

# TRANSPORT INFRASTRUCTURE ASSET MANAGEMENT PLAN



Version 1.0

February 2022

<b>Document Control</b>	<b>Asset Management Plan</b>
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Document ID :

Rev No	Date	Revision Details	Author	Reviewer	Approver
V 1.0	February, 2022	Adoption For Council	Asset Engineer	Engineering Services Manager	Council

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## 1.0 EXECUTIVE SUMMARY

### 1.1 The Purpose of the Plan

This Asset Management Plan (AM Plan) details information about transport infrastructure assets managed by Council with actions required to provide an agreed level of service in the most cost-effective manner while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required to provide over the 20 year planning period. The AM Plan will link to a Long-Term Financial Plan which typically considers a 10 year planning period. This plan will be reviewed annually, with a formal update completed every 4 years.

### 1.2 Asset Description

The Transport Assets network comprises:

#### *Assets covered by this Plan*

Asset category	Dimension	Depreciable Replacement Value (\$Million)	Total Replacement Value (\$Million)
Regional Sealed Roads	157.448km	\$ 42.820	\$55.136
Regional Unsealed Roads	15.57km	\$ 1.037	\$1.787
Rural Sealed Roads	420.928 km	\$ 82.579	\$112.666
Rural Unsealed Roads	577.134 km	\$ 29.452	\$57.713
Urban Sealed Roads	78.498 km	\$ 23.794	\$30.537
Urban Unsealed Roads	5.250 km	\$ 0.326	\$0.562
Large Culvert(>=6m)	32 Nos.	\$ 6.901	\$ 6.901
Bridges & Causeway	1 Timber Bridges 4 Foot Bridges 45 Concrete Bridges 6 Concrete/Steel Bridges 32 Causeway	\$ 39.375	\$ 39.375

Footpath / Shared Pathways	38.408 km	\$ 6.257	\$ 6.252
Kerb and Gutter	73.151 km	\$ 6.141	\$ 6.141
Roundabout and Traffic facilities	11 Roundabouts Various Islands/refuges	\$ 2.433	\$ 2.433
Sealed Road Side Drainage	Council maintained, but no detail information is maintained in the asset register	Incorporate in capital cost of the road.	Incorporate in Replacement cost of road.
Unsealed Road Side Drainage	Council maintained as part of grading program, but no detail information is maintained in the asset register	Incorporate in capital cost of the road.	Incorporate in Replacement cost of road.
Carpark	8,740 sq-m	\$ 0.275	\$ 0.362
Guidepost, Bollard, Segment Marker	Not in the Asset Register. No intention to collect this data.	Included in Pavement Renewal costs.	Included in Pavement Renewal costs.
Road Signage	Council maintains all road signage. No road signage register and no intention to collect this information.	Incorporate in capital cost of the road.	Incorporate in Replacement cost of road.
Line Marking	Council Maintained all Line Marking	To be determined	To be determined
Street Furniture	Street furniture maintained by Parks and Recreation and not included in this Plan	N/A	N/A
Bus Shelter	Maintained by Council. Not in asset register. Will be included in Asset Register in future development.	To be determined	To be determined

Road Safety Barrier	Maintained by Council. Not in Asset Register. Will be included in Asset Register	Incorporate in capital cost of the road.	Incorporate in Replacement cost of road.
Ancillary Assets		\$ 0.542	0.542
	<b>Total Value</b>	<b>\$ 242.117</b>	<b>\$320.407</b>

Note: Road formation (earthworks) values relate to the construction of the road formation. This component of road assets generally has an unlimited life and as such is not depreciable. Road formation assets will usually remain in their current configuration unless the existing asset is upgraded or expanded eg. Road widening. In general the replacement value excluding road formation expenses is the amount that Council will need to consider in allocation of funds for future asset renewal works.

**The following assets are not covered by this AM Plan:**

- Heritage Bridges with no load limit and maintained by TfNSW
  - Taemes Bridge over Murrumbidgee River located on Wee Jasper Road;
  - Bridge over Goodradigbee River on Wee Jasper Road are Heritage Bridge,
- All public roads where council is not the road authority eg crown roads, NPWS roads, forestry roads etc
- Culverts less than 6 m ( included in Stormwater AMP)
- All private roads eg Larson Road
- Rights of ways
- All state roads and highways including:
  - Hume Highway
  - Barton Highway
  - Federal Highway
  - Burley Griffin Way
  - Lachlan Valley Way

### 1.3 Levels of Service

#### Asset Maintenance

- The funding allocation in the planned future budgets is insufficient to continue providing existing services at current levels for the planning period.

#### New Renewal/ Rehabilitation, Upgrade and New/Creation

- The funding allocation in the planned future budgets is insufficient to renew assets at least at their deterioration rate.
- Majority of asset renewals/rehabilitations will be dependent on external grant funding.
- All new assets will be achieved via development and funded by the developer.

The main service consequences of the Planned Budget are:

- Reduced capacity to respond to customer maintenance request;
- Reduced resilience to respond to climatic events eg flooding
- The extent of Road Pavement both sealed and unsealed deteriorating over time to poor condition.
- Resealing works to protect the pavement reduced resulting in deteriorating pavement condition;
- Greater dependence on grant funding.

### 1.4 Future Demand

The factors influencing future demand and the impacts they have on service delivery are created by:

- Increased community expectation for service levels;
- Increased tourism
- Residential and Industrial Development
- High Population Growth.

These demands will be approached using a combination of managing existing assets, upgrading existing assets and providing new assets to meet demand. Demand management practices may also include a combination of non-asset solutions, insuring against risks and managing failures.

### 1.5 Lifecycle Management Plan

#### 1.5.1 What does it Cost?

The forecast lifecycle costs necessary to provide the services covered by this AM Plan includes operation, maintenance, renewal, acquisition, and disposal of assets. Although the AM Plan may be prepared for a range of time periods, it typically informs a Long-Term Financial Planning period of 10 years. Therefore, a summary output from the AM Plan is the forecast of 10 year total outlays, which for the Transport Asset is estimated as \$ 221,215,056 or \$ 22,121,506 on average per year.



## 1.6 Financial Summary

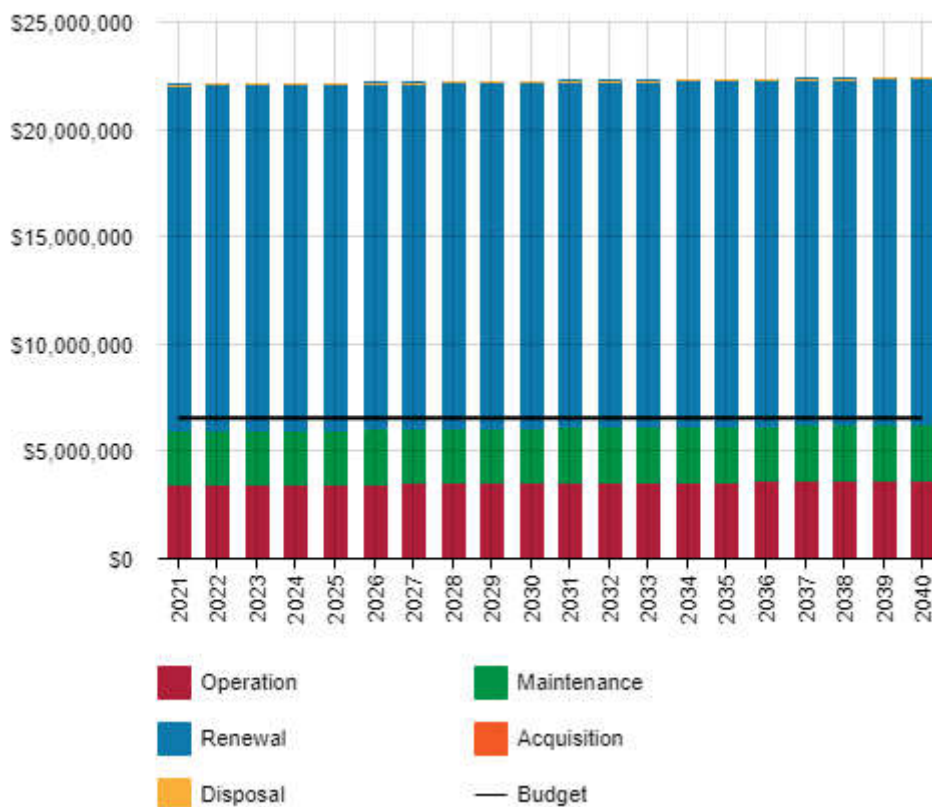
### 1.6.1 What we will do

Estimated available funding for the 10 year period is \$ 65,563,152 or \$6,556,315 on average per year as per the Long-Term Financial plan or Planned Budget. This is 29.64 % of the cost to sustain the current level of service at the lowest lifecycle cost.

The infrastructure reality is that only what is funded in the long-term financial plan can be provided. The Informed decision making depends on the AM Plan emphasising the consequences of Planned Budgets on the service levels provided and risks.

The anticipated Planned Budget for Transport assets leaves a shortfall of \$-15,565,190 on average per year of the forecast lifecycle costs required to provide services in the AM Plan compared with the Planned Budget currently included in the Long-Term Financial Plan. This is shown in the figure below.

**Forecast Lifecycle Costs and Planned Budgets**



\*Figure Values are in current dollars.

We plan to provide Transport Asset services for the following:

- Operation, maintenance, renewal and acquisition of transport asset to meet service levels set by Yass Valley Council in annual budgets.

### 1.6.2 What we cannot do

We currently do **not** allocate enough budget to sustain these services at the proposed standard or to provide all new services being sought. Works and services that cannot be provided under present funding levels without additional grant assistance from State and Federal Governments are:

- No bridge replacement
- No new footpaths or existing footpaths replacement
- No new kerb and Gutter construction or replacement
- No major culvert replacement
- Sealing of Unsealed Roads
- No maintenance of Laneways
- No maintenance of access road which serves one property
- Grading program can only be provided according to policy under ideal conditions
- No unsealed road re-sheeting
- Sufficient re-sealing and heavy patching
- Sufficient rehabilitation of sealed road pavement

### 1.6.3 Managing the Risks

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

The main risk consequences without additional funding are:

- Sealed Road Network will deteriorate and there is a risk for future generations needing to pay more for the services.
- Sealed Pavement will potentially pose a higher road safety risk.
- Any Bridge or Major culverts collapse will disconnect community to travel.

### 1.7 Asset Management Planning Practices

Key assumptions made in this AM Plan are:

- Sealed Road analysis based on ARRB road condition data, industry best practice scaling and industry standard modelling.
- Condition data is only collected for the sealed road network
- Condition data for the unsealed network is based on remaining asset life
- Planned Budget forecast based on current budget.
- Bridges, Major Culverts, Footpaths and Kerbs renewal not considered within 20 years period with in current budget.
- No new asset construction considered by council with in current budget.

Assets requiring renewal are identified from either the asset register or an alternate method based on asset inspections and professional judgement.

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

The Alternate Method was used to forecast the renewal lifecycle costs for this AM Plan.

This AM Plan is based on a historical council asset data with highly reliable level of confidence information.

## **1.8 Monitoring and Improvement Program**

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

- Improve condition information across unsealed roads, footpath, bridges, Causeways, Major Culverts and ancillary assets.
- Review of sealed road condition scaling.
- Review and revise customer values for these asset and level of service measures
- Internal and external audits.
- Review and update useful lives of assets
- Review Network deterioration
- Review of budget distribution.

## 2.0 INTRODUCTION

### 2.1 Background

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

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

- Yass Valley Community Strategic Plan 2042
- Yass Valley Council 4 Year Delivery Plan
- Yass Valley Council Operational Plan

The infrastructure assets covered by this AM Plan include roads, bridges, major culverts, kerbs, footpaths and community paths and ancillary assets. For a detailed summary of the assets covered in this AM Plan refer to Table in Section 5.

The infrastructure assets included in this plan have a total replacement value of **\$320.044 M**

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

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

Key Stakeholder	Role in Asset Management Plan
Community	The main stakeholders in the AMP and the key beneficiaries of the services are the community. It is the community who contribute funding through payment of rates and communicate their satisfaction (or otherwise) with services through contact with Council.
Councillors	<ul style="list-style-type: none"><li>■ Represent needs of community/shareholders,</li><li>■ Allocate resources to meet planning objectives in providing services while managing risks,</li><li>■ Ensure service sustainable.</li><li>■ Responsible for overall endorsement and adoption of the Asset Management Plan and ensuring sufficient funding and resources are provided to comply with the target Levels of Service committed in the Asset Management Plan.</li><li>■ Endorsement of the asset management policy, strategy and plans. Set high level direction through the development of asset management principles in the Community Strategic Plans.</li></ul>

Key Stakeholder	Role in Asset Management Plan
Executive Management Team	Endorse the development of asset management plans and provide the resources required to complete this task. Set high level priorities for asset management development in Council and raise the awareness of this function among Council staff and contractors. Support the implementation of actions resulting from this plan and be prepared to make changes to a better way of managing assets and delivering services. Support an asset management driven budget and Long Term Financial Plan. Follow up and report on the current status and provide guidance and direction for the future improvement of the Asset Management Plan.
Engineering Services Manager	Execute the Asset Management Plan for the assets under their portfolio.
Manager Road Delivery	Execute the Asset Management Plan for the assets under their portfolio. Also responsible for understanding expectations of levels of service through effective, ongoing engagement with the community (users of the service). Plan for changes to operations and maintenance as well as undertake minor renewal works.
Asset Engineer	To maintain and update Asset Registers, develop and implement the Asset Management Plan and provide support to the Engineering Services manager in execution of the plan.
Finance Department	Ensure that the asset valuations are accurate. Develop supporting policies such as capitalisation and depreciation. Prepare asset sustainability and financial reports incorporating asset depreciation in compliance with the current Australian accounting standards.

## 2.2 Goals and Objectives of Asset Ownership

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

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

Key elements of the planning framework are

- Levels of service – specifies the services and levels of service to be provided,
- Risk Management,

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

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

- International Infrastructure Management Manual 2015 <sup>1</sup>
- ISO 55000<sup>2</sup>

This asset management plan should be read in conjunction with the Community Strategic Plan 2042, Delivery Program 2022-2026 and the Asset Management Strategy 2022 - 2032.

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

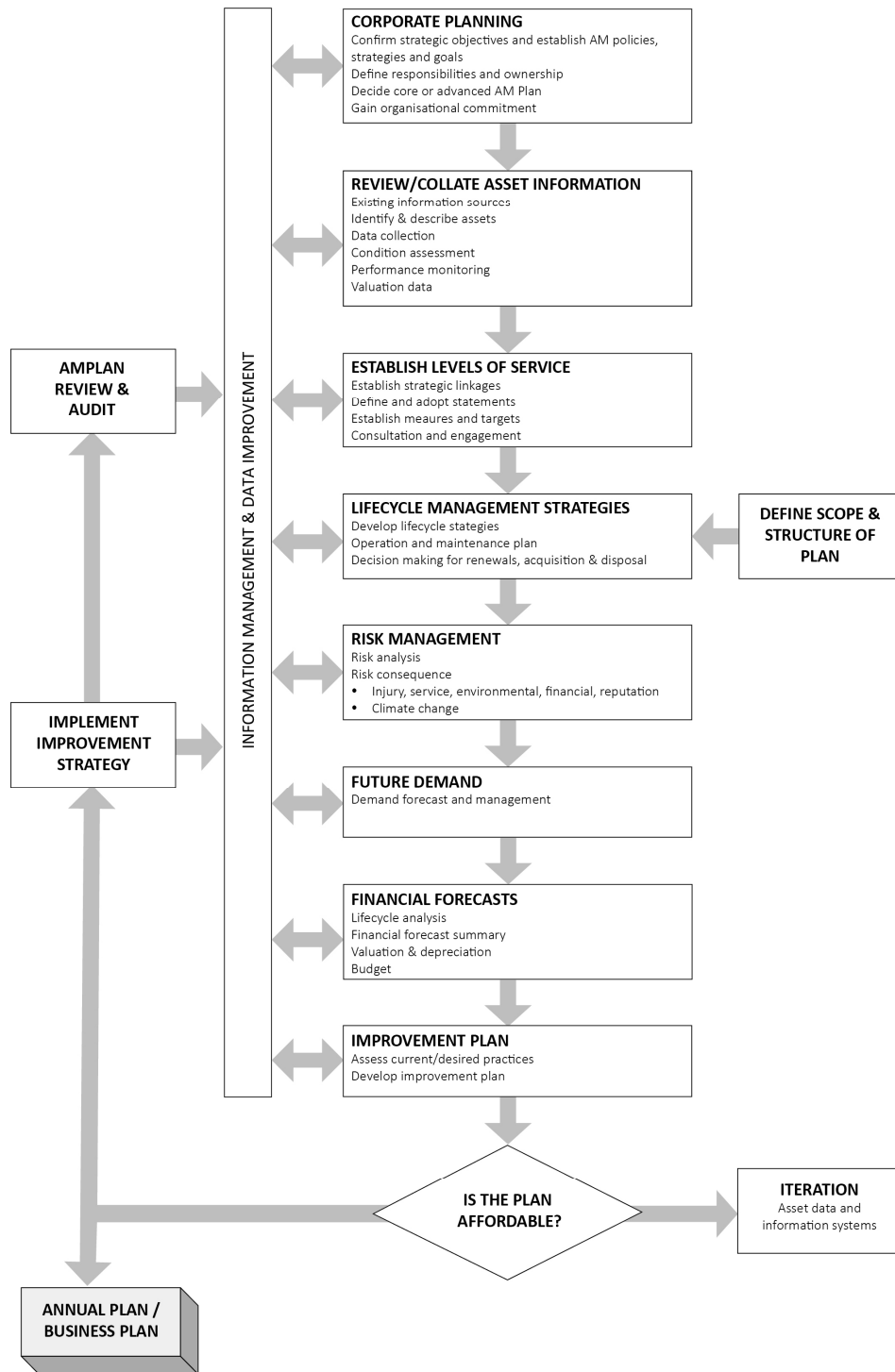
***Road Map for preparing an Asset Management Plan***

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

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

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



### 3.0 LEVELS OF SERVICE

#### 3.1 Customer Research and Expectations

This AM Plan is prepared to facilitate consultation prior to adoption of levels of service by the Yass Valley Council. Future revisions of the AM Plan will incorporate customer consultation on service levels and costs of providing the service. This will assist the Yass Valley Council and stakeholders in matching the level of service required, service risks and consequences with the customer's ability and willingness to pay for the service.

#### 3.2 Strategic and Corporate Goals

Strategic Planning and corporate goals are outlined in the Community Strategic Plan and the Delivery Program and provide the foundation for outlining the services to be delivered to the community.

#### 3.3 Legislative Requirements

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

**Table 3.3: Legislative Requirements**

Legislation	Requirement
Local Government Act	Sets out role, purpose, responsibilities and powers of Local Governments agencies; including the need for the preparation of a long term financial plan supported by asset management plans for sustainable service delivery.
Roads Act 1993	Sets out the powers and duties delegated to Council's, as roads authorities, in management of roads and road related areas.
The Australian Accounting Standards	Requires that valuation of assets be undertaken, and that this data is reported in the annual financial statements including taking account of depreciation of Councils assets.
Work Health and Safety Act 2011	Sets out legislative requirements in order to provide a healthy and safe and workplace for employees and community members,
Environmental Planning and Assessment Act 1979	Sets out requirements for land use planning and promotes the provision of adequate infrastructure for new developments.
National Asset Management Framework Legislation	Focuses on long term financial sustainability and provides a mandate to have a long term strategy, financial statements and annual reporting mechanisms.
Disability Discrimination Act	Identifies the responsibilities of Council and staff in dealing with access and use of public infrastructure



Heritage Act, 1977	Provides for the protection and conservation of places and objects of cultural heritage significance and the registration of such places and objects.
Crown Lands Act, 1989	Provides for the administration and management of Crown land in the Eastern and Central Division of the State of NSW. Council has large holdings of Crown land under its care, control and management.

### 3.4 Customer Values

Service levels are defined in three ways, customer values, customer levels of service and technical levels of service.

**Customer Values** indicate:

- what aspects of the service is important to the customer,
- whether they see value in what is currently provided and
- the likely trend over time based on the current budget provision

### 3.5 Customer Levels of Service

The Customer Levels of Service are considered in terms of:

**Condition** How good is the service ... what is the condition or quality of the service?

**Function** Is it suitable for its intended purpose .... Is it the right service?

**Capacity/Use** Is the service over or under used ... do we need more or less of these assets?

In Table 3.5 under each of the service measures types (Condition, Function, Capacity/Use) there is a summary of the performance measure being used, the current performance, and the expected performance based on the current budget allocation.

These are measures of fact related to the service delivery outcome (e.g. number of occasions when service is not available or proportion of replacement value by condition %'s) to provide a balance in comparison to the customer perception that may be more subjective.

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

Key Performance Measure	Level of Service	Performance Measure Process	Current Service Levels	Recommended Service Level
<b>Unsealed Road Pavement Condition</b>	Undertake routine maintenance grading activities on unsealed roads	Grading Frequency (grades per year)	Regional Rds - 2/year Hierarchy 1 - 2/year Hierarchy 2 - 2/year Hierarchy 3 - 1/year Hierarchy 4 - 0.5/year Hierarchy 5 - 0.25/year	Regional Rds - 3/year Hierarchy 1 - 4/year Hierarchy 2 - 3/year Hierarchy 3 - 2/year Hierarchy 4 - 1/year Hierarchy 5 - 0.5/year
<b>Sealed Roads Wearing Course Condition</b>	Reseal roads on a routine basis to maintain ride quality and pavement integrity	Road Network reseal frequency	Condition 1 3.1% Condition 2 23.7% Condition 3 67.1% Condition 4 5.5% Condition 5 0.6% This condition is based on significant grant funding received for resurfacing in recent	All roads will be in between condition 1 to 3. No segment of roads will be condition 4 and condition 5.

			years. Current budget \$2.5m will not provide resurfacing sufficient to maintain current service level.	
<b>Sealed Road Pavement Condition</b>	Renew existing sealed road at the optimum time to maintain ride quality and to minimise maintenance costs	Road Network pavement renewal frequency	<p>Condition 1 0%</p> <p>Condition 2 8.60%</p> <p>Condition 3 88.6%</p> <p>Condition 4 2.9%</p> <p>Condition 5 0%</p> <p>This condition is based on significant grant funding for pavement renewal works in recent years. Current budget of \$2.5m (combined with resealing) will not achieve required pavement renewal for more than 1km in a year and insufficient to maintain current condition. 10 km renewal is required per year considering 650 km sealed road and 60 years pavement life.</p>	All roads will be in between condition 1 to 3. No segment of roads will be condition 4 and condition 5.
<b>Unsealed Road Pavement Condition</b>	Re sheet existing unsealed road pavement to maintain ride quality and maintain pavement condition	Unsealed Roads pavement re-sheeting frequency	<p>Condition 1 10%</p> <p>Condition 2 10%</p> <p>Condition 3 5%</p> <p>Condition 4 15%</p> <p>Condition 5 60%</p> <p>Re-sheeting of unsealed roads is only conducted through grant funding at this time. Recent budget allocations of \$1m in 2021/22 and 2022/23 will not recover the network and it will remain in a majority poor condition.</p>	<p>All roads will be in between condition 1 to 3. No segment of roads will be condition 4 and condition 5.</p> <p>All unsealed roads should be re-sheeted once every 15 - 20 years and \$2m annual budget is required for this purpose.</p>

			All unsealed roads are re-sheeting once every 60 years approximately at present.	
<b>Upgrading Unsealed Road to Sealed Rd</b>	Number of Unsealed road upgraded to sealed per annum	Number of Km	Zero depend on grant funding	Forecast budget allocated \$ 1.5 M per year that means 2km unsealed to sealed road will be constructed to fulfil community demand.
<b>New Footpaths</b>	New Footpaths and community paths	Length and width of footpath	Zero	\$ 200,000/year approximately will give new footpaths as community expectation.
<b>New Kerb &amp; Gutter</b>	New Kerb & Gutter	Length	Zero	\$ 200,000/year give new Kerb & Gutter to resolve drainage problem of community.
<b>Bridges &amp; Causeway</b>	Bridge Replacement	Number	Zero	\$ 2M per year ask for bridge renewal.
<b>Major Culverts</b>	Replacement	Accomplishment	Zero	\$ 200,000 per year will resolve sudden failure of Major Culvert.
<b>Guide post, Traffic Signs, Line marking, road safety barrier etc.</b>		Number of sign post, guide post and length of line marking	Zero	\$ 100,000 will give higher service level and make roads safer.

**Some of the service delivered in higher standard due to Grant Funding Council Received**

### 3.6 Technical Levels of Service

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

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

- **Acquisition** – the activities to provide a higher level of service e.g. widening a road, sealing an unsealed road, replacing a pipeline with a larger size) or a new service that did not exist previously (e.g. a new library).
- **Operation** – the regular activities to provide services e.g. opening hours, cleaning, mowing grass, energy, inspections, etc.
- **Maintenance** – the activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life e.g. road patching, unsealed road grading, building and structure repairs,

- **Renewal** – the activities that return the service capability of an asset up to that which it had originally provided e.g. road resurfacing and pavement reconstruction, pipeline replacement and building component replacement,

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

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

**Table 3.6: Technical Levels of Service**

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Service Level	Recommended Service Level
<b>TECHNICAL LEVELS OF SERVICE</b>				
<b>Operation</b>	Operational activities to keep assets operational for community	Service Request	Due Shortage of grading and drainage crew we can able to achieve current grading program, roadside drainage program.	Additional operational budget forecasted for additional drainage crew and other maintenance works. That will give level of service mention in unsealed road policy deliver to community.
		<b>Budget</b>	\$2,453,800	\$ 3,488,994
<b>Maintenance</b>	Network is maintained to meet community needs and ensure safety to user.	Service Request	Respond all service requests within 10 days. But not able to fulfil all request due to shortage of funding. Insufficient budget for grading is not giving opportunity to do work as mentioned in the policy perhaps 60% grading is currently covered by current budget.	Increase budget to improve maintenance activities. Additional \$ 750,000 forecasted for maintenance which will fulfil the grading work according to policy.
		<b>Budget</b>	\$1,602,515	\$1,602,515
<b>Renewal</b>	Network is renewed to meet community needs and safety	Yearly resealing works, Heavy patching works, rehabilitation works of pavement, re-	The Renewal activities are heavily depends on Grant Funding. Current funding of \$2.5m will not giving any	With the forecast budget we can do re-sheeting work every segment once in 15 years, heavy patching work, resealing work to

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

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Service Level	Recommended Service Level
	requirements	sheeting works of unsealed roads pavement.	re-sheeting work, limited re-sealing work and rehab works of pavement.	put our both sealed and unsealed in a satisfactory condition that no segment will be in condition 4 or 5 as a technical level of service.
		<b>Budget</b>	\$2,500,000	\$16,100,0000
<b>Upgrade/New</b>	Network meets usage demands of community	No new asset from constructed asset considered.	Fully based on grant funding	Forecast budget allocated \$1.5m per year that means 2km unsealed to sealed will be constructed to fulfil community demand.
		<b>Budget</b>	\$0	\$ 1,500,000

Note: \* Current activities related to Planned Budget Renewal Budget based on regular funding we received for few years without current Grant Funding we are currently receiving.

\*\* Expected performance related to forecast lifecycle costs.

It is important to monitor the service levels regularly as circumstances can and do change. Current performance is based on existing resource provision and work efficiencies. It is acknowledged changing circumstances such as technology and customer priorities will change over time.

### 3.7 Strategic Support and Condition Assessment

Council needs to increase our strategic asset management team capacity to deliver improved level of service. Council does not have the staff required to collect asset data, condition data or any proactive inspection of assets which leads to deteriorate asset condition. Council has around 600 km unsealed road and does not have ability to inspect proactively as the condition of unsealed road changes rapidly with weather condition. Inclusion of one Asset Officer in our Strategic Asset Management Team will increase the ability of Council to conduct proactive inspections and asset interventions to reduce the overall cost of asset ownership.

Council has around 650 km of sealed road and 600 km of unsealed road. Council does not have sufficient inspection capacity for our capital works. Council is spending a large amount on sealed road and unsealed roads renewal works and does not have sufficient manpower to supervise all construction activities and a new compliance inspector will help our strategic team to ensure our capital works and the works that Council will inherit from development are completed in accordance with Council's policy and guideline.

## 4.0 FUTURE DEMAND

### 4.1 Demand Drivers

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

### 4.2 Demand Forecasts

The present position and projections for demand drivers that may impact future service delivery and use of assets have been identified and documented in Table 4.3.

### 4.3 Demand Impact and Demand Management Plan

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

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

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

**Table 4.3: Demand Management Plan**

Demand Factor	Present Position	Projection	Impact on services
Population	Population of the Yass Valley LGA is 18,086 as at 2021	<p>Estimated population growth rate for the period from 2011 to 2031 is 2.0%</p> <p>Considering the projected growth rate, the future population of Yass Valley LGA would be:</p> <p>Population in 2015: 16,236            Population in 2020: 17,926            Population in 2025: 19,792            Population in 2031: 22,289            Population in 2036: 27,315</p>	<ul style="list-style-type: none"> <li>• Increased usage of transport assets;</li> <li>• reduced serviceability of existing assets;</li> <li>• increased maintenance intensity and frequency (cost);</li> <li>• reduced pavement life;</li> <li>• requirement for asset upgrades and provision of new</li> </ul>

			assets to meet demand.
Population Density	2.87 Persons per Dwelling 2,429 (roughly 13%) of the Council's population currently reside in ACT peri urban area.	Reducing to 2.25 Persons per Dwelling in 2031 By 2036 the population of ACT peri urban area is projected to reach 6,515, an increase of 168%. This is greater than the Shire average of 51% The Bowning-Bookham-Rural West region is expected to grow by only 9% in this time	Decreased population density will require an increase in infrastructure per head of population which will increase the overall cost of providing and maintaining the infrastructure.
Community Expectations	Community expectations shift over time. In addition to this, expectations are rising with regards to the quality of facilities, transparency and the ability for Councils to deliver better outcomes with less funding.	Expectations to continue changing and generally increasing.	With increasing cost of material, services, maintenance and construction it will be a challenge for Council to keep service level satisfactory and keep community happy with limited budget.
Climate Change	Relative certainty of climatic conditions and impacts on road network.	<ul style="list-style-type: none"> <li>Reduced water supply levels available for construction and maintenance grading.</li> <li>Increased incidence of road damage due to higher intensity storm events</li> </ul>	Increased cost of construction and maintenance activities including an increased incidence of major repair works as a result of storm damage.
Agricultural Land Use	High proportion of large agricultural holdings within LGA	Reduction in agricultural uses and shift towards rural residential and smaller rural holdings	Increased number of properties leading to increased traffic volumes on rural road network.
Completion of Barton Highway Duplication	Currently Highway limits attraction for residents to commute to Canberra	Reduction in travel times and cost of commuting as a result of duplication of the Barton Highway.	Increased demand for development in Yass and Murrumbateman, increasing demand on transport infrastructure.



#### **4.4 Asset Programs to meet Demand**

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

Acquiring new assets will commit the YVC Transport Asset Management Plan to ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the long-term financial plan (Refer to Section 5).

#### **4.5 Climate Change Adaptation**

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

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

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

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

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

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

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

## 5.0 LIFECYCLE MANAGEMENT PLAN

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

### 5.1 Background Data

#### 5.1.1 Physical parameters

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

- Roads;
- Bridges and Causeways;
- Footpaths and Shared Pathways;
- Kerb and Gutter;
- Round-a-bouts and Traffic Facilities;
- Ancillary Assets
- Major Culverts > 6m

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

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

Asset Category	Dimension	Depreciable Replacement Value	Total Replacement Value
Sealed Road	656.847 km	\$149,373,870.00	\$198,335,853.76
Unsealed Road	597.954 km	\$30,816,935.44	\$60,056,987.82
		\$ 275,101.40	\$ 362,676.20
Kerb & Gutter	73.151 km	\$ 6,141,174.08	\$ 6,141,174.08
Footpaths	38.408 km	\$ 6,257,001.15	\$ 6,257,001.15
Bridges and Causeway	56 Bridges 32 Causeways	\$ 39,375,116.78	\$ 39,375,116.78
Major Culverts	32 Nos.	\$ 6,901,518.06	\$ 6,901,518.06
Roundabout and Traffic Facilities	11 Nos.	\$2,433,980.00	\$2,433,980.00
Ancillary Assets	21 Nos.	\$ 542,920.00	\$ 542,920.00
<b>TOTAL</b>		<b>\$242,117,616.91</b>	<b>\$320,407,227.84</b>

#### 5.1.2 Asset capacity and performance

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

**Table 5.1.2: Known Service Performance Deficiencies**

Location	Service Deficiency
Sealed Road	Current Renewal budget is insufficient for rehabilitation, resealing, heavy patching, edge breaking, roadside drainage condition in satisfactory level.
Unsealed Road	Current budget is insufficient for grading work, no re-sheeting budget considered. Lots of unsealed road with is insufficient width and poor drainage condition.
Major Culverts	No major culverts replacement budget considered.
Kerb and Gutter	No Kerbs and Gutter exists in village townships other than Yass Town and inadequate and no plan for new or renewal.
Footpath and Shared Paths	Insufficient footpaths and shared paths in all townships. There are a number of footpaths which are too narrow and do not meet current standards. These will need to be replaced over time.
Road Side Drainage	No funding to address this issue and currently reactive maintenance is going on from road maintenance funding.
Bridges & Causeways	No condition assessment done yet, only reactive maintenance is going on.

### 5.1.3 Asset condition

We have only sealed road condition data captured by ARRB one third of the network every year.

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

Preliminary asset condition assessment has been undertaken. Condition of assets is measured using a 0-5 rating system as shown below:

Condition According to Assetic	Description of Condition	Condition According to SS7
0	Excellent condition: No Work required (Normal maintenance)	1
1	Good: Only Minor maintenance required	2
2-3	Average/Fair/Satisfactory: Significant Maintenance work required.	3
4	Poor: Significant defects, higher order cost intervention likely.	4

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

**Table 5.1.3: Condition Grading System**

Surface Texture	Condition (%)		
0	20	to	1.2
1	1.20	to	1.0
2	1.0	to	0.9
3	0.9	to	0.8
4	0.8	to	0.5
5	0.5	to	0.0

**Surface Texture Scaling**

Linear Cracking	Condition (%)		
0			0
1	0	to	1.2
2	1.2	to	4.0
3	4.0	to	10.0
4	10.0	to	20.0
5	20.0	to	100.0

**Linear Cracking Scaling**

Crocodile Cracking	Condition (%)		
0			0
1	0.0	to	0.5
2	0.5	to	4.0
3	4.0	to	10.0
4	10.0	to	20.0
5	20.0	to	100.0

**Crocodile Cracking Scaling**

Rutting	Condition (mm)		
0			0
1	0	to	3
2	3	to	5
3	5	to	7
4	7	to	10
5	10	to	100

**Rutting Data Scaling**

Roughness (NAASRA)	Condition		
0			0

1	0	to	80
2	80	to	110
3	110	to	150
4	150	to	190
5	190	to	500

**Roughness Data Scaling**

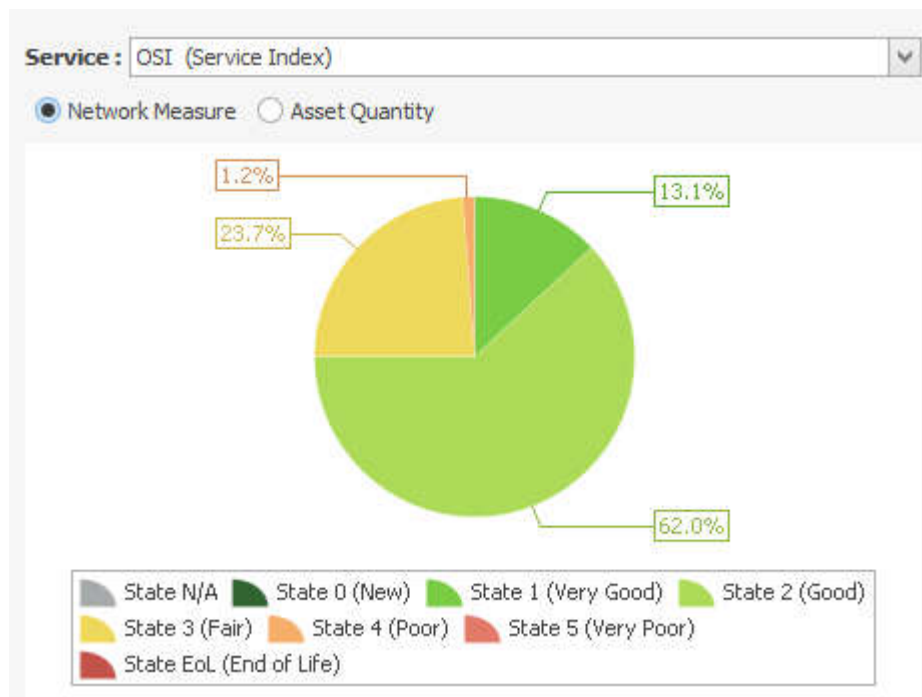
Pavement Defects/Patching/Edge Break	Condition (%)		
	0		
1	0	to	0.5
2	0.5	to	4.0
3	4.0	to	7.0
4	7.0	to	20.0
5	20.0	to	100.0

**Pavement Defects/Patching/Edge Break Scaling**

Sealed Road condition data assessed from Assetic Predictor that is **Overall Service Index (OSI)** combination of Pavement Condition Index (PCI) and Surface Condition Index (SCI).

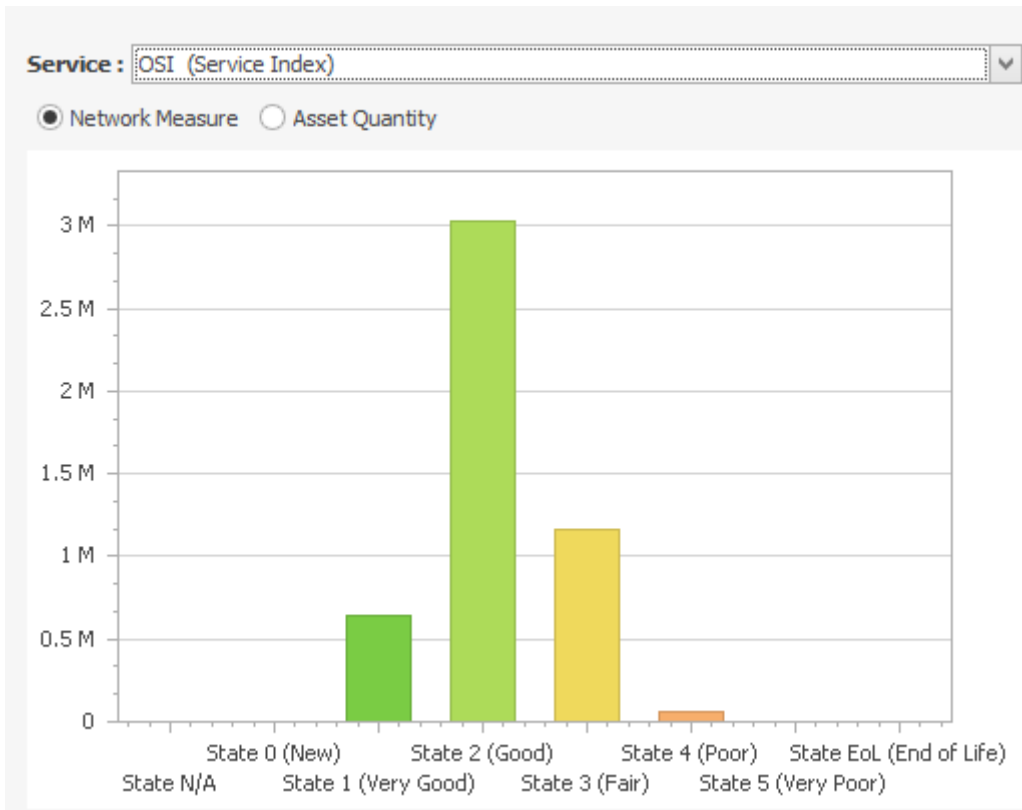
The condition profile of our assets is shown in Figure 5.1.3.

**Figure 5.1.3: Asset Condition Profile**



**Figure 5.1.3.1 Sealed Road Overall Service Index**

**(Condition 1 Excellent Condition 5 Very Poor)**



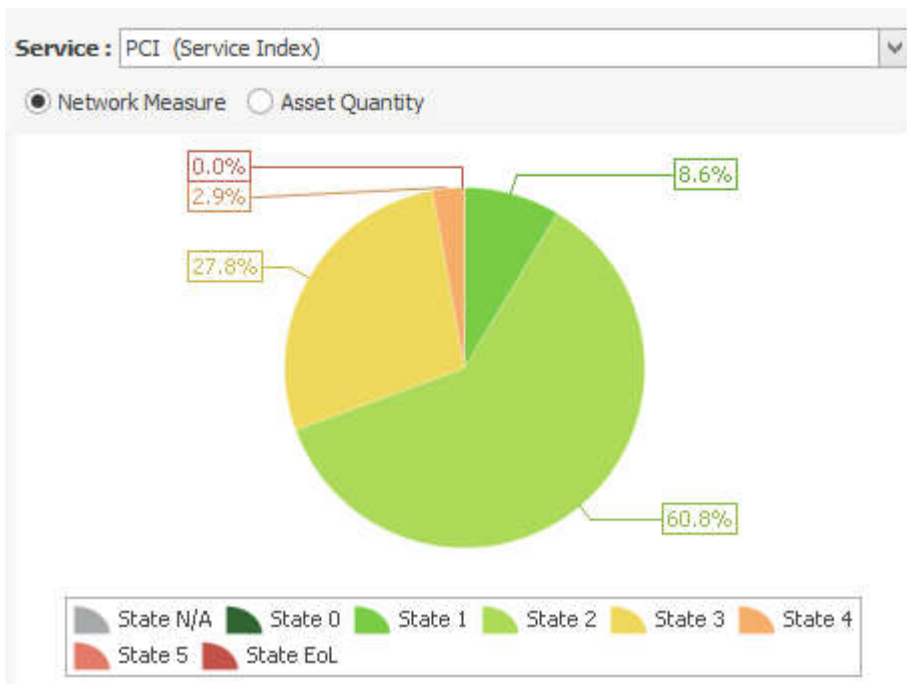
**Figure 5.3.1.2 Sealed Road Overall Service Index**

**(Condition 1 Excellent Condition 5 Very Poor)**

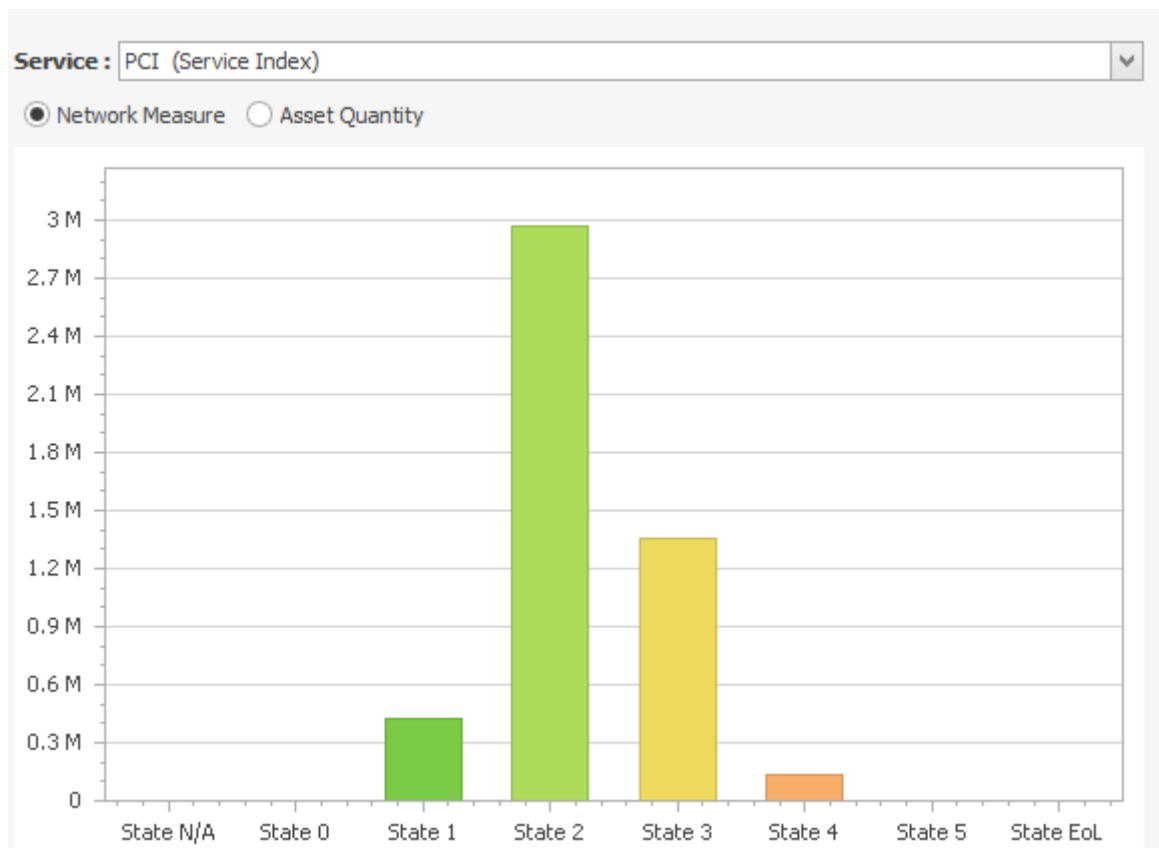
Condition	Network Measure
1	0%
2	13.1%
3	85.7%
4	1.2%
5	0%

**Sealed Road Overall Service Index**

**(Condition 1 Excellent Condition 5 Very Poor)**



**Figure 5.3.1.3 Sealed Road Pavement Condition Index**  
**(Condition 1 Excellent Condition 5 Very Poor)**



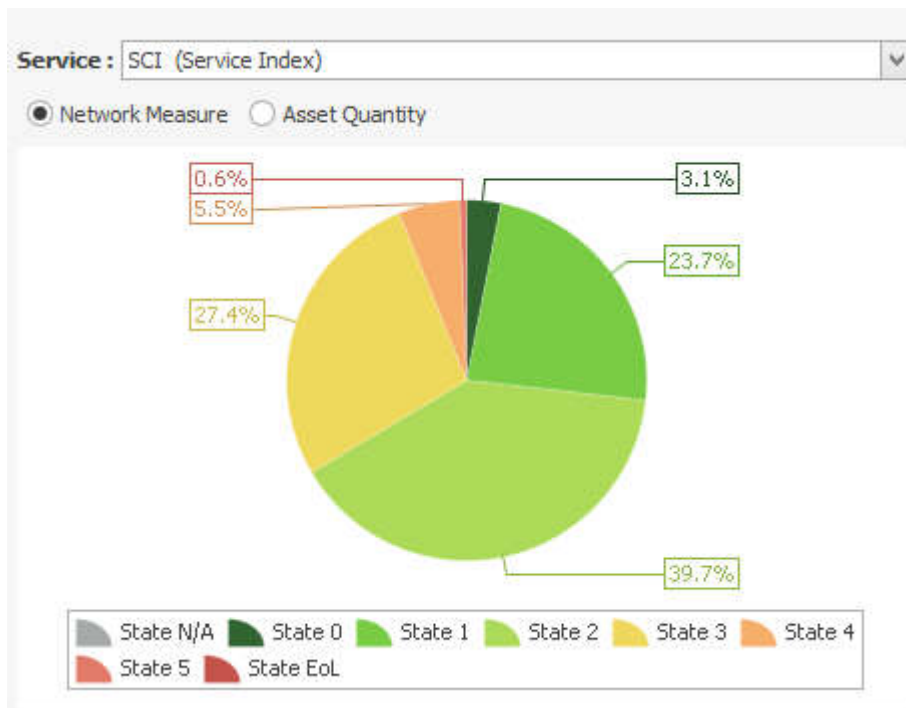
**Figure 5.3.1.4 Sealed Road Pavement Condition Index**

(Condition 1 Excellent Condition 5 Very Poor)

Condition	Network Measure
1	0
2	8.60%
3	88.60%
4	2.90%
5	0

**Sealed Road Pavement Condition Index**

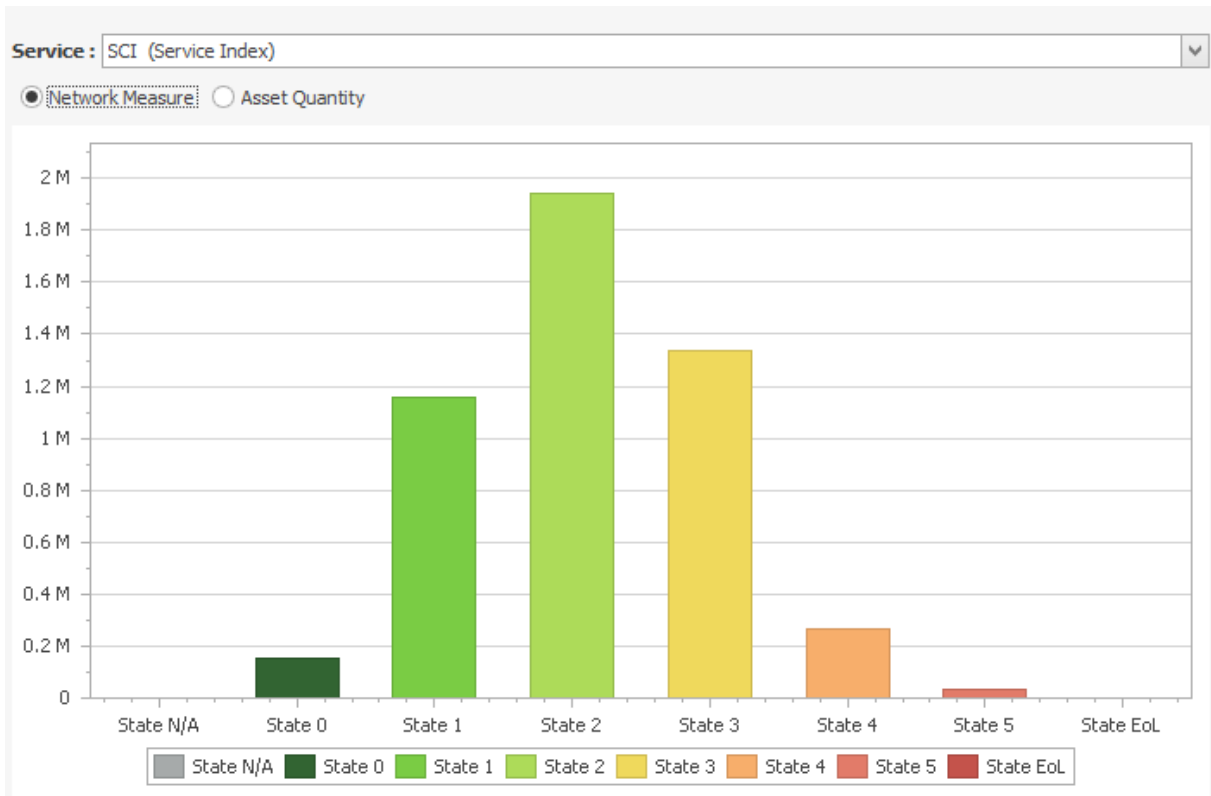
(Condition 1 Excellent Condition 5 Very Poor)



**Figure 5.3.1.5 Sealed Road Surface Condition Index**

(Condition 1 Excellent Condition 5 Very Poor)





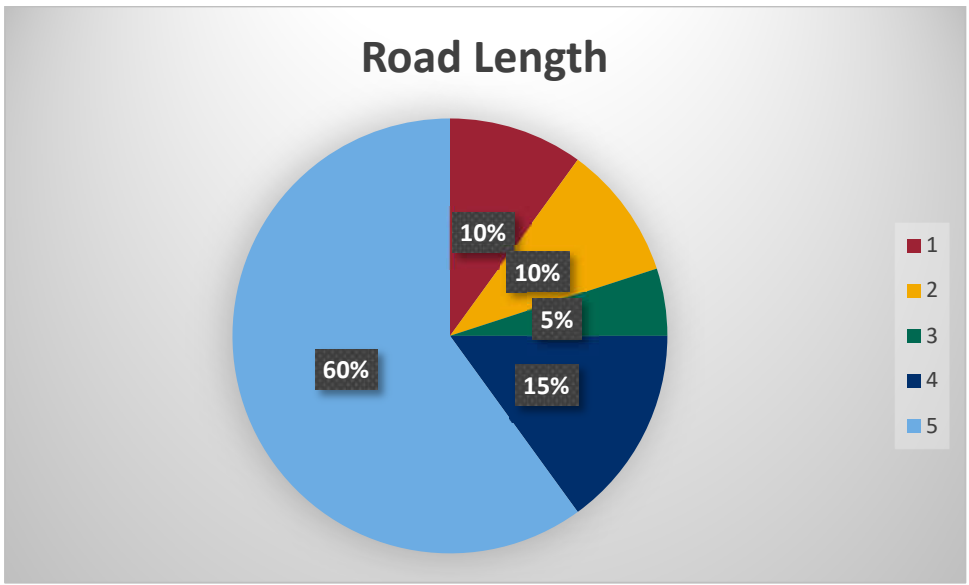
**Figure 5.3.1.6 Sealed Road Surface Condition Index**

**(Condition 1 Excellent Condition 5 Very Poor)**

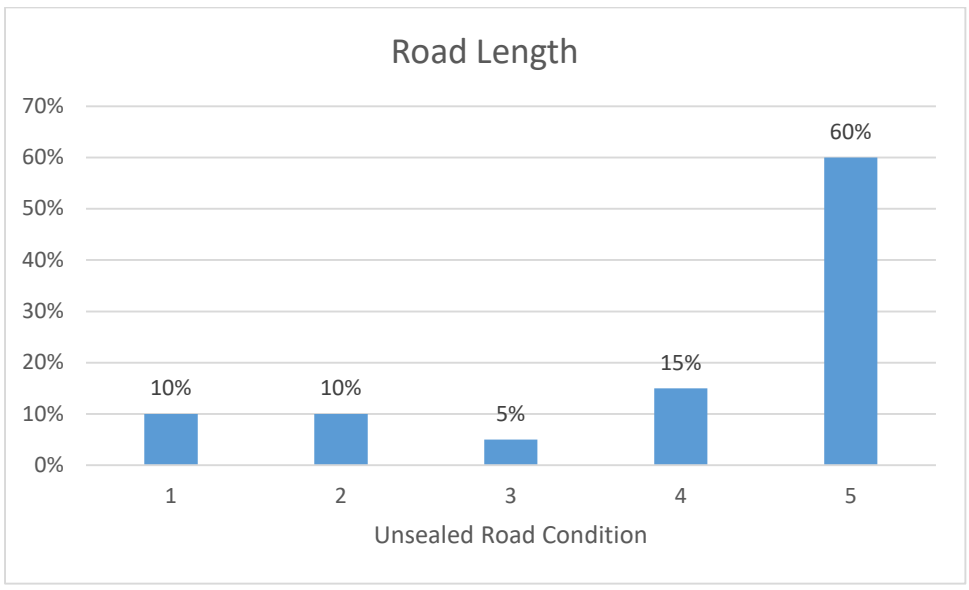
Condition	Network Measure
1	3.10%
2	23.70%
3	67.10%
4	5.50%
5	0.60%

**Sealed Road Surface Condition Index**

**(Condition 1 Excellent Condition 5 Very Poor)**



**Figure 5.3.1.7 Unsealed Road Condition Based On Best Estimate from Maintenance (Condition 1 Excellent Condition 5 Very Poor)**

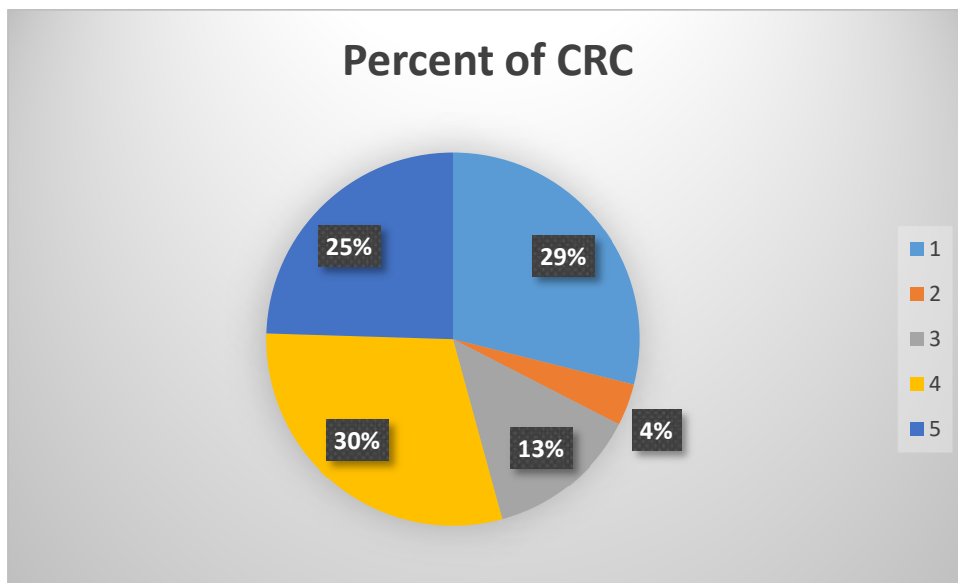


**Figure 5.3.1.8 Unsealed Road Condition Based On Best Estimate from Maintenance (Condition 1 Excellent Condition 5 Very Poor)**

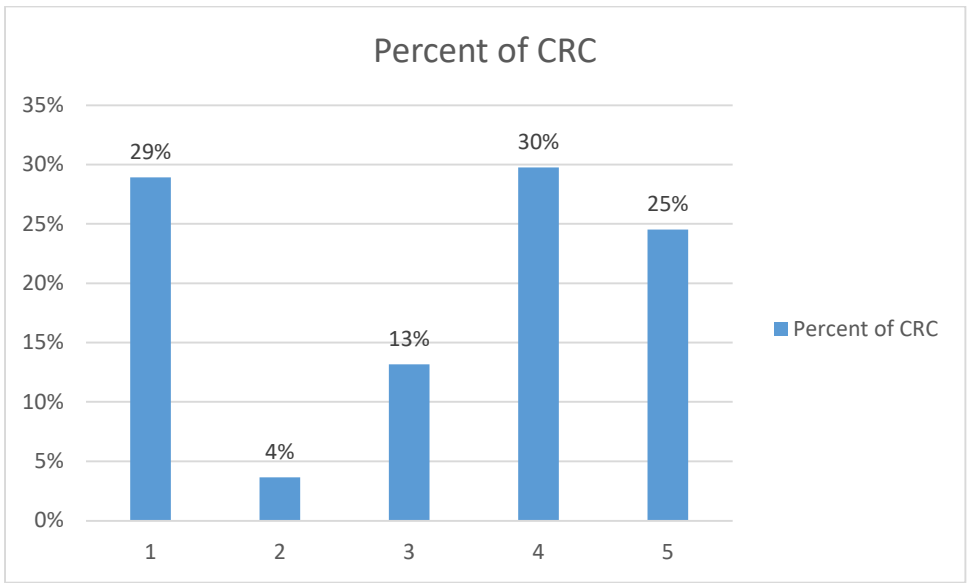
Unsealed Road Condition	Network Measure
1	10%

2	10%
3	5%
4	15%
5	60%

**Unsealed Road Condition Based On Best Estimate from Maintenance  
(Condition 1 Excellent Condition 5 Very Poor)**



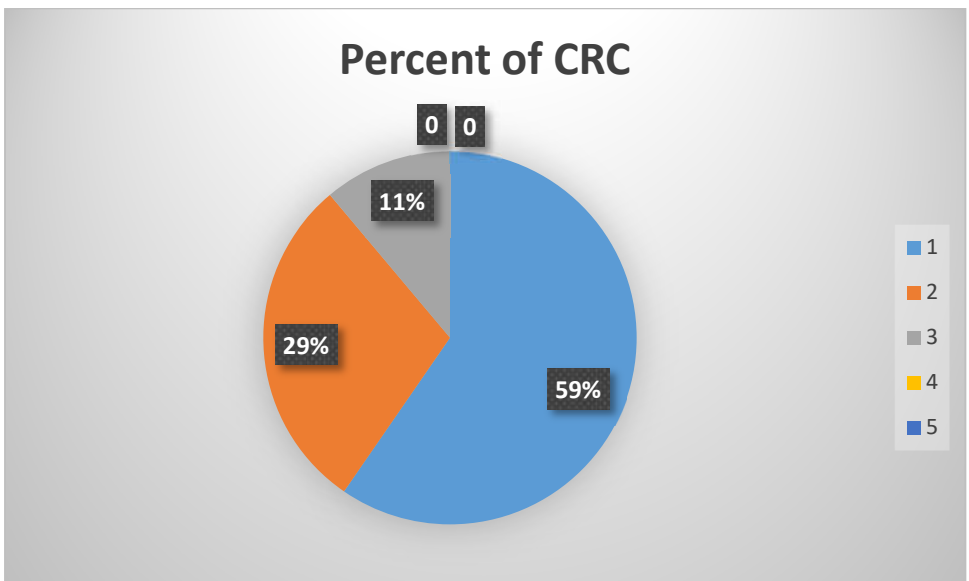
**Bridge Condition Based on Age  
(Condition 1 Excellent Condition 5 Very Poor)**



**Bridge Condition Based on Age**  
(Condition 1 Excellent Condition 5 Very Poor)

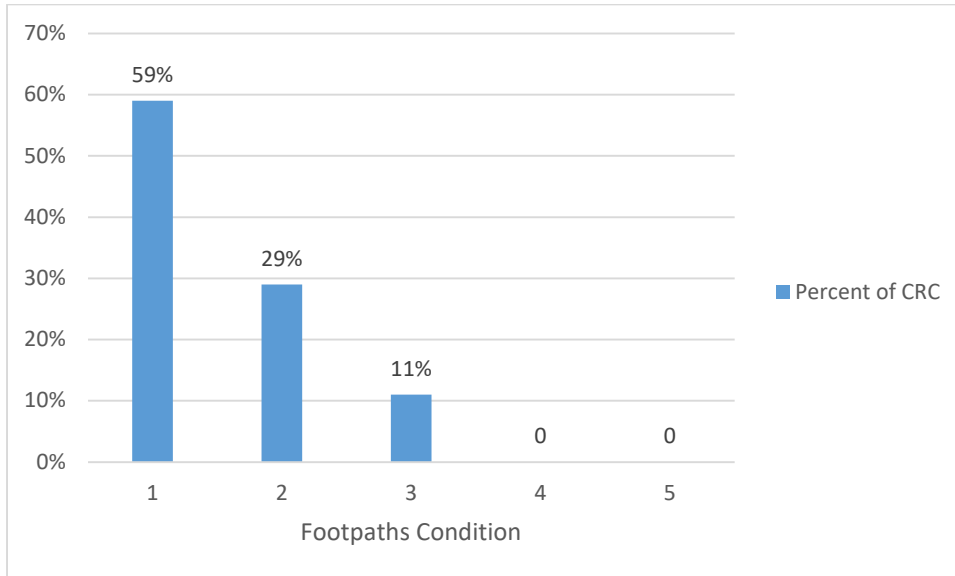
Bridge Condition	Percent of CRC
1	29%
2	4%
3	13%
4	30%
5	25%

**Bridge Condition Based on Age**  
(Condition 1 Excellent Condition 5 Very Poor)



**Footpaths Condition Based on Age**

**(Condition 1 Excellent Condition 5 Very Poor)**



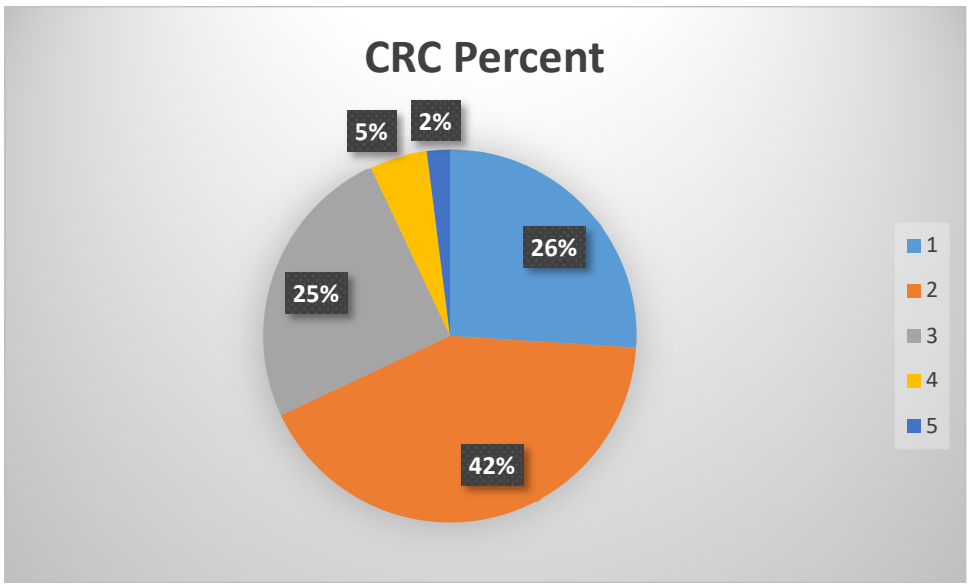
**Footpath Condition**

**(Condition 1 Excellent Condition 5 Very Poor)**

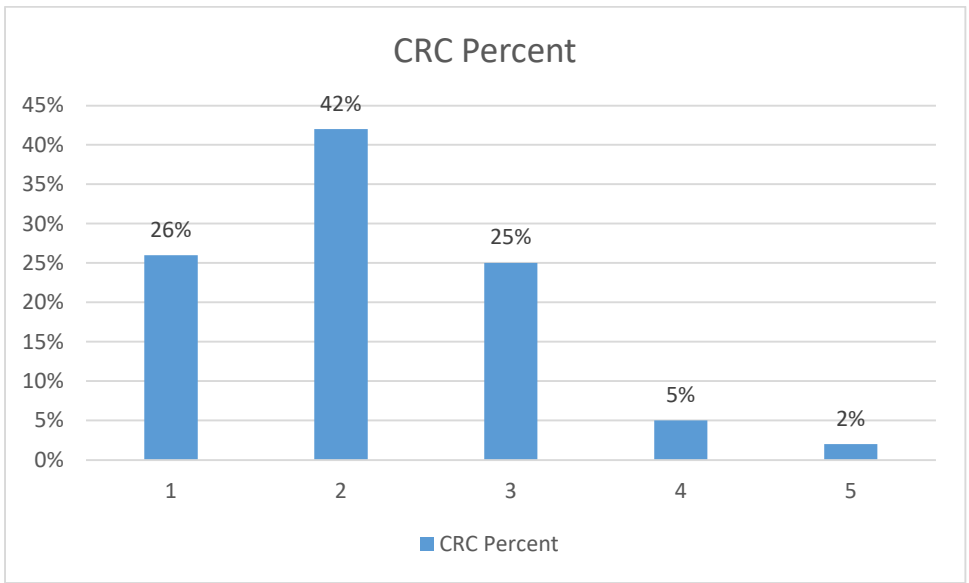
Condition	Percent of CRC
1	59%
2	29%
3	11%
4	0
5	0

**Footpath Condition**

**(Condition 1 Excellent Condition 5 Very Poor)**



**Kerbs Condition Based on Age  
(Condition 1 Excellent Condition 5 Very Poor)**



**Kerbs Condition Based on Age  
(Condition 1 Excellent Condition 5 Very Poor)**

Kerb Condition	CRC Percent
1	26%
2	42%
3	25%
4	5%

5	2%
---	----

**Kerbs Condition Based on Age  
(Condition 1 Excellent Condition 5 Very Poor)**

**5.2 Operations and Maintenance Plan**

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

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

Maintenance budget levels are considered to be adequate to meet projected service levels, which may be less than or equal to current service levels. Where maintenance budget allocations are such that they will result in a lesser level of service, the service consequences and service risks have been identified and are highlighted in this AM Plan and service risks considered in the Infrastructure Risk Management Plan.

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

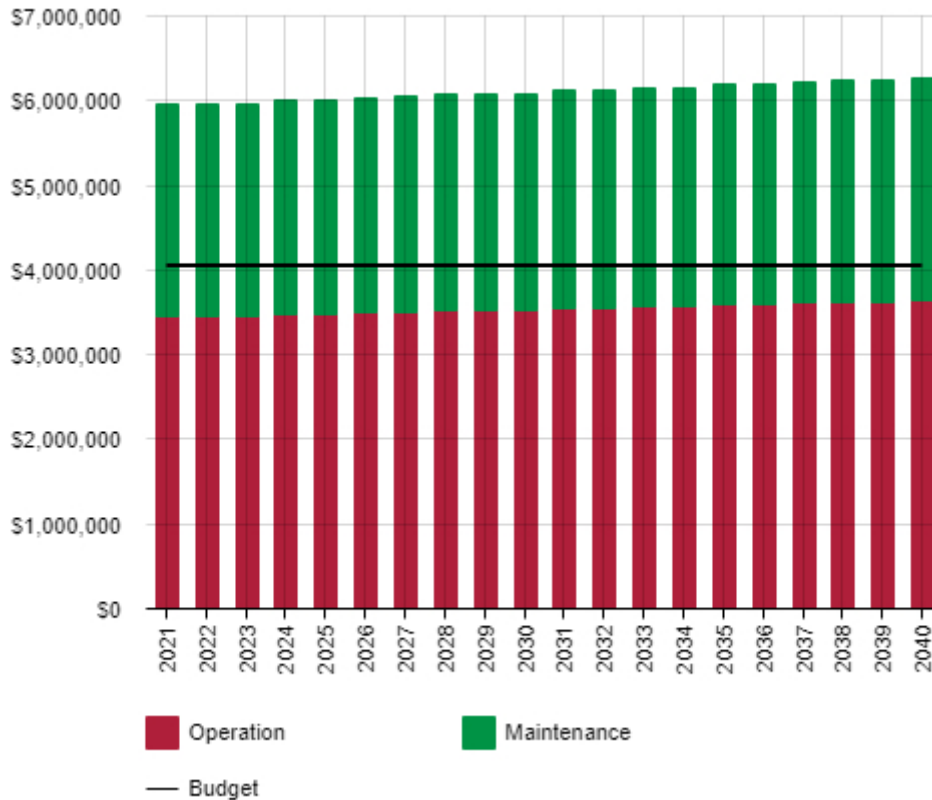
**Asset hierarchy**

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

**Summary of forecast operations and maintenance costs**

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

**Figure 5.2: Operations and Maintenance Summary**



All figure values are shown in current day dollars. This budget scenario does not consider any additional operational and maintenance expenditure. With current operations and maintenance budget, it is not possible to conduct grading program according to our service level. Road side drainage works cannot be conducted at satisfactory level.

### 5.3 Renewal Plan

Renewal is major capital work which does not significantly alter the original service provided by the asset, but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is considered to be an acquisition resulting in additional future operations and maintenance costs.

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

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



The typical useful lives of assets used to develop projected asset renewal forecasts are shown in Table 5.3. Asset useful lives were last reviewed on 30 June 2020.<sup>6</sup>

**Table 5.3: Useful Lives of Assets**

Asset (Sub)Category	Useful life
Sealed Road Surface	20 years
Sealed Road Pavement	60 Years
Unsealed Road Pavement	15-20 Years
Sealed Road Sub-base	1000 Years
Bridges and Causeway	100 years
Major Culverts>6m	100 years

The estimates for renewals in this AM Plan were based on the alternate method.

**5.3.1 Renewal ranking criteria**

Asset renewal is typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (e.g. replacing a bridge that has a 5 t load limit), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. condition of a playground).<sup>7</sup>

It is possible to prioritise renewals by identifying assets or asset groups that:

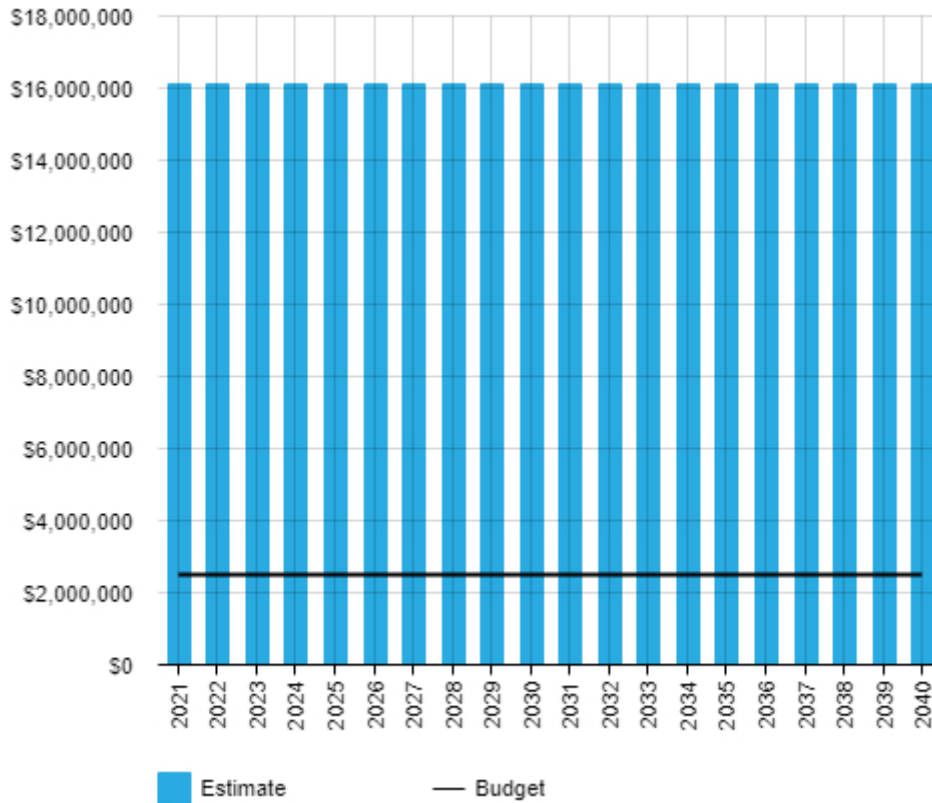
- Have a high consequence of failure,
- Have high use and subsequent impact on users would be significant,
- Have higher than expected operational or maintenance costs, and
- Have potential to reduce life cycle costs by replacement with a modern equivalent asset that would provide the equivalent service.<sup>8</sup>

**5.4 Summary of future renewal costs**

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

**Figure 5.4.1: Forecast Renewal Costs**

<sup>6</sup> Enter Reference to Report documenting Review of Useful Life of Assets  
<sup>7</sup> IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.  
<sup>8</sup> Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.



All figure values are shown in current day dollars. Renewal funding is based on grant funding which council receive every year but not guaranteed it will continue. It is the best guess for our analysis for this asset management plan.

Renewal forecast is based on sealed road pavement analysis where raw data collected by ARRB. Unsealed road are based on a calculated 30 km re-sheeting per year, including budget allocated for road side drainage and transport asset condition assessment.

You can see the big gap between current renewal budget and required budget. If council is not able to continue to fill the renewal gap through grant funding, the assets will deteriorate significantly and service level will decrease significantly.

## 5.5 Acquisition Plan

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

### 5.5.1 Selection criteria

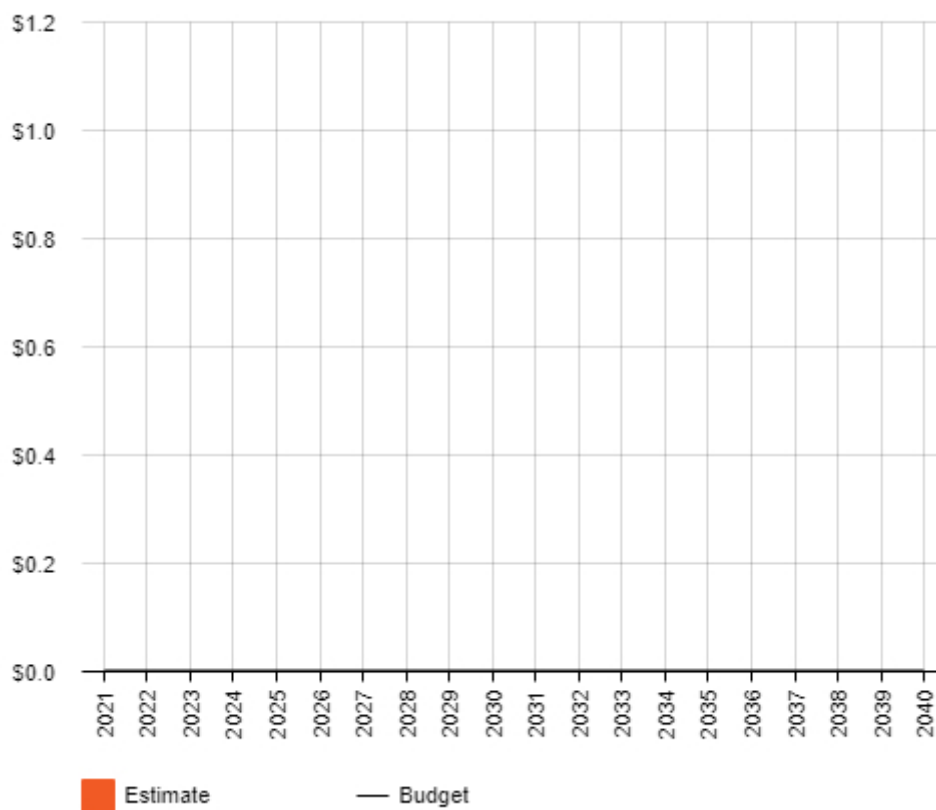
New asset requirements and upgrades of existing assets are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Potential upgrade and new works should be reviewed to verify that they are essential to the Entities needs. Proposed upgrade and new work analysis should also include the development of a preliminary

renewal estimate to ensure that the services are sustainable over the longer term. Verified proposals can then be ranked by priority and available funds and scheduled in future works programmes. The priority ranking criteria is detailed in Table 5.5.1.

### Summary of future asset acquisition costs

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

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



All figure values are shown in current day dollars.

When an Entity commits to new assets, they must be prepared to fund future operations, maintenance and renewal costs. They must also account for future depreciation when reviewing long term sustainability. When reviewing the long-term impacts of asset acquisition, it is useful to consider the cumulative value of the acquired assets being taken on by the Entity. The cumulative value of all acquisition work, including assets that are constructed and contributed shown in Figure 5.5.2.

**Figure 5.5.2: Acquisition Summary**



All figure values are shown in current dollars.

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

**5.6 Disposal Plan**

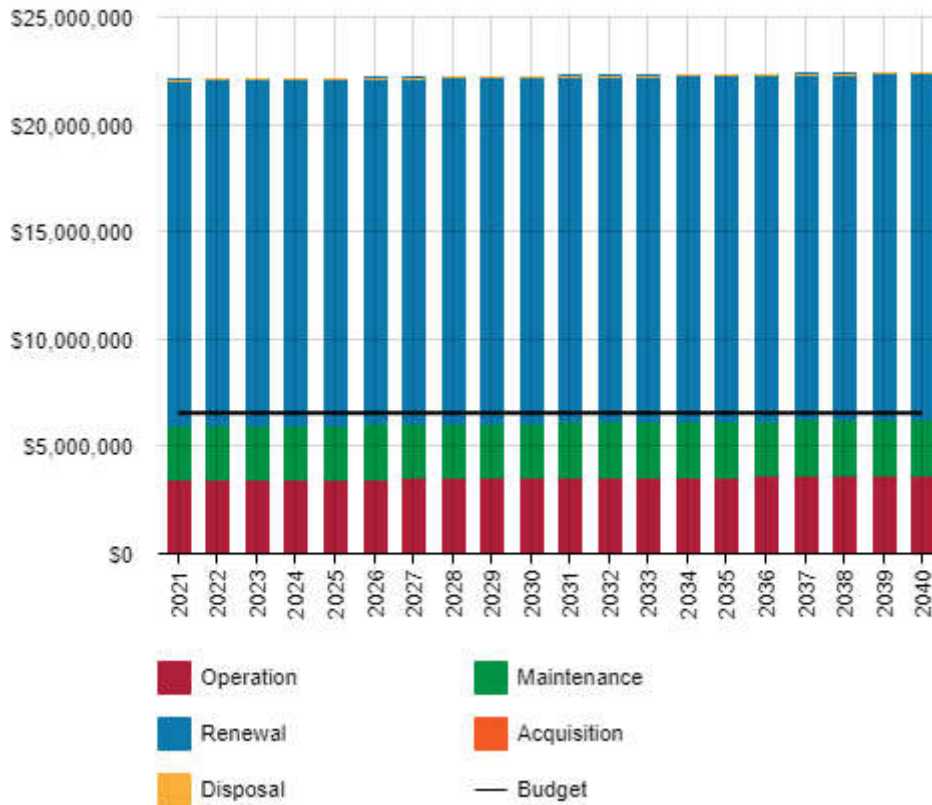
Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation.

**5.7 Summary of asset forecast costs**

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

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

**Figure 5.7.1: Lifecycle Summary**



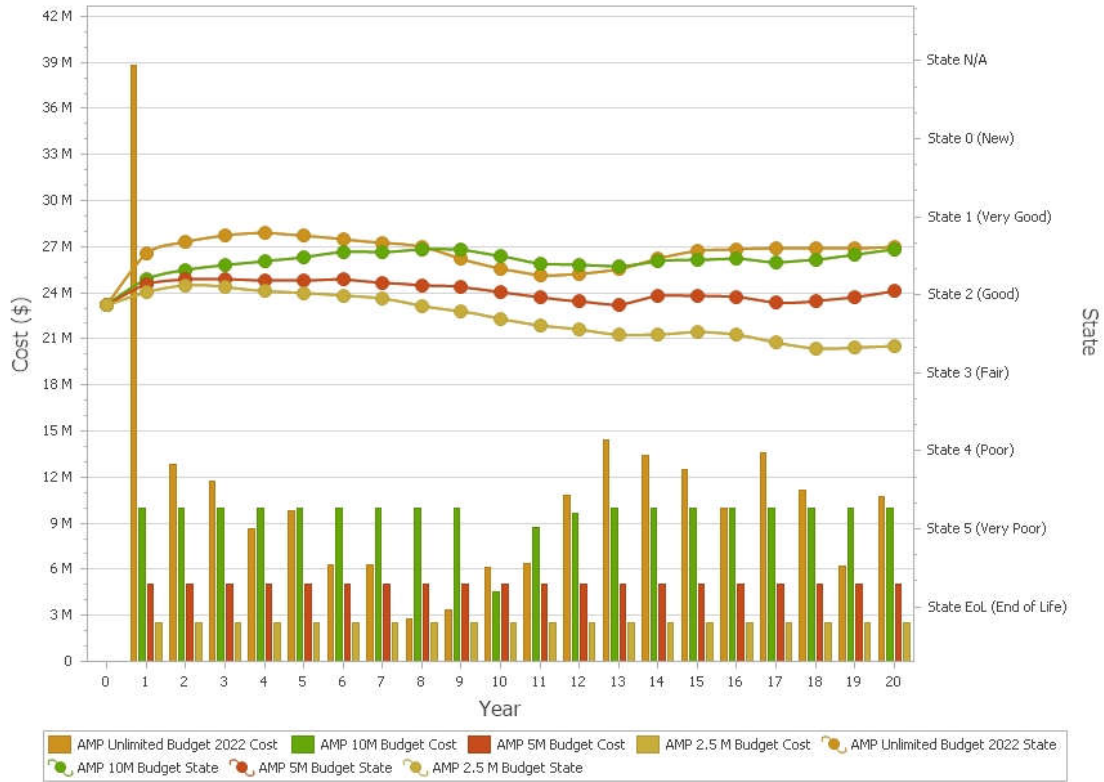
All figure values are shown in current day dollars.

Strategic Modelling analysis has been used to predict the deterioration of Council Transport assets mainly sealed road asset under varying renewal funding scenarios.

The snapshot of the sealed roads dataset utilised for modelling is current as of June 2021. The length of time predicted for each option is for a period of 20 years. The four simulated options are as follows:

Predicted for each option is for a period of 20 years. The four simulated options are as follows:

- **Option 1:** Funding of \$ 2.5 M per Year
- **Option 2:** Funding of \$ 5M Per Year
- **Option 3:** Funding of \$ 10 M per year
- **Option 4:** Funding of Unlimited Budget



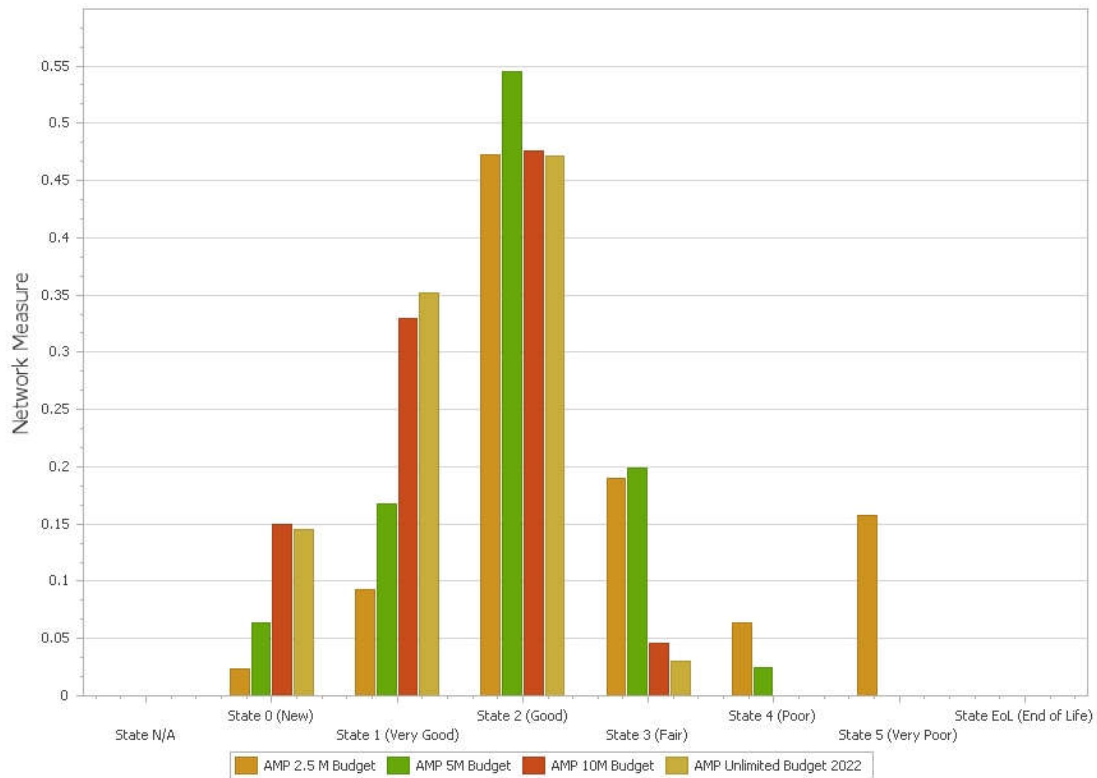
**Service State Yearly Comparison with Different Budget Options  
Sealed Road Forecast 20 Years Funding Analysis**

Year	Unlimited Budget Option 4		\$ 10 M Per Year Option 3		\$ 5 M Per Year Option 2		\$ 2.5 M Per Year Option 1	
	Renewal Cost	Avg. OSI	Renewal Cost	Avg. OSI	Renewal Cost	Avg. OSI	Renewal Cost	Avg. OSI
1	\$ 38,780,880	1.462	\$ 9,997,894	1.794	\$4,997,544	1.861	\$ 2,499,636	1.957
2	\$ 12,864,229	1.322	\$ 9,995,729	1.681	\$4,993,079	1.806	\$ 2,494,487	1.879
3	\$ 11,735,350	1.231	\$ 9,998,985	1.616	\$4,999,835	1.805	\$ 2,497,835	1.898
4	\$ 8,661,456	1.209	\$ 9,998,623	1.568	\$4,998,876	1.818	\$ 2,499,586	1.952
5	\$ 9,788,769	1.245	\$ 9,999,963	1.516	\$4,994,312	1.821	\$ 2,497,550	1.978
6	\$ 6,320,538	1.287	\$ 9,998,566	1.451	\$4,994,840	1.807	\$ 2,498,612	2.012
7	\$ 6,327,102	1.329	\$ 9,996,024	1.455	\$4,995,020	1.841	\$ 2,499,228	2.045
8	\$ 2,786,681	1.381	\$ 9,993,186	1.413	\$4,999,578	1.875	\$ 2,499,700	2.138
9	\$ 3,346,439	1.541	\$ 9,967,558	1.423	\$4,999,944	1.900	\$ 2,494,014	2.211
10	\$ 6,099,269	1.663	\$ 4,540,679	1.502	\$4,995,169	1.969	\$ 2,499,699	2.308
11	\$ 6,391,725	1.749	\$ 8,751,802	1.597	\$4,998,034	2.026	\$ 2,494,750	2.396
12	\$ 10,805,086	1.728	\$ 9,667,746	1.613	\$4,995,515	2.087	\$ 2,495,902	2.442
13	\$ 14,397,662	1.668	\$ 9,999,168	1.632	\$4,999,315	2.126	\$ 2,497,290	2.514
14	\$ 13,415,009	1.534	\$ 9,990,965	1.568	\$4,995,980	2.020	\$ 2,499,378	2.505
15	\$ 12,492,256	1.437	\$ 9,997,076	1.554	\$ 4,997,452	2.012	\$ 2,496,928	2.479
16	\$ 9,999,694	1.414	\$ 9,992,616	1.538	\$4,992,396	2.024	\$ 2,493,241	2.513
17	\$ 13,570,494	1.401	\$ 9,999,084	1.583	\$4,998,330	2.097	\$ 2,490,822	2.613
18	\$ 11,148,910	1.398	\$ 9,993,037	1.543	\$4,996,060	2.080	\$ 2,498,401	2.689
19	\$ 6,202,799	1.398	\$ 9,993,581	1.491	\$4,999,104	2.024	\$ 2,493,379	2.678
20	\$ 10,699,497	1.387	\$ 9,984,393	1.417	\$4,994,736	1.955	\$ 2,491,640	2.652

<b>Average /Yr</b>	<b>\$ 10,791,692</b>	<b>\$9,642,833.80</b>	<b>\$4,996,756</b>	<b>\$2,496,604</b>
<b>Total Cost</b>	<b>\$ 215,833,844</b>	<b>\$192,856,675.96</b>	<b>\$99,935,119</b>	<b>\$49,932,078</b>



**Sealed Road Service State (OSI) Comparison after 20 Years**



### Sealed Road Service State (OSI) Comparison after 20 Years

Simulation Name	State 0 (New)	State 1 (Very Good)	State 2 (Good)	State 3 (Fair)	State 4 (Poor)	State 5 (Very Poor)
Option 1 Budget per year \$ 2.5 M	2.38%	9.26%	47.21%	18.95%	6.40%	15.78%
Option 2 Budget per year \$ 5 M	6.34%	16.74%	54.52%	19.89%	2.49%	0.00%
Option 3 Budget Per year \$ 10M	15.01%	32.89%	47.53%	4.55%	0.00%	0.00%
Option 4 Budget Unlimited	14.57%	35.24%	47.14%	3.04%	0.00%	0.00%

### Service State scenario comparison after 20 Years

(Condition 1 Excellent Condition 5 Very Poor)



In transport asset category sealed roads are most important and expensive component. Currently there is no dedicated funding for renewal of transport assets. Most of renewal funding at YVC is coming from different grant fund both for rural and regional roads such as RR, RRRP, Storm Damage, Black Spot, FLR etc. These funding are not guaranteed. So all the scenarios mostly depends on grant funding.

Option 1 and option 2 are average OSI is less than 3 but within 3 they have 6.4% and 2.49% condition 4 exists. To get rid of condition 4 council need to adopt option 3 which is \$ 10 M per year renewal expenditure.

Current budget scenario after 20 years more than 22% of sealed road network will be condition 4 & Condition 5.

## 6.0 RISK MANAGEMENT PLANNING

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

Risk Management is defined in ISO 31000:2018 as: ‘coordinated activities to direct and control with regard to risk’<sup>9</sup>.

An assessment of risks<sup>10</sup> associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a ‘financial shock’, reputational impacts, or other consequences. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, and the consequences should the event occur. The risk assessment should also include the development of a risk rating, evaluation of the risks and development of a risk treatment plan for those risks that are deemed to be non-acceptable.

### 6.1 Critical Assets

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

**Table 6.1 Critical Assets**

Critical Asset(s)	Failure Mode	Impact
Hume Bridge	Structural Failure/Earthquake/Accident	Communication breakdown between north and south Yass and long detour needed.
Yass Valley Way	Pavement Failure	Communication Breakdown
Pearson’s Bridge	Structural Failure/Earthquake/Accident]	Communication Breakdown

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

### 6.2 Risk Assessment

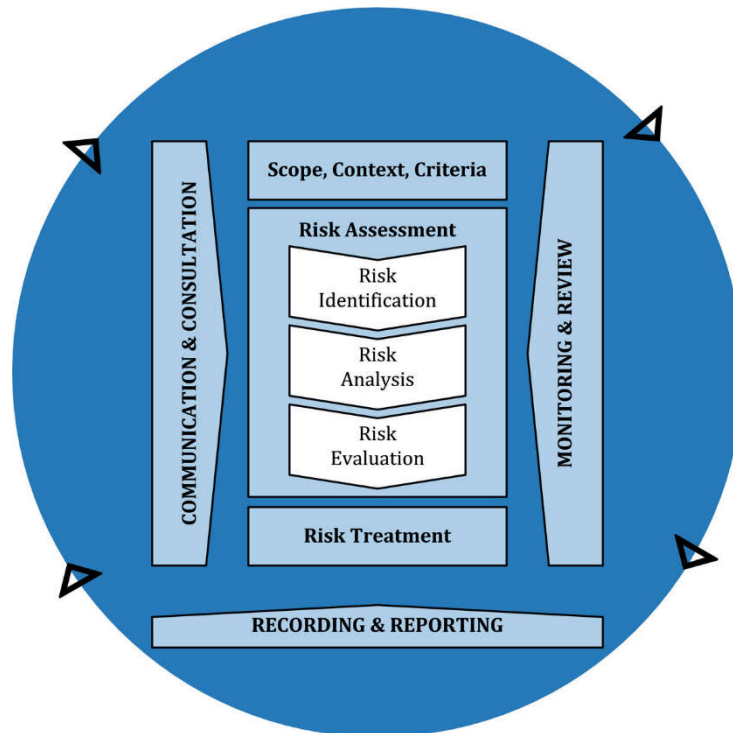
The risk management process used is shown in Figure 6.2 below.

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

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

<sup>9</sup> ISO 31000:2009, p 2

<sup>10</sup> REPLACE with Reference to the Corporate or Infrastructure Risk Management Plan as the footnote



**Fig 6.2 Risk Management Process – Abridged**

Source: ISO 31000:2018, Figure 1, p9

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

An assessment of risks<sup>11</sup> associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a ‘financial shock’, reputational impacts, or other consequences.

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

**Table 6.2: Risks and Treatment Plans**

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Sealed road pavements	Sealed road deterioration	High	A – Reseal program B- Pavement renewal	Medium	Cost Covered by maintenance and

	from pavement failure		program C – Pavement maintenance (Heavy Patching) D – Inspections		capital works like re-sealing and rehabilitation works
Sealed road surfaces	Sealed surface deterioration	High	A – Reseal program B – Sealed Surface maintenance (Patching) C – Inspections	Medium	Current renewal budget will not cover road surface deterioration fully. Proposed forecast budget will cover maintenance and capital works like re-sealing and rehabilitation works
Bridges and major culverts	Bridge and culvert loss	High	A – Annual inspections and maintenance B – Vegetation management of rivers and creeks C – Flood proofing of approaches D – Flood studies	Medium	Current budget will not cover everything but proposed budget will cover everything. Treatments A and B as part of other bridge inspection and maintenance programs
Concrete Bridges	Concrete Bridge deterioration	High	A – Annual Level 1 inspections B – 5 yearly Level 2 inspections C – 10 yearly Level 3 inspections	Medium	Current budget will not serve Bridge inspection level 1, 2 and 3 but proposed budget will cover everything as a part of bridge inspections proposed
Transport network	Reduction of external grant funding	Very High	A – Lobby Government B – Implement Fit for the Future Council Improvement Program	Medium	A – Staff time B – Reduced funding for discretionary items such as community grants

Roadside signage	Reduction in road safety from inadequate or unreadable signage	High	A – regular inspection B – Renewal program C – Annual reactive and programmed maintenance	Low	A – as part of sealed and unsealed road inspections
Unsealed roads	Unsealed road deterioration and loss of gravel	High	A – regular inspection B – Renewal program C – Annual reactive and programmed maintenance	High	Current budget will not cover unsealed road inspection and re-sheeting works but proposed budget will cover by annual maintenance and capital works program.
Shared path network	Shared path deterioration and increase in trip hazards and claims	Very High	A – Regular inspection B – Shared path renewals C – Annual shared path maintenance	Low	No current budget. Only inspection from customer complaint.
Guardrail	Reduction in road safety from ineffective barriers	High	A – regular inspection B – Annual maintenance C – Annual reactive and programmed maintenance	Low	No current budget. Only inspection from customer complaint.

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

### 6.3 Infrastructure Resilience Approach

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

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

Our current measure of resilience is shown in Table 6.3 which includes the type of threats and hazards and the current measures that the organisation takes to ensure service delivery resilience.

**Table 6.3: Resilience**

Threat / Hazard	Resilience LMH	Improvements / Interventions
Resilience assessments will be incorporated into further revisions of this plan		

## 7.0 FINANCIAL SUMMARY

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

### 7.1 Financial Sustainability and Projections

#### 7.1.1 Sustainability of service delivery

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

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

#### Asset Renewal Funding Ratio

Asset Renewal Funding Ratio<sup>12</sup> 15.53 %

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years we expect to have 15.53 % of the funds required for the optimal renewal of assets.

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

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

This AM Plan identifies the forecast operations, maintenance and renewal costs required to provide an agreed level of service to the community over a 10 year period. This provides input into 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

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

The forecast operations, maintenance and renewal costs over the 10 year planning period is \$22,121,506 average per year.

The proposed (budget) operations, maintenance and renewal funding is \$6,556,315 on average per year giving a 10 year funding shortfall of \$-15,565,190 per year. This indicates that 29.64% of the forecast costs needed to provide the services documented in this AM Plan are accommodated in the proposed budget. Note, these calculations exclude acquired assets.

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

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<sup>12</sup> AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

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

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

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

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

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

Forecast costs are shown in 20 years dollar values.

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

Year	Acquisition	Operation	Maintenance	Renewal	Disposal
2021	0	\$ 3,442,800	\$ 2,502,515	\$ 16,100,000	0
2022	0	\$ 3,453,065	\$ 2,509,181	\$ 16,100,000	0
2023	0	\$ 3,463,331	\$ 2,515,847	\$ 16,100,000	0
2024	0	\$ 3,473,596	\$ 2,522,513	\$ 16,100,000	0
2025	0	\$ 3,483,862	\$ 2,529,178	\$ 16,100,000	0
2026	0	\$ 3,494,127	\$ 2,535,844	\$ 16,100,000	0
2027	0	\$ 3,504,392	\$ 2,542,510	\$ 16,100,000	0
2028	0	\$ 3,514,658	\$ 2,549,176	\$ 16,100,000	0
2029	0	\$ 3,524,923	\$ 2,555,842	\$ 16,100,000	0
2030	0	\$ 3,535,188	\$ 2,562,508	\$ 16,100,000	0
2031	0	\$ 3,545,454	\$ 2,569,173	\$ 16,100,000	0
2032	0	\$ 3,555,719	\$ 2,575,839	\$ 16,100,000	0
2033	0	\$ 3,565,985	\$ 2,582,505	\$ 16,100,000	0
2034	0	\$ 3,576,250	\$ 2,589,171	\$ 16,100,000	0
2035	0	\$ 3,586,515	\$ 2,595,837	\$ 16,100,000	0
2036	0	\$ 3,596,781	\$ 2,602,503	\$ 16,100,000	0
2037	0	\$ 3,607,046	\$ 2,609,168	\$ 16,100,000	0
2038	0	\$ 3,617,311	\$ 2,615,834	\$ 16,100,000	0
2039	0	\$ 3,627,577	\$ 2,622,500	\$ 16,100,000	0
2040	0	\$ 3,637,842	\$ 2,629,166	\$ 16,100,000	0



## 7.2 Funding Strategy

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

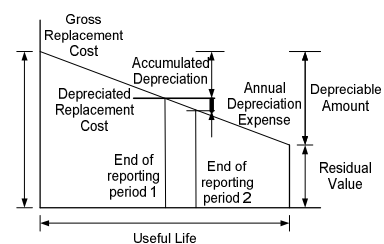
The financial strategy of the entity determines how funding will be provided, whereas the AM Plan communicates how and when this will be spent, along with the service and risk consequences of various service alternatives.

## 7.3 Valuation Forecasts

### 7.3.1 Asset valuations

The best available estimate of the value of assets included in this AM Plan are shown below. The assets are valued at fair value at cost to replace service capacity at 30<sup>th</sup> June 2020:

Replacement Cost (Current/Gross)	\$ 320,407,227.84
Depreciable Amount	\$242,117,616.91
Depreciated Replacement Cost <sup>13</sup>	\$ 244,220,315.20
Depreciation	\$ 3,583,559.92



This Asset Valuation is done for financial purpose and in line with Australian Accounting System and for bulk assets.

In this valuation the Value of Sealed Road Pavement Base is only \$9.61 for Rural, \$13.86 for regional and \$19.40 for urban per square meter which is way below our renewal cost \$50/sq-m. These are for all asset categories of transport assets. The unit rate in asset register is not reflecting actual renewal cost.

### 7.3.2 Valuation forecast

Asset values are forecast to increase as additional assets are added to service and the cost of asset replacement continues to increase faster than inflation.

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

## 7.4 Key Assumptions Made in Financial Forecasts

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

Key assumptions made in this AM Plan are:

<sup>13</sup> Also reported as Written Down Value, Carrying or Net Book Value.

- The current levels of service will remain constant over the life of the Plan.
- The treatment and maintenance costs are based on current schedules of rates and may not directly compare to Council’s internal service provision actual costs.
- All predicted financial figures are based on current rates and are not adjusted by the inflation rate for the particular year of works.
- Continued use of current construction techniques and materials in alignment with current standards.
- Current maintenance funding levels are meeting service level requirements.
- Capital renewal is generally ‘like for like’ however mandated improvements are factored into replacement costs when known.
- Depreciation is in accordance with Council Policy.
- The proposed capital renewal program will be funded as per the scenario recommended.
- Operations budget, maintenance budget and renewal budget will remain same upcoming years.
- Renewal Budget mostly depends on grant funding.
- No new assets from construction considered.
- Sealed road renewal forecast based on assetic predictor modelling and condition data. Other asset categories based on age only.

## 7.5 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this AM Plan are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is classified on a A - E level scale<sup>14</sup> in accordance with Table 7.5.1.

**Table 7.5.1: Data Confidence Grading System**

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

<sup>14</sup> IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.

Confidence Grade	Description
	grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated $\pm 25\%$
D. Low	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete, and most data is estimated or extrapolated. Accuracy $\pm 40\%$
E. Very Low	None or very little data held.

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

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

Data	Confidence Assessment	Comment
Demand drivers	C	Extrapolated from ABS Data
Growth projections	Did not consider	TBD
Acquisition forecast	B	Actual acquisition from development. No new asset from construction considered.
Operation forecast	C	Data Obtained from current figures and consultation
Maintenance forecast	C	Data Obtained from current figures and consultation
Renewal forecast - Asset values	C	Data Obtained from Asset register and useful lives determined by Asset Valuer during revaluation as at 30 June 2020.
- Asset useful lives	C	Data Obtained from Asset register and useful lives determined by Valuer during revaluation as at 30 June 2020.
- Condition modelling	C. Only sealed road condition captured and other asset categories age is the governing factor which comes from asset register.	
Upgrade and New Expenditure	C	Council aware of their limitations of budget and decided not go for any upgrade and new construction without grant funding at this moment.

The estimated confidence level for and reliability of data used in this AM Plan is considered to be Confidence Level C.

## 8.0 PLAN IMPROVEMENT AND MONITORING

### 8.1 Status of Asset Management Practices<sup>15</sup>

#### 8.1.1 Accounting and financial data sources

This AM Plan utilises accounting and financial data. The source of the data is Assetic MyData, Assetic Predictor and MAGIQ.

#### 8.1.2 Asset management data sources

This AM Plan also utilises asset management data. The source of the data is Assetic MyData.

### 8.2 Improvement Plan

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

**Table 8.2: Improvement Plan**

Task No	Task	Responsibility	Resources Required	Timeline
1.	Consider condition data collection of unsealed road, Bridges, Large culverts, Footpaths, community paths and Kerbs.	Engineering Services Manager/Asset Engineer	Consultant for data capture	Ongoing
2.	Incorporate a comprehensive risk register with the asset management plan.	Engineering Services Manager/Asset Engineer	No additional resource required.	Ongoing
3.	Engage with the community to determine community satisfaction levels in relation to the provision of assets.	Executive	Consultant	Ongoing
4.	Through stage 2 of the service level review process desired level of service of the community and associated willingness to pay need to be determined.	Executive	Consultant	Ongoing
5.	Update and Prepare AMP to reflect communities desired levels of service as determined task 3 and 4.	Engineering Services Manager/Asset Engineer	Consultant	Ongoing
6.	Determine optimal maintenance strategies for Transport infrastructure assets through improved condition data and review	Engineering Services Manager/Road Maintenance Manager	Consultant	Ongoing

<sup>15</sup> ISO 55000 Refers to this as the Asset Management System

	life cycle costs and current work practices.			
7.	Asset Management Plans contribute to and include priority programs to assist with forward planning.	Engineering Services Manager/Asset Engineer	No additional resource required.	Ongoing
8.	Continue to apply a consistent standard to the hierarchy of assets with regards to categorisation, componentisation and attributes recorded.	Engineering Services Manager/Asset Engineer	No additional resource required	Ongoing

### 8.3 Monitoring and Review Procedures

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

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

The AM Plan has a maximum life of 4 years and is due for complete revision and updating within 2 years of each Council election.

### 8.4 Performance Measures

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

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

## 9.0 REFERENCES

- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/IIMM](http://www.ipwea.org/IIMM)
- IPWEA, 2015, 3rd edn., 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/IIMM](http://www.ipwea.org/IIMM)
- IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/namsplus](http://www.ipwea.org/namsplus).
- IPWEA, 2015, 2nd edn., 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/AIFMM](http://www.ipwea.org/AIFMM).
- IPWEA, 2020 'International Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney
- IPWEA, 2018, Practice Note 12.1, 'Climate Change Impacts on the Useful Life of Assets', Institute of Public Works Engineering Australasia, Sydney
- IPWEA, 2012, Practice Note 6 Long-Term Financial Planning, Institute of Public Works Engineering Australasia, Sydney, <https://www.ipwea.org/publications/ipweabookshop/practicenotes/pn6>
- IPWEA, 2014, Practice Note 8 – Levels of Service & Community Engagement, Institute of Public Works Engineering Australasia, Sydney, <https://www.ipwea.org/publications/ipweabookshop/practicenotes/pn8>
- ISO, 2014, ISO 55000:2014, Overview, principles and terminology
- ISO, 2018, ISO 31000:2018, Risk management – Guidelines
- The Table Lands Regional Community Strategic Plan 2016-2036
- Community Strategic Plan 2013-2030

## 10.0 APPENDICES

### Appendix A Acquisition Forecast

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

Acquisition forecast based on gifted asset only.

#### A.2 – Acquisition Project Summary

No new project considered from Council own fund.

#### A.3 – Acquisition Forecast Summary

*Table A3 - Acquisition Forecast Summary*

Year	Constructed	Donated	Growth
2021	0	\$ 1,333,165	0
2022	0	\$ 1,333,165	0
2023	0	\$ 1,333,165	0
2024	0	\$ 1,333,165	0
2025	0	\$ 1,333,165	0
2026	0	\$ 1,333,165	0
2027	0	\$ 1,333,165	0
2028	0	\$ 1,333,165	0
2029	0	\$ 1,333,165	0
2030	0	\$ 1,333,165	0
2031	0	\$ 1,333,165	0
2032	0	\$ 1,333,165	0
2033	0	\$ 1,333,165	0
2034	0	\$ 1,333,165	0
2035	0	\$ 1,333,165	0
2036	0	\$ 1,333,165	0
2037	0	\$ 1,333,165	0
2038	0	\$ 1,333,165	0
2039	0	\$ 1,333,165	0
2040	0	\$ 1,333,165	0

**Appendix B    Operation Forecast**

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

Operations forecast based on current expenditure with no inflation or population growth.

**B.2 – Operation Forecast Summary**

Operations forecast based on current expenditure with no inflation or population growth. Operations Forecast \$2,453,800 based on FY 2020-21 operations expenditure and \$10, 265 additional expenditure from Gifted assets and \$989,000 per year additional Forecast to keep asset in satisfactory condition.

**Table B2 - Operation Forecast Summary**

Year	Operation Forecast	Additional Operation Forecast	Total Operation Forecast
2021	\$ 2,453,800	\$ 10,265	\$ 3,442,800
2022	\$ 2,453,800	\$ 10,265	\$ 3,453,065
2023	\$ 2,453,800	\$ 10,265	\$ 3,463,331
2024	\$ 2,453,800	\$ 10,265	\$ 3,473,596
2025	\$ 2,453,800	\$ 10,265	\$ 3,483,862
2026	\$ 2,453,800	\$ 10,265	\$ 3,494,127
2027	\$ 2,453,800	\$ 10,265	\$ 3,504,392
2028	\$ 2,453,800	\$ 10,265	\$ 3,514,658
2029	\$ 2,453,800	\$ 10,265	\$ 3,524,923
2030	\$ 2,453,800	\$ 10,265	\$ 3,535,188
2031	\$ 2,453,800	\$ 10,265	\$ 3,545,454
2032	\$ 2,453,800	\$ 10,265	\$ 3,555,719
2033	\$ 2,453,800	\$ 10,265	\$ 3,565,985
2034	\$ 2,453,800	\$ 10,265	\$ 3,576,250
2035	\$ 2,453,800	\$ 10,265	\$ 3,586,515
2036	\$ 2,453,800	\$ 10,265	\$ 3,596,781
2037	\$ 2,453,800	\$ 10,265	\$ 3,607,046
2038	\$ 2,453,800	\$ 10,265	\$ 3,617,311
2039	\$ 2,453,800	\$ 10,265	\$ 3,627,577
2040	\$ 2,453,800	\$ 10,265	\$ 3,637,842



### B.3- Additional Operational Forecast

Forecast showing one year projects and will continue next 20 years.

Year	Project	Additional Operational Budget Forecast	Comments
2021	Transport Assets Condition Assessment including unsealed roads, bridges and Major culverts, Footpaths and kerbs & Gutter	\$ 50,000.00	Every four years condition assessment based on \$ 50,000/yr budget.
2021	Provision of after-hours call-out Response	\$ 60,000.00	base on two staff on double time for 4 hours twice a week
2021	provision of traffic control for events (eg Anzac day)	\$10,000.00	10 events a year with 4 staff on double time for 4 hours for each event
2021	provision of emergency response services (primarily flooding etc)	\$ 50,000.00	suggest allow \$50k
2021	Roadside vegetation management (grasses and suckers)	\$ 100,000.00	one slash and one poison intervention pa on all roads
2021	Road Vegetation Trees on Unsealed Roads	\$60,000.00	Suggest \$100k pa (for Ideal only) rural trees only
2021	Patching and edge breaks etc	\$ 100,000.00	patch truck for whole of year
2021	Pot hole and miscellaneous repairs etc	\$ 9,000.00	two 2 person crews for whole year
2021	All transport assets are inspected annual and any required action documented and program. This about becoming proactive rather than reactive and undertaking risk management through inspection	\$ 90,000.00	one asset inspector (say equivalent to a co-ordinator) for whole year plus admin support
2021	Illegal dumping	\$ 5,000.00	
2021	Additional Crew to support construction works	\$140,000.00	Stormwater Team 50% work will be in Transport
2021	Roadside Drainage Crew	\$ 295,000.00	

**Appendix C Maintenance Forecast**

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

Maintenance cost based on last year FY 2020-21 maintenance cost from Councils corporate and financial software MAGIQ.

**C.2 – Maintenance Forecast Summary**

Maintenance forecast based on last year actual maintenance cost. No inflation considered. Planned Maintenance cost forecast \$ 1,602,515 additional maintenance \$ 6,666 for gifted assets, \$ 900,000 additional maintenance cost for grading and other assets to keep asset at satisfactory level.

*Table C2 - Maintenance Forecast Summary*

Year	Maintenance Forecast	Additional Maintenance Forecast	Total Maintenance Forecast
2021	\$ 1,602,515	\$ 6,666	\$ 2,502,515
2022	\$ 1,602,515	\$ 6,666	\$ 2,509,181
2023	\$ 1,602,515	\$ 6,666	\$ 2,515,847
2024	\$ 1,602,515	\$ 6,666	\$ 2,522,513
2025	\$ 1,602,515	\$ 6,666	\$ 2,529,178
2026	\$ 1,602,515	\$ 6,666	\$ 2,535,844
2027	\$ 1,602,515	\$ 6,666	\$ 2,542,510
2028	\$ 1,602,515	\$ 6,666	\$ 2,549,176
2029	\$ 1,602,515	\$ 6,666	\$ 2,555,842
2030	\$ 1,602,515	\$ 6,666	\$ 2,562,508
2031	\$ 1,602,515	\$ 6,666	\$ 2,569,173
2032	\$ 1,602,515	\$ 6,666	\$ 2,575,839
2033	\$ 1,602,515	\$ 6,666	\$ 2,582,505
2034	\$ 1,602,515	\$ 6,666	\$ 2,589,171
2035	\$ 1,602,515	\$ 6,666	\$ 2,595,837
2036	\$ 1,602,515	\$ 6,666	\$ 2,602,503
2037	\$ 1,602,515	\$ 6,666	\$ 2,609,168
2038	\$ 1,602,515	\$ 6,666	\$ 2,615,834
2039	\$ 1,602,515	\$ 6,666	\$ 2,622,500
2040	\$ 1,602,515	\$ 6,666	\$ 2,629,166

## Appendix D Renewal Forecast Summary

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

Describe the assumptions and include relevant information relating to the Renewal Forecast. Planned renewal cost \$ 2.5 M is based on assumption that Council is getting this funding for long time. But this is also based on grant funding.

### D.2 – Renewal Project Summary

The project titles included in the lifecycle forecast are included here. Additional renewal \$ 16.1 M per year to keep Transport asset in satisfactory condition.

Year	Project	Estimate
2021	Sealed Road Resealing and Rehabilitations	\$ 10,000,000.00
2021	Unsealed Road Re-sheeting	\$ 2,000,000.00
2021	Unsealed Road to Sealed Road Upgrade	\$ 1,500,000.00
2021	Bridges Renewal	\$ 2,000,000.00
2021	Major Culverts Renewal	\$ 200,000.00
2021	Footpaths Renewal and New Footpaths	\$ 200,000.00
2021	Kerb & Gutter Renewal and New Kerb & Gutter	\$ 200,000.00
2022	Sealed Road Resealing and Rehabilitations	\$ 10,000,000.00
2022	Unsealed Road Re-sheeting	\$ 2,000,000.00
2022	Unsealed Road to Sealed Road Upgrade	\$ 1,500,000.00
2022	Bridges Renewal	\$ 2,000,000.00
2022	Major Culverts Renewal	\$ 200,000.00
2022	Footpaths Renewal and New Footpaths	\$ 200,000.00
2022	Kerb & Gutter Renewal and New Kerb & Gutter	\$ 200,000.00
2023	Sealed Road Resealing and Rehabilitations	\$ 10,000,000.00
2023	Unsealed Road Re-sheeting	\$ 2,000,000.00
2023	Unsealed Road to Sealed Road Upgrade	\$ 1,500,000.00
2023	Bridges Renewal	\$ 2,000,000.00
2023	Major Culverts Renewal	\$ 200,000.00
2023	Footpaths Renewal and New Footpaths	\$ 200,000.00
2023	Kerb & Gutter Renewal and New Kerb & Gutter	\$ 200,000.00
2024	Sealed Road Resealing and Rehabilitations	\$ 10,000,000.00
2024	Unsealed Road Re-sheeting	\$ 2,000,000.00
2024	Unsealed Road to Sealed Road Upgrade	\$ 1,500,000.00
2024	Bridges Renewal	\$ 2,000,000.00
2024	Major Culverts Renewal	\$ 200,000.00
2024	Footpaths Renewal and New Footpaths	\$ 200,000.00
2024	Kerb & Gutter Renewal and New Kerb & Gutter	\$ 200,000.00
2025	Sealed Road Resealing and Rehabilitations	\$ 10,000,000.00
2025	Unsealed Road Re-sheeting	\$ 2,000,000.00
2025	Unsealed Road to Sealed Road Upgrade	\$ 1,500,000.00
2025	Bridges Renewal	\$ 2,000,000.00
2025	Major Culverts Renewal	\$ 200,000.00

2025	Footpaths Renewal and New Footpaths	\$	200,000.00
2025	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00
2026	Sealed Road Resealing and Rehabilitations	\$	10,000,000.00
2026	Unsealed Road Re-sheeting	\$	2,000,000.00
2026	Unsealed Road to Sealed Road Upgrade	\$	1,500,000.00
2026	Bridges Renewal	\$	2,000,000.00
2026	Major Culverts Renewal	\$	200,000.00
2026	Footpaths Renewal and New Footpaths	\$	200,000.00
2026	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00
2027	Sealed Road Resealing and Rehabilitations	\$	10,000,000.00
2027	Unsealed Road Re-sheeting	\$	2,000,000.00
2027	Unsealed Road to Sealed Road Upgrade	\$	1,500,000.00
2027	Bridges Renewal	\$	2,000,000.00
2027	Major Culverts Renewal	\$	200,000.00
2027	Footpaths Renewal and New Footpaths	\$	200,000.00
2027	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00
2028	Sealed Road Resealing and Rehabilitations	\$	10,000,000.00
2028	Unsealed Road Re-sheeting	\$	2,000,000.00
2028	Unsealed Road to Sealed Road Upgrade	\$	1,500,000.00
2028	Bridges Renewal	\$	2,000,000.00
2028	Major Culverts Renewal	\$	200,000.00
2028	Footpaths Renewal and New Footpaths	\$	200,000.00
2028	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00
2029	Sealed Road Resealing and Rehabilitations	\$	10,000,000.00
2029	Unsealed Road Re-sheeting	\$	2,000,000.00
2029	Unsealed Road to Sealed Road Upgrade	\$	1,500,000.00
2029	Bridges Renewal	\$	2,000,000.00
2029	Major Culverts Renewal	\$	200,000.00
2029	Footpaths Renewal and New Footpaths	\$	200,000.00
2029	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00
2030	Sealed Road Resealing and Rehabilitations	\$	10,000,000.00
2030	Unsealed Road Re-sheeting	\$	2,000,000.00
2030	Unsealed Road to Sealed Road Upgrade	\$	1,500,000.00
2030	Bridges Renewal	\$	2,000,000.00
2030	Major Culverts Renewal	\$	200,000.00
2030	Footpaths Renewal and New Footpaths	\$	200,000.00
2030	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00
2031	Sealed Road Resealing and Rehabilitations	\$	10,000,000.00
2031	Unsealed Road Re-sheeting	\$	2,000,000.00
2031	Unsealed Road to Sealed Road Upgrade	\$	1,500,000.00
2031	Bridges Renewal	\$	2,000,000.00
2031	Major Culverts Renewal	\$	200,000.00
2031	Footpaths Renewal and New Footpaths	\$	200,000.00
2031	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00
2032	Sealed Road Resealing and Rehabilitations	\$	10,000,000.00

2032	Unsealed Road Re-sheeting	\$	2,000,000.00
2032	Unsealed Road to Sealed Road Upgrade	\$	1,500,000.00
2032	Bridges Renewal	\$	2,000,000.00
2032	Major Culverts Renewal	\$	200,000.00
2032	Footpaths Renewal and New Footpaths	\$	200,000.00
2032	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00
2033	Sealed Road Resealing and Rehabilitations	\$	10,000,000.00
2033	Unsealed Road Re-sheeting	\$	2,000,000.00
2033	Unsealed Road to Sealed Road Upgrade	\$	1,500,000.00
2033	Bridges Renewal	\$	2,000,000.00
2033	Major Culverts Renewal	\$	200,000.00
2033	Footpaths Renewal and New Footpaths	\$	200,000.00
2033	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00
2034	Sealed Road Resealing and Rehabilitations	\$	10,000,000.00
2034	Unsealed Road Re-sheeting	\$	2,000,000.00
2034	Unsealed Road to Sealed Road Upgrade	\$	1,500,000.00
2034	Bridges Renewal	\$	2,000,000.00
2034	Major Culverts Renewal	\$	200,000.00
2034	Footpaths Renewal and New Footpaths	\$	200,000.00
2034	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00
2035	Sealed Road Resealing and Rehabilitations	\$	10,000,000.00
2035	Unsealed Road Re-sheeting	\$	2,000,000.00
2035	Unsealed Road to Sealed Road Upgrade	\$	1,500,000.00
2035	Bridges Renewal	\$	2,000,000.00
2035	Major Culverts Renewal	\$	200,000.00
2035	Footpaths Renewal and New Footpaths	\$	200,000.00
2035	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00
2036	Sealed Road Resealing and Rehabilitations	\$	10,000,000.00
2036	Unsealed Road Re-sheeting	\$	2,000,000.00
2036	Unsealed Road to Sealed Road Upgrade	\$	1,500,000.00
2036	Bridges Renewal	\$	2,000,000.00
2036	Major Culverts Renewal	\$	200,000.00
2036	Footpaths Renewal and New Footpaths	\$	200,000.00
2036	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00
2037	Sealed Road Resealing and Rehabilitations	\$	10,000,000.00
2037	Unsealed Road Re-sheeting	\$	2,000,000.00
2037	Unsealed Road to Sealed Road Upgrade	\$	1,500,000.00
2037	Bridges Renewal	\$	2,000,000.00
2037	Major Culverts Renewal	\$	200,000.00
2037	Footpaths Renewal and New Footpaths	\$	200,000.00
2037	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00
2038	Sealed Road Resealing and Rehabilitations	\$	10,000,000.00
2038	Unsealed Road Re-sheeting	\$	2,000,000.00
2038	Unsealed Road to Sealed Road Upgrade	\$	1,500,000.00
2038	Bridges Renewal	\$	2,000,000.00

2038	Major Culverts Renewal	\$	200,000.00
2038	Footpaths Renewal and New Footpaths	\$	200,000.00
2038	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00
2039	Sealed Road Resealing and Rehabilitations	\$	10,000,000.00
2039	Unsealed Road Re-sheeting	\$	2,000,000.00
2039	Unsealed Road to Sealed Road Upgrade	\$	1,500,000.00
2039	Bridges Renewal	\$	2,000,000.00
2039	Major Culverts Renewal	\$	200,000.00
2039	Footpaths Renewal and New Footpaths	\$	200,000.00
2039	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00
2040	Sealed Road Resealing and Rehabilitations	\$	10,000,000.00
2040	Unsealed Road Re-sheeting	\$	2,000,000.00
2040	Unsealed Road to Sealed Road Upgrade	\$	1,500,000.00
2040	Bridges Renewal	\$	2,000,000.00
2040	Major Culverts Renewal	\$	200,000.00
2040	Footpaths Renewal and New Footpaths	\$	200,000.00
2040	Kerb & Gutter Renewal and New Kerb & Gutter	\$	200,000.00

### D.3 – Renewal Forecast Summary

Renewal cost is mostly for sealed road rehabilitation and sealing works which comes from Assetic predictor analysis based on condition data captured by ARRB. Also for unsealed road re-sheeting renewal work estimated 30 km per year based on 15 years life of unsealed road pavement. Also every four year there are some funding for asset condition assessment.

**Table D3 - Renewal Forecast Summary**

<b>Year</b>	<b>Renewal Forecast</b>	<b>Renewal Budget</b>
2021	\$ 16,100,0000	\$ 2,500,000
2022	\$ 16,100,0000	\$ 2,500,000
2023	\$ 16,100,0000	\$ 2,500,000
2024	\$ 16,100,0000	\$ 2,500,000
2025	\$ 16,100,0000	\$ 2,500,000
2026	\$ 16,100,0000	\$ 2,500,000
2027	\$ 16,100,0000	\$ 2,500,000
2028	\$ 16,100,0000	\$ 2,500,000
2029	\$ 16,100,0000	\$ 2,500,000
2030	\$ 16,100,0000	\$ 2,500,000
2031	\$ 16,100,0000	\$ 2,500,000
2032	\$ 16,100,0000	\$ 2,500,000
2033	\$ 16,100,0000	\$ 2,500,000
2034	\$ 16,100,0000	\$ 2,500,000
2035	\$ 16,100,0000	\$ 2,500,000
2036	\$ 16,100,0000	\$ 2,500,000
2037	\$ 16,100,0000	\$ 2,500,000
2038	\$ 16,100,0000	\$ 2,500,000
2039	\$ 16,100,0000	\$ 2,500,000
2040	\$ 16,100,0000	\$ 2,500,000

**Appendix E Disposal Summary**

There is no planned disposal considered.

**Table E3 – Disposal Activity Summary**

Year	Disposal Forecast	Disposal Budget
2021	0	0
2022	0	0
2023	0	0
2024	0	0
2025	0	0
2026	0	0
2027	0	0
2028	0	0
2029	0	0
2030	0	0
2031	0	0
2032	0	0
2033	0	0
2034	0	0
2035	0	0
2036	0	0
2037	0	0
2038	0	0
2039	0	0
2040	0	0



**Appendix F Budget Summary by Lifecycle Activity**

Planned budget is mostly dependant on grant funding.

**Table F1 – Budget Summary by Lifecycle Activity**

Year	Acquisition	Operation	Maintenance	Renewal	Disposal	Total
2021	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2022	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2023	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2024	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2025	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2026	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2027	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2028	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2029	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2030	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2031	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2032	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2033	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2034	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2035	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2036	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2037	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2038	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2039	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315
2040	0	\$ 2,453,800	\$ 1,602,515	\$ 2,500,000	0	\$ 6,556,315