



RURAL CITY OF  
**WANGARATTA**

## Bridges Asset Management Plan

**Document Control**

**Asset Management Plan**



**IPWEA**  
INSTITUTE OF PUBLIC WORKS  
ENGINEERING AUSTRALASIA



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## 1 EXECUTIVE SUMMARY

### 1.1 THE PURPOSE OF THE PLAN

Asset management planning is a comprehensive process to ensure delivery of services from infrastructure is provided in a financially sustainable manner. The purpose of this Bridge Asset Management Plan (BrAMP) is to assist with decision-making about Council's existing bridge infrastructure, to present asset information, and to predict the financial requirements of long-term renewal of these bridge assets.

This asset management plan details Council's strategic approach to balancing the community's desired level of service with Council's capacity to provide the service, in the most cost effective manner, while outlining the associated risks. The plan defines the services to be provided, how they are provided and what funds are required to provide them over a 20-year planning period.

### 1.2 ASSET DESCRIPTION

The assets considered in this BrAMP both support the road network for which Council is the Responsible Road Authority (RMA) as well as pedestrian traffic on footbridges and shared paths. It should be noted that Council is not responsible for the inspection and maintenance all bridge assets within the shire, as many are managed by other authorities such as VicRoads, Parks Victoria and the Department of Environment, Land Water and Planning (DELWP).

Council has a shared responsibility for assets at the border of our municipality. Boundary agreements with other councils outlines the responsible road authority, but regardless of the nominated responsible road authority Council has a shared responsibility to fund renewal of these assets.

Asset types governed by the BrAMP are:

The Bridges network, comprising:

- Road Bridges
- Major Culverts
- Footbridges

Excluded from this plan are:

- Minor Culverts
- Boardwalks

The bridge and culvert network is a considerable investment that has been built-up over many years and presents a significant commitment to fund its maintenance and eventual renewal as assets reach the end of their useful lives. These infrastructure assets have significant value estimated at **\$88,827,000**.

23 Bridge structures have been identified, mainly along the Rail Trail, which have a status of 'Not Commissioned' in Tech1. These structures currently have no replacement cost associated with them and are therefore not included in this AMP as replacement cost is a mandatory field for the modelling to run. Many of these are significant structures, are very old (constructed in the 1870's) and may have some heritage significance. While Council does not own these structures, it has accepted responsibility for the inspection, maintenance and renewal of them. It may be prudent for Council to review its responsibilities under the committee of management delegation to confirm its financial obligations with regards to future funding of renewal and replacement.

### 1.3 LEVELS OF SERVICE

The BrAMP levels of service give due regard to the strategic goals and objectives in the Council Plan and current understanding of the community's desired service levels. Future iterations of this Plan will be tested and amended in line with service levels agreed upon through community consultation.

It is always a challenge to strike a balance between the needs and desires of the community and what can realistically be achieved. Council however, has been providing a bridge network for many years and officers have developed current service provision levels over time to best match the perceived community desires, constrained by resources.

Our present funding levels are sufficient to continue to provide existing services at current levels in the medium term, however in the longer term (20yrs) renewal of assets falls behind consumption based on current levels of depreciation.

The main service consequences are:

- Deterioration of driveability thereby increasing the likelihood of road accidents, claims against Council and reputational damage.
- Reduced structural capacity, leading to load limits restricting freight capacity
- Structural failures may result in bridge closures, meaning increased travel times and the risk of isolating communities

## 1.4 FUTURE DEMAND

While no bridge specific demand forecasting has been undertaken in order to determine the future demand on Council's Bridge and Culvert network, it is recognised that continuing moderate growth in population and the increased use of higher productivity freight vehicles, with their associated higher axle loadings, will increase demands on existing structures.

The Australian Bureau of Statistics 2016 census indicated RCoW had a population of 28,310. The trend as derived from historical population figures shows an underlying growth figure of 0.7% per annum. This suggests that the RCoW population in 2028 may reach 30,720.

Other demands for new services are created by:

- Changing Demographics
- Climate Change
- Weather events
- Legislative changes
- Changes in design standards/codes
- Community expectations of higher service levels

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

- Regulating asset use
- Investigating alternative solutions
- Behaviour modification

At this stage the projected moderate increase in demand does not necessitate the construction of any new assets by Council. Creation of new assets is only envisaged through development contributions.

## 1.5 LIFECYCLE MANAGEMENT PLAN

### WHAT DOES IT COST?

The projected outlays necessary to provide the services covered by this Asset Management Plan (AM Plan) includes operations, maintenance, renewal, upgrade and new assets over the 10-year planning period is \$223,400 on average per year.

## 1.6 FINANCIAL SUMMARY

### WHAT WE WILL DO

Estimated available funding for this period is \$515,300 on average per year as per the long term financial plan or budget forecast. This is 237% 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 emphasis of the Asset Management Plan is to communicate the consequences that this will have on the service provided and the consequent risks, so that decision making is “informed”.

### PROJECTED OPERATING AND CAPITAL EXPENDITURE

## Wangaratta Rural CC - Projected and Budget Expenditure for (Bridges\_S1\_V4)

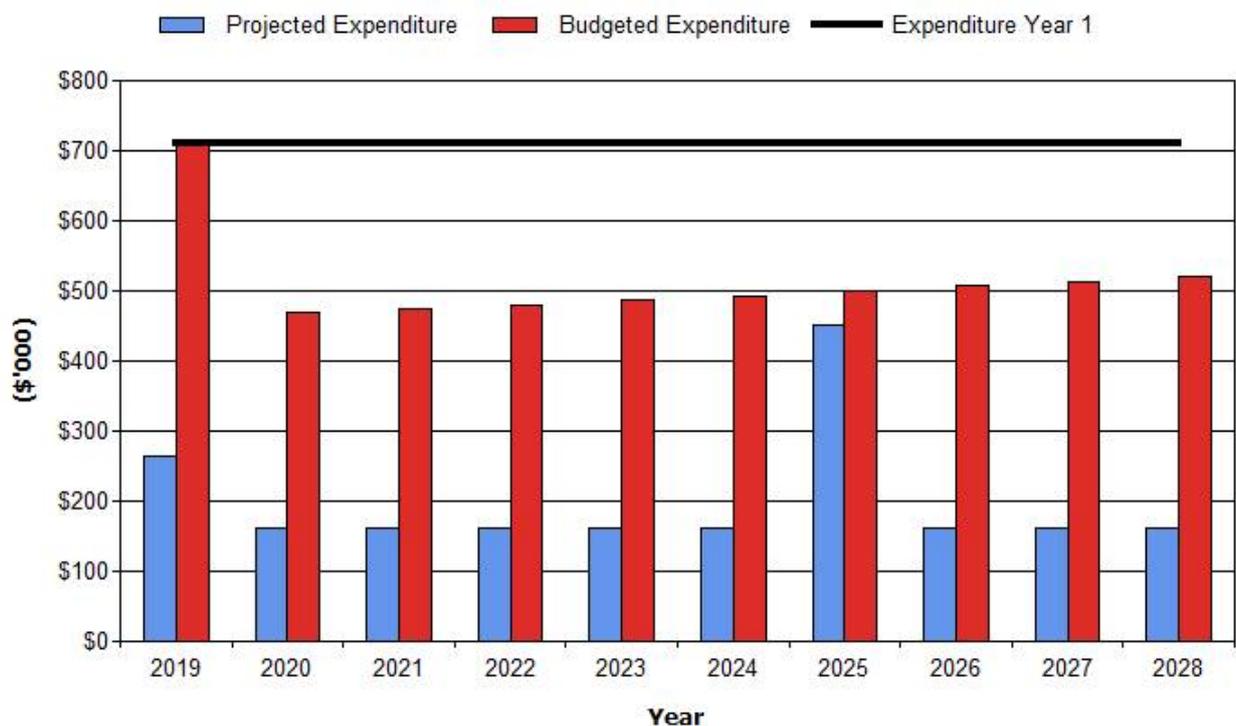


Figure Values are in current (real) dollars.

We plan to provide Bridge Asset Management services for the following:

- Operation, maintenance, renewal and upgrade of Road Bridges, Major Culverts and Footbridges to meet service levels set in annual budgets.

### WHAT WE CANNOT DO

Council is not responsible for upgrading the existing network where the pre-existing conditions were the acceptable standard for the time of construction and are within design capacity.

The axle loads of modern day vehicles have increased compared to 60 years ago, when most Council bridge and culvert assets were originally constructed. If no strengthening works are undertaken and structural capacity remains as per original design, load limits may need to be implemented on some structures, which will hold the level of service constant against a backdrop of community desire to have increased load capacity (level of service).

We currently allocate sufficient funding to sustain these services at the desired standard or to provide all new services being sought. Our present funding levels are sufficient to continue to manage risks in the medium term.

### Managing the Risks

Our present funding levels are sufficient to continue to manage risks in the medium term. However, should funding levels be reduced the main risk consequences are:

- Impaired driveability due to structural deterioration
- Imposition of load limits
- Road accidents resulting in loss of life and/or damage to property

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

- Conducting regular condition audits and site inspections to determine the remaining useful life of assets and maintenance requirements. This includes adherence to Australian Standards and best practice notes as produced by IPWEA;
- Continued effort to rationalise collected data and improved processes to ensure data completeness and accuracy;
- Improved training and education of staff to increase awareness and adherence with associated standards, and;
- Request funding for renewals as required and to monitor trends of maintenance requirements and techniques.

## 1.7 Asset Management Practices

Our systems to manage assets include:

- TechnologyOne

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

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

Method 1 was used for this asset management plan.

## 2. INTRODUCTION

### 2.1 BACKGROUND

This asset management plan communicates the actions required for the responsive management of assets (and services provided from assets), compliance with regulatory requirements, and funding needed to provide the required levels of service over a 20-year planning period.

The asset management plan is to be read in conjunction with the Rural City of Wangaratta planning documents. This should include the Asset Management Policy and Asset Management Strategy where these have been developed along with other key planning documents:

- Other related Asset Management Plans
- Road Management Plan
- Long Term Financial Plan
- Road Hierarchy
- Council Plan 2017-21

The infrastructure assets covered by this asset management plan are shown in Table 2.1. These assets are used to provide connectivity across the municipality, specifically vehicular, pedestrian and other access over waterways, roads, railways or similar.

**TABLE 2.1: ASSETS COVERED BY THIS PLAN**

Asset Category	Number	Replacement Value (\$000)
Road Bridges	155	\$61,973
Major Culverts	171	\$20,982
Footbridges	47	\$5,872
<b>TOTAL</b>	<b>402</b>	<b>\$88,827</b>

### 2.2 GOALS AND OBJECTIVES OF ASSET OWNERSHIP

Our goal in 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 expenditure and how it will be allocated.

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>

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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

This asset management plan is prepared under the direction of the [Entity] vision, mission, goals and objectives.

Our vision is:

Rural City of Wangaratta – Feels Like Home

Relevant goals and objectives and how these are addressed in this asset management plan are:

**TABLE 2.2: GOALS AND HOW THESE ARE ADDRESSED IN THIS PLAN**

Goal	Objective	How Goal and Objectives are addressed in AM Plan
We Are Sustainable	To be economically and environmentally sustainable	Our team will make the best and most efficient use of Council’s resources. Our buildings, facilities and assets will be utilised in an efficient and equitable way. Our legislative, governance and compliance requirements will be met. Asset management systems are maintained Our protection of the environment underpins our development, projects and decisions. Our community and recreation facilities are well maintained.
We are established	To create and maintain the facilities and assets that make our Community a safe, connected and enjoyable place to live.	Our infrastructure is developed and maintained based on what we understand is important to the people who live, work and visit here. We will achieve a 90% annual completion rate for our capital project delivery. We will achieve 25% completion of strategic actions within the Asset Management strategy annually. Our road network is monitored to meet the current and future needs of our community and our industries. We will meet 100% compliance with scheduled road inspections. We will meet 90% compliance with defect rectification. Our infrastructure provides community links to recreational, business, services, social and cultural spaces.

The Rural City of Wangaratta will exercise its duty of care to ensure public safety in accordance with the infrastructure risk management plan prepared in conjunction with this AM Plan. Management of infrastructure risks is covered in Section 6.

## 2.3 CORE AND ADVANCED ASSET MANAGEMENT

This asset management plan is prepared as a ‘core’ asset management plan over a 20 year planning period in accordance with the International Infrastructure Management Manual<sup>3</sup>. Core asset management is a ‘top down’ approach where analysis is applied at the system or network level. An ‘advanced’ asset management approach uses a ‘bottom up’ approach for gathering detailed asset information for individual assets.

## 3. LEVELS OF SERVICE

### 3.1 CUSTOMER RESEARCH AND EXPECTATIONS

<sup>3</sup> IPWEA, 2015, IIMM.

This 'core' asset management plan is prepared to facilitate consultation prior to adoption by Council. Future revisions of the asset management plan will incorporate community consultation on service levels and costs of providing the service. This will assist Council and stakeholders in matching the level of service required, service risks and consequences with the community's ability and willingness to pay for the service.

**TABLE 3.1: COMMUNITY SATISFACTION SURVEY LEVELS**

Performance Measure	2018		2017	
	Performance Score	Importance	Performance Score	Importance
Condition of Sealed Local Roads	56	80	56	77
Condition of Unsealed Roads	46	80	46	77

\*As satisfaction with bridges was not surveyed the results for roads (of which bridges form a part) is shown here

Community satisfaction information is used in developing the Strategic Plan and in the allocation of resources in the budget.

### 3.2 LEGISLATIVE REQUIREMENTS

There are many legislative requirements relating to the management of assets. These include:

**TABLE 3.2: LEGISLATIVE REQUIREMENTS**

Legislation	Requirement
<i>Local Government Act 1989 (Vic)</i>	Sets out role, purpose, responsibilities and powers of local governments including the requirement to prepare a long term financial plan supported by infrastructure and asset management plans for sustainable service delivery.
<i>Road Management Act 2004 (Vic)</i>	Impacts on road and traffic management considerations.
<i>Road Management (General) Regulations 2016</i>	Prescribes certain matters that must be recorded on a Register of Public Roads and provides for the protection of roads and property.
<i>Road Management Act 2004 Code of Practice - Operational</i>	Provides guidance on how operational responsibility for elements of the road reserve is assigned to various road authorities.
<i>Disability Discrimination Act 1992 (Vic)</i>	To plan, provide and redevelop infrastructure, so that it is accessible to persons with a disability as defined under the act.
<i>Occupational Health and Safety Act 2004 (Vic)</i>	Sets out the roles and responsibilities to ensure the health, safety and welfare of persons at work.
<i>Transport Integration Act 2010 (Vic)</i>	Integrates the legislation contained within: Transport (Compliance and Miscellaneous) Act 1983; Road Management Act 2004 and; Road Safety Act 1986 Includes references to the provision and maintenance of community transport infrastructure in the municipal district.
<i>Road Safety Act 1986 (Vic)</i>	Sets out the general obligations of road users in relation to responsible road use in order to provide for safe, efficient and equitable road access.

### 3.3 CUSTOMER LEVELS OF SERVICE

Service levels are defined service levels in two terms, customer levels of service and technical levels of service. These are supplemented by organisational measures.

**Customer Levels of Service** measure how the customer receives the service and whether value to the customer is provided.

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

**QUALITY** 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?*

The current and expected customer service levels are detailed in Tables 3.4 and 3.5. Table 3.4 shows the expected levels of service based on resource levels in the current long-term financial plan.

**Organisational measures** are measures of fact related to the service delivery outcome e.g. number of occasions when service is not available, condition %'s of Very Poor, Poor/Average/Good, Very good.

These Organisational/Organizational measures provide a balance in comparison to the customer perception that may be more subjective.

**TABLE 3.3: CUSTOMER LEVEL OF SERVICE**

	<b>Expectation</b>	<b>Performance Measure Used</b>	<b>Current Performance</b>	<b>Expected Position in 10 Years based on the current budget.</b>
<b>Service Objective: Provide community connectivity</b>				
<b>Quality</b>	Bridges are free from obstructions and hazards	100% of structures undergo annual Level 1 defect inspections	All structures inspected	Unchanged
	Bridges are accessible and safe to use			
	Bridges and approaches provide good ride quality			
	<b>Confidence levels</b>		High (Derived from Lvl 1 inspection reports)	Medium ( professional judgement, financial forecasts)
<b>Function</b>	Year round availability	% of structures above 20yr AEP	Not currently measured	100% of road structures above the 20% Annual Exceedance Probability. 100% of critical assets above the 1% AEP, except for where heritage status is the only driver for criticality.
	Minimised fall risk on pedestrian footbridges	100% of structures undergo annual Level 1 defect inspections. All structures deemed to have adequate fall protection.	All structures inspected, all have appropriate fall protection	Unchanged
	<b>Confidence levels</b>		High	Medium

	<b>Expectation</b>	<b>Performance Measure Used</b>	<b>Current Performance</b>	<b>Expected Position in 10 Years based on the current budget.</b>
<b>Capacity and Use</b>	Bridge structures meet the load requirements of all users	>90% of structures have no load limit	94%	>95%
	<b>Confidence levels</b>		High	Medium

### 3.4 TECHNICAL LEVELS OF SERVICE

Supporting the customer service levels are operational or technical measures of performance. These technical measures relate to the allocation of resources to service activities to best achieve the desired customer outcomes and demonstrate effective performance.

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

- Operations – the regular activities to provide services 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 (e.g. road resurfacing and pavement reconstruction, pipeline replacement and building component replacement),
- Upgrade/New – 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).

Service and asset managers plan, implement and control technical service levels to influence the customer service levels.<sup>4</sup>

Table 3.5 shows the technical levels of service expected to be provided under this AM Plan. The ‘Desired’ position in the table documents the position being recommended in this AM Plan.

**TABLE 3.4: TECHNICAL LEVELS OF SERVICE**

Service Attribute	Service Activity Objective	Activity Measure Process	Current Performance *	Desired for Optimum Lifecycle Cost **
<b>TECHNICAL LEVELS OF SERVICE</b>				
<b>Operations</b>	Bridges are safe and operational	Level 1 Inspections	Annual	Annual
		Level 2 Inspections	5 Yearly	3 Yearly
		Level 3 Inspections	Only as needed (e.g. after flood event)	Only as needed (e.g. after flood event)
		<b>Total Ops Budget</b>	\$73,000	\$73,000
<b>Maintenance</b>	Maintain bridges to ensure full	Undertake maintenance as	100% of maintenance	100% undertaken

<sup>4</sup> IPWEA, 2015, IIMM, p 2 | 28.

Service Attribute	Service Activity Objective	Activity Measure Process	Current Performance *	Desired for Optimum Lifecycle Cost **
	serviceable life	identified from inspections	undertaken	
		<b>Total Maint Budget</b>	\$89,000	\$89,000
<b>Renewal</b>	Bridges to be renewed at end of life	Renewal undertaken when identified from Level 2 inspections	1 structure at Level 5 condition rating	No structures at Level 5 condition rating
		<b>Total Renewal Budget</b>	\$445,000	\$445,000
<b>Upgrade/New</b>	Only undertaken when required to remove load limit or increase waterway capacity	Not currently defined	Not currently defined	Not currently defined

Note: \* Current activities and costs (currently funded)

\*\* Desired activities and costs to sustain current service levels and achieve minimum life cycle costs (not currently funded)

It is important to monitor the service levels provided regularly as these will change. The current performance is influenced by work efficiencies and technology, and customer priorities will change over time. Review and establishment of the agreed position which achieves the best balance between service, risk and cost is essential.

## 4. 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 were identified and are documented in Table 4.3.

#### 4.3 DEMAND IMPACT ON ASSETS

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

**TABLE 4.3: DEMAND DRIVERS, PROJECTIONS AND IMPACT ON SERVICES**

Demand drivers	Present position	Projection	Impact on services
Population Growth 2016 – 2028	28,310*	33,220	Moderate demand for increased and improved services
Ageing population	23% aged 65 and over	Expected to increase over the plan period	May result in an increased demand on footbridges on the pathway network.
Increased freight kilometres travelled and the use of Higher Productivity Vehicles	The Wangaratta region currently experiences significant levels of freight traffic. Nationally, 'Rest of State' (i.e. excl. Capital Cities and Interstate freight movement) has increased 60%** in the period 2000 - 2017.	Estimates for the period 2018 – 2030 indicate this figure will increase a further 20%**. Over this same period freight operators will continue to update their fleet with Higher Productivity Vehicles with higher axle loadings	The projected increase in freight volumes and the move to vehicles with higher axle loadings will put Council's bridge infrastructure under pressure and may result in shorter useful lives.
Climate Change	Climate change will see an increase risk of extreme weather events including storm events, flooding, sea level rise and fire events	It is expected that climate change will intensify in the medium to long term resulting in an increased number of extreme weather events	There will be an increase of structural damage caused by extreme events and an increase in deterioration rates of the network
Changes to Design Standard/Codes	RCoW currently constructs and maintains its infrastructure assets in accordance with all adopted standards.	It is expected that ongoing changes and developments in standards will result in higher construction and maintenance costs	As changes occur RCoW may need to re-appraise unit costs to ensure budgets are sufficient to meet adopted standards.
Vehicle automation	There is currently little to no use of vehicle automation on the road network across the municipality	It is expected that by 2050 automated vehicles may account for a significant proportion of the traffic across the network	This may require upgrades to existing infrastructure to accommodate autonomous vehicles

\* Source - 2016 Census ABS

\*\*High Scenario Population Forecast, Population and Housing Strategy 2013, Aurecon & SGS Economics and Planning

#### 4.4 DEMAND MANAGEMENT PLAN

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

Council does not have a formal Demand Management Plan, as more data on demographics needs to be collected to review the impacts and pressures of population growth on its Bridge and Culvert network. Like most rural towns, the low population outside the towns and the distances does not lend itself to easily implementing/supporting these mode shift options.

This BrAMP is not designed to articulate Council's transport strategy, however it includes consideration where appropriate such as:

- Improvement/widening of existing bridge and culvert assets as opposed to constructing new assets;
- Incorporating and accommodating bicycle and public transport as priority in all renewal designs and upgrades as resources allow.

Opportunities identified to date for demand management are shown in Table 4.4. Further opportunities will be developed in future revisions of this asset management plan.

**TABLE 4.4: DEMAND MANAGEMENT PLAN SUMMARY**

Demand Driver	Impact on Services	Demand Management Plan
Population growth	An increased load on bridge, pathway and culvert assets will be expected, proportional to population growth	Monitor population growth through census data and traffic counts and use as input into developing future works programs
Aging population	The overall increase in growth will see an increase in usage on all asset types. An increase in the elderly population may also increase demand on the pathway network (including footbridges)	Monitor population growth with a focus on age trends through census data. Ensure all new works are undertaken in accordance with DDA requirements to allow for usage by all abilities
Increased freight traffic	Bridge and major culvert infrastructure will be exposed to greater heavy vehicle usage, resulting in accelerated deterioration of the network	Develop designated freight networks utilising the National Heavy Vehicle Regulator (NHVR) and encourage freight to arterial roads where possible. Monitor through NHVR database and continued traffic counts. Collaboration with State Authorities to focus future planning needs
Increased freight loads	Bridge and major culvert infrastructure will be exposed to greater heavy vehicle loads, resulting in accelerated deterioration of the network	Develop designated freight networks utilising the National Heavy Vehicle Regulator (NHVR) and encourage freight to arterial roads where possible. Monitor through NHVR database and continued traffic counts. Ensure upgrade and new works consider potential for increased load limits
Climate change	There will be an increase of structural damage caused by extreme events and an increase in deterioration rates of the network	Utilise the City's Climate Change Adaption Toolkit
Vehicle automation	This may require upgrades to existing infrastructure to accommodate autonomous vehicles	Monitor ongoing developments in this area and identify opportunities for Council to respond to changes as and where necessary
Increasing costs	Increases in costs (maintenance, renewal, upgrade and new) will adversely impact the City's operating and capital expenditure	Conduct revaluation of bridge and associated assets as soon as is practical and on an ongoing basis. Review unit rates on an annual basis, including benchmarking, previous works programs reviews and industry reviews.

#### 4.5 ASSET PROGRAMS TO MEET DEMAND

The new assets required to meet demand can be acquired, donated or constructed. Additional assets are discussed in Section 5.5. The summary of the cumulative value of additional asset is shown in Figure 1.

FIGURE 1: UPGRADE AND NEW ASSETS TO MEET DEMAND – (CUMULATIVE)

## Wangaratta Rural CC - Projected Capital Upgrade/New Expenditure (Bridges\_S1\_V3)

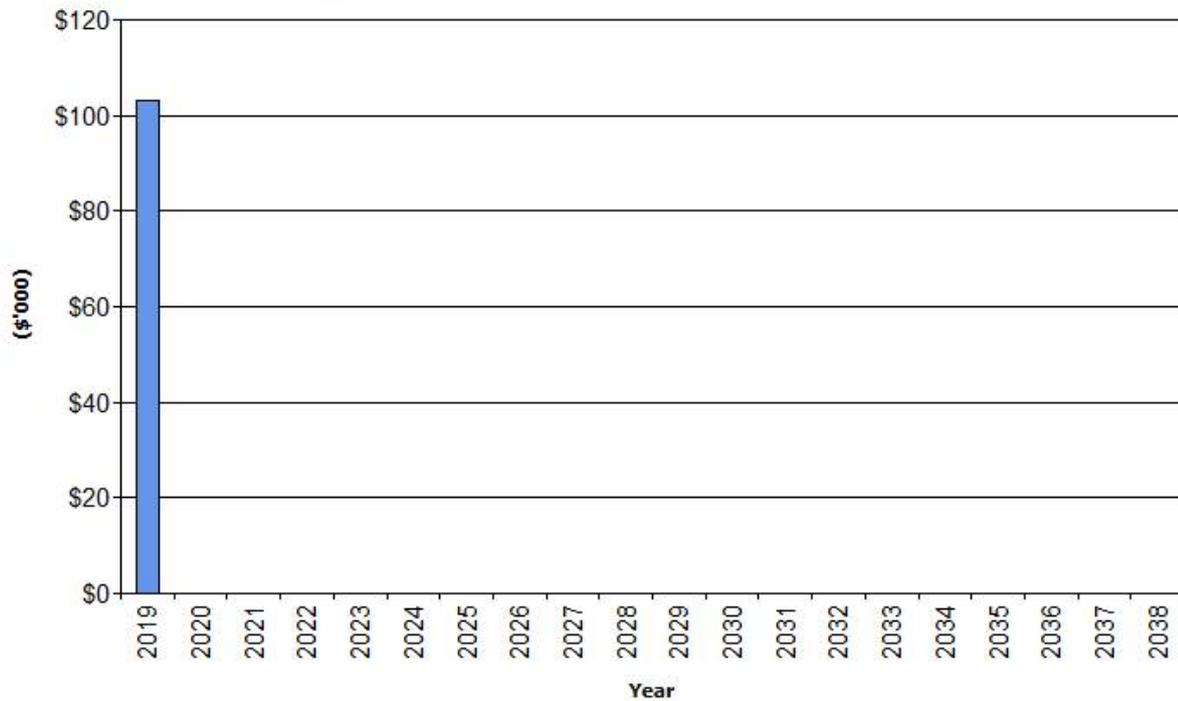


Figure Values are in current (real) dollars.

Acquiring new assets will commit 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 further in Section 5.

## 5. LIFECYCLE MANAGEMENT PLAN

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

### 5.1 BACKGROUND DATA

#### 5.1.1 PHYSICAL PARAMETERS

The assets covered by this asset management plan are shown in Table 2.1 and include Road Bridges, major Culverts and Footbridges.

The age profile of the assets included in this AM Plan are shown in Figure 2.

Figure 2: Asset Age Profile

## Wangaratta Rural CC - Age Profile (Bridges\_S1\_V4)

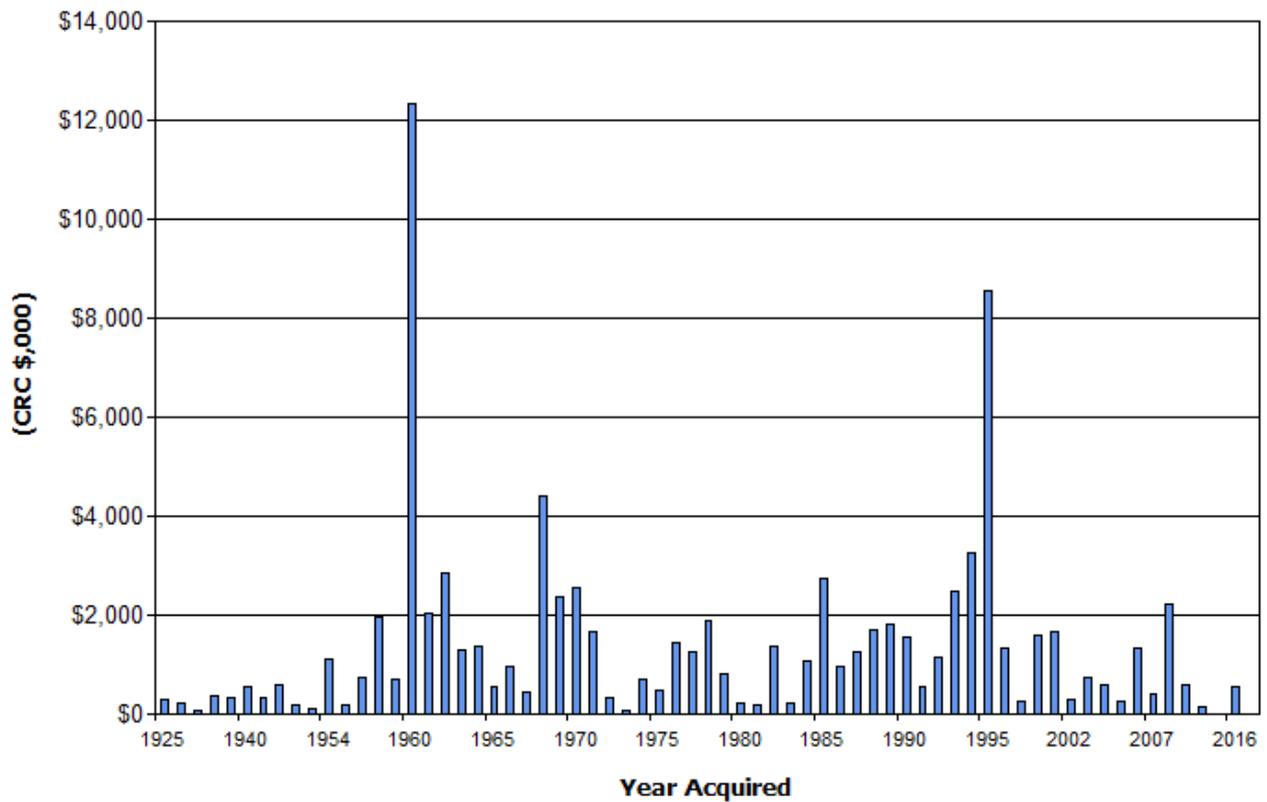


Figure Values are in current (real) dollars. Spikes in bridge construction during 1960 and 1995, shown in the above chart, are actually a result of bridges of unknown construction date being assigned these years, therefore the actual age profile is likely to be more evenly spread than the chart indicates.

### 5.1.2 ASSET CAPACITY AND PERFORMANCE

Assets are generally provided to meet design standards where these are available.

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

TABLE 5.1.2: KNOWN SERVICE PERFORMANCE DEFICIENCIES

Asset Number	Location	Service Deficiency
BR000317	Developmental Road Bridge	Replacement of old, unsound concrete bridge
BR000264	Kays Rd Bridge	Replacement of structure washed away in flood event
BR000318	Detour Rd Bridge	Replacement of old, unsound concrete bridge
BR000089	Northey's Lane Bridge	Renewal of aged, fire damaged abutments

\*The above service deficiencies were identified from CAMMS project

### 5.1.3 ASSET CONDITION

Condition is monitored through the ongoing regular Level 1 and Level 2 inspection program.

The condition profile of our assets is shown in Figure 3.

FIG 3: ASSET CONDITION PROFILE

## Wangaratta Rural CC - Condition Profile (Bridges\_S1\_V3)

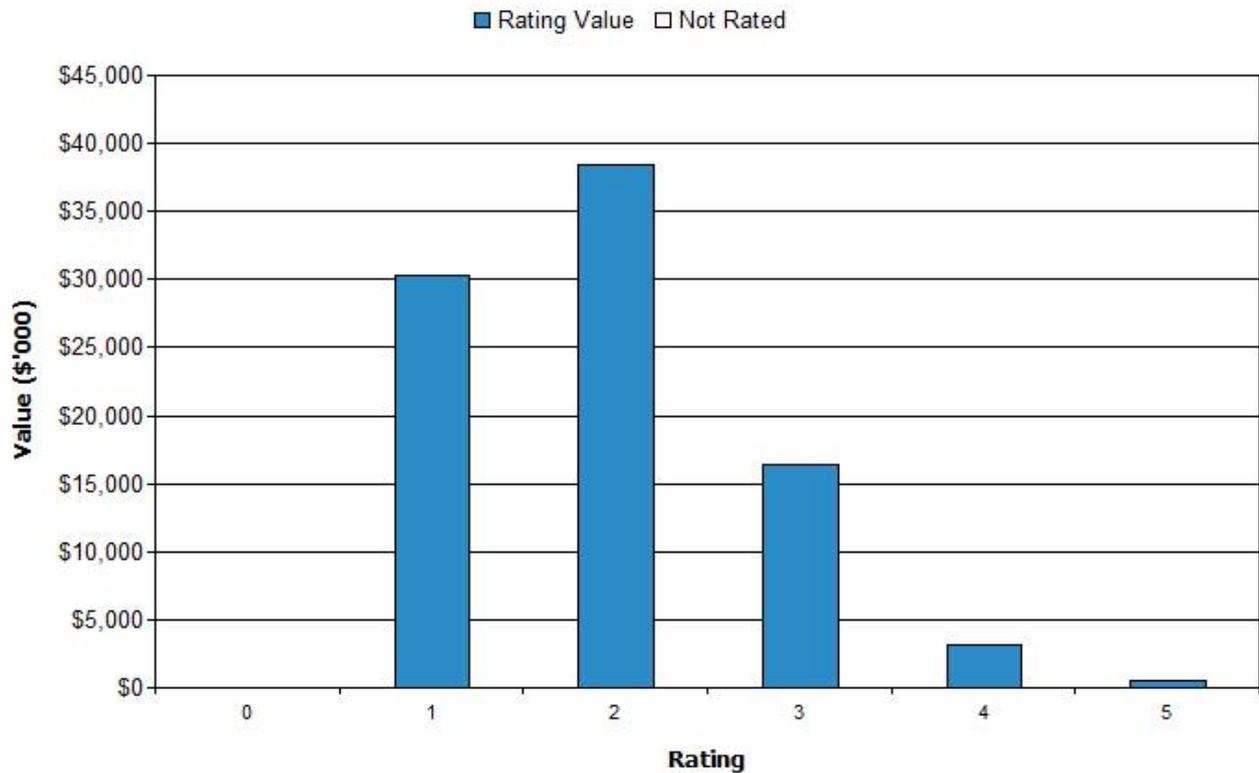


Figure Values are in current (real) dollars.

Condition is measured using a 1 – 5 grading system<sup>5</sup> as detailed in Table 5.1.3.

TABLE 5.1.3: SIMPLE CONDITION GRADING MODEL

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

## 5.2 OPERATIONS AND MAINTENANCE PLAN

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

Operations include regular activities to provide services such as public health, safety and amenity, e.g. cleaning, street sweeping, utilities costs and street lighting.

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

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.

Maintenance expenditure is shown in Table 5.2.1.

**TABLE 5.2.1: MAINTENANCE EXPENDITURE TRENDS**

<b>Year</b>	<b>Maintenance Budget \$</b>
2019	\$89,000
2020	\$89,000
2021	\$89,000

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

**SUMMARY OF FUTURE OPERATIONS AND MAINTENANCE EXPENDITURES**

Future operations and maintenance expenditure is forecast to trend in line with the value of the asset stock as shown in Figure 4. Note that all costs are shown in current 2019 dollar values (i.e. real values).

**FIGURE 4: PROJECTED OPERATIONS AND MAINTENANCE EXPENDITURE**

# Wangaratta Rural CC - Projected Operations & Maintenance Expenditure (Bridges\_S1\_V3)

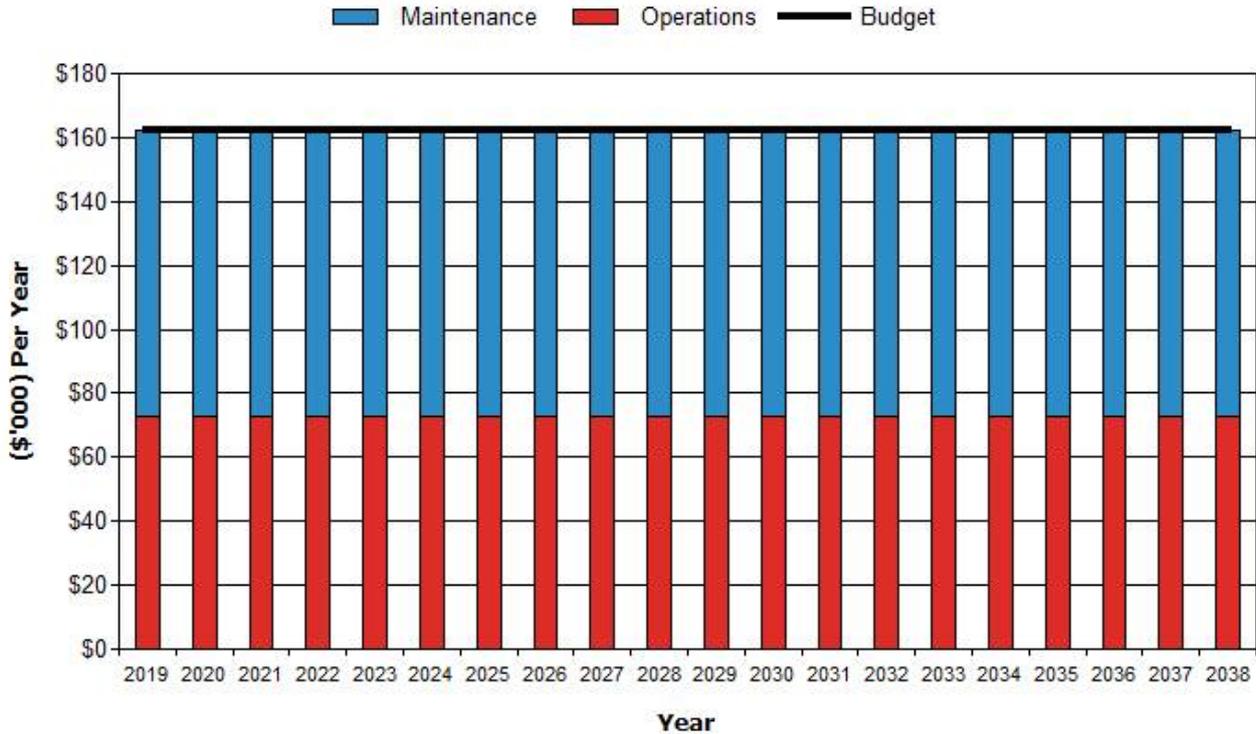


Figure Values are in current (real) dollars.

As there are currently no new bridge structures planned for construction the operations and maintenance budget, in real terms, remains static over the plan period.

Maintenance is funded from the operating budget where available. This is further discussed in Section 7.

## 5.3 RENEWAL/REPLACEMENT PLAN

Renewal and replacement expenditure is major work which does not increase the asset’s design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is considered to be an upgrade/expansion or new work expenditure resulting in additional future operations and maintenance costs.

Assets requiring renewal/replacement are identified from one of three methods provided in the ‘Expenditure Template’.

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

Method 1 is used for this asset management plan.

### 5.3.1 RENEWAL RANKING CRITERIA

Asset renewal and replacement 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. roughness of a road).<sup>6</sup>

It is possible to get some indication of capital renewal and replacement priorities by identifying assets or asset groups that:

- Have a high consequence of failure,
- Have high use and subsequent impact on users would be greatest,
- Have a total value representing the greatest net value,
- Have the highest average age relative to their expected lives,
- Are identified in the AM Plan as key cost factors,
- Have high operational or maintenance costs, and
- Have replacement with a modern equivalent asset that would provide the equivalent service at a savings.<sup>7</sup>

Formal renewal ranking and weighting criteria have been developed only for the sealing of township gravel roads at this point. It planned to extend this methodology to other renewal and replacement programs in the future.

### 5.3.2 SUMMARY OF FUTURE RENEWAL AND REPLACEMENT EXPENDITURE

Projected future renewal and replacement expenditures are forecast to increase over time when the asset stock increases. The expenditure is required is shown in Fig 5. Note that all amounts are shown in current (real) dollars.

The projected capital renewal and replacement program is shown in Appendix A.

### FIG 5: PROJECTED CAPITAL RENEWAL AND REPLACEMENT EXPENDITURE

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<sup>6</sup> IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.

<sup>7</sup> Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

## Wangaratta Rural CC - Projected Capital Renewal Expenditure (Bridges\_S1\_V4)

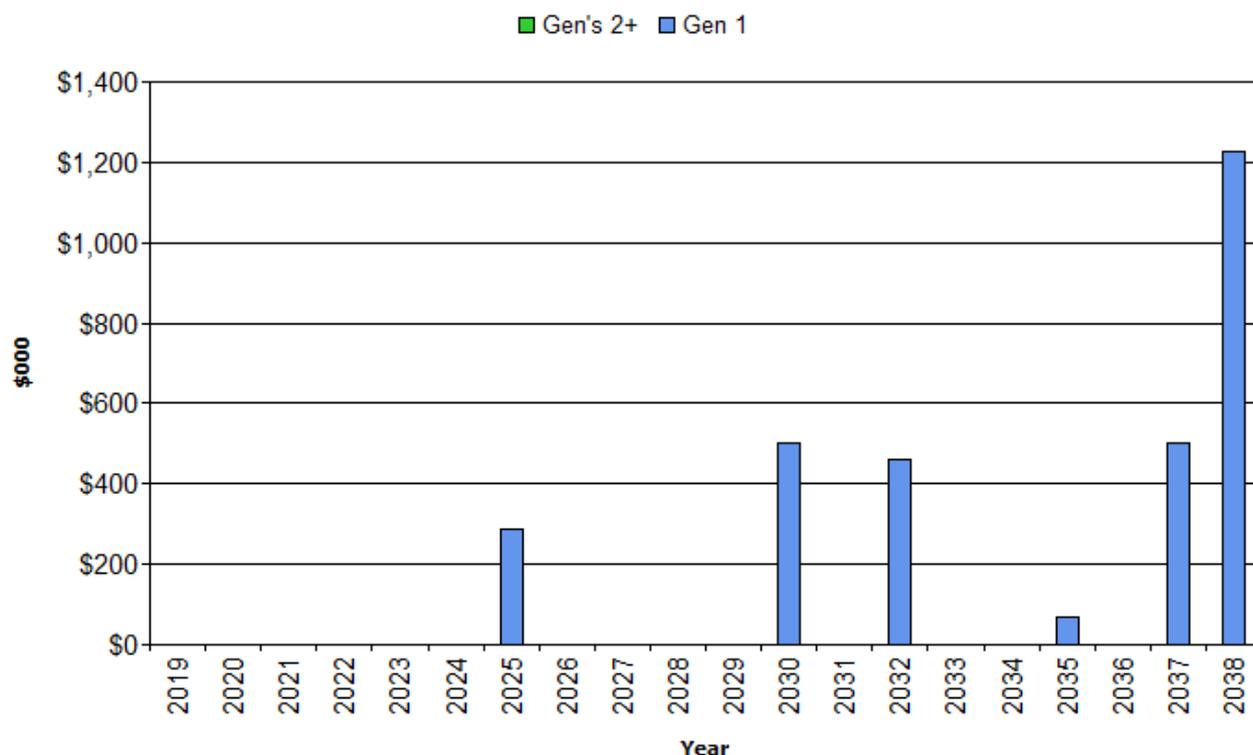


Figure Values are in current (real) dollars.

Deferred renewal and replacement, i.e. those assets identified for renewal and/or replacement and not scheduled in capital works programs are to be included in the risk analysis process in the risk management plan.

Renewals and replacement expenditure in the capital works program will be accommodated in the long term financial plan. This is further discussed in Section 7.

### 5.4 CREATION/ACQUISITION/UPGRADE PLAN

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

Council does not have plans to construct any new bridges beyond the Cruse St Bridge which is currently under construction and will be completed in 2019/20. Future additions to council’s bridge assets are most likely to accrue as a result of construction related to private developments. While Council will not bear the cost of constructing these assets future maintenance and renewal costs will need to be factored into the LTFP.

#### 5.4.1 SUMMARY OF FUTURE UPGRADE/NEW ASSETS EXPENDITURE

Projected upgrade/new asset expenditures are summarised in Fig 6. The projected upgrade/new capital works program is shown in Appendix B. All amounts are shown in real values.

FIG 6: PROJECTED CAPITAL UPGRADE/NEW ASSET EXPENDITURE

### Wangaratta Rural CC - Projected Capital Upgrade/New Expenditure (Bridges\_S1\_V3)

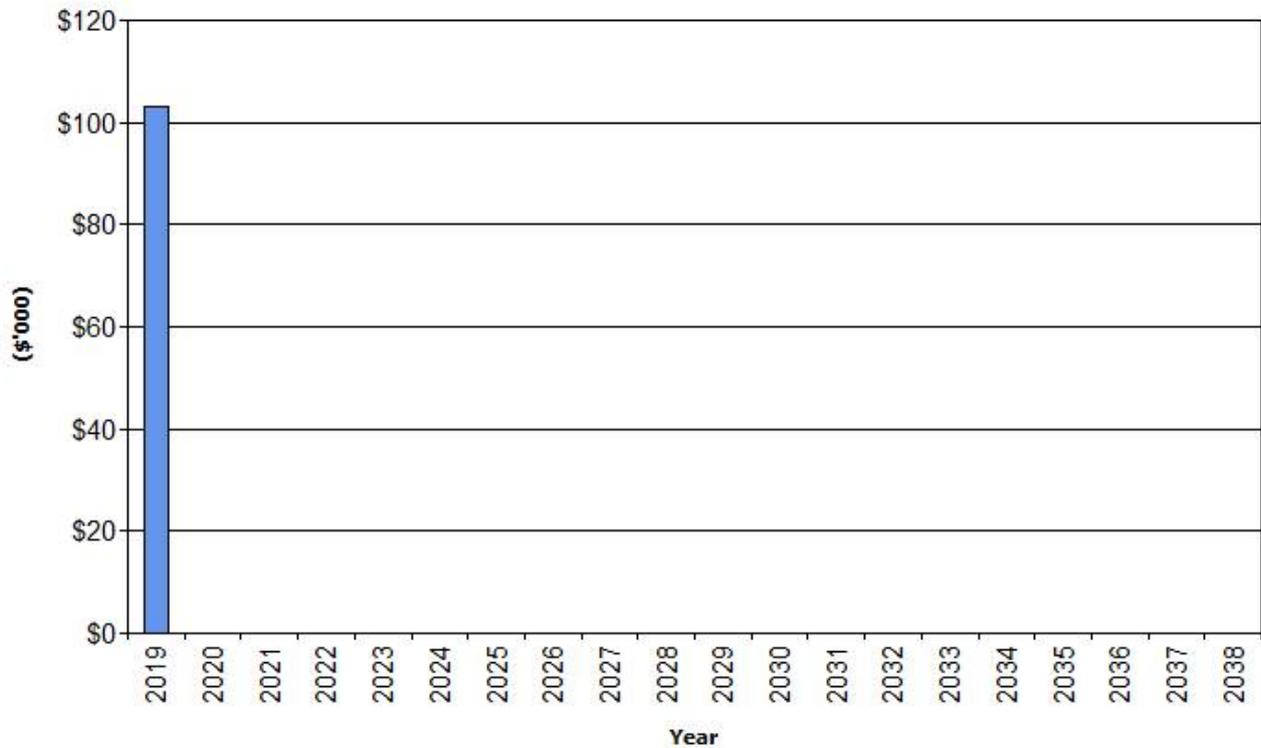


Figure Values are in current (real) dollars.

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 of the available funds.

When consideration is given to the acquisition of new assets, the lifetime cost of those assets must be well understood. The operations and maintenance costs attributable to those assets must be identified and funded through the budget process.

#### 5.4.3 SUMMARY OF ASSET EXPENDITURE REQUIREMENTS

The financial projections from this asset plan are shown in Fig 7 for projected operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets). Note that all costs are shown in real values.

The bars in the graphs represent the anticipated budget needs required to achieve lowest lifecycle costs, the budget line indicates what is currently available. The gap between these informs the discussion on achieving the balance between services, costs and risk to achieve the best value outcome.

FIG 7: PROJECTED OPERATING AND CAPITAL EXPENDITURE

## Wangaratta Rural CC - Projected Operating and Capital Expenditure (Bridges\_S1\_V4)

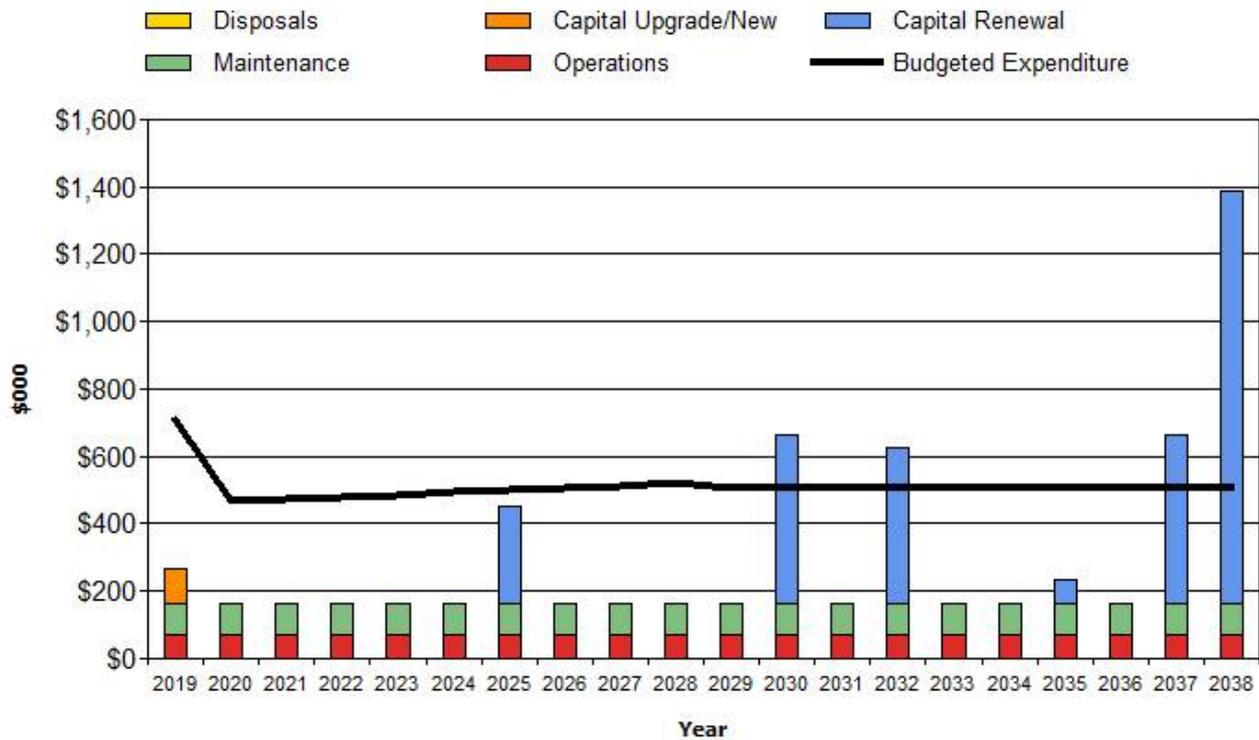


Figure Values are in current (real) dollars.

### 5.5 DISPOSAL PLAN

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. Assets identified for possible decommissioning and disposal are shown in Table 5.5, together with estimated annual savings from not having to fund operations and maintenance of the assets. These assets will be further reinvestigated to determine the required levels of service and see what options are available for alternate service delivery, if any. Any costs or revenue gained from asset disposals is accommodated in the long term financial plan.

There are currently no Bridge assets identified for disposal.

## 6. RISK MANAGEMENT PLAN

The purpose of infrastructure risk management is to document the results 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 31000:2009 Risk management – Principles and guidelines.

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

Council, through the process of updating its Corporate Risk Register will seek to understand, define and put in place strategies to manage identified infrastructure risks.

Risk Management is defined in ISO 31000:2009 as: ‘coordinated activities to direct and control with regard to risk’<sup>8</sup>.

### 6.1 CRITICAL ASSETS

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Similarly, critical failure modes are those which have the highest consequences.

Critical assets have been identified and their typical failure mode and the impact on service delivery are as follows:

**TABLE 6.1 CRITICAL ASSETS**

Critical Asset(s)	Failure Mode	Impact
Any structure that is the only means of access to a dwelling for emergency services	Collapse or damage to structure or approach	Loss of access to dwellings or businesses
Any structure located on a Link or Collector road	Collapse or damage to structure or approach	Delays from bridge closure or diversion
Any structure with a detour in excess of 10km	Collapse or damage to structure or approach	Delays from bridge closure or diversion

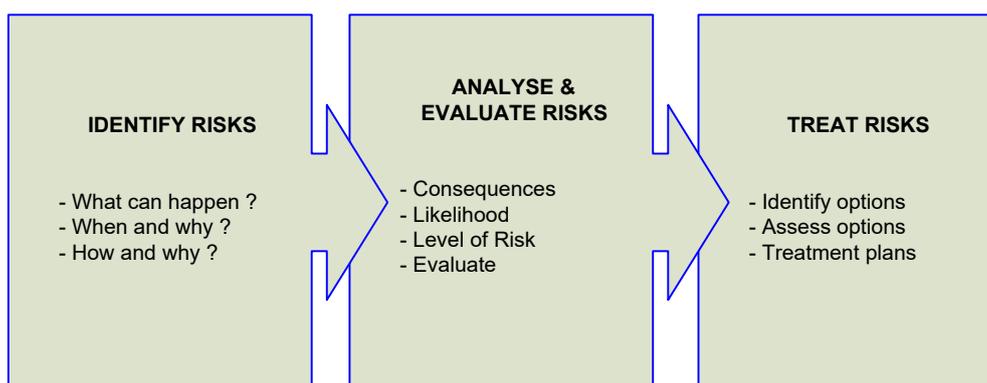
By identifying critical assets and failure modes investigative activities, condition inspection programs, maintenance and capital expenditure plans can be targeted at the critical areas.

### 6.2 RISK ASSESSMENT

The risk management process used in the development of this asset management plan is shown in Figure 6.2. The fundamentals of the risk management process have been formed from the International Standard ISO 31000:2009 Risk Management - Principles and Guidelines, and the process has been designed to provide a logical method for the identification, analysis and treatment of risk.

**FIG 6.2 RISK MANAGEMENT PROCESS – ABRIDGED**

<sup>8</sup> ISO 31000:2009, p 2



The risk assessment process includes the:

- identification of risks;
- consideration of the likelihood of the risk event occurring and the consequences should the event occur;
- allocation of a risk rating;
- evaluation of the risk; and
- development of a risk treatment plan for non-acceptable risks.

In the development of this management plan a risk assessment was completed to identify the risks likely to impact the Bridges Asset Group.

Risks that were identified as critical to the Infrastructure Risk Management Plan are shown in Table 6.2. These risks will be addressed and treated through actions generated by the Bridges Asset Management Plan.

**TABLE 6.2: CRITICAL RISKS AND TREATMENT PLANS**

Service or Asset at Risk	Description of Risk
Bridge Network	Unknown asset acquisition and renewal demand caused by a failure to understand the current condition of existing infrastructure will result in an unsustainable fiscal position and consequent financial or service level impacts to the community.
Bridge Network	Poorly maintained Council assets may result in property damage, injury or death of a member of the public or staff member.

### 6.3 INFRASTRUCTURE RESILIENCE APPROACH

The resilience of our critical infrastructure is vital to our customers and the services we provide. To adapt to changing conditions and grow over time we need to understand our capacity to respond to possible disruptions and be positioned to absorb disturbance and act effectively in a crisis to ensure continuity of service.

Resilience is built on aspects such as response and recovery planning, financial capacity and crisis leadership.

Our current measure of resilience is shown in Table 6.3 which includes the type of threats and hazards, resilience assessment and identified improvements and/or interventions.

**TABLE 6.3: RESILIENCE**

Threat / Hazard	Resilience (L, M or H)	Improvements / Interventions
Extreme Weather Event	Medium	Ensure Council’s Municipal Emergency Management Plan remains current and covers all reasonably foreseeable potential emergency situations.
Climate Change	Low	No specific strategic documents (Policy, Strategy or Plan) have been developed to address the effects of climate change on the RCoW, as identified in the DELWP “Climate Change Adaptation Governance Assessment”, 2017. <sup>1</sup>

## 6.4 SERVICE AND RISK TRADE-OFFS

The decisions made in adopting this AM Plan are based on the objective to achieve the optimum benefits from the available resources.

### 6.4.1 WHAT WE CANNOT DO

There are some operations and maintenance activities and capital projects that are unable to be undertaken within the next 10 years. These include:

- Currently there are no identified activities that Council believes it will be unable to undertake in the medium term.

### 6.4.2 Service trade-off

Identified operations and maintenance activities and capital projects can be undertaken with current funding however a reduction in funding may maintain or create service consequences for users. These include:

- Reduced capacity
- Diversions and increased travel times

### 6.4.3 Risk trade-off

Trade-offs that may result from a reduction in funding for operations and maintenance activities and capital projects may include:

- Diminished asset lifecycles
- Increased lifecycle cost

These actions and expenditures are considered in the projected expenditures, and where developed are included in the Risk Management Plan.

## 7. FINANCIAL SUMMARY

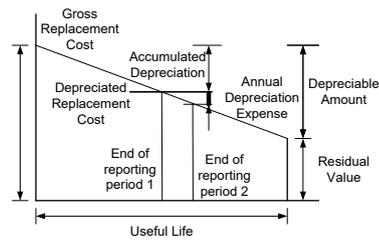
This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset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

## 7.1 FINANCIAL STATEMENTS AND PROJECTIONS

### 7.1.1 ASSET VALUATIONS

The best available estimate of the value of assets included in this Asset Management Plan are shown below. Assets are valued at current replacement cost.

Gross Replacement Cost	\$88,827,000
Depreciable Amount	\$88,827,000
Depreciated Replacement Cost <sup>9</sup>	\$66,216,000
Annual Average Asset Consumption	\$828,000



### 7.1.2 SUSTAINABILITY OF SERVICE DELIVERY

#### MEDIUM TERM – 10 YEAR FINANCIAL PLANNING PERIOD

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

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

The projected operations, maintenance and capital renewal expenditure required over the 10 year planning period is \$213,000 on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is \$505,000 on average per year giving a 10 year funding surplus of \$292,000 per year. This indicates 237% of the projected expenditures needed to provide the services documented in the asset management plan. This excludes upgrade/new assets.

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

### 7.1.3 PROJECTED EXPENDITURES FOR LONG TERM FINANCIAL PLAN

Table 7.1.2 shows the projected expenditures for the 10 year long term financial plan.

<sup>9</sup> Also reported as Written Down Value, Carrying or Net Book Value.

Expenditure projections are in 2018/19 real values.

**TABLE 7.1.2: PROJECTED EXPENDITURES FOR LONG TERM FINANCIAL PLAN (\$000)**

Year	Operations (\$000)	Maintenance (\$000)	Projected Capital Renewal (\$000)	Capital Upgrade/ New (\$000)	Disposals (\$000)
2019	\$73	\$89	\$223	\$103	\$0
2020	\$73	\$89	\$0	\$0	\$0
2021	\$73	\$89	\$0	\$0	\$0
2022	\$73	\$89	\$0	\$0	\$0
2023	\$73	\$89	\$0	\$0	\$0
2024	\$73	\$89	\$0	\$0	\$0
2025	\$73	\$89	\$288	\$0	\$0
2026	\$73	\$89	\$0	\$0	\$0
2027	\$73	\$89	\$0	\$0	\$0
2028	\$73	\$89	\$0	\$0	\$0

## 7.2 FUNDING STRATEGY

Funding for assets is provided from the budget and long term financial plan.

The financial strategy of the entity determines how funding will be provided, whereas the asset management plan communicates how and when this will be spent, along with the service and risk consequences of differing options.

## 7.3 VALUATION FORECASTS

Asset values will increase as and when additional assets are added into service.

Additional assets will generally add to the operations and maintenance needs in the longer term, as well as the need for future renewal. Additional assets will also add to future depreciation forecasts.

## 7.4 KEY ASSUMPTIONS MADE IN FINANCIAL FORECASTS

This section details the key assumptions made in presenting the information contained in this asset management plan. It is presented to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts.

Key assumptions made in this asset management plan are:

**TABLE 7.4: KEY ASSUMPTIONS MADE IN AM PLAN AND RISKS OF CHANGE**

1.	A growth rate of 0% has been applied for the period of this plan as there are currently no plans to construct any new bridge assets over the plan period.
2.	A split of 80/20 has been assumed between planned and reactive maintenance.
3.	RCoW's asset condition scoring system, which uses a scale of 0 – 10, has been normalised to 1 – 5 to conform to the requirements of the model.
4.	All assets covered by this plan are assumed to have no residual value at end of their useful life - (Management Reporting Coordinator).
5.	Many structures have unknown acquisition dates. However this is a parameter that is required for the modelling to run. Assumed acquisition dates used in this model have been arrived at by subtracting the difference between Useful Life and Remaining Useful Life from current year, e.g. Useful Life (80yrs) - Remaining UL (55yrs) = Expended Life (25yrs), 2019 - 25 = 1994 (Estimated Acquisition Date). Allen Mapstone, Director Strategic Asset Management IPWEA Australasia & NAMS Canada confirmed this calculated value is an appropriate substitute when actual dates are unknown.
6.	LTFP & SRP expenditure figures are from D18/31863(v2) and are most up to date figures available - (Financial Coordinator)
7.	It is anticipated there will be no material change in service levels
8.	Asset data is reasonably complete and physical attributes are reasonably accurate.
9.	Estimates of remaining useful life used in this plan are theoretical values derived from current condition and assume a linear degradation of condition over time.
10.	Budget figures for Renewal and Upgrade/New from LTFP and SRP. Renewal figures for 2029-38 are the average of previous 10yrs LTFP figs. Upgrade/New figures for the same period are an average of the previous 5yrs as the very high spends in the early years of the plan would have skewed the projections.

**7.5 FORECAST RELIABILITY AND CONFIDENCE**

The expenditure and valuations projections in this AM Plan are based on best available data. Currency and accuracy of data is critical to effective asset and financial management. Data confidence is classified on a 5 level scale<sup>10</sup> in accordance with Table 7.5.

**TABLE 7.5: DATA CONFIDENCE GRADING SYSTEM**

Confidence Grade	Description
A Highly reliable	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 Reliable	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 Uncertain	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated $\pm 25\%$
D Very Uncertain	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 Unknown	None or very little data held.

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

## 8. PLAN IMPROVEMENT AND MONITORING

<sup>10</sup> IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.

## 8.1 STATUS OF ASSET MANAGEMENT PRACTICES<sup>11</sup>

### 8.1.1 ACCOUNTING AND FINANCIAL DATA SOURCES

- Rural City of Wangaratta Long Term Financial Plan
- Rural City of Wangaratta Budget 2018/19
- TechnologyOne CS Production Database

### 8.1.2 ASSET MANAGEMENT DATA SOURCES

- TechnologyOne CS Production Database

## 8.2 IMPROVEMENT PLAN

The asset management improvement plan generated from this asset management plan is shown in Table 8.1.

**TABLE 8.1: IMPROVEMENT PLAN**

Task No	Task	Responsibility	Resources Required	Timeline
1	<p>There are 23 bridge structures on the rail trail which are recognised in Council's asset system, TechOne, but have a status of 'Not Commissioned'. Physical attributes have been captured but no financial records are associated with these assets in Asset books.</p> <p>Council is committee of management for the rail trail and is responsible for inspection, maintenance, renewal and replacement of these structures while not being the owner of them. It is recommended that, with the agreement of Council's auditors, these assets be commissioned and the values recognised in Asset Books as there is an ongoing financial commitment by Council to maintain and renew these assets.</p>	Finance	Internal	Oct 2019
2	<p>Documented ranking and prioritisation criteria needs to be established for proposed renewal and upgrade/new projects. Programs of works should then be developed for at least the next 5 yrs based on this methodology.</p>	Asset Planning	Internal	November 2019
3	<p>Completion of the Capitalisation and Asset Handover process preferably with documented work flows in WIM which will ensure all new assets are captured and all required attributes recorded.</p>	Asset Planning, Delivery and Finance	Internal	July 2019
4	<p>An Infrastructure Risk Management Plan and Risk</p>	Asset Planning	Internal	June 2020

<sup>11</sup> ISO 55000 Refers to this the Asset Management System

Task No	Task	Responsibility	Resources Required	Timeline
	Register be developed in order to; <ul style="list-style-type: none"> <li>• identify risks to RCoW that may impact on the delivery of services from infrastructure,</li> <li>• select credible risks for detailed analysis,</li> <li>• prioritise risks,</li> <li>• identify risks requiring treatment by management action,</li> <li>• develop risk treatment plans identifying the tasks required to manage the risks, the officer/authority responsible for each task, the resources required and the due completion date.</li> </ul>	and Governance		
5	20% of Council's asset data by value to be reviewed for completeness and accuracy each year. This activity should form part of the revaluation process to ensure both physical attributes and financial records are complete and accurate.	Asset Planning and Finance	Internal	Ongoing
6	Community consultation plan developed on desired service levels for the Bridges asset group.	Asset Planning	Internal	June 2020

### 8.3 MONITORING AND REVIEW PROCEDURES

This asset management plan will be reviewed during annual budget planning processes and amended to show any material changes in service levels and/or resources available to provide those services as a result of budget decisions.

The AM Plan will be updated annually to ensure it represents the current service level, asset values, projected operations, maintenance, capital renewal and replacement, capital upgrade/new and asset disposal expenditures and projected expenditure values incorporated into the long term financial plan.

The AM Plan has a life of 4 years and is due for complete revision and updating within 6 months of each Council election.

### 8.4 PERFORMANCE MEASURES

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

- The degree to which the required projected expenditures identified in this asset management plan are incorporated into the long term financial plan,
- The degree to which 1-5 year detailed works programs, budgets, business plans and corporate structures take into account the works program trends provided by the asset management plan,
- The degree to which the existing and projected service levels and service consequences (what we cannot do), risks and residual risks are incorporated into the Strategic Plan and associated plans,

## 9. REFERENCES

- IPWEA, 2006, '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, 2015, 3rd edn., 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/IIMM](http://www.ipwea.org/IIMM)
- IPWEA, 2012 LTFP Practice Note 6 PN Long Term Financial Plan, Institute of Public Works Engineering Australasia, Sydney
- Rural City of Wangaratta Council Plan 2017-21
- Rural City of Wangaratta Annual Budget 2018/19

## 10. APPENDICES

- Appendix A Projected 10 year Capital Renewal and Replacement Works Program
- Appendix B Projected 10 year Capital Upgrade/New Works Program
- Appendix C LTFP Budgeted Expenditures Accommodated in AM Plan

APPENDIX A PROJECTED 10-YEAR CAPITAL RENEWAL AND REPLACEMENT WORKS PROGRAM

Wangaratta Rural CC - Report 6 - Appendix 10 year Renewal & Replacement Program  
(Bridges\_S1\_V4)

Asset ID	Sub Category	Asset Name	From	To	Rem Life (Years)	Planned Renewal Year	Renewal Cost (\$)	Useful Life (Years)
BR000049	Bridge	OLD KING RIVER ROAD			6	2025	\$287,916	100

**Wangaratta Rural CC**  
**Projected Capital Upgrade/New Works Program - Bridges\_S1\_V4**

(\$000)

<b>Year</b>	<b>Item</b>	<b>Description</b>	<b>Estimate</b>
2019	1	New Pedestrian Footbridge - One Mile Creek	\$103
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
<b>2019</b>		<b>Total</b>	<b>\$103</b>

APPENDIX C BUDGETED EXPENDITURES ACCOMMODATED IN LTFP

**NAMS.PLUS3 Asset Management Wangaratta Rural CC**

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**Bridges\_S1\_V4**

**Asset Management Plan**



First year of expenditure projections **2019** (financial yr ending)

**Bridges**

**Asset values at start of planning period**

Current replacement cost	\$88,827 (000)
Depreciable amount	\$88,827 (000)
Depreciated replacement cost	\$66,216 (000)
Annual depreciation expense	\$828 (000)

Calc CRC from Asset Register

\$88,827 (000)
----------------

This is a check for you.

**Operations and Maintenance Costs for New Assets**

	% of asset value
Additional operations costs	0.08%
Additional maintenance	0.10%
Additional depreciation	0.93%
Planned renewal budget (information only)	

You may use these values calculated from your data or overwrite the links.

**Planned Expenditures from LTFP**

**20 Year Expenditure Projections**

Note: Enter all values in current **2019** values

Financial year ending	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000

**Expenditure Outlays included in Long Term Financial Plan (in current \$ values)**

**Operations**

Operations <b>budget</b>	\$73	\$73	\$73	\$73	\$73	\$73	\$73	\$73	\$73	\$73
Management <b>budget</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
AM systems <b>budget</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

<b>Total operations</b>	\$73	\$73	\$73	\$73	\$73	\$73	\$73	\$73	\$73	\$73
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**Maintenance**

Reactive maintenance <b>budget</b>	\$18	\$18	\$18	\$18	\$18	\$18	\$18	\$18	\$18	\$18
Planned maintenance <b>budget</b>	\$71	\$71	\$71	\$71	\$71	\$71	\$71	\$71	\$71	\$71
Specific maintenance items <b>budget</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

<b>Total maintenance</b>	\$89	\$89	\$89	\$89	\$89	\$89	\$89	\$89	\$89	\$89
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**Capital**

Planned renewal <b>budget</b>	\$445	\$306	\$312	\$318	\$325	\$331	\$338	\$345	\$351	\$359
Planned upgrade/new <b>budget</b>	\$103	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

<b>Non-growth contributed asset value</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
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**Asset Disposals**

<b>Est Cost</b> to dispose of assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Carrying value</b> (DRC) of disposed assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0