NAMBUCCA SHIRE COUNCIL

DRAFT BRIDGE ASSET MANAGEMENT PLAN

Document Control	

Document ID: TRIM 27524/2010					
Rev No	Date	Revision Details	Author	Reviewer	Approver
1	October 2010	First Draft	PB		
2	January 2014	Working Draft	SN		

TABLE OF CONTENTS

ABBREVIATIONS

AAAC	Average annual asset consumption
AMP	Asset management plan
ARI	Average recurrence interval
BOD	Biochemical (biological) oxygen demand
CRC	Current replacement cost
CWMS	Community wastewater management systems
DA	Depreciable amount
DoH	Department of Health
EF	Earthworks/formation
IRMP	Infrastructure risk management plan
LCC	Life Cycle cost
LCE	Life cycle expenditure
MMS	Maintenance management system
PCI	Pavement condition index
RV	Residual value
SS	Suspended solids
vph	Vehicles per hour

GLOSSARY

Annual service cost (ASC)
An estimate of the cost that would be tendered, per annum, if tenders were called for the supply of a service to a performance specification for a fixed term. The Annual Service Cost includes operating, maintenance, depreciation, finance/ opportunity and disposal costs, less revenue.

Asset class
Grouping of assets of a similar nature and use in an entity's operations (AASB 166.37).

Asset condition assessment
The process of continuous or periodic inspection, assessment, measurement and interpretation of the resultant data to indicate the condition of a specific asset so as to determine the need for some preventative or remedial action.

Asset management
The combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost effective manner.

Assets
Future economic benefits controlled by the entity as a result of past transactions or other past events (AAS27.12).

Property, plant and equipment including infrastructure and other assets (such as furniture and fittings) with benefits expected to last more than 12 month.

Average annual asset consumption (AAAC)*
The amount of a local government's asset base consumed during a year. This may be calculated by dividing the Depreciable Amount (DA) by the Useful Life and totalled for each and every asset OR by dividing the Fair Value (Depreciated Replacement Cost) by the Remaining Life and totalled for each and every asset in an asset category or class.

Brownfield asset values**
Asset (re)valuation values based on the cost to replace the asset including demolition and restoration costs.

Capital expansion expenditure
Expenditure that extends an existing asset, at the same standard as is currently enjoyed by residents, to a new group of users. It is discretional expenditure, which increases future operating, and maintenance costs, because it increases council's asset base, but may be associated with additional revenue from the new user group, eg. extending a drainage or road network, the provision of an oval or park in a new suburb for new residents.

Capital expenditure
Relatively large (material) expenditure, which has benefits, expected to last for more than 12 months. Capital expenditure includes renewal, expansion and upgrade. Where capital projects involve a combination of renewal, expansion and/or upgrade expenditures, the total project cost needs to be allocated accordingly.

Capital funding
Funding to pay for capital expenditure.

Capital grants
Monies received generally tied to the specific projects for which they are granted, which are often upgrade and/or expansion or new investment proposals.

Capital investment expenditure
See capital expenditure definition

Capital new expenditure
Expenditure which creates a new asset providing a new service to the community that did not exist beforehand. As it increases service potential it may impact revenue and will increase future operating and maintenance expenditure.

Capital renewal expenditure
Expenditure on an existing asset, which returns the service potential or the life of the asset up to that which it had originally. It is periodically required expenditure, relatively large (material) in value compared with the value of the components or sub-components of the asset being renewed. As it reinstates existing service potential, it has no impact on revenue, but may reduce future operating and maintenance expenditure if completed at the optimum time, eg. resurfacing or resheeting a material part of a road network, replacing a material section of a drainage network with pipes of the same capacity, resurfacing an oval. Where capital projects involve a combination of renewal, expansion and/or upgrade expenditures, the total project cost needs to be allocated accordingly.

Capital upgrade expenditure
Expenditure, which enhances an existing asset to provide a higher level of service or expenditure that will increase the life of the asset beyond that which it had originally. Upgrade expenditure is discretional and often does not result in additional revenue unless direct user charges apply. It will increase operating and maintenance expenditure in the future because of the increase in the council's asset base, eg. widening the sealed area of an existing road, replacing drainage pipes with pipes of a greater capacity, enlarging a grandstand at a sporting facility. Where capital projects involve a combination of renewal, expansion and/or upgrade

expenditures, the total project cost needs to be allocated accordingly.

Carrying amount
The amount at which an asset is recognised after deducting any accumulated depreciation / amortisation and accumulated impairment losses thereon.

Class of assets
See asset class definition

Component
An individual part of an asset which contributes to the composition of the whole and can be separated from or attached to an asset or a system.

Cost of an asset
The amount of cash or cash equivalents paid or the fair value of the consideration given to acquire an asset at the time of its acquisition or construction, plus any costs necessary to place the asset into service. This includes one-off design and project management costs.

Current replacement cost (CRC)
The cost the entity would incur to acquire the asset on the reporting date. The cost is measured by reference to the lowest cost at which the gross future economic benefits could be obtained in the normal course of business or the minimum it would cost, to replace the existing asset with a technologically modern equivalent new asset (not a second hand one) with the same economic benefits (gross service potential) allowing for any differences in the quantity and quality of output and in operating costs.

Current replacement cost "As New" (CRC)
The current cost of replacing the original service potential of an existing asset, with a similar modern equivalent asset, i.e. the total cost of replacing an existing asset with an as NEW or similar asset expressed in current dollar values.

Cyclic Maintenance**
Replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including repainting, building roof replacement, cycle, replacement of air conditioning equipment, etc. This work generally falls below the capital/ maintenance threshold and needs to be identified in a specific maintenance budget allocation.

Depreciable amount
The cost of an asset, or other amount substituted for its cost, less its residual value (AASB 116.6)

Depreciated replacement cost (DRC)
The current replacement cost (CRC) of an asset less, where applicable, accumulated depreciation calculated on the basis of such cost to reflect the already consumed or expired future economic benefits of the asset

Depreciation / amortisation
The systematic allocation of the depreciable amount (service potential) of an asset over its useful life.

Economic life
See useful life definition.

Expenditure
The spending of money on goods and services. Expenditure includes recurrent and capital.

Fair value
The amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties, in an arms length transaction.

Greenfield asset values**
Asset (re)valuation values based on the cost to initially acquire the asset.

Heritage asset
An asset with historic, artistic, scientific, technological, geographical or environmental qualities that is held and maintained principally for its contribution to knowledge and culture and this purpose is central to the objectives of the entity holding it.

Impairment Loss
The amount by which the carrying amount of an asset exceeds its recoverable amount.

Infrastructure assets
Physical assets of the entity or of another entity that contribute to meeting the public's need for access to major economic and social facilities and services, eg. roads, drainage, footpaths and cycleways. These are typically large, interconnected networks or portfolios of composite assets The components of these assets may be separately maintained, renewed or replaced individually so that the required level and standard of service from the network of assets is continuously sustained. Generally the components and hence the assets have long lives. They are fixed in place and are often have no market value.

Investment property
Property held to earn rentals or for capital appreciation or both, rather than for:
(a) use in the production or supply of goods or services or for administrative purposes; or
(b) sale in the ordinary course of business (AASB 140.5)

Level of service
The defined service quality for a particular service against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental, acceptability and cost).

Life Cycle Cost **
The life cycle cost (LCC) is average cost to provide the service over the longest asset life cycle. It comprises annual maintenance and asset consumption expense, represented by depreciation expense. The Life Cycle Cost does not indicate the funds required to provide the service in a particular year.

Life Cycle Expenditure **
The Life Cycle Expenditure (LCE) is the actual or planned annual maintenance and capital renewal expenditure incurred in providing the service in a particular year. Life Cycle Expenditure may be compared to Life Cycle Cost to give an initial indicator of life cycle sustainability.

Loans / borrowings
Loans result in funds being received which are then repaid over a period of time with interest (an additional cost). Their primary benefit is in 'spreading the burden' of capital expenditure over time. Although loans enable works to be completed sooner, they are only ultimately cost effective where the capital works funded (generally renewals) result in operating and maintenance cost savings, which are greater than the cost of the loan (interest and charges).

Maintenance and renewal gap
Difference between estimated budgets and projected expenditures for maintenance and renewal of assets, totalled over a defined time (eg 5, 10 and 15 years).

Maintenance and renewal sustainability index
Ratio of estimated budget to projected expenditure for maintenance and renewal of assets over a defined time (eg 5, 10 and 15 years).

Maintenance expenditure
Recurrent expenditure, which is periodically or regularly required as part of the anticipated schedule of works required to ensure that the asset achieves its useful life and provides the required level of service. It is expenditure, which was anticipated in determining the asset's useful life.

Materiality
An item is material is its omission or misstatement could influence the economic decisions of users taken on the basis of the financial report. Materiality depends on the size and nature of the omission or misstatement judged in the surrounding circumstances.

Modern equivalent asset.
A structure similar to an existing structure and having the equivalent productive capacity, which could be built using modern materials, techniques and design. Replacement cost is the basis used to estimate the cost of constructing a modern equivalent asset.

Non-revenue generating investments
Investments for the provision of goods and services to sustain or improve services to the community that are not expected to generate any savings or revenue to the Council, eg. parks and playgrounds, footpaths, roads and bridges, libraries, etc.

Operating expenditure
Recurrent expenditure, which is continuously required excluding maintenance and depreciation, eg power, fuel, staff, plant equipment, on-costs and overheads.

Pavement management system
A systematic process for measuring and predicting the condition of road pavements and wearing surfaces over time and recommending corrective actions.

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

PMS Score
A measure of condition of a road segment determined from a Pavement Management System.

Rate of annual asset consumption*
A measure of average annual consumption of assets (AAAC) expressed as a percentage of the depreciable amount (AAAC/DA). Depreciation may be used for AAAC.

Rate of annual asset renewal*
A measure of the rate at which assets are being renewed per annum expressed as a percentage of depreciable amount (capital renewal expenditure/DA).

Rate of annual asset upgrade*
A measure of the rate at which assets are being upgraded and expanded per annum expressed as a percentage of depreciable amount (capital upgrade/expansion expenditure/DA).

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

Recoverable amount
The higher of an asset's fair value, less costs to sell and its value in use.

Recurrent expenditure
Relatively small (immaterial) expenditure or that which has benefits expected to last less than 12 months. Recurrent expenditure includes operating and maintenance expenditure.

Recurrent funding
Funding to pay for recurrent expenditure.

Rehabilitation
See capital renewal expenditure definition above.

Remaining life
The time remaining until an asset ceases to provide the required service level or economic usefulness. Age plus remaining life is economic life.

Renewal
See capital renewal expenditure definition above.

Residual value
The net amount which an entity expects to obtain for an asset at the end of its useful life after deducting the expected costs of disposal.

Revenue generating investments
Investments for the provision of goods and services to sustain or improve services to the community that are expected to generate some savings or revenue to offset operating costs, eg public halls and theatres, childcare centres, sporting and recreation facilities, tourist information centres, etc.

Risk management
The application of a formal process to the range of possible values relating to key factors associated with a risk in order to determine the resultant ranges of outcomes and their probability of occurrence.

Section or segment
A self-contained part or piece of an infrastructure asset.

Service potential
The capacity to provide goods and services in accordance with the entity's objectives, whether those objectives are the generation of net cash inflows or the provision of goods and services of a particular volume and quantity to the beneficiaries thereof.

Service potential remaining*
A measure of the remaining life of assets expressed as a percentage of economic life. It is also a measure of the percentage of the asset's potential to provide services that is still available for use in providing services (DRC/DA).

Strategic Management Plan (SA)**
Strategic Management Plan (SA)**
Documents Council objectives for a specified period (3-5 yrs), the principle activities to achieve the objectives, the means by which that will be carried out, estimated income and expenditure, measures to assess performance and how rating policy relates to the Council's objectives and activities.

Sub-component
Smaller individual parts that make up a component part.

Useful life
Either:
(a) the period over which an asset is expected to be available for use by an entity, or
(b) the number of production or similar units expected to be obtained from the asset by the entity.

It is estimated or expected time between placing the asset into service and removing it from service, or the estimated period of time over which the future economic benefits embodied in a depreciable asset, are expected to be consumed by the council. It is the same as the economic life.

Value in Use
The present value of estimated future cash flows expected to arise from the continuing use of an asset and from its disposal at the end of its useful life. It is deemed to be depreciated replacement cost (DRC) for those assets whose future economic benefits are not primarily dependent on the asset's ability to generate new cash flows, where if deprived of the asset its future economic benefits would be replaced.

Source: DVC 2006, Glossary
Note: Items shown * modified to use DA instead of CRC
Additional glossary items shown **

1. EXECUTIVE SUMMARY

What Council Provides

Council provides a network of bridges to enable provision of transport services within the Shire.

This network is comprised of assets in the following categories:

- Concrete Bridges
- Timber Bridges
- Other Bridges
- Major Culverts

What does it Cost?

There are two key indicators of cost to provide the bridge service.

Life Cycle Cost – Long Term Indicator

- The life cycle cost to provide the bridge service is estimated at $1,351,140 per annum.
- Council's average planned life cycle expenditure is $750,000 which gives a life cycle sustainability index of 0.56.

10 Year Maintenance and Capital Renewal Expenditure – Medium Term Indicator.

- The total maintenance and capital renewal expenditure required to provide the bridge service in the next 10 years is estimated at $12,591,140. This is an average of $1,259,114 per annum.
- Council's average annual maintenance and capital renewal expenditure for the first 10 years of the asset management plan is $792,000 giving a 10 year sustainability index of 0.63.

Plans for the Future

Council plans to operate and maintain the bridge network to achieve the following strategic objectives.

1. Ensure the Bridge network is maintained at a safe and functional standard as set out in this asset management plan.
2. Bridges are maintained in the most cost effective manner.
3. Bridges are maintained within a tolerable risk profile.

Measuring our Performance

Quality
Bridge assets will be maintained in a reasonably usable condition. Defects found or reported that are outside our service standard will be repaired. See our maintenance response service levels for details of defect prioritisation and response time.

Function
Our intent is that an appropriate bridge network is maintained in partnership with other levels of government and stakeholders to deliver a service to the whole community.

Bridge asset attributes will be maintained at a safe level and associated signage and equipment be provided as needed to ensure public safety. We need to ensure key functional objectives are met:

- Provide and maintain a comprehensive and safe road network together with associated infrastructure for the Shire.
- Provide and maintain assets which meet the needs of the Shire.
- To have a community where services reflect the needs of the population.

Safety
We inspect all bridges regularly and prioritise and repair defects in accordance with our inspection schedule to ensure they are safe.

The Next Steps

This actions resulting from this asset management plan are:

- Validate asset data for bridges and culverts.
- Reassess asset condition.
- Establish levels of Service through community consultation.
- Review depreciation expense categories.
- Further analysis of demand growth factors.
- Establish Renewal Priority ranking Criteria.

2. INTRODUCTION

2.1 Background

This asset management plan has been prepared to:

- demonstrate responsible management of bridge assets and services provided from assets;
- demonstrate compliance with regulatory requirements; and
- communicate funding required to provide the required levels of service.

This plan is to be read in conjunction with;

- Timber Bridge 5 Year Forward Plan;
- Council's 20 Year Community Strategic Plan;
- Infrastructure Management Plan; and
- Annual Budget.

This asset management plan covers the following infrastructure assets:

Table 2.1 Assets covered by this Plan

Asset category	Number of assets	Dimensions Deck Area (m2)	Replacement Value ($)
Timber Bridges	151	11,710	18,654,950
Concrete Bridges	14	4,440	13,316,925
Other Bridges	5	550	396,000
Culverts over 6m in length	24	1,650	926,700
TOTAL	**194**	**18,350**	**33,294,575**

Key stakeholders in the preparation and implementation of this asset management plan are:

Table 2.2 Stakeholders in this Plan

Stakeholders	How they input into the management of Bridges and Culverts within Nambucca Shire Council
Council Staff	Direct management and operational responsibility.
Elected Representatives	Regular Council and Committee Meetings.
Department of Local Government	Best Practice Reviews and State Parliament Acts.

Stakeholders	How they input into the management of Bridges and Culverts within Nambucca Shire Council
Emergency Services	Quarterly Local Emergency Management Meetings
Transport Operators	Individually contact Council Staff or Representatives
Local Business	Individually contact Council Staff, Representatives, or Chamber of Commerce Meetings
Local Residents	Individually contact Council Staff, Representatives, and annual Community Consultation Meetings
Tourists	Individually contact Council Staff, Representatives, and via feedback through the Tourist Information Centre

2.2 Goals and Objectives of Asset Management

The Council exists to provide services to its community. Some of these services are provided by infrastructure assets. Council has acquired infrastructure assets by 'purchase', by contract, construction by council staff and by donation of assets constructed by developers and others to meet increased levels of service.

Council's goal in managing infrastructure assets is to meet the required level of service in the most cost effective manner for present and future consumers. The key elements of infrastructure asset management are:

- Taking a life cycle approach,
- Developing cost-effective management strategies for the long term,
- Providing a defined level of service and monitoring performance,
- Understanding and meeting the demands of growth through demand management and infrastructure investment,
- Managing risks associated with asset failures,
- Sustainable use of physical resources,
- Continuous improvement in asset management practices.[1]

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

Council's Vision is:

Nambucca Valley ~ Living at its best

Council's Mission is:

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

---

[1] IIMM 2006 Sec 1.1.3, p 1.3

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

Table 2.3 Council Goals and how these are addressed in this Plan

Goal	Objective	How Goal and Objectives are addressed in AMP
4.1	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.
4.2	Provide and maintain assets which meet the needs of the Shire.	By establishing a maintenance and renewal program that ensures provision of adequate levels of service from bridge assets.
1.5	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.

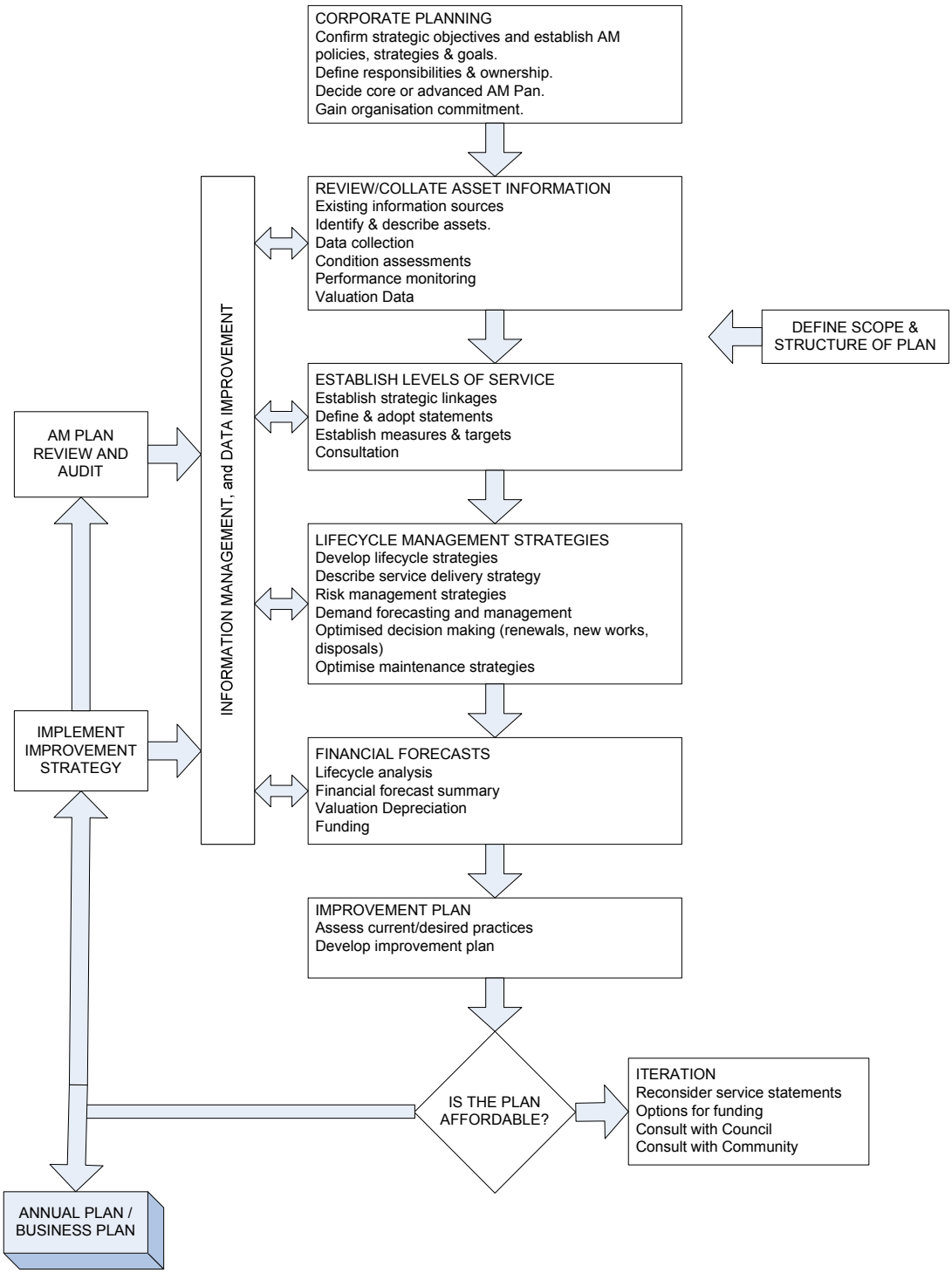
2.3 Plan Framework

Key elements of the plan are

- Levels of service – specifies the services and levels of service to be provided by council.
- Future demand – how this will impact on future service delivery and how this is to be met.
- Life cycle management – how Council will manage its existing and future assets to provide the required services
- Financial summary – what funds are required to provide the required services.
- Asset management practices
- Monitoring – how the plan will be monitored to ensure it is meeting Council’s objectives.
- Asset management improvement plan

A road map for preparing an asset management plan is shown below.

Road Map for preparing an Asset Management Plan
Source: IIMM Fig 1.5.1, p 1.11



2.4 Core and Advanced Asset Management

This asset management plan is prepared as a 'core' asset management plan in accordance with the International Infrastructure Management Manual. It is prepared to meet minimum legislative and organisational requirements for sustainable service delivery and long term financial planning and reporting. Core asset management is a 'top down' approach where analysis is applied at the 'system' or 'network' level.

Future revisions of this asset management plan will move towards 'advanced' asset management using a 'bottom up' approach for gathering asset information for individual assets to support the optimisation of activities and programs to meet agreed service levels.

3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

Council undertook a Customer Satisfaction Survey in November 2007. That survey allowed Shire residents to rate the importance of services provided by Council and to express their level of satisfaction with the provision of those services.

In that survey residents rated bridges as **High Importance, Low Satisfaction**.

Whilst this is a general statement and not targeted at specific assets it does indicate a need to ensure maintenance and refurbishment activities for bridges are given priority in allocation of resources in the budget.

As the Asset Management Planning process matures Council will be in a better position to communicate with its customers and allow them to express their expectations, we will also be better able to articulate the financial impact of those expectations.

The outcomes of community consultation will help to inform Council's strategic goals and objectives into the future.

3.2 Legislative Requirements

Council has to meet many legislative requirements including Australian and State legislation and State regulations. These include:

Table 3.1 Legislative Requirements

Legislation	Requirement
Local Government Act	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by infrastructure and asset management plans for sustainable service delivery.
OH&S Act 2000	Secures and promotes health, safety and welfare of people at work
Roads Act 1993	Defines rights of passage along a public road and rights of property owners adjoining a public road. Confers the authority of the road authority and provides for road classifications
Environmental Planning & 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

Legislation	Requirement
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 fire fighting 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

3.3 Current Levels of Service

Service levels can be defined in two terms.

Community Levels of Service relate to how the community receives the service and are often expressed in terms of factors such as:

- safety
- function
- quality

Supporting the community service levels are operational or technical measures of performance developed to ensure that the minimum community levels of service are met. These technical measures relate to service criteria such as:

- condition
- cost
- risk

At present Council has not formally consulted with the community to establish levels of service, a summary of current service levels is shown in Table 3.2.

Table 3.2 Current Service Levels

Community Levels of Service				
Key Performance Measure	**Current Level of Service**	**Performance Measures / Indicators**	**Performance Target**	**Current Performance**
Safety	Bridges are safe for use	Accident Statistics	No traffic incidents resulting in fatalities, injuries or property damage on or adjacent to a bridge.	
Function	Bridges are fit for purpose (i.e. satisfy minimum width requirements for road users, with no restrictive height or weight limits)	Monitor and track customer requests and complaints.	No requests or complaints relating to the inadequacy of bridges to meet the needs of road users.	
Quality	Bridges will provide on-going, uninterrupted and safe access for the community across the Shire.	Number of bridges in unserviceable condition that have been closed for safety reasons.	No “closed” bridges.	
Technical Levels of Service				
Condition	Bridges will be renewed and replaced as they age and their condition deteriorates.	Condition assessment of bridges to be undertaken every two years.	No bridges in “poor” condition. Less than 50% of bridges to be in “fair” condition.	
Cost	Bridges are maintained in the most cost effective manner.	Maintenance expenditure to be tracked against bridge condition ratings.	Bridges with high maintenance costs and poor condition to be identified and targeted for replacement.	
Risk	Bridges are maintained within a tolerable risk profile.	Risk assessment of bridges to be undertaken every two years.	No bridges with “Very High” risk rating. More than 50% of bridges to be in “Medium or Low” risk rating.	

3.4 Desired Levels of Service

At present, indications of desired levels of service are obtained from various sources including the 2007 Customer Satisfaction survey, residents' feedback to Councillors and staff, service requests and correspondence.

Council has yet to quantify desired levels of service. This will be done in future revisions of this asset management plan.

4. FUTURE DEMAND

4.1 Demand Forecast

Factors affecting demand include population change, changes in demographics, seasonal factors, vehicle ownership, consumer preferences and expectations, economic factors, agricultural practices, environmental awareness, etc.

Demand factor trends and impacts on service delivery are summarised in Table 4.1.

Table 4.1 Demand Factors, Projections and Impact on Services

Demand factor	Present position	Projection	Impact on services
Population	Present population of Nambucca Shire is just over 19,000.	Forecast population by 2026 is in the order of 24,000.	Increased population is likely to lead to an increase in vehicle traffic on bridges.
Demographics			
TBA			

4.2 Changes in Technology

Technology changes are forecast to affect the delivery of services covered by this plan in the following areas.

- Improved materials and bridge construction techniques could potentially reducing the cost of bridge construction and extend service lives.

- Advances in bridge inspection techniques should allow better and more consistent assessments of bridge condition and improved forecasting of remaining life.

4.3 Demand Management Plan

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

Opportunities for demand management will be developed in future revisions of this asset management plan.

4.4 New Assets from Growth

At this stage it is not anticipated that any new bridge assets will be acquired by Council as a consequence of growth in the 20 year life of this plan.

5. LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how Council plans to manage and operate the assets at the agreed levels of service (defined in section 3) while optimising life cycle costs.

5.1 Background Data

5.1.1 Physical parameters

The assets covered by this asset management plan are shown below.

Table 5.1 Assets covered by this Plan

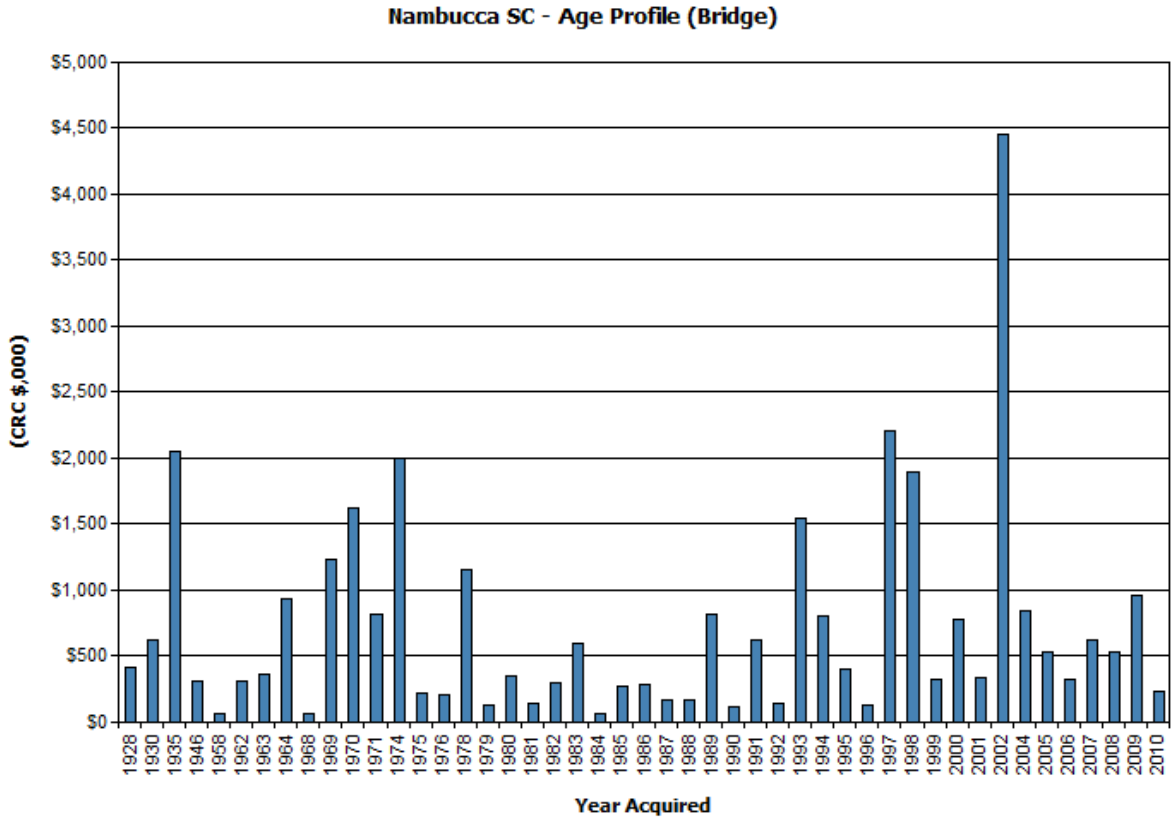
Asset Category	Number of Assets	Dimensions Deck Area (m2)
Timber Bridges	151	11,710
Concrete Bridges	14	4,440
Other Bridges - Footbridges	5	550
Culverts over 6m in length	24	1,650
TOTAL	**194**	**18,350**

Council's bridges have traditionally been of timber construction, however in recent years there has been an increase of bridges constructed of concrete and utilisation of concrete decking on timber substructures.

A particular issue in the past two years has been the significant number of bridges that suffered flood damage and have required refurbishment or replacement ahead of schedule.

The age profile of Council's bridges is shown below.

Fig 1. Asset Age Profile



5.1.2 Asset capacity and performance

Council's services are generally provided to meet demand levels and design standards where these are available.

Locations where deficiencies in service performance are known are detailed in Table 5.2.

Table 5.2 Known Service Performance Deficiencies

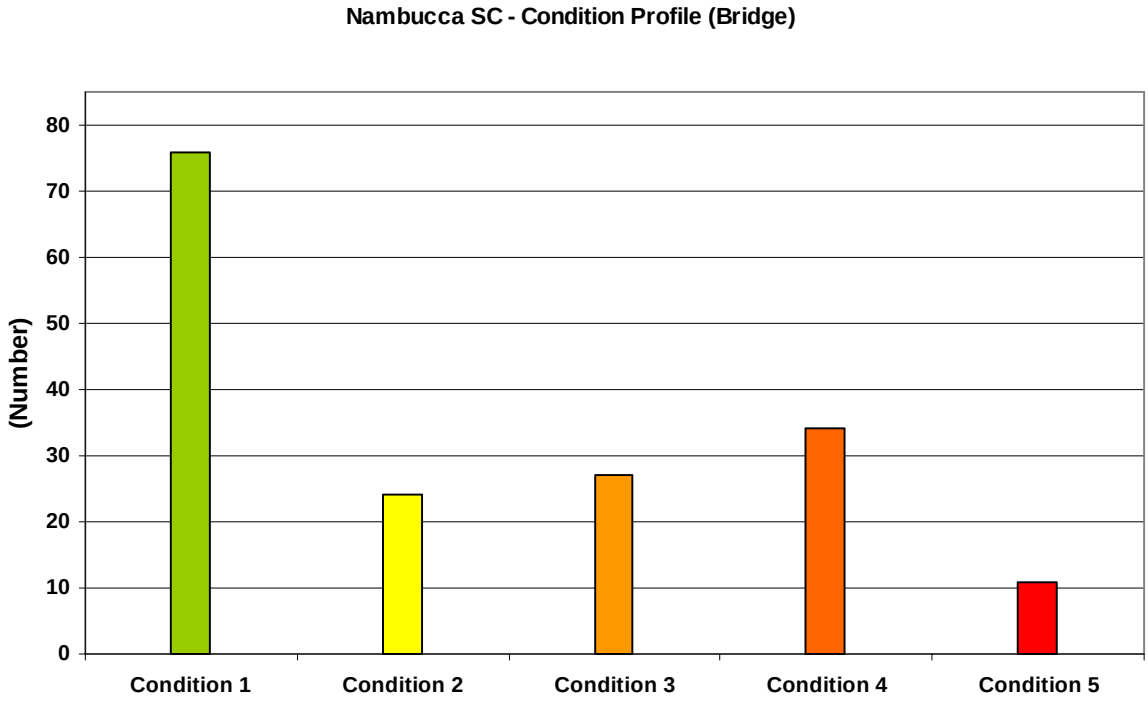
Location	Service Deficiency
Deep Creek Bridge	Bridge closed due to flood damage, scheduled for replacement.
Johns Bridge	Bridge closed due to flood damage.
Browns Bridge	Load limit in place.
Weeks Bridge	Load limit in place.
Congarinni Bridge	Load limit in place, Bridge currently being refurbished.
Bakers Creek Bridge	Load limit in place, Bridge scheduled for replacement.
Swans Bridge	Load limit in place.

The above service deficiencies were identified from inspections by Council staff, Council records and reports from the public.

5.1.3 Asset condition

The condition of Timber Bridges is assessed by Council staff every two years. Condition of concrete bridges requires more specialist knowledge and equipment and is carried out by contract staff on an as-needs basis. The current condition profile of Council's assets is shown below.

Fig 2. Asset Condition Profile



Condition is measured using a 1 – 5 rating system.

Rating	Description of Condition
1	Very Good: As good as new. Planned maintenance required.
2	Good: Acceptable physical condition. Minor maintenance required.
3	Fair: Deteriorated but travelling OK. Significant maintenance required.
4	Poor: Needs close monitoring and attention.
5	Very Poor: Failed or failure imminent.

Full details of the condition assessment criteria are shown at Appendix A.

5.1.4 Asset Valuations

The value of assets covered by this asset management plan as at 30 June 2010 is summarised in the table below.

Table 5.3 Asset Valuations

Asset	Current Replacement Cost ($)	Annual Depreciation	Depreciated Value
Timber Bridges	18,654,950	519,770	12,543,200
Concrete Bridges	13,316,925	141,370	9,705,600
Other Bridges	396,000	TBD	212,125
Culverts	926,700	TBD	231,680
Total	**33,294,575**	**661,140**	**22,692,605**

Depreciation data is not presently available for all asset categories. It is planned that this information will be included in future versions of the plan. The collection this data is a key improvement action for the Bridge Asset Management Plan.

Depreciated value refers to the current value of assets and is calculated based on the current condition of the asset assuming a bathtub depreciation curve.

Council's sustainability reporting reports the rate of annual asset consumption and compares this to asset renewal and asset upgrade and expansion. Sustainability reporting relies on the standard financial values. The standard financial values for bridge assets are provided below in table 5.4. Asset sustainability reporting is provided in table 5.5 following.

Table 5.4 Standard Financial Values

Standard Financial Values		
Current Replacement Cost	CRC	$33,294,575
Depreciable Amount (CRC -residual value)	DA	$33,294,575
Depreciated Replacement Cost (CRC - accumulated depreciation)	DRC	$22,692,605
Annual Depreciation Expense (2010/11)	ADE	$661,140
Average Annual Renewal Expenditure (2010/30)		$550,000
Annual Capital Upgrade/ Expansion Expenditure (2010/11)		0

Note: Residual value for old bridges and culverts equals zero

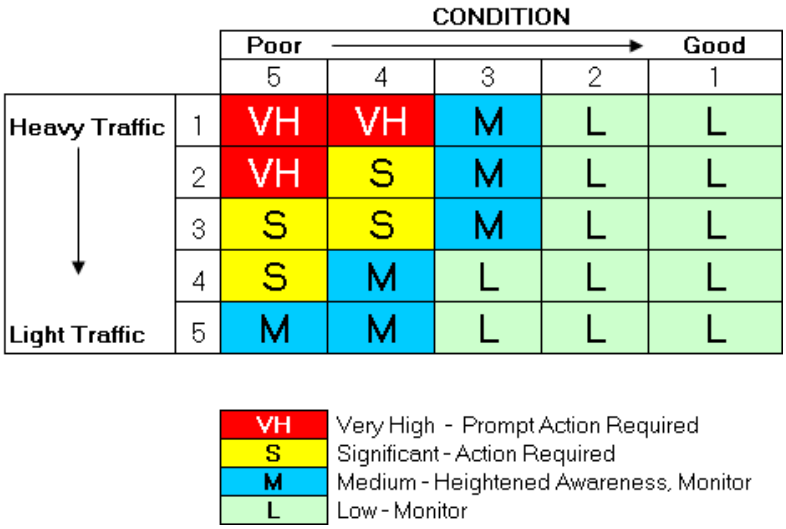
Table 5.5 Asset Sustainability Reporting

Asset Sustainability Reporting		
Asset Consumption =	Annual Depreciation Expense / Depreciable Amount	**1.9%**
Asset Renewal=	Annual Capital Renewal Expenditure / Depreciable Amount	**1.65%**
Asset Upgrade=	Annual Capital Upgrade Expenditure / Depreciable Amount	**0**

5.2 Risk Management Plan

An assessment of risks associated with bridge assets has identified several risks to Council. The risk assessment process identifies risks based on traffic count and bridge condition. These criteria are assessed using the matrix shown in Fig xx below.

Fig 3. Bridge Risk Matrix



Critical risks, being those assessed as 'Very High', require immediate corrective action. Actions to address these risks are summarised in Table 5.6 below.

Table 5.6 Critical Risks and Treatment Plans

Asset at Risk	Risk Treatment Plan
Congarinni Bridge	Bridge currently being refurbished.
Deep Creek Bridge	Bridge closed pending replacement
Bakers Creek Bridge	Load limit in place, scheduled for replacement.

There are also a number of bridges whose risk level has been assessed as 'Significant'. These bridges have been given heightened priority when planning the renewal work program.

5.3 Routine Maintenance Plan

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

5.3.1 Maintenance plan

Maintenance includes reactive, planned and cyclic maintenance work activities.

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

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

Cyclic maintenance is replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including repainting, building roof replacement, etc. This work generally falls below the capital/maintenance threshold.

Maintenance expenditure trends are shown in Table 5.7

Table 5.7 Maintenance Expenditure Trends

Year	Maintenance Expenditure
2009/10	$170,000
2008/09	$149,000
2007/08	$180,000

Maintenance expenditure levels are considered to be inadequate to maintain required service levels. To some extent this under expenditure is offset by capital expenditure on asset renewals, however in the long term asset maintenance expenditure will need to be increased approximately fivefold to keep pace with ageing infrastructure.

Future revision of this asset management plan will include linking required maintenance expenditures with required service levels.

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

5.3.2 Standards and specifications

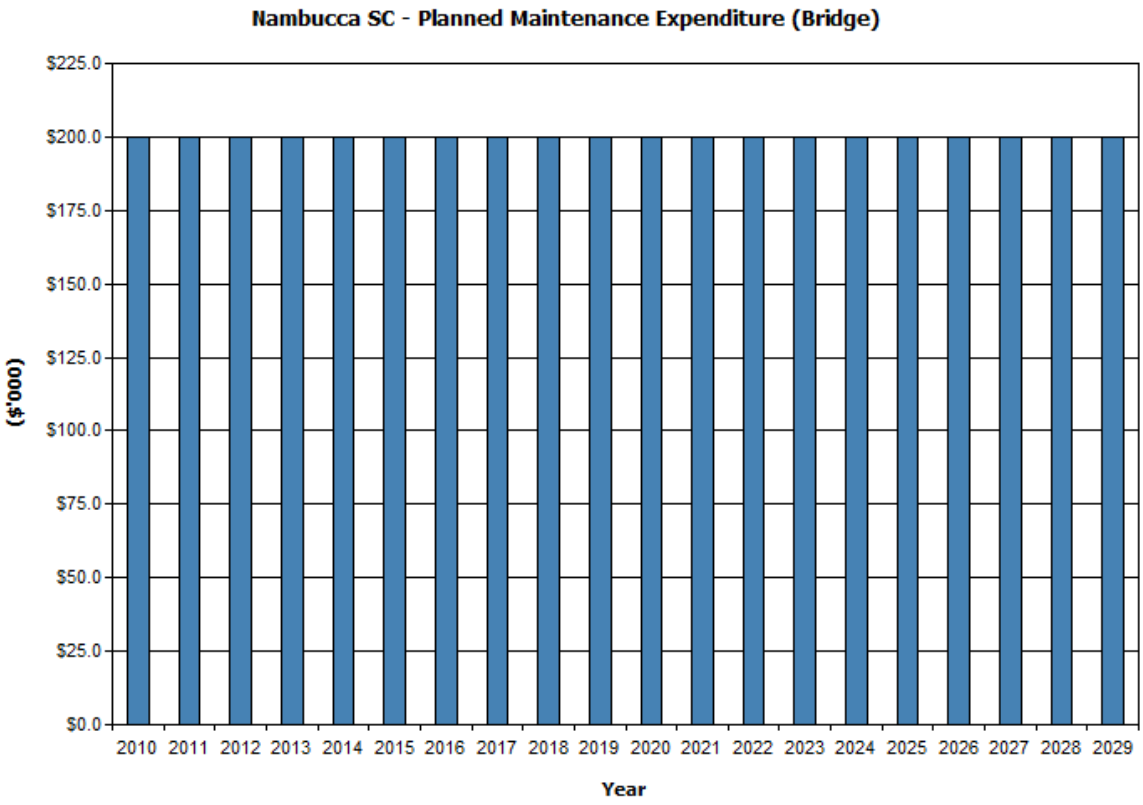
Maintenance work is carried out in accordance with the following Standards and Specifications.

- Australian Road Research Board (2000) *Local Roads Bridge Management Manual*
- Australian Standard AS 5100 (2004) *Bridge Design Code*
- Department of Main Roads, New South Wales (1962) *Manual No 6 Bridge Maintenance*
- Institute of Public Works Engineering Australia (2009) *BridgeGuide Bridge Inspection and Management Manual*
- Institute of Public Works Engineering Australia (2006) *Road Asset Benchmarking Project, Timber Bridge Management*
- NSW Roads and Traffic Authority (April 2000) *Timber Bridge Manual*
- NSW Roads and Traffic Authority (April 2006) *Traffic Control at Work Sites*

5.3.3 Summary of future maintenance expenditures

Future maintenance expenditure is forecast to trend in line with the value of the asset stock as shown in Fig 4. Note that all costs are shown in current 2010 dollar values.

Fig 4. Planned Maintenance Expenditure



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

Maintenance is funded from Council's operating budget and grants where available. This is further discussed in Section 6.2.

5.4 Renewal/Replacement Plan

Renewal expenditure is major work which does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is upgrade/expansion or new works expenditure.

5.4.1 Renewal plan

Assets requiring renewal are identified from estimates of remaining life obtained from the asset register worksheets on the *'Planned Expenditure template'*. Candidate proposals are inspected to verify accuracy of remaining life estimate and to develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds and scheduled in future works programmes.

Council has yet to adopt a formal set of criteria for determining priority ranking. A proposed set of criteria used by another Shire which could be modified to suit Nambucca Shire is detailed in Table 5.8.

Table 5.8 Renewal Priority Ranking Criteria

Criteria	Example of Scoring Factors	Weighting
Road hierarchy	Primary (9)	40%
	Secondary (6)	
	Minor(3)	
Bridge width deficiency	> 6m (0)	10%
	5.5m to 6m (2)	
	5.0m to 5.5m (4)	
	4.5m to 5.0m (6)	
	4.0m to 4.5m (8)	
	< 4.0m (10)	
Bridge structural deficiency	No deficiency (0)	10%
	> 15T limit (3)	
	11-15T limit (5)	
	3-10T limit (8)	
	Closed (10)	
Annual maintenance cost (av. annual cost/ replacement cost)	< 5% replacement cost (0)	10%
	5%-10% (3)	
	10%-15% (6)	
	15%-20% (8)	
	➢ 20% (10)	
Functional significance of bridge	Freight to rail Y (2) or N (0)	10%
	School bus route Y (2) or N (0)	
	Public transport route Y (2) or N (0)	
Actual road usage AADT Rural OR	<25 (0)	10%
	25 to <100 (1)	
	100 to <250 (2)	
	250 to <500 (3)	
	500 to <750 (4)	
	750 to 1000 (5)	
	>1000 (6)	
Actual road usage AADT Urban (60kp/h or under)	<500 (0)	10%
	500 to <1000 (1)	
	1000 to <2000 (2)	
	2000 to <3000 (3)	
	3000 to <4000 (4)	
	4000 to <5000 (5)	
	>5000 (6)	
Heavy vehicles AADT	None (0) <50 (1) >50 (2)	5%
B Doubles	None (0) B Doubles (1)	5%
Total		**100%**

5.4.2 Renewal standards

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

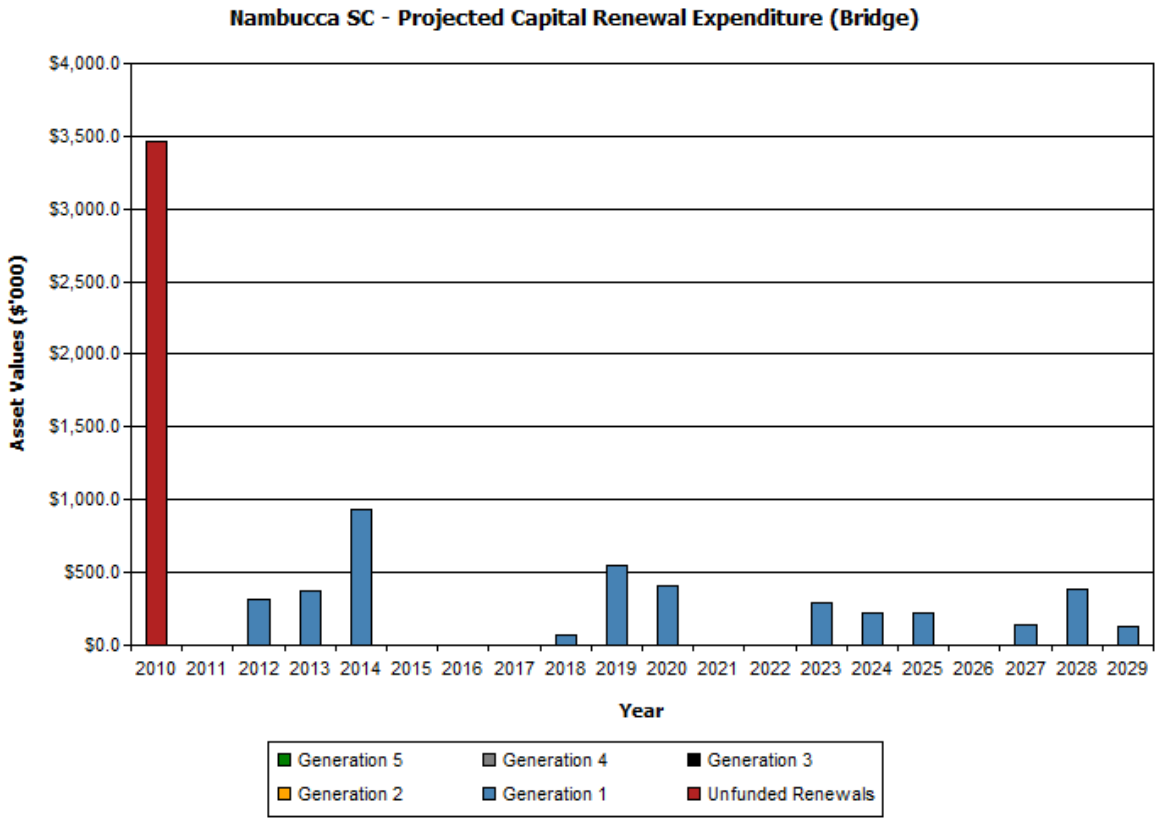
- Australian Road Research Board (2000) *Local Roads Bridge Management Manual*
- Australian Standard AS 5100 (2004) *Bridge Design Code*
- Department of Main Roads, New South Wales (1962) *Manual No 6 Bridge Maintenance*
- Institute of Public Works Engineering Australia (2009) *BridgeGuide Bridge Inspection and Management Manual*
- Institute of Public Works Engineering Australia (2006) *Road Asset Benchmarking Project, Timber Bridge Management*
- NSW Roads and Traffic Authority (April 2000) *Timber Bridge Manual*
- NSW Roads and Traffic Authority (April 2006) *Traffic Control at Work Sites*

5.4.3 Summary of future renewal expenditure

Projected future renewal expenditures are forecast to increase over time as the asset stock ages. The costs are summarised in Fig 5. Note that all costs are shown in 2010 dollar values.

The projected capital renewal program is shown in Appendix B.

Fig 5. Projected Capital Renewal Expenditure



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

Renewals are to be funded from Council's capital works program and grants where available. This is further discussed in Section 6.2.

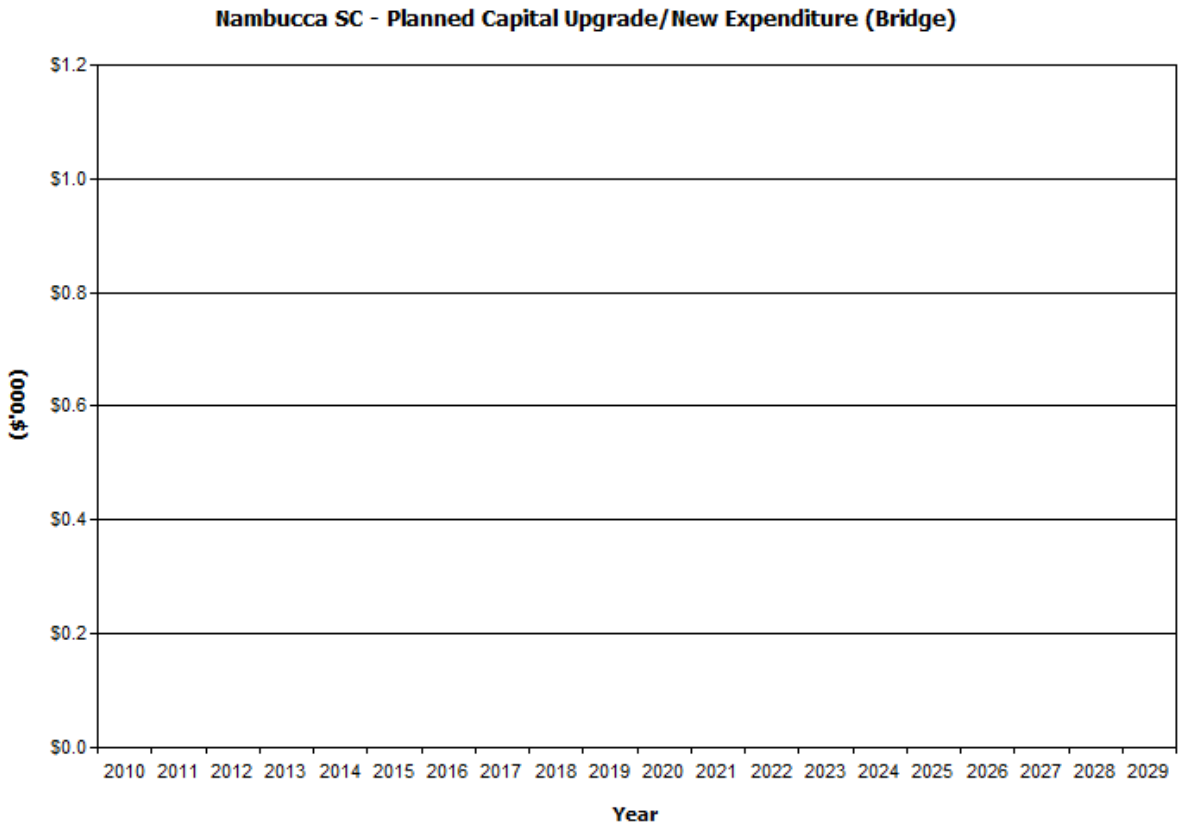
5.5 Creation/Acquisition/Upgrade Plan

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

5.5.1 Summary of future upgrade/new assets expenditure

Planned upgrade/new asset expenditures are summarised in Fig 6. The figure is blank on purpose. It shows that Council is **not** planning to upgrade any existing bridges or create any new bridges in the coming years.

Fig 6. Planned Capital Upgrade/New Asset Expenditure



5.6 Disposal Plan

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

The disposal of a community asset is a decision not taken lightly with often social and not economic factors dominating. Council staff are constantly monitoring asset costs, condition and usage.

At this stage Council is not planning to dispose of any bridge assets. Disposal of bridges will be considered on a case by case basis and a decision to follow through with a disposal will require a formal resolution from Council.

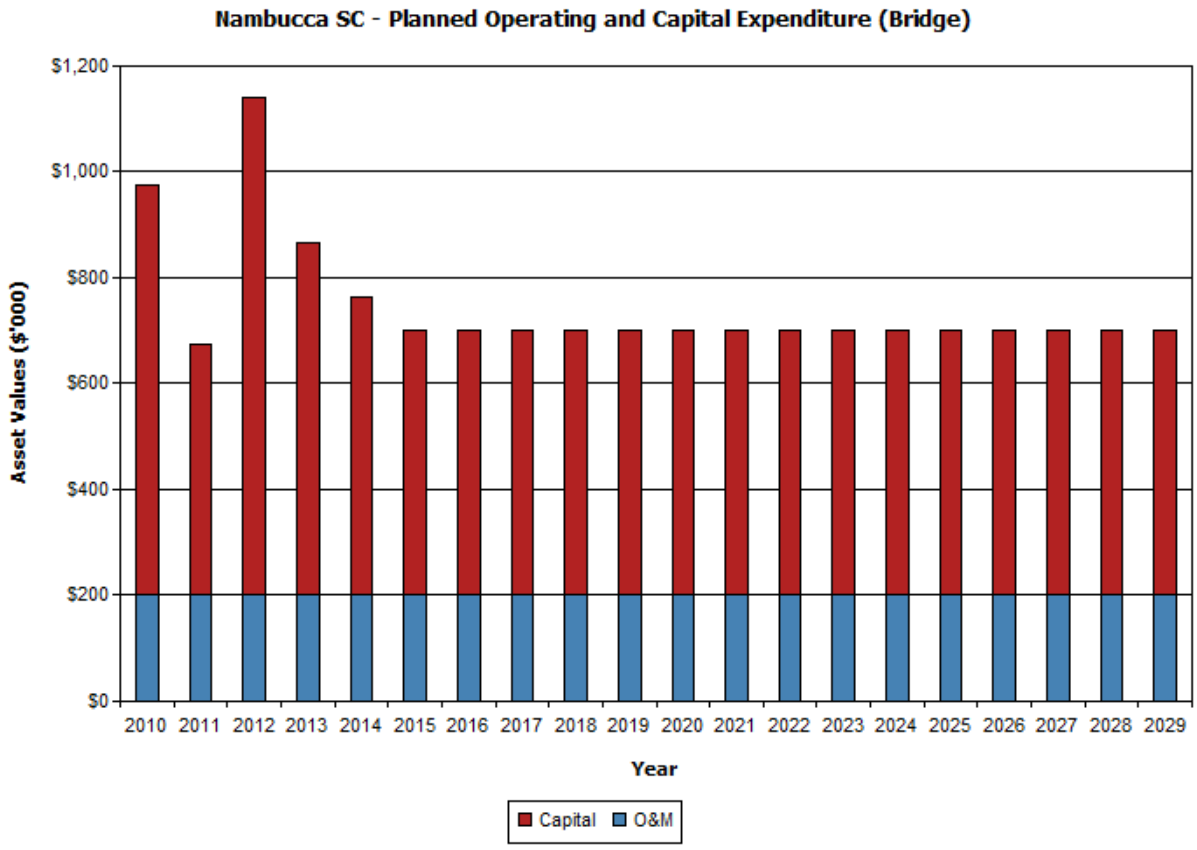
6. FINANCIAL SUMMARY

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

6.1 Financial Statements and Projections

The financial projections are shown in Fig 7 for planned operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets).

Fig 7. Planned Operating and Capital Expenditure



Note that all costs are shown in current 2010 dollar values.

6.1.1 Sustainability of service delivery

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

Long Term - Life Cycle Cost

Life cycle costs (or whole of life costs) are the average costs that are required to sustain the service levels over the longest asset life. Life cycle costs include maintenance and asset consumption (depreciation expense). The annual average life cycle cost for the services covered in this asset management plan is $1,351,140.

Life cycle costs can be compared to life cycle expenditure to give an indicator of sustainability in service provision. Life cycle expenditure includes maintenance plus capital renewal expenditure. Life cycle expenditure will vary depending on the timing of asset renewals. The average life cycle expenditure at the start of the plan is $750,000.

A gap between life cycle costs and life cycle expenditure gives an indication as to whether present consumers are paying their share of the assets they are consuming each year. The purpose of this bridge asset management plan is to identify levels of service that the community needs and can afford and develop the necessary long term financial plans to provide the service in a sustainable manner.

The life cycle gap for services covered by this asset management plan is $601,140 per annum. The life cycle sustainability index is 0.56.

Table 6.1 Calculation of Life Cycle Costs

Life Cycle Cost	
maintenance expenditure +	$690,000
annual depreciation expense	$661,140
life cycle cost	$1,351,140
Life Cycle Expenditure	
maintenance expenditure +	$200,000
capital renewal expenditure	$550,000
life cycle expenditure	$750,000
Life Cycle Gap	
life cycle costs -	$1,351,140
life cycle expenditure	$750,000
life cycle gap	$601,140
Life Cycle Sustainability Index	
life cycle expenditure÷	$750,000
life cycle cost	$1,351,140
life cycle sustainability index	0.56

Medium Term – 10 year financial planning period

This asset management plan identifies the estimated maintenance and capital expenditures required to provide an agreed level of service to the community over a 20 year period for input into a 10 year financial plan and funding plan to provide the service in a sustainable manner.

This may be compared to existing or planned expenditures in the 20 year period to identify any gap. In a core asset management plan, a gap is generally due to increasing asset renewals.

Fig 8 shows the projected asset renewals in the 20 year planning period from the asset register. The projected asset renewals are compared to planned renewal expenditure in the capital works program and capital renewal expenditure in year 1 of the planning period as shown in Fig 8

Fig 8. Projected and Planned Renewals and Current Renewal Expenditure

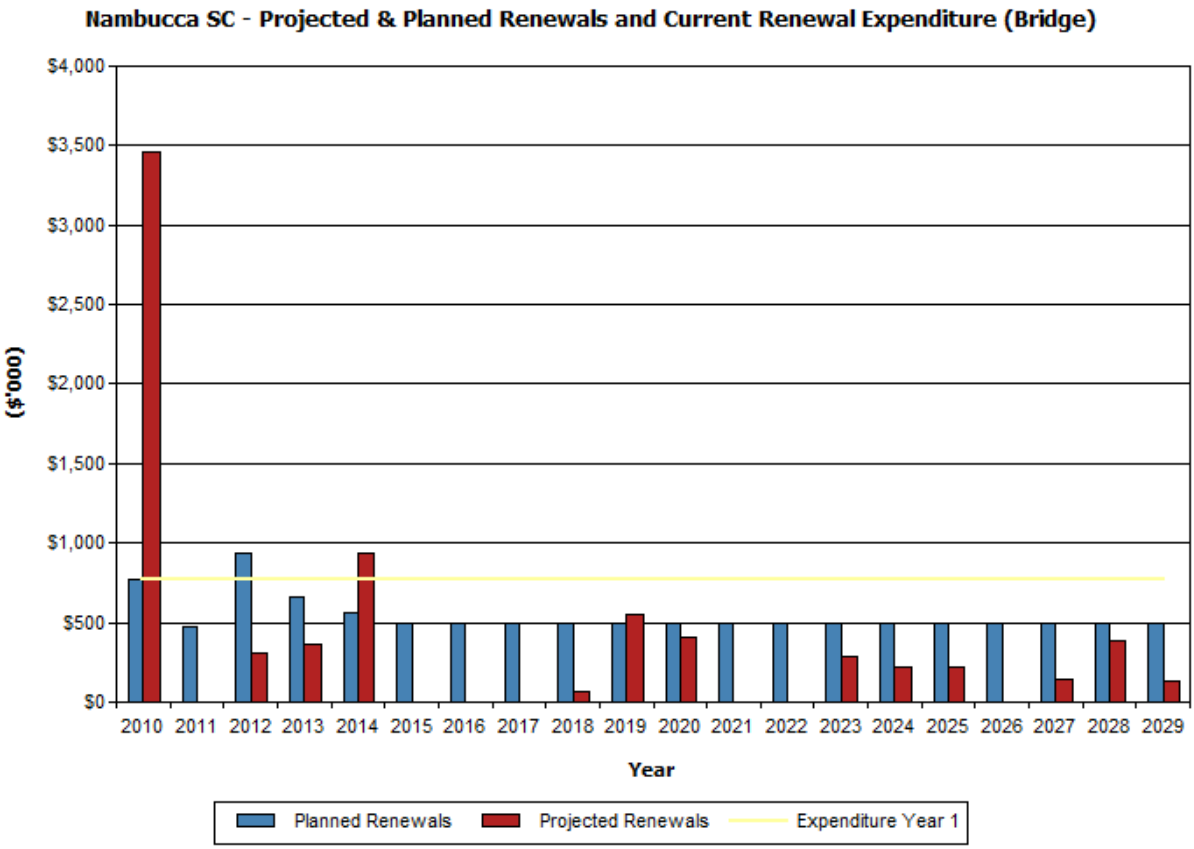


Table 6.2 shows the gap between projected and planned renewals.

Table 6.2 Projected and Planned Renewals and Expenditure Gap

Year	Projected Renewals ($'000)	Planned Renewals ($'000)	Renewal Funding Gap	Cumulative Gap ($'000)
2010	$3,458.06	$775.00	$2,683.06	$2,683.06
2011	$0.00	$475.00	-$475.00	$2,208.06
2012	$313.92	$940.00	-$626.08	$1,581.98
2013	$368.48	$665.00	-$296.52	$1,285.46
2014	$933.69	$565.00	$368.69	$1,654.15
2015	$0.00	$500.00	-$500.00	$1,154.15
2016	$0.00	$500.00	-$500.00	$654.15
2017	$0.00	$500.00	-$500.00	$154.15
2018	$68.64	$500.00	-$431.36	-$277.21
2019	$548.35	$500.00	$48.35	-$228.86
2020	$402.46	$500.00	-$97.54	-$326.40
2021	$0.00	$500.00	-$500.00	-$826.40
2022	$0.00	$500.00	-$500.00	-$1,326.40
2023	$286.00	$500.00	-$214.00	-$1,540.40
2024	$219.68	$500.00	-$280.32	-$1,820.72
2025	$223.78	$500.00	-$276.22	-$2,096.94
2026	$0.00	$500.00	-$500.00	-$2,596.94
2027	$138.59	$500.00	-$361.41	-$2,958.35
2028	$389.97	$500.00	-$110.03	-$3,068.38
2029	$127.36	$500.00	-$372.64	-$3,441.02

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

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

Council will manage the ‘gap’ by developing this asset management plan to provide guidance on future service levels and resources required to provide these services, and investigating economic and innovative renewal solutions, such as the replacement of an aging timber bridges with box culverts or prefabricated concrete bridges.

Council’s long term financial plan covers the first 10 years of the 20 year planning period. The total maintenance and capital renewal expenditure required over the 10 years is $7,691,140.

This is an average expenditure of $1,259,804 per annum. Estimated maintenance and capital renewal expenditure in year 1 is $975,000 and the average over 10 years is $792,000. The 10 year sustainability index is 0.63.

Table 6.3 Calculation of Long Term Life Cycle Costs

Required		
10 year	Total ($000's)	Annual
Maintenance	$ 6,900.00	$ 690,000
Renewal	$ 5,691.14	$ 569,114
	$ 12,591.14	$ 1,259,804
Planned		
Maintenance	10 Year Average	$ 200,000
Renewal	10 Year Average	$ 592,000
		$ 792,000
Sustainability Ratio		
Planned	$ 792,000	
Required	$ 1,259,804	
Ratio		**0.63**

6.2 Funding Strategy

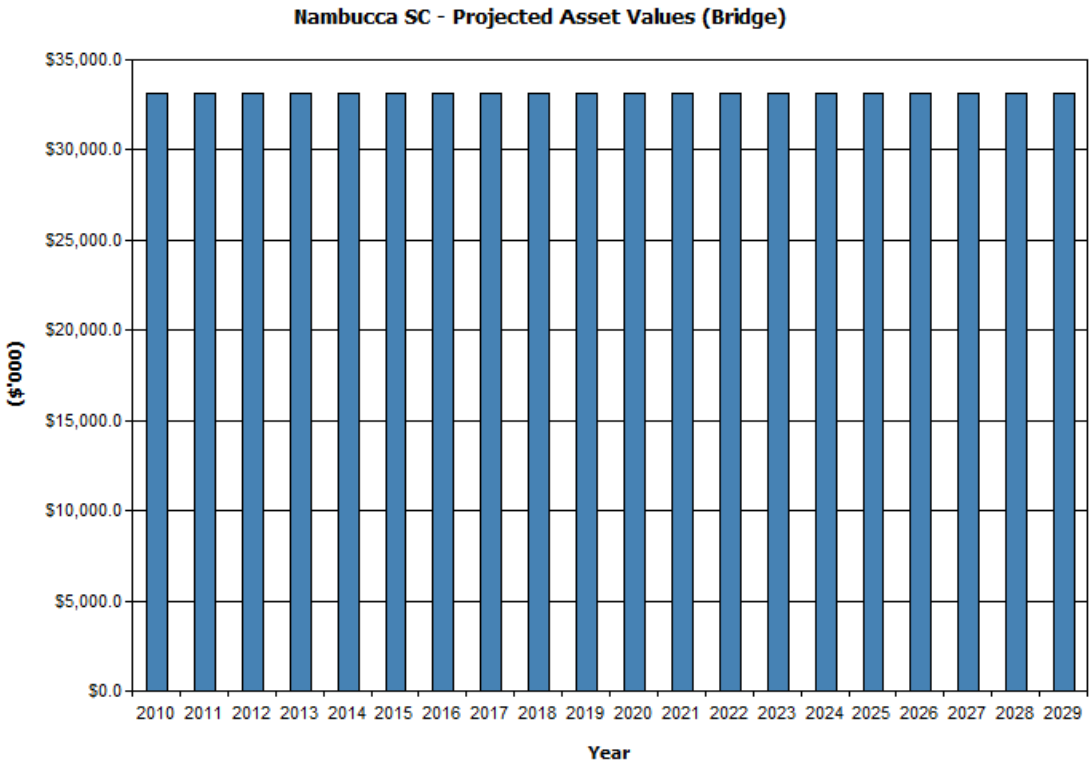
Projected expenditure identified in Section 6.1 is to be funded from Council's operating and capital budgets. The funding strategy is detailed in the Council's 10 year long term financial plan.

Achieving the financial strategy will require Council to maintain it's commitment to funding bridge maintenance and renewal. The continued use of loans may be required to fund renewal spikes.

6.3 Valuation Forecasts

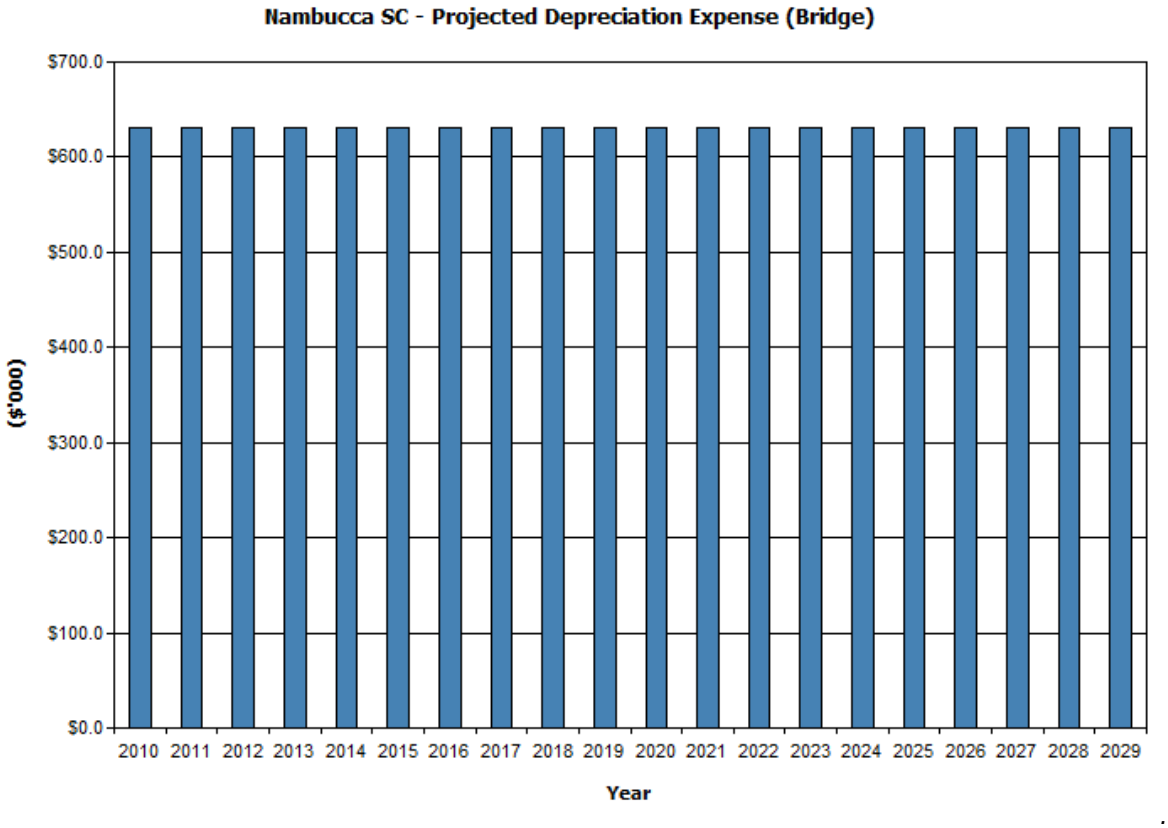
Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by Council and from assets constructed by land developers and others and donated to Council. Fig 9 shows the projected replacement cost asset values over the planning period in current 2010 dollar values.

Fig 9. Projected Asset Values



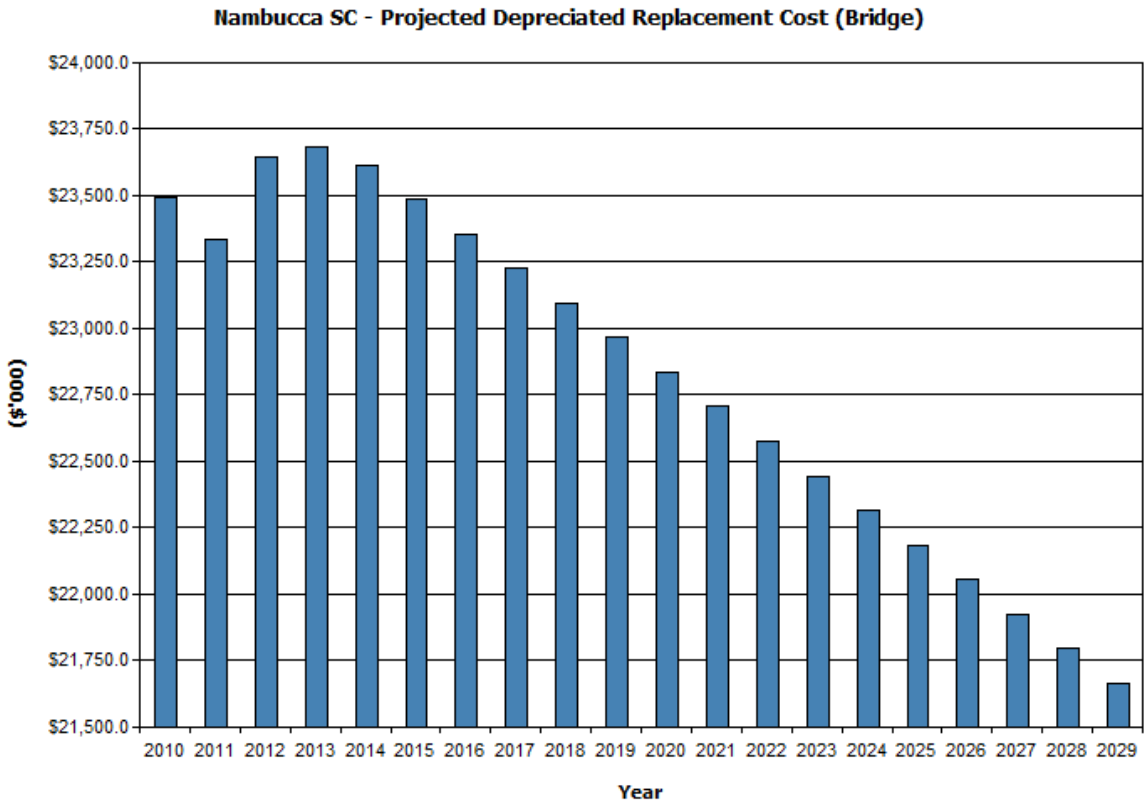
Depreciation expense values are forecast in line with asset values as shown in Fig 10.

Fig 10. Projected Depreciation Expense



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

Fig 11. Projected Depreciated Replacement Cost



6.4 Key Assumptions made in Financial Forecasts

This section details the key assumptions made in presenting the information contained in this asset management plan and in preparing forecasts of required operating and capital expenditure and asset values, depreciation expense and carrying amount estimates. It is presented to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts.

Key assumptions made in this asset management plan are:

- Unit rates have been used to calculate replacement rates for bridge and culvert structures. For example: cost or replacement per metre square of existing deck area. These unit rates are based on past history and have been verified against recently replaced assets.

- In some circumstances old bridges can be replaced by box culverts, with lower replacement costs. Further investigation is required to determine which bridges suit this type of renewal.

- In this plan it has been assumed that old timber bridges will be replaced by new timber bridges in all cases. Should a concrete replacement be found to be a better option the calculated replacement costs will be inaccurate.

- 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. Condition assessment of culvert assets is recommended.

Accuracy of future financial forecasts may be improved in future revisions of this asset management plan by the following actions.

- A new condition assessment of the structures covered by this plan will enable more accurate replacement costs to be calculated, including determination of the most appropriate replacement structure. Inspection and collection of data on all culverts over 6m in length in the road network is required. This information will be used to fill in gaps in this Plan

7. ASSET MANAGEMENT PRACTICES

7.1 Accounting/Financial Systems

[Click here & type summary of accounting & financial systems]

[Click here & type accountabilities and responsibilities for financial system]

[Click here & type accounting standards/regulations/guidelines that must be complied with]

[Click here & type summary of capital/maintenance threshold policy]

[Click here & type any changes to accounting/financial systems resulting from this IAMP]

7.2 Asset Management Systems

Council utilises a combination of spreadsheets and records in the Authority corporate software package as its Asset Management System for bridge and culvert assets.

Council stores and maintains the asset register in-house and is exploring various options for proprietary asset management software packages to provide more secure and effective storage and analysis of data.

Council is utilising the Institute of Public Works Engineering Australia (IPWEA) product called NAMS.PLUS for asset management planning.

7.3 Information Flow Requirements and Processes

The key information flows *into* this asset management plan are:

- The asset register data on size, age, value, remaining life of the network;
- The unit rates for categories of work/material;
- The adopted service levels;
- Projections of various factors affecting future demand for services;
- Correlations between maintenance and renewal, including decay models;
- Data on new assets acquired by council.

The key information flows *from* this asset management plan are:

- The assumed Works Program and trends;
- The resulting budget, valuation and depreciation projections;
- The useful life analysis.

These will impact the Long Term Financial Plan, Strategic Business Plan, annual budget and departmental business plans and budgets.

[Click here & type summary of information flow processes from AM to financial systems]

[Click here & type summary of new asset recognition and capitalisation process]

7.4 Standards and Guidelines

[Click here & type summary of AM policies, procedures and referenced used]

8. PLAN IMPROVEMENT AND MONITORING

8.1 Performance Measures

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

- The degree to which the required cashflows identified in this asset management plan are incorporated into council's long term financial plan and Strategic Management Plan;
- The degree to which 1 - 5 year detailed works programs, budgets, business plans and organisational structures take into account the 'global' works program trends provided by the asset management plan;

8.2 Improvement Plan

The following actions have been identified to allow improvement of this plan:

- Validate asset data for bridges and culverts.
- Reassess asset condition.
- Establish levels of Service through community consultation.
- Review depreciation expense categories.
- Further analysis of demand growth factors.
- Establish Renewal Priority ranking Criteria.

8.3 Monitoring and Review Procedures

This asset management plan will be reviewed during annual budget preparation and amended to recognise any changes in service levels and/or resources available to provide those services as a result of the budget decision process.

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

REFERENCES

Nambucca Shire Council, Management Plan 2010 – 2030,

Nambucca Shire Council, 'Annual Plan and Budget.

DVC, 2006, 'Asset Investment Guidelines', 'Glossary', Department for Victorian Communities, Local Government Victoria, Melbourne, http://www.dvc.vic.gov.au/web20/dvclgv.nsf/allDocs/RWP1C79EC4A7225CD2FCA257170003259F6?OpenDocument

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

APPENDICES

Appendix A Condition Assessment Criteria

Table 5.1
Routine maintenance and inspection (Level1) report (suggested form)

BRIDGE AND MAJOR CULVERT ROUTINE MAINTENANCE AND INSPECTION (LEVEL 1) REPORT (Suggested form)	Work order No.

Bridge Name:	Council / Region:
Bridge ID. No.	Location on Map:
Road No. / Road Name :	km from / to
Crossing:	
Inspection Date:	Inspected by:

INSPECTION FOR ROUTINE MAINTENANCE (Record activities within capacities of road maintenance personnel)

TASK		CHECKED	NEEDS REPAIR	LEVEL2 INSP REQUIRED	NOTES
Cleaning and clearing	Clean deck, footway, expansion joints	☐	☐	☐	
	Clean scuppers and down-pipes	☐	☐	☐	
	Clean superstructure of dirt buildup	☐	☐	☐	
	Clean substructure of dirt buildup	☐	☐	☐	
	Clear vegetation in or around bridge	☐	☐	☐	
Running or wearing surface repairs	Repair asphaltic / granular surface	☐	☐	☐	
	Replace running planks	☐	☐	☐	
	Repair wearing surface	☐	☐	☐	
Minor repairs or minor painting	Repair spalled post / parapets	☐	☐	☐	
	Repair or tightening railing	☐	☐	☐	
	Painting railing	☐	☐	☐	
Stream maintenance	Drainage approaches	☐	☐	☐	
	Embankments	☐	☐	☐	
	Remove debris in and around bridge	☐	☐	☐	
	Minor scour repairs	☐	☐	☐	
Signs and bridge furniture maintenance	Replace bridge signs and markings	☐	☐	☐	
	Additional signs required	☐	☐	☐	
	Install / replace bridge ID plate	☐	☐	☐	
Repair accident damage		☐	☐	☐	
Vandalism repair	Removal of graffiti	☐	☐	☐	
	Repairs needed due to vandalism	☐	☐	☐	
Inspection of bridge members	Signs and delineation	☐	☐	☐	
	Road approach surfaces	☐	☐	☐	
	Alignment barriers	☐	☐	☐	
	Bridge deck surface	☐	☐	☐	
	Deck joint	☐	☐	☐	
	Footpath	☐	☐	☐	
	Road and bridge drainage	☐	☐	☐	
	Embankments for erosion / scour	☐	☐	☐	
	Deck	☐	☐	☐	
	Abutments	☐	☐	☐	
	Wingwalls	☐	☐	☐	
	Piers	☐	☐	☐	
	Girders	☐	☐	☐	
	Bearings	☐	☐	☐	
	Others	☐	☐	☐	
		☐	☐	☐	

COMMENTS (river path; damage and deterioration condition of bridge / members)

Nambucca Shire Bridge Program 2014-15 as Developed LIRS Workshop 18th December 2013

PROPOSED SRV / Description	ORIGINAL BUDGET 2013/2014	REVISED BUDGET Sep BR 2013/2014	Draft BUDGET 2014/2015	BUDGET 2015/16	BUDGET 2016/17	BUDGET 2017/18	BUDGET 2018/19
TOUTS	382,000	382,000	-	-	-	-	-
SWANS	176,000	176,000	-	-	-	-	-
LOVEDAYS	201,600	201,600	-	-	-	240,000	-
REEDS	105,600	105,600	-	-	-	-	-
MENZIES NO. 3	-	-	92,000	-	-	-	-
BRABANTS	88,000	88,000	-	-	-	-	-
MARY SHARKEYS	105,600	105,600	-	-	-	-	-
GREENS	88,000	177,500	-	-	-	-	-
NAYLORS NO. 2	-	-	Was 145,000	145,000			
NAYLORS NO. 3	-	-	Was 76,000	76,000			
PETERKINS	-	-	182,000				
SOUTH ARM RD (WEEKES no. 600118)	325,000	325,000	-				
LAVERTYS	-	244,700	-				
BROWNS CROSSING NO. 2	-	-	139,000				
DEGRAAS	-	-	-	105,000			
SAMBROOKS	-	-	-	85,000			
BROWNS	-	-	Was 271,000		271,000		
BAKERS CREEK	-	-	415,000	Was 750,000	proposed concrete, to be replaced in timber		
FACTORY BRIDGE	-	-	-	360,000			
MCHUGHES CREEK NO. 2	-	-	-	-	210,000		
JACK GORLEYS	-	-	-	-	125,000		
GARRETTS NO. 2	-	-	-	-	105,000		
TOP BRIDGE	-	-	-		-	125,000	
PARTRIDGES	-	-	-		-	105,000	
PURCELLS	-	-	-	-		85,000	
MURRAYS	-	-	-		-	147,000	
BOAT HARBOUR	-	-		1,010,000	920,000	from timber to concrete	
LIMOUSIN	-	-	-		-	125,000	
FISCHERS	-	-	-		-	400,000	
COULTERS	-	-	-			85,000	
LITTLE THUMB CREEK	-	-	-		-	105,000	
NASHS	-	-	-		-	125,000	
JACK RYALL	-	-	-		-	125,000	
SINCLAIRS NO. 1	-	-	125,000		-	Was 125,000	
UNICOMBES NO. 2	-	-	-			105,000	
JONES	-	-	-			105,000	
WAY WAY	-	-	-			147,000	
SHEET O BARK NO. 2	-	-	-			147,000	
ROLLESTONS	-	-	-			-	605,000
ALLGOMERA NO. 2	-	-	-			125,000	
FRANK PARTRIDGE	-	-	-				125,000
LITTLE BROUGHYS	-	-	-				172,000
BUTTSWORTH NO. 1	-	-	-				172,000
HELLIWELLS BRIDGE	-	-	-			-	172,000
SUB TOTAL	**1,471,800**	**1,806,000**	**953,000**	**1,300,000**	**711,000**	**2,421,000**	**1,246,000**

Appendix C Asset Information Collection Sheet - Bridges

Details	
Register number	
Bridge number	
Authority asset number	
Authority work order - maintenance	
Link to GIS	
Link to as constructed plans	
Link to photographic record of inspections	

Description			
Road name		Safety barrier type	
Road hierarchy number		Hand rail type	
River/creek name		Kerb Type	
Construction date		Length	
Design life		Height (deck to bed)	
Design replacement date (year)		Width	
Current assessed remaining life		Spans	
Programed replacement date		Load limit	
Construction type		Traffic count (AADT)	
Deck		Traffic count (% heavy vehicles)	
Superstructure		Designed load	
Substructure		Pedestrian access	

Service Levels					
Current		**Public**		**Proposed**	
Number of lanes		Number of lanes		Number of lanes	
Pedestrian access		Pedestrian access		Pedestrian access	
Avg # days flooded		Avg # days flooded		Avg # days flooded	
Maximum load		Maximum load		Maximum load	
Bridge location (good/fair/poor)		Bridge location (good/fair/poor)		Bridge location (good/fair/poor)	
Construction material		Construction material		Construction material	

Proposed Specification			
Australian Standard		Hand rail type	
Design life		Kerb type	
Design replacement date (year)		Length	
Current assessed remaining life		Height (deck to bed)	
Construction type		Width	
Deck		Spans	
Superstructure		Designed load	
Substructure		Pedestrian access	
Safety barrier type		Replacement cost	
Alternate Treatments	Will the bridges be replaced?	Yes / No (Culvert/Causeway)	
(For bridges with a projected useful life less than 10yrs or bridges that are in good condition but not adequate to meet service standards)	Will the bridge be replaced to meet the same service standard?		
	Alternate engineering solution	Different height /width/construction – causeway? Culvert?	
	Proposed Date		
	Cost	In current dollars	
Life Cycle Planning			
Programmed Maintenance	Date/Action	Cost at current value	
(replacing components to increase projected useful life)	XXXXXXXXXX	$	
Historic Record of Defects	Can be a live link – Reflect. Potentially can be integrated – Authority Assets		
Condition Reporting	Last Inspection Date		
	Link to Inspection		
	Load Limit		
	Link to photos		
Financial Planning	Historic Construction Cost		
	Current Replacement Cost as at / /		
	WD Replacement Cost		
	Link to revaluation calculations	Normal a spread sheet, can be done by the software i.e. Assetic, My Valuer, My Data. http://www.assetic.com/products	
	Depreciation Methodology	Straight Line, Advanced SLAM but try to avoid condition based – problems with Audit	
	Depreciation Expense Current and Projected	Probably better in Authority - Does it comply with the Accounting Standards all numbers in current dollars	
	Financial Projections	Can be part of the software i.e. Assetic My Predictor	
	Historic operations and Maintenance costs	Can potentially be integrated – most likely authority assets. Can potential be analysed by activity/task	