TRANSPORT INFRASTRUCTURE
Asset Management Plan

October 2020

Tatiara District Council | Version V2.3

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Asset Management for Small, Rural or Remote Communities Practice Note

The Institute of Public Works Engineering Australia.

www.ipwea.org/AM4SRRC

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1. EXECUTIVE SUMMARY

Context

The fundamental purpose of this Transport Infrastructure Asset Management Plan is to improve Council's long-term strategic management of its infrastructure assets on behalf of the community and to ensure the long-term financial sustainability of the Council.

Transport infrastructure assets provide transport services through the provision of a safe and effective road network and footpath/bicycle network. Council's goal in managing its transport infrastructure is to meet the required level of service expected by the community in the most cost-effective manner, meet legislative requirements, reduce risk and to develop sustainable communities in the Tatiara.

The transport network and related infrastructure has continued to be improved over the years through the creation of new or upgraded assets. With aging infrastructure the previous model of continuing to spend funds on new and upgraded assets will lead to increased renewal and maintenance costs requiring increased funding and the possibility of a renewal backlog or unpopular increases in rate income. This Plan provides long-term strategies for the replacement, upgrading and management of the social, economic and environmental risks associated with the operation of these assets.

The Transport Services
The transport network comprises:

Asset Class	Quantity	Unit
Sealed Road	547	km
Unsealed Road	1110	km
Formed Road	174	km
Tracks & Road Reserves	786	km
Kerbing	87.4	km
Bridges	15	
Footpaths	32.8	km
Carparks	35122	m2

These infrastructure assets have a replacement value of $208,545,000.

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 $56,181,000 or $5,618,000 per year.

Council's estimated available funding for this period is $54,850,000 or $5,485,000 per year which is 98% of the cost to provide the service. This is a funding shortfall of $133,000 per annum Projected and budgeted expenditure are shown in the graph below.

The difference in planned funding and available funding over a 10 year period includes approximately $5 million as the renewal component of the proposed upgrade program. In most cases upgraded assets will have a renewal component and often this is renewed before reaching the end of its useful life and therefore contributing to the additional funding. The upgrade program is considered essential to ensure transport assets meet their functional requirements and cater for the future needs of the community in a safe and effective manner. For instance, widening a major freight route for use by A-Doubles.

Executive Summary - What does it cost?	**($000)**
10 year total cost [10 yr Ops, Maint, Renewal & Upgrade Proj Exp]	**$56,181**
10 year average cost	**$5,618**
10 year total LTFP budget [10 yr Ops, Maint, Renewal & Upgrade LTFP Budget]	**$54,850**
10 year average LTFP budget	**$5,485**
10 year AM financial indicator	**98%**
10 year average funding shortfall	**$133**

Councils' present funding levels are sufficient to continue to provide existing services at current levels in the medium term. There is also allowance in the current funding levels for upgrades of transport assets to ensure they meet the minimum functional requirements and community needs.

What we will do

Council plans to provide Transport services for the following:

- Operation, maintenance, renewal and upgrade of roads, footpaths, kerbing, bridges, footpaths and carparks to meet service levels set by council in annual budgets.to meet service levels set by council in annual budgets.
- Council plans to continue to maintain the majority of its existing transport infrastructure by renewing

it before it becomes a major risk to Council and the public. In addition, Council has allocated funds to continue to upgrade infrastructure including upgrading major freight routes, constructing new kerb and gutter and footpath/bicycle paths to cater for the higher mass freight now using the roads and community demand 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 maintain existing service levels
- Potential personal injury and property damage due to pavement, footpath or kerb defects
- Reductions in grant funding

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

- Maintaining accurate infrastructure records and reviewing funding requirement for the next 20 years
- Maintain records to more accurately estimate useful lives and unit rates to improve future projections
- Undertaking regular road and footpath inspections and condition audits every 4-5 years
- Upgrading assets as identified as part of a strategic analysis of functional requirements of the asset

The Next Steps

The actions resulting from this asset management plan are:

- Continue to improve asset data including asset registers, estimated useful lives and condition data
- Review maintenance regimes with a view of optimising the mix of reactive versus planned maintenance. This includes investigating options to improve records of the location and cost of maintenance works

• Questions you may have

What is this plan about?

This asset management plan covers the infrastructure assets that serve the Tatiara District Council's community's transport service's needs. These assets include sealed and unsealed road, bridges, kerb and gutter, foot and cycle paths and carparks that facilitate the safe and reliable mobility of people and goods 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.

Is there a funding shortfall?

In the medium term (10 years) our present funding levels are estimated to be sufficient to continue to provide existing services at current levels. However in the longer term (20 years) there will be a significant funding gap as long life road pavement requires replacement

With many of these assets approaching the later years of their life and requiring replacement, services from the assets will decrease and maintenance costs will increase. Current funding levels will not be sufficient in the long-term requiring increases to maintain existing services levels.

What options do we have?

Maintaining the existing service levels involves several steps:

1. 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,
2. Improving our efficiency in operating, maintaining, replacing existing and constructing new assets to optimise life cycle costs,
3. Identifying and managing risks associated with providing services from infrastructure,
4. Making trade-offs between service levels and costs to ensure that the community receives the best return from infrastructure,
5. Identifying assets surplus to needs for disposal to make savings in future operations and maintenance costs
6. Consulting with the community to ensure that transport services and costs meet community needs and are affordable,
7. Developing partnership with other bodies, where available to provide services;
8. Seeking additional funding from governments and other bodies to better reflect a 'whole of government' funding approach to infrastructure services.

What happens if we don't manage funding levels?

It is likely that council will have to reduce service levels in some areas, unless new sources of revenue are found. For Transport services, the service level reduction may include longer periods between resheeting unsealed roads, increases in road defects affecting road users, reduction in operational activities such as street sweeping etc.

What can we do?

Council can develop options and priorities for future Transport services with costs of providing the services, consult with the community to plan future services to match the community services needs with ability to pay for services and maximise benefit to the community for costs to the community.

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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.

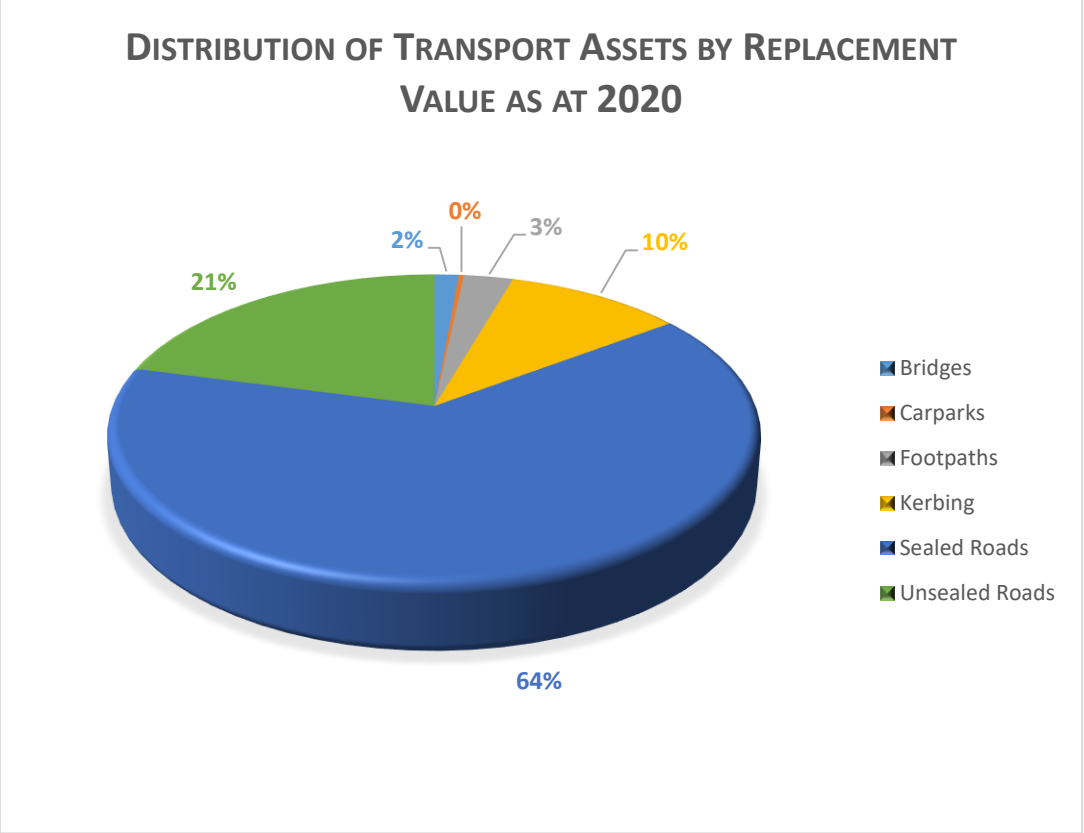
The asset management plan is to be read with Council's Asset Management Policy, Asset Management Strategy and the following associated planning documents:

- Strategic Management Plan – The Strategic Management Plan provides a focus for Council's service delivery over a three-year period
- Planning Design Code – The Planning Design Code has two purposes. Firstly, it sets our objectives to guide the type and location of future developments across the Council areas. Secondly, it provides the detail for the assessment of individual development proposals through the establishment of a network of zones together with detailed criteria against which development application are assessed.
- Long Term Financial Plan – This plan outlines all aspects of the key financial strategy objectives and commitments. Since financial resources are limited, the long-term financial plan will both inform and interpret the Strategic Management Plan
- Annual Budget – The Budget details resources needed to deliver services on an annual basis. In addition, it outlines the service delivery programs and projects of the Council and details performance measures (both financial and non-financial) in which the efficiency and effectiveness of the service delivery can be gauged.
- Transport Services Risk Management Plan – Details and analyses the risks involved with managing Council's Transport Infrastructure and plans to minimise these risks within available resources and budgets

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	547 km	$ 116,268,000
Unsealed Roads - Surfaced	1110 km	$ 57,777,000
Kerb and Gutter	87.4 km	$ 25,067,000
Bridges	15	$ 2,509,000
Sealed Carparks	25337 m2	$ 938,000
Footpaths	32.8 km	$ 5,986,000
TOTAL		**$ 208,545,000**



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]

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, and
- Provide information to assist decision makers in trading off service levels, costs and risks to provide services in a financially sustainable manner.

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

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

Council's vision is:

"Shaping a sustainable future by realising the potential of our people and region"

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

Theme	Strategic Goal	Strategy	How Goal and Objectives are addressed in AMP
Theme 2 - Built and Natural Environment	Provide appropriate infrastructure that support our district's growth	• Review transport network priorities to ensure safety risks and blackspots are addressed and the network supports and attracts economic growth • Prepare and maintain infrastructure asset management plans • Advocate for improved transport assets	This AMP includes a 10-year priority-based asset maintenance and replacement program for transport assets.

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 a comprehensive review of Council's Transport asset management plan adopted in 2014 and is a '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.

2.5 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.

[2] IPWEA, 2006.

3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

In the past Council has participated in the Local Government Customer Satisfaction survey conducted by Roy Morgan Research. This telephone survey polled a sample of residents on their level of satisfaction with the organisation's services. Unfortunately this research is not currently being undertaken. The most recent customer satisfaction survey reported satisfaction levels for the following services.

Table 3.1: Community Satisfaction Survey Levels

Performance Measure	Satisfaction Level – mean (out of 10)	
	South Australia 2012	Tatiara 2012
Importance that Council provides and maintains roads, footpaths & cycle tracks	9.23	9.06
Performance in providing & maintaining roads, footpaths and cycle tracks	6.26	6.69

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 1934 and 1999	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.
Local Government (Financial Management and Rating) Amendment Act 2005	Impetus for the development of a Strategic Management Plan, comprising an (Infrastructure) Asset Management Plan and Long-term Financial Plan
Environmental Protection Act 1993	This Act places a 'duty of care' on people not to undertake activities that will cause environmental harm.
Occupational Health and Safety and Welfare Act 1986	An Act to provide for the health, safety and welfare of persons at work.
Development Act 1993	An Act to provide for planning and regulate development in the State; to regulate the use and management of land and buildings; to make provision for the maintenance and conservation of land and buildings where appropriate; and for other purposes.
Australian Accounting Standards	Sets out the financial reporting standards for the (re)valuation 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 asset 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 a 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

Sealed Roads

Key Performance Measure	Level of Service Objective	Performance Measure Process	Current Level of Service	Optimal Level of Service
COMMUNITY LEVELS OF SERVICE				
Quality	Rideability	Customer service request relating to rideability & roughness meter measurements	Customer requests = 34pa (3 year average)	Customer requests <25pa
Function	Meets user requirements for - Road width - Accessibility - Traffic control	Customer Service Request Compliance with Austroad technical specifications guidelines	No Current Measure New and upgraded roads comply with Austroad design standards	
Capacity/ Utilisation	Streets are appropriate for usage	Customer service requests relating to road capacity	No Current Measure	
TECHNICAL LEVELS OF SERVICE				
Operations	Streets are clean	Street sweeping frequency		
	Streets are lit to user's needs	Compliance with Australian Standards	Approx. 50% Compliance with AS in main business districts high traffic areas	Compliance with AS in main business districts high traffic areas
		Budget	Street Sweeping - $54,120 Street Lighting - $210,000	
Maintenance	Streets are suitable for purpose	Service requests completed within adopted times frames	No current measure	
		Cost effectiveness	$658 per Km per year	
		Budget	$360,000	

Renewal	Streets are suitable for purpose	Frequency of sealed surfaces resurfacing (years)	Primary 15 years Secondary 20 years Local 28 years	
		Condition of sealed pavement	=<15% of the sealed road surface in a condition 4 =<5% of sealed road surface in a condition 5	
		Percentage of network resealed per year	4.5%	
		Budget	$700,000 over next 5 years	
Upgrade/New	Streets and roads are constructed to meet users' needs	Percentage of dwellings in sealed streets	All urban streets with adjacent residential properties are sealed Roads with 100 AVPD are sealed	All urban streets with adjacent residential properties are sealed Roads with >100 AVPD are sealed
		Budget	$1,000,000 approx.	

Unsealed Roads

Key Performance Measure	Level of Service Objective	Performance Measure Process	Current Level of Service	Optimal Level of Service
COMMUNITY LEVELS OF SERVICE				
Quality	Provide smooth all-weather access	Customer service request relating to rideability and roughness meter measurements	Customer requests = 40pa (3 year average)	Customer requests <30pa
Function	Access is available at all times for designated vehicle configurations	Customer Service Request relating to non-access	No current measure	
Capacity/ Utilisation	Streets are appropriate for usage	Customer service requests relating to road capacity	No current measure	
TECHNICAL LEVELS OF SERVICE				
Operations	Unsealed roads meet users' needs	NA	NA	NA
Maintenance	Unsealed roads are suitable for purpose	Regular condition and defects inspection	No current measure	
		Maintenance grading frequency	Primary – 3 x per year Secondary – 2 x per year Local – 1 x per year Track/Access – programmed 1 x every 2 years but reactive depending on customer requests and condition assessments	
		Cost effectiveness ($ / km / yr)	$843 per Km per year	
		Budget	Reactive - $236,000 Planned - $700,000	
Renewal	Streets are suitable for purpose	Useful life of sheeted pavement assets	Primary – 19 years Secondary – 23 years Local – 30 years	

		Width of resheet meets fit for purpose standards	Primary – 7.0m Secondary – 6.2m Local – 5.6m	
		Percentage of network resheeted per year	4%	
		Budget	$1,050,000 over next 5 yrs	
Upgrade/New	Streets and roads are constructed to meet users' needs	No of dwellings without functional sheeted access	All dwellings are served by a functional sheeted road	
		Budget	Considered as part of upgrade program	

Bike/footpaths

Key Performance Measure	Level of Service Objective	Performance Measure Process	Current Level of Service	Optimal Level of Service
COMMUNITY LEVELS OF SERVICE				
Quality	Provide even surface for pedestrians	Customer service request relating to surface condition	Customer requests = 13pa (3 year average)	Customer requests <10pa
Function	Meets users needs for accessibility	Customer Service Request	No current measure	
Capacity/ Utilisation	Footpaths are appropriate for usage	Customer service requests relating to capacity/usage	No current measure	
TECHNICAL LEVELS OF SERVICE				
Operations	N/A	N/A	N/A	N/A
Maintenance	Footpaths are suitable for purpose	Service requests completed within adopted times frames	Customer requests = 13pa (3 year average)	Customer requests <10pa
		Cost effectiveness	$490 per Km per year	
		Budget	$25,000	
Renewal	Footpaths are suitable for purpose	Condition of footpaths	≤5% in condition 4 or 5	
		Budget	$40,000	
Upgrade/New	Urban residents have paved footpaths access to shops school and hospitals	High traffic footpaths are paved or concreted		
		Budget	$150,000	

Kerb and Gutter

Key Performance Measure	Level of Service Objective	Performance Measure Process	Current Level of Service	Optimal Level of Service
COMMUNITY LEVELS OF SERVICE				
Quality	Provide Road drainage and collection system	Customer service request	Customer requests = 5pa (3 year average)	Customer requests <5pa
Function	Meets users needs for drainage control	Customer Service Request Relating to lack of K&G	Customer requests = 2pa (3 year average)	Customer requests <5pa

Capacity/ Utilisation	K&G are appropriate for water flow	Customer service requests relating to kerb capacity		
TECHNICAL LEVELS OF SERVICE				
Operations	K&G meets users needs	Condition and defects inspection	To be determined	
Maintenance	K&G is suitable for purpose	Reactive service requests completed within adopted time frame	No current measure	
		Cost effectiveness	$248 per km per year	
		Budget	$21,650	
Renewal	K&G are suitable for purpose of providing effective drainage and amenity	Condition of K&G	<3% of kerbing in a condition between 4 and 5	
		Budget	$80,000	
Upgrade/New	Urban residents have K&G at frontage	No. of dwellings without K&G	No current measure	
		Budget	$68,000	

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.

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 4.1.

Table 4.1: Demand Factors, Projections and Impact on Services

Demand factor	Present position	Projection	Impact on services
Population	Bordertown 2953 Keith 1355 Mundulla 436 Wolseley 180 District Total 6620 (2016 census)	Population estimates are projected to reduce slightly to 5995 within the district over the period 2016 – 2031 (SA Planning Panel)	Nil
Demographics		Aging population – over 70s will increase by >20% in the period 2016 - 2031 (SA Planning Panel)	Greater need for quality footpaths
Events	Council roads designated as bypass routes in the event of an accident on the Dukes Hwy	No change	Nil

Environmental Impacts	Roads are constructed to withstand today's known environmental conditions and to meet today's environmental standards	Climate change will have little impact on the life of assets during the period of this plan.	Nil
Legislative Requirements/Design Standards	New roads constructed and maintained according to current legislation	Increased design standards	Increased construction and maintenance cost
Changing Agriculture Practices	Major freight routes gazetted as B-Double & HML routes All remaining sealed and unsealed rural roads gazetted as B-double commodity routes. High use of a variety of heavy vehicles configurations	Increased use of A-double and HML vehicles accessing farms resulting in a reduction of smaller trucks but increased ESA's on many roads	Increased construction cost to meet fit for purpose standards and reduced infrastructure useful life. Higher risk of accident from heavy vehicle movements
Freight industry demand	Major freight routes gazetted as B-Double & HML routes All remaining sealed and unsealed rural roads gazetted as B-double commodity routes	Increase in the use of heavy vehicles including the possibility of road trains	Increased construction cost to meet fit for purpose standards and reduced infrastructure useful life
Subdivision	Occasional minor subdivision	Occasional minor subdivision	Nil
Social Trends	Moderate demand for increased level of service eg sealed roads in rural living areas Moderate demand for alternative transport options such walking and cycling	Increased demand for a higher number of sealed roads Increase in public walkers and cyclist	Additional road assets resulting in higher operation, maintenance and depreciation costs. Increased demand for quality footpaths and cycling facilities resulting in increased construction and maintenance costs

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
Developments in communications and mobile data capture technology	Improved service delivery, reduced risk of service failure, improved asset condition data and maintenance tracking and reduced response times to service failures
Developments in the transport industry such as new suspension which allows trucks to carry heavier loads with no increase to road damage	The possibility of approval of larger heavy vehicles on Council roads requiring a higher standard of road

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.

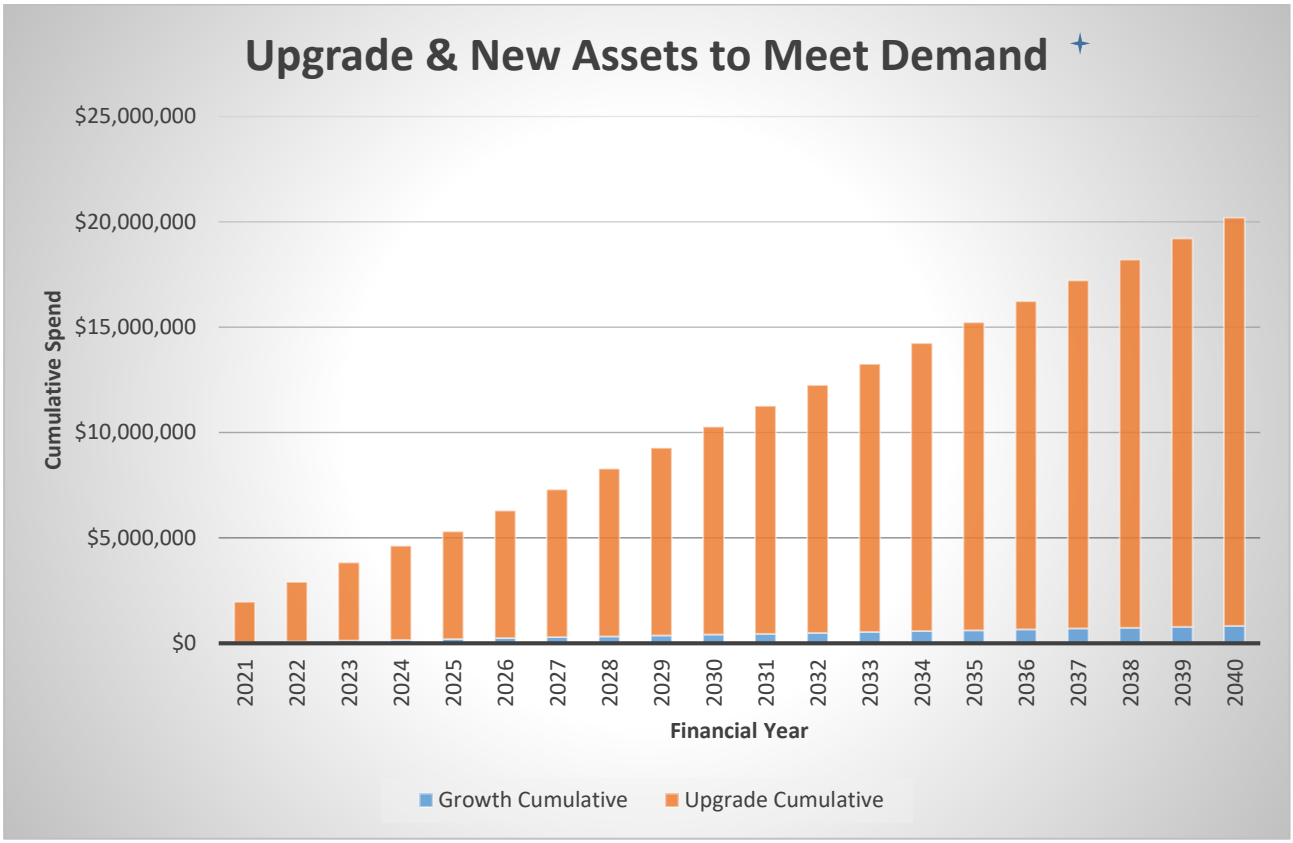
Table 4.3: Demand Management Plan Summary

Service Activity	Demand Management Plan
Road Infrastructure	Assessment of major freight routes including speed environment, dimension, geometry, strength and durability to identify roads that do not meet fit for purpose standards. Funding from the upgrade budget will be used to re-construct deficiencies in the network
Cycle facilities	Provision for upgrade funding to meet legislative requirements and public demand
Footpaths	Provision of upgrade funding to meet public demand for facilities

4.4 Upgrade and New Assets to Meet Demand

The new assets required to meet growth will be acquired free of cost from land developments and constructed/acquired by Council. Based on assets acquired in the past it is estimated that very few transport assets will be acquired free from developer, impacting very little on future budgets. The majority of new assets will be constructed by Council to meet future demand. The new contributed and constructed asset values are summarised in Figure 1.

Figure 1: Upgrade and New Assets to meet demand



Estimates for new contributed assets are negligible impacting very little on future budgets

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.

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 above.

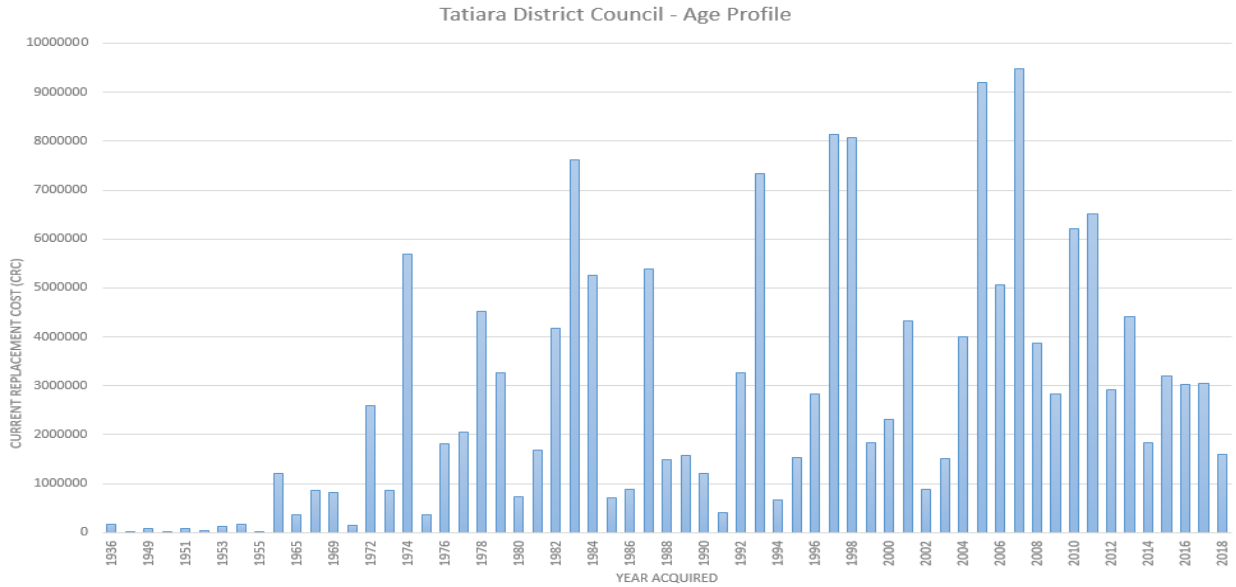
Transport assets are provided for the community throughout the Tatiara. The majority of assets were constructed or reconstructed in their current forms from about the 1950's and reconstructions continue to occur as required. Over time the construction standards and techniques varied significantly with sealed roads varying from 4m wide to 7.2m wide in the rural areas and unsealed roads varying from 3.5m wide to 9.5m wide. Construction material for road pavements has generally been sourced from local limestone which also varies in quality and durability. In addition to this, subbase material (natural soil) varies considerably throughout the district impacting on the useful life of the pavement. Kerb and gutter was originally constructed using prefabricated concrete slabs while today it is constructed in-situ on a compacted based using a mechanical kerbing machine. Footpaths vary from natural surface, to paved and concreted. The changing construction standards and location of various assets provide variable service levels to residents throughout the community (for instance some farm accesses have all weather road access while others don't).

The aging infrastructure will increasingly see assets reach the end of their useful life and over the next 10 to 20 years may exert higher than normal funding pressures. There has also been a substantial increase in traffic loads in the last 50 years so some pavements (in particular key freight routes) do not meet current standards and will need to be reconstructed to a higher standard. This means the cost of reconstructing will be higher than the reported replacement cost.

The following age profile has been developed based on a combination of data of known acquisition dates and assumed acquisition dates. The assumed acquisition dates rely on extrapolating acquisition dates based on the current condition of the asset. Due to the limited condition value (1 to 5) and the straight-line depreciation method, this has caused peaks in assumed acquisition dates across the asset classes. This however is considered to be the best method for estimating with the present data. Improvement in this data will continue to be made and is noted in the Improvements section of this plan.

The age profile of the assets include in this AM Plan is shown in Figure 2.

Figure 2: Asset Age Profile



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
Rural road network	Many rural roads do not meet minimum requirements for use by B-doubles
Rural road network	Inconsistent service levels across the network inherited from changing construction standards and community needs

The above service deficiencies were identified by internal assessments.

5.1.3 Asset condition

The condition profile of assets included within this AM Plan is shown in Figure 3.

Figure 3: Asset Condition Profile

Asset Condition is measured using a 0 – 100 rating system[3] as detailed in Table 5.1.3.

Table 5.1.3: IIMM Description of Condition

Condition Grading	Description of Condition
10	**Very Good**: only planned maintenance required
30	**Good**: minor maintenance required plus planned maintenance
50	**Fair**: significant maintenance required
70	**Poor**: significant renewal/rehabilitation required
90	**Very Poor**: physically unsound and/or beyond rehabilitation

5.1.4 Asset valuations

The value of assets recorded in the asset register as at 30th June 2020 covered by this asset management plan is shown below. Assets were last revalued at 30th June 2020.

Current Replacement Cost	$208,545,466
Depreciable Amount	$138,875,947
Depreciated Replacement Cost	$147,687,319
Annual Depreciation Expense	$3,477,015

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

Asset Consumption (Depreciation/Depreciable Amount)	2.5%
Asset renewal (Capital renewal exp/Depreciable amount)	1.8%
Annual Upgrade/New (Capital upgrade exp/Depreciable amount)	0.7%
Annual Upgrade/New (including contributed assets)	0.7%

Council is currently renewing assets at 70% of the rate they are being consumed and increasing its asset stock by 0.7% 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.

Council's service hierarchy is shown is Table 5.1.5.

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

Table 5.1.5: Asset Service Hierarchy

Sealed Roads

Road Class	Class Type	AADT	Service Function Description	Road Type Description
4A	Primary Road	>100	• Provides primarily for the main traffic movement into and through the region. Includes access to high use farmland or industry and major freight routes • Caters generally for higher travel speed, all vehicle types including large vehicles (ie buses and trucks)	• All weather two-lane road • A high quality of service road • Minimum carriageway width 6m and up to 7.2 for strategic freight routes • 1m unsealed shoulders or 0.8 unsealed and 0.2 sealed for carriageway width up to 7.2m
4B	Secondary Road	>30-<100	• Those roads not being class 4A whose main function is to collect traffic and form an avenue of communication for movement: ○ Between important centres and onto class 4A roads • Caters generally for higher travel speed, all vehicle types including large vehicles (ie buses and trucks). Heavy vehicle access subject to seasonal peaks	• All weather two-lane road • A good quality of service road • Minimum carriageway width 6m • 1m shoulders
4C	Local	<30	• Provides mainly access to abutting property (including property within a town and rural area)	• All weather road • A fair quality of service • Minimum carriageway width of 4m • 1m shoulders

Sealed Road Hierarchy Lengths

Row Labels	Length (km)	% of Total
Rural	452	
4A Primary	219	48%
4B Secondary	175	39%
4C Local	58	13%
Urban	89	
4A Primary	29	33%
4B Secondary	20	22%
4C Local	40	45%
Grand Total	**541**	100%

Unsealed

Road Class	Class Type	AADT	Service Function Description	Road Type Description	Functional Use
4A	Primary Road	>50	• Provides primarily for the main traffic movement into and through the region. Includes access to high use farmland or industry and major freight routes • Caters generally for higher travel speed, all vehicle types including large vehicles (ie buses and trucks)	• All weather two-lane road • A high quality of service road • Minimum carriageway width 6m • Reconstructed at 7.0m carriageway width	• School Bus route • Gazetted B-double & HML route
4B	Secondary Road	>30-<50	• Those roads not being class 4A whose main function is to collect traffic and form an avenue of communication for movement: • Between important centres and onto class 4A roads • Caters generally for higher travel speed, all vehicle types including large vehicles (ie buses and trucks). Heavy vehicle access subject to seasonal peaks	• All weather two-lane road • A good quality of service road • Minimum carriageway width 6m • Reconstructed at 6.2m carriageway width	• B-Double Commodity access (low use only)
4C	Local	<30	• Provides mainly access to abutting property (including property within a town and rural area)	• All weather road • A fair quality of service • Minimum carriageway width of 4m • Reconstructed at 5.6m carriageway width	• B-Double commodity access (low use only)
4D	Access	<10	• Provides access to low use farmland • Provides for fire protection and management access	• Substantially a single lane two-way road lightly rubbled • Low quality of service	• Standard vehicular access only

Road Class	Class Type	AADT	Service Function Description	Road Type Description	Functional Use
			• Caters for low travel speed and a range of vehicle in dry weather	• Minimum carriageway width • Predominately not conforming to any geometric design standards • Maintained on a reactive as needs basis	
4E	Track	<10	Provides primarily for four wheel-drive vehicles Caters for low speed travel May be seasonally closed	• Predominately a single lane two-way generally dry weather formed (natural materials) • A very low quality of service • Predominately not conforming to any geometric design standards	• Standard vehicular access only

Unsealed Road Hierarchy Length

Hierarchy	Length (Km)	% of Total
4A Primary	305	28%
4B Secondary	384	36%
4C Local	315	29%
4D Track	8	1%
Access	60	6%
	1072	**100%**

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.

[4] Transport Infrastructure Assets – Core Infrastructure Risk Management Plan

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
Road Signage	Inadequate road signage causing an accident	High	Continue to reiterate to field staff and public the importance to report signage issues for fixing. Improve missing sign reporting systems	$5000
Road Network	External road funding reduced resulting in insufficient funds to maintain current service levels	High	Completed Transport AMP and understand the impact a reduction of funding will have. Monitor funding options and maximise their use by presenting thorough applications	Staff time
Road network	Substandard roads (for current traffic volumes and configurations) results in an accident or reduced estimated useful life	High	Continue to monitor changes in vehicle configurations and impacts on the road network. Carry out traffic counts on subject roads to get an understanding of changes in traffic movements. Monitor industry and demographics in the district. Function assessment of roads including speed environment, dimensions, geometry, strength and durability	Unknown but will be assessed and included in the proposed upgrade plan
Road Network	Roadside vegetation causing damage to road pavement and increasing the deterioration rate of road infrastructure	High	Implement regular inspection of roads to assess the impact of trees. Apply for removal of trees from Native Vegetation Council. Carry out remediation work where the impact is identified as severe	Staff time
All road infrastructure	Reduction in existing grant funding	High	Complete development of Transport AMP and understand the impact a reduction of funding will have. Monitor funding options and apply as required. Look at borrowing opportunities to make up the shortfall in funding and investigate possibilities of internal funding transfer	Staff time
Roads	Injury to employees or public during roadworks		Continue to update policies and procedures and staff training. Advise police if additional surveillance is required. Implement detours where possible.	Staff time

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 grading, pot hole repairs, weed spraying, 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
2019/20	$2,015,710
2018/19	$2,123,507
2017/18	$2,192,731
2016/17	$1,970,528
2015/16	$1,708,565

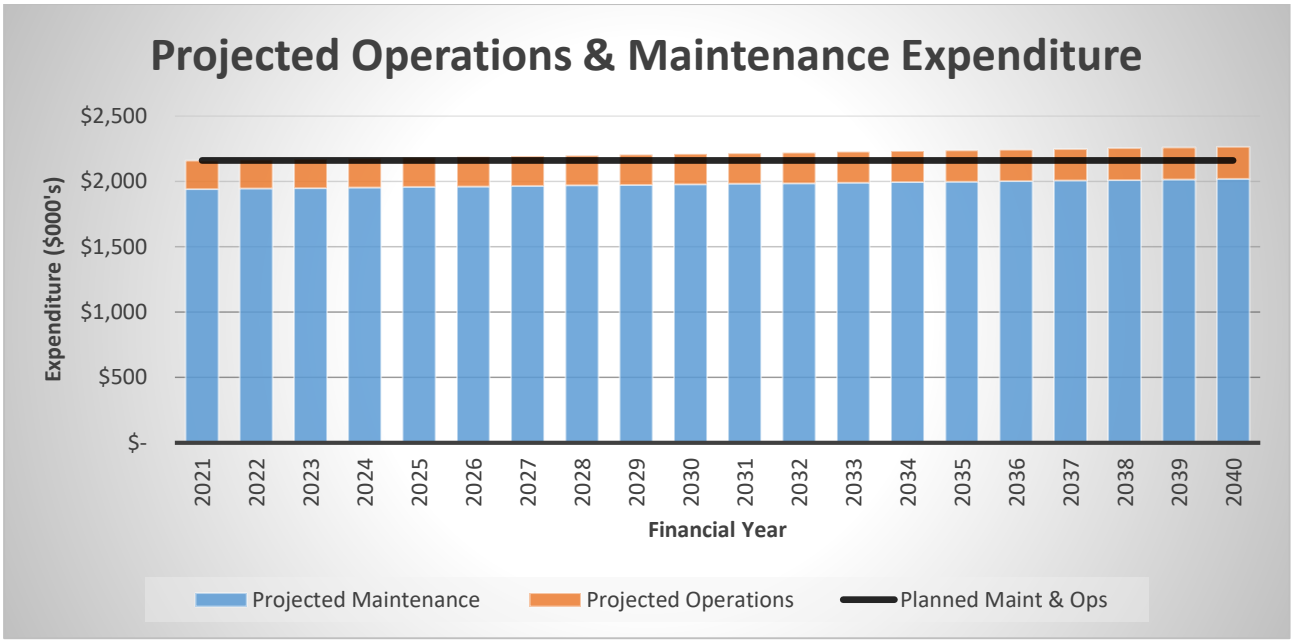
Current maintenance expenditure levels are considered to be adequate to meet required service levels. Future revision of this asset management plan will include linking required maintenance expenditures with required service levels.

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

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 2020 dollar values.

Figure 4: Projected Operations and 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
Asset Condition	1
Have high operational or maintenance costs	2
Resident/Industry Serviced	3

Renewal programs are based on the above criteria when prioritising between roads of similar condition, however, consideration is also taken into account the location and cost of the individual projects to ensure the efficiency of the program and budget constraints are adhered to.

5.4.2 Renewal standards

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

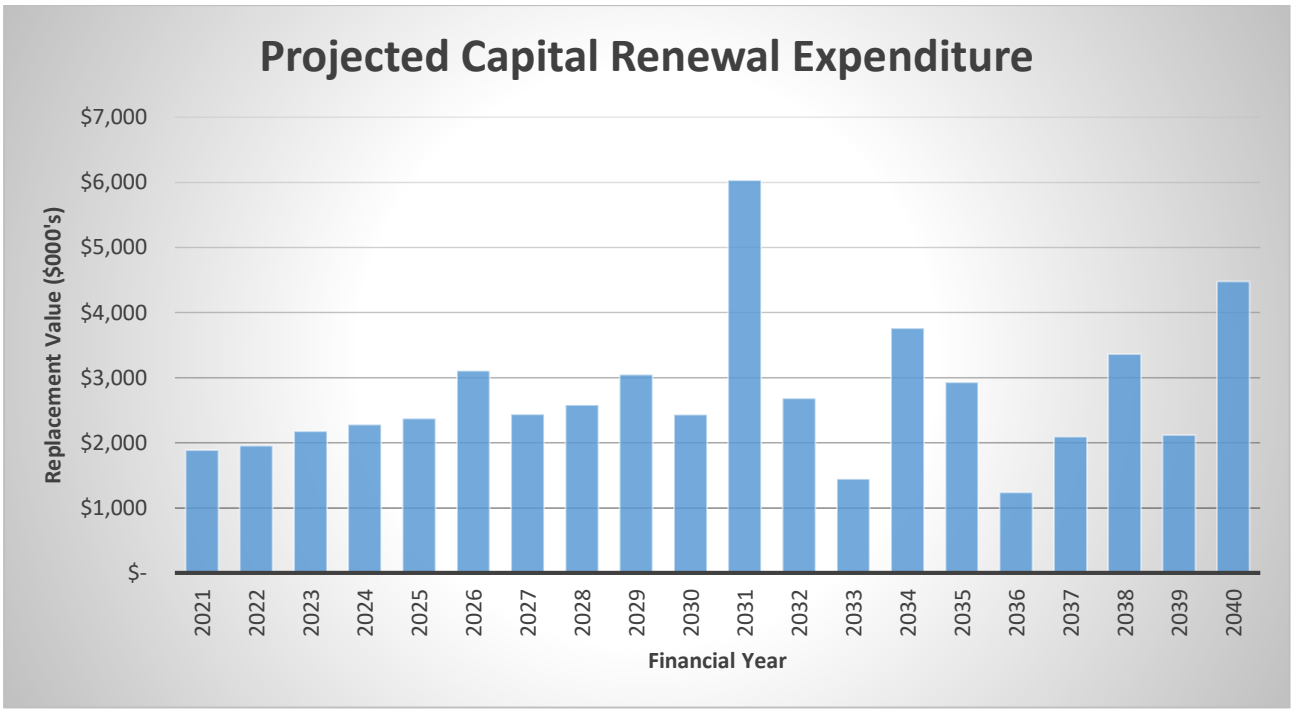
- Austroads Pavement Design
- Council internal standards

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 2020 dollar values.

The projected capital renewal program is shown in Appendix B.

Figure 5: Projected Capital Renewal Expenditure



Deferred renewal, ie those assets identified for renewal and not scheduled for renewal in capital works programs are to be included in the risk assessment process in the risk management plan.

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 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.

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 investigated and inspected to verify need and to develop a preliminary estimate.

Funding of these upgrade programs are not guaranteed in any given year.

When acquisitions are proposed Engineering staff will prepare a report on the suitability of the proposal based on Council's Upgrade Policy.

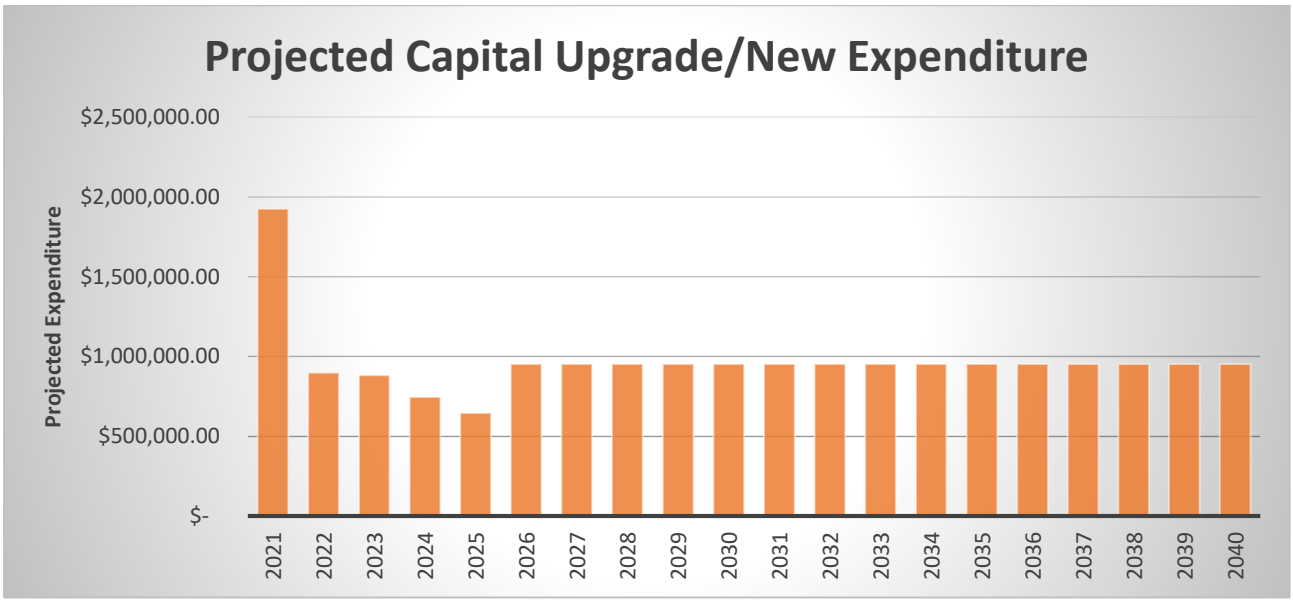
5.5.2 Standards and specifications

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 2020 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.

Where cashflow projections from asset disposals are not available, these will be developed in future revisions of this asset management plan.

There are no assets planned for disposal during the life 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

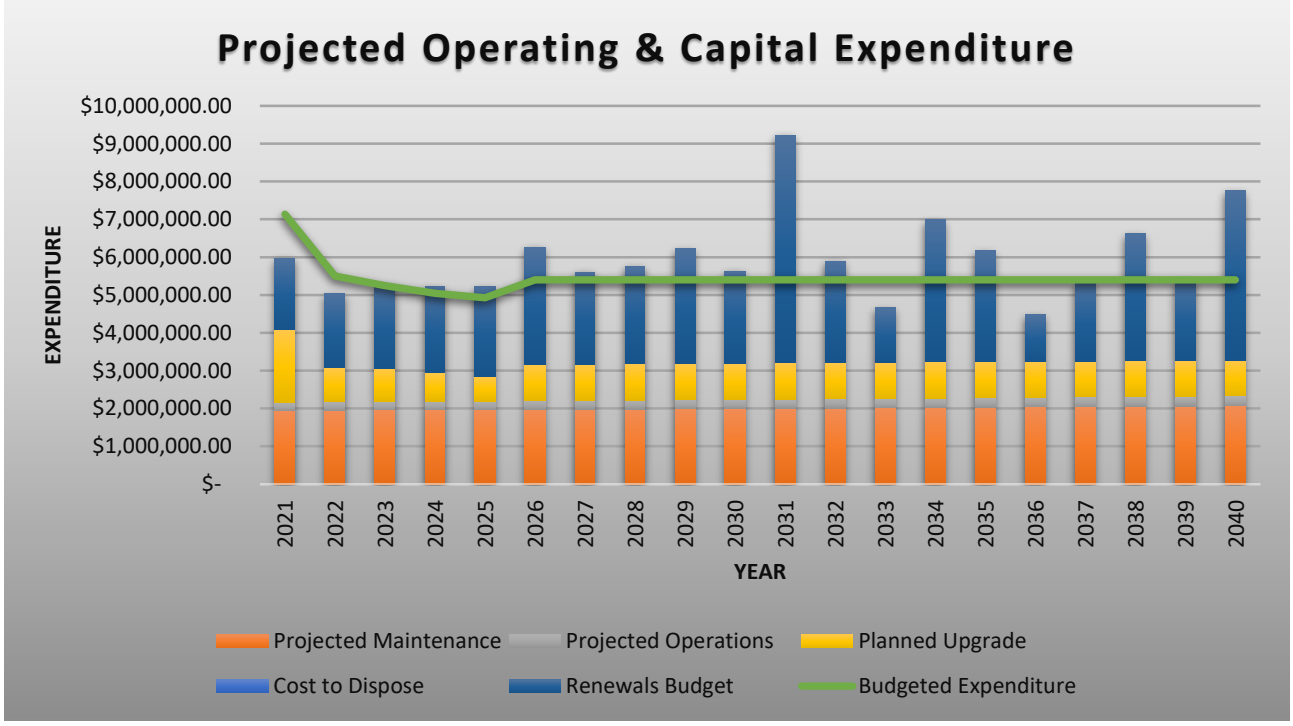
This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset 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 2020 dollar values.

Figure 7: Projected Operating and Capital Expenditure and Budget



6.1.1 Financial sustainability in service delivery

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

Long term - Life Cycle Cost

Life cycle costs (or whole of life costs) are the average costs that are required to sustain the service levels over the longest asset life. Life cycle costs include operations and maintenance expenditure and asset consumption (depreciation expense). The life cycle cost for the services covered in this asset management plan is $5,637,000 per year (operations and maintenance expenditure plus depreciation expense in year 1).

Life cycle costs can be compared to life cycle expenditure to give an indicator of sustainability in service provision. Life cycle expenditure includes operations, maintenance and capital renewal expenditure in year 1. Life cycle expenditure will vary depending on the timing of asset renewals. The life cycle expenditure at the start of the plan is $5,442,000 (operations and maintenance expenditure plus budgeted capital renewal expenditure averaged over 20 years).

A shortfall between life cycle cost and life cycle expenditure is the life cycle gap.

The life cycle gap for services covered by this asset management plan is $195,000 per year (-ve = gap, +ve = surplus).

Life cycle expenditure is 97% of life cycle costs giving a life cycle sustainability index of 0.97

The life cycle costs and life cycle expenditure comparison highlights any difference between present outlays and the average cost of providing the service over the long term. If the life cycle expenditure is less than that life cycle cost, it is most likely that outlays will need to be increased or cuts in services made in the future.

Knowing the extent and timing of any required increase in outlays and the service consequences if funding is not available will assist organisations in providing services to their communities in a financially sustainable manner. This is the purpose of the asset management plans and long term financial plan.

Medium term – 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 $5,618,000 per year.

Estimated (budget) operations, maintenance and capital renewal funding is $5,485,000 per year giving a 10 year funding shortfall of $133,000 per year and a 10 year sustainability indicator of 0.98. This indicates that Council has 98% of the projected expenditures needed to provide the services documented in the asset management plan.

Medium Term – 5 year financial planning period

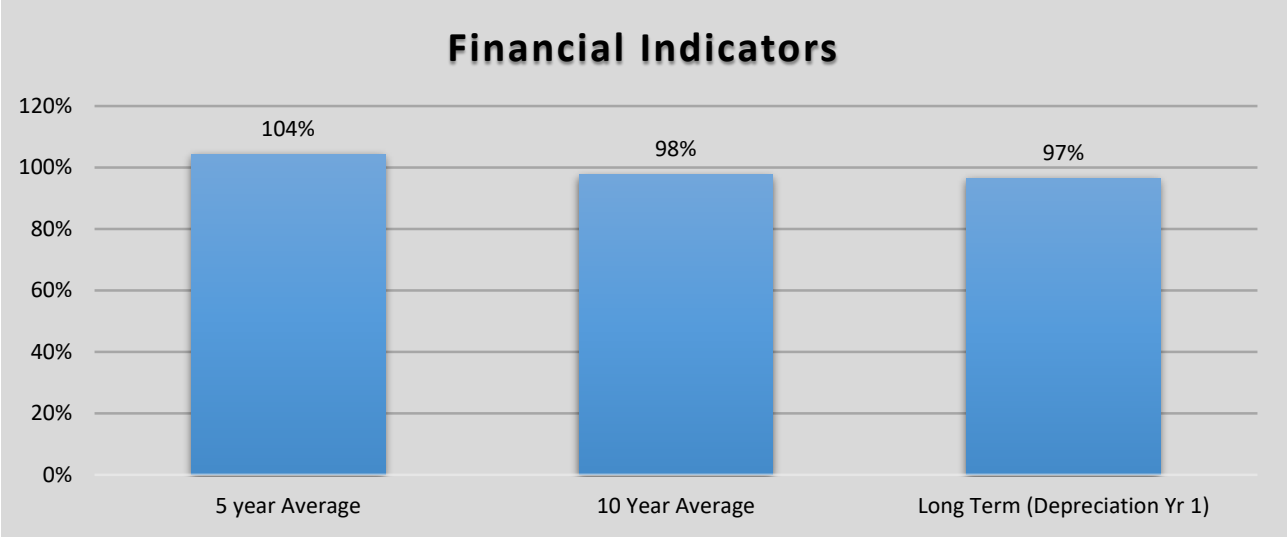
The projected operations, maintenance and capital renewal expenditure required over the first 5 years of the planning period is $5,338,000 per year.

Estimated (budget) operations, maintenance and capital renewal funding is $5,571,000 per year giving a 5 year funding surplus of $365,000. This is 104% of projected expenditures giving a 5 year sustainability indicator of 1.04.

Financial Sustainability Indicators

Figure 7A shows the financial sustainability indicators over the 10 year planning period and for the long term life cycle.

Figure 7A: Financial Sustainability Indicators



Providing services from infrastructure in a sustainable manner requires the matching and managing of service levels, risks, projected expenditures and funding to achieve a financial sustainability indicator of 1.0 for the first years of the asset management plan and ideally over the 10 year life of the AM Plan.

Figure 8 shows the projected asset renewals in the 10 year planning period from Appendix B. The projected asset renewals are compared to budgeted renewal expenditure in the capital works program and capital renewal expenditure in year 1 of the planning period in Figure 8.

Figure 8: Projected and Budgeted Renewal Expenditure

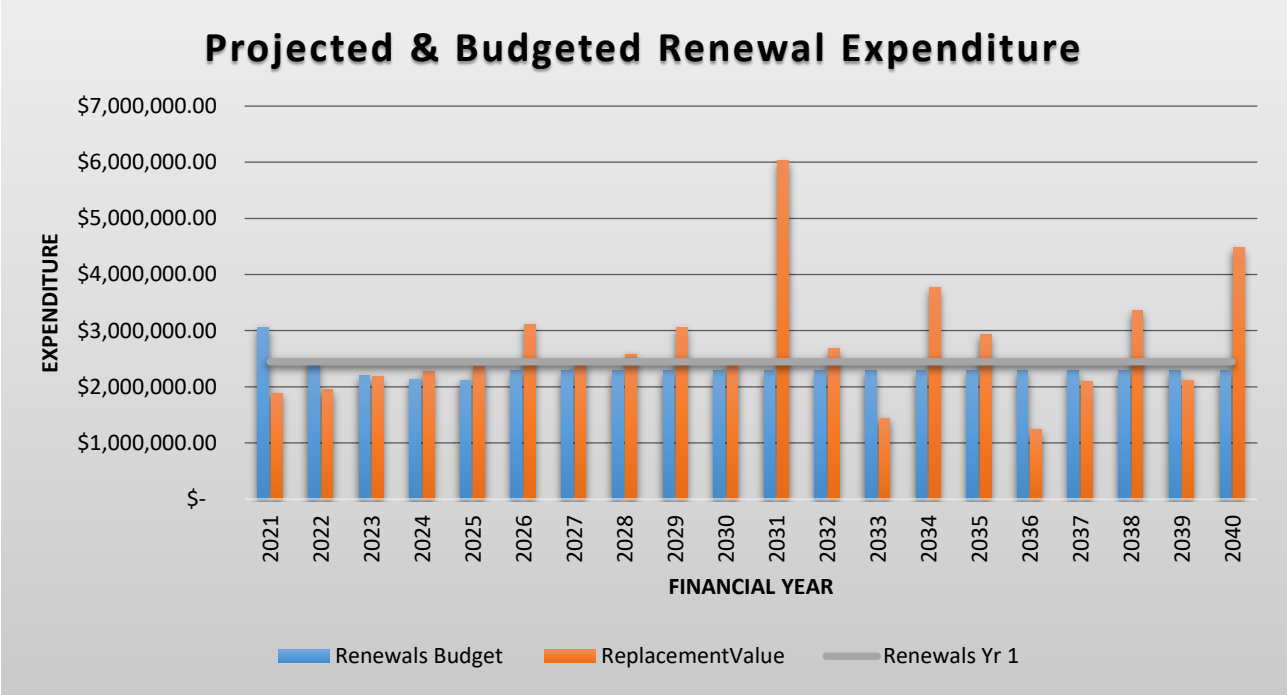


Table 6.1.1 shows the shortfall between projected and budgeted renewals

Table 6.1.1: Projected and Budgeted Renewals and Expenditure Shortfall

Year	Renewals Budget	ReplacementValue	Renewal Financing Shortfall (-gap + surplus)	Cumulative Shortfall (-gap + surplus)
2021	$3,053,685	$1,887,166	$1,166,519	$1,166,519
2022	$2,445,000	$1,954,606	$490,394	$1,656,913
2023	$2,202,000	$2,177,153	$24,847	$1,681,760
2024	$2,135,800	$2,281,814	-$146,014	$1,535,746
2025	$2,121,550	$2,372,660	-$251,110	$1,284,636
2026	$2,286,750	$3,107,482	-$820,732	$463,904
2027	$2,286,750	$2,437,679	-$150,929	$312,975
2028	$2,286,750	$2,582,211	-$295,461	$17,514
2029	$2,286,750	$3,047,477	-$760,727	-$743,213
2030	$2,286,750	$2,435,693	-$148,943	-$892,156
2031	$2,286,750	$6,030,586	-$3,743,836	-$4,635,992
2032	$2,286,750	$2,682,018	-$395,268	-$5,031,260
2033	$2,286,750	$1,443,199	$843,551	-$4,187,709
2034	$2,286,750	$3,762,366	-$1,475,616	-$5,663,325
2035	$2,286,750	$2,931,670	-$644,920	-$6,308,245
2036	$2,286,750	$1,238,253	$1,048,497	-$5,259,748
2037	$2,286,750	$2,093,577	$193,173	-$5,066,576
2038	$2,286,750	$3,360,815	-$1,074,065	-$6,140,641
2039	$2,286,750	$2,117,363	$169,387	-$5,971,254
2040	$2,286,750	$4,480,448	-$2,193,698	-$8,164,952

Note: A negative shortfall indicates a funding gap, a positive shortfall indicates a surplus for that year.

Providing services in a sustainable manner will require matching of projected asset renewals to meet agreed service levels with planned capital works programs and available revenue.

A gap between projected asset renewals, planned asset renewals and funding indicates that further work is required to manage required service levels and funding to eliminate any funding gap.

We will manage the 'gap' by developing this asset management plan to provide guidance on future service levels and resources required to provide these services, and review future services, service levels and costs with the community.

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	Operations	Maintenance	Projected Capital Renewal	Projected Capital Upgrade/New	Disposals
2021	$220,000	$1,940,000	$1,887,166	$1,925,600	$0
2022	$224,236	$1,952,709	$1,954,606	$898,000	$0
2023	$226,212	$1,958,636	$2,177,153	$883,000	$0

2024	$228,155	$1,964,464	$2,281,814	$746,200	$0
2025	$229,796	$1,969,388	$2,372,660	$646,450	$0
2026	$231,218	$1,973,655	$3,107,482	$951,850	$0
2027	$233,312	$1,979,937	$2,437,679	$951,850	$0
2028	$235,406	$1,986,219	$2,582,211	$951,850	$0
2029	$237,501	$1,992,502	$3,047,477	$951,850	$0
2030	$239,595	$1,998,784	$2,435,693	$951,850	$0
2031	$241,689	$2,005,066	$6,030,586	$951,850	$0
2032	$243,783	$2,011,348	$2,682,018	$951,850	$0
2033	$245,877	$2,017,631	$1,443,199	$951,850	$0
2034	$247,971	$2,023,913	$3,762,366	$951,850	$0
2035	$250,065	$2,030,195	$2,931,670	$951,850	$0
2036	$252,159	$2,036,477	$1,238,253	$951,850	$0
2037	$254,253	$2,042,759	$2,093,577	$951,850	$0
2038	$256,347	$2,049,042	$3,360,815	$951,850	$0
2039	$258,441	$2,055,324	$2,117,363	$951,850	$0
2040	$260,535	$2,061,606	$4,480,448	$951,850	$0

Note: All projected expenditures are in 2020 values

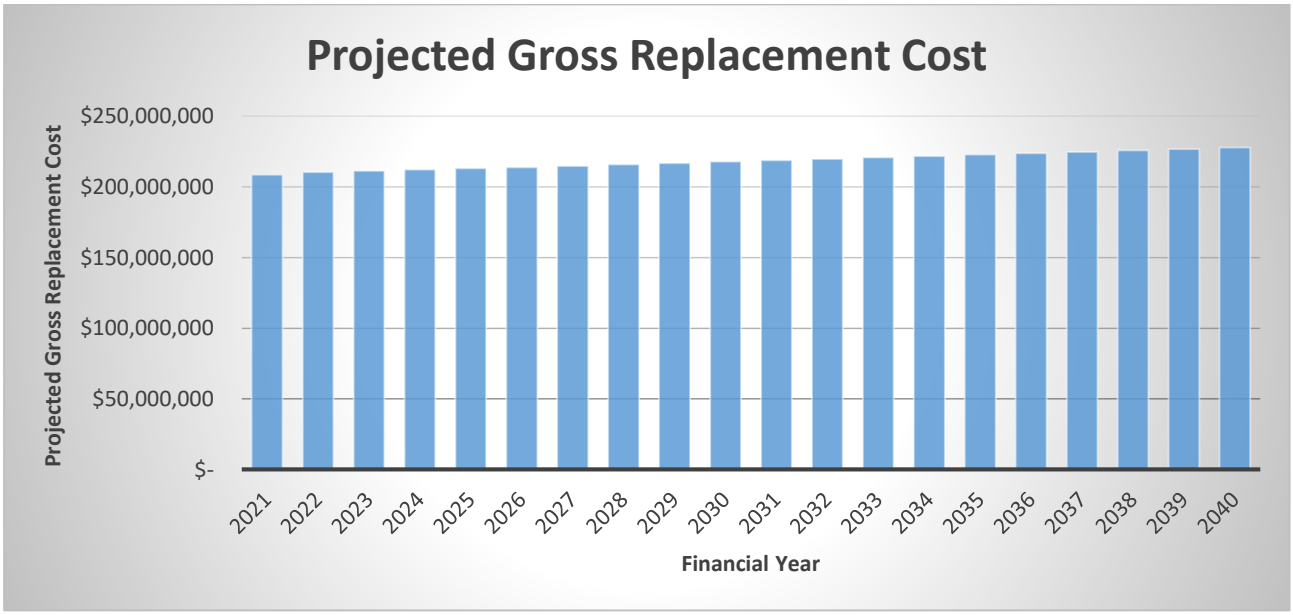
6.2 Funding Strategy

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

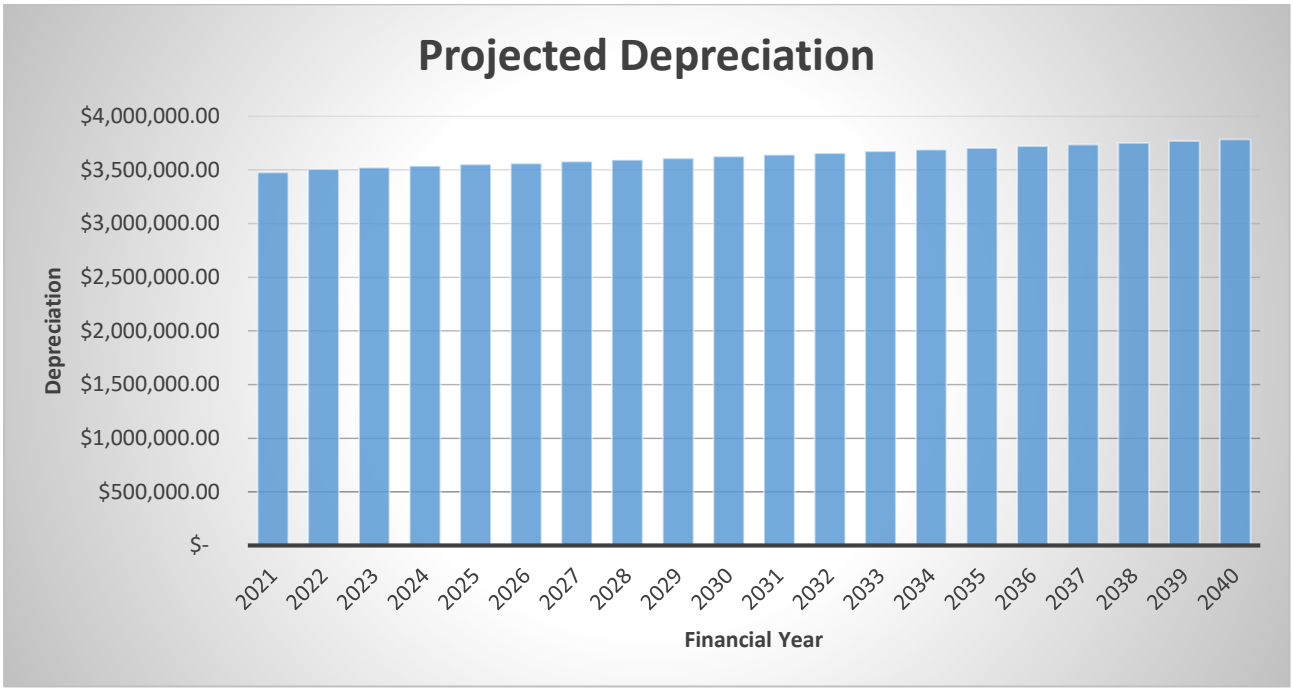
Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by Council and from assets constructed by land developers and others and donated to Council. Figure 9 shows the projected replacement cost asset values over the planning period in 2020 dollar values.

Figure 9: Projected Asset Values



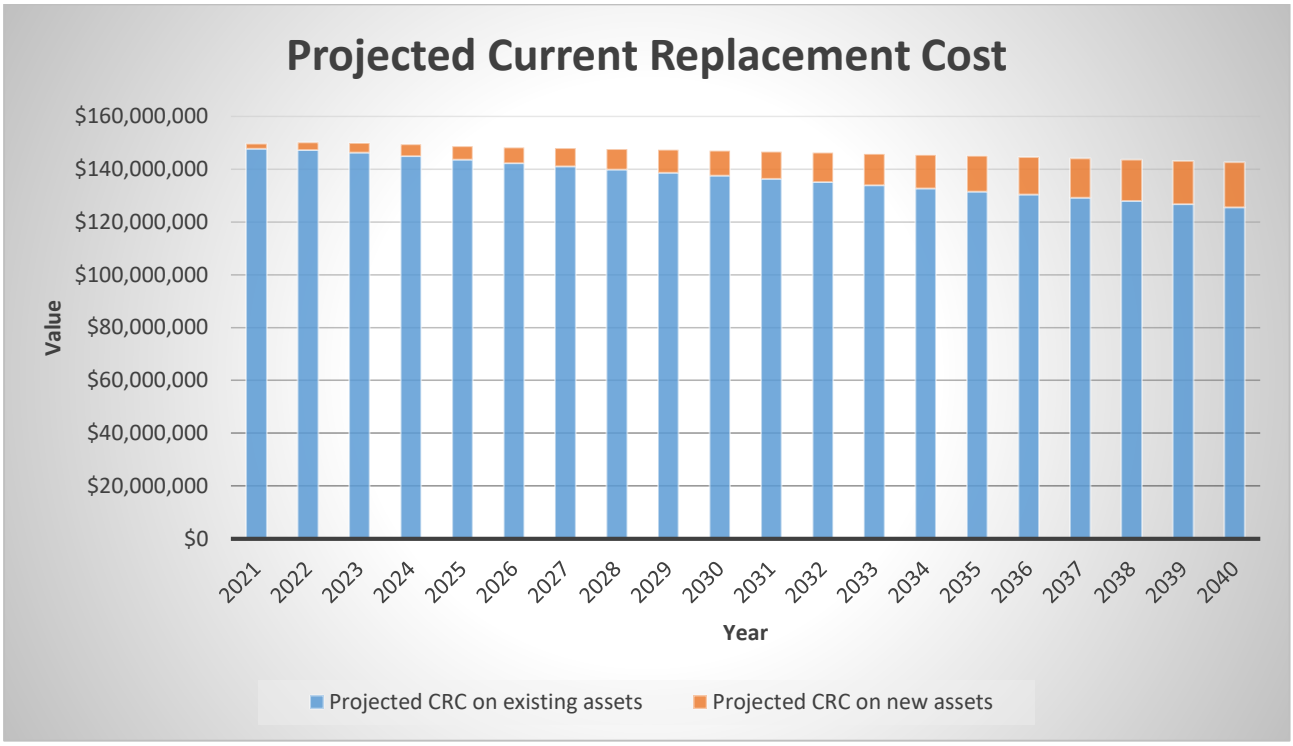
Depreciation expense values are forecast in line with asset values as shown in Figure 10.

Figure 10: Projected Depreciation Expense



The depreciated replacement cost (current replacement cost less accumulated depreciation) will vary over the forecast period depending on the rates of addition of new assets, disposal of old assets and consumption and renewal of existing assets. Forecast of the assets' current replacement cost is shown in Figure 11. The effect of contributed and new assets on the current replacement cost is shown in the orange colour.

Figure 11: Projected Current Replacement Cost



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:

- The population of the Tatiara District Council will remain relatively stable over the life on the plan
- All predicted financial figures are based on 2020/21 rates are not adjusted by inflation for the particular year of work
- Grant funding will remain stable over the life of the plan
- Operations and Maintenance costs for new assets will be consistent with the operations and maintenance costs of existing assets
- The following useful lives are assumed and the condition is commensurate with their age profile

Roads

	Seal	Pavement	Unsealed
4A Primay	15	50	19
4B Secondary	20	65	23
4cLocal	28	80	30

Carparks

	Pavement	Surface
Asphalt	80	30
Spray Seal	80	20

Kerbing

Kerb Type	Useful Life
Delta	25
Lay Back	65
Roll Over	65
Upright	65
Other	65

Footpaths

Surface Type	Life Years
Aggregate	50
Asphalt - Pavement	50
Asphalt - Surface	25
Concrete	50
Paved	40
Rubbled	35
Spray Seal - Pavement	45
Spray Seal - Surface	15

Bridges

40 to 117 years

7. ASSET MANAGEMENT PRACTICES

7.1 Accounting/Financial Systems

7.1.1 Accounting and financial systems

Council's financial accounting system is a combination of ITVision's SynergySoft System, Geographic Information System and Microsoft excel spreadsheets. SynergySoft is used to record the budgets for all projects and captures all operating and capital expenses. This information is manually transferred to council's asset registers located in the Asset Finda database with links to ESRI GIS software.

7.1.2 Accountabilities for financial systems

Manager Corporate Service is responsible for the administration and management of SynergySoft and the Asset Manager is responsible for the administration and management of Council's asset registers

7.1.3 Accounting standards and regulations

Council's accounting practices comply with the Local Government Act 1999 and the Local Government (Financial Management) Regulations and applicable accounting standards. Council is also subject to regular independent audits of its accounting systems and practices

7.1.4 Capital/maintenance threshold

Council's Asset Capitalisation and Materiality Threshold Policy states the following capitalisation thresholds:

Road construction & reconstruction	$10,000
Paving Footpaths, Kerb & Gutter	$10,000

7.1.5 Required changes to accounting financial systems arising from this AM Plan

The current systems utilised a number of different software packages with minimal integration requiring significant manual data manipulation to produce the required outputs. This increases the risk of data errors and is time consuming. Integration of the asset register to a single source for improved financial reporting and valuation is a key requirement to further enhance Council's asset information and reporting.

7.2 Asset Management Systems

7.2.1 Asset management system

Combination of ESRI GIS software, Asset Finda, SynergySoft and Microsoft excel spreadsheets

7.2.2 Asset registers

All transport asset register data is stored in Asset Finda linked with a spatially enable ESRI SDE geodatabase.

7.2.3 Linkage from asset management to financial system

Currently all financial data is linked manually to the asset register

7.2.4 Accountabilities for asset management system and data

Asset Manager

7.2.5 Required changes to asset management system arising from this AM Plan

Implementation of an integrated asset management system for managing the infrastructure asset data

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:

- Tatiara District Council Asset Management Policy
- Tatiara District Council Asset Management Strategy

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	Review accuracy and currency of technical asset registers and unit rates	AM	Staff time	Ongoing

3	Development of a complaints register for monitoring service levels and customer satisfaction (system purchased – needs to be implemented)	DIO/AM	Staff time	
4	Improve definition of service levels	AM	Staff time	
5	Continue to improve valuation methodology and unit rate accuracy	AM	Staff time	Ongoing
6	Improve the accuracy of estimated useful lives to better represent the sub-categories of assets, environmental conditions and construction techniques and materials	AM	Staff time	Ongoing
7	Review maintenance regimes with a view of optimising the mix of reactive versus planned maintenance. This includes investigating options to improve records of the location and cost of maintenance works	DIO	Staff time	Ongoing
8	Further develop the 5 year upgrade program	DIO/AM		

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 4 years and is due for revision and updating within 1 year of each Council election.

REFERENCES

Tatiara District Council, 2016, Strategic Plan - *2016 – 2020*, Tatiara District Council

Tatiara District Council, 2013, Asset Management Strategy, Tatiara District Council

DVC, 2006, *Asset Investment Guidelines*, Glossary, Department for Victorian Communities, Local Government Victoria, Melbourne, http://www.dpcd.vic.gov.au/localgovernment/publications-and-research/asset-management-and-financial.

IPWEA, 2006, *International Infrastructure Management Manual*, Institute of Public Works Engineering Australia, Sydney, www.ipwea.org

IPWEA, 2008, *NAMS.PLUS Asset Management* Institute of Public Works Engineering Australia, Sydney, www.ipwea.org/namsplus.

IPWEA, 2009, *Australian Infrastructure Financial Management Guidelines*, Institute of Public Works Engineering Australia, Sydney, www.ipwea.org/AIFMG.

IPWEA, 2011, *Asset Management for Small, Rural or Remote Communities* Practice Note No. 4, Institute of Public Works Engineering Australia, Sydney, www.ipwea.org/AM4SRRC.

IPWEA, 2011, *International Infrastructure Management Manual*, Institute of Public Works Engineering Australia, Sydney, www.ipwea.org/IIMM.

APPENDICES

Appendix A Maintenance Response Levels of Service

Appendix B Projected 10 year Capital Renewal Works Program

Appendix C Planned Upgrade/Exp/New 10 year Capital Works Program

Appendix D Road Hierarchy Maps

Appendix A Maintenance Response Levels of Service

To be developed.

Appendix B Projected 10 year Capital Renewal Works Program

This capital works program is subject to change based on annual assessment and Council priorities.

Tatiara DC - Report 6 - Appendix B 10 year Renewal & Replacement Program (Transport_S1_V11)

AMPlan	AssetClass	SubType	Year	ReplacementValue
Transport	Bridges	Guardrail	2021	$6,186.24
Transport	Carparks		2021	$0.00
Transport	Kerbing		2021	$0.00
Transport	Paths		2021	$0.00
Transport	Roads	Reconstruction	2021	$0.00
Transport	Roads	Reseals	2021	$618,362.83
Transport	Roads	Resheets	2021	$1,262,616.90
Transport	Spoon_Drains		2021	$0.00
		Total 20/21		**$1,887,165.97**
AMPlan	**AssetClass**	**SubType**	**Year**	**ReplacementValue**
Transport	Bridges	Guardrail	2022	$11,546.34
Transport	Carparks	TopSurface	2022	$19,444.14
Transport	Kerbing		2022	$0.00
Transport	Paths	TopSurface	2022	$9,198.34
Transport	Roads	Reconstruction	2022	$0.00
Transport	Roads	Reseals	2022	$744,691.63
Transport	Roads	Resheets	2022	$1,169,725.26
Transport	Spoon_Drains		2022	$0.00
		Total 21/22		**$1,954,605.71**
AMPlan	**AssetClass**	**SubType**	**Year**	**ReplacementValue**
Transport	Bridges	Guardrail	2023	$4,886.56
Transport	Carparks		2023	$0.00
Transport	Kerbing		2023	$124,428.65
Transport	Paths	TopSurface	2023	$18,242.10
Transport	Roads	Reconstruction	2023	$302,647.71
Transport	Roads	Reseals	2023	$632,968.72
Transport	Roads	Resheets	2023	$1,086,523.60
Transport	Spoon_Drains		2023	$7,455.55
		Total 22/23		**$2,177,152.89**
AMPlan	**AssetClass**	**SubType**	**Year**	**ReplacementValue**
Transport	Bridges	Guardrail	2024	$6,108.20
Transport	Carparks		2024	$0.00
Transport	Kerbing		2024	$79,548.62
Transport	Paths	TopSurface	2024	$25,678.56
Transport	Roads	Reconstruction	2024	$193,945.73
Transport	Roads	Reseals	2024	$642,028.73
Transport	Roads	Resheets	2024	$1,334,504.57
Transport	Spoon_Drains		2024	$0.00
		Total 23/24		**$2,281,814.41**

AMPlan	AssetClass	SubType	Year	ReplacementValue
Transport	Bridges		2025	$0.00
Transport	Carparks	TopSurface	2025	$4,464.93
Transport	Kerbing		2025	$87,920.30
Transport	Paths	TopSurface	2025	$32,500.52
Transport	Roads	Reconstruction	2025	$517,376.43
Transport	Roads	Reseals	2025	$536,872.71
Transport	Roads	Resheets	2025	$1,193,525.57
Transport	Spoon_Drains		2025	$0.00
		Total 24/25		**$2,372,660.46**
AMPlan	**AssetClass**	**SubType**	**Year**	**ReplacementValue**
Transport	Bridges	Guardrail	2026	$11,727.74
Transport	Carparks		2026	$0.00
Transport	Kerbing		2026	$901,206.20
Transport	Paths	TopSurface	2026	$65,015.14
Transport	Roads	Reconstruction	2026	$472,523.26
Transport	Roads	Reseals	2026	$787,581.93
Transport	Roads	Resheets	2026	$869,427.54
Transport	Spoon_Drains		2026	$0.00
		Total 25/26		**$3,107,481.81**
AMPlan	**AssetClass**	**SubType**	**Year**	**ReplacementValue**
Transport	Bridges	Guardrail	2027	$22,625.87
Transport	Carparks		2027	$0.00
Transport	Kerbing		2027	$71,317.36
Transport	Paths		2027	$0.00
Transport	Roads	Reconstruction	2027	$811,362.12
Transport	Roads	Reseals	2027	$327,172.59
Transport	Roads	Resheets	2027	$1,205,201.11
Transport	Spoon_Drains		2027	$0.00
		Total 26/27		**$2,437,679.05**
AMPlan	**AssetClass**	**SubType**	**Year**	**ReplacementValue**
Transport	Bridges		2028	$0.00
Transport	Carparks	TopSurface	2028	$2,705.84
Transport	Kerbing		2028	$136,232.26
Transport	Paths		2028	$0.00
Transport	Roads	Reconstruction	2028	$0.00
Transport	Roads	Reseals	2028	$1,171,620.38
Transport	Roads	Resheets	2028	$1,271,652.31
Transport	Spoon_Drains		2028	$0.00
		Total 27/28		**$2,582,210.79**
AMPlan	**AssetClass**	**SubType**	**Year**	**ReplacementValue**
Transport	Bridges		2029	$0.00
Transport	Carparks	TopSurface	2029	$20,116.97
Transport	Kerbing		2029	$62,927.72

Transport	Paths		2029	$0.00
Transport	Roads	Reconstruction	2029	$641,279.14
Transport	Roads	Reseals	2029	$1,105,531.10
Transport	Roads	Resheets	2029	$1,217,621.76
Transport	Spoon_Drains		2029	$0.00
		Total 28/29		**$3,047,476.69**
AMPlan	**AssetClass**	**SubType**	**Year**	**ReplacementValue**
Transport	Bridges	Guardrail	2030	$30,828.94
Transport	Carparks	TopSurface	2030	$4,993.76
Transport	Kerbing		2030	$0.00
Transport	Paths		2030	$0.00
Transport	Roads	Reconstruction	2030	$718,940.69
Transport	Roads	Reseals	2030	$788,293.66
Transport	Roads	Resheets	2030	$892,636.04
Transport	Spoon_Drains		2030	$0.00
		Total 29/30		**$2,435,693.09**
AMPlan	**AssetClass**	**SubType**	**Year**	**ReplacementValue**
Transport	Bridges		2031	$0.00
Transport	Carparks		2031	$0.00
Transport	Kerbing		2031	$103,142.69
Transport	Paths	TopSurface	2031	$22,508.87
Transport	Roads	Reconstruction	2031	$579,641.75
Transport	Roads	Reseals	2031	$710,164.43
Transport	Roads	Resheets	2031	$4,615,128.53
Transport	Spoon_Drains		2031	$0.00
		Total 30/31		**$6,030,586.27**

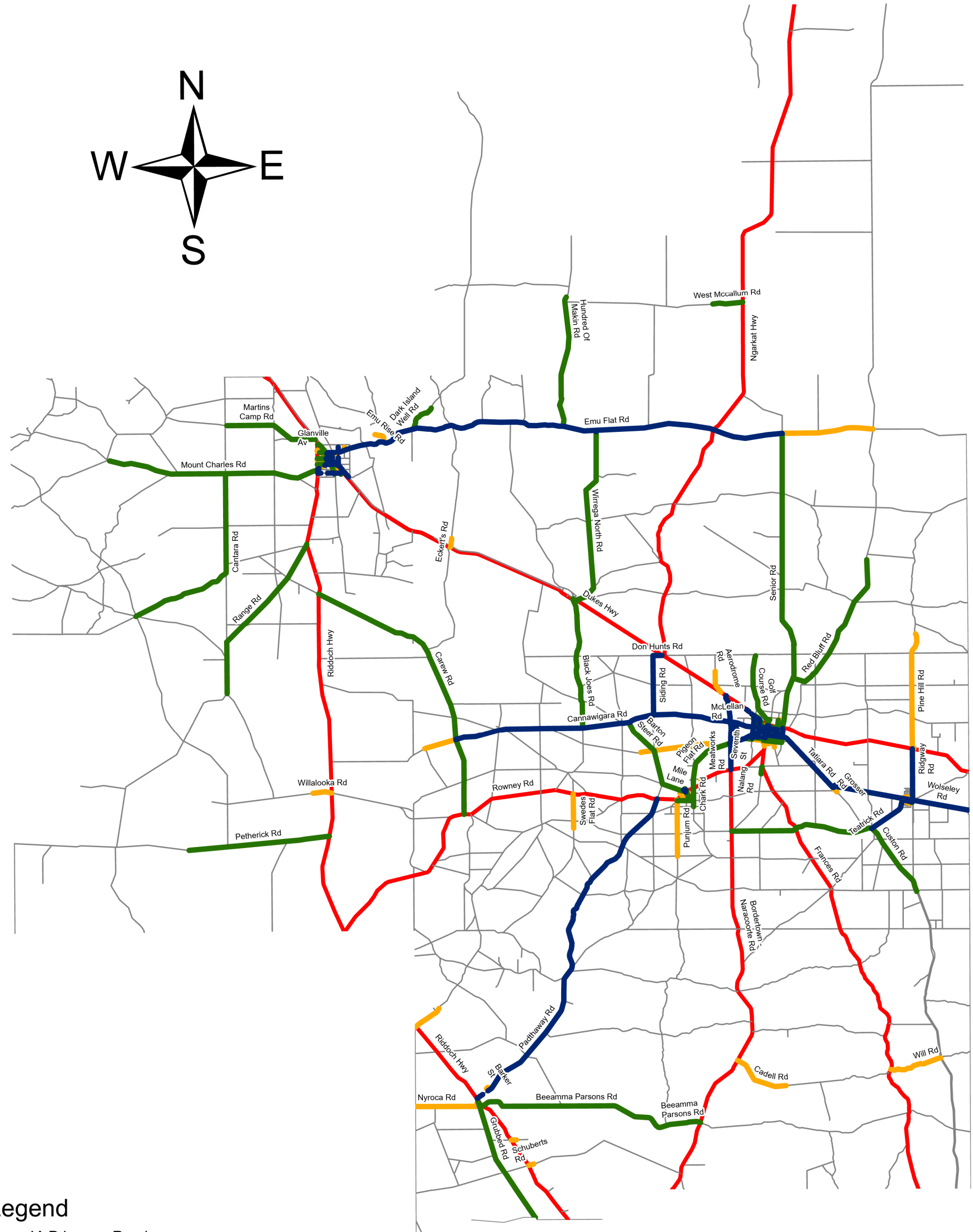
Appendix C Planned Upgrade/Exp/New 10 year Capital Works Program

AMPlan	Asset	SubType	Year	Cost
Transport	Bridges		2021	$0
Transport	Carparks		2021	$0
Transport	Kerbing		2021	$169,000
Transport	Paths	Footpaths / Bike Tracks	2021	$150,000
Transport	Roads		2021	$1,367,600
		2020-21 Total		**$1,925,600**
Transport	Bridges		2022	$0
Transport	Carparks		2022	$0
Transport	Kerbing		2022	$68,000
Transport	Paths	Footpaths / Bike Tracks	2022	$150,000
Transport	Roads		2022	$680,000
		2021-22 Total		**$898,000**
Transport	Bridges		2023	$0
Transport	Carparks		2023	$0
Transport	Kerbing		2023	$68,000
Transport	Paths	Footpaths / Bike Tracks	2023	$150,000
Transport	Roads		2023	$665,000
		2022-23 Total		**$883,000**
Transport	Bridges		2024	$0
Transport	Carparks		2024	$0
Transport	Kerbing		2024	$68,000
Transport	Paths	Footpaths / Bike Tracks	2024	$150,000
Transport	Roads		2024	$528,200
		2023-24 Total		**$746,200**
Transport	Bridges		2025	$0
Transport	Carparks		2025	$0
Transport	Kerbing		2025	$68,000
Transport	Paths	Footpaths / Bike Tracks	2025	$150,000
Transport	Roads		2025	$428,450
		2024-25 Total		**$646,450**
Transport	Bridges		2026	$0
Transport	Carparks		2026	$0
Transport	Kerbing		2026	$68,000
Transport	Paths	Footpaths / Bike Tracks	2026	$150,000
Transport	Roads		2026	$733,850
		2025-26 Total		**$951,850**
Transport	Bridges		2027	$0
Transport	Carparks		2027	$0
Transport	Kerbing		2027	$68,000
Transport	Paths	Footpaths / Bike Tracks	2027	$150,000
Transport	Roads		2027	$733,850
		2026-27 Total		**$951,850**

AMPlan	Asset	SubType	Year	Cost
Transport	Bridges		2028	$0
Transport	Carparks		2028	$0
Transport	Kerbing		2028	$68,000
Transport	Paths	Footpaths / Bike Tracks	2028	$150,000
Transport	Roads		2028	$733,850
		2027-28 Total		**$951,850**
Transport	Bridges		2029	$0
Transport	Carparks		2029	$0
Transport	Kerbing		2029	$68,000
Transport	Paths	Footpaths / Bike Tracks	2029	$150,000
Transport	Roads		2029	$733,850
		2028-29 Total		**$951,850**
Transport	Bridges		2030	$0
Transport	Carparks		2030	$0
Transport	Kerbing		2030	$68,000
Transport	Paths	Footpaths / Bike Tracks	2030	$150,000
Transport	Roads		2030	$743,850
		2029-30 Total		**$951,850**
Transport	Bridges		2031	$0
Transport	Carparks		2031	$0
Transport	Kerbing		2031	$68,000
Transport	Paths	Footpaths / Bike Tracks	2031	$150,000
Transport	Roads		2031	$743,850
		2030-31 Total		**$951,850**

Appendix D Road Hierarchy Maps

SEALED ROAD HIERARCHY



Legend

- 4A Primary - Rural
- 4A Primary - Urban
- 4B Secondary - Rural
- 4B Secondary - Urban
- 4C Local - Rural
- 4C Local - Urban
- Transport SA Road
- Unsealed Road

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Scale: 1:330,000

0 4,000 8,000 16,000 Meters

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SEALED ROAD HIERARCHY

KEITH

Martins Camp Rd
Pengelly Rd
Sugarloaf Rd
Road K73
Service Road North Rd N
Le Strange Av
Glanville Av
Ross Av
Taylor Rd
Wright Av
Summers Av
Goretti Av
Gill Ave
Halifax St
Preston St
Lawrence Av
Riddoch Hwy
Hill Av
Bennett St
Heather St
Bruce Av
Wirrega Av
Mary St
Barclay St
March St
Smith St
Davis Av
McHenry Av
Williams Av
Memorial Av
Anzac Tce
Dugan St
Makin St
Volmer Tce
Morcom St
Malcolm Crooks St
North West Tce
Kennett St
Morris St
Heritage St
Hender St
Mcbain St
Showground Pde
Mcintyre St
Railway Tce
South East Tce
Dukes Hwy
William St
Densley Rd
Emu Flat Rd
Keith Cemetery Rd
Road K75
Sellars Rd
Road K74
Road K76
Park Tce
Second St
Third St
Elm Av
Fourth St
Fifth Av
Willow St
Poplar Av
Pine St
Henstridge St
Bunker Rd
Road K77
Naracoorte Rd
Gaynor Av
Peppercorn Ln
Road K84
Shannon St
King Ct
Wynarling Rd
Mount Charles Rd
Stirling Rd
Weddell Rd
Road K83

PADTHAWAY

Condon St
Hoare Tce
Padthaway Rd
Lawsons Rd
Summers Rd
Vogelsang Rd
Riddoch Hwy
Whyatt Rd
Dye Rd
Edwards Rd
Memorial
Beeamma Parsons Rd
Nyroca Rd
Grubbed Rd

WOLSELEY

Garden St
Seymour Rd
Garnet Av
Matheson Rd
Arabian Rd
Ridgway Rd
Kingdon Rd
Ramsay St
Grice St
Tatiara Rd
Mudie Rd
Railway Terrace North
Lockhart Rd
Wolseley Rd
Railway Terrace South
Railway Terrace South
West Tce
Third St
Fifth St
Second St
High St
First St
Fourth St
East Tce
South Tce
Teatrick Rd
Road 325
Garrad Rd
Ballinger Rd
Road 329

MUNDULLA

Pigeon Flat Rd
Mile Lane
Rowney Rd
North Tce
Hinge St
Kennedy St
East Tce
Jewell St
Carson St
Wirrega Rd
Packer Av
Holt St
Jones St
West Tce
Steer St
Sanderson St
South Tce
Dave Smith La
Vinens Rd
Lamberts Rd
Chark Rd
Rowney Rd
Hillier Rd
Paviers Rd
Mill Rd
Old Padthaway Rd
Punjum Rd

BORDERTOWN

Ramsay Terrace North
Western Service Rd
Road 367
Grigson St
Bennett St
Road 370
Road 369
Winter Rd
Richards La
Golf Course Rd
Weir Dr
Jenkin Rd
Road B116
Elizabeth St
Beryl Ct
Memorial Dr
Dukes Hwy
Racecourse Rd
Vauxhall St
Mona St
Oakes St
Michael St
Saint St
John St
Worsley St
Ohalloran St
Miller St
Senior Rd
Eastern Service Rd
McLellan Rd
Cannawigara Rd
Bertha St
Densley Av
Davis St
Edward St
Penny Tce
Mcleod St
North Tce
Crocker St
Ramsay Tce
Cotton St
Park Tce
Dinning Tce
Patterson St
Smith St
Tatiara Tce
Farquhar St
Binnie St
Woolshed St
Scott St
East Tce
Hay Av
Saleyards Rd
Adamson Tce
Oliver St
Killmier Tce
Marian St
Eveline St
Merrett Rd
Riches Rd
Meatworks Rd
Cleggett Rd
Salom St
Campbell St
Dunn St
Glyde St
Haynes St
West Tce
DeCourcey St
Benjamin St
South Tce
Brown Tce
Florence St
Tolmer Tce
Melvyn St
Hay St
Power House Rd
Possum Park Dr
Creecoona Tce
Buik St
Murray St
Baker St
English St
Thomas Crt
Philip Av
Virgo St
Elizabeth Av
Naracoorte Rd
Rouse St
Peake St
Short St
Aird St
Fullarton St
Handyside Tce
Jervois St
Victoria Pde
Railway Pde South Pde S
Railway Pde North Tce N
Robe St
High St
Brompton St
Tatiara Rd
Road 371
Pigeon Flat Rd
Oatmill Rd
Eighth St
Seventh St
Sixth St
Fifth St
Fourth St
Milne St
Third St
Second St
First St
Naracoorte Road
Naracoorte Service Rd
Venn Av
Green St
Albert Pde
Marston Tce
Wellington St
Fisher St
Osborne Ct
Smith Av
Kerslake St
Kathleen St
Grace St
Phelps St
Clayton Farm Track
Hill St
B127
Mclean Av
England Rd
Proslie St
South Av
Western Dr
Road 279

Legend

- 4A Primary - Rural
- 4A Primary - Urban
- 4B Secondary - Rural
- 4B Secondary - Urban
- 4C Local - Rural
- 4C Local - Urban
- Transport SA Road
- Unsealed Road

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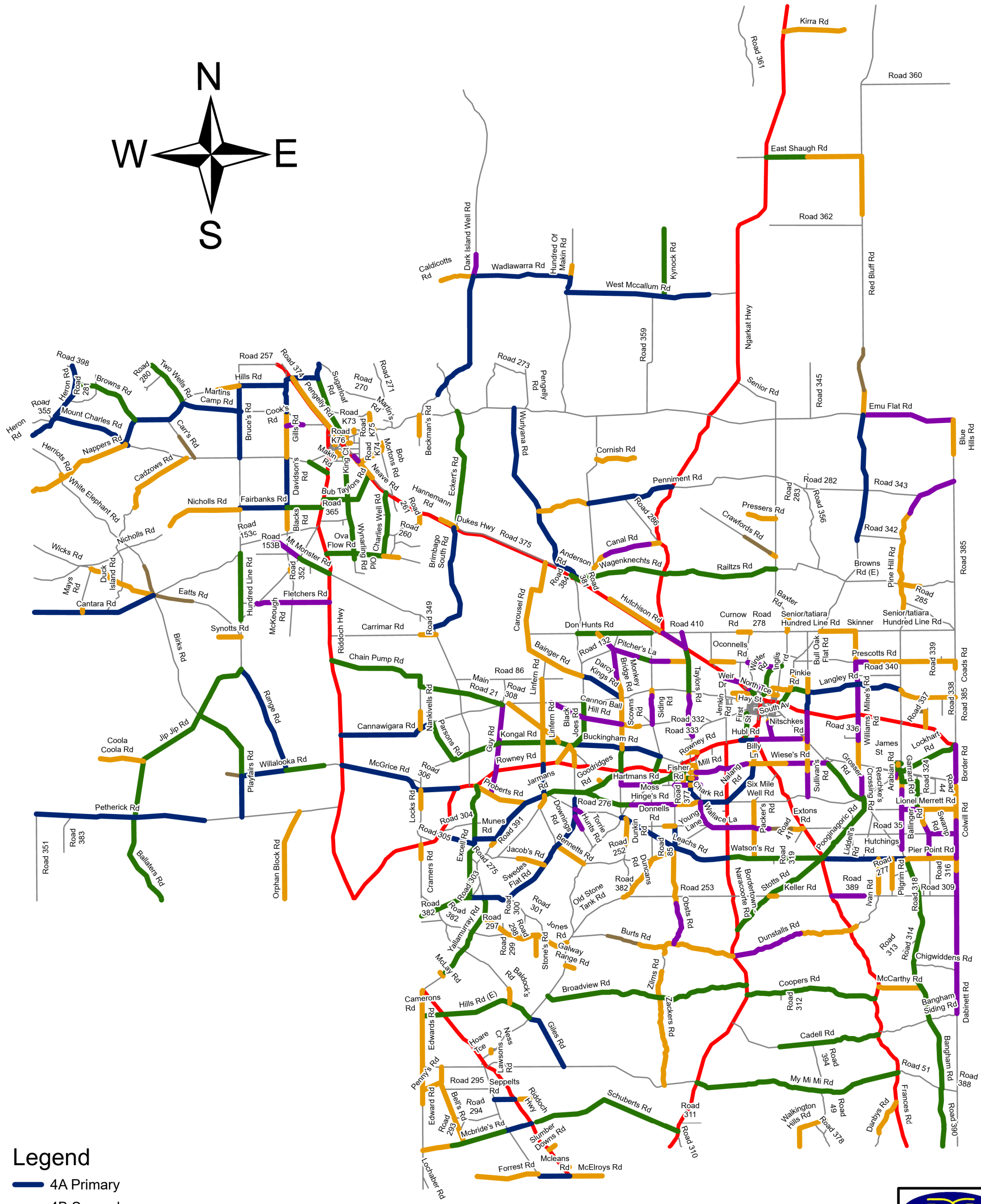
UNSEALED ROAD HIERARCHY



UNSEALED ROAD HIERARCHY

KEITH

Pengelly Rd
Sugarloaf Rd
Road K73
Keith Cemetery Rd
Densely Rd
William St
Wright Av
Stirling St
Dukes Hwy
Road K75
Sellars Rd
Bob Mortons Rd
Bennett St
Mary St
Road K74
Road K76
Peppercorn Ln
Riddoch Hwy
Road K84
Shannon St
King Ct
Road K77
Road K83
Road K80
Wynarling Rd
Bunker Rd
Zwars Rd
Makin Rd
Old Wynarling Rd
Neave Rd

WOLSELEY

James St
Garden St
Kingdon Rd
Seymour Rd
Garnet Av
Matheson Rd
Ramsay St
Arabian Rd
Mudie Rd
Grice St
Lockhart Rd
Fifth St
High St
Fourth St
Second St
First St
South Tce
East Tce
Road 325
Garrard Rd
Ballinger Rd
Road 329

MUNDULLA

Rowney Rd
North Tce
North Tce
East Tce
Wirrega Rd
West Tce
South Tce
Packer Av
Vinens Rd
Dave Smith La
Clevesyde La
Rowney Rd
Hillier Rd
Mill Rd
Old Padthaway Rd
Paviers Rd
Luck's Ln
Col Watsons Rd
Road 377
Chark Rd

PADTHAWAY

Hoare Tce
Bell Cr
Ness Cr
Lawsons Rd
Riddoch Hwy

BORDERTOWN

Road B115
Ramsay Terrace North
Scott Lane
Road 367
Pinkie Rd
Winter Rd
Racecourse Rd
Grigson St
Road 370
Road 369
Richards La
Weir Dr
Mona St
Jenkin Rd
Road B116
Oakes St
Inglis rd
Saint St
Saint St
John St
Miller St
Dukes Hwy
Davis St
Vauxhall St
Ohalloran St
Worsley St
Riches Rd
North Tce
Crocker St
Saleyards Rd
Mcleod St
Smith St
South Tce
Tolmer Tce
Hay St
Victoria Pde
Railway Pde South Pde S
Railway Pde North Tce N
Road 371
Rouse St
Aird St
Robe St
High St
Brompton St
Peake St
First St
B126
Wellington St
Kathleen St
Smith Av
South Av
Naracoorte Rd
Clayton Farm Track
Western Dr
Road 279
Frances Rd

Legend

- 4A Primary
- 4B Secondary
- 4C Local - Rural
- 4D Track
- Access
- Transport SA Road
- Sealed Road / Paper Road

Tatiara
the good country

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