Asset Management Plan



Bridge Assets



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The entity can choose either template to write/update their plan regardless of their level of asset management maturity and in some cases may even choose to use only the Executive Summary.

The illustrated content is suggested only and users should feel free to omit content as preferred (e.g. where info is not currently available).

This Asset Management Plan may be used as a supporting document to inform an overarching Strategic Asset Management Plan.

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1.0 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

Asset management planning is a comprehensive process ensuring delivery of services from infrastructure is financially sustainable.

This Asset Management Plan (AMP) details information about infrastructure assets 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 AMP will link to a LTFP (Long Term Financial Plan) which typically considers a 10 year planning period.

This plan covers the infrastructure assets that provide **Bridge** related assets.

1.2 Asset Description

The Bridge network comprises:

- Pedestrian Bridges 44
- Vehicular Bridges 14
- TOTAL 58.

The above infrastructure assets have a total renewal value estimated at \$8,842,915

Location of the bridge assets is shown below:



The Bridge network comprises:

Components	Quantity	Current Replacement Cost (\$)
Abutments	900m ³	781,922
Balustrade (Concrete)	46m	37,495
Balustrade (Steel/ Timber)	918m	373,927
Columns	49m	97,537
Decking (Concrete/ Asphalt/ Replas)	1133m ²	182,824
Decking (Wooden)	840m ²	225,948
Guardrail	289m	86,049
Structure	2773m ²	7,057,213
TOTAL		8,842,915

1.3 Levels of Service

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

The main service consequences of the Planned Budget are:

- Litigation
- General Community Complaints

1.4 Future Demand

The main demands for new services are created by:

- Customer requests
- Community needs.

These demands will be addressed using a combination of managing and 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 AMP includes operations, maintenance, renewal, acquisition and disposal of assets. Although the AMP may be prepared for a range of time periods, it typically informs a LTFP period of 10 years. Therefore, a summary output from the AMP is the forecast of total outlays over a 10 year period, which for the Bridge assets are estimated as \$213,000 or an average of \$21,300 per year.

1.6 Financial Summary

1.6.1 What we will do

Estimated available funding for the 10 year period is \$213,000 or an average of \$21,300 per year as per the LTFP or Planned Budget. This is 100.0% 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 LTFP can be provided. The Informed decision making depends on the AMP emphasising the consequences of Planned Budgets on the service levels provided and risks.

The anticipated Planned Budget for Bridge Assets will match the forecast 10 year lifecycle costs required to provide these services.



Forecast Lifecycle Costs and Planned Budgets

Annual Depreciation cost - \$124,200

Summary of total funding

	Planned Total Budget Per Year (\$)	Funding Surplus/(Shortfall) for 10 Year Period (\$) Per Year	Funding Surplus/(Shortfall) for 20 Year Period (\$) Per Year
10 Year Average renewal Funding	21,300	0	(7,140)
20 Year Average renewal Funding	28,800	7,500	361

Note:

- This plan is based on total budgeted expenditure with 10 year average funding of \$21,300 per year
 - This level of funding create no surplus/ shortfall of funding for the 10 year
 - It should be noted that this level of funding, if continued for 20 years, will create a shortfall of \$7,140 per year
- The disposal life cycle costs shown are minimal, as these cost are built into renewal costs.
- Figure Values are in 2019 dollar values.

We plan to provide Bridge Assets services for the following:

- Operations, maintenance, renewal and upgrade of structures, decking, abutments, balustrades, guardrails and columns to meet service levels set by in annual budgets
- Renewal works as listed in the Appendix D within the 10 year planning period
- Continue to improve technology, processes and procedures for managing asset data thereby improving our knowledge of the assets to help make more informed decisions.

1.6.2 What we cannot do

We currently do 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 are:

• New bridge requests from the Community.

1.6.3 Managing the Risks

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

Reduction in the current funding level may incur the following risk consequences are:

- Litigation
- Financial
- Reputation

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

- Undertaking frequent inspections and maintenance to ensure that the assets meet current legislative and safety requirements.
- Allocate sufficient funds to ensure that assets meet compliance requirements
- Communicate effectively with the ratepayers.

1.7 Asset Management Practices

Our systems to manage assets include:

- Finance One to manage finance data
- Conquest to manage asset data.
- QGIS/Intramap to manage spatial asset data.

Assets requiring renewal/replacement are identified from either the asset register or an alternative method. These methods are part of the Lifecycle Model.

Asset Register data is used to forecast the renewal costs. This is done using the acquisition year and the useful life.

The Asset Register is used to forecast the renewal life cycle costs for this AMP.

1.8 Monitoring and Improvement Program

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

- further develop/improve Mobile Field Data Collection technology which will enable Staff to record defects in the Maintenance Management in Conquest Asset Management System (ASM).
- continue to use Mobile Capital Works Project Data Capture in the field. Council has developed this methodology to capture the asset data when a capital Work Project is complete. The asset team is coordinating this process with the project managers.
- develop a further data capture programme will be developed to collect cyclic maintenance works, in addition to scheduled condition assessment programme, where bridge assets are captured every four years.
- develop inspection regimes for expired Assets based on the information contained in Conquest.
- train staff in order to update their knowledge with current Asset Management practices.

2.0 Introduction

2.1 Background

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

Council's Asset Management Policy has been used to develop its suite of AMPs, along with the following key planning documents:

- Campbelltown City Council Strategic Plan 2010-2020
- Campbelltown City Council Asset Capitalisation Administrative Procedure
- Campbelltown City Council Depreciation Policy
- Unit Rate Review Document
- Useful Live Review Document
- Resilient East Vulnerability Assessment and Climate Projects for the eastern Region
 - o <u>https://www.resilienteast.com/resources</u>
- State of the Environment reporting (done every 5 years, most recent is 2018)
 - o https://www.epa.sa.gov.au/data and publications/state of the environment reporting
- Campbelltown City Council Social Plan 2020



The infrastructure assets included in this plan have a total replacement value of **\$8,842,915**.

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

Key Stakeholder	Role in Asset Management Plan
Elected Members	 Represent needs of community/shareholders Allocate resources to meet the organisation's objectives in providing services while managing risks Ensure organisation is financial sustainable. Adoption of AMP
CEO/ Executive Management team	 Provide direction of AMP to meet the organisation's objectives in providing services while managing risks, Ensure organisation is financially sustainable
General Manager Infrastructure Services	 Manage organisation operational activities and future strategic planning direction Allocate resources
Manager Assets and Engineering	 Overseeing the design of capital works projects, documentation Manage technical Level of Service Co-ordination of Asset Team
Manager City Operations	Manage the delivery of Capital Works program
Maintenance Coordinator	 Supervision of Capital Works and maintenance in relation to this asset
Finance Department	LTFP, Asset Registers and operational financial data
Team Leader Asset Planning	 Collate asset information Write, review and update AMPs Manage and maintain asset management system
GIS Analysist & Asset Technical	 Assist in the development, maintenance and improvement of corporate spatial data and asset management Develop, maintain and improve Council's GIS Asset Management SQL Server Database Management and Scripting Undertake asset related inspections
Community & Ratepayers	End users of the servicesProvide feedback on services
Governance	 Development of Strategic Plans and other key strategic plans

Table 2.1: Key Stakeholders in the AMP

Our organisational structure for service delivery from infrastructure assets is detailed below:



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 LTFP which identifies the income, expenses and funding required to provide its services to the community.

Key elements of the planning framework are:

- Levels of service specifies the services and levels of service to be provided
- 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 to manage provision the services
- Monitoring how the plan will be monitored to ensure objectives are met
- Asset management improvement plan how to improve Council's asset management maturity.

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

- International Infrastructure Management Manual 2015¹
- ISO 55000² is an international standard covering management of assets of any kind. The ISO 55000 series of Asset Management Standards was launched in January 2014.

A road map for preparing an Asset Management Plan is shown below.



¹ Based on IPWEA 2015 IIMM, Sec 2.1.3, p 2 | 13

² ISO 55000 Overview, principles and terminology

3.0 LEVELS OF SERVICE

Level of service dictate the targeted asset performance in relation to customer expectation, and associated legislative and technical provisions. They also provide achievable milestones for the continuous upgrading of levels of service currently practiced.

Understanding the level of service required of an asset is vital for its lifecycle management as this largely determines an asset's development, operation m, maintenance, replacement and disposal. Levels of service are pivotal in asset management as they have a direct financial impact due to their importance in both operational and risk-based prioritisation.

When establishing Level of Service they should be based on:

- Stakeholder Expectation information gained from stakeholders on expected quality and price of services.
- Strategic and Corporate Goals provides guidance for the scope of current and future services offered the manner of the services delivery and defines the specific level of service, which Council wishes to achieve.
- Legislative Requirements legislation, regulation, environmental standards and industry and Australian Standards that impact on the way these assets are managed.

3.1 Customer Research and Expectations

Council's Community Satisfaction Survey ask the community to rate:

- The importance of an asset on a scale from 0 (not important at all) to 10 (very important)
- How satisfied they are with Council's performance in providing and maintaining its assets from 0 (very dissatisfied) to 10 (very satisfied).

The community was asked to rate the level of importance and level of satisfaction with bridges in the surveys conducted in 2012 and 2016. Trends have been graphed using the mean scores from these years.

Table 3.1 summarises the results from our Customer Satisfaction Survey.

	Satisfaction Level				
Performance Measure	Very Satisfied (8-10)	Fairly Satisfied (6-8)	Satisfied (4-6)	Somewhat satisfied (2-4)	Not satisfied (0-2)
Satisfaction		\checkmark			
Importance	\checkmark				

 Table 3.1: Customer Satisfaction Survey Levels

Community Levels of Importance and Satisfaction

Bridges

(Trend Data based on surveys in 2012, 2016)



The Community consider bridge assets as reasonably important and is moderately satisfied with Council's performance in providing and maintaining these assets. The following graph shows the gap between importance and satisfaction rating for the 2016 survey year. This is useful in gauging how the community feels about the quality of service received, with the aim being to close the gap between the level of importance and the level of satisfaction).



The gap analysis shows the Community's perception of Council's performance in relation to bridge assets and action is still required. This AMP will assist Council to close the gap between the Community importance and satisfaction rating.

The outcome of the community engagement survey conducted from 12th October 2020 through to 2nd November 2020 indicated that the community consider bridge assets as extremely important. The overall average rating provided by the community for 'importance' was over 9.3.

Community engagement results also indicated that they are fairly satisfied with the bridge assets by providing an average rating of 7.7 for 'Satisfaction'.

In summary, there is an upward trend of overall 'Importance' and 'Satisfaction' measured through the community engagement survey.

3.2 Strategic and Corporate Goals

This Asset Management Plan is prepared under the direction of the Council's vision, mission, goals and objectives.

Our vision is "Campbelltown provides a quality lifestyle for its people."

Our mission is " At Campbelltown we will place a high value on living together, respecting each other's views and building strong partnerships to support the needs of the community."

Our vision statement for Council's Assets is: *"To effectively manage our City's assets in an affordable and equitable way; ensuring the long term needs of the community are met."*

The relevant goals and objectives and how these are addressed in this Asset Management Plan are summarised in Table 3.2.

Goal	Objective	How Goal and Objectives are addressed in the AM Plan
Goal 1 – Quality Living	1.3. City Infrastructure that provides a range of welcoming, attractive and safe facilities that encourage social interaction and an active community.	Provide appropriate infrastructure and services.
Goal 2 – Leadership	2.2. Investment in strong leadership through training and development	Further develop the Asset Management system to include mobile technology to assist in the management of our assets.
Goal 3 – City Planning	3.2. Effective Infrastructure and Asset Management that allows for growth	Continual development of processes and systems to ensure we have the best available data to enable us to make more informed decisions.
Goal 4 – Environmental Responsibility	4.2 Opportunities to conserve energy and resources are maximised	Investigate design options that are available in the market at the time which can be utilised to have cooler, greener and more liveable outcomes in upgrading and of renewing assets.
Goal 5 – Local economy	5.2 Business and industry partnerships which support growth in the local economy	Giving priorities to local businesses in selecting contractors for asset upgrade/ renewal works

Table 3.2: Goals and how these are addressed in this Plan

3.3 Legislative Requirements

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

Table 3.3:	Legislative	Requirements
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Legislation	Requirement
Local Government Act 1999	Sets out the role, purpose, responsibilities and powers of local governments including the preparation of a LTFP supported by AMPs for sustainable service delivery.
Local Government Act – Annual Reporting Section 428(2)(d)	A report on the condition of the public works, under the control of the Council as at the end of that year together with: (i) An estimate (current values) of the amount of money required to bring the works up to a satisfactory standard; and (ii) An estimate (current values) of the annual expense of maintain the works at that standard; and (iii) Council's programme for maintenance for that year in respect of the works.
Australian Road Rules	Contains power for Council to install and remove traffic control devices.
Disability Discrimination Act 1992	The objectives of this Act are to eliminate, as far as possible, discrimination against persons on the grounds of disability. It sets the standard for accessibility.
Australian Accounting Standards	Set out the financial reporting standards relating to, inter alia, the revaluation and depreciation of infrastructure assets.
Local Government (Financial Management) Regulations 2011	Impetus for the development of a Strategic Management Plan, comprising an (Infrastructure) AMP and LTFP.
Work Health & Safety Act 2012	To secure the health, safety and welfare of persons at work. To eliminate, at their source, risks to the health, safety and welfare of persons at work. To protect the public against risks to health or safety arising out of or in connection with the activities of persons at work, or the use of operation of various types of plant.
Highways Act 1926	Set out the legislative framework for roads and road authorities in SA
Environmental Protection Act 1993	 An Act to provide for the protection of the environment: to establish the Environment Protection Authority to define its functions and powers; and for other purposes.
Road Traffic Act 1961	Contains powers for Council to install or remove traffic control devices.

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.

Table 3.4: Customer Values

Service Objective: Maintain the service level to meet or exceed the existing customer satisfaction level

Customer Values	Customer Satisfaction Measure	Current Feedback	Expected Trend Based on Planned Budget
Importance	via Customer Satisfaction Survey	*The community considered bridge assets are reasonably important with the rating of 8.7	Close the gap between importance and satisfaction
Satisfaction	via Customer Satisfaction Survey	*The community is fairly satisfied with the bridge assets and the overall satisfaction level was 7.4	Close the gap between importance and satisfaction

3.5 Customer Levels of Service

The Customer Levels of Service are considered in terms of:

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?

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

These are measures of fact related to the service delivery outcome e.g. number of occasions when a service is not available, condition percentages of Very Poor/Poor/Average/Good/Very Good and provide a balance in comparison to the customer perception that may be more subjective.

Type of Measure	Level of Service	Performance Measure	Current Performance	Expected Trend Based on Planned Budget
Condition	Provide bridges that are safe and free from hazard for the community	Bridge assets are maintained at a minimum of Condition Grading 2 as defined in Table 5.1.3	Perform regular condition audits, remedy defects through Capital Works and Maintenance plans to ensure the network is maintained in good condition.	Last condition audit was undertaken in 2018/2019. The bridge networks appears to be in a good condition.
	Confidence levels		Medium	Medium to High
Function	Provide bridges that meet the requirements of the community and other users.	Monitor CRMs (Customer Service Requests).	Asset Management System providing detailed information regarding the bridge assets and defects, enabling Planned Maintenance work.	Improve function as required by regulations, if required.
	Confidence levels		Medium	Medium to High
Capacity	Ensure bridge assets meet the required volume capacity	Monitor CRMs.	Perform regular defect inspections.	Undertake necessary changes as required.
	Confidence levels		Medium	Medium to High

Table 3.5: Customer Level of Service Measures

3.6 Technical Levels of Service

Technical Levels of Service – Technical measures of performance drive delivering customer values and the expected level of service. 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 bridge, upgrading a bridge) or a new service that did not exist previously (e.g. a new bridge)
- Operation the regular activities to provide services (e.g., cleaning, 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. painting, rust repairs, structure repairs)

 Renewal – the activities that return the service capability of an asset to that which it had originally provided (e.g. replacement of bridge components such as decks, balustrades, guardrail, etc).

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

Table 3.6 shows the activities expected to be provided under the current Planned Budget allocation, and the forecast activity requirements being recommended in this AMP.

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **	
TECHNICAL LEVELS OF SERVICE					
Acquisition	Bridge design to meet traffic volumes (Pedestrian and Vehicular) and current bridge design specifications	Compliance to relevant Codes and Standards.	Regular defect inspections are carried out regularly. Detailed Survey and Condition audits carried out every 4 years.	Installation of maintenance free (or minimal maintenance) bridges.	
		Budget	Nil	Nil	
Operation	Condition of the network	Bridges are to be kept and maintained to a functional standard.	Regular defects inspections are carried out. Detailed Survey and Condition audits carried out every 4 years.	Undertake more than one condition survey inspection within a four year period.	
		Budget	\$10,020	\$10,020 (increase this amount if required)	
Maintenance	Reporting and Fixing Defects	Bridges are defect inspected regularly, re- inspected after major weather events and CRMs are investigated promptly.	Regularly undertake defect inspections to monitor and record defects.	A yearly defect inspections to monitor and record defects needs to be undertaken	
		Budget	\$3,780	\$3,780 ((increase this amount if required)	

Table 3.6: Technical Levels of Service

³ IPWEA, 2015, IIMM, p 2 | 28.

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
Renewal	Bridge design to meet traffic volumes (Pedestrian and Vehicular) and current bridge design specifications	Compliance to relevant Codes and Standards.	Regular defect inspections are carried out regularly. Detailed Survey and Condition audits carried out every 4 years.	Complete the renewal activities as listed in the Appendix D for the next 10 years.
		Budget	\$7,500	\$7,500
Disposal	To remove existing component/s of bridge that are no longer required or require replacement.	Component has reached the end of its useful life or is no longer fit for purpose.	Components disposed in accordance with AMPs.	Components disposed in accordance with AMPs.
		Budget	\$0, as disposal cost is included in the replacement cost of components.	\$0, as disposal cost is included in the replacement cost of components.

Note: * Current activities related to Planned Budget.

** Forecast required performance related to forecast lifecycle costs.

The Heather Court footbridge was demolished in October 2019 and as such is not reflected within this AMP.

It is important to monitor the service levels provided regularly as these will change. The current performance is influenced by work efficiencies and technology, with customer priorities changing over time.

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 and environmental awareness.

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.

4.3 Demand Impact and 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.

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

Demand driver	Current position	Projection	Impact on services	Demand Management Plan
Populatio n	Estimated residential population in the Campbelltown Council area is 52,192 – 2019 ERP figures.	The population is projected to growth to 63,963 by 2031.	Population growth throughout Adelaide will increase. This will result in more people using the bridges as part of their recreational activities and or commuting.	Develop demand management strategies. Demand for new assets and services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new and expanded assets to meet demand plus implementing demand management strategies where appropriate.
Climate Change	Council bridges are constructed based on the current environmental conditions and current environmental standards. Council has recently declared a Climate Emergency	Temperatures rise, less rainfall, weather events becoming more extreme – likelihood of flooding and drought could have an impact	Potential for ground movement in reactive soils during periods of drought, washout of bridge infrastructure during flooding may impact on bridge assets.	Continue to monitor the bridge network, research new engineering techniques and materials, investigate and, if appropriate, apply techniques in problem areas.

Table 4.3: Demand Management Plan

	and Staff are developing a Climate Solution Strategy.	on the bridge assets.		
Social	Healthy lifestyles are promoted with people recognising the importance of social connectivity.	More people walking and using trails and footpaths	Potential for increased community expectation on services provided, i.e. more footbridges and to a higher standard.	Develop master plans and strategies accordingly ensuring any increased demand is planned for strategically.

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 Bridge Assets 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 LTFP (Refer to Section 5).

4.5 Climate Change and Adaption

The impacts of climate change can 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 will impact on assets can vary significantly depending on the location and the type of services provided, as will the way in which we respond and manage those impacts.

As a minimum we should consider both how to manage our existing assets given the potential climate change impacts, and then also how to create resilience to climate change for any new works or acquisitions. Council recently has declared a Climate Emergency and Staff are developing a Climate Solution Strategy. This strategy will be considered in future AMP's.

Opportunities identified to date for the management of climate change impacts on existing assets are shown in Table 4.5.1.

Climate Change	Projected	Potential Impact on	Management
Description	Change	Assets and Services	
Extreme weather events	Increased frequency and duration of extreme heat events.	 Deterioration to assets Soil movement which will impact on bridge foundation and hence the structure Comfort and exposure of those needing to use bridge network in extreme heat. Asset washed away from flooding 	 Undertake inspections following an extreme weather events and monitor Regular maintenance/ painting Review of materials used in various bridge components that perform well in the heat (including seating). Review future bridge design to minimise impact from high water flow. Review of vegetation management. i.e. appropriate planting to mitigate erosion, rock armouring of banks near bridges.

Table 4.5.1 Managing the Impact of Climate Change on Assets

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

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

Table 4.5.2 summarises some asset climate change resilience opportunities.

Table 4.5.2 Building Asset Resilience to Climate Change

New Asset Description	Climate Change impact These assets?	Build Resilience in New Works
Extreme Storm Event	Bridge can get washed away.	Consider relocation of the bridge. If the bridge is to be installed at the same location, design the bridge to cater for new hydraulic conditions.

It should also be noted that the impact of climate change on assets is a new and complex discussion and further opportunities will be developed in future revisions of this AMP.

5.0 LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how the Bridge Assets 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 Asset Management Plan are shown in Table 5.1.1.

Table 5.1.1: Asset	s covered by this Plan
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Asset Category	Dimension	Replacement Value (\$)
Abutments	900m ³	781,922
Balustrade (Concrete)	46m	37,495
Balustrade (Steel/ Timber)	918m	373,927
Columns	49m	97,537
Decking (Concrete/ Asphalt/ Replas)	1,133m²	182,824
Decking (Wooden)	840m ²	225,948
Guardrail	289m	86,049
Structure	2,773m ²	7,057,213
TOTAL		8,842,915

Operation and Maintenance Strategies

The organisation will operate and maintain assets to provide the defined level of service to approved budgets in the most cost-efficient manner. The operation and maintenance activities include:

- Scheduling operations activities to deliver the defined level of service in the most efficient manner,
- Undertaking maintenance activities through a planned maintenance system to reduce maintenance costs and improve maintenance outcomes. Undertake cost-benefit analysis to determine the most cost-effective split between planned and unplanned maintenance activities (50 - 70% planned desirable as measured by cost),
- Maintain a current infrastructure risk register for assets and present service risks associated with providing services from infrastructure assets and reporting Very High and High risks and residual risks after treatment to management and Council,
- Review current and required skills base and implement workforce training and development to meet required operations and maintenance needs,
- Review asset utilisation to identify underutilised assets and appropriate remedies, and over utilised assets and customer demand management options,
- Maintain a current hierarchy of critical assets and required operations and maintenance activities,
- Develop and regularly review appropriate emergency response capability,
- Review management of operations and maintenance activities to ensure Council is obtaining best value for resources used.

Standard Defects have been configured in the Asset Management System to enable defects to be collected against any bridge component in the field.

Standard defects photographs are listed below:



Defect - Graffiti



Defect – Overgrown Vegetation



Defect – Rust



Defect – Seasonal movement – bolt lift



Defect – Protective Coating Failure

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

Figure 5.1.1: Asset Age Profile



All figures are shown in 2019 dollar values

The Asset age profile is shown from 1957 to 2019

5.1.2 Asset capacity and performance

In general terms it is believed that the bridge network is meeting capacity and performance requirements.

Regular bridge survey and condition audits are carried out on the entire network every 4 years. A survey and condition audit was carried out on all bridges in 2019.

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

Location	Service Deficiency
Vehicular Bridge Assets	Failure of the seal, structure and footpath due to soil movements, increased vehicular loading and weather.
Footbridge Assets	Localised failure of footbridge assets in Liner Park caused by weather events and ageing of the timber in some assets.

Table 5.1.2: Known Service Performance Deficiencies

The above service deficiencies were identified from regular inspections and customer notifications.

5.1.3 Asset condition

Apart from the scheduled condition assessment programme where bridge assets is captured every four years, a further data capture programme will be developed to collect cyclic maintenance works. The asset condition survey is undertaken by experienced Council staff.

Condition is measured using a 1-5 grading system⁴ as detailed in Table 5.1.3. It is important that consistent condition grades be used in reporting various assets across an organisation. This supports effective communication. At the detailed level assets may be measured utilising different condition scales, however, for reporting in the AMP they are all translated to the 1-5 grading scale.

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

Table 5.1.3: Simple Condition Grading Model

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





Notes: Given the scale of the graph the condition grading for the very good and fair assets cannot be easily viewed and are detailed as (Condition 1 - \$33,641, Condition 2 - \$8,814,026 and Condition 3 - \$38,549).

⁴ IPWEA, 2015, IIMM, Sec 2.5.4, p 2|80.

All figure values are shown in 2019 dollar values.

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 painting, rust repairs and balustrades/ guardrail repairs.

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

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

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

The trend in maintenance budgets are shown in Table 5.2.1.

Year	Operation Budget (\$)	Maintenance Budget \$
2018	10,020	3,500
2019	10,000	4,060
2020	11200	4,600

Note: For this AMP, for operation and maintenance budgets, average value of 2018 and 2019 values are used

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 will be identified and highlighted in this AMP 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, with the service level hierarchy used for service planning and delivery.

The service hierarchy is shown is Table 5.2.2.

Table 5.2.2: Asset Service Hierarchy

Service Hierarchy	Service Level Objective
Structure	Structurally sound condition
Abutments	Structurally sound condition
Columns	Structurally sound condition
Deck	Clean and good condition
Balustrades	Clean and good condition
Guardrails	Clean and good condition



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 and not replaced, 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

Note that all costs are shown in 2019 dollar values

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)
- The second method uses an alternative approach to estimate the timing and cost of forecast renewal work. Examples include the use of the condition modelling system, staff judgement and average network renewals.

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 in 2018/2019 financial year as a part of scheduled condition survey assessment.

Table 5.3: Useful Lives of Assets

Asset (Sub) Category	Useful life (years)
Abutments	60 to 100
Balustrade (Concrete)	60 to 80
Balustrade (Steel/ Timber)	60 to 80
Columns	80 to 100
Decking (Concrete/ Asphalt/ Replas)	80 to 100
Decking (Wooden)	40 to 60
Guardrail	40 to 60
Structure	80 to 100

The estimates for renewals in this AMP were based on the Asset Register 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 bridge).⁵

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

- Potential to reduce life cycle costs by replacement with a modern equivalent asset that would provide the equivalent service.
- Have a high utilisation and subsequent impact on users would be greatest,
- The total value represents the greatest net value to the organisation,
- 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
- Where replacement with modern equivalent assets would yield material savings.

The ranking criteria used to determine priority of identified renewal proposals is detailed in Table 5.3.1.

⁵ IPWEA, 2015, IIMM, Sec 3.4.4, p 3 91.

Table 5.3.1: Renewal Priority Ranking Criteria

Criteria	Weighting
Risk and Safety	30%
Physical Condition	20%
Financial impact	20%
Social impact	15%
Environmental Impact	15%
Total	100%

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. A detailed summary of the forecast renewal costs is shown in Appendix D.

Figure 5.4: Forecast Renewal Costs

20 year cycle



50 year cycle



Gen 1: refers to the first renewal figure shown on a particular asset, or group of assets, within the planning period.

Gen 2: refers to the next generations of an asset, or group of assets, within the planning period. For example an asset with a 5 year life cycle would show up multiple times in a 20 year planning period.

All figure values are shown in 2019 dollar values.

5.5 Acquisition Plan

Acquisitions are new assets that did not previously exist or works which will upgrade or improve an existing asset beyond its existing capacity, which may result from growth, demand, social or environmental needs. Bridge Assets may also be donated to Council.

5.5.1 Selection Criteria

Proposed upgrade of existing assets and new assets are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with other partiess. Potential upgrade and new works should be reviewed to verify that they are essential to the entity's 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 based on funding available, then scheduled in future works programmes. The priority ranking criteria is detailed in Table 5.4.1.

Criteria	Weighting
Social Impact	25%
Financial Impact	25%
Environmental impact	15%
Legislative Impact	15%
Risk and Safety	25%
Total	100%

Table 5.5.1: Acquired Assets Priority Ranking Criteria

Summary of future asset acquisition costs

No projected capital upgrade/new asset expenditure is assumed for bridge assets in the foreseeable future.

Summary of asset forecast costs

The financial projections from this asset plan are shown in Figure 5.5.3. These projections include forecast costs for acquisition, operations, maintenance, renewal, and disposal. These forecast costs are shown relative to the proposed budget.

The graph represents the forecast costs needed to minimise the life cycle costs associated with the service provision. The gap between the forecast work and the proposed budget (available funding) is the basis of the discussion on achieving balance between costs, levels of service and risk to achieve the best value outcome.





Summary of total funding

	Planned Total Budget Per Year (\$)	Funding Surplus/(Shortfall) for 10 Year Period (\$) Per Year	Funding Surplus/(Shortfall) for 20 Year Period (\$) Per Year
10 Year Average renewal Funding	21,300	0	(7,140)
20 Year Average renewal Funding	28,800	7,500	361

Note:

- This plan is based on total budgeted expenditure with 10 year average funding of \$21,300 per year
 - \circ $\;$ This level of funding create no surplus/ shortfall of funding for the 10 year $\;$
 - It should be noted that this level of funding, if continued for 20 years, will create a shortfall of \$7,140 per year

All figure values are shown in 2019 dollar values.

5.6 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 5.6. A summary of the disposal costs and estimated reductions in annual operations and maintenance of disposing of these assets are also outlined in Table 5.6.

The Heather Court footbridge was removed in October 2019 and as such is not reflected within this AMP.

Asset	Reason for Disposal	Timing	Disposal Costs	Operations & Maintenance Annual Savings
(B44) - ASH GROVE - Pedestrian Beam Bridge	Improve creek trail to meet DDA requirement	2022	Included as part of the replacement cost.	Nil
Heather Court/Fae Court	Safety	2019		

Table 5.6: Assets Identified for Disposal

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'⁶.

An assessment of risks⁷ 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.

Critical Asset(s)	Failure Mode	Impact
Bridge Assets	Some pedestrian bridges are known to be non- compliant – too narrow and access is not DDA compliant.	Limited access to wheelchairs
	Pedestrian bridges along River Torrens Linear Park are prone to flooding,	Wash out

Table 6.1 Critical Assets

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.

⁶ ISO 31000:2009, p 2

⁷ REPLACE with Reference to the Corporate or Infrastructure Risk Management Plan as the footnote



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 risks⁸ 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.

Table 6.2: Risks and Treatment Plans

⁸ REPLACE with Reference to the Corporate or Infrastructure Risk Management Plan as the footnote

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Bridge Assets in general	Lack of funding to operate, maintain and renew assets	VH	Asset data managed and maintained within an Asset Management System and fully utilised to perform analysis to assist in making informed decision and appropriate funding recognise in the LTFP e.g. determining optimum intervention levels, priorities etc. Implement the best cost effective and environmentally friendly options.	Low	Can be significantly high depending on the asset type and option selected.
	Inadequate asset management planning	Η	Ensure essential information is captured in the Asset Management System – correct unit rates, useful lives and condition information to determine lifecycle costs.	Low	Can be significantly high depending on the accuracy of asset data.
	Underestimated or unknown condition and lifecycle performance resulting in structural failure	Η	Undertake regular survey and condition audits at least once every four years. Review unit rates and useful lives on a yearly basis.	Low	Can be significantly high depending on the asset type.
	Under design of an asset	Η	Ensure all designs and construction complies with relevant Standards and Council requirements.	Low	Can be significantly high depending on the asset type.

Changing environmental conditions	Η	Record and monitor assets that are impacted by environmental changes. Investigate using different materials and techniques to counter changes. Useful lives may be required to be shortened for assets in identified areas.	Low	Can be significantly high depending on the asset type and option selected.
Maintenance level below technical level or Standards	Н	Ensure maintenance is carried out in accordance with Australian Standards and Council's specifications.	Low	Can be significantly high depending on the asset type.

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

We do not currently measure our resilience in service delivery. This will be included in future iterations of the AMP.

6.4 Service and Risk Trade-Offs

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

6.4.1 What we cannot do

This section is not applicable at present as Council will allocate sufficient funds to meet the delivery of bridge assets for the next 10 years.

6.4.2 Service trade-off

This section is not applicable at present as Council will allocate sufficient funds to meet the delivery of bridge assets for the next 10 years.

6.4.3 Risk trade-off

This section is not applicable at present as Council will allocate sufficient funds to meet the delivery of bridge assets for the next 10 years.

7.0 FINANCIAL SUMMARY

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

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. The assets are valued at fair value at cost to replace service capacity:

Current (Gross) Replacement Cost	\$8,842,915
Depreciable Amount	\$8,842,915
Depreciated Replacement Cost ⁹	\$6,505 <i>,</i> 060
Depreciation	\$123,747



Key assumptions made in preparing the valuations were:

- Straight line depreciation
- All figures are based on 2018/19 unit rates
- Yearly review of Useful Lives and Unit Rates
- Regular condition surveys every 4 years of the bridge assets

7.1.2 Sustainability of service delivery

There are two key indicators of sustainable service delivery that are considered in the AMP 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 Ratio¹⁰ 100.0%

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years we expect to have 100.0% 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.

This AMP 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 10 year period to identify any funding shortfall.

⁹ Also reported as Written Down Value, Carrying or Net Book Value.

¹⁰ AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

The forecast operations, maintenance and renewal costs over the 10 year planning period is an average of \$21,300 per year.

The proposed (budget) operations, maintenance and renewal funding is \$21,300 on average per year, meaning there is no 10 year funding shortfall or excess. This indicates that 100.0% of the forecast costs needed to provide the services documented in this AMP are accommodated in the proposed budget. This calculation is based of existing assets only.

Medium term – 20 year financial planning period

Summary of finance

- Planned total budget per year is \$28,800
- Total funding required to maintain, operate and complete renewal works is \$568,790
- Total fund available (assuming \$15,000 renewal funding will be available each planning year) to complete life cycle cost is \$576,000
- Asset Renewal Funding Ratio is 101%
- Surplus funding is \$361 per year

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

Table 7.1.3 shows the forecast costs (outlays) for the 10 year LTFP.

Forecast costs are shown in 2018/2019 dollar values.

Table 7.1.3: Forecast Costs (Outlays) for the Long-Term Financial Plan(\$)

Year	Forecast Acquisition (\$)	Forecast Operation (\$)	Forecast Maintenance (\$)	Forecast Renewals(\$)	Forecast disposal (\$)
2020	0	10,020	3,780	0	0
2021	0	10,020	3,780	0	0
2022	0	10,020	3,780	75,000	0
2023	0	10,020	3,780	0	0
2024	0	10,020	3,780	0	0
2025	0	10,020	3,780	0	0
2026	0	10,020	3,780	0	0
2027	0	10,020	3,780	0	0
2028	0	10,020	3,780	0	0
2029	0	10,020	3,780	0	0
2030	0	10,020	3,780	0	0
2031	0	10,020	3,780	0	0
2032	0	10,020	3,780	15,566	0
2033	0	10,020	3,780	0	0
2034	0	10,020	3,780	0	0
2035	0	10,020	3,780	0	0
2036	0	10,020	3,780	0	0
2037	0	10,020	3,780	22,201	0
2038	0	10,020	3,780	0	0

Year	Forecast Acquisition (\$)	Forecast Operation (\$)	Forecast Maintenance (\$)	Forecast Renewals(\$)	Forecast disposal (\$)
2039	0	10,020	3,780	180,023	0

7.2 Funding Strategy

The proposed funding for assets is outlined in Council's budget and LTFP.

The financial strategy of Council determines how funding will be provided, whereas the AMP communicates how and when it will be spent, along with the service and risk consequences of various service alternatives.

7.3 Valuation Forecasts

During the formulation of this plan, it is anticipated that asset numbers are forecast to remain consistent as there is no plan to add or remove assets from service.

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

Key assumptions made in this AMP are:

- Council Asset Data registry reflects accurate data with a confidence level of ± 10%
- Operation and Maintenance cost remain within the same range for the next 10 years
- Council will allocate sufficient funding to meet operations, maintenance and renewal expenditure.
- The useful Lives of the bridge components are accurate
- Present service levels to remain constant over the life of this AMP
- Nil Growth
- All valuations are based on 2018/19 unit rates

7.5 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this AMP 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 scale¹¹ in accordance with Table 7.5.1.

Table 7.5.1: Data Confidence Grading System

¹¹ IPWEA, 2015, IIMM, Table 2.4.6, p 2 | 71.

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 ± 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 ± 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 ± 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 AMP is shown in Table 6.5.1.

Data	Confidence Assessment	Comment
Demand drivers	Reliable	Based on Council's adopted Asset Management Policy
Growth projections	Reliable	Data based on government populations data
Acquisition forecast	Reliable	Data based on past experience
Operation forecast	Reliable	Expenditures have been apportioned across each asset class
Maintenance forecast	Reliable	Council will allocate sufficient funds to meet maintenance forecast
Renewal forecast - Asset values	Reliable	Unit Rates are reviewed each year and endorsed independently. Asset values are calculated using unit rates multiplied by valuation measurement.
- Asset useful lives	Reliable	Useful lives are reviewed yearly and endorsed independently.
- Condition modelling	Reliable	Council undertakes a detailed bridge survey and condition audit every 4 years.
Disposal forecast	Reliable	Based on the financial data

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8.0 PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices¹²

8.1.1 Accounting and Financial Data Sources

This AMP utilises accounting and financial data. The source of the data is from Council's corporate finance system, Finance One.

8.1.2 Asset Management Data Sources

This AMP also utilises asset management data. The source of the data is from Council's Asset Management Data System, Conquest.

8.2 Improvement Plan

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

Table 8.2: Improvement Plan

Task	Task	Responsibility	Resources Required	Timeline		
1	Further develop Mobile Technology for field work defect recording and Maintenance Management in Conquest AMS	GIS Analyst, Team Leader Asset Planning	GIS Analyst, Team Leader Asset Planning, IT, Depot Staff Equipment: Mobile Device	1 to 2 years		
Tree Assets – mobile maintenance management – recording Tree Defects in the field						





 $^{\rm 12}$ ISO 55000 Refers to this the Asset Management System

2	Continue program for data collection of cyclic maintenance works	GIS Analyst, Team Leader Asset Planning, Coordinators, Team Leaders, Outside Staff	GIS Analyst, Team Leader Asset Planning, Depot Staff Equipment: Mobile Device	Ongoing for all Asset Classes
3	Develop Inspection Regimes for expired Assets (Fully Depreciated Assets past their useful lives)	GIS Analyst, Team Leader Asset Planning, Coordinators, Team Leaders, Outside Staff	GIS Analyst, Team Leader Asset Planning, Depot Staff Equipment: Mobile Device	12 month cycle

Recording Proposed Capital Works in the field



Recording Proposed Capital Works in the field – Mapped



4 Undertake risk assessment inspections

GIS Analyst, Team Leader Asset Planning, Coordinators, Team Leaders, Outside Staff GIS Analyst, Team 12 month Leader Asset cycle Planning, Depot Staff Equipment: Mobile Device

8.3 Monitoring and Review Procedures

This AMP 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 AMP will be reviewed and updated annually to ensure it represents the current service level, asset values, forecast operations, maintenance, renewals, upgrade/new and asset disposal costs and proposed 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 appointment of new Council.

8.4 Performance Measures

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

- The degree to which the required forecast costs identified in this AMP are incorporated into the LTFP
- The degree to which the 1-5 year detailed works programs, budgets, business plans and corporate structures take into account the 'global' works program trends provided by the AMP
- The degree to which the existing and projected service levels and service consequences, risks and residual risks are incorporated into the Strategic Plan and associated plans
- The Asset Renewal Funding Ratio achieving Council's adopted target (100%).

9.0 REFERENCES

- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, <u>www.ipwea.org/IIMM</u>
- IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australasia, Sydney, <u>www.ipwea.org/namsplus</u>.
- IPWEA, 2015, 2nd edn., 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney, <u>www.ipwea.org/AIFMM</u>.
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- IPWEA, 2012 LTFP Practice Note 6 PN Long-Term Financial Plan, Institute of Public Works Engineering Australasia, Sydney
- ISO, 2018, ISO 31000:2018, Risk management Guidelines
- Towards 2020 Campbelltown City Council Strategic Plan
- Annual Financial Statements for the Year Ended 30 June 2019.

10.0 APPENDICES

Appendix A Acquisition Forecast – N/A

Appendix B Operation Forecast

B.1 – Operation Forecast Assumptions and Source

Operation costs will remain unchanged for next 20 years. The operation forecast figure listed in the table below is based on the average operation costs that Council has incurred in the last two financial years.

B.2 – Operation Forecast Summary

NAMS+ Outputs Summary for Renewal

		Additional Operation	Total Operation
Year	Operation Forecast (\$)	Forecast (\$)	Forecast (\$)
2020	10,020	0	10,020
2021	10,020	0	10,020
2022	10,020	0	10,020
2023	10,020	0	10,020
2024	10,020	0	10,020
2025	10,020	0	10,020
2026	10,020	0	10,020
2027	10,020	0	10,020
2028	10,020	0	10,020
2029	10,020	0	10,020
2030	10,020	0	10,020
2031	10,020	0	10,020
2032	10,020	0	10,020
2033	10,020	0	10,020
2034	10,020	0	10,020
2035	10,020	0	10,020
2036	10,020	0	10,020
2037	10,020	0	10,020
2038	10,020	0	10,020
2039	10,020	0	10,020

Table B2 - Operation Forecast Summary

Appendix C Maintenance Forecast

C.1 – Maintenance Forecast Assumptions and Source

Maintenance costs will remain unchanged for next 20 years. The maintenance cost forecast figure listed in the table below is the average maintenance costs that Council has incurred in the last two financial years.

C.2 – Maintenance Forecast Summary

NAMS+ Outputs Summary for Renewal

Year	Maintenance Forecast (\$)	Additional Maintenance Forecast (\$)	Total Maintenance Forecast (\$)
2020	3,780	0	3,780
2021	3,780	0	3,780
2022	3,780	0	3,780
2023	3,780	0	3,780
2024	3,780	0	3,780
2025	3,780	0	3,780
2026	3,780	0	3,780
2027	3,780	0	3,780
2028	3,780	0	3,780
2029	3,780	0	3,780
2030	3,780	0	3,780
2031	3,780	0	3,780
2032	3,780	0	3,780
2033	3,780	0	3,780
2034	3,780	0	3,780
2035	3,780	0	3,780
2036	3,780	0	3,780
2037	3,780	0	3,780
2038	3,780	0	3,780
2039	3,780	0	3,780

Table C2 - Maintenance Forecast Summary

Appendix D Renewal Forecast Summary

D.1 – Renewal Forecast Assumptions and Source

The renewal summary is generated through National Asset Management System+ (NAMS+) based on the information contained in Council's Asset Register.

It is assumed that Council will allocate enough funds to meet the renewal projects expenditure.

D.2 – Renewal Project Summary

The project titles included in the lifecycle forecast are included in the table D.4

D.3 – Renewal Forecast Summary

NAMS+ Outputs Summary for Renewal

Table D3 - Renewal Forecast Summary

Year	Renewal Forecast (\$)	Renewal Budget (\$)
2020	0	7,500
2021	0	7,500
2022	75,000	7,500
2023	0	7,500
2024	0	7,500
2025	0	7,500
2026	0	7,500
2027	0	7,500
2028	0	7,500
2029	0	7,500
2030	0	7,500
2031	0	7,500
2032	15,566	7,500
2033	0	7,500
2034	0	7,500
2035	0	7,500
2036	0	7,500
2037	22,201	7,500
2038	0	7,500
2039	180,023	7,500

D.4 – Renewal Plan

Detail output from NAMS+ Report for the Register Method

10 Year Renewal Plan

Asset ID	Category	Location	Planned Renewal Year	Renewal Forecast (\$)
120504.0	Bridge Structure	(B44) - ASH GROVE - Pedestrian Beam Bridge	2022	75,000

Appendix E Disposal Summary – N/A

Appendix F Budget Summary by Lifecycle Activity

Key Assumptions Made:

- The existing bridge assets will achieve their assumed useful life
- The existing bridge asset classes have been constructed using sound engineering and design practices to ensure they are fit for purpose
- The unit rates for replacement of bridge asset classes are realistic
- Accuracy of future financial forecasts may be improved in future revisions of the Bridge AMP
- No acquisitions planned for the next 20 years
- Operation and maintenance costs and service levels remain the same for next 20 years.

Year	Acquisition (\$)	Operation (\$)	Maintenanc e (\$)	Renewal (\$)	Disposal (\$)	Total (\$)
2020	0	10,020	3,780	7,500	0	21,300
2021	0	10,020	3,780	7,500	0	21,300
2022	0	10,020	3,780	7,500	0	21,300
2023	0	10,020	3,780	7,500	0	21,300
2024	0	10,020	3,780	7,500	0	21,300
2025	0	10,020	3,780	7,500	0	21,300
2026	0	10,020	3,780	7,500	0	21,300
2027	0	10,020	3,780	7,500	0	21,300
2028	0	10,020	3,780	7,500	0	21,300
2029	0	10,020	3,780	7,500	0	21,300
2030	0	10,020	3,780	7,500	0	21,300
2031	0	10,020	3,780	7,500	0	21,300
2032	0	10,020	3,780	7,500	0	21,300
2033	0	10,020	3,780	7,500	0	21,300
2034	0	10,020	3,780	7,500	0	21,300
2035	0	10,020	3,780	7,500	0	21,300
2036	0	10,020	3,780	7,500	0	21,300
2037	0	10,020	3,780	7,500	0	21,300
2038	0	10,020	3,780	7,500	0	21,300
2039	0	10,020	3,780	7,500	0	21,300

Table F1 – Budget Summary by Lifecycle Activity