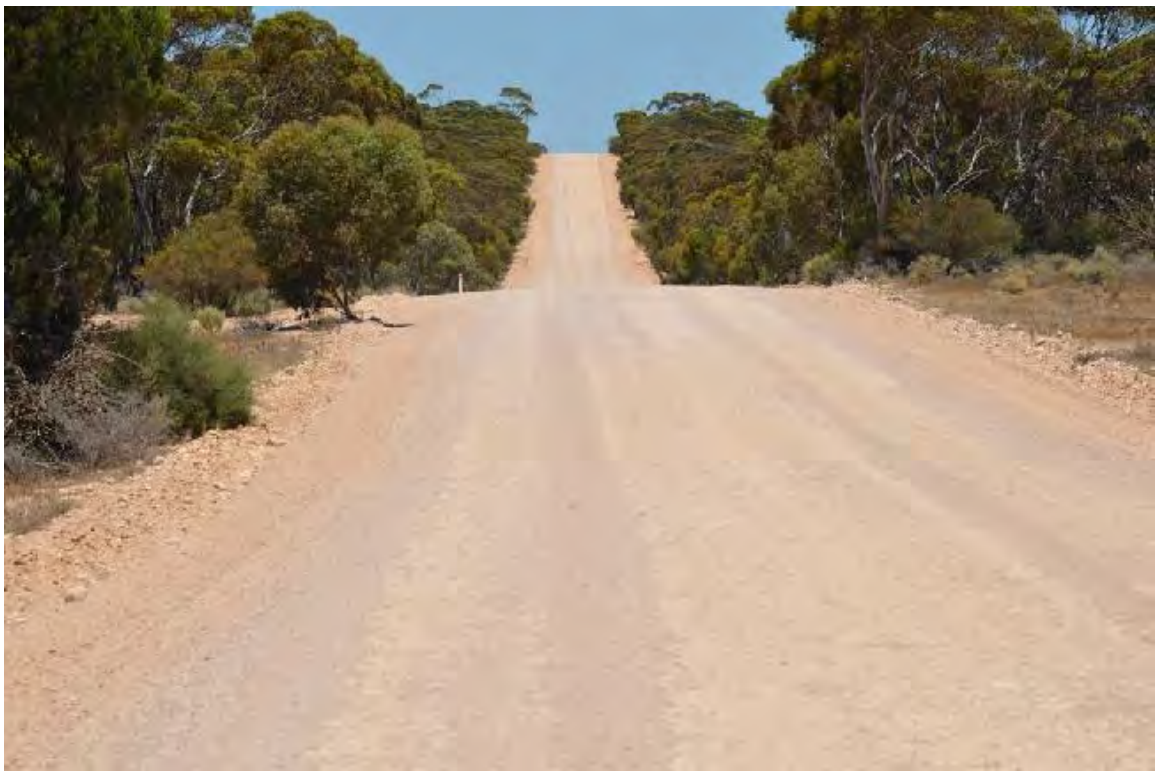
Transport

Asset Management Plan



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Document Control	Asset Management for Small, Rural or Remote Communities

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1	20/5/2016	First Comprehensive Draft	Russell Pilbeam		
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1. EXECUTIVE SUMMARY

Context

Mid Murray Council has one of the largest road networks of any council under its care and control. This significant asset is vital service, connecting communities over 6270 km2. A vast road network within a rural council is clearly the most valuable and resource intensive asset. The need to apply a thoroughly sustainable and systematic approach to asset management is required. The purpose of the Council's Transport Asset Management Plan is to document and quantify the strategy to ensure these assets are managed adequately. As the first 'core' plan produced by Council for the road network, the method for quantifying current value and useful lives has been based on external references and source documentation. Council will use this initial document to identify knowledge gaps and develop a thorough improvement plan in order to produce a more relative road maintenance and renewal programme within 12 months.

The Road Network Service
The road network comprises:

	Length	Unit
Sealed Roads	350	km
Unsealed Sheeted Roads	852	km
Unsealed Formed Roads	1862	km
Footpaths	11.1	km
Kerbing	58.7	km

These infrastructure assets have a replacement value of $98,973,447. The replacement value has been calculated using current and historic unit rates applied to the entire road network.

What does it Cost?

The projected cost to provide the services covered by this Asset Management Plan includes operations, maintenance, renewal and upgrade of existing assets over the 10 year planning period is $45,145,636 or $4,814,564 per year.

Council's estimated available funding for this period is 100% of the cost to provide the service.

Road Network

Executive Summary - What does it cost?	($000)
Projected - 10 year total cost [10 yr Ops, Maint, Renewal & Upgrade Proj Exp]	**$48,146**
10 year average cost	**$4,815**
Planned - 10 year total LTFP budget [10 yr Ops, Maint, Renewal & Upgrade LTFP Budget]	**$48,146**
10 year average LTFP budget	**$4,815**
10 year AM financial indicator	**100%**
10 year average funding shortfall	**NIL**

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

What we will do

Council plans to provide Road Network services for the following:

- Operation, maintenance, renewal and upgrade of Sealed and Unsealed roads to meet service levels set by council in annual budgets.
- Council plans to continue to maintain the majority of its road network by implementing a renewal and maintenance program to ensure service levels are met and risks are mitigated within the 10 year planning period.

Managing the Risks

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

- Lack of funding to meet service levels
- Potential property and vehicle damage due to road defects
- Reductions in grant funding

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

- Create accurate road register records and constantly reviewing funding requirements for the next 10 years
- Utilise accurate register records to improvement useful life and unit rate information
- Conducted a thorough road condition inspection by the end of 2020
- Upgrade assets to meet required functionality

The Next Steps

The actions resulting from this asset management plan are:

- Focus on improving road asset data including useful lives and condition information
- Implement an asset management system
- Continue to review the road maintenance program to extend the useful lives of road assets.

Questions you may have

What is this plan about?

This asset management plan covers the infrastructure assets that serve the Mid Murray Councils road network needs. These assets include sealed and unsealed roads throughout the Council area that enable people to commute reliably throughout the district.

What is an Asset Management Plan?

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

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

Why is there a funding shortfall?

The current road network replacement cost calculated in this plan and the proposed useful lives has been sourced from recommended external sources. Council believes these do not necessarily reflect a true representation of the road network. Although a funding shortfall has been identified from this methodology, Council will endeavour to revise a more relative financial and useful life model.

What options do we have?

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

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2. INTRODUCTION

2.1 Background

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

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

Strategic Management Plan

Long Term Financial Plan

Asset Accounting Policy

Development Plan

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

Table 2.1: Assets covered by this Plan

Asset category	Dimension	Replacement Value
Sealed Roads	350 km	$52,746,384
Unsealed Sheeted Roads	852 km	$35,103,259
Footpaths	11.1 km	$1,656,702
Kerbing	58.7 km	$8,803,026
TOTAL		**$98,973,447**

Sealed roads describes and includes roads that are bituminised using either spray seal (more common) or asphalt. Unsealed roads are roads that are surfaced with a rubble material or simply naturally formed and graded. This plan is aimed at managing asset renewal. As such only roads with imported rubble material that can not be managed by maintenance methods and requires renewing is included. Council has a number of natural or lightly patched (inconsistent, low levels of imported rubble) and these will be managed under the maintenance program as by definition there is nothing to renew. Footpaths are made from a multitude of materials; concrete, paving and asphalt. Kerbing is has been constructed in both a splayed and square form, with various heights.

2.2 Goals and Objectives of Asset Management

The Council exists to provide services to its community. Some of these services are provided by infrastructure assets. Council has acquired infrastructure assets by 'purchase', by contract, construction by council staff and by donation of assets constructed by developers and others to meet increased levels of service.

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

Taking a life cycle approach,
Developing cost-effective management strategies for the long term,
Providing a defined level of service and monitoring performance,
Understanding and meeting the demands of growth through demand management and infrastructure investment,
Managing risks associated with asset failures,
Sustainable use of physical resources,
Continuous improvement in asset management practices.[1]

[1] IPWEA, 2006, *IIMM* Sec 1.1.3, p 1.3.

The goal of this asset management plan is to:

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

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

Council's vision is:

We celebrate our rich and diverse country lifestyle built on a strong economy. Our aim is to encourage a continuing vibrant community, family spirit, the ongoing protection of the River Murray and maintain our precious national, cultural and built heritage.

Council's mission is:

We will be:

Proactive in planning for and facilitating business and industry investment and economic growth

Committed to the protection of our natural and built environment

Open and inclusive in encouraging community involvement and partnership in Council plans and policies

Advocates for and providers of services and facilities that support community wellbeing

An efficient and responsible manager of Council assets, infrastructure and resources in partnership with the community

A professional organisation that attracts and retains high quality staff and Elected Members

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

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

Goal	Objective	How Goal and Objectives are addressed in AMP
Maintain, renew and upgrade the Mid Murray Councils transport network assets to meet the needs of the community	Plan to deliver a road, kerbing & footpath network suitable for the communities needs	The transport network asset management plan will document all strategies and funding to provide renewal and upgrade requirements and ensure financial sustainability

2.3 Plan Framework

Key elements of the plan are

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

2.4 Core and Advanced Asset Management

This asset management plan is prepared as a first cut 'core' asset management plan in accordance with the International Infrastructure Management Manual[2]. It is prepared to meet minimum legislative and organisational requirements for sustainable service delivery and long term financial planning and reporting. Core asset management is a 'top down' approach where analysis is applied at the 'system' or 'network' level.

[2] IPWEA, 2006.

2.5 Community Consultation

This 'core' asset management plan is prepared to facilitate community consultation initially through feedback on public display of draft asset management plans prior to adoption by Council. Future revisions of the asset management plan will incorporate community consultation on service levels and costs of providing the service. This will assist Council and the community in matching the level of service needed by the community, service risks and consequences with the community's ability to pay for the service.

3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

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

3.2 Legislative Requirements

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

Table 3.2: Legislative Requirements

Legislation	Requirement
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.
Development Act 1993	Identifies the laws and regulations that must be considered when undertaking planning for building and construction development.
Local Government (Financial Management) Regulations 2011	The driver for development of a strategic management plan which comprises of asset management plans and long-term financial plan
Work Health and Safety Act 2012	The act provides the framework for the welfare, health and safety of persons at work
Australian Accounting Standards	Establishes the financial reporting standards for the valuation, revaluation and depreciation of assets

3.3 Current Levels of Service

Council has defined service levels in two terms.

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

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

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

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

Technical service measures are linked to annual budgets covering:

Operations – the regular activities to provide services such as opening hours, cleansing frequency, mowing frequency, etc.
Maintenance – the activities necessary to retain an assets as near as practicable to its original condition (eg 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 (eg frequency and cost of road resurfacing and pavement reconstruction, pipeline replacement and building component replacement),
Upgrade – the activities to provide an higher level of service (eg widening a road, sealing an unsealed road, replacing a pipeline with a larger size) or a new service that did not exist previously (eg a new library).

Council's current service levels are detailed in Table 3.3.

Table 3.3: Current Service Levels

Key Performance Measure	Level of Service Objective	Performance Measure Process	Desired Level of Service	Current Level of Service
COMMUNITY LEVELS OF SERVICE				
Quality	Usability	Customer complaints and requests regarding road condition	No proposed measure, to be reviewed	Respond and review all customer requests within a timely manner
Function	To meet user requirements: Road Width Accessibility	Customer service requests reviewed Austroads technical specifications and guidelines	All newly constructed roads to comply with Austroad design standards	All newly constructed roads to comply with Austroad design standards
Safety	Roads are fit for purpose	Customer service requests and work crew feedback	Roads upgraded to meet usage requirements	No current measure

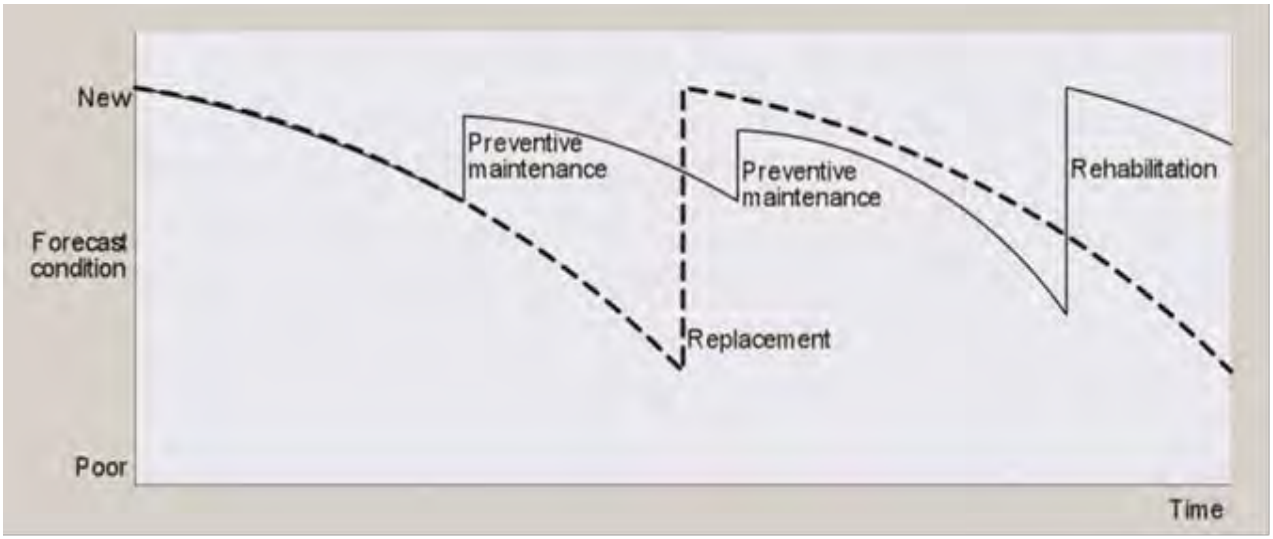
TECHNICAL LEVELS OF SERVICE				
Operations	Adequate staffing and management levels and experience	Regular review of staff by Director of Infrastructure Services	Staffing levels meet all operation requirements	Staffing levels meet all operation requirements
	Roads & kerbing are kept clean	Street sweeping	No proposed measure	No current measure
Maintenance	Roads are fit for use	Customer requests are responded to in a timely manner	No proposed measure	No current measure
	Ongoing grading program for unsealed roads	All roads are graded based on hierarchy and use	Program is followed and reviewed	Program is followed and reviewed
Renewal	Sealed roads surfaces are fit for use	Frequency of sealed surfaces resealed	Primary – 18 Years Secondary – 22 Years Local – 25 years	No current measure
	Sealed road pavement	Frequency of sealed pavement reconstruction (based on three generations of seal)	Primary – 54 Years Secondary – 66 Years Local – 75-100 years	No current measure
	Unsealed roads are fit for use	Frequency of sheeted, unsealed roads re-sheeted	Primary – 18 Years Secondary – 22 years Local – 25 years	No current measure
	Footpaths	Frequency footpath renewal	Asphalt – 25 Years, Paving & Concrete – 50 Years	No current measure
	Kerbing	Frequency of kerbing renewal	70 Years	No current measure
Upgrade/New	Roads, footpaths and kerbing are constructed to meet purpose	Historic use of unsealed road network	Road vehicle counts and condition assessments	

3.4 Desired Levels of Service

At present, indications of desired levels of service are obtained from various sources including residents' feedback to Councillors and staff, service requests and correspondence. Council has yet to quantify desired levels of service. This will be done in future revisions of this asset management plan. Proposed useful lives for the road renewal program are based on figures from the following external references Ellis & Callaghan (2009) 'Infrastructure Asset Useful Lives: SA Councils' Current Practices', Howard et al (2016) 'Asset Management and Financial Management Guidelines: Useful Life for Infrastructure' and Ellis & Andrews (2012) 'Local Government Research & Development Scheme: Model Maintenance Program for Unsealed Roads'.

As the majority of the road network is unsealed, there needs to be an extensive and programmed maintenance schedule in place. Historically, maintenance intervention has extended the useful life of unsealed roads. These interventions can be in the form of grading, grading with scarifying blades, minor rubble importation and stormwater maintenance. As these interventions are within or below the materiality threshold set by the Asset Accounting Policy, these works are deemed as maintenance and not renewal. Additionally, it is important to maintain the unsealed road

network at a usable condition and not allow failure. The below graph demonstrates how these interventions extend useful life and avoid failure.



Council will continue with the ongoing grading and maintenance program but will focus on reducing reactive maintenance. Relocating machinery in response to requests is both expensive and inefficient. Council understands that climatic conditions and unforeseen events will require a reactive response. General requests to grade a particular road should be replied to with reference to the maintenance programme. This programme since July 2016 has been recorded digitally and this information is currently under review by the Director of Infrastructure Services and the Construction Coordinator.

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.

For the lifetime of this plan Council believes these factors will remain relatively stable.

4.2 Changes in Technology

Technology changes forecast to affect the delivery of services covered by this plan are detailed in Table 4.2.

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

Technology Change	Effect on Service Delivery
Mobile data collection and communication	Improved data and communication will improve service delivery and reduce service failure. Expected improvement in efficiency and response times

4.3 Demand Management Plan

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. 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 4.3. Further opportunities will be developed in future revisions of this asset management plan.

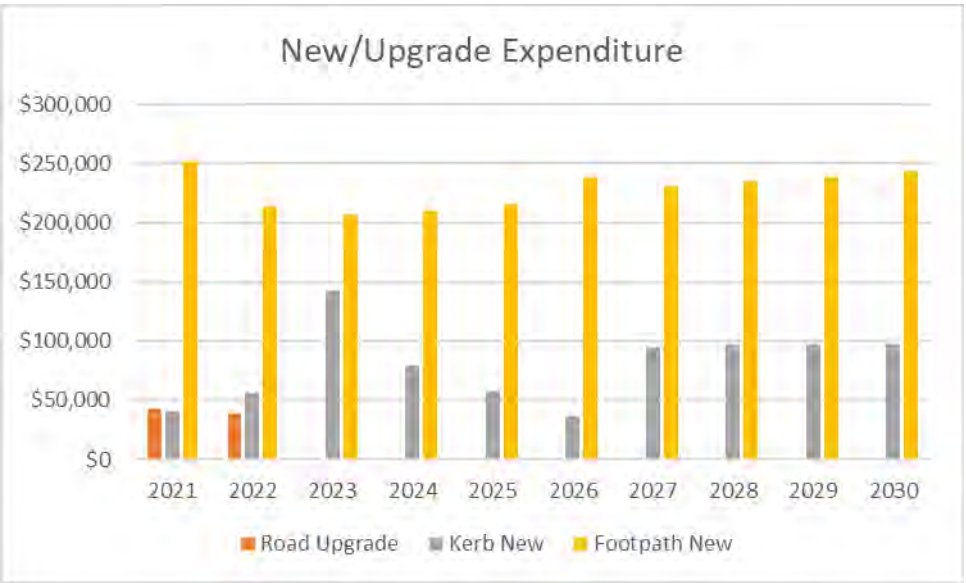
Table 4.3: Demand Management Plan Summary

Service Activity	Demand Management Plan
Road Infrastructure	Identify and monitor major freight routes (including seasonal increases) to ensure roads are fit for purpose. Budget from 'upgrades' to be used to improve deficiencies in the road network

4.4 New Assets for Growth

The new assets required to meet growth will be acquired free of cost from land developments and constructed/acquired by Council. The majority of footpath and kerbing capital works will be new assets and are based on the existing strategic plans. Additionally, the projected growth of new or upgraded road assets will be subject to the availability of State and/or Federal Government funding. The new contributed and constructed asset values are summarised in Table 4.4.

Figure 1: New Assets for Growth



Acquiring these new assets will commit council to fund ongoing operations and maintenance costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations and maintenance costs. The majority of Council's projected New/Upgrade expenditure relates to footpath and kerbing infrastructure, the strategic investment for these assets will be aligned with Council's township reseal program in order to maximise efficiency and reduction in costs.

5. LIFECYCLE MANAGEMENT PLAN

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

5.1 Background Data

5.1.1 Physical parameters

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

The construction standards for the road network have varied historically meaning roads vary in width and pavement depth. This has resulted in some of network exceeding current service levels and others failing to meet current standards. Material for road pavement and sheeting has been sourced locally from multiple quarries which has produced a variation in quality and durability. Sub-base material for roads differs across the council area dependent on location, which also impacts the useful life of the road network.

Age profile information is not currently available. An age profile will be developed in future revisions of the asset management plan.

5.1.2 Asset capacity and performance

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

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

Table 5.1.2: Known Service Performance Deficiencies

Location	Service Deficiency
Murraylands Rd (Between Morgan & Blanchetown)	The road is now approved for PBS Level 3A vehicles and is not fit for purpose for long term use of this heavy vehicle class
Unsealed road network	Service levels vary due to historic construction standards and community needs, rationalisation required to determine passenger vehicle access and paddock access
Pavement failure due to reactive soil and high water table	Rutting, cracking, depressions, potholing and expensive renewal costs
Unsealed road network	Freight use demand on unsealed roads that are not fit for purpose

The above service deficiencies were identified from staff condition assessments and usage observations.

5.1.3 Asset condition

A condition assessment was conducted and establishing in 2016 in order to establish the current road network condition and identify the short and medium term demands for renewal. See Appendix F, 'Condition Assessment Methodology' document which was used to establish condition rating standards. Road condition assessment will be ongoing utilising the same format. A similar methodology was applied to recent condition assessments conducted on existing footpaths and kerbing.

Condition is measured using a 1 – 5 rating system[3] as detailed in Table 5.1.3.

Table 5.1.3: IIMM Description of Condition

Condition Grading	Description of Condition
1	**Very Good**: only planned maintenance required
2	**Good**: minor maintenance required plus planned maintenance
3	**Fair**: significant maintenance required
4	**Poor**: significant renewal/rehabilitation required
5	**Very Poor**: physically unsound and/or beyond rehabilitation

5.1.4 Asset valuations

The value of assets recorded in the asset register as at 31st March 2017 covered by this asset management plan is shown below.

Current Replacement Cost $98,973,447

Depreciable Amount $98,973,447

Depreciated Replacement Cost $56,711,000

Annual Depreciation Expense $3,384,000

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

Asset Consumption

Asset renewal
(Capital renewal exp/Depreciable amount)

Annual Upgrade/New
(Capital upgrade exp/Depreciable amount)

Council is currently renewing assets at 100% of the rate they are being consumed and increasing its asset stock by XX% each year.

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

5.1.5 Asset hierarchy

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

[3] Based on IPWEA, 2011, IIMM, Sec 2.5.4, p 2|79.

Council's service hierarchy is shown is Table 5.1.5.

Table 5.1.5: Asset Service Hierarchy

Service Hierarchy	Proposed Service Level Objective
Primary Sealed Roads	Resealed every 18 years Pavement renewed every 54 years
Secondary Sealed Roads	Resealed every 22 years Pavement renewed every 66 years
Local Sealed Roads	Resealed every 25 years Pavement renewed every 75 years for non-kerbed sealed roads Pavement renewed every 100 years for kerbed township roads
Primary Unsealed Roads	Re-sheeted every 18 years
Secondary Unsealed Roads	Re-sheeted every 22 years
Local Unsealed Roads	Re-sheeted every 25 years
Unsealed formed roads	No surface required for renewal, maintenance only

5.2 Risk Management Plan

An assessment of risks[4] associated with service delivery from infrastructure assets has identified critical risks that will result in loss or reduction in service from infrastructure assets or a 'financial shock' to the organisation. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

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

Table 5.2: Critical Risks and Treatment Plans

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Associated Costs
Sealed Roads	Pavement failure and potholes causing accidents and vehicle damage	High	Continued proactive patching and repair maintenance. Implement mobile refined condition reporting to assist in defect identification.	Staff time and minimal software investment
Unsealed Roads	Surface damage caused by environmental factors or excessive use	High	Continued maintenance grading program. Identifying unsealed roads which need to be upgraded to meet demand.	Unknown. To be included in future upgrade budget and plan
Road Network	Reduction in external funding resulting in maintenance standards and upgrading requirements	High	Monitor funding options and continue with relevant applications	Staff Time

[4] Infrastructure Risk Management Plan – Sealed & Unsealed Road Network (2016)

5.3 Routine Maintenance Plan

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

5.3.1 Maintenance plan

Maintenance includes reactive, planned and specific maintenance work activities.

Reactive maintenance is unplanned repair work carried out in response to service requests and management/supervisory directions.

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

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

Actual past maintenance expenditure is shown in Table 5.3.1.

Table 5.3.1: Maintenance Expenditure Trends

Year	Maintenance Expenditure
2017/18	$2,184,683
2018/19	$1,896,915
2019/20 YTD	$1,391,406

Current maintenance expenditure levels are considered to be adequate to meet required service levels. Future revision of this asset management plan will include linking required maintenance expenditures with required service levels. Council believes with a high proportion of unsealed roads within the road network, meeting maintenance demands are an essential component to road network management and an adequately funded maintenance program is vital.

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

5.3.2 Standards and specifications

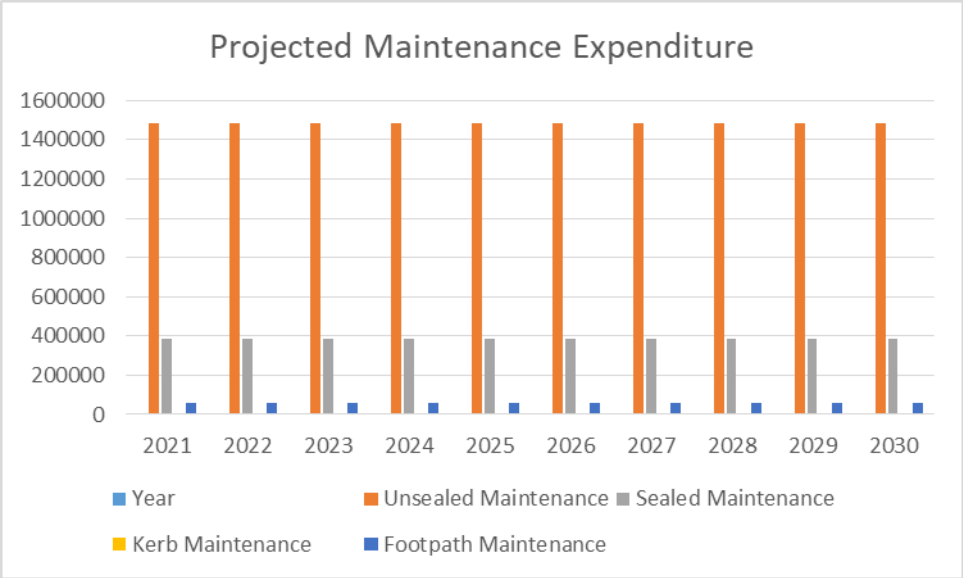
Maintenance work is carried out in accordance with the following Standards and Specifications.

Unsealed road maintenance continued utilising the current program with priority based on hierarchy
Undertake a cost-benefit analysis to determine all the most cost effective method to conduct planned and unplanned maintenance.

5.3.3 Summary of future operations and maintenance expenditures

Future operations and maintenance expenditure is forecast to trend in line with the value of the asset stock as shown in Figure 4. Note that all costs are shown in 2016/2017 dollar values.

Figure 4: Projected Maintenance Expenditure



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

Maintenance is funded from the operating budget and grants where available. This is further discussed in Section 6.2.

5.4 Renewal/Replacement Plan

Renewal expenditure is major work 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

Assets requiring renewal are identified from one of three methods provided in the 'Expenditure Template".

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

Method 1 was used for this asset management plan.

The ranking criteria used to determine priority of identified renewal proposals is detailed in Table 5.4.1.

Table 5.4.1: Renewal Priority Ranking Criteria

Criteria	Priority
Road network demands and usage	1
Road conditions	2
Customer requests	3

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

Examples of low cost renewal include setting unsealed road rubble thickness to a consistent depth of 100mm regardless of previous construction depth. Additionally, Council will continue to utilise local quarried rubble to maintain low cost rubble acquisition and cartage.

5.4.2 Renewal standards

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

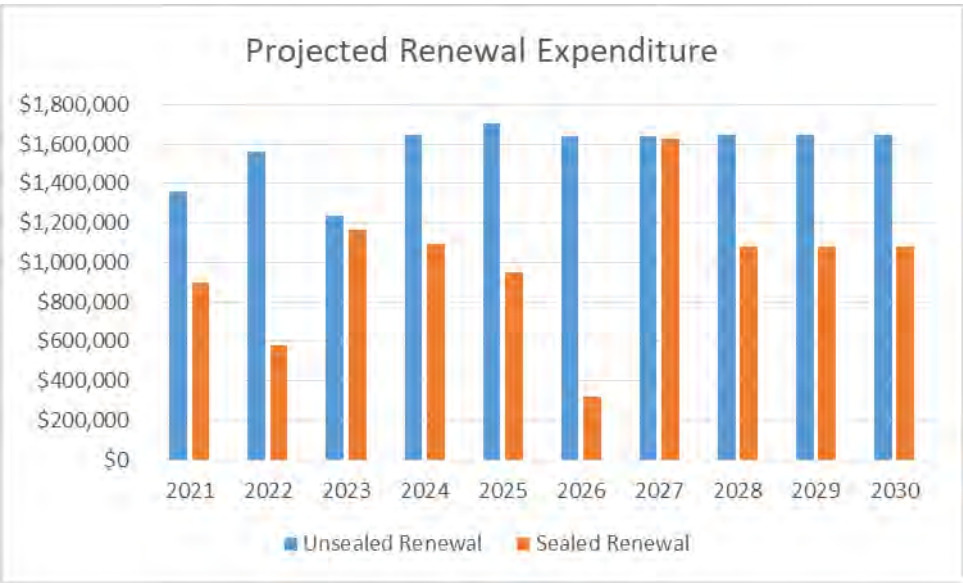
Austroads Pavement Design
AS1160-1990 Bituminous emulsions for construction maintenance of pavements
AS3727-1993 Guide to residential pavements
Mid Murray Council Internal Standards

5.4.3 Summary of projected renewal expenditure

Projected future renewal expenditures are forecast to increase over time as the asset stock ages. The costs are summarised in Figure 5. Note that all costs are shown in 2016/2017 dollar values and are based on the average, annual projected financial demands. Until a current road condition assessment has been conducted, specific short-medium renewal demands can not be identified.

The projected capital renewal program is shown in Appendix B.

Figure 5: Projected Capital Renewal Expenditure



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

5.5 Creation/Acquisition/Upgrade Plan

New works are those works that create a new asset that did not previously exist, or works which upgrade or improve an existing asset beyond its existing capacity. They may result from growth, social or environmental needs. Assets may also be acquired at no cost to the Council from land development. These assets from growth are considered in Section 4.4.

5.5.1 Selection criteria

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

Table 5.5.1: Upgrade/New Assets Priority Ranking Criteria

Criteria	Ranking
Upgrading of freight roads	1
Upgrading poorly constructed pavement	2
Sealing of town roads	3

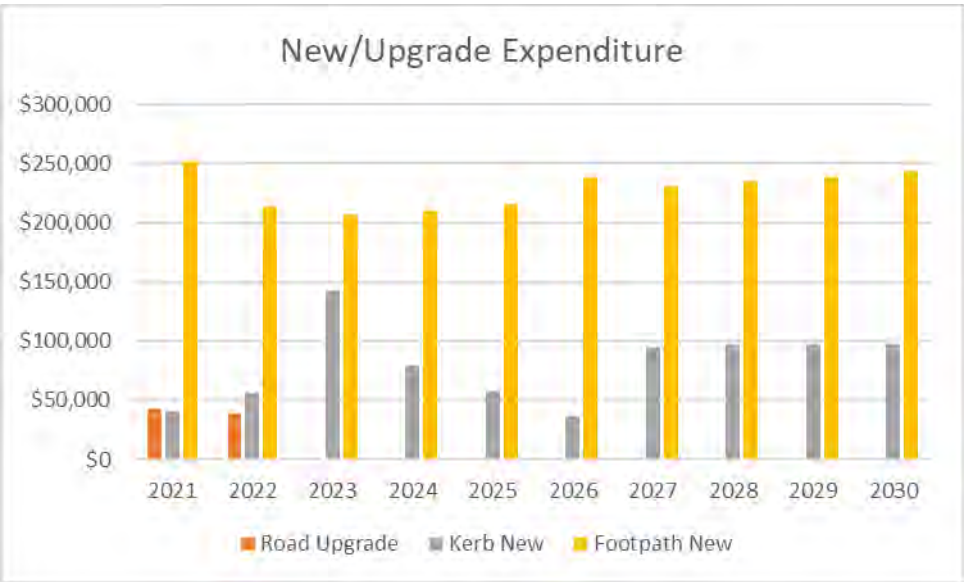
5.5.2 Standards and specifications

Standards and specifications for new assets and for upgrade/expansion of existing assets are the same as those for renewal shown in Section 5.4.2.

5.5.3 Summary of projected upgrade/new assets expenditure

Projected upgrade/new asset expenditures are summarised in Figure 6. The projected upgrade/new capital works program is shown in Appendix C. All costs are shown in current 2016/2017 dollar values.

Figure 6: Projected Capital Upgrade/New Asset Expenditure



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

5.6 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. Assets identified for possible decommissioning and disposal are shown in Table 5.6, together with estimated annual savings from not having to fund operations and maintenance of the assets. These assets will be further reinvestigated to determine the required levels of service and see what options are available for alternate service delivery, if any.

Council has not planned for any road asset disposal during the period of this plan.

Table 5.6: Assets identified for Disposal

Asset	Reason for Disposal	Timing	Net Disposal Expenditure (Expend +ve, Revenue –ve)	Operations & Maintenance Annual Savings
N/A	N/A	N/A	N/A	N/A

6. FINANCIAL SUMMARY

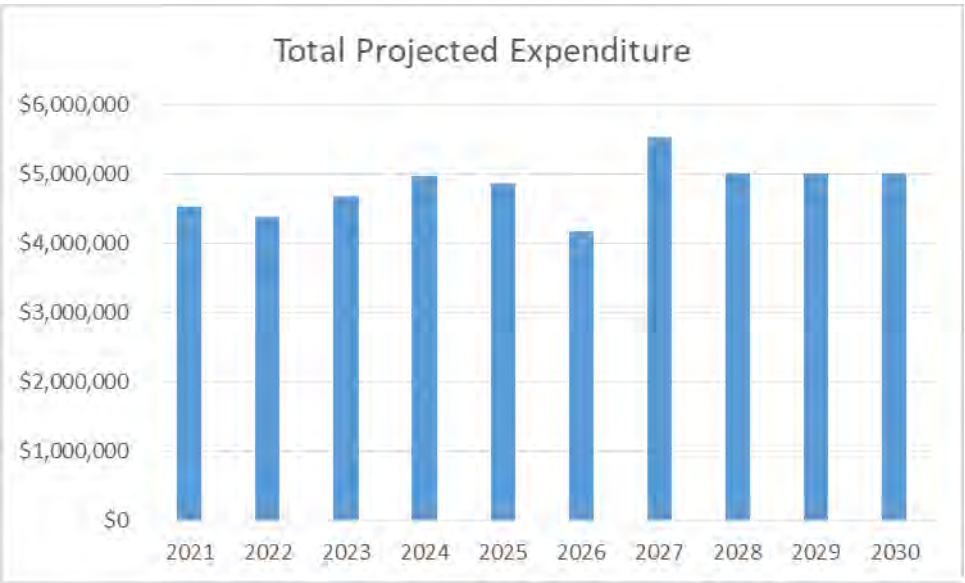
This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset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

6.1 Financial Statements and Projections

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

Note that all costs are shown in 2021 dollar values.

Figure 7: Projected Operating and Capital Expenditure and Budget



6.1.1 Financial sustainability in service delivery

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

10 year financial planning period

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

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

The projected operations, maintenance and capital renewal expenditure required over the 10 year planning period is $4,814,564 per year.

Estimated (budget) operations, maintenance and capital renewal funding is $4,814,564 per year giving a 10 year sustainability indicator of 1.0. This indicates that Council has 100% of the projected expenditures needed to provide the services documented in the asset management plan.

6.1.2 Expenditure projections for long term financial plan

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

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

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

Year	Maintenance & Operations ($000)	Projected Capital Renewal ($000)	Capital Upgrade/ New ($000)	Disposals ($000)
2021	$1,937	$2,257	$336	$0
2022	$1,937	$2,140	$309	$0
2023	$1,937	$2,395	$350	$0
2024	$1,937	$2,742	$289	$0
2025	$1,937	$2,654	$274	$0
2026	$1,937	$1,964	$276	$0
2027	$1,937	$3,262	$326	$0
2028	$1,937	$2,731	$333	$0
2029	$1,937	$2,731	$337	$0
2030	$1,937	$2,731	$342	$0

Note: All projected expenditures are in 2020/21 values

6.2 Funding Strategy

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

6.3 Valuation Forecasts

Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by Council and from assets constructed by land developers and others and donated to Council. Figure 9 shows the projected replacement cost asset values over the planning period in 2021 dollar values.

6.4 Key Assumptions made in Financial Forecasts

This section details the key assumptions made in presenting the information contained in this asset management plan and in preparing forecasts of required operating and capital expenditure and asset values, depreciation expense and carrying amount estimates. It is presented to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts.

Key assumptions made in this asset management plan are:

All figures are presented in 2021 figures and no adjustment for inflation has been applied
Stable population for the life time of the plan
Grant funding will remain stable with new and upgraded projects dependent on this remaining
Maintenance expenses are more reflective of current spend rather than historic trends

The following useful lives are assumed

Service Hierarchy	Service Level Objective
Primary Sealed Roads	Seal - 18 years Pavement - 54 years
Secondary Sealed Roads	Seal - 22 years Pavement - 66 years
Local Sealed Roads	Seal - 25 years Pavement – 75/100 years
Primary Unsealed Roads	Sheeting - 18 years
Secondary Unsealed Roads	Sheeting - 22 years
Local Unsealed Roads	Sheeting – 25 years
Access Unsealed Roads/Tracks	No surface required for renewal, maintenance only
Footpaths	Asphalt – 25 years Paving & Concrete – 50 years
Kerbing	70 years

7. ASSET MANAGEMENT PRACTICES

7.1 Accounting/Financial Systems

7.1.1 Accounting and financial systems

SynergySoft

7.1.2 Accountabilities for financial systems

Manager Finance

7.2 Asset Management Systems

7.2.1 Asset management system

Combination of QGIS Open Source GIS software & SynergySoft

7.2.2 Asset registers

SynergySoft

7.2.3 Linkage from asset management to financial system

SynergySoft

7.2.4 Accountabilities for asset management system and data

Asset System Officer

7.3 Information Flow Requirements and Processes

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

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

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

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

These will impact the Long Term Financial Plan, Strategic Longer-Term Plan, annual budget and departmental business plans and budgets.

7.4 Standards and Guidelines

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

Council strategic and operational plans
Customer service requests
Road asset register
Current service and expenditure levels

8. PLAN IMPROVEMENT AND MONITORING

8.1 Performance Measures

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

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

8.2 Improvement Plan

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

Table 8.2: Improvement Plan

Task No	Task	Responsibility	Resources Required	Timeline
1	Continuous condition assessment of road network	Director Infrastructure Services, Asset Systems Officer, Systems Coordinators	Staff Time	Continuous
2	Refine road hierarchy definitions and identification	Asset Systems Officer	Staff Time	Ongoing
3	Develop a greater understanding of maintenance expenditure (unit rates/reactive v planned/efficiency)	Director Infrastructure Services, Asset Systems Officer, Systems Coordinators	Staff Time	Ongoing
4	Review asset management plan within 12 months	Asset Systems Officer	Staff Time	Next 12 Months

8.3 Monitoring and Review Procedures

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

The Plan has a life of 12 months and is due for revision and updating by 1/4/2021.

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APPENDICES

Appendix A Three Year Projected Capital Program

ROAD NAME	LENGTH	FROM	TO	WIDTH	TREATMENT	CRC	RENEWAL YEAR
ALBERT STREET	336			6	RESEAL	$17,438.40	2021
ANZAC AVENUE	450	NILDOTTIE RD	HASSE HILL RD	7	RESEAL	$27,247.50	2021
BALDON ROAD	3643	STURT HWY	366 BALDON RD	7	RESHEET	$142,805.60	2021
BLACK HILL ROAD	4148	967 BLACK HILL RD	1387 BLACK HILL RD	7	STABILISER	$72,590.00	2021
BRINKWORTH ROAD	3468	JOHN ROLLOND RD	HOADS FIRE TRACK	7	RESHEET	$135,945.60	2021
BUSCH STREET	182			6	RESEAL	$9,445.80	2021
CLIFF STREET	447			6	RESEAL	$23,199.30	2021
CROFT ROAD	346			6	RESEAL	$17,957.40	2021
CURIO ROAD	532			6	RESEAL	$27,610.80	2021
DEANE STREET	281			6	RESEAL	$14,583.90	2021
DUTTON EAST ROAD	2078	PINE CREEK RD	OLD RAILWAY RD	8	RESHEET	$93,094.40	2021
EAST FRONT ROAD	3215	1387 EAST FRONT RD	CHAMBERS HILL RD	7	RESEAL	$194,668.25	2021
GOWLING COURT	435	EAST FRONT RD	EAST FRONT RD	5	RESEAL	$18,813.75	2021
HARROGATE ROAD	1483	1547 HARROGATE RD	1692 HARROGATE RD	7	RESHEET	$58,133.60	2021
HARTMANS ROAD	2518	OLD PURNONG RD	CHAIN 2518	6	RESHEET	$84,604.80	2021
HERRMANNS ROAD	1095	WARMINGTON RUN RD	110 HERRMANNS RD	6	RESHEET	$36,792.00	2021
KINGS ROAD	419			6	RESEAL	$21,746.10	2021
MARNE ROAD	402			6	RESEAL	$20,863.80	2021
MCLAREN STREET	124			6	RESEAL	$6,435.60	2021
MURRAY CRESCENT	94			6	RESEAL	$4,878.60	2021
MURRAYLANDS ROAD	5256	2321 MURRAYLANDS RD	MCBEANS POUND RD	8	RESHEET	$235,468.80	2021
PERSEVERANCE COURT	210	EAST FRONT RD	END	6	RESEAL	$10,899.00	2021
PIPELINE ROAD	3388	808 PIPELINE RD	WONGA RD	8	RESHEET	$151,782.40	2021
QUARRY ROAD	2330	BASTION HILL RD	TRURO RD	7	RESHEET	$91,336.00	2021
ROBERT STREET	104			6	RESEAL	$5,397.60	2021
SANDERSTON ROAD	3139	ANGAS VALLEY RD	POHL RD	7	RESHEET	$123,048.80	2021
SCHUETZE STREET	181			6	RESEAL	$9,393.90	2021
SKINNER STREET	385			6	RESEAL	$19,981.50	2021
SOUTH TERRACE	512	TOWITTA RD	END	6	RESHEET	$17,203.20	2021
SPORTSGROUND ROAD	572			6	RESEAL	$29,686.80	2021
STURT STREET	630			6	RESEAL	$32,697.00	2021
TOWITTA ROAD	827	END OF SEAL	END OF SEAL	7	RESEAL	$50,074.85	2021

TOWITTA ROAD	2538	STOTT HWY	HARRIS RD	7	RESHEET	$99,489.60	2021
VICTORIA STREET	506			6	RESEAL	$26,261.40	2021
VICTORIA STREET	327	NILDOTTIE RD	HASSE HILL RD	9	RESEAL	$25,456.95	2021
WANKE ROAD	524			6	RESEAL	$27,195.60	2021
ABRAHAM ROAD	2563	REEDY CREEK RD	452 ABRAHAM RD	7	RESHEET	$100,469.60	2022
BAKARA ROAD	3983	HUNTER RD	CHAIN 3983	7	RESHEET	$156,133.60	2022
BLACK HEATH ROAD	4716	TALBOT RD	TALBOT RESERVE	8	RESHEET	$211,276.80	2022
BURT ROAD	2195	HUNTER RD	CROSS RD	7	RESHEET	$86,044.00	2022
CENTENARY ROAD	1100	GOYDER HWY	THIELE HWY	7	RESEAL	$66,605.00	2022
COLLINS ROAD	727	299 COLLINS RD	BLACK HEATH RD	7	RESHEET	$28,498.40	2022
EAST FRONT ROAD	3186	GREENSHIELDS RD	1015 EAST FRONT RD	7	RESEAL	$192,912.30	2022
FALKENBERG ROAD	3258	ELLIKERS LANE	STARICK RD	8	RESHEET	$145,958.40	2022
FRANKTON ROAD	2261	EUDUNDA RD	MANOR FARM RD	7	RESHEET	$88,631.20	2022
GLENBURR ROAD	3895	313 GLENBURR RD	702 GLENBURR RD	7	RESHEET	$152,684.00	2022
GODLEY STREET	95			6	RESEAL	$4,930.50	2022
GODLEY STREET	98			6	SEAL UPGRADE	$8,820.00	2022
GREENSHIELDS ROAD	686	EAST FRONT RD	452 GREENSHIELDS RD	5	RESEAL	$29,669.50	2022
HARROGATE ROAD	2493	1692 HARROGATE RD	BLACK HEATH RD	7	RESHEET	$97,725.60	2022
HARTMANS ROAD	2708	CHAIN 2518	CHAIN 5226	6	RESHEET	$90,988.80	2022
MANOR FARM ROAD	1177	117 MANOR FARM RD	FRANKTON RD	7	RESHEET	$46,138.40	2022
MEADE STREET	282			6	RESEAL	$14,635.80	2022
MERIVALE STREET	117			6	RESEAL	$6,072.30	2022
MURRAYLANDS ROAD	2733	THIELE HWY	STONY STEPS RD	8	RESEAL	$189,123.60	2022
NORTH TERRACE	388			6	RESEAL	$20,137.20	2022
NORTH TERRACE	94			6	SEAL UPGRADE	$8,460.00	2022
ONSLOW STREET	262			6	RESEAL	$13,597.80	2022
PIGGY FLAT ROAD	6721	HUNTER RD	GLENBURR RD	7	PROFILE & COAT	$117,617.50	2022
PINE CREST ROAD	386	BUNDILLA RD	MOODY RD	7	RESHEET	$15,131.20	2022
PIPELINE ROAD	4695	WONGA RD	EBA RD	8	RESHEET	$210,336.00	2022
SANDERSTON ROAD	2013	903 SANDERSTON RD	BUNDILLA RD	7	RESHEET	$78,909.60	2022
SCHMAALS ROAD	3038	MONKEY CNR	RIDLEY RD	7	RESHEET	$119,089.60	2022
THE PARADE	415			6	RESEAL	$21,538.50	2022
UPCHER STREET	297			6	RESEAL	$15,414.30	2022
WEST TERRACE	254			6	SEAL UPGRADE	$22,860.00	2022
YANDIAH ROAD	413	THIELE HWY	MURRAYLANDS RD	7	SEAL UPGRADE	$43,365.00	2022

ANNE STREET	225			6	RESEAL	$11,677.50	2023
BASTION HILL ROAD	1194	STURT HWY	END OF SEAL	7	RESEAL	$72,296.70	2023
BLACK HEATH ROAD	2552	TALBOTS RESERVE	REEDY CREEK RD	8	RESHEET	$114,329.60	2023
BORMANN AVENUE	236			6	RESEAL	$12,248.40	2023
BORMANN ROAD	1772	NORTHERN BOUNDARY RD	EICHLER RD	7	RESHEET	$69,462.40	2023
CHARLES STREET	310			6	RESEAL	$16,089.00	2023
DAVID COURT	64			6	RESEAL	$3,321.60	2023
EAST FRONT ROAD	3979	BAKERS HUT RD	GREENSHIELDS RD	7	RESEAL	$240,928.45	2023
ELIZABETH STREET	629			6	RESEAL	$32,645.10	2023
GREENWAYS ROAD	3734	HUNTER RD	END OF SEAL	6	RESEAL	$193,794.60	2023
KLIENIG ROAD	7997	STOCK ROUTE RD	DUFFS GULLY RD	7	PROFILE & COAT	$139,947.50	2023
LITTLE ANNE STREET	193			6	RESEAL	$10,016.70	2023
MARGARET STREET	98			6	RESEAL	$5,086.20	2023
MILLER ROAD	662	QUARRY RD	ESPLANADE	7	RESEAL	$40,084.10	2023
MILLER ROAD	259			7	RESEAL	$15,682.45	2023
MILLER ROAD	1581	SEAL	SEAL	7	RESHEET	$61,975.20	2023
MORGAN-CADELL ROAD	3779	FERRY	OLD CADELL RD	6.2	RESEAL	$202,667.77	2023
MURRAYLANDS ROAD	3913	STONY STEPS RD	667 MURRAYLANDS RD	8	RESEAL	$270,779.60	2023
NEIL STREET	138			6	RESEAL	$7,162.20	2023
PHILIP STREET	259			6	RESEAL	$13,442.10	2023
RAMM ROAD	990			8	RESEAL	$68,508.00	2023
RAMM ROAD	685			8	RESEAL	$47,402.00	2023
REED AVENUE	210			6	RESEAL	$10,899.00	2023
SANDERSTON ROAD	3341	POHL RD	SPRIGS RD	7	RESHEET	$130,967.20	2023
ST KITTS ROAD	900	90 ST KITTS RD	TRURO RD	7	RESHEET	$35,280.00	2023
ST KITTS ROAD	1614	HART RD	313 ST KITTS RD	7	RESHEET	$63,268.80	2023
SUSAN COURT	61			6	RESEAL	$3,165.90	2023
TEAL FLAT ROAD	3757	PURNONG RD	COUNCIL END	6.2	RESEAL	$201,487.91	2023
WANBI ROAD	4563	HUNTER RD	456 WANBI RD	8	RESHEET	$204,422.40	2023

Appendix B Abbreviations

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

Appendix C Glossary

Annual service cost (ASC)

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

Asset

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

Asset class

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

Asset condition assessment

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

Asset management (AM)

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

Average annual asset consumption (AAAC)*

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

Borrowings

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

Capital expenditure

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

Capital expenditure - expansion

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

Capital expenditure - new

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

Capital expenditure - renewal

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

Capital expenditure - upgrade
Expenditure, which enhances an existing asset to provide a higher level of service or expenditure that will increase the life of the asset beyond that which it had originally. Upgrade expenditure is discretionary and often does not result in additional revenue unless direct user charges apply. It will increase operations and maintenance expenditure in the future because of the increase in the organisation's asset base, eg. widening the sealed area of an existing road, replacing drainage pipes with pipes of a greater capacity, enlarging a grandstand at a sporting facility.

Capital funding
Funding to pay for capital expenditure.

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

Capital investment expenditure
See capital expenditure definition

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

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

Class of assets
See asset class definition

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

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

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

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

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

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

Economic life
See useful life definition.

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

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

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

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

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

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

Investment property
Property held to earn rentals or for capital appreciation or both, rather than for:
(a) use in the production or supply of goods or services or for administrative purposes; or
(b) sale in the ordinary course of business.

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

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

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

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

Loans / borrowings
See borrowings.

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

- **Planned maintenance**
  Repair work that is identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/breakdown criteria/experience, prioritising scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.
- **Reactive maintenance**
  Unplanned repair work that is carried out in response to service requests and management/supervisory directions.
- **Significant maintenance**
  Maintenance work to repair components or replace sub-components that needs to be identified as a specific maintenance item in the maintenance budget.
- **Unplanned maintenance**
  Corrective work required in the short-term to restore an asset to working condition so it can continue to deliver the required service or to maintain its level of security and integrity.

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

Maintenance and renewal sustainability index

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

Maintenance expenditure

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Recurrent funding
Funding to pay for recurrent expenditure.

Rehabilitation
See capital renewal expenditure definition above.

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

Renewal
See capital renewal expenditure definition above.

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

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

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

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

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

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

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

Specific Maintenance
Replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including repainting, building roof replacement, cycle, replacement of air conditioning equipment, etc. This work generally falls below the capital/ maintenance threshold and needs to be identified in a specific maintenance budget allocation.

Sub-component
Smaller individual parts that make up a component part.

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

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

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

Source: IPWEA, 2009, Glossary

Appendix D Road Condition Assessment Criteria

1. Overview

The purpose of this manual is give assistance to staff assessing the condition of roads & related assets throughout the Mid Murray Council, and to document how the condition are to be scored scores and the methodology in which the condition is ascertained.

2. Sealed Roads

The overall condition of sealed roads is to be described by two parameters; Pavement Condition Index (PCI) and Surface Condition Index (SCI). The SCI of a road section is a function of its roughness, and the extent and severity of crocodile cracking, environmental cracking, stripping, flushing & polishing. The PCI of a section is determined by its roughness, and the extent and severity of rutting, potholes, corrugations, pavement defects & past pavement repairs.

2.1 Segment

A segment is defined as a length of road which has a similar condition but has a variety of defects over the length being assessed. A segment has no set length with start or finish points, but will retain the same pavement width. A change in segment is a complete change in surface condition, eg. material type, age or the general condition.

2.2. Crocodile Cracking (SCI)

Crocodile Cracking is interconnecting or interlaced cracking in a road seal resembling the hide of a crocodile. Cell sizes can vary in size up to 300mm across, but are typically less than 150mm across.

Both the extent & severity of crocodile cracking needs to be ascertained.

2.2.1 Crocodile Cracking Severity (SCI)

The severity of crocodile cracking is determined by the width of cracks. Each affected area of road is given a crack severity score in the range 0-5.

SEVERITY

Score	Crack Width
1	Nil
2	<15mm
3	<25mm
4	<30mm
5	+/-50mm

The overall score for the road segment is the average of the individual scores.

2.2.2 Crocodile Cracking Extent (SCI)

The extent of crocodile cracking is determined by the percentage of road surface that is subject to cracking. Each affected area of road is given a crack extent score in the range 0-5.

EXTENT

Score	Area subject to cracking
1	Nil
2	<15% of segment
3	<25% of Segment
4	<50% of Segment
5	>50% of Segment

The overall score for the road segment is the average of the individual scores.

2.3 Environmental Cracking (Block /Diagonal / Longitudinal / Transverse) (SCI)

Both the extent & severity of environmental cracking needs to be ascertained.

2.3.1 Environmental Cracking Severity

The severity of environmental cracking is determined by the width of cracks. Each affected area of road is given a crack severity score in the range 0-5.

SEVERITY

Score	Crack Width
1	Nil
2	<15mm
3	<25mm
4	<30mm
5	+/-50mm

The overall score for the road segment is the average of the individual scores.

2.3.2 Environmental Cracking Extent

The extent of environmental cracking is determined by the percentage of road surface that is subject to cracking. Each affected area of road is given a crack extent score in the range 0-5.

EXTENT

Score	Area subject to cracking
1	Nil
2	<15% of segment
3	<25% of Segment
4	<50% of Segment
5	>50% of Segment

The overall score for the road segment is the average of the individual scores.

2.4 Stripping, Ravelling & Delamination (SCI)

Stripping and raveling is the loss of aggregate from the surface, resulting in exposed binder and/or pavement. Delamination is either part of the seal or pavement breaking away from the same surface type.

The stripping score is determined by the percentage of road surface subject to stripping. Each segment of road is given a score in the range 0-5 on the percentage of loss within 1m2.

SEVERITY

Score	**Affected Area**
1	Nil
2	>15% of 1m2
3	>25% of 1m2
4	>40% of 1m2
5	>50% of 1m2

EXTENT

Score	Area subject to cracking
1	Nil
2	<15% of segment
3	<25% of Segment
4	<50% of Segment
5	>50% of Segment

The overall score for the road segment is the average of the individual scores.

2.5. Polishing and Flushing (SCI)

Polishing is the smoothing and rounding of the upper surface of a sealing aggregate, usually occurs in the wheel paths which is identified by relative appearance and feel of traffic and untrafficked areas. Flushing (Bleeding) is the excess of binder on the surface of the pavement, which is liable to pick up on tyre's during hot weather. A potential safety concern because of loss of skid resistance manifested as low texture depth and inadequate tyre to stone contact.

SEVERITY

Score	Affected Area
1	Nil
2	>15% of 1m2
3	>25% of 1m2
4	>40% of 1m2
5	>50% of 1m2

EXTENT

Score	Area subject to Polishing/Flushing
1	Nil
2	<15% of segment
3	<25% of Segment
4	<50% of Segment
5	>50% of Segment

The overall score for the road segment is the average of the individual scores.

2.6. Potholes (PCI)

A pothole is a hole in a road pavement, frequently rounded in shape, resulting from the loss of pavement material under traffic.

The pothole score is determined by the severity of the defect and percentage of road surface covered by potholes. The defect rating is the >width of the pothole x >depth of the pothole is scored in the range 0-5. Each segment of road is given a score in the range 0-5 for its extents.

SEVERITY

Score	Defect Severity (w x d)
1	Nil
2	>50mm x >25mm
3	>150mm x >50mm
4	>225mm x >75mm
5	>300mm x >100mm

Extent

Score	Area subject to Potholes
1	Nil
2	<15% of segment
3	<25% of Segment
4	<50% of Segment
5	>50% of Segment

The overall score for the road segment is the average of the individual scores.

2.7. Existing Pavement Patches (PCI)

An existing pavement patch is potholes, other pavement or surface defects that has been repaired with premix or sprayseal.

The pavement patching score is determined by the percentage of road surface that has been

patched. Each section of road is given a score in the range 0-5.

Extents

Score	Affected Area
1	Nil
2	<15% of segment
3	<25% of Segment
4	<50% of Segment
5	>50% of Segment

The overall score for the road segment is the average of the individual scores.

2.8. Rutting (PCI)

Rutting results from inadequate pavement depth and or inadequate compaction of pavement layers. Rutting is the longitudinal vertical deformation of a pavement surface in a wheelpath, measured relative to a straight edge placed at right angles to the traffic flow and across the wheelpath, with a length/width ratio greater than 4:1.

The standard measure for rutting is the maximum depth under a transverse 1.2m straight edge. The rutting score for a road segment is calculated by averaging the maximum depth measurements for each 10m section of the segment.

SEVERITY

Score	Affected Area
1	Nil
2	<15mm displacement within 15% of 1m2
3	<25mm displacement within 25% of 1m2
4	<50 mm displacement within 50% of 1m2
5	>50mm displacement within 50% of 1m2

EXTENT

Score	Affected Area
1	Nil
2	<15% of segment
3	<25% of Segment
4	<50% of Segment
5	>50% of Segment

2.9. Pavement Defects

Pavement defects include, corrugations, shoving, depressions and unsuccessful patches. This results from inadequate pavement depth and or inadequate compaction of pavement layers. Shoving is caused by inadequate strength in the surface or base; poor bonding between pavement layers; lack of containment of pavement edge or inadequate pavement depth.

SEVERITY

Score	Affected Area
1	Nil
2	<15mm displacement within 15% of 1m2
3	<25mm displacement within 25% of 1m2
4	<50 mm displacement within 50% of 1m2
5	>50mm dis[placement within 50% of 1m2

EXTENT

Score	Affected Area
1	Nil
2	<15% of segment
3	<25% of Segment
4	<50% of Segment
5	>50% of Segment

3. Unsealed Roads

There are three main condition parameters that can be recorded against unsealed roads conditions, gravel depth, shape loss & cross section.

3.1. Gravel Depth

Gravel depth is the average depth of imported gravel pavement.

Score	Gravel Depth
1	> 100mm
2	50mm to 100mm
3	25mm to 50mm
4	1mm to 25mm
5	No imported gravel

Gravel depth is the main indicator of when a road should be resheeted.

3.2. Shape Loss

Shape loss is a generic term for a number of defects including; rutting, scouring, corrugations, depressions, pothole, etc. caused by the lack of gravel depth and poor quality material used in the construction of the road.

SEVERITY

Score	Affected Area
1	Nil
2	<15mm displacement within 15% of 1m2
3	<25mm displacement within 25% of 1m2
4	<50 mm displacement within 50% of 1m2
5	>50mm displacement within 50% of 1m2

3.3. Cross Section

Poor camber through a cross section of road contributes to poor drainage furthermore enhances road the shape loss. Table and side drains are also important to ensure water is not pooling on the edge of the road and can drain away freely.

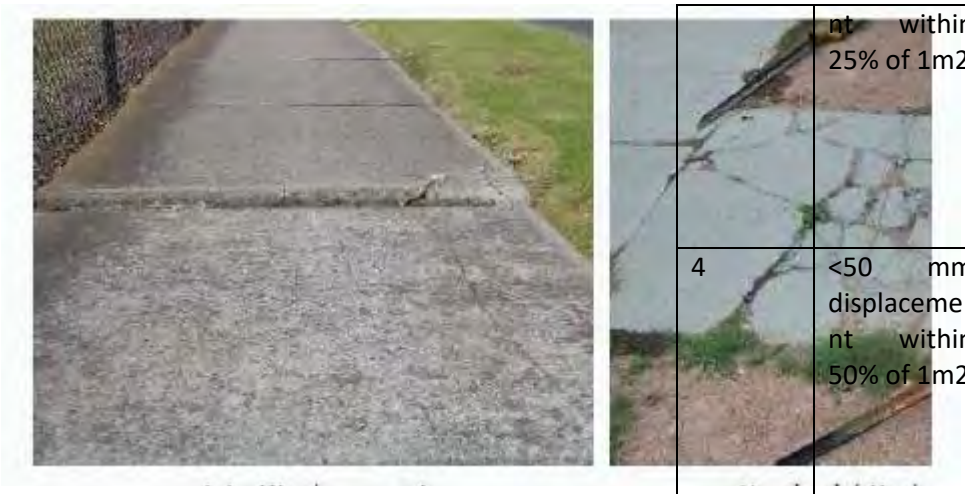
Score	Description
1	Greater than 6% camber
2	0% to 6% camber
3	Less than 0% camber (no shape at all)

3.4. Resheeting Program Development

Unsealed Roads that have been identified in poor condition by either customer complaints or staff making comments during the year is assessed by infrastructure staff. The road is assessed visually and the pavement depth in determined. Pavements with gravel depths less than 25mm is only considered for resheeting, and prioritised on the basis of the number of residential properties they serve or estimated daily traffic volumes. The visual inspection also helps determine if maintenance activities is required as alternative to resheeting.

4. Footpaths

A footpath is a strip of concrete, asphalt, pavers, bitumen seal or crushed rock laid between the back of kerb and the property boundary (or elsewhere) for use as a path by pedestrians.



Defects associated with footpaths include, vertical joint displacements, cracking, panel displacement due to tree roots and spalling. BRC's Asset Management System has the ability to calculate an Overall Condition Index (OCI) for footpaths based on values for stepping, cracking, displacement, gravel loss, utility and pram ramp, but we are currently just giving footpaths an overall condition score in the range 0 to 6 and entering that value into the stepping field. The table below shows the relationship between condition and remaining useful life that is used by our Asset Management System, and a description of the footpath's condition.

Condition	Severity	Affected Area	Description
1	Nil	Nil	**Nil-**Brand new footpath in perfect condition or in very good condition, no visible defects
2	<15mm displacement within 15% of 1m2	<15% of segment	**Negligible-** Good condition, only very minor defects visible
3	<25mm displacement within 25% of 1m2	<25% of Segment	**Minor-** Average condition, a number of defects are visible, but is still quite serviceable
4	<50 mm displacement within 50% of 1m2	<50% of Segment	**Moderate-** below Extensive- average condition, quite a few obvious defects are visible, substandard for CBD an other critical highly trafficked areas
5	>50mm displacement within 50% of 1m2	>50% of Segment	**Extreme-** Poor Condition, should be referred to capital works program for reconstruction

In practice, the great majority of footpath defects are fixed one or two panels at a time under maintenance, and the overall condition scores for footpath segments rarely if ever drop below condition 4.

5. Kerb & Channel

Kerb & Channel is a concrete or stone structure typically located at the edge of a road designed to provide road drainage, and as a barrier to prevent vehicles from leaving the road carriageway.

Defects associated with kerb & channel include; rotation, vertical displacements, cracking, breaks, spalling, depressions & ponding.

Cond	Severity	Affected Area	Description
1	Nil	Nil	**Nil-**Brand new footpath in perfect condition or in very good condition, no visible defects
2	<15mm displacement within 15% of 1m2	<15% of segment	**Negligible-** Good condition, only very minor defects visible
3	<25mm displacement within 25% of 1m2	<25% of Segment	**Minor-** Average condition, a number of defects are visible, but is still quite serviceable
4	<50 mm displacement within 50% of 1m2	<50% of Segment	**Moderate-** below Extensive- average condition, quite a few obvious defects are visible, substandard for CBD an other critical highly trafficked areas
5	>50mm displacement within 50% of 1m2	>50% of Segment	**Extreme-** Poor Condition, should be referred to capital works program for reconstruction

Example

Total the length of concrete kerb and channel bays displaying distresses such as vertical displacement, depression, cracking, tilting and/or heaving for the kerb and channel segment; Noting that the extent measurement should extend to the areas where the cuts will be.