Nambucca Valley Council

BRIDGES

Asset Management Plan (Concise)

Scenario 1, Version 4

August 2022

Document Control	Asset Management Plan

Document ID : Trim

Rev No	Date	Revision Details	Author	Reviewer	Approver
1	October 2010	First Draft	Manager Assets		
2	March 2012	Revised layout, content edited	Manager Assets		
3	July 2014	Revised layout as per new Nams Plus 3 template, content edited, data updated	Engineering Support Officer - Assets		
4	September 2014	Data updated, content edited	Engineering Support Officer - Assets		
4	September 2017	Revised layout as per new Nams Plus 3 template, content edited, data updated	Engineering Support Officer - Assets	C.F.	
5	February 2018	Final	ESO	MA	Council Resolution 43/18
6	Nov 2020	Revised with Revaluation	Asset Engineer		
7	Feb 2021	Revised with Bridge Funding Application	Asset Engineer		
8	June 2021	Revised with update delivery program	Asset Engineer		
9	Dec 2021	Revised with updated bridge program	Asset Engineer		
10	April 2022	Revised for 2023 - 42	Asset Engineer		
11	Aug 2022	Revised with revaluation due to increases in costs of materials	Asset Engineer		

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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.

This asset management plan details information about infrastructure assets including 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 the services over a 20-year planning period.

This plan covers the infrastructure assets that provide bridges and bridge sized culverts.

1.2 Asset Description

These assets include:

The bridges network comprises:

Category	Number	Deck Area (m^2)
Timber Bridges	25	1421
Concrete Bridges	55	9613
Composite Bridges	90	6869
Other Bridges	2	202

Category	Number	Deck Length (m)
Bridge sized culverts	11	101

These infrastructure assets (including guardrails etc.) have significant gross replacement value estimated (Aug. 2022) at $69,735,628.

1.3 Levels of Service

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

The main services consequences are:

- Load Limits restrict freight movements.
- Bridge Failures may isolate communities or cause lengthy bypasses.

1.4 Future Demand

The main demands for new services are created by:

- Population
- Lifestyle assets
- Industrial development in outlying areas

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

- Non-asset solutions,
- Insuring against risks and managing failures,
- Monitoring development applications, service requests/complaints and traffic count information for the continual assessment of bridge function and capacity
- Monitoring requests for new lifestyle assets and use of existing assets

1.5 Lifecycle Management Plan

What does it Cost?

Nambucca SC – Report 1 – Executive Summary AM Plan (Bridges_TB_2017_S1_V3)	
What does it cost?	**($000)**
10 year total cost [10 yr Ops, Maint, Renewal & Upgrade Proj Exp]	**$8,829**
10 year average cost	**$882**
10 year total LTFP budget [10 yr Ops, Maint, Renewal & Upgrade LTFP Budget]	**$8,829**
10 year average LTFP budget	**$882**
10 year AM financial indicator	**100%**
10 year average funding surplus	**0**

The projected outlays necessary to provide the services covered by this Asset Management Plan (AM Plan) includes operations, maintenance, renewal and upgrade of existing assets over the 10-year planning period is $882,923 on average per year.

1.6 Financial Summary

What we will do

Estimated available funding for this period is $8,829,235 or $882,923 on average per year as per the long-term financial plan or budget forecast. This is 100% of the cost to sustain the current level of service at the lowest lifecycle cost.

The infrastructure considered in this plan is only that which is provided for and funded in the long-term financial plan. The emphasis of the Asset Management Plan is to communicate the consequences that this provision of infrastructure will have on the service provided and associated risks, so to "inform" decision-making.

The present planned allocated funding suggests a balanced budget for an average per year of the projected expenditure required to provide services in the AM Plan compared with planned expenditure currently included in the Long Term Financial Plan. This is shown in the figure below. This suggested balanced budget is due to a funded bridge program application that utilises detailed estimates for construction rather than generic estimates used within the Technical Asset Registers. It also reflects the results of replacing the older stock of bridges.

The projected 10 years of the expenditure shown below is based on condition and age related renewal. These may vary as more data on bridges become available.

Projected Operating and Capital Expenditure

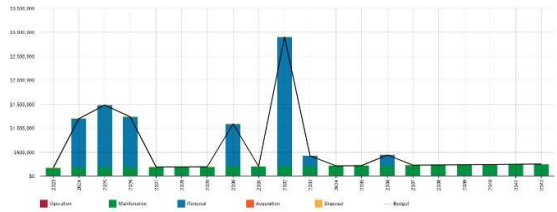


Figure Values are in current (real) dollars.

We plan to provide bridge services for the following:

- Operation, maintenance, renewal and upgrade of concrete, timber, other bridges and causeways to meet service levels set by Council in annual budgets
- Council intends to renew 29 bridges within the 10 year planning period

What we cannot do

We currently allocate enough funding to sustain these services at the desired standard or to provide all new services being sought. To enable works and services to be provided under present funding levels, Council will need to:

- Undertake negotiations with Transport for NSW to obtain funding to manage the 17 bridges being inherited due to the Pacific Highway bypass
- Manage Heavy Vehicles that would cause damage to Council's bridges.
- Confirm funding sought under the "Fixing Country Bridges" round 2 program.

Managing the Risks

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

The main risk consequences are:

- Bridge collapse
- Overtopping
- Malicious damage
- Transfer (inherit from Roads and Maritime Services)
- Bridge closure (where other routes are available)

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

- Bridge collapse – load limits, inspections and maintenance
- Overtopping – closed road barriers and building bridges above flood levels (where possible)
- Malicious damage – repairs to damage
- Seek further funding and bridge renewal programs.
- Transfer – negotiations with the RMS to obtain funding

1.7 Asset Management Practices

Our systems to manage assets include:

- Civica Authority Finance
- Microsoft Excel Spread sheets
- Geographical Information Systems (GIS)
- Asset Edge Reflect with Insight

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, condition rating and useful life to determine the renewal year, or
- Method 2 uses capital renewal expenditure projections from external condition modelling systems (such as Bridge 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.

1.8 Monitoring and Improvement Program

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

- Validate asset data for bridges and culverts
- Regular review of asset condition
- Establish levels of Service through community consultation
- Further analysis of demand growth factors

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 with the organisation's planning documents. This should include the Asset Management Policy along with other key planning documents leading to the development of an Asset Management Strategy:

- Bridge Service Level Policy
- Asset Management Plans Summary

The infrastructure assets covered by this asset management plan are shown in Table 2.1. These assets are used to provide the movement of traffic and pedestrians over a waterway or other impediment.

Table 2.1: Assets covered by this Plan

Asset Category	Dimension	Replacement Value
Timber Bridges	1421m² deck area	$6,040,328
Concrete Bridges	9613m² deck area	$34,384,954
Composite Bridges *	6869m² deck area	$27,581,263
Other bridges	202m² deck area	$525,327
Bridge sized culverts	101m of deck length	$1,203,756
TOTAL		**$69,735,628**

* Composite Bridges are Timber Bridges with a concrete deck

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 [1]
- ISO 55000[2]

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

[2] ISO 55000 Overview, principles and terminology

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[3]. 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

Council engaged Jetty Research to undertake a Community Satisfaction Survey in December 2021. This telephone survey polls a sample of residents on their level of satisfaction with Council's services. The most recent community satisfaction survey reported satisfaction levels for the following services

Table 3.1: Community Satisfaction Survey Levels

Performance Measure	Result
Satisfaction with Council's overall performance	43% satisfied
Most important use of Council's resources	1% stated that this should be on bridges
Comparison of satisfaction scores on bridge services (1 – 5, with 5 being higher satisfaction)	3.62 in 2021 and 3.78 in 2019, an reduction of 4%

The organisation uses this information in developing its Strategic Plan and in allocation of resources in the budget.

3.2 Strategic and Corporate Goals

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

Our vision is:

Nambucca Valley – Living at its best

Our mission is:

The Nambucca Valley will value and protect its natural environment, maintain its assets and infrastructure and develop opportunities for its people

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

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

Goal	Objective	How Goal and Objectives are addressed in AM Plan
Safe road network and infrastructure	Provide and maintain a comprehensive and safe road network together with associated infrastructure for the Shire.	By ensuring that bridge assets are established and maintained in accordance with Council's Road Hierarchy.
Maintain assets	Provide and maintain assets which meet the needs of the Valley.	By establishing a maintenance and renewal program that ensures provision of adequate levels of service from bridge assets.
Apposite services	To have a community where services reflect the needs of the population.	By taking into account community expectations when setting levels of service for bridge assets.

[3] IPWEA, 2015, IIMM.

The organisation 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.

3.3 Legislative Requirements

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

Table 3.3: Legislative Requirements

Legislation	Requirement
Local Government Act	Sets out role, purpose, responsibilities and powers of local governments including preparation of long-term financial plans supported by asset management plans for sustainable service delivery.
Work Health and Safety Act	Secures and promotes health, safety and welfare of people at work.
Roads Act 1993	Defines rite of passage on public roads and rights of property owners adjoining public roads. Confers the authority of the road authority and provides for road classifications.
Environmental Planning and Assessment Act 1979	Encourage the proper management, development and conservation of natural and artificial resources.
Catchment Management Authorities Act 2003	Provide for proper natural resource planning at a catchment level
Fisheries Management Act 1994	Aims to conserve threatened species, populations and ecological communities of fish and marine vegetation whilst promoting ecologically sustainable development, including the conservation of biodiversity.
Heritage Act 1977	Define state and local heritage significance place, building, work, relic, moveable object or precinct
Native Vegetation Act 2003	Prevent broad scale clearing unless it improves or maintains environmental outcomes.
Noxious Weeds Act 1993	Prevent the establishment of new and spread of existing significant weeds. Reduce existing significant weeds.
Protection of the Environment Operations Act 1997	Protect, restore and enhance the quality of the environment in NSW, having regard to the need to maintain ecologically sustainable development. Rationalise, simplify and strengthen the regulatory framework for environment protection.
Road Transport (Safety and Traffic Management) Act 1999	Improve safety and efficiency of transport on roads and road related issues.
Rural Fires Act 1997	Coordinate bush firefighting and bush fire prevention
Threatened Species Conservation Act 1995	Conserve biological diversity and promote ecologically sustainable development and protect the critical habitat of threatened species
Water Management Act 2000	Provide for sustainable and integrated management of water sources of the State for the benefit of both present and future generations. Provide for the orderly, efficient and equitable sharing of water from water sources

3.4 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 measures provide a balance in comparison to the customer perception that may be more subjective.

Table 3.4: Customer Level of Service

Service Attribute	Service Objective	Performance Measure Process	Current Performance	Expected position in 10 years based on current LTFP
COMMUNITY OUTCOMES				
All bridges on Nambucca Valley Council's road network are satisfying the needs of the community. The incidence of community isolation is limited to short periods, during extreme flood events.				
COMMUNITY LEVELS OF SERVICE				
Quality	Bridges are safe, quiet to drive on with smooth approaches.	Customer service requests relating to service quality.	16 per year	Service requests are reducing
Function	Facilitate the movement of traffic and pedestrians over a waterway or other impediment.	Customer service requests relating to service quality.	1 per year	Service requests are reducing
Capacity/ Utilisation	Bridges are provided to enable usage by light and heavy vehicles and machinery.	Customer service requests relating to service quality.	1 per year	Service requests are reducing
		Load limited bridges	4 bridges	Number of load limited bridges reducing.
	Congestion free.	Assess need for single or dual lane bridge at time of replacement.	As needed	As per policy based on road hierarchy, traffic count and bridge height.

3.5 Technical Levels of Service

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 (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. Bridge decking plank replacement, and structure repairs),
- Renewal – the activities that return the service capability of an asset up to that which it had originally (e.g. Replacing a timber bridge with a timber bridge of the same dimensions),
- Upgrade/New – the activities to provide a higher level of service (e.g. Replace a timber bridge with a concrete which has a longer life and capacity, and proving less expensive), increase deck height to improve flood immunity or a new service that did not exist previously (e.g. a new constructed bridge as part of a subdivision).

Service and asset managers plan, implement and control technical service levels to influence the customer service levels.[4]

[4] IPWEA, 2015, IIMM, p 2|28.

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 3.5: Technical Levels of Service

Service Attribute	Service Objective	Activity Measure Process	Current Performance *	Desired for Optimum Lifecycle Cost **	Agreed Sustainable Position ***
TECHNICAL LEVELS OF SERVICE					
Operations	Bridges are safe, with smooth driving surface and approaches	Regular bridge inspections	Annual level 1 bridge inspections	Annual inspections of 100% of network	Annual inspections of 50% of network
		Regular bridge inspections	30 level 2 bridge inspection undertaken every year	Level 2 bridge inspections performed every 4 years	Level 2 bridge inspections performed every 4 years
Maintenance	Maintain bridge assets to attain full operational life	Maintenance identified in bridge inspections	85%	95%	80%
		Budget	Maintenance $170,000	To be determined	To be determined
		Cost effectiveness	Maintenance costs are expected to reduce with the advanced replacement.	To be determined	To be determined
Renewal	Bridges to be renewed or replaced when their condition deteriorates	Condition assessments	Grant funding has enabled a program of bridge replacement		All condition 4 bridges have been replaced and existing bridges have a structural performance level of 1-3
		Budget			
Upgrade/New	Upgrade/new bridges will be constructed as per the replacement program	Condition assessment. All bridges will be full concrete construction	37 condition 4 bridges for renewal in 10 year period	95% bridges meet hierarchy, traffic count and bridge height standards as per adopted policy	As per replacement program
		Budget	Renewal $2,163,167 per year over 3 years.	No upgrades/new bridges planned	No upgrades/new bridges planned

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)

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

Technical service measures are linked to annual budgets covering:

- Operations – the regular activities to provide services such as cleaning, clearing waterways, inspections, etc.
- Maintenance – the activities necessary to retain an asset as near as practicable to an appropriate service condition (e.g. replacing deck planks, deck bolt/nut tightening and structural repairs),
- Renewal – the activities that return the service capability of an asset up to that which it had originally (e.g. frequency and cost of replacing bridge substructure and superstructures including replacement girders and decks),
- Upgrade – the activities to provide a higher level of service (e.g. widening a bridge, replacing timber decks with concrete decks, higher bridge heights for less frequent overtopping, higher load capable bridges) or a new service that did not exist previously (e.g. a bridge instead of a culvert).

Service and asset managers plan, implement and control technical service levels to influence the customer service levels. [5]

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	Present population of just over 20,000	Forecast population by 2025 is in the order of 22,000	Increased population is likely to lead to an increase in vehicle traffic on bridges
Lifestyle assets	Currently four footbridges	Two new footbridges to be constructed in the near future	Increase demand for lifestyle assets for foot/cycle paths and bridges
Industrial development in outlying areas	The majority of industry is located in the eastern area of the Valley	The possible development in the west of the Valley, an increase in heavy vehicles using the bridges will occur	More dual lane or higher load limit bridges may be required

5 IPWEA, 2011, IIMM, p 2.22

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.

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. Demands on bridges can change quicker than renewal of the bridges can occur, which in a worst-case scenario may for Council to upgrade bridges earlier than planned.

Table 4.4: Demand Management Plan Summary

Demand Driver	Impact on Services	Demand Management Plan
Population	Increased population is likely to lead to an increase in vehicle traffic on bridges	Monitoring development applications, service requests/complaints and traffic count information for the continual assessment of bridge function and capacity.
Lifestyle assets	Increase demand for lifestyle assets for foot/cycle paths and bridges	Monitoring requests for new lifestyle assets and use of existing assets
Industrial development in outlining areas or Primary Producer productivity leading to Higher Mass Vehicles.	More dual lane or higher load limit bridges may be required	Monitoring development applications, service requests/complaints and traffic count information for the continual assessment of bridge function and capacity.

4.5 Asset Programs to meet Demand

The new assets required to meet demand can be acquired, donated or constructed.

There are currently no plans to extend the road network other than through developer contributions or through highway roads handover/transfer. There are no projected new bridges predicted for transfer within the planning horizon. Acquiring new assets will commit ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. Any future costs will be identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the long-term financial plan.

5. LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how the Council 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.

The number of bridges within the Valley has been growing since 1928. Council may receive 17 new bridges from Transport NSW with the highway handover associated with the construction of the new Pacific Highway.

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

Figure 2: Asset Age Profile

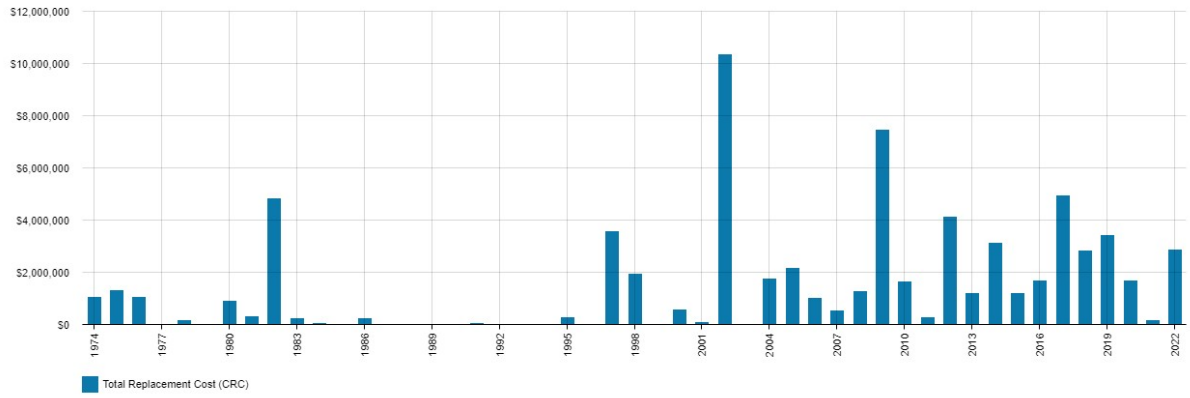


Figure Values are in current (real) dollars.

Bridge replacements will not be required in 2026 to 2028 allowing Council time to plan for future renewal funding.

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

Location	Service Deficiency
Naylors No 2 Bridge	5 tonne load limit (Planned for road closure and removal from Asset Register)
Naylors No 3 Bridge	5 tonne load limit (Planned for road closure and removal from Asset Register)

The above service deficiencies were identified from level 2 bridge inspections.

5.1.3 Asset condition

Condition is monitored through inspections by qualified staff and contracted inspectors on a scheduled basis being level 2 inspections, after a flood event or when advice of a defect is received.

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

Fig 3: Asset Condition Profile

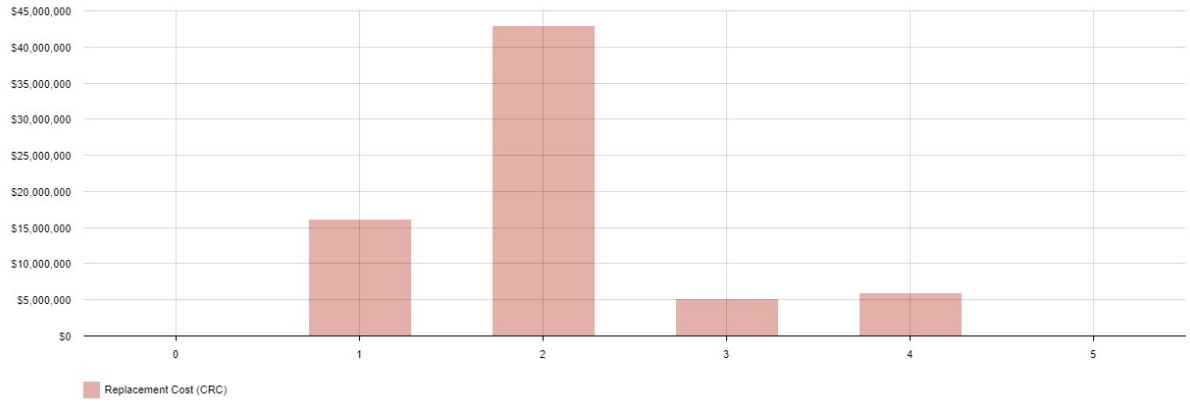


Figure Values are in current (real) dollars.

The majority of Council's bridges are within the condition 2 profile, followed by condition 1. Bridges in condition 3 and 4 profiles have been scheduled for replacement in upcoming years.

Condition is measured using a 1 – 5 grading system[6] as detailed in Table 5.1.3.

Table 5.1.3: Simple Condition Grading Model

[6] IPWEA, 2015, IIMM, Sec 2.5.4, p 2|80.

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

5.2 Operations and Maintenance Plan

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

Year	Maintenance Budget $
2020/2021 financial year	$391,758
2021/2022 financial year	$261,100
2022/2023 financial year	$170,000

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 is highlighted in this AM Plan and service risks considered in the Infrastructure Risk Management Plan. A program of 20 bridge renewals is planned over the next three years. It is conceivable that the nature and form of bridge maintenance over the network will change and may reduce in cost because of the upgrade. Maintenance practices will be monitored and reviewed in the period following the renewal program.

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 dollar values (i.e. real values).

Figure 4: Projected Operations and Maintenance Expenditure

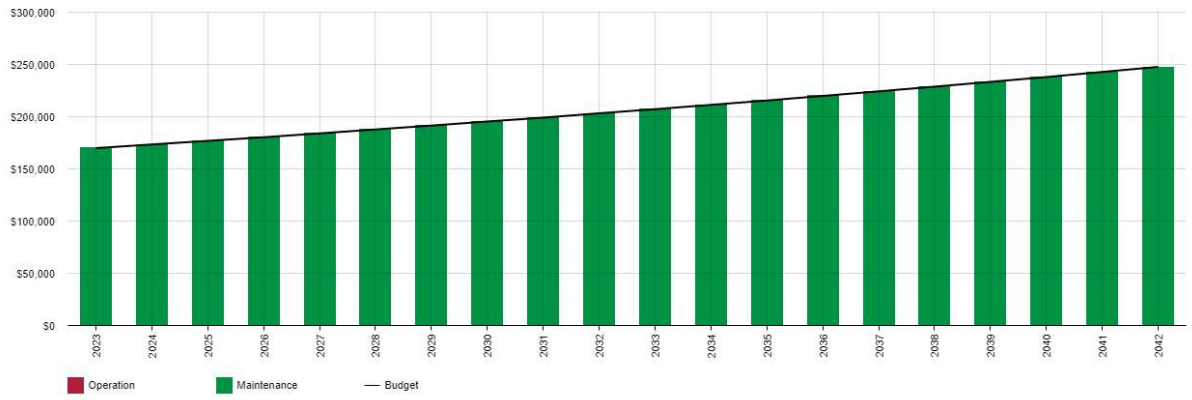


Figure Values are in current (real) dollars.

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

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, condition rating 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.

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).[7]

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.[8]

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

Table 5.3.1: Renewal and Replacement Priority Ranking Criteria

Criteria	Weighting
Road hierarchy	40%
Bridge structural deficiency	10%
Bridge width deficiency	10%
Annual maintenance cost (av. annual cost/replacement cost)	10%
Functional significance of bridge	10%
Actual road usage, AADT Rural OR	10%
Actual road usage, AADT Urban (60kp/h or under)	
Heavy vehicles AADT	5%
B Doubles	5%
Total	**100%**

5.3.2 Summary of future renewal and replacement expenditure

The expenditure 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 B.

[7] IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.
[8] Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

Fig 5: Projected Capital Renewal and Replacement Expenditure

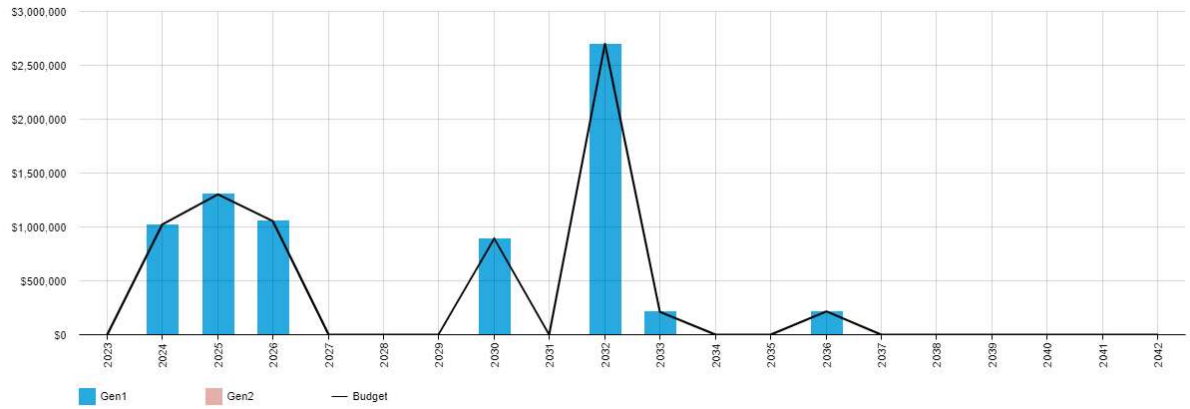


Figure Values are in current (real) dollars.

The budget represents the current adopted budget based upon a renewal schedule generated by from the Bridge Technical Asset Register. The program has been supported by a grant funds "Fixing Local Bridges" which effectively brings forward 20 bridges for construction in a 2-year period. The budget provisions reflect the grant application/approval. A further grant application has been submitted for an additional 21 condition 4 bridges.

It is anticipated that a further review of the renewal program and the consequential Long Term Financial Plan will occur after the completion of the "Fixing Local Bridges" program.

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 Summary of asset expenditure requirements

The financial projections from this asset plan are shown in Fig 6 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 6: Projected Operating and Capital Expenditure

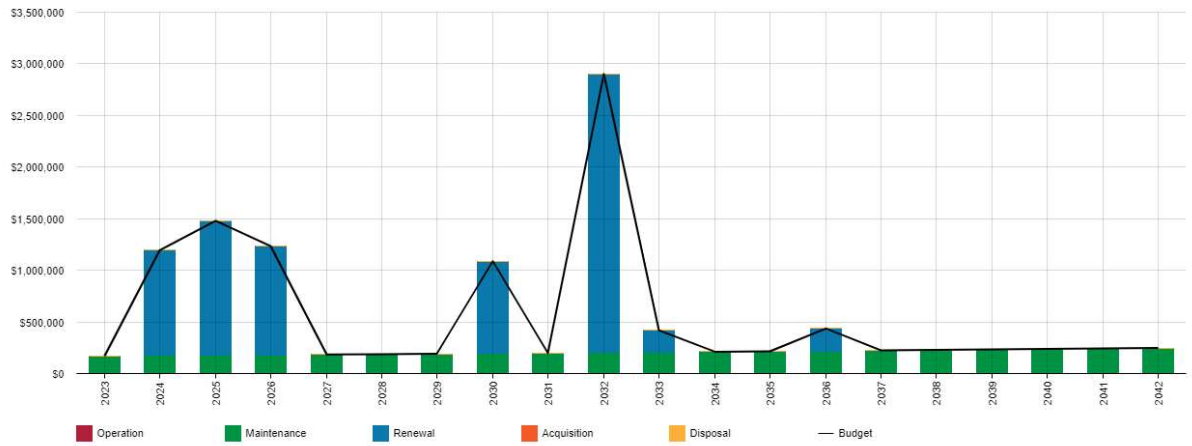


Figure Values are in current (real) dollars.

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 included in the long-term financial plan.

Table 5.5: Assets Identified for Disposal

Asset	Reason for Disposal	Timing	Disposal Expenditure	Operations & Maintenance Annual Savings
Naylors No.2	Reached end of useful life, under utilised	2025	$767 LPI application fee and staff time	Unknown. To be developed for future revisions of this plan
Naylors No.3	Reached end of useful life, under utilised	2025	$767 LPI application fee and staff time	Unknown. To be developed for future revisions of this plan

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 31000:2018 Risk management – Principles and guidelines.

Risk Management is defined in ISO 31000:2018 as: 'coordinated activities to direct and control with regard to risk'[9].

An assessment of risks[10] associated with service delivery from infrastructure assets has identified critical risks that will result in loss or reduction in service from infrastructure assets or a 'financial shock'. The risk assessment process

[10] Nambucca Valley Council Risk management Policy – Adopted 18 February 2010

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.

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
Gumma Bridge	Bridge Collapse	The road would be closed until the bridge is replaced, causing complete road isolation for the residents in Gumma
Browns Bridge	Bridge Collapse	The road would be closed until the bridge is replaced, causing inconvenience to a single property
Lemans Bridge	Bridge Collapse	The road would be closed until a bypass road is constructed, causing inconvenience to the travelling public
McHughes Creek No 2 Bridge	Bridge Collapse	The road would be closed until the bridge is replaced, causing inconvenience to a single property

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

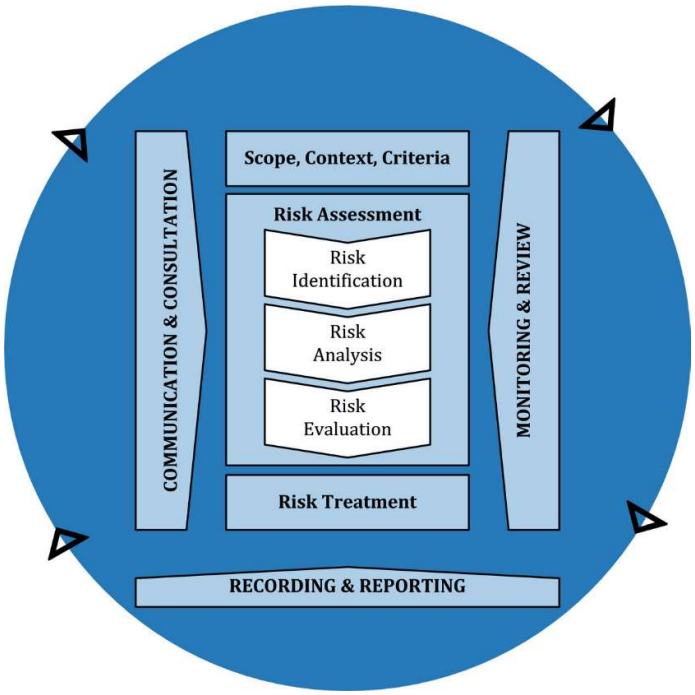
6.2 Risk Assessment

The risk management process used in this project 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 the ISO risk assessment standard ISO 31000:2018.

Fig 6.2 Risk Management Process – Abridged



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.

An assessment of risks[11] associated with service delivery from infrastructure assets has identified the critical risks that will result in significant loss, 'financial shock' or a reduction in service.

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 cost after the selected treatment plan is implemented is shown in Table 6.2. These risks and costs are reported to management and Councillors.

[11] Nambucca Valley Council Risk management Policy – Adopted 10 March 2020

Table 6.2: Critical Risks and Treatment Plans

Service or Asset at Risk	What can Happen	Risk Rating (E, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Condition 4 bridges	Bridge collapse	E	Replace is programmed for condition 4 bridges over next 3 years	Medium	.$30,000 for bypass
Serviceability of timber bridges on Cat 2 roads	Bridge Collapse/Collision/ Fire	H	Close Monitoring pending replacement of timber with concrete bridges	Medium	$150,000 temp bridge
Bridges	Transfer risk (inherit from RMS)	E	Negotiate with TfNSW on condition of bridges and details of transfer	High	$5,000
All bridges	Changing community attitudes	E	Consult with the community and place Bridge AM Plan and Policy on public display	High	NA
Bridges without guardrails	Vehicle driving off bridge	H	Develop hierarchy based on road and bridge height, install guardrails on required bridges, install warning signs on other bridges	Medium	$10,000
Malicious damage	Intentional damage eg vandalism	E	Respond to requests to repair damage or to repair damage identified in scheduled inspections	Medium	NA
Service or Asset at Risk	**What can Happen**	**Risk Rating (E, H)**	**Risk Treatment Plan**	**Residual Risk ***	**Treatment Costs**
Use of bridges by utility companies	Bridge failure	E	Replace condition 4 bridges based on hierarchy and inspections and advise utility companies of bridge failures immediately so that they can arrange alternate services for their customers	Medium	$530,000 p.a.

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

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 6.4, which includes the type of threats and hazards, resilience assessment and identified improvements and/or interventions.

Table 6.4: Resilience

Threat / Hazard	Resilience LMH	Improvements / Interventions
Flood/bridge overtopping	Medium	Build future bridges above flood level if possible. Place road closure signs when bridges flooded.
Flood/bridge damage	Low	Build future bridges above flood level if possible. Place road closure signs when bridges are flooded and damaged.
Bridge collapse	High	Regular inspections to ascertain bridge condition rating and any maintenance/repairs required.

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:

- Council has not identified any activities that cannot be completed

6.4.2 Service trade-off

Operations and maintenance activities and capital projects that cannot be undertaken will maintain or create service consequences for users. These include:

- None known

6.4.3 Risk trade-off

The operations and maintenance activities and capital projects that cannot be undertaken may maintain or create risk consequences. These include:

- None known

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

7. FINANCIAL SUMMARY

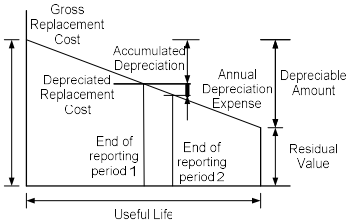
This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset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

Gross Replacement Cost	$69,735,628
Depreciable Amount	$69,738,628
Depreciated Replacement Cost[12]	$50,138,809
Annual Asset Consumption	$19,596,818



[12] Also reported as Written Down Value, Carrying or Net Book Value.

7.1.1 Sustainability of service delivery

Two key indicators for service delivery sustainability that have been considered in the analysis of the services provided by this asset category, these being the:

- asset renewal funding ratio, and
- medium term budgeted expenditures/projected expenditure (over 10 years of the planning period).

Asset Renewal Funding Ratio

Asset Renewal Funding Ratio[13] 100%

The Asset Renewal Funding Ratio is the most important indicator and indicates that over the next 10 years of the forecasting that we expect to have 100% of the funds required for the optimal renewal and replacement of assets. The renewal budget includes the approved grant funds which were derived from detailed project estimates for the selected bridges. The projected expenditure is derived from the technical asset register based on average unit rates applied to the bridge asset class. As previously discussed, the renewal budget has been adjusted to account for the approved grant applications. The unit rates valuation of the bridges will be reviewed at the conclusion of the extensive renewal program.

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 $882,923 on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is $882,923 on average per year giving a 10 year producing a funding surplus per year. This indicates 100% of the projected expenditures needed to provide the services documented in the asset management plan. The apparent surplus is due to the grant funded budget discussed above, 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.

7.1.2 Projected expenditures for long term financial plan

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

Expenditure projections are in current dollar real values.

[13] AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

Table 7.1.2: Projected Expenditures for Long Term Financial Plan ($000)

Year	Acquisition	Operation	Maintenance	Renewal	Disposal	Budget
2023	$0	$0	$170,000	$0	$0	$170,000
2024	$0	$0	$173,400	$1,021,099	$0	$1,194,499
2025	$0	$0	$176,868	$1,302,174	$0	$1,479,042
2026	$0	$0	$180,405	$1,053,727	$0	$1,234,132
2027	$0	$0	$184,013	$0	$0	$184,013
2028	$0	$0	$187,694	$0	$0	$187,694
2029	$0	$0	$191,448	$0	$0	$191,448
2030	$0	$0	$195,277	$892,347	$0	$1,087,624
2031	$0	$0	$199,182	$0	$0	$199,182
2032	$0	$0	$203,166	$2,698,435	$0	$2,901,601
2033	$0	$0	$207,229	$211,426	$0	$418,655
2034	$0	$0	$211,374	$0	$0	$211,374
2035	$0	$0	$215,601	$0	$0	$215,601
2036	$0	$0	$219,913	$215,774	$0	$435,687
2037	$0	$0	$224,311	$0	$0	$224,311
2038	$0	$0	$228,798	$0	$0	$228,798
2039	$0	$0	$233,374	$0	$0	$233,374
2040	$0	$0	$238,041	$0	$0	$238,041
2041	$0	$0	$242,802	$0	$0	$242,802
2042	$0	$0	$247,658	$0	$0	$247,658

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 are forecast to increase as additional assets are added to the 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:4.

Table 7.4: Key Assumptions made in AM Plan and Risks of Change

Key Assumptions	Risks of Change to Assumptions
Unit rates have been used to calculate Estimated Replacement Cost (ERC) for bridge and culvert structures. For example: cost or replacement per metre square of existing deck area. These unit rates are based on MEERA, past historic works and have been verified against recently replaced assets.	The ERC derived from the unit rates provides a valuation of the bridge network based on an averaging of costs. It does not provide an accurate or reliable estimate on the cost of construction for each individual bridge. Such an estimate can only be produced from detailed site investigation and design, on a bridge by bridge basis.
Timber and Composite bridges will be replaced with concrete which has proven to be the more economical construction alternative with the benefit of a longer useful life	Efficiency and economy has grown with the development of an effective construction team. Loss of the team may affect delivery at current rates.
No condition assessment has been performed on the major culvert assets. It is assumed that these structures will be able to achieve the designated useful life of 60 years	Culverts could be in worse condition than expected and therefore require renewal at an earlier date. Review will be included in the regular bridge inspection program.
Renewal year forecasting is directly derived from condition assessment rating. This rating is produced from Level 2 Bridge inspection reports undertaken at regular intervals consistent with the form of construction i.e. timber or concrete.	Level 2 inspections are limited to the structure that is visible. Assumptions must be made relating those parts of the structure that cannot be visually inspected i.e. piers below water and bed level. It may be necessary to undertake Level 3 inspections where there are particular concerns raised from Level 2 inspections,
Bridge design is prepared to address current and projected traffic characteristics	Concrete bridges have a useful life of 80 (brackish water env) - 100 years during which time significant changes may occur to the traffic needs and requirements.

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[14] 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 ± 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 ± 40%
E Unknown	None or very little data held.

[14] IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.

The estimated confidence level for and reliability of data used in this AM Plan is considered to be B+.

8. PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices[15]

8.1.1 Accounting and financial data sources

Council uses Civica's Authority Enterprise Software Suite as the financial system.

8.1.2 Asset management data sources

Council utilises a combination of Excel spreadsheets, the Capital Value Record Management component in the Authority corporate software package and the Surround program as its Asset Management System for bridge and culvert assets.

Council stores and maintains the asset register in-house. Council also utilises the Institute of Public Works Engineering Australia (IPWEA) product called NAMS.PLUS3 for asset management planning.

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	Reassess asset condition	Consultant/Contractor	Funding for contractors	30 level 2 inspections per year
2	Establish levels of Service through community consultation	Manager Assets	Staff time	Before next AM plan review
3	Further analysis of demand growth factors	Manager Assets	Staff time	Before next AM plan review
4	Establish renewal priority ranking criteria	Manager Assets	Staff time	Before next AM plan review
5	Implement regular inspection regimes (as part of Road Inspection – Level 1)	Technical Officer Infrastructure	Staff time	Before next AM plan review
6	Further develop asset registers utilising asset management plans	Manager Assets	Staff time	Before next AM plan review
7	Componentise assets to reflect separate lives of deck and structures	Manager Assets	Staff time	Before next AM plan review
8	Develop action plans for critical assets	Manager Assets	Staff time	Before next AM plan review
10	Develop disposal plans	Manager Assets	Staff time	Before next AM plan review
	Develop maintenance response levels of service	Manager Assets	Staff time	Before next AM plan review

[15] ISO 55000 Refers to this the Asset Management System

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 should be revised before 2025. This cycle matches the Council election cycle and IR & R periods.

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 'global' 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,
- The Asset Renewal Funding Ratio achieving the target of 1.0.

9. REFERENCES

- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
- IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/namsplus.
- IPWEA, 2015, 2nd edn., 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/AIFMM.
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- IPWEA, 2012 LTFP Practice Note 6 PN Long Term Financial Plan, Institute of Public Works Engineering Australasia, Sydney
- Nambucca Valley Council 2023 community Strategic plan
- Nambucca Valley Council Annual Plan and Budget

10. APPENDICES

Appendix A Projected 10 year Capital Renewal and Replacement Works Program

Appendix A Projected 10-year Capital Renewal and Replacement Works Program

CVR ID	GIS ID	Asset Name	From	To	Remaining Life	Renewal Year	Renewal Cost	Useful Life
753085	600053	Roy Lavertys Bridge 600053	Greenhills Road	Superstructure	1	2024	$118,728.00	50
753086	600053	Roy Lavertys Bridge 600053	Greenhills Road	Substructure	1	2024	$118,728.00	50
754110	600060	Sandy's Crossing Bridge 600060	Lower Buccrabendinni Road	Superstructure/Substructure	1	2024	$290,455.00	50
754165	600085	Frank Partridge Bridge 600085	Newee Creek Road	Superstructure/Substructure	1	2024	$212,189.00	50
754310	600165	Peterkins Bridge 600165	Upper Warrell Creek Road	Superstructure/Substructure	1	2024	$244,084.00	50
754314	600165	Peterkins Bridge 600165	Upper Warrell Creek Road	Guardrail	1	2024	$36,915.00	50
							$1,021,099.00	
754080	600034	Morrison Bridge 600034	Dyers Loop	Superstructure/Substructure	2	2025	$203,803.00	50
754340	600172	Talarm Bridge 600172	Welshs Creek Road	Superstructure/Substructure	2	2025	$217,751.00	50
754344	600172	Talarm Bridge 600172	Welshs Creek Road	Guardrail	2	2025	$23,364.00	34
753040	600035	Dyers Bridge 600035	Dyers Loop	Superstructure	2	2025	$313,771.00	50
753041	600035	Dyers Bridge 600035	Dyers Loop	Substructure	2	2025	$313,771.00	50
753045	600036	Deans Bridge 600036	Dyers Loop	Superstructure	2	2025	$114,857.00	50
753046	600036	Deans Bridge 600036	Dyers Loop	Substructure	2	2025	$114,857.00	50
							$1,302,174.00	
753195	600129	Sullivans Bridge 600129	Sullivans Road	Superstructure	3	2026	$121,312.00	50
753196	600129	Sullivans Brige 600129	Sullivans Road	Substructure	3	2026	$121,312.00	50
754150	600080	Mitchells Bridge 600080	Mitchells Road	Superstructure/Substructure	3	2026	$204,721.00	50
754245	600112	Unicombes No.2 Bridge 600112	Soldier Settlers Road	Superstructure/Substructure	3	2026	$199,940.00	50
754330	600170	Wards Bridge 600170	Wards Road	Superstructure/Substructure	3	2026	$199,940.00	50
754335	600171	Way Way Bridge 600171	Way Way Creek Road	Superstructure/Substructure	3	2026	$206,502.00	50
							$1,053,727.00	
754220	600104	Rhones Creek No. 2 Bridge 6001	Rhones Creek Road	Superstructure/Substructure	7	2030	$221,351.00	50
754250	600122	Wards Bridge 600122	South Arm Road	Superstructure/Substructure	7	2030	$215,774.00	50
754200	600097	McIlwains Bridge 600097	North Bank Road	Superstructure/Substructure	7	2030	$217,105.00	50
754040	600014	Birds Bridge Bridge 600014	Birds Road	Superstructure/Substructure	7	2030	$208,211.00	50
752059	600180	Newmans Bridge 600180	Wilson Road	Guardrail	7	2030	$29,906.00	50
							$892,347.00	
753150	600114	Tom Ryans Bridge 600114	South Arm Road	Superstructure	9	2032	$114,790.00	50
753151	600114	Tom Ryans Bridge 600114	South Arm Road	Substructure	9	2032	$114,790.00	50
753165	600117	Bill Ryans Bridge 600117	South Arm Road	Superstructure	9	2032	$117,967.00	50
753166	600117	Bill Ryans Bridge 600117	South Arm Road	Substructure	9	2032	$117,967.00	50
753169	600117	Bill Ryans Bridge 600117	South Arm Road	Guardrail	9	2032	$16,822.00	50
753170	600120	Parrys Bridge 600120	South Arm Road	Superstructure	9	2032	$130,790.00	50
753171	600120	Parrys Bridge 600120	South Arm Road	Substructure	9	2032	$130,790.00	50
753180	600124	Eungai Rail Bridge 600124	South Bank Eungai	Superstructure	9	2032	$112,263.00	50
753181	600124	Eungai Rail Bridge 600124	South Bank Eungai	Substructure	9	2032	$112,263.00	50
753100	600062	Little Motleys Bridge 600062	Rodeo Drive	Superstructure	9	2032	$118,944.00	50
753101	600062	Little Motleys Bridge 600062	Rodeo Drive	Guardrail	9	2032	$7,944.00	50
753104	600062	Little Motleys Bridge 600062	Rodeo Drive	Substructure	9	2032	$118,944.00	50
754045	600016	Browns Crossing No. 3 Bridge 60	Browns Crossing Road	Superstructure/Substructure	9	2032	$220,493.00	50
754130	600070	Dawsons Bridge 600070	Menzies Road	Superstructure/Substructure	9	2032	$193,536.00	50
754010	600005	Ken Wilson Bridge 600005	Allgomera Road	Superstructure/Substructure	9	2032	$234,402.00	50
754025	600009	O'Donnells Bridge 600009	Bakers Creek Road	Superstructure/Substructure	9	2032	$506,082.00	50
754160	600084	Naylors No.3 Bridge 600084	Naylors Road	Superstructure/Substructure	9	2032	$142,052.00	50
754075	600027	Foxs Bridge 600027	Congarinni Road South	Superstructure/Substructure	9	2032	$187,596.00	50
							$2,698,435.00	
754205	600098	Newberrys Bridge 600098	North Bank Road	Superstructure/Substructure	10	2033	$211,426.00	50
							$211,426.00	

* These bridges have been included to describe the current 2022/23 bridge renewal program.