Infrastructure Asset Management Plan

Transport

Barunga West Council

3 November 2021

Ref: 210931R001RevE

Document History and Status

Rev	Description	Author	Reviewed	Approved	Date
A	Draft for Client Comment	RKE			18 August 2021
B	Unreviewed Draft	RKE			20 August 2021
C	Advanced draft based on audit committee comments, excluding internal review	RKE			21 October 2021
D	Amendments following internal review	RKE	TJF	RKE	29 October 2021
E	Amendments following Audit Committee review 3 November 2021	PJL	RKE	RKE	3 November 2021

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Project: Infrastructure Asset Management Plan | Transport
Client: Barunga West Council
Ref: 210931R001RevE

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1 Executive Summary

This 10-year plan outlines the requirements for the Council to continue to plan and deliver on the demands to maintain its road infrastructure and outlines the expenditure demand for budget considerations and links to Council's Long Term Financial Plan (LTFP).

Barunga West Council (Council) commences 100 kilometres north of Adelaide and extends a further 70 kilometres north. The Council borders the Port Pirie Regional Council to the north, Copper Coast Council to the west, Wakefield Regional Council to the south and Northern Areas Council to the east. The focus of the local Council region is principally primary production, fishing and tourism.

Council is responsible for an extensive road asset network that provides the means for delivery of services to the community.

The major issue for Council is that the large rural road network is maintained and funded by a relatively small ratepayer base. Accordingly, the provision of road services needs to be weighed against the common community interest and a limited budget.

Council's road assets were revalued as at 1/7/2019 by Tonkin, based on condition assessments for unsealed roads provided by trained Council staff in 2019 and sealed roads, kerb and footpath assessed by Tonkin during 2020. The extent and value of the assets covered in this plan are shown in Figure 1.

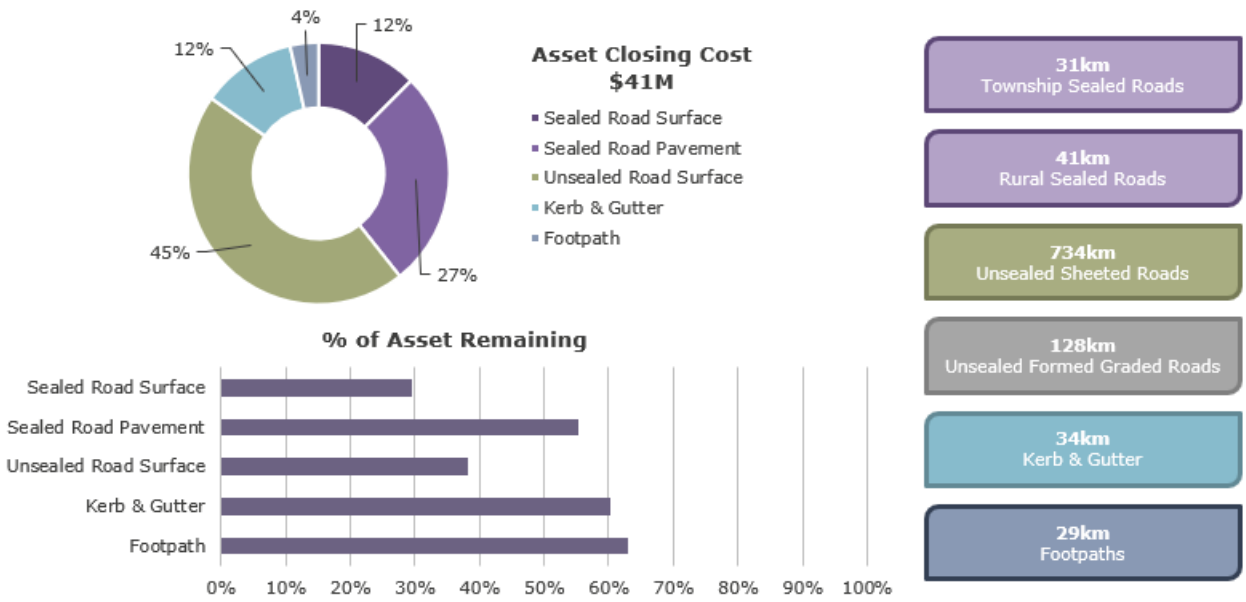


Figure 1 Asset Summary as of 30/06/2021

At the end of each financial year the financial statements are updated to reflect the asset management activities completed. As of 30/6/2021 and inclusive of the 2020-21 capital works update, the closing asset cost (at fair value + at cost) was assessed at $40,995,791.

This plan is prepared on the understanding Council is going to be custodian of the road network in Fisherman Bay from year 2. This will have the following impact, based on the preliminary assessment of designs.

- Town Seal Road will increase 5km (15% increase)
- Kerb (Edge strip and dish drains) will increase 9km (26% increase)
- Fair Value will increase by $2.1M (5% increase)
- Depreciation will increase by approximately $40,000 (3.5% increase) based on current assumptions on renewal.

What does it Cost?

The projected cost to provide the services covered by this Asset Management Plan includes operations, maintenance, renewal and upgrade of existing assets.

The maintenance expenditure includes planned and ad hoc activities to keep assets operating. The planned maintenance expenditure for year 1 is estimated to be $758,142, and increases to $766,465 once Fisherman Bay Road network is vested to Council.

Renewal expenditure is major work which restores, rehabilitates, replaces, or renews an existing asset to its original service potential.

The total required capital renewal expenditure including backlog for the 10-year period is $17,932,037, the budgeted renewal is set at $16,503,314 resulting in a small deficit of funding. The deficit is limited to the unsealed road network, with sealed roads, footpath and kerb all meeting funding demands. The demand for funding is greatest in the early part of the plan, however funding is applied more evenly over the planning period to level out expenditure.

New/upgrade expenditure is major work that creates a new asset that did not previously exist, works which upgrade or improve an existing asset beyond its existing capacity or vested assets such as the addition of Fisherman Bay.

Council has a plan to upgrade gravel footpaths to paved footpaths to improve connectivity and Disability Discrimination Act (DDA) compliance. With the footpath upgrade plan the annual depreciation will increase annually to a total increase of $12,500 by year 10. In addition, Council will acquire Fisherman Bay assets, increasing the asset stock. When these assets are vested to Council approximately $40,000 of additional annual depreciation will need to be accounted for.

The projected capital, operations & maintenance expenditure and estimated budget funding is shown in the figure below.

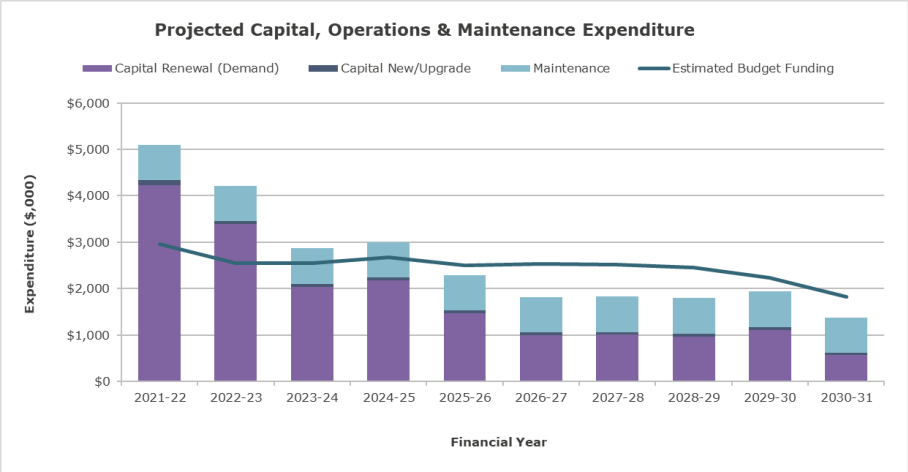


Figure 2 Projected Expenditure and Budget Funding

Assets identified at the 1/7/2019 valuation as having reached a condition below defined service levels are referred to as low service level assets. Since the valuation other assets that have since fallen below the defined service level are referred to as unprogrammed backlog.

As of year 1 of this plan, there is a combined value of $2.78M which includes both low service level assets and unprogrammed backlog and potentially impacting on desired service levels. A high proportion of this backlog is sealed roads. This plan is developed to reduce the sealed road backlog within 10 years.

What we will do

Council plans to do the following in relation to Road Infrastructure services:

- Operation, maintenance, renewal and upgrade of sealed & unsealed roads, footpaths and kerbing to meet service levels set by Council in annual budgets
- Lobby the State Government to improve the main arterial roads in the council area, which fall under their care and control
- Listen to the ratepayers concerns about road conditions and categorisation of roads
- Consult with ratepayers in relation to Council footpaths, as well as any flooding issues relating to kerbing & guttering
- Plan for impact of the Fisherman Bay road network becoming part of Councils asset base should the development progress.

What we cannot do

The planned expenditure has grown despite the gradual increase over time in the length of roads being resheeted per annum however, there has been limited resealing work in recent years. Accordingly, there is a growing demand for renewal to keep desired service levels. As a result, the demand for funding on road renewal is increasing. The following aspects of the road network have not been included in this plan.

- Conversion of any existing unsealed roads to seal roads
- A portion of the unsealed road network is operating at lower service levels with condition falling below desired intervention levels. This will continue during the planning period and may increase depending on actual budgets allocated to renewal.

Managing the Risks

Council staff regularly undertake inspections of road infrastructure assets as part of their daily work routine, including Council's Patrol Grader operators. Council also has in place a documented Customer Service IT facility, as part of its administration function, whereby advice of potential road hazards is directed immediately to the relevant staff member for investigation. Any road infrastructure defects are prioritised according to the assessed risk.

2 Introduction

2.1 Background

This Asset Management Plan is to demonstrate responsive management of assets (and services provided from assets), compliance with regulatory requirements, and to communicate the funding needed to provide the required levels of service.

The Asset Management Plan is to be read with Council's Asset Management Policy, Asset Management Strategy and the following associated planning documents:

- Uniquely Barunga Strategic Management Plan 2020-2030
- Annual Business Plan 2020-2021
- Long Term Financial Plan 2020-2030.

The infrastructure assets covered by this Asset Management Plan are shown in Table 1.

Table 1 Assets Covered by this Plan 30/06/2021

Asset category	Length	Closing Cost
Township Sealed Road	31.1 km	$16.1M
Rural Sealed Roads	41.4 km	
Sheeted Roads	733.8 km	$18.6M
Kerb & Gutter	34.3 km	$4.8M
Footpaths	28.6 km	$1.4M
Total		**$41.0M**

2.2 Goals and Objectives of Asset Management

This transport infrastructure asset management plan is based on the fundamental structure of the IPWEA NAMS 3 Asset Management for Small, Rural or Remote Communities template and has been simplified to minimise the content to suit Barunga West Council requirements.

Council provides services for the community in part through the provision of infrastructure assets. Council have acquired these assets directly through construction by council staff or contractors and by donation of assets constructed by developers and others over time.

The goal in managing infrastructure assets is to meet the required level of service in the most cost-effective manner for present and future consumers. The key elements of infrastructure asset management are:

- Taking a life cycle approach
- Developing cost-effective management strategies for the long term
- Providing a defined level of service and monitoring performance
- Managing risks associated with asset failures
- Sustainable use of physical resources.

Key elements of the plan are:

- Levels of service – specifies the services and levels of service to be provided by Council
- Future demand– how this will impact on future service delivery and how this is to be met
- Life cycle management – how the organisation will manage its existing and future assets to provide the required services
- Financial summary – what funds are required to provide the required services
- Plan improvement and monitoring – how the plan will be monitored to ensure it is meeting the organisation's objectives.

This asset management plan is prepared under the direction of Council's vision and values.

Council's vision is:

> *"We are a vibrant, thriving, safe and welcoming coastal and agricultural community with an unspoilt natural environment and relaxed country lifestyle."*
>
> *"Uniquely Barunga" 2020 – 2030*

Council's values are:

Respectful, Approachable & Consultative

We will listen and respond to community views as we make the day-to-day and the long term decisions of Council in the best interests of the district and community. We will demonstrate respect, care and empathy in our processes, considerations and dealings.

One District - One Community

We are diverse…from beach to bush, from town to farm, from young to old, from people who have lived here for a lifetime, to those who are new to the district. Respecting all and valuing all, we support the coming together as one community. Our considerations and decisions are made in the best interests of our district as a whole.

Brave

We understand that at times our decisions will find favour; and at times not. However we will pursue considerations and make decisions that are prudent, reliable and always in the best interest of our whole community.

Optimistic

We are optimistic about our future as we pursue harmony, opportunity and prosperity in our district. We are aspirational; working to provide greater opportunity for all within our community.

Integrity

We will work hard to develop and hold the trust of our community by acting with integrity and transparency in our dealings.

Excellence

We will be visionary in thinking, pragmatic in our decisions and professional in our execution as we deliver the best outcomes for our community. We will embrace innovation and creativity in our pursuit of quality and sustainability. We will continuously explore ways to improve.

2.3 Community Consultation

This asset management plan has been developed based on general feedback from the community through Council's consultation processes as part of the formulation of the strategic management plan.

The establishment of road categories for unsealed roads and the associated construction standards that continue to be applied in this plan were established over 4 years through community engagement and feedback.

The maturity of the asset plan is developing and as part of the improvement plan, it is planned to undertake further community consultation as future transport asset plans are developed to ensure alignment between community needs and Council's delivery.

3 Levels of Service

3.1 Customer Research and Expectations

Council has not carried out any research on customer expectations. This will be investigated for future updates of the Asset Management Pan.

Council does track all Customer Service Requests, through its financial & administrative software, as follows:

1. A Customer Service Request (CSR) is raised following advice from a ratepayer, work colleague, elected member or any member of the public;
2. The customer is advised that the CSR has been received;
3. All details of the CSR are recorded, including location, issue, time and date of CSR and the type of request;
4. The CSR is assigned to the relevant Council employee for action;
5. Upon completion of the CSR, the actions taken are recorded within council's administrative software, and a permanent record of the request and action is retained;
6. Where requested, the customer is notified of the action taken.

3.2 Legislative Requirements

Council has to meet many legislative requirements including Australian and State legislation and State regulations. Relevant legislation is shown in Table 2.

Table 2 Legislative Requirements

Legislation	Requirement
Local Government Act	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by asset management plans for sustainable service delivery.
Environment Protection Act 1993	An Act to provide for an Environmental Protection Authority, for the prevention, control and abatement of pollution and environmental harm and for the conservation, preservation, protection, enhancement and management of the environment.
Australian Road Rules and Road Safety Act	Set of model road rules developed by the National Road Transport Commission (NRTC) which form the platform for State and Territory road rules across Australia. The first edition of the Rules was published on 19 October 1999, and marked a milestone in road safety policy and legislation across Australia.
Road Traffic Act 1961	An Act to prescribe the duties of road users; to provide for nationally consistent road rules and other related purposes.
Native Vegetation Act 1991	An Act to provide incentives and assistance to landowners in relation to the preservation and enhancement of native vegetation; to control the clearance of native vegetation; and for other purposes.
Roads (Opening & Closing) Act 1991	An Act to provide for the formal processes around the opening and closing of gazetted roads
Australian Accounting Standards AAS27	Set out the financial reporting standards relating to the (re)valuation and depreciation of Assets

Legislation	Requirement
Land Administration Act, 2002	Standard for land acquisition and management of land.
Code of Technical Requirements for the Legal Use of Traffic Control Devices	Details the design and construction parameters to which traffic management devices installed by Council must comply.
Highway Act 1926	Set out the Legislative framework for drainage of roads and road authorities' In SA.
Work Health and Safety Act 2012	An Act to provide for the health, safety and welfare of persons at work; and for other related purposes.
Disability Discrimination Act, 1992	The Act makes it illegal to discriminate against a person because of a disability when providing goods, services or facilities, or access to public premises

3.3 Current and Desired Levels of Service

Council has defined service levels in two terms.

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

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

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

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

Technical service measures are linked to annual budgets covering:

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

Indications of desired levels of service are obtained from various sources including residents' feedback to Councillors and staff, service requests and correspondence, these are included in the table below. Council will continually review desired levels of service and this will be updated in future revisions of this asset management plan.

Council's current and desired service levels are detailed in Table 3.

Table 3 Current and Desired Service Levels

Key Performance Measure	Level of Service Objective	Performance Measure Process	Current Level of Service	Desired Level of Service
Community Levels of Services				
Quality	Provide all weather access	Customer Service Requests	Less than 5 service requests per month	Less than 5 service requests per month
Function	Ensure that roads are built to construction level for required traffic	Council road hierarchy, in consultation with ratepayers	Less than 5 service requests per month	Less than 5 service requests per month
Safety	Provide safe, hazard-free roads	Number of incidents/accidents	Zero incidents / accidents as result of surface condition	Zero incidents / accidents as result of surface condition
Technical Levels of Service				
Condition	Maintain roads in optimum condition	Programmed patrol grading and maintenance	Programmed patrol grading completed each year	Programmed patrol grading completed each year
	Sealed roads are renewed to intervention level	Value of seal surfaces above intervention	$1.784M at 2020-21	No sealed roads above intervention
Access	Provide all weather access for Category 4 roads and above	Value of unsealed surfaces above intervention condition	$977K at 2020-21 and increasing with funding gap of $2.02M by 2023/24 and $1.33M in 2030/31	Minimise the value of unsealed roads above intervention to $500K by 2034/35.
Cost Effectiveness	Provide services in cost effective manner	Budget	Roads maintained within budget allocation	Roads maintained within budget allocation
Safety	Ensure road network is safe	Number of incidents/accidents	Zero incidents/accidents as result of surface condition	Zero incidents/accidents as result of surface condition

4 Future Demand

4.1 Demand Forecast

Factors affecting demand include population change, changes in demographics, seasonal factors, vehicle ownership, consumer preferences and expectations, economic factors, agricultural practices, environmental awareness, etc.

Demand factor trends and impacts on service delivery are summarised in Table 4.

Table 4 Demand Factors, Projections and Impact on Services

Demand factor	Present position	Projection	Impact on services
Population	Current Population is 2,456	Projected population in 2031 is 2,803	Negligible impact on road infrastructure services
Demographics	Average growth rate	0.663%	Negligible impact on road infrastructure services. Possibility of augmentation of existing infrastructure, services and community wastewater management systems
Residential development	Fisherman Bay Freehold Application	Significant transfer of infrastructure assets to Council	Increase in annual maintenance and depreciation expenditure
	Increase in demand for aged accommodation	Aging demographic increasing 1.21% per year till 2031	Need to improve footpath facilities to enable access for wheelchairs and motorised gophers

4.2 Demand Management Plan

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices include non-asset solutions, insuring against risks and managing failures.

Non-asset solutions focus on providing the required service without the need for the Council to own the assets. Examples of non-asset solutions include providing services from existing infrastructure such as aquatic centres and libraries that may be in another council area or public toilets provided in commercial premises.

Opportunities identified to date for demand management are shown in Table 5. Further opportunities will be developed in future revisions of this asset management plan.

Table 5 Demand Management Plan Summary

Service Activity	Demand Management Plan
Rural Roads	Review the road hierarchy to provide optimal patrol grading and resheeting programming
Heavy Freight Vehicles	Prioritise preferred heavy freight traffic routes because Council cannot fund the maintenance of all roads in the district to a level required for heavy vehicles carting primary produce.
Fisherman Bay	Plan for annual depreciation impact of acquiring assets. It is assumed the impact on asset renewal will fall outside the planning period, however the impact on maintenance cost has been included in this plan

4.3 New Assets for Growth

The new assets required to meet growth will be acquired free of cost from land developments and constructed/acquired by Council.

Council will have a substantial transfer of assets when the Fisherman Bay Freehold application proceeds to construction. Acquiring these new assets will commit Council to fund ongoing operations and maintenance costs for the period that the service provided from the assets is required. These future costs have been considered in developing forecasts of future operations and maintenance costs.

Council is awaiting quantified estimates for new contributed and constructed asset values, and for the purposes of this plan the following figures are presented based on early design information:

- Town Seal Road will increase 5km (15% increase)
- Kerb (Edge strip and dish drains) will increase 9km (26% increase)
- Fair Value will increase by $2.1M (5% increase)
- Depreciation will increase by approximately $40,000 (3.5% increase) based on current assumptions on renewal.

Council will incorporate the valuations into future revisions of the plan.

5 Life Cycle Management

The lifecycle management plan details how Council plans to manage and operate the assets at the agreed levels of service (defined in Section 3) while optimising life cycle costs.

5.1 Background Data

Barunga West Council transport assets are in both rural areas and townships within the Council and the assets covered by this asset management plan are shown in Figure 1.

The transport assets consumption is measured by condition at time of inspection. A physical score between 0-100 is assigned to the asset and a Condition of End of Life (CoEL) parameter is assigned to suit the desired service levels. Generally, the CoEL range for sealed roads surfaces is from 40-50, sealed road pavements is from 70-75, high use sheeted roads from 60-70, footpaths from 60-70 and 80-100 for long life assets like kerbs and low use sheeted roads.

Assets that exceed the CoEL are those identified as low service level assets or unprogrammed backlog assets.

The level of asset consumption has been regenerated from the above modelling and assigned to each asset. For ease of understanding the state of the assets, a consumption profile score of 1-5 has been assign to each asset and is calculated as the remaining life at year 2021 / standard useful life.

Table 6 Consumption % Categorisation

Score	Consumption %	Description
1	0-10%	As new
2	11-35%	Good
3	36-60%	Fair may need some maintenance
4	61-90%	Deteriorating needing maintenance and/or planned replacement in planning period
5	91-100%	Poor approaching need for replacing now or in next few years

5.1.1 Asset Condition

The transport assets have been visually inspected, and the condition is measured using a 0-100 rating system. A summary of the condition rating methodology implemented for the different assets types is described below.

Sealed Roads

Sealed roads are inspected at a segment level, several defects are recorded and give a score out of 100 based on their severity and extent of damage. The defects recorded vary depending on the type of surface, and additional defects are collected to assess the underlying pavement and the construction date of the pavement is also included as a factor. The defects collected for sealed roads are shown in Table 7.

Table 7 Sealed Road Defects

Sealed Road Defects	
Surface Score	• Binder age • Aggregate • Flushing • Stripping
Deformation	• Environmental deformation • Rutting (load induced deformation)
Patching	• Severity and extent of patches
Cracking	• Environmental cracking • Load Induced (fatigue) cracking
Shape	• Crossfall %
Edge Defects	• Edge break and/or drop off

The individual defect scores are weighted to provide a single overall score based on a 0 (as new) to 100 (fully consumed) rating.

Unsealed Roads

Unsealed roads are inspected at a segment level, several defects are recorded and give a score out of 100 based on their severity and extent of damage. The defects collected for sheeted roads are shown in Table 8

Table 8 Unsealed Road Defects

Unsealed Road Defects	
Surface Score	• Sheeting condition (sheeting material and extend of subgrade exposed)
Shape	• Crossfall %
Rideability	• Ride at posted speed limit
Surface Defects	• Severity/extent of corrugations, potholes, rutting, scour, loose material and soft surface
Drainage	• Impact in wet conditions
Vegetation Canopy	• Extent and clearance width

The individual defect scores are weighted to provide a single overall score based on a 0 (as new) to 100 (fully consumed) rating.

Kerbs

Kerbing assets are inspected at a segment level for both left and right sides, several defects are recorded and give a score out of 100 based on their severity and extent of damage. The defects collected for kerbs are shown in Table 9.

Table 9 Kerb Defects

Kerb Defects	
Deterioration	• Cracking • Chipping • Disintegration
Performance	• Misalignment • Drainage
Patching	• Extent of required patching (m)

The individual scores are weighted to provide a single overall score based on a 0 (as new) to 100 (fully consumed) rating.

Footpaths

Footpath assets are inspected at a segment level for both left and right sides, several defects are recorded and give a score out of 100 based on their severity and extent of damage and are dependent on the footpath surface. The defects collected for footpaths are shown in Table 10.

Table 10 Footpath Defects

Footpath Defects	
Spray Seal or Hotmix Bitumen	• Cracking • Ravelling • Services • Shape (crossfall %) • Displacement
Concrete	• Cracking • Fretting • Surface wear • Services • Shape (crossfall %) • Displacement
Paved	• Gaps / Chips • Surface wear • Services • Shape (crossfall %) • Displacement
Gravel or Crusher Dust	• Overall Condition (extent of cover, ground exposed)

The individual scores are weighted to provide a single overall score based on a 0 (as new) to 100 (fully consumed) rating.

The condition profiles of the road surface, pavement, kerb and footpath assets is based on the 2019 condition inspection and updated for the 2019-20 & 2020-21 capital works, they are shown by Current Replacement Cost (CRC) in the following figures.

In addition to this the consumption profile scores of 1-5 (referred to in Table 6) are presented by length (km).

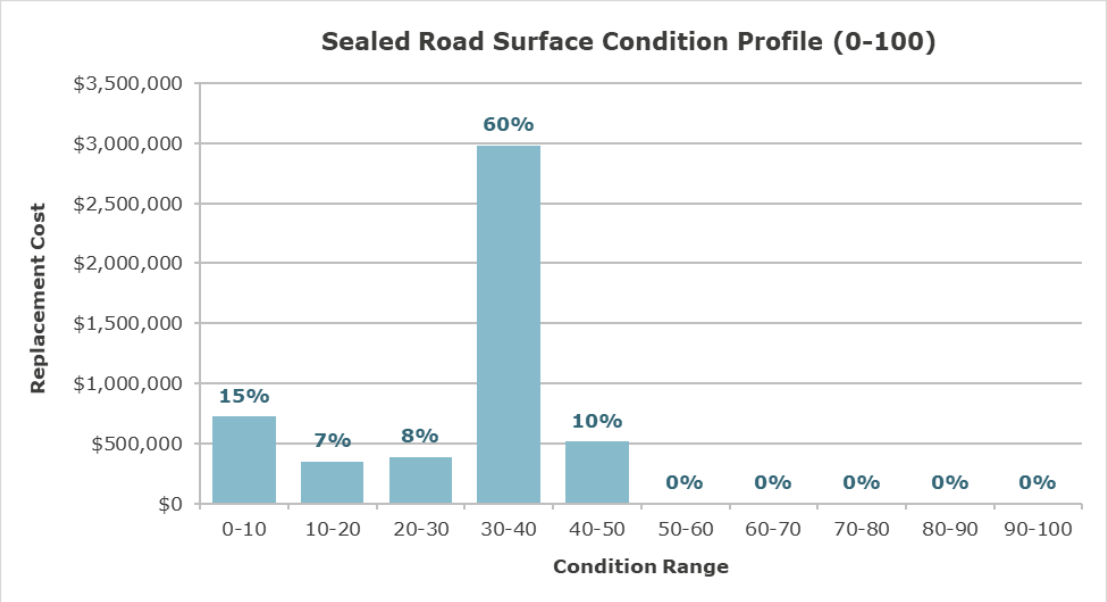


Figure 3 Summary Sealed Road Surface Condition Profile 0-100

As shown in Figure 3, approximately 60% of the rural and township road seals are within 30-40 condition range and 10% are within the 40-50 range. The CoEL where roads need to be resurfaced range between 40-50. A large portion of the sealed surfaces shown in the 30-40 range are at the upper end of the range and with the time since inspection these assets have deteriorated for a further 2-3 years and exceeded their CoEL. The remainder of the sealed surfaces in the 30-40 range will require resurfacing in the 10-year planning period. If roads are left to fall to conditions greater than 50, expensive pavement treatments will be required as part of renewal expenditure. Accordingly, there is a need for diligence in managing the sealed network during the planning period.

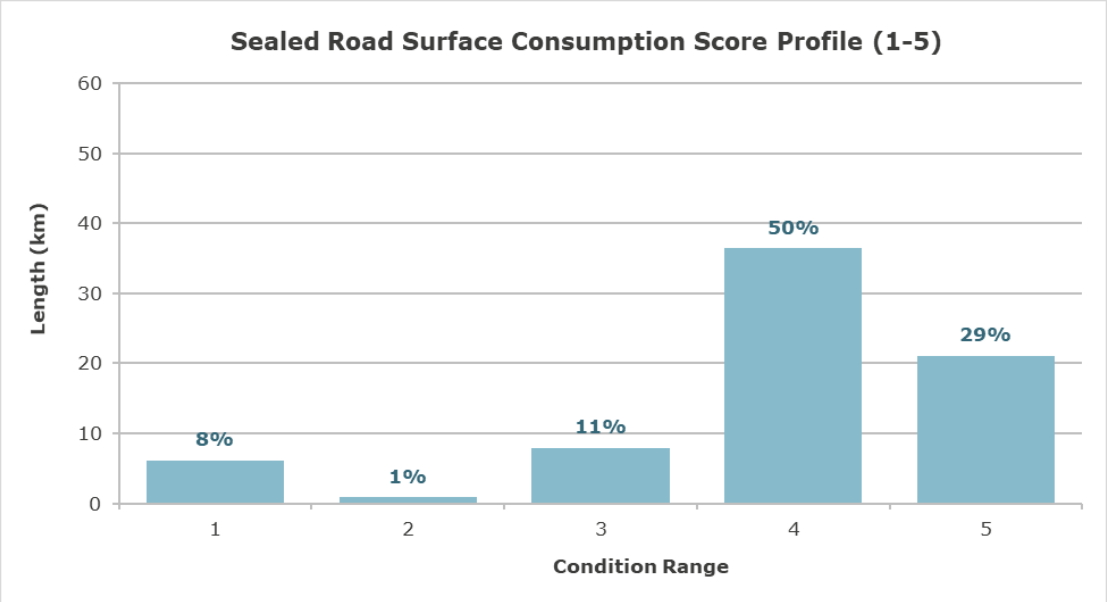


Figure 4 Summary Sealed Road Surface Consumption Profile 1-5

Figure 4 shows 79% of the seal road surfaces in the 4 to 5 range impacting the renewal expenditure for this plan. There is a high demand for renewal of sealed surfaces.

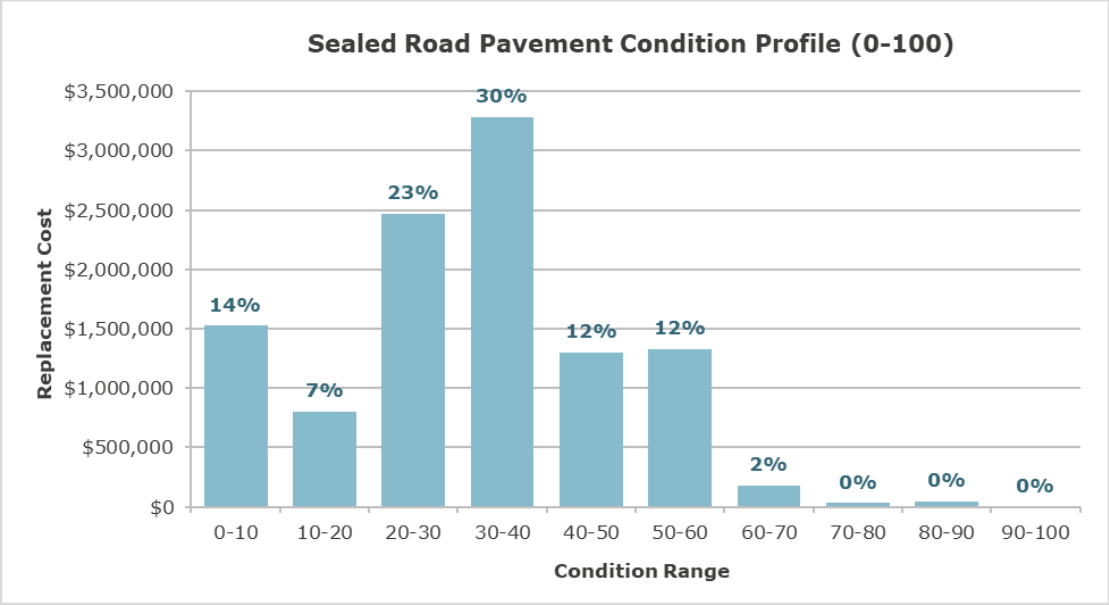


Figure 5 Summary Sealed Road Pavement Condition Profile 0-100

As shown in Figure 5, approximately 2% of the rural and township road pavements are above condition 60 with 12% in the condition range the 50-60. The condition where road pavement need to be fully replaced is above 70. However, between 50 to 70 there will be accelerated deterioration of the pavement if resurfacing does not occur and when resurfacing occurs there is likely to be additional cost in pavement patching as preparation works. Accordingly, there is a need for diligence in managing the sealed pavement network during the planning period.

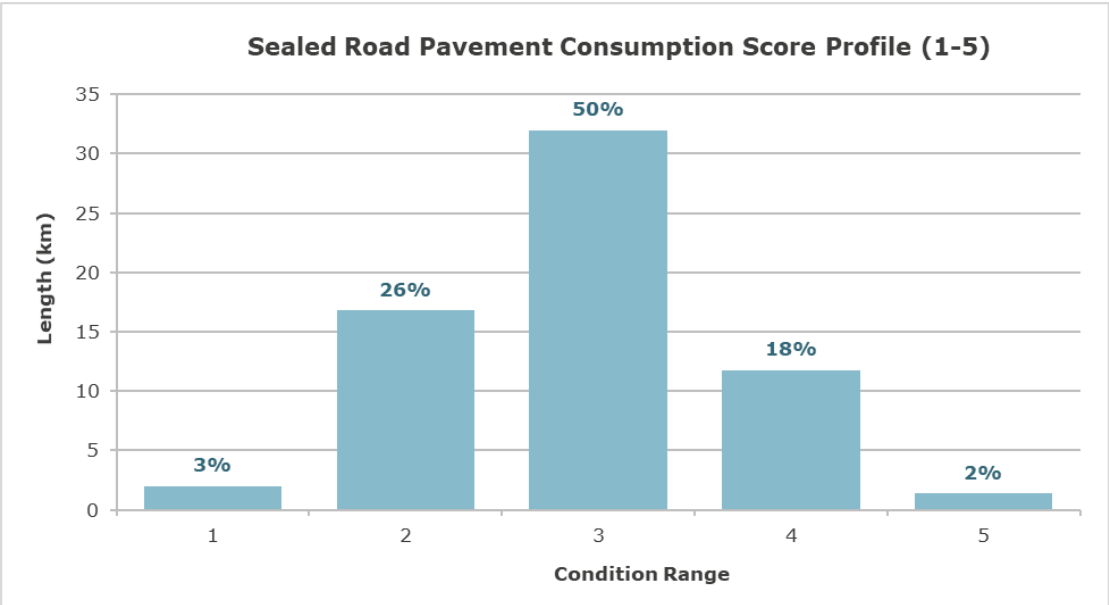


Figure 6 Summary Sealed Road Pavement Consumption Profile 1-5

Figure 6 shows there is a risk emerging for Council that expensive pavement reconstruction may be needed in the future if the 50% of roads move into 4 and 5 scores. By undertaking an extensive reseal program and allowing for pavement preparation works it is anticipated this can be managed.

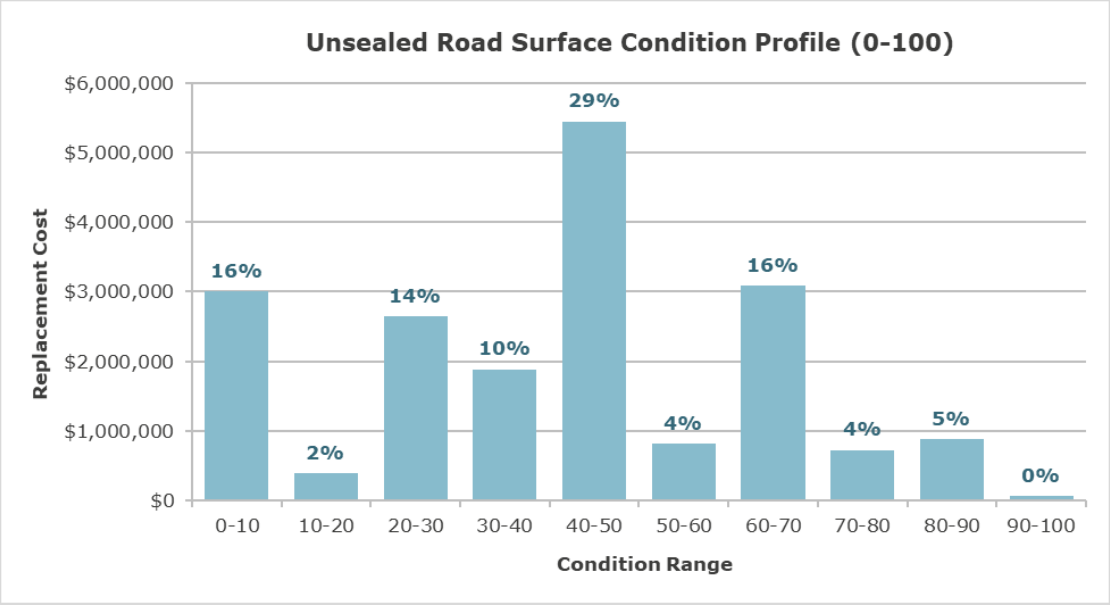


Figure 7 Summary Unsealed Sheeted Road Surface Condition Profile 0-100

As shown in Figure 7, approximately 32% of the rural and township road unsealed sheeted assets have a condition less than 30 with 39% between 30 to 50, and the remaining 29% above 50. The defined condition range at which unsealed sheeted surface assets reach their end of life is between 60 and 75 for category 2 and 3 roads. Category 4 roads are left to deteriorate to a score of 99 before intervention.

The unsealed sheeted road network is being generally maintained through resheeting treatments. The plan aims to implement an extensive resheeting program to sustain the service levels and to prevent the backlog significantly increasing.

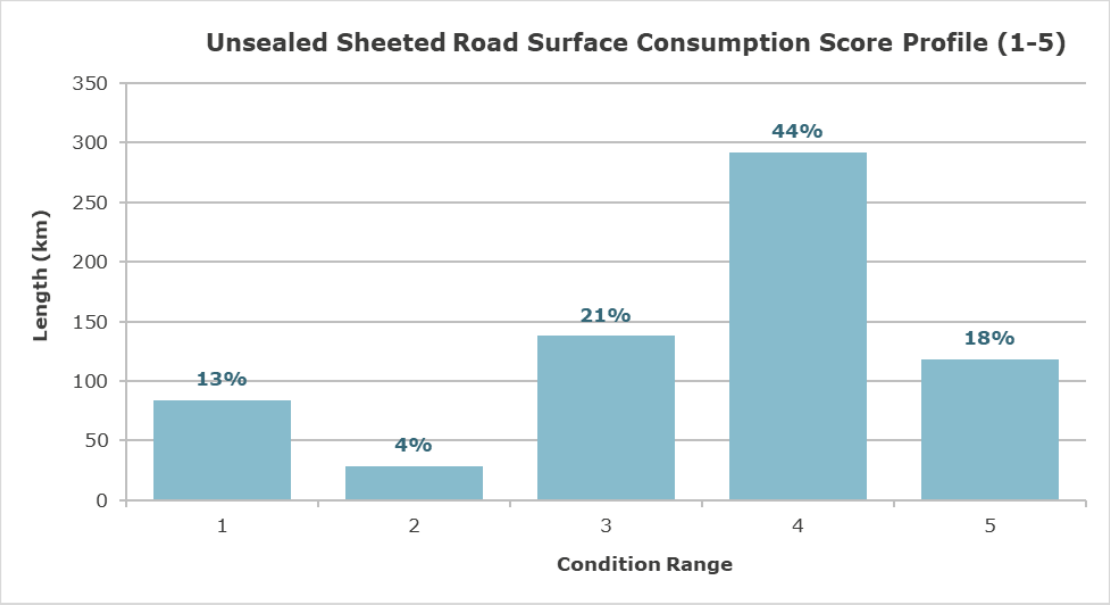


Figure 8 Summary Unsealed Sheeted Road Surface Consumption Profile 1-5

Figure 8 shows an ongoing demand for resheeting in the short to medium term to avoid the roads in poor condition growing. There will be a high demand for resheeting the road networking in the planning period which will extend beyond the 10-year period.

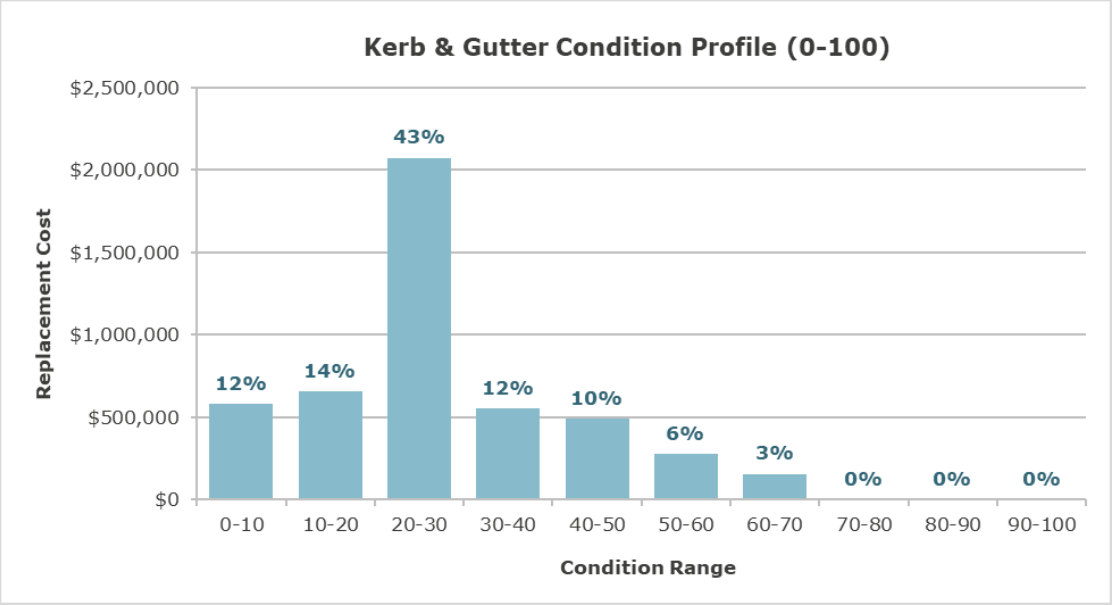


Figure 9 Summary Kerb Condition Profile 0-100

As shown in Figure 9, all kerb is below intervention level set at 75. Accordingly, there is limited need for planning kerb renewal, however when roads are resurfaced allowance should be included for kerb patching to maintain service levels.

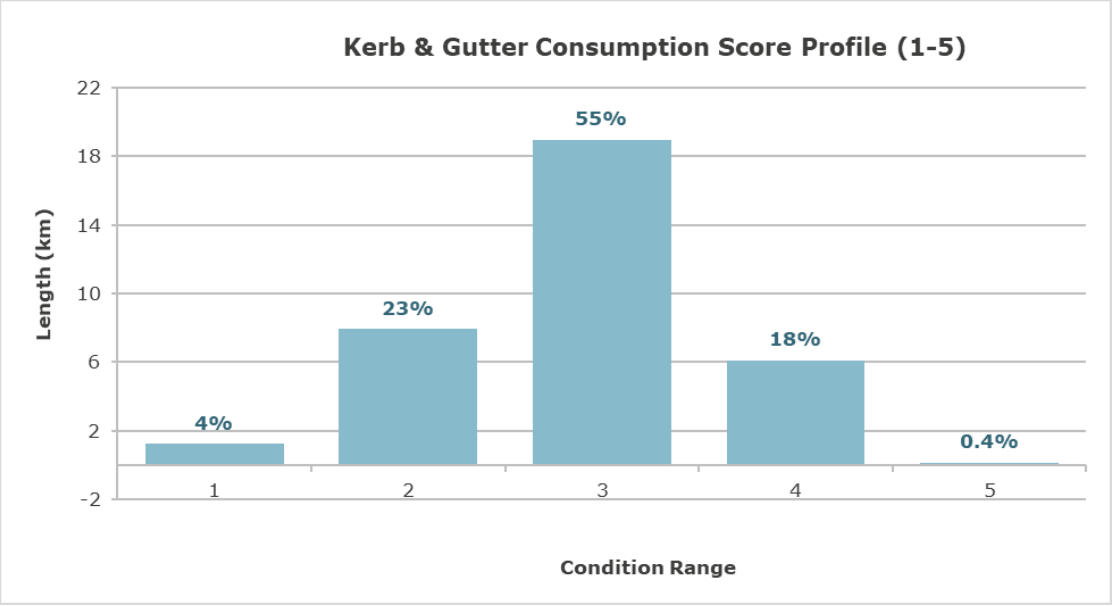


Figure 10 Summary Kerb Consumption Profile 1-5

Figure 10 shows the kerb in generally good condition and as part of the reseal programs kerb sections will be patched but there is a low-level need for full kerb replacement.

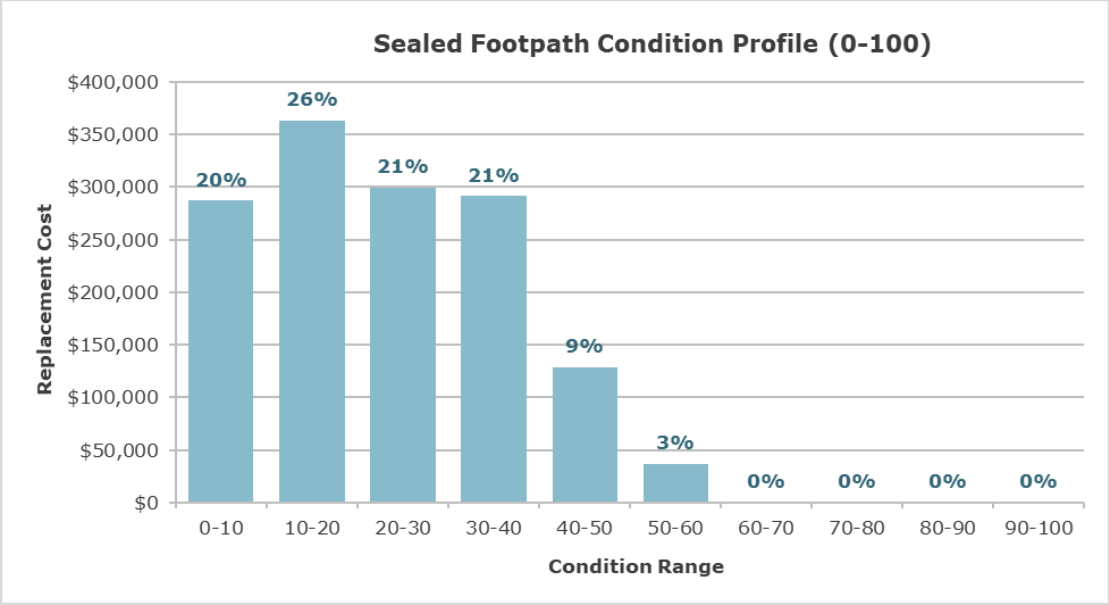


Figure 11 Summary Footpath Condition Profile 0-100

As shown in Figure 11, all footpaths are below intervention of 60-70 with only 12% in the range above 40. Accordingly, there is a low-level need for renewal in the planning period.

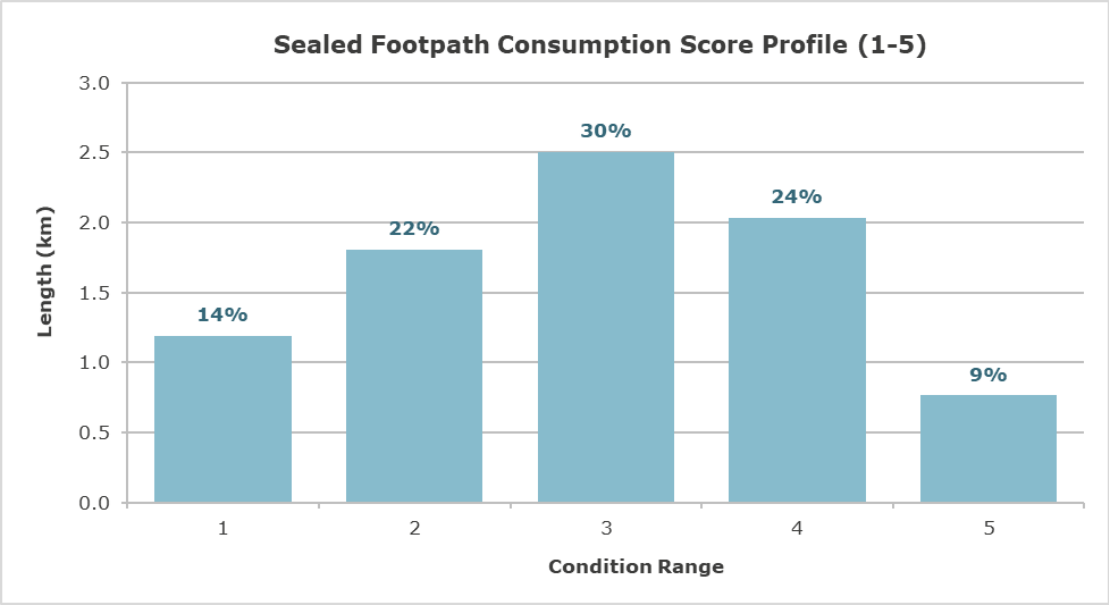


Figure 12 Summary Footpath Consumption Profile 1-5

Figure 12 shows there is a low demand for renewal in the next 10 years, and in subsequent decades there will be a smooth spend on renewals with no major funding peaks.

5.1.2 Asset capacity and performance

Council's services are generally provided to meet design standards where these are available. Locations where deficiencies in service performance are known are detailed in Table 11.

Table 11 Known Service Performance Deficiencies

Location	Service Deficiency
Rural Sheeted Road Cat 2, 3, 4	There is currently $439K of roads above intervention level condition and are either programmed for renewal or unprogrammed backlog
Rural Formed Road Network	Sealing of additional rural roads is not a consideration due to economic constraints
Footpaths	Due to the increasing age of the population, Council needs to ensure that town footpaths are DDA compliant and form a connected network
Town Sealed Roads	There is currently $1.48M of roads above intervention level condition and are either programmed for renewal or unprogrammed backlog
Rural Sealed Roads	There is currently $327K of roads above intervention level condition and are either programmed for renewal or unprogrammed backlog
Kerbs	Some kerbs are underperforming and allow flooding/ponding to occur

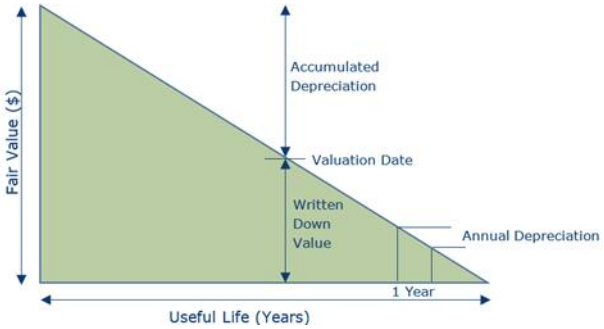
5.1.3 Asset Values

The value of the road assets covered by this asset management plan reported in Councils financial statements of 30 June 2021 is shown below. Assets were last revalued at 1 July 2019.

Table 12 Road Asset Value Summary at 30 June 2021

Closing Cost	$40,995,792
Accumulated Depreciation	$22,439,482
Carrying Amount	$18,555,950
Annual Depreciation	$1,121,129

The current rate of consumption (annual depreciation/closing cost) for road assets is 2.7%. This indicates that on average, over the life of an asset, 2.7% of the fair value amount is consumed annually. The translation of this consumption rate into renewals is subject to a decision on funding, service level determination and asset condition.



To assist Council in its Long Term Financial Plan and with the impending development of Fisherman Bay, the following is an estimate of the road assets to be added to the register in the future, estimated in 1/7/2019 values is shown below.

Table 13 Forecast Additional Costs for Fisherman Bay Road Assets

Current Replacement Cost (Forecast)	$2,106,869
Annual Depreciation (Forecast)	$39,128

5.1.4 Asset Hierarchy – Unsealed Roads

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

Council's service hierarchy for unsealed roads is shown below:

Category 1 – Rural Arterial Local Road

- Major unsealed sheeted roads within the Council area that operate as local arterial roads. They carry traffic through the Council area and are the higher trafficked roads. Main linkage roads with high traffic movement inclusive of freight that link to the sealed road network
- Generally these roads have high traffic volumes as linkages between townships and outside of urban/built up areas and are used as a collector road with a higher speed environment
- High local volume usage.

Category 2 – Rural Collector Road

- Medium use unsealed sheeted collector road carrying medium priority localised traffic
- Medium localise traffic usage - Localised freight and social transport uses
- Moderate use sheeted road network for traffic use between townships and focal points.

Category 3 – Local Access (High to Medium Use)

- Moderate use sheeted road network for traffic use between townships and focal points
- Localised freight and social transport use.

Category 4 – Local Access (Low Use)

- Rural residential access only (sheeted only to house gate)
- Sheeted only in one direction to gain weathered access to the remainder of Councils road network
- Localised low traffic usage.

Category 5 – Formed Graded

- Formed Graded Roads (not sheeted or not to be sheeted)
- Local tracks, paddock access only
- Generally, not all weather road for local transport, plant/machinery or paddock traffic use only
- Coastal tracks, may be formed or unformed, access via these tracks can be seriously impaired due to soft surfaces and during or after wet weather and or high tides
- Minimal traffic usage.

Category 6 – Tracks & Road Reserves (not maintained)

- Unformed Track or Road Reserve (not sheeted or not to be sheeted)
- Local tracks, paddock access only
- Not all weather road for local transport, plant/machinery or paddock traffic use only
- Coastal tracks, access via these tracks can be seriously impaired due to soft surfaces and during or after wet weather and or high tides
- Minimal traffic usage.

5.2 Risk Management Plan

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

Critical risks, being those assessed as 'Very High' - requiring immediate corrective action and 'High' – requiring prioritised corrective action identified in the Infrastructure Risk Management Plan are summarised in Table 14.

Table 14 Critical Risks and Treatment Plans

Asset at Risk	What Can Happen	Risk Rating (VH, H)	Risk Treatment Plan
Road Surfaces – Sealed and Sheeted	Rideability affected due to weather and material used in construction	H	Appropriate material to perform in all weather conditions Monitor road surfaces during routine inspections and record sections requiring work Respond to customer service requests Maintain a program of ongoing works to address roads that require treatment
Road Surfaces – Roadside Vegetation	Vegetation encroaches on carriageway and traps moisture	H	Monitor condition of roadside vegetation to enable wider clearances, as required
Road Signage	Inappropriate warning signage not meeting standards	H	Replace signage as identified through routine inspections
Road Condition	Tyre blowouts in dry weather	H	Investigate options for high usage roads to be constructed with good quality materials
Road Design	Poor existing alignments and crossfalls	H	Develop program to improve road crossfalls and alignments where required

5.3 Routine Maintenance Plan

Routine maintenance includes planned patrol grading, planned tree trimming, unplanned patching & maintenance of localised areas of sealed and unsealed roads, footpaths, traffic control, and all other items of an ad hoc nature to keep assets operating.

5.3.1 Maintenance plan

Council's unsealed road network has varying rates of deterioration, this can be due to construction standards, impacts from localised weather events, failures in the initial construction process, changes in road traffic volumes or usage. Unsealed roads can develop minor defects in small sections which don't require a full re-sheet but instead can be rejuvenated by other methods and reworking existing base materials, this allows the road to function for an extended period of time prior to requiring full re-sheet and reforming.

Council conducts a range of maintenance activities to extend the life of these valuable assets with patrol grading performed throughout the entire year. Category 2 and 3 roads are patrol graded at least twice a year with Category 4 roads included on each second round of grading. Council's patrol grader also maintains Category 5 roads at selected times of the year to assist in keeping the network at an acceptable service level for the local user. This ensures that the higher priority roads are receiving the maximum attention whilst still catering for lower use roads.

Additionally, sheeted roads can deteriorate throughout the year due to changes in usage and moisture. These can be small, localised areas that have failed with potholes formed or corrugations appearing along sections of the road network. Treatment options can extend the life of the sheeted surface with some minor rip and reform works or patch re-sheeting of selected areas.

"Rip and Reform" work rejuvenates sections of the sheeting material where substantial depth of rubble is available. By reworking these areas, it provides a near new surface and maintains the planned life of the road, however not all defects can be treated in this way.

If rip and reform is not an appropriate treatment, Council conducts selected patch re-sheeting. This is the process where a failure has occurred in a selected area with minimal rubble depth but overall the remaining segment of road is in good condition. Rubble is added to the affected area and the road re-worked, this also maintains the planned life of the road and in some instances extends the life of the surface and improves the safety of road users.

While maintenance on unsealed roads is the major activity, there is also maintenance funding allocated to tree trimming to maintain vegetation clearance envelopes, sealed road maintenance for edge repairs, crack sealing, potholes, pavement patching, and footpath/kerb repairs.

Table 15 below shows historic maintenance expenditure for the last 3 years.

Table 15 Historic Maintenance

	Traffic Control	Tree Trimming	Seal Road Maintenance	Unseal Road Maintenance	Footpath	Total
2017-18	$30,946	$59,713	$44,633	$611,770	$45,933	$792,995
2018-19	$37,582	$76,160	$64,515	$613,315	$74,676	$866,248
2019-20	$31,687	$52,511	$56,286	$630,125	$18,568	$789,177

Maintenance is funded from the operating budget and grants where available. Council has budgeted $743,300 for the 2021-22 financial year, this has been increased to $758,142 for 2022-23 onwards as shown in Table 16 below. The forecast for sealed road maintenance has been indexed to make allowance for the increase in sealed roads once Fisherman Bay roads are handed over to Council, assumed to be from 2022-23 onwards.

Table 16 Projected Maintenance Expenditure

	Traffic Control	Tree Trimming	Seal Road Maintenance	Unseal Road Maintenance	Footpath	Total
2021-22	$33,761	$57,322	$55,486	$593,111	$18,461	**$758,142**
2022-23 to 2030-31	$33,761	$57,322	$63,809	$593,111	$18,461	**$766,465**

Assessment and prioritisation of reactive maintenance is undertaken by operational staff using experience and judgement. Continued development includes GIS Mapping for all infrastructure so that use of mobile technology in the future will be possible for field staff to identify, track, schedule, and record maintenance.

It is assumed for the purposes of this plan; current maintenance expenditure levels are adequate to meet current service levels. Future revision of this asset management plan will include linking required maintenance expenditures with desired service levels.

5.3.2 Summary of future operations and maintenance expenditures

Future operations and maintenance expenditure are forecast to trend in line with the value of the asset stock as shown in Figure 13. Costs are shown in 2021 dollar values.

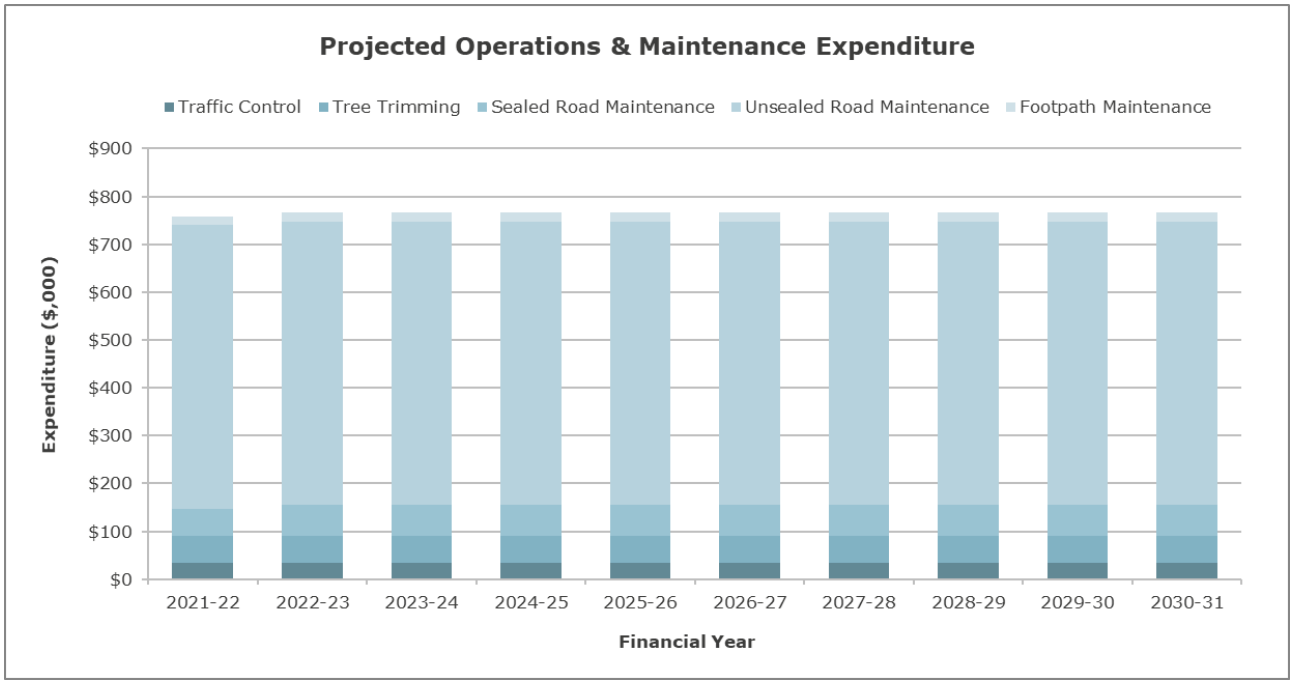


Figure 13 Projected Maintenance Expenditure

Deferred maintenance i.e. works that are identified for maintenance and unable to be funded are to be included in the risk assessment process in the infrastructure risk management plan.

5.4 Renewal/Replacement Plan

Renewal expenditure is major work which does not increase the asset's design capacity but restores, rehabilitates, replaces, or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is upgrade/expansion or new works expenditure.

5.4.1 Renewal plan

The asset register data is used to project the renewal cost and year using condition at inspection and useful life. The asset register data used for this plan is based on the 1/7/2019 valuation and updated with 2019-20 and 2020-21 capital works.

Renewal will be undertaken using current work practice methods. The aim is to restore the service potential or future economic benefits of the asset by renewing the assets at a cost that is aligned with the replacement cost.

Roads that were identified at the 1/7/2019 valuation as having reached a condition below defined intervention levels are referred to as low service level assets. These low service assets had a small extension of remaining life and are referred to as programmed. This means the roads will be left above the targeted intervention level until it can be renewed. A year of renewal was manually allocated.

As of 1/7/2021 there are additional assets that have since fallen below the defined intervention level which are referred to as unprogrammed backlog. Table 17 summarises the value of assets which are above intervention levels.

Table 17 Value of Assets Above Intervention Level

Value of Assets Above Intervention Level	Current Replacement Cost
Programmed Low Service Level Asset Backlog	$114,441
Programmed Low Service Level Asset 2021-22 and beyond	$1,516,299
Unprogrammed Backlog	$1,150,918
Total	**$2,781,658**

There is just under $2.8M worth of assets that have fallen below defined intervention levels and this will grow in the future if the demand for renewal expenditure exceeds budget. Of this, $1.15M is in unprogrammed backlog as of 1/7/2021 and $1.63M is planned for renewal.

The Road Surface Manager (RSM) modelling tool was used to forecast road renewal, RSM uses the existing asset register to develop the model and makes allowance for increases in scope of renewal costs as the surface deteriorates and pavement works increases.

The renewal for kerb and footpath has been developed using the estimated expiry date extracted from the existing asset register. The combined results are presented below.

5.4.2 Summary of projected renewal expenditure

Projected future renewal expenditures are forecast to increase over time as the asset stock ages. The costs are summarised in Figure 14. Note that all renewal expenditure costs are shown in 2019 dollar values.

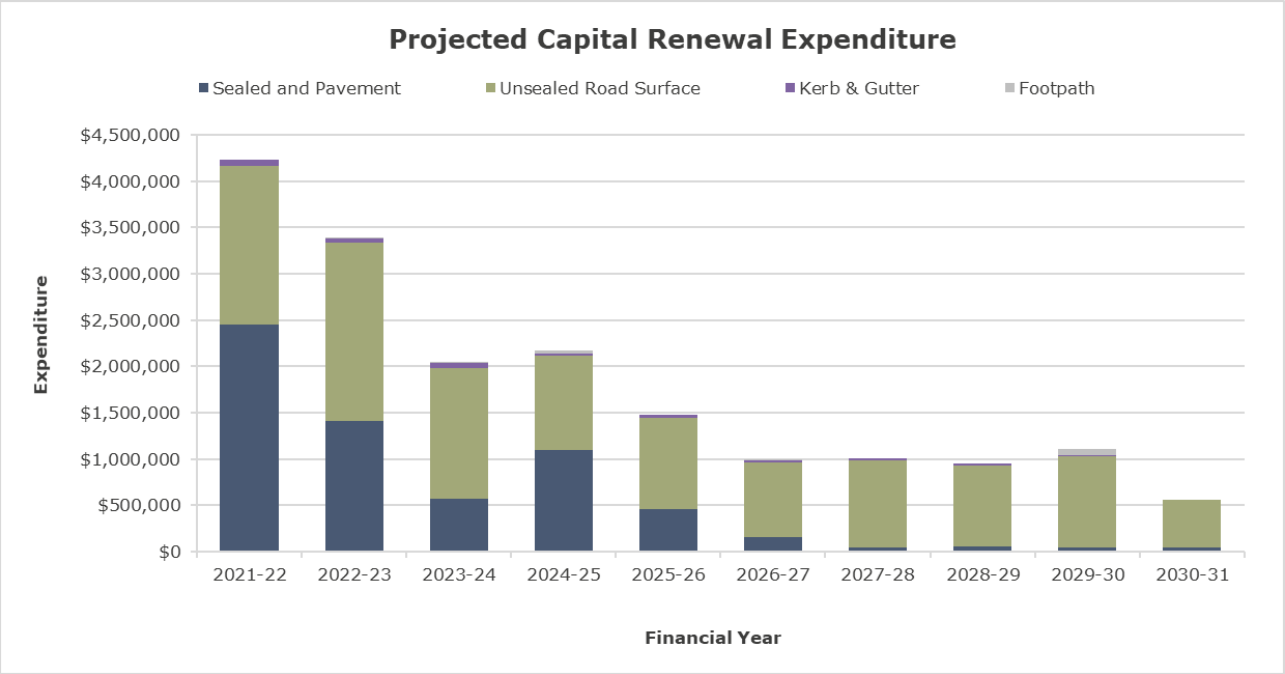


Figure 14 Projected Capital Renewal Expenditure

5.4.3 Rolling 3 Year Renewal Plan

A 3 year schedule of capital renewal of road assets is intended to be developed by Councils administration in order to appropriately plan and budget the works needed to maintain services levels at optimum funding levels. There is a risk emerging that if sealed roads are left to deteriorate the cost of renewal will increase to include pavement works, which is not included in the current analysis.

RSM has been setup and established and a schedule of works is currently being developed. Council administration will utilise this schedule to assist in developing the rolling 3 year renewal plan.

The schedule will list each segment expected to require renewal. In addition, further segments may be added as identified by administration staff and requested by ratepayers. The full list is then assessed to confirm inclusion and recommended treatments. This assessment process will output a consolidated schedule of works which can be used for budgeting purposes and tendering.

5.4.4 Current renewal budgets

A 10-year long term financial plan has been developed and is compared to the demand for funding from the recent condition assessment and asset system outputs presented above. A summary is shown in the following figures.

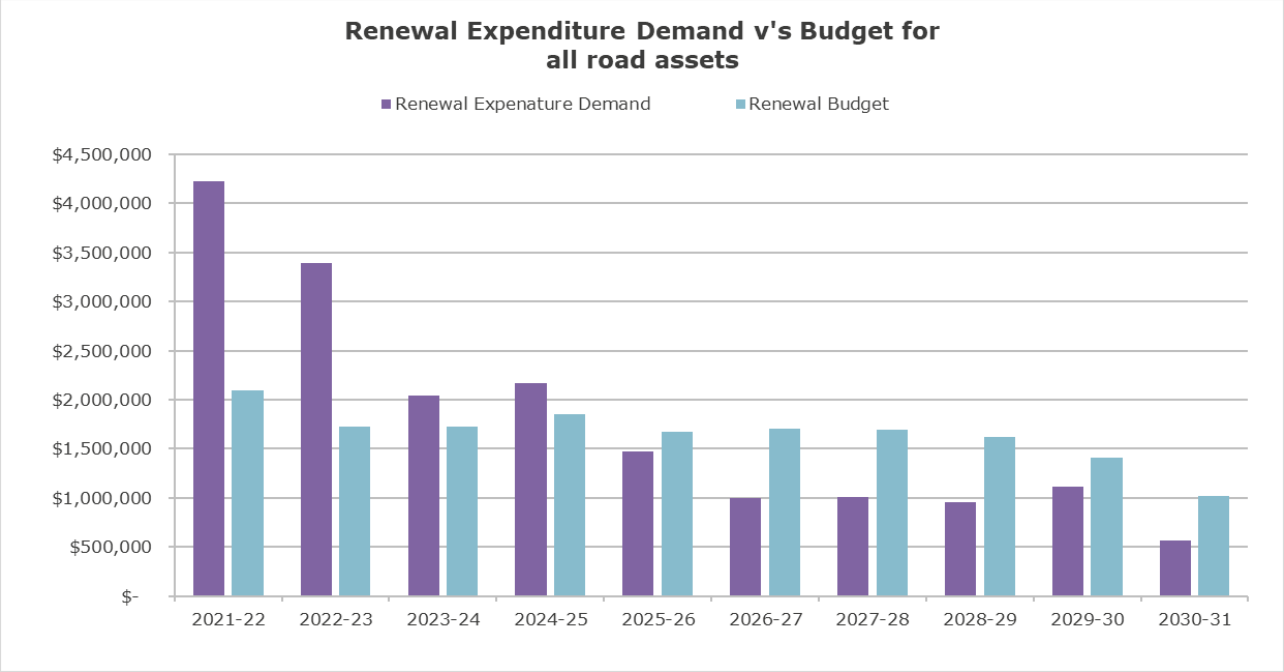


Figure 15 Projected Capital Renewal Expenditure Demand v's Budget (all road assets)

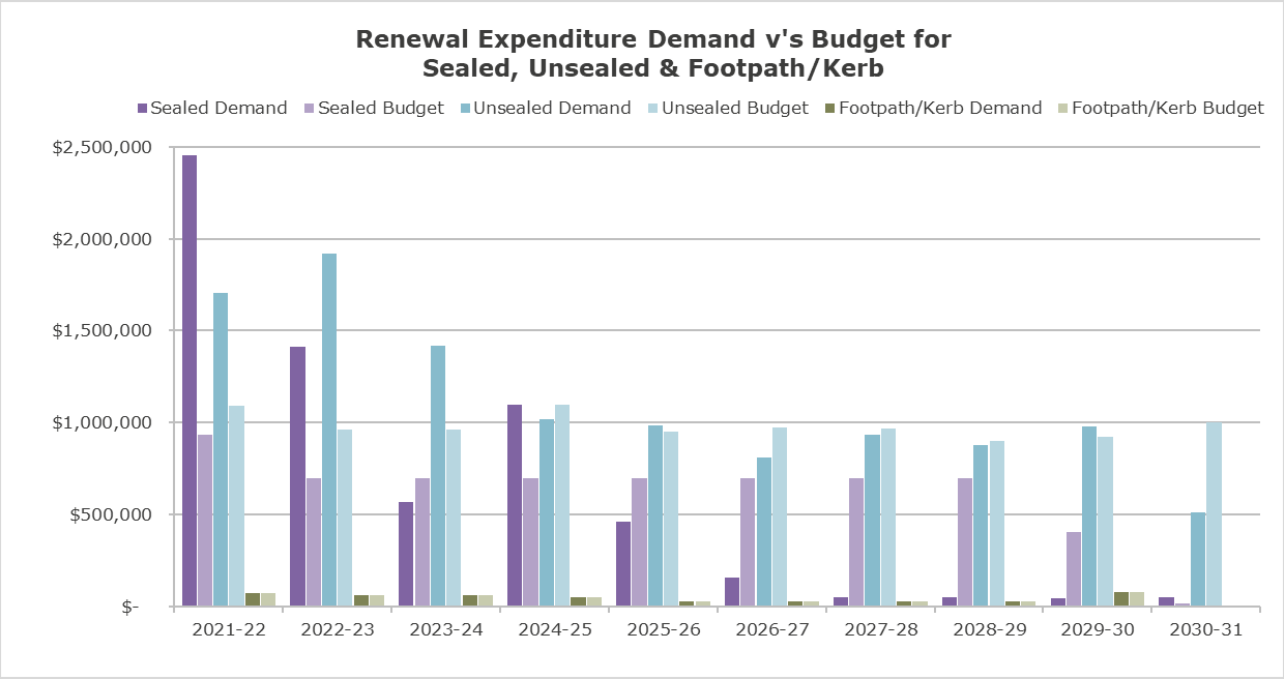


Figure 16 Projected Capital Renewal Expenditure Demand v's Budget (by asset group)

An allowance for kerb patching prior to sealing is included in the first few years of the plan. In addition, full replacement for any kerbs at end of life is appropriately funded. The footpath network is appropriately funded.

There are several years over the planning period where unsealed and sealed road demand for funding far exceeds the budget. This is best demonstrated in the cumulative funding gap below.

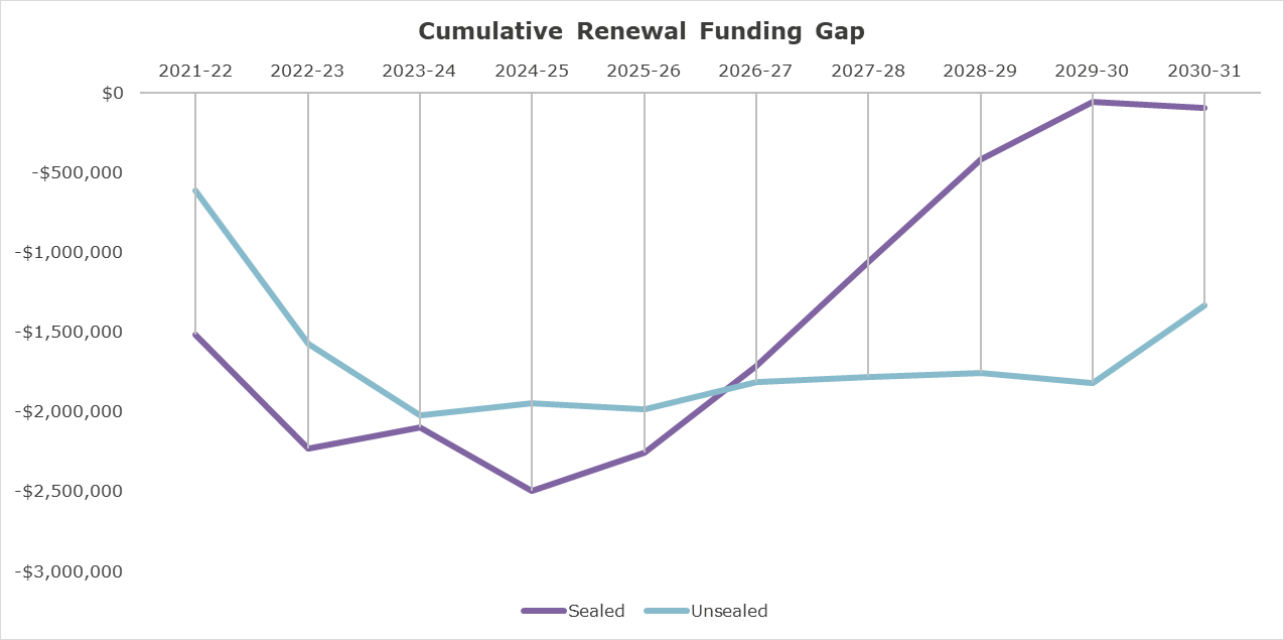


Figure 17 Cumulative Renewal Funding Gap (Sealed & Unsealed Roads)

There is a large demand for sealing roads early in the program and a progressive funding profile adopted for sealed roads over the duration of the program. Allowance has been made for increased preparation works prior to sealing based on the RSM modelling outputs which allows roads to be treated several years after they are due for resealing. As a result, more patching work will likely be required.

Because of the work needed on the sealed network, the demand for funding for unsealed roads is not matched to the allocated funding. The funding gap will increase to just over $2M in 2022-23 and then reduce to $95K in 2030-31. This plan has addresses the risk of the sealed road network funding gap growing and by 2030-31 the sealed network will have had appropriate treatments completed. By executing this plan for sealed roads in the subsequent 10 years beyond 2031 there will be a low level of funding required on sealed roads.

For the unsealed roads, ongoing demand for funding unsealed roads will need to be sustained into the subsequent 10 years beyond 2030-31, however can be reduced to an average of $400K/annum over the next 10 years down from just over $1M for this plan.

As shown above the cumulative renewal funding gap for unsealed roads will be $1.5-$2M after 2020-21. These roads will be considered low service level roads where conditions will be poor for a longer period prior to renewal.

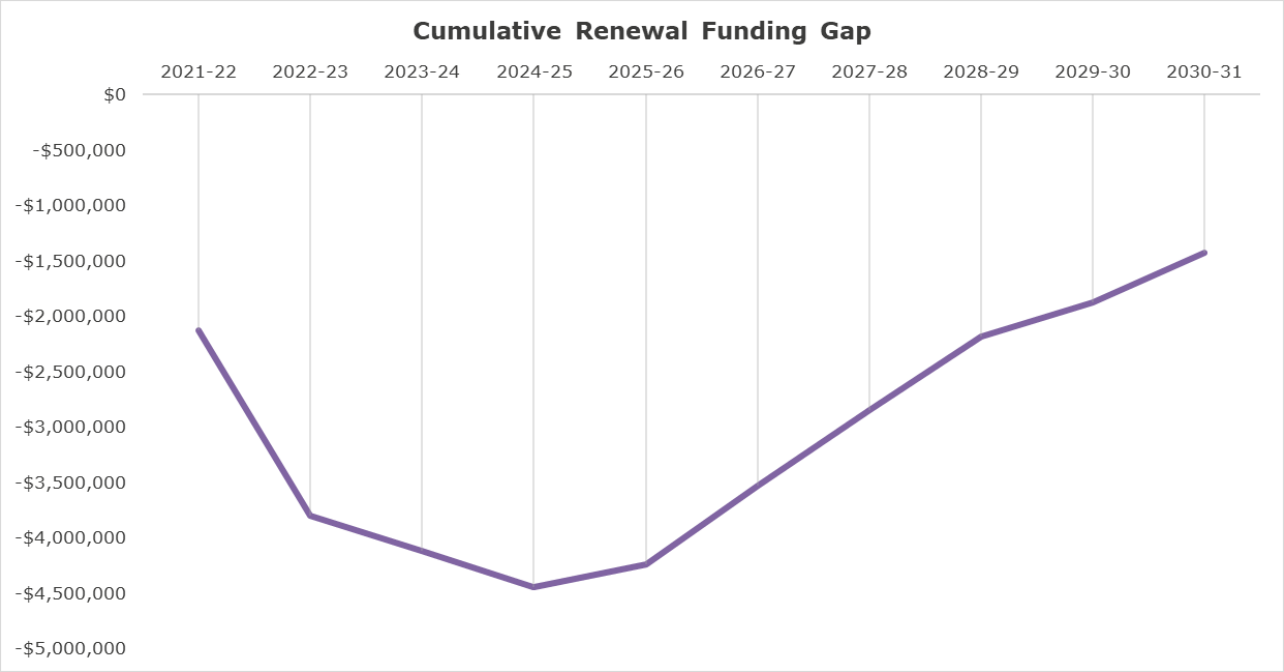


Figure 18 Combined Cumulative Renewal Funding Gap

As shown above the underfunding in the first 4 years of the plan is creating a funding gap of over $4.4M in 2024-25 that is recovered to $1.4M by 2020-31. This will add to the roads in low service level as described in Table 17.

This current funding gap is a result of underfunding in the past. There is a need to catchup now and reduce the funding gap. This will create an ongoing cycle of high and low spending over 10-year cycles which can be smoothed out to ensure manageable budget requirements.

The decrease in demand for seal road renewal beyond 2031 will create an opportunity to remove the funding gap on unsealed roads by 2034-35 if current funding levels are maintained or by 2040-41 with funding averaging $550K/annum

By executing this 10-year plan and accepting the unsealed road funding gap, there is opportunity created in the subsequent 10 years to reduce the road seal and unsealed combined 10-year renewal budget from the projected $17.9M to approximately $5.5M.

Asset Renewal Funding Ratio

The total demand for renewal funding is $17.932M over the 10-year planning period. The total funded renewal plan is $16.503M over the 10-year planning period.

The Asset Renewal Funding Ratio is illustrates that over the 10-year planning period Council will have 92% of the funds required for renewal of the road assets. The renewal funding ratio for each asset group is shown below:

- Seal Roads (surface and pavement) is 99%
- Unsealed Sheeted Roads is 88%
- Kerb and Sealed Footpath is 100%

5.5 Creation/Acquisition/Upgrade Plan

New/upgrade expenditure is major work that creates a new asset that did not previously exist or works which upgrade or improve an existing asset beyond its existing capacity. They may result from growth, social or environmental needs. Assets may also be acquired at no cost to the Council from land development.

The focus of the Asset Plan is to maintain and improve the existing transport asset stock through targeted renewal. As renewal funding requirements reduce, new or upgrade projects could be scoped and funded whilst remaining sustainable. During the annual budget process requests for capital upgrade will be reviewed in line with Council policies, annual budget capacity and any long-term financial impact of the proposed upgrade such as increases in depreciation, maintenance and renewal cost impacts to the Long Term Financial Plan.

5.5.1 Summary of projected upgrade/new assets expenditure

As described in Table 11, there is a 10-year plan for upgrading gravel footpath to paved to improve connectivity and ensure DDA compliance. In addition, an allowance of $540K is included for shoulder widening of Ninnes Road during 2021-22 in conjunction with grant funding.

It is anticipated once Fisherman Bay is developed, an additional $2.1M of assets will be vested to Council mainly related to sealed surface, pavement, edge strips and dish drains.

The projected new/upgrade expenditure averages $116.8K per annum however, the average for years 2022-23 to 2030-31 reduces to $60K.

There is no planned projected upgrade/new asset expenditures in the life of this plan with the exception of the footpath upgrade plan as shown below in Figure 19.

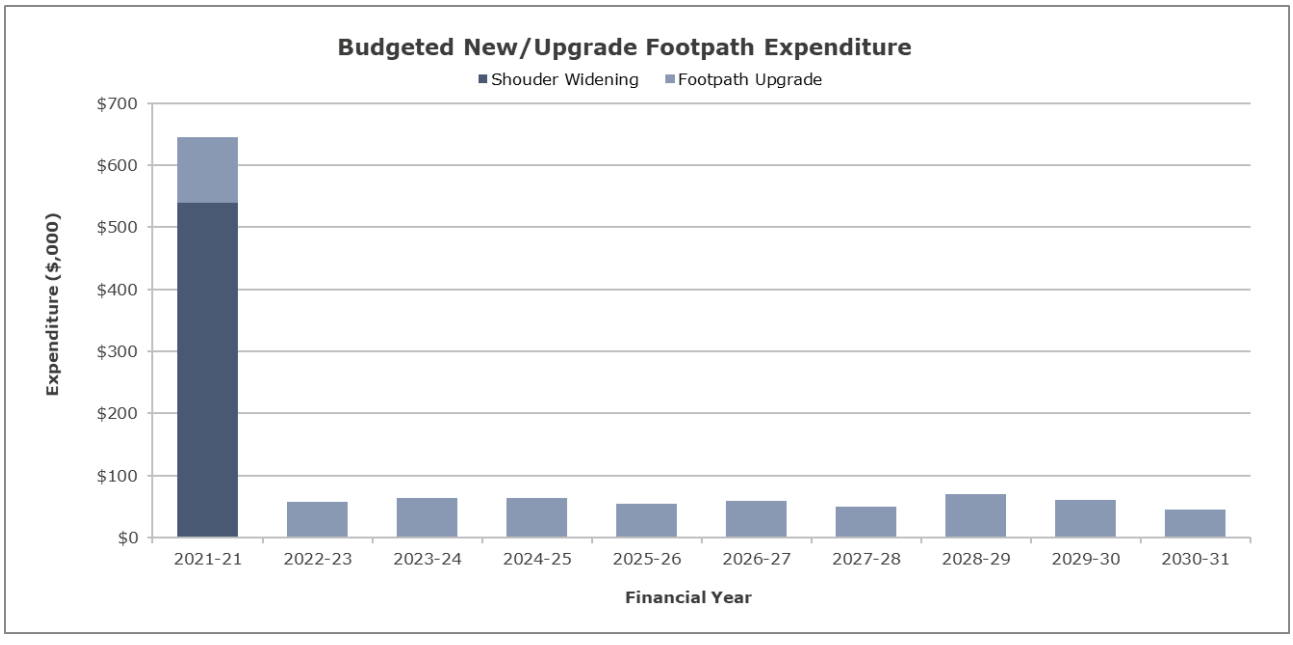


Figure 19 Projected New/Upgrade Expenditure

5.5.2 Impact on deprecation for upgrade/new assets expenditure

As new paved footpaths are added deprecation will gradually increase by $2,130 in 2021-22 to $12,500/annum in 2030-31 as a result of new footpath assets.

In addition, it is estimated $2.1M of sealed roads, concrete edge strips and dish drains as part of Fisherman Bay development will be vested to Council which in 2022-23 will come on as vested assets increasing deprecation by approximately $40,000.

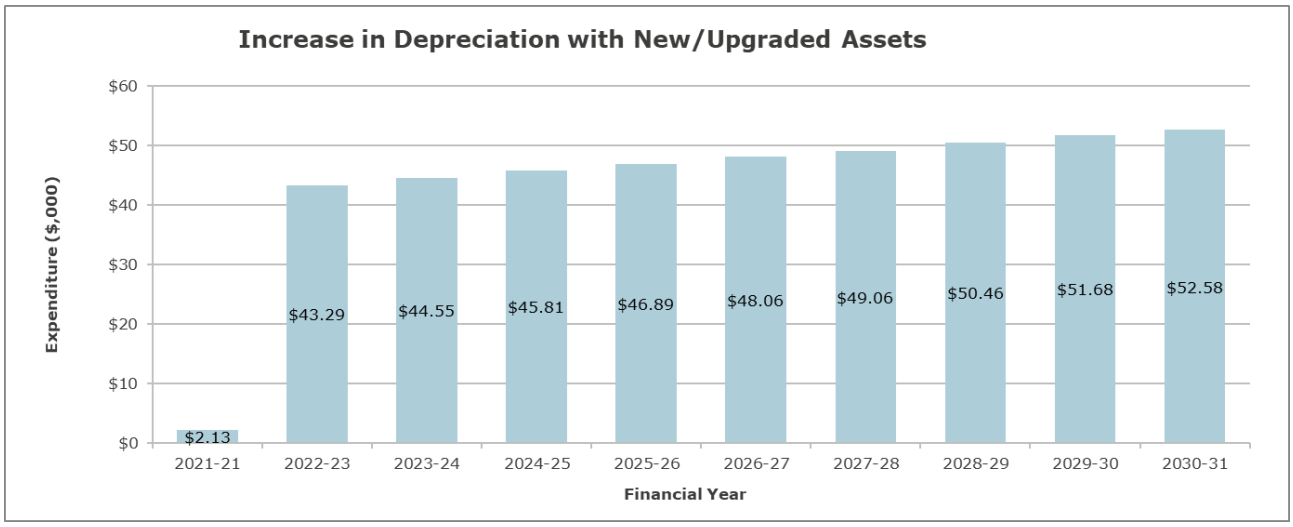


Figure 20 Estimated Increase Annual Depreciation with New/Upgrade Assets

5.6 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. Council has not identified any transport infrastructure assets to be disposed in the 10 year planning period (medium term).

6 Financial Summary

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

6.1 Financial Statements and Projections

The financial projections are shown in Figure 21 for projected operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets), net disposal expenditure and estimated budget funding. Note that all costs are shown in 2020-21 dollar values.

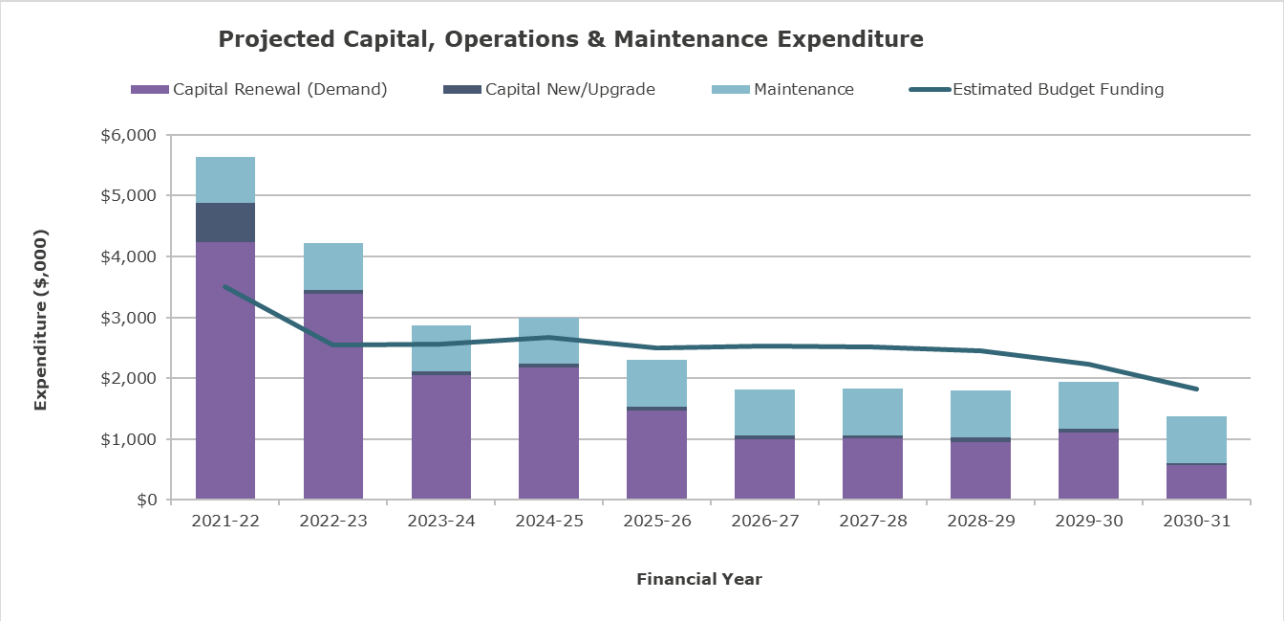


Figure 21 Projected Capital and Operating Forecast

6.1.1 Expenditure Projections for Long Term Financial Plan

Table 18 shows the projected expenditures for the 10-year long term financial plan.

Expenditure projections are in current (non-inflated) values.

Table 18 Expenditure Projections for Long Term Financial Plan

Financial Year	Operations & Maintenance	Capital Renewal Demand	Capital Renewal Budget	Capital New / Upgrade	Total Demand	Total Budget
2021-22	$758,142	$4,229,604	$2,098,381	$645,495	$5,633,240	$3,502,018
2022-23	$766,465	$3,392,341	$1,720,295	$58,000	$4,216,806	$2,544,760
2023-24	$766,465	$2,041,537	$1,723,502	$63,000	$2,871,002	$2,552,967
2024-25	$766,465	$2,168,640	$1,847,160	$63,000	$2,998,104	$2,676,625
2025-26	$766,465	$1,473,058	$1,675,941	$54,200	$2,293,722	$2,496,606
2026-27	$766,465	$992,019	$1,699,699	$58,400	$1,816,883	$2,524,564
2027-28	$766,465	$1,007,316	$1,692,880	$50,000	$1,823,781	$2,509,345
2028-29	$766,465	$954,844	$1,620,466	$70,000	$1,791,309	$2,456,931
2029-30	$766,465	$1,108,511	$1,408,945	$61,000	$1,935,975	$2,236,410
2030-31	$766,465	$564,203	$1,016,045	$45,000	$1,375,668	$1,827,510
Total	**$7,656,322**	**$17,932,073**	**$16,503,314**	**$1,168,095**	**$26,756,490**	**$25,327,731**
Avg	**$765,632**	**$1,793,207**	**$1,650,331**	**$116,810**	**$2,675,649**	**$2,532,773**

As discussed previously, it is anticipated that just over $2M (CRC) worth of roads assets will be added to the register once the Fisherman Bay development is completed. This is not expected to impact on renewal forecasts within the planning period, however a nominal allowance has been made for increasing sealed road maintenance.

The funding gap in the early part of the plan is reduced to $1.429M at the end of the planning period, all of which is unsealed roads.

7 Plan Improvement and Monitoring

The following tasks have been identified for improving future versions of the plan. Council should assign responsibilities and recourses to these tasks as part of the endorsement of the plan.

Table 19 Tasks identified for improving future versions of the plan

Task No.	Task	Responsibility
1	Review budgets and capacity to fund forecast renewal	Council Administration
2	Develop a rolling 3-year renewal plan for unsealed and seal road renewal using RSM (in progress)	Council Administration
3	Develop register of assets for Fisherman Bay once project nears completion and update asset register	Council Administration
4	Digitise unsealed road network and validate road lengths	Council Administration
5	Undertaken a risk review on transport assets	Council Administration
6	Review road categories for unsealed roads	Council Administration
7	Review opportunities for streetscaping upgrades of certain main streets	Council Administration
8	Undertake a community consultation exercise on transport assets and include results in future asset plans	Council Administration
89	Update this Asset plan once long-term budgets and service levels are reviewed	Council Administration

This plan has a life of 4 years and is due for revision and updating within 2 years of each Council election.

8 References

IPWEA, 2006, NAMS.PLUS3 Asset Management, Institute of Public Works Engineering Australia, Sydney, www.ipwea.org

IPWEA, 2011, Asset Management for Small, Rural or Remote Communities Practice Note, Institute of Public Works Engineering Australia, Sydney, www.ipwea.org