sustains damage	2 - Low	4	B - Likely	VH	
				3	B - Likely	H	
				2	C - Possible	M	
				1	D - Unlikely	L	

Attachment 6: - Shared Asset Maintenance Agreements**Table A. Neighbouring Councils**

Road	Location	Asset	Length	Joint Council	Maintenance Responsibility
Wannon River Road	West of Wannon River Bridge to Mahoneys Lane	Road	1.7 km	Ararat	Ararat
North Boundary Road	Mahoney's Lane to Burger's Lane	Road	5.6 km	Ararat	Sth Grampians
Dog Leg Road	East-West section	Road	0.2 km	Ararat	Ararat
Heiffer Swamp Road	West of Red Hill Road	Road	1.6 km	Ararat	Ararat
Boundary Road	West of Powells Lane to Maroona Glenthompson Road	Road	3.3 km	Ararat	Ararat
Powell's Lane	Boundary Road to Glenelg Highway	Road	1.0 km	Ararat	Ararat
Phillips Road	Williamsons Road to Glenelg Highway	Road	3.8 km	Ararat	Ararat
Back Bushy Creek Road	Williamsons Road to Yarrak Road	Road	4.1 km	Ararat	Ararat
Back Bushy Creek Road	Yarrack Road to Astons Road	Road	12.0 km	Ararat	Sth Grampians
Wannon River Bridge	North Boundary Road	Bridge		Ararat	Ararat
Chetwynd Nareen Road	Brimboal Nareen Road to Careys Rd	Road	2.3 km	Glenelg	Glenelg
Satimer Road	Chetwyn Nareen Road to Sawpit Gully Road	Road	2.3 km	Glenelg	Glenelg
Sawpitt Gully Road	Satimer Road to Bella Vista	Road	4.6 km	Glenelg	Sth Grampians
Tulse Hill Road	Sawpit Gully Road to Boyds Road	Road	1.0 km	Glenelg	Sth Grampians
Boyds Road	Bella Vista Road to Bella Vista	Road	3.9 km	Glenelg	Glenelg
Carapook Road	Bella Vista Road Glenelg Highway	Road	2.1 km	Glenelg	Glenelg
Heenans Lane	Glenelg Highway to Lowe Coleraine Road	Road	1.8 km	Glenelg	Sth Grampians
Lower Coleraine Road	Heenans Lane to Wannon River	Road	1.6 km	Glenelg	Sth Grampians
Ridge Road	Trevallis Road to River	Road	0.8 km	Glenelg	Glenelg
Ridge Road Bridge	Ridge Road	Bridge		Glenelg	Glenelg
Coleraine Condah Road	Peppers Road to McMillians Lane	Road	7.3 km (Northern)	Glenelg	Sth Grampians
Coleraine Condah Road	Peppers Road to McMillians Lane	Road	8.5 km (Southern)	Glenelg	Glenelg
McMillians Road	Coleraine Condah Road to Henty Highway	Road	4.1 km	Glenelg	Glenelg

McLachlans Road	Henty Highway to Wallacedale Hamilton Road	Road	1.4 km	Glenelg	Sth Grampians
Wallacedale Hamilton Road	Branxholme Byaduk Road to Lens Road	Road	2.8 km	Glenelg	Glenelg
Branxholme Byaduk Road	Wallacedale Hamilton Road to Kinghorn Road	Road	8.4 km	Glenelg	Sth Grampians
Kinghorn Road	Branxholme Byaduk Road to P Christies Road	Road		Glenelg	Glenelg
P Christies Road	Whole Length	Road		Glenelg	Sth Grampians
Ryans Road	Whole Length	Road	0.3 km	Glenelg	Glenelg
Wallacedale Byaduk Road	Whole Length	Road	1.5 km	Glenelg	Sth Grampians
Rocklands Cherrypool Road	Rocklands Dam Wall End to 21.7 km	Road	21.7 km	Horsham	Sth Grampians
Rocklands Cherrypool Road	21.7 km to 33.77 km	Road	12.07 km	Horsham	NRE
Rocklands Telangatuk East Road	0 km to .8 km	Road	.8 km	Horsham	Horsham
Rocklands Road	10.42 km to 11.32 km	Road	.9 km	Horsham	Sth Grampians
Rocklands Road - Salt Creek Bridge	Rocklands Road	Road		Horsham	Sth Grampians
Smiths Road	0 km to .75 km	Road	.75 km	Horsham	Horsham
Ryans Crossing	Glenelg River	Road		Horsham	By Agreement
Astons Road	Glenthompson Caramut Road to Back Bushy Creek Road	Road	5.6 km	Moyne	Sth Grampians
Glenthompson Caramut Road	Astons Road to Petersons Lane	Road	12.3 km	Moyne	Sth Grampians
Petersons Lane	Glenthompson Caramut Road to Fire Access Section	Road	1.0 km	Moyne	Moyne
Petersons Lane	Gravel section to Mustons Lane Fire Access	Road	4.5 km	Moyne	Moyne
Mustons Lane	Petersons Lane Fire Access to Sealed Section	Road	6.7 km	Moyne	Moyne
Mustons Lane	Fire Access Section to Hamilton Highway	Road	2.8 km	Moyne	Moyne
Purdeet Road	Hamilton Highway to Kolor Lane	Road	3.9 km	Moyne	Moyne
Kolor Lane	Penshurst Warrnambool Road to Purdeets Road	Road	8.6 km	Moyne	Sth Grampians
Noonans Lane	Stonefield Lane to Gazette Woolshed Road	Road	5.0 km	Moyne	Sth Grampians
Gerrigerrup Road	Macarthur Penshurst Road to Boundary	Road	1.85 km	Moyne	Moyne
Byaduk Penshurst Road	Macarthur Penshurst Road 0.0 km to 7.6 km	Road	7.6 km	Moyne	Moyne
Gerrigerrup Road Bridge	Gerrigerrup Road	Bridge		Moyne	Moyne

Holecombes Road Bridge	Holecombes Road	Bridge		Moyne	Moyne
Wallacedale Byaduk Road Bridge	Wallacedale Byaduk Road	Bridge		Moyne	Sth Grampians
Old Crusher Road Bridge	Old Crusher Road	Bridge		Moyne	Sth Grampians

Table B. VicRoads

Road	Asset	Maintenance Responsibility
Glenelg Highway	Road	VicRoads
Henty Highway	Road	VicRoads
Hamilton Highway	Road	VicRoads
Harrow Balmoral Road	Road	VicRoads
Coleraine Edenhope Road	Road	VicRoads
Coleraine Balmoral Road	Road	VicRoads
Coleraine Merino Road	Road	VicRoads
Natimuk Hamilton Road	Road	VicRoads
Dartmoor Hamilton Road	Road	VicRoads
Hamilton Port Fairy Road	Road	VicRoads
Macarthur Penshurst Road	Road	VicRoads
Penshurst Warrnambool Road	Road	VicRoads
Penshurst Dunkeld Road	Road	VicRoads
Dunkeld Cavendish Road	Road	VicRoads
Victoria Valley Road	Road	VicRoads
Grampians Tourist Road	Road	VicRoads
Maroona Glenthompson Road	Road	VicRoads

Table C. Other Non Council Roads

Road	From	To	Responsibility
Hallam Close	Mt Bainbridge Rd	End	Department Human Services
Theatre Drive	Henty Hwy	Glenelg Hwy	Private Road
Lakeside Court	Glenelg Hwy	End	Private Road

