Ballina Shire Council

Asset Management Strategy 2013

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1.1 INTRODUCTION

The *objective* of this Strategy is to describe how Council will meet its commitment to asset management as documented in its Asset Management Policy.

This objective will encompass the development & implementation of plans & programmes for asset creation, operation, maintenance, rehabilitation /replacement, disposal & performance monitoring to ensure that the desired levels of service and other operational objectives are achieved to optimum cost.

The Asset Management Strategy fits within the Asset Management Process as shown below. (ref IIMM 2011 page 2| 3)

Figure 1.1.1 Asset Management Process

The Asset Management Plans will be feeding off the processes and tasks defined in the Strategy and will be reviewed accordingly.

Once Council has achieved its required level of maturity in its Asset Management Plans, the role of the Asset Management Strategy will primarily be to ensure / review that data is maintained, remains current and valid.

1.2 DEFINITIONS

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.

IIMM 2011

International Infrastructure Management Manual, 2011 Edition

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 Expenditure 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)**

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

1.3 ASSET GROUPS & HIERARCHY

Ballina Shire Council current asset base is summarised below

Annexure	AMP	Service Delivery Objective
A	Ballina Byron Gateway Airport	▪ Provision of commercial air travel to Sydney and Melbourne that meets local demand. ▪ Enhancement of the area as a tourist destination.
B	Building	▪ Provision of suitable, safe, well maintained building networks such that Council is able to conduct its business & activities
C	Plant & Vehicle	▪ Provision of large plant to meet Councils current and future construction and maintenance requirements. ▪ Provision of light fleet to meet work related transport requirements for employees. ▪ Provision of small plant that meets Councils general maintenance / operational requirements over a range of asset groups.
D	Public Recreational Areas	▪ Meet current and future public demand for safe, quality sporting and recreational facilities.
E	Road & Transport	▪ Provision of effective road and transport networks that successfully accommodates current and future traffic demands
F	Stormwater	▪ Effective primary treatment, temporary storage and distribution of stormwater to minimise complaints of flooding.
G	Swimming Pools	▪ Provision of sufficient safe public swimming pools that meet community's and NSW Health's requirements.
H	Waste	▪ Suitable disposal and recycling of waste products that meets current & future demands and state legislation requirements.
I	Water & Sewer	▪ Provision and effective management of sufficient potable drinking water to meet current and future requirements. ▪ Efficient treatment and disposal of current and future sewer loadings to minimise complaints and meet relevant state legislation

Table 1.3.1 BSC Asset Groups

Council currently does not have any viable condition data on any of its assets, asset valuations and determination of depreciation and remaining lives are based on design lives and recorded construction dates. This document will establish a program of preparing for a condition based assessment approach to asset evaluation.

1.4 LINKS WITH OTHER PLANS

Integrated Planning & Reporting Taskforce (IPART)

Description

IPART has been developed as part of the Local Government Reform Program and proposes changes to the Local Government Act 1993 to improve Council's long term community, financial and asset planning.

Purpose

The purpose of this group is to ensure a high level of compliance by Council with the Department of Local Government's (DLG) Integrated Planning & Reporting Legislation (IPRL) and to ensure that the documentation produced is of value to Council and the community.

Responsibilities

- Review current level of compliance as a Group One Council with the IPRL
- Address all matters raised in the DLG's review of our compliance.
- Prepare key date timelines to assist with on-going compliance.
- Ensure Council is in a position to meet all key dates for compliance
- Review & improve current documents to enhance type & level of information provided.
- Identify key resource needs
- Identify methods to distribute & improve staff knowledge of the IPRL.
- Research best practice options.

The new planning & reporting framework replaces the former Management Plan, Social Plan and Annual Reporting requirements with an integrated framework, consisting of a hierarchy of documents consisting of

- Community Strategic Plan
- Resourcing Strategy
- Delivery Plan
- Operational Plan

Community Strategic Plan

The type and nature of assets created and the manner and frequency in which they are maintained will have direct impact on many of the Ballina Council Strategic objectives as outlined in the Community Strategic Plan. As such, these prime outcomes form part of the Asset Management decision making process

1. A feeling of safety, regardless of where in the Shire
2. Buildings, infrastructure and public spaces that compliment the natural environment
3. Clean beaches and foreshore
4. Effective engagement with our neighbouring areas and within the region
5. Continuous improvement in the condition of our natural environment
6. Effective and responsible power generation and use
7. Effective water collection, use and re-use
8. Efficient and effective integrated transport
9. Efficient production systems that minimise and re-use waste
10. Employment opportunities for all
11. Excellent water quality in the Richmond River, its tributaries and coastal lakes
12. Preserve the potential for agricultural land and important extractive resources
13. Maintain our diverse and attractive landscapes
14. Integrated land uses
15. High level of social capital
16. Holistic understanding of approaches to health
17. Individual and collective action to mitigate risks posed by a changing climate
18. Infrastructure and facilities that meet individual and community needs
19. Maintain and improve our land based productivity
20. Recognition and valuing our natural, cultural and built heritage
21. Respect for the needs of different land users and land uses
22. Robust structure in the local economy
23. Socially and environmentally responsible business
24. Viable local business
25. We have a justifiable trust in our organisations, businesses and government
26. Widespread participation in lifelong learning.

The Level of Service criteria defined in the Asset Management Plans shall reflect the Community Strategic Plan objectives

Resourcing Strategy

This strategy is used to achieve the objectives established by the Community Strategic Plan and incorporates the following sections

- Long Term Financial Plan
- Workforce Management Strategy
- Asset Management Policy
- Asset Management Strategy (*this document*)
- Asset Management Plans

Ballina Shire Council Delivery Plan

The BSC delivery plan is developed on a 3 year interval and reviewed annually. It outlines what Council will do to implement the Community Strategic Plan.

The delivery plan summarises a broad 4 year capital works program for all of Councils groups. These major capital works will be developed from prioritisation of the Asset Management Plans capital renewal programs and strategic expansion studies given the expected budgets available over the 4 year period.

Ballina Shire Council Operational Plan

The BSC operational plan is developed annually and outlines specific major projects, works and services that Council plans to undertake during the current year. It forms a subset of the BSC delivery plan.

Much like the works program from the BSC delivery plan, the major capital works will be developed from prioritisation of the Asset Management Plans capital renewal programs and strategic expansion studies, but the works program is project specific.

1.5 EXISTING SYSTEMS

1.5.1 Description

The following is a list of Council's asset groups and the systems used to record the asset data.

Asset Group: Airport
Data System: Excel spreadsheets
Sub-Groups:
- Pavement (Runway)
- Pavement (Taxiway)
- Pavement (Internal Roads)
- Car-parks
- Fencing
- Navigational Aids
- Kerb & Gutter
- Footpath
- Buildings

Asset Group: Buildings
Data System: Excel spreadsheets
Sub-Groups:
- Civic buildings
- Commercial buildings
- Operational buildings
- Residential buildings
- Sporting buildings
- Airport, waste Centre & swimming pool buildings are listed for completeness sake, but no cost information is recorded.

Asset Group: Plant & Vehicle
Data System: Excel spreadsheets, AusFleet
Sub-Groups:
- Heavy Vehicles
- Light Vehicles
- Small Plant

Asset Group: Road & Transport
Data System: Excel spreadsheets, RAMS Database, Reflect
Sub-Groups:
- Pavements
- Bridges
- Kerb & gutter
- Footpaths & Shared paths
- Signage
- Roundabouts
- Street lights
- Car-parks
- Barriers and guard rail

Asset Group: Public Recreational Services

Data System: Excel spreadsheets
Sub-Groups:
- Park & playground infrastructure
- Sporting Fields
- Cemeteries
- Reserves
- Public Conveniences

Asset Group: Stormwater
Data System: Excel spreadsheets
Sub-Groups:
- Rural Culverts
- Urban Reticulation
- Inter-Allotment Drainage
- Stormwater Outlets
- Stormwater Protection / Retention Systems
- Pollution control devices

Asset Group: Swimming Pools
Data System: Excel spreadsheets
Sub-Groups:
- Pools
- Amenity Buildings
- Plant Rooms
- Filtration Systems
- Miscellaneous / Other

Asset Group: Waste
Data System: Excel spreadsheets
Sub-Groups:
- Buildings
- Pavement
- Landfill & Buried Assets
- Footpaths, K&G, Fences & Signage

Asset Group: Water & Sewer
Data System: Excel spreadsheets & Access database
Sub-Groups:
- Sewer Pipes
- Sewer Pump Stations
- Sewer Treatment Plants
- Water Pipes
- Water Meters
- Water Pump & Bore Stations
- Water Storage
- Water Treatment Plant

1.5.2 Shortfalls

Excel is an excellent at storing and manipulating a single layer of data but will tend to fall short when attempting to create large multi layered datasets with one to many relationships, especially when this is required over a number of complex Asset Groups. File size tends to become large very

quickly as the number of macro navigation tools increase, and file instability becomes a concern.

Asset Management data comes in many forms but each data set is intrinsically linked to others.

- Physical Asset data sets
- Design Lives, Unit costs
- Condition
- Replacement Cost, Valuation & Depreciation
- Current year set budgets (capital, maintenance & operational)
- Current year work orders and work accomplishments
- Short term (1 to 3 years) modelling and forecasts for renewal, maintenance and operations + prioritisation parameters.
- Long term (4 to 20 year) modelling and forecasts for renewal, maintenance and operations

Ideally the Ballina Council Asset data should be

- Centrally located and regularly updated
- It a format that is consistent with Councils IT policy
- Accessible to relevant staff in a practical manner
- Updated in a pre-defined and consistent manner, ie new Assets come online in a timely fashion and renewals and changes to physical attributes & condition are identified at completion of project works and/or condition assessment.
- Secure against cyber attack and accidental data loss.

1.6 ASSET MANAGEMENT GOALS

Council aims to achieve a number of tasks in order to narrow the existing gaps in our data knowledge. The accomplishment of these tasks will allow Council to more efficiently understand, maintain and manage its asset base.

These tasks are detailed in the following pages but can be summarised into a number of groups.

- Further Development of 'working' Asset Management Plans
  - The ultimate goal is to establish a series of Asset Management Plans that provide realistic & usable long term capital and maintenance works programs, utilise risk assessment and criticality to prioritise works to given budgets and are kept maintained in timely fashion.

- Update Physical Data
  - The more complete an asset network is the more viable a long term works program will be and the less likelihood of Council maintaining uninsured assets. Missing data should be located and brought online.

- Obtain Asset Condition Data
  - The recording of asset condition data, albeit simple 1 to 5 assessments or specialised condition assessment is directly related to Councils ability to value assets and measure / meet our performance based Level of Service targets.

- Prepare realistic program of tackling Unfunded Renewals
  - Realistically, large renewal backlogs cannot be undertaken in the short term and will need to be managed and prioritised in accordance with available funds set aside for renewal backlog.

- Incorporate GIS location systems for Asset Base
  - This is not required for all assets, but would be a very useful user interface in locating specific assets within a large network and ensuring that asset updates are performed on the actual asset being maintained / replaced.

- Ensure Data is maintained and updated
  - For similar rationale to the first point, new assets and any capital expenditure on existing assets should be brought into the registers as soon as they come on-line.

1.7 PROCESS IMPROVEMENT

Council need to understand the nature of the gap between the current asset management practices and the deemed appropriate asset management practices for each of its Asset Groups. The understanding of this gap will drive Councils improvement process and the identification of a timeline of critical tasks required to close the gap.

Not all of Councils Asset Groups will have the same appropriate asset management practices. The level of the most effective asset management detail per asset group will be to a large degree based on the level of risk exposure and consequences of failure of each asset group. Generally speaking, the higher the risk associated with group the higher the level of appropriate asset management practices would be required.

1.7.1 Degree of AM Practices

The various levels of appropriate Asset management Practices are defined below.

Minimum:

The absolute basic level of asset management. Data is presented in top-down models.

Core:

Asset Management which relies primarily on the use of an asset register, maintenance management systems, top down condition assessment, simple risk assessment and defined levels of service, in order to establish a long-term cash flow projection.

Intermediate:

Those asset groups that may be defined as Intermediate are either undergoing the process of moving from Core to Advanced status or would benefit by having more that a core level of Asset Management Practice but does not require advanced Asset Management Practice.

Advanced:

Asset Management which employs predictive modelling, risk management and optimised decision making techniques to establish asset lifecycle treatment options and related long term cash flow predictions.

1.7.2 Attributes of Core & Advanced Asset Management practices

Table 1.7.2.1 below summarises the central attributes of Core and Advanced Asset Management practices.

Attribute	Core	Advanced
Levels of Service	Asset contribution to councils objectives & basic LOS defined. LOS performance measures in place.	Technical and customer LOS are integral to decision making and business planning
Demand	Forecasts based on experienced staff predictions together with historical trends (population growth)	Based on mathematical analysis of past trends and primary demand factors. Linked to risk assessment of different scenarios
Asset Register	Basic physical information in spreadsheet, limited components, age based valuation.	Information on work history, type & cost, condition. Recorded at component level. Optimised data collection program. Critical assets identified. High confidence in data
Condition	Condition assessment at group level (top down). Supports minimum requirements for managing critical assets	Condition information supports risk management, lifecycle decision making and financial reporting
Risk	Critical assets defined. Documented risk management strategies for critical assets	Formal risk management policy in place. Risk is integrated into all aspects of decision making Risk is quantified and risk mitigation options evaluated.
Lifecycle Strategies	AM decisions based in part on staff judgement and agreed corporate priorities. Formal decision making techniques are used on major projects & programmes.	Formal decision making & prioritisation techniques applied to all operational & capital programmes. Formal risk based sensitivity is carried out.

Table 1.7.2.1 Central attributes of Core & Advanced Asset Management practices.

Proposed Level of AM Practice

Asset Group	Asset Sub-Group	LEVEL OF AM												Asset Group Level
		Levels of Service		Demand		Asset Register		Condition		Risk		Lifecycle Strategies		
		Required	Current	Required	Current	Required	Current	Required	Current	Required	Current	Required	Current	
Airport	Runway / Taxiway	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced
	GA Area	Advanced	Core	Core	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Intermediate
	Car park	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
	Navigation Aids	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
	Buildings - Terminal	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced
	Buildings - Other	Advanced	Core	Core	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Intermediate
	Grounds / Fence / Gates	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
Buildings	Critical Buildings	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced
	Other Buildings	Advanced	Core	Core	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Intermediate
	Minor Structures	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
Plant & Vehicles	All	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
Public Recreational Services	Playground Equipment	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
	Sporting Equipment	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
	Grounds	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
	Miscellaneous	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
Road & Transport	Pavements	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced
	Bridges	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced
	Pathways	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
	Kerb & Gutter	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
	Roundabouts	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
	Signs	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
Stormwater	Rural Culverts	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
	Urban Reticulation	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
	Pollution Control	Advanced	Core	Core	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Intermediate
Swimming Pools	Pools	Advanced	Core	Core	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Intermediate
	Water Filtration Systems	Advanced	Core	Core	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Intermediate
	Buildings	Advanced	Core	Core	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Intermediate
	Miscellaneous	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
Waste	Landfill & Buried Assets	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
	Buildings	Advanced	Core	Core	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Intermediate
	Pavement	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced
	Paths / K&G / Fence	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
Water & Sewer	Sewer Pipes	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
	Sewer Pump Stations	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced
	Sewer Treatment	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced
	Water Pipes	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
	Water Pumps / Bores	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core
	Water Treatment	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced	Core	Advanced
	Water Meters	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core	Core

Table 1.7.2.2 Proposed level of AM Practice at BSC.

1.7.3 Gap Analysis

The IPWEA NAMS Plus website http://www.namsplus.org.au provides a survey based template to determine the asset management gap.

Gap Analysis - Stewardship >> Data Entry				
Question	Capability Levels	Desired Capability	Present Capability	Importance
Asset Management Policy				
Does your council have an adopted AM Policy?	1. No, not planned 2. Planned in next 12 months 3. Under development 4. Developed, not adopted by council 5. Yes	5	5	Essential
Asset Management Strategy				
Does your council have an adopted AM Strategy?	1. No, not planned 2. Planned in next 12 months 3. Under development 4. Developed, not adopted by council 5. Yes	5	4	Essential
Risk Management Process				
Does you council have a system for managing asset related risks either as part of a corporate risk management system or within an AMP for Road Assets?	1. No, not planned 2. Planned in next 12 months 3. Under development 4. Developed, not adopted by council 5. Yes	5	2	Essential
As above for Building Assets		5	2	Important
As above for Parks/Recreation Assets		5	2	Important
As above for Water/Sewer/CWMS Assets		5	2	Important
As above for Drainage Assets		5	2	Important
Accountability and Responsibility for Asset Management				
Does your council have a cross-functional approach to asset management?	1. No, not planned 2. Planned in next 12 months 3. Under development 4. For some asset categories 5. Yes, for all asset categories	5	4	Would be Useful
Does your council's Executive Management Team consider AM issues at the corporate level?		5	5	Would be Useful
What is the primary role of your council's Asset Management Team?	1. No AM Team 2. Capital works prioritisation for some/all services 3. Capital program management for some/all services 4. Coordination of lifecycle AM activities for some services 5. Coordination of lifecycle AM activities for all services	5	1	Essential
At what level are outcomes of the AMT accepted?	1. No AM Team 2. AM Team planned in 12 months 3. Specialist Officer 4. Department Head 5. Executive Management Team/CEO	5	1	Important
Does your council's Audit Committee consider AM issues?	1. No Audit Committee 2. Audit Committee planned in 12 months 3. Reporting as required 4. Regular meeting agenda item 5. Audit Committee considers sustainability indicators	5	3	Would be Useful
Are AM accountabilities and responsibilities defined in managers' position statements?	1. No 2. Planned in 12 months 3. Being developed 4. In Managers' position statements 5. CEO's pos. statements includes indicators for maintenance of appropriate assets to provide services	5	2	Important
Sustainability Reporting				
Does your council report on its financial sustainability?	1. No sustainability indicators developed 2. Sustainability indicators planned in 12 months 3. Sustainability indicators developed 4. Sustainability reported as required 5. Sustainability reported in Annual Reports	5	2	Important

Table 1.7.3.1 Gap Analysis - Stewardship

Gap Analysis – Asset Management Planning >> Data Entry				
Question	Capability Levels	Desired Capability	Present Capability	Importance
Asset Identification and Reporting				
Does your council identify and record assets at the 'component' level for Road Assets for valuation and depreciation purposes? **Note:** Components for road assets are sealed surfacing, pavement (layers) K&G (x2), footpaths (x2), earthworks/formation (if required) within road segment ~200m urban, 0.5 - 5-10 km rural	1. No, assets recorded at network level (eg road network) 2. No, assets recorded at 'major' asset level (eg individual road/street) 3. No, assets recorded at 'segment' asset level (eg road ~200m - 5-10km length)? 4. Assets recording at component planned within 12 months 5. Yes, assets identified and recorded at component level.	5	5	Essential
As above for Building Assets **Note:** Components for buildings assets are structure, mech/elect plant, fitout, etc where material	1. No, assets recorded at category level (eg all buildings) 2. No, assets recorded at sub-category asset level (eg all public halls) 3. No, assets recorded individual building level 4. Asset recording at component level planned within 12 months 5. Yes, assets identified and recorded at component level.	5	4	Essential
As above for Parks/Recreation Assets **Note:** Components for parks/rec'n, assets are surface type, playground item, structure, etc, where above capital threshold	1. No, assets recorded at category level (eg all parks) 2. No, assets recorded at sub-category asset level (eg all passive parks) 3. No, assets recorded individual park level 4. Asset recording at component level planned within 12 months 5. Yes, assets identified and recorded at component level.	5	3	Essential
As above for Water/Sewer/CWMS Assets **Note:** Components for Water/Sewer/CWMS assets are pipe reach (up to ~100m), pump station civil works, individual pumps, switchboards, etc, where above capital threshold	1. No, assets recorded at category level (eg all drainage schemes) 2. No, assets recorded at sub-category asset level (eg 100mm dia pipes, pump stations by size) 3. No, assets recorded at sub-category level for individual drainage schemes) 4. Asset recording at component level planned within 12 months 5. Yes, assets identified and recorded at component level.	5	4	Essential
As above for Drainage Assets **Note:** Components for drainage assets are pipe reach between pits, pits structures, access points where above capital threshold	1. No, assets recorded at category level (eg all drainage assets) 2. No, assets recorded at sub-category asset level (eg 375mm dia pipes, pump station by size) 3. No, assets recorded at sub-category level for individual Water/Sewer/CWMS schemes) 4. Asset recording at component level planned within 12 months 5. Yes, assets identified and recorded at component level.	5	4	Essential
Where is this asset data held?	1. No asset register 2. Hard copy 3. Technical asset register 4. Financial asset register supported by technical asset register(s) 5. One asset register serving financial & technical uses	5	4	Essential
Asset Data Maintenance				
How current is your asset data?	1. Asset register > 5 years out of date 2. Asset register > 2 years out of date 3. Asset register > 1 year out of date 4. Asset register updated annually 5. Asset register updated monthly/continuously	5	4	Essential
Does your council have a documented work procedure for asset register maintenance?	1. No 2. Planned in 12 months 3. Being developed 4. Yes 5. Yes and operates as scheduled	5	3	Essential
Does your council have a documented work procedure for recognising and capitalising new		5	4	Essential

Gap Analysis – Asset Management Planning >> Data Entry				
Question	Capability Levels	Desired Capability	Present Capability	Importance
and donated assets?				
Does your council have a documented process for reviewing useful lifes of assets?		5	3	Essential
Has a council officer been allocated responsibility for maintaining Council's asset register?	1. No 2.Updating done by several staff members as required 3. Updating done by one staff member 4. Yes, included in a staff position statement 5. Yes, staff member is competent in role	5	5	Essential
Does the responsible council officer have the time and resources to maintain the asset register?	1. No 2. Updates are always delayed 3. Updates are sometimes delayed 4. Updates are carried out to schedule 5. Currency of asset register is verified monthly	5	4	Essential
Asset Condition Data				
Do you have condition data for Road Assets?	1. No, no condition data 2. Condition data for < 50% of assets 3. Condition data for > 50% of assets 4. Rolling program of condition assessment 5. Annual condition assessment	5	1	Essential
As above for Building Assets		5	1	Essential
As above for Parks/Recreation Assets		5	1	Essential
As above for Water/Sewer/CWMS Assets		5	1	Essential
As above for Drainage Assets		5	1	Important
Risk Management				
Does your council have a current listing of asset related risks and risk management treatments linked to capital and maintenance programs for Road Assets?	1. No 2. Planned in 12 months 3. Being developed 4. Risks assessed and risk treatments identified 5. Yes, linked to maintenance & capital works programs	5	2	Important
As above for Building Assets		5	2	Important
As above for Parks/Recreation Assets		5	2	Important
As above for Water/Sewer/CWMS Assets		5	2	Important
As above for Drainage Assets		5	2	Important
Relating Service Levels to Costs of Delivery				
Does your council know the life cycle costs of services provided using Road Assets?	1. No 2. Planned in 12 months 3. Being developed 4. Yes for some services 5. Yes, for all services	5	4	Important
As above for Building Assets		5	3	Important
As above for Parks/Recreation Assets		5	3	Important
As above for Water/Sewer/CWMS Assets		5	3	Important
As above for Drainage Assets		5	3	Important
Future Demand Impacts				
Has your council identified future demands and impacts on service delivery for Roads?	1. No 2. Planned in 12 months 3. Being developed 4. Yes for some services 5. Yes, for all services	5	4	Important
As above for Building Assets		5	2	Would be useful
As above for Parks/Recreation Assets		5	3	Would be useful
As above for Water/Sewer/CWMS Assets		5	4	Important
As above for Drainage Assets		5	3	Important
Asset Management Plans				
Has your council an adopted asset management plan for Roads?	1. No 2. Planned in 12 months 3. Being developed 4. Developed but not adopted by Council 5. Yes	5	5	Essential
As above for Building Assets		5	5	Essential
As above for Parks/Recreation Assets		5	3	Essential
As above for Water/Sewer/CWMS Assets		5	5	Essential
As above for Drainage Assets		5	5	Essential

Table 1.7.3.2 Gap Analysis – Asset Management Planning

Gap Analysis – Financial Planning >> Data Entry				
Question	Capability Levels	Desired Capability	Present Capability	Importance
Consideration of Life Cycle Costs in Investment Decisions				
Does your council break up capital expenditures into capital renewal, capital upgrade and capital expansion?	1. No 2. Planned in 12 months 3. Being developed 4. Yes for some expenditure categories 5. Yes, for all expenditure categories	5	4	Would be Useful
Does your council receive and consider life cycle cost information in decisions relating to new/upgrade services and assets?	1. No 2. Planned in 12 months 3. Being developed 4. Yes for some services & assets 5. Yes, for all services & assets	5	4	Important
Revaluation Process				
How does your council do its asset revaluations for infrastructure assets (other than buildings)?	1. Values held at 'cost'. No revaluations 2. Revaluations done by external valuer 3. Revaluations done part by external valuer and part by council staff 4. Revaluations done by council staff 5. Revaluations done by council staff and verified by external source	5	4	Would be Useful
What is your council's revaluation frequency for assets?	1. Values held at 'cost'. No revaluations 2. 5 year revaluation cycle 3. 3 year revaluation cycle 4. 2 year revaluation cycle 5. Annual revaluation cycle	5	3	Important
Reporting Asset Consumption Against Service Delivery				
Does your council report asset consumption as an operating expense against the relevant service activity?	1. No, reported as corporate overhead expense 2. Planned within 12 months 3. Being developed 4. Yes for some service activities 5. Yes for all service activities	5	3	Essential
Long Term Financial Plans				
What is the length of your council's long term financial plan?	1. 1 year 2. 2 - 3 years 3. 5 years 4. 10 years 5. 10+ years	5	5	Essential
Long Term Financial Plans Include Projected Asset Renewals (Not Depreciation)				
Does your council's LTFP include asset renewals?	1. No 2. Planned in 12 months 3. Being developed 4. Includes renewals for some service activities 5. Includes renewals for all service activities	5	2	Essential
Long Term Financial Plans Include Growth and Upgrade of Services				
Does your council's LTFP include provision for network growth and upgrade of services?	1. No 2. Planned in 12 months 3. Being developed 4. Includes growth and upgrade for some service activities 5. Includes growth and upgrade for all service activities	5	2	Essential
Long Term Financial Plans Include Life Cycle Costs for New Assets and Services				
Does your council's LTFP include provision for future operating expenses associated with new assets and services?	1. No 2. Planned in 12 months 3. Being developed 4. Includes operating expenses for some new assets and services 5. Includes operating expenses for all new assets and services	5	2	Essential

Table 1.7.3.3 Gap Analysis – Financial Planning

1.7.4 Gap Analysis – Summary

The following tables show the current status of Asset Stewardship, Asset Management Planning & Financial Planning.

Ballina SC Gap Analysis

		Stewardship					Asset Management Planning							Financial Planning			
Gap Analysis	Assessment Score	Asset Management Policy	Asset Management Strategy	Risk Management Process	AM Accountability & Responsibility	Sustainability Reporting	Asset Identification & Recording	Asset Data Maintenance	Asset Condition Data	Risk Management	Service Levels & Delivery Costs	Future Demand Impacts	Asset Management Plans	Life Cycle Costs in Investment Decisions	Revaluation Process	Reporting Asset Consumption	Long Term Financial Plan
Excellence	5																
Competence	4																
Systematic Approach	3																
Awareness	2																
Needs Improvement	1																
		Current Capability Score									**Gap to achieve Desired Capability**						
Present Capability		5	4	2	2.7	2	4	3.8	1.4	2	3.4	3.2	4.6	4	3.5	4	2.8
Desired Capability		5	5	5	4.3	5	5	5	5	5	5	5	5	5	5	5	5
Gap		0	1	3	1.6	3	1	1.2	3.6	3	1.6	1.8	0.4	1	1.5	1	2.2
Importance Weighting		5	5	4.2	3.7	4	5	5	5	4	4	3.6	5	3.5	3.5	5	5
Weighted Gap		0	5	12.6	5.9	12	5	6	18	12	6.4	6.5	2	3.5	5.3	5	11
Priority For Improvement		13	10	2	8	3	10	7	1	3	6	5	12	11	9	10	4

Priority	Practice Area
1	Asset Condition Data
2	Risk Management Process
3	Risk Management
4	Sustainability Reporting
5	Long Term Financial Plan
6	Future Demand Impacts
7	Service Levels & Delivery Costs
8	Asset Data Maintenance
9	AM Accountability & Responsibility
10	Revaluation Process
11	AM Strategy
12	Reporting Asset Consumption
13	Asset Identification & Recording
14	Life Cycle Costs & Investment Decisions
15	Asset Management Plans
16	AM Policy

Table 1.7.4.1 Gap Analysis - Summary

1.7.5 Interpretation of Results

Works need to be done on all categories of Councils Asset Management Practices in order to be in a position to fully utilise its Asset management Plans as working documents. 4 Key areas have been identified.

Asset Condition Data

Asset condition data collection will be central to asset valuations, identifying risks and hazards and to a lesser degree measuring level of service outputs. Council will develop testing programmes, detailing the extent and scope of works, timing and estimated cost that is reflective of the level of detail required for each asset group and sub-group.

There will be a number of assessments that will require the selection of specialist contractors.

1) Pavement condition testing
Council will prepare a call to tenders to provide pavement condition data of its sealed and rigid road network. This contract will be for the provision of information and as such it will be essential that Council be confident that data provided is reflective of the actual state of the road network. Thus it will be vital that the contractor be able to show Council that

- All staff has current and certifiable NATA accreditation for each type of test performed.
- All equipment, including vehicles have recent successful calibration records, including any other vehicle, test equipment brought onto site after commencement of the contract.

2) Bridge deflection testing
Bridge deflection testing is expected to be performed on selected sites. Similar to pavement condition testing, the contractor will need to provide current NATA accreditation and calibration of test equipment.

3) There will be a number of condition assessments that will need to be performed by technically qualified person. This may be a Council employee or possibly a contractor.

- Sewer Pump Stations (qualified electrician, pump mechanic)
- Air conditioning structure -buildings (qualified refrigeration mechanic)
- Lift –buildings (qualified mechanical engineer)
- Filtration Equipment –Pools (qualified technician)

Council will need to certify that all qualifications are current and valid.

4) The bulk of asset condition data would be done by suitable competent Council staff. This shall entail manual assessment of the asset or asset component on a pre-defined 1 to 5 scale for that particular asset. The primary challenges that will face Council in regard to these manual assessments would be

- Consistency of data
- Resources / time

As there will be a number of different assessors, the primary challenge that will face Council in the undertaking of these assessments will be consistency of data across the various assessors.

In order to minimise any inconsistency in data collected, Council will prepare summary documents for each asset class that define each condition level together with photographs. Council staff will be made familiar with these documents prior to beginning assessments.

In addition, a periodic audit of a small percentage of randomly selected sites will be conducted and results checked with initial assessments. These audits will be done to improve Council's confidence in data collected and to determine areas requiring improvement.

Risk Management & Risk Management Process

In order to reduce the gap in these areas, Council should identify all its critical assets, and apply risk assessment hierarchy and risk assessment procedure on all assets or critical assets only depending on the level of asset management practices defined for each asset group.

The risk assessment procedure incorporates risk likelihood, consequence, control measures and calculation of a cost-benefit ratio.

This shall allow for the prioritisation of works based on risk based cost-benefit and asset criticality.

Risk Rating Matrix

The risk rating matrix shown below is an easy way to evaluate and prioritise risks and is applicable to simpler assets but is useful in the initial determination of critical assets.

	CONSEQUENCES				
	1	2	3	4	5
LIKELIHOOD	Negligible	Minor	Moderate	Major	Catastrophic
A. Unlikely	L	L	L	M	S
B. Rare	L	L	M	S	S
C. Possible	L	M	S	S	H
D. Probable	M	M	S	H	H
E. Likely	M	S	H	H	E
F. Almost Certain	S	H	H	E	E

Figure 1.7.5.1 Risk Rating Matrix

An overall risk consequence score can be evaluated by assessing weighted Social, Environmental & Economic consequences of asset failure.

Risk Criteria Evaluation

The risk criteria evaluation is a quantitative method of assessing risks. A number of potential asset failure modes and consequence factors are considered in the analysis. All critical assets should have their risks evaluated in this manner.

Below are some examples of the criteria assessed in this method. The criteria will vary from asset type to asset type, but they will all be expressed within a 1 to 5 scale and generally all will include condition and cost benefit analysis as parameters.

- Condition
- Accident history
- Speed limit
- Construction quality
- Other access available
- Cost benefit analysis

Cost benefit analysis is expanded below

Cost benefit analysis
Before Treatment

Failure event
- External impact
- Natural event
- Operational
- Physical failure

Failure mode
- Capacity / utilisation
- Economic impact
- Level of service
- Operator error
- Structural
- Technological change

Expected failure period
- within 1 year
- within 2 years
- within 3 years
- within 4 to 5 years
- within 6 to 10 years
- within 11 to 20 years
- greater than 20 years

Consequence of failure
- Asset & project performance
- Community impact
- Environmental damage
- Financial
- Image & reputation

- Public H&S –fatality
- Public H&S –illness
- Public H&S -injury

Consequence of failure $
- < $2,000
- $2,000 to $20,000
- $20,000 to $100,000
- $100,000 to $2,000,000
- > $2,000,000

Current controls
- Existing measures to control risk

Consequence of failure (estimated $)
- eg $ 32,000

Likelihood
- within 1 year = 0.9
- within 2 years = 0.7
- within 3 years = 0.4
- within 4 to 5 years = 0.2
- within 6 to 10 years = 0.1
- within 11 to 20 years = 0.05
- greater than 20 years = 0.02

Risk dollars
- Likelihood x $ Consequence

Treatment

Treatment type applied

Treatment type cost $

After Treatment

Expected failure period
- within 1 year
- within 2 years
- within 3 years
- within 4 to 5 years
- within 6 to 10 years
- within 11 to 20 years
- greater than 20 years

Consequence of failure (estimated $)
- eg $ 32,000

Likelihood
- within 1 year = 0.9
- within 2 years = 0.7

- within 3 years = 0.4
- within 4 to 5 years = 0.2
- within 6 to 10 years = 0.1
- within 11 to 20 years = 0.05
- greater than 20 years = 0.02

Risk dollars
- Likelihood x $ Consequence

Risk dollars reduction
- $ Risk before treatment – $ Risk after treatment

Cost / Benefit
- Treatment cost / Risk reduction
- Convert Cost / Benefit to 1 to 5 score

Weighting applied to risk criteria and final score ranked
- Risk criteria all have 1 to 5 scores.
- Multiply each by weighting and sum,

Level of Service

The levels of service in the asset management plans have initially been defined form current practice and budgets.

These levels of service targets will be revised in consultation with respective Line Managers and the BSC Community Service Plan. From this, Council will develop annual performance indicators to see if LOS targets are being met. The cost to achieve these LOS targets, reduced LOS targets and higher LOS targets could be reported at the same time.

Optimised Decision Making

Council will develop an optimisation algorithm that prioritises / selects projects to be included in a long term replacement program, bases on asset criticality, condition, usage, consequence of failure, cost to renew and age.

These 4 areas are not mutually exclusive, they compliment each other. It is planned to develop a combined Asset Condition & Risk Assessment Template that can be used on-site from a tablet or i-pad like device. This data will feed to the LOS performance indicator measurements.

1.8 PLANNED DEVELOPMENTS

1.8.1 Proposed Systems / Software

This section describes the proposed Asset Management Software hierarchy and the human input required to maintain the system that would allow users and stakeholders access to up to date and relevant information.

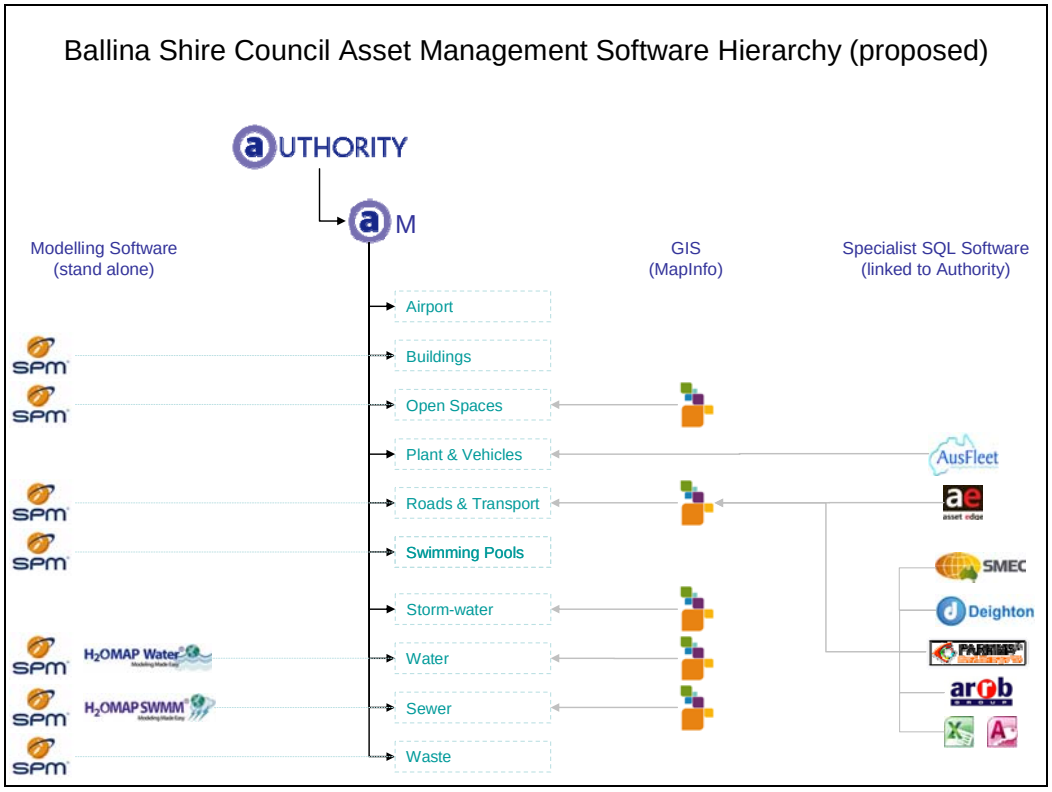

Figure 1.8.1.1 Proposed Systems

Authority / AM

During 2010, Council has adopted Authority as its new financial system. AM is the Authority asset module and is planned to be established by 2012/13

The Authority Asset and Infrastructure Management (AM) application is designed specifically for Local Government, enabling Council to effectively manage a diverse and complex range of assets. Authority AM provides full life cycle analysis of assets within an enterprise wide asset management solution and delivers cohesive processing and reporting requirements to fully meet Council workflows. AM features the following modules operating within a single enterprise application:

- Asset Register and Index
- Financial Asset Management
- Asset Valuation

- Customer Request Management
- Document Management
- Maintenance and Works Management
- Resource Management
- Inspection Defects Registers
- Risk Management

The single database environment of Authority AM eliminates disparate data storage, data duplication and batch processing allowing Council to consolidate all asset information in a single place with each application module leveraging the benefits of common components designed to operate as one.

Authority AM provides Council with an enterprise wide Asset Management solution and delivers the following key business benefits:

- Establishment of a comprehensive asset performance knowledge base in terms of costs, reliability, capacity and utilization
- Effective management and analysis of asset related maintenance activities and treatment measures in line with budgetary objectives
- Establishment of a cost effective condition assessment methodology for each asset type with automatic identification of the assets life cycle position
- Ability to predict and monitor customer demand for specific assets and asset portfolios
- Performance monitoring

The implementation of the AM module will involve the following 8 steps.

- Organise training for BSC staff in Authority / AM
- Become active in regional AM user groups
- Establish Permissions, Roles and Users
- Establish Asset Hierarchy within Authority / AM
- Setup AM Parameters
- Setup Work Order Parameters
- Establish task & Inspection codes
- Check data sets (excel)
- Prepare data sets (with Authority personnel & BSC IT staff) for transfer

Status: The AM asset module is planned to be established by 2012/13

GIS (MapInfo / Exponare)

Councils GIS software is ‘MapInfo’ and its general use reader ‘Exponare.’ It is anticipated that most users will access asset information via the ‘Exponare’ reader, via on screen asset attributes and hyperlinks to drawings and photos.

Status: Exponare was put into use during 2011 with all indoor staff receiving a 1 hour training session.

SPM

SPM Assets – Web based Asset Management System developed as a building asset management tool. It is primarily a (long term) forward planning analysis tool with the ability to prioritise budgets based on asset hierarchy, consequence of failure and condition.

Although the product has been developed for Buildings, it is customisable enough to set up the structure to handle any non-network assets.

Ballina Byron Gateway Airport
- Airport assets

Buildings
- All buildings
- Minor structures

Open Spaces
- Park playground equipment
- Sporting Field equipment
- Miscellaneous assets

Road & Transport
- Bridges
- Large Culverts

Water
- Water Bores & Pump Stations
- Water Reservoirs
- Water Treatment

Sewer
- Sewer Pump Stations
- Sewer Treatment Plants

Swimming Pools
- Pools
- Pumps & filtration assets
- Miscellaneous assets

Waste
- Waste Centre Infrastructure

SPM assets is a web based application and cannot (at this stage) connect to a SQL database.

Status: Bridges & large culverts, sewer pump stations, swimming pools, waste & recycling centre, airport, water bores, water reservoirs and water treatment have been added to SPM. Open space, sewer treatment and building assets will require a detailed inspection program that is planned to occur during 2012.

AusFleet

Specialist plant & vehicle asset management software that covers

- Inventory
- maintenance
- workshop schedules
- pool vehicles
- fuel
- plant hire

Status: AusFleet was set up during 2011.

Pavement Management System

Council is to collect road condition data during the 2011/2012 financial year and although a pavement management system is not essential for this data, there are tangible benefits that should be explored. There are a number of 'off the shelf' products available and those below are generally accepted as the industry standard. There is the option of Council analysing condition data and making 20 year condition predictions using Microsoft Office applications.

- SMEC
- dTIMS
- PARMMS
- ARRB
- Excel / Access (In house development)

The primary benefit of a Pavement Management System is in the confidence that (a properly established system with validated condition data input) it gives in the accuracy in its long term works projections and prioritisations.

Status: The selection of a pavement management system would be based on the type of condition data collected, available budget and expected benefit.

Asset Edge / Reflect

Reflect is a maintenance management tool. It has no inbuilt functionality for calculating depreciation, condition modelling, or predictive analysis. Instead, Reflect schedules inspections, records defects, and records defect rectification and routine maintenance. It can be used on any type of asset; Roads, Footpaths, Playgrounds, Buildings, and Bridges. It is capable of presenting map layers where Defects can be mapped and can store images or pictures taken in the field.

Status: The reflect asset maintenance software was initially utilised on Councils RTA and Regional Road networks but is now currently being used on all of Councils sealed local road networks as well. It utilises MapInfo as its primary location system.

H2O Map Water

H20 Map Water is a stand alone, water network analysis tool. It performs fast, reliable and comprehensive hydraulic modelling, real-time simulation and control via graphical interface for

- Water reticulation
- Water reservoirs
- Water pump stations

It is able to simulate a number of event based scenarios in the existing water network and locate under performing areas within the networks as well as model the impact of future infrastructure in growth areas.

Hydraulic Modelling Capabilities:

- allows single and multiple inlet/outlet storage tanks to have any shape (i.e., diameter can vary with height)
- models constant and variable head reservoirs
- considers multiple demand categories at nodes, each with its own pattern of time variation
- automatically carries out pressure-demand analysis to compute the percentage (%) of demand supplied to each node (ratio of actual demand vs specified demand)
- tracks flow reversals for pipe flushing
- determines pipe sequences for unidirectional flushing
- simulates leakage in a pipe
- specifies system operation based on both simple node pressure, tank level, link flow, or timer controls and on complex rule-based controls

Status: established 2011, currently being refined.

- The water network has been defined but verification will be needed
- Need to develop dual reticulation in model
- Possibility exists to develop SCADA links

H2O Map SWMM

H20 SWMM is a stand alone, waste-water network analysis tool. It performs fast, reliable and comprehensive hydraulic modelling, real-time simulation and control via graphical interface for

- Sewer reticulation
- Sewer pump stations

It is able to simulate a number of event based scenarios in the existing waste water network and locate under performing areas within the networks as well as model the impact of future infrastructure in growth areas.

Hydraulic Modelling Capabilities:

- Infiltration/Inflow Assessment
- Pond Design

- View fully Animated Extended Period Simulation (Dynamic) Results Sequentially Using VCR-Style Controls
- Generate Graphs and Tables of Modelling Results Directly
- Automatically Publish Simulation Results to Database

Status: licences to be established during 2012

- The sewer network has been defined but verification will be needed
- Possibility exists to develop SCADA links
- The software can also model stormwater infrastructure, this functionality may be utilised in the future.

1.8.2 Data Collection

Collection of reliable data will be central to asset management practices. Data should be collected by experienced personnel and / or qualified technicians, contractors, depending on the level of asset management practice required.

There will be 2 broad categories of data to be collected, physical asset data and asset condition data.

1.8.2.1 Physical Assets

Collection of physical asset by user defined components. Checks on data completeness, and the process of adding new assets to systems and the maintenance of existing data.

1.8.2.2 Condition Data

Condition data will need to suit the asset being assessed and the level of asset management practice required for the asset. In many cases a visual assessment based on a 1 to 5 scale will be deemed suitable while other will require a testing programme using specialist equipment and suitable qualified personnel.

Visual Condition Surveys

- Assets are assessed purely on a visual appearance by experienced staff. The condition rating system would generally be a 1 to 5 scale
  - 1: Very Good | as new | up to 25% consumed
  - 2: Good | minor defects only | up to 40% consumed
  - 3: Fair | maintenance required | up to 50% consumed
  - 4: Poor | renewal required | up to 75% consumed
  - 5: Very Poor | asset unserviceable | up to 95% consumed

The actual scale used will be referenced on IPWEA Practice Note publications that have been produced for a number of asset groups.

AMP	Asset	Test Frequency	UOM	Quantity	Qty tested / day	Hours / year	Cost / year
Ballina Gateway Airport	▪ Security Fence	▪ 1 year	m	5,196	5,000	8.3	$499
	▪ Navigation Aids	▪ 3 years	each	95	25	10.1	$608
	▪ Parking Bay Stations	▪ 3 years	each	10	10	2.7	$160
	▪ Paths	▪ 5 years	sq.m	721	5,000	0.2	$14
	▪ K&G	▪ 5 years	m	2,255	5,000	0.7	$43
Building	▪ Critical Buildings	▪ 3 years	each	15	1	40.0	$2,400
	▪ Non critical Buildings	▪ 5 years	each	144	3	76.8	$4,608
	▪ Structures	▪ 5 years	each	137	10	21.9	$1,315
Public Recreational Areas	▪ Playground Equipment[2]	▪ 2 years	each	250	50	20.0	$1,200
	▪ Sporting Equipment[2]	▪ 3 years	each	100	50	5.3	$320
	▪ Footpaths[2]	▪ 5 years	sq.m	5,000	1,000	8.0	$480
	▪ Furniture[2]	▪ 5 years	each	1,000	50	32.0	$1,920
Road & Transport	▪ Footpath / Shared Path	▪ 3 years	sq.m	185,139	5,000	98.7	$5,924
	▪ K&G	▪ 5 year	m	336,599	5,000	107.7	$6,463
	▪ Bridges (critical)	▪ 2 years	each	6	2	12.0	$720
	▪ Bridges (other)	▪ 5 years	each	39	5	12.5	$749
	▪ Car parks	▪ 5 years	sq.m	44,450	20,000	3.6	$213
	▪ Roundabout	▪ 5 years	each	28	10	4.5	$269
	▪ Unsealed Roads	▪ 2 years	sq.m	564,293	200,000	15.0	$903
Stormwater	▪ Rural Culverts	▪ 5 years	each	1,386	15	147.8	$8,870
	▪ Urban Reticulation[1]	▪ 5 years	m	201,717	500	128.0	$20,480
	▪ Open Stormwater Channel[2]	▪ 5 years	m	10,000	500	32.0	$1,920
	▪ Stormwater Outlets	▪ 5 years	each	78	20	6.2	$374
	▪ Pollution Control Devices	▪ 1-2 years	each	281	20	112.4	$6,744
Swimming Pools	▪ Pools	▪ 3 years	each	6	5	3.2	$192
	▪ Footpath	▪ 5 years	sq.m	443	1,000	0.7	$43
	▪ Furniture	▪ 5 years	each	97	100	1.6	$93
	▪ Fence	▪ 5 years	m	563	1,000	0.9	$54
Waste	▪ Footpath	▪ 5 years	sq.m	224	5,000	0.1	$4
	▪ K&G	▪ 5 years	m	654	5,000	0.2	$13
	▪ Roundabout	▪ 5 years	each	1	10	0.2	$10
	▪ Fence	▪ 5 years	m	1,599	1,500	1.7	$102
Water & Sewer	▪ Sewer Pipes[1]	▪ 5 years	m	240,375	500	160.0	$25,600
	▪ Sewer Pump Station (critical)	▪ 3 years	each	5	2	6.7	$400
	▪ Sewer Pump Station	▪ 5 years	each	115	5	36.8	$2,208
	▪ Sewer Treatment	▪ 5 years	each	4	0.125	51.2	$3,072
	▪ Water Pump / Bores	▪ 5 years	each	5	4	2.0	$120
	▪ Water Treatment	▪ 5 years	each	1	0.5	3.2	$192
	▪ Water Reservoirs	▪ 5 years	each	11	1.5	11.7	$704

Table 1.8.2.2.1 Proposed Visual Condition Survey Frequency

[1]Sewer & Stormwater Pipes condition assessment will be determined from CC TV pipe video. A statistically viable percentage by location and pipe material would be recorded in order to obtain a series of deterioration curves.

[2]Estimated quantity

The cost per hour for visual inspections has been based on $60 per hour

- 1 employee - $45 per hour
- 1 vehicle - $15 per hour

Specialist Condition Surveys / Assessments

Road Pavement testing

Pavement condition testing would be conducted by specialist personnel on sealed road networks. There are 3 main types of testing techniques, profilometry, video assessment & structural testing.

Profilometry

Profilometry is done via all-in-one vehicles that collects roughness and rutting to high accuracy. The same vehicle has number of digital video camera that collect a record of the road network. The footage is used to determine percentage cracking, potholes, shoving and other surface defects.

Structural tests

Determines remaining life in the pavement structure. These (non destructive) tests are time consuming and expensive but provide very useful information on 'actual' pavement structural strength.

The preferred pavement testing program by road class is shown below.

Type of Test	Network	NAASRA	% req'd	Frequency	Cost / year
Video (surface defects) & Laser Roughness	Local (Urban)	6	100	3 years	$1,143
	Local (Urban)	7,8	100	5 years	$10,696
	Local (Urban)	9	100	5 years	$21
	Local (Rural)	2	100	3 years	$1,945
	Local (Rural)	3,4	100	3 years	$20,770
	Regional	1	100	3 years	$2,404
	Regional	6	100	3 years	$738
	Airport	-	100	3 years	$186
Falling Weight Deflection	Local (Urban)	6	5 – 10	3 years	$213
	Local (Urban)	7,8	5 – 10	5 years	$1,997
	Local (Urban)	9	5 – 10	5 years	$4
	Local (Rural)	2	5 – 10	3 years	$363
	Local (Rural)	3,4	5 – 10	3 years	$3,877
	Regional	1	5 – 10	3 years	$449
	Regional	6	5 – 10	3 years	$138
	Airport	-	100	3 years	$6,962
					$51,906

Table 1.8.2.2.2 Proposed Pavement Condition Survey Frequency & Estimate

There will be benefit it providing profilometry and video assessment for the entire sealed pavement network, this could be done over a single year or a number of years depending on budget.

Structural testing need only be done on selected sites. It would of benefit to identify a number of pavement types by material, traffic and age and test a selection of these to determine a series of structural profiles that could be applied to the entire sub-networks.

Bridge deflection testing

Deflection testing could be performed on bridges for 2 purposes

- To determine safe load limit
- To determine remaining life

Deflection testing should be applied to all of Councils remaining timber bridges and should be mandatory for all bridges at 30 year of age.

This would involve the use of a specialist Bridge assessment contractor.

These tests would be complimented with (more frequent – 3 yearly) visual inspections that would be performed by suitable Council staff.

Assessments to be performed by qualified technicians

- Sewer Pump Stations (qualified electrician, pump mechanic)
- Air conditioning structure –buildings (qualified refrigeration mechanic)
- Lift –buildings (qualified mechanical engineer)
- Filtration Equipment –Pools (qualified technician)

Age based Assessments

Some assets will require to be assessed on an age based criteria. These assets are typically buried and not accessible via camera, they include

- Waste centre landfill buried assets
- Irrigation Systems
- Water reticulation pipes

These age based assessments can be refined by monitoring actual age of asset failure of assets over time and from this, update design lives by asset type, material and location.

1.8.3 Risk Assessments

The level of risk assessment within the risk management process will be a function of the consequences of failure, so the effort put into assessing and managing risk will be proportional to the risk exposure from the asset.

IIMM 2011 defines 3 types of risk.

Corporate Risk focus on risks affecting Council as a whole and guides the Risk Policy, for example

- Continuity of business risks
- Political & legal risks
- OH&S risks
- Cash-flow risks
- Risks relating to strategic direction options

Operational Risk focus on project specific or process specific needs. It may be based on legislative or regulatory requirements, for example,

- Specific OH&S risk assessments
- Project risk analysis
- Slope stability analysis

Activity Risk focus on risks associated with the management of an activity and the enabling infrastructure. Activity Risk considers risks identified at both the Corporate and Operational level. Risk at the activity level is the principal focus of the Asset Management process.

The risk management process for Activity Risk is summarised below.

- Critical assets & critical failure modes are identified. A critical asset will have a high consequence of failure but not necessarily a high probability of failure. The critical failure mode is the one with the highest consequences.

- Acceptable risk for the Activity is defined.

- Critical assets will be assessed individually and less critical assets will be assessed on a group level.

- Risk evaluation will involve the consequence and probability of an event occurring. At the core level, risk can be assessed using the risk-rating matrix (refer page 24) or at an advanced level a quantitative cost benefit analysis in risk dollars can be used (refer page 25)

- Controls are identified to reduce risk to the defined acceptable level.

Assets are assessed using Triple Bottom Line (TBL) accounting aspects. (Social, Environmental and Economic)

Table 1.8.3.1 shown overleaf is used to calculate a Risk Score 'R' by multiplying each risk category by its respective weighting.

$$R = \sum_{i=A}^{F} \left(X_i \times W_i \right)$$

$R = \text{Risk Score}$

$X_i = \text{Risk Category 'i' impact score}$

$W_i = \text{Weighting 'i'}$

- Minimum Score = 23
- Maximum Score = 115

This score can be converted to a 1 to 5 scale using the conversion expression

$$RCS = \left[4 \times \frac{(R - 23)}{92} \right] + 1$$

$RCS = \text{Risk Consequence Score}$

$1 = \text{Low Consequence}$

$5 = \text{High Consequence}$

Critical assets have been defined as having a consequence score greater than 3.0 or a 'C' impact in at least one of the six Risk Categories as defined in table 1.8.3.1.

These assets have a highlighted RCS score in bold-red in table 1.8.3.2 on page 40.

Consequence			Impact (Risk)				
TBL Aspect	Risk Category	Weight	1 **Insignificant (I)** (< $2,000)	2 **Low (L)** ($2,000 - $20,000)	3 **Severe (S)** ($20,000 - $100,000)	4 **Major (M)** ($100,000 - $2 M)	5 **Catastrophic (C)** (> $2 M)
Social	**A: Health & Safety**	5	Negligible Injury	Minor injury. Medical attention required	Serious injury. Hospitalisation required	Loss of life	Multiple loss of life or Shire wide epidemic.
	B: Third Party Losses	3	Minimal liability for consequential loss (< $2,000)	Liability for consequential losses ($2,000 - $20,000)	Liability for consequential losses ($20,000 - $100,000)	Liability for consequential losses ($100,000 - $2 M)	Liability for consequential losses (> $2 M)
	C: Loss of Service – Extent / Duration	4	Small number of customers experiencing minor service disruptions	Significant service disruption affecting small number of customers	Significant localised disruption over extended period	Major localised disruption over extended period	Major, Shire wide, long term disruption
	D: Corporate Image	3	Events only of interest to individuals. Nil community concern	Minor community interest. Local media report	Public community discussion. Broad adverse media coverage	Loss of confidence in Council. National publicity. Public agitation for action.	Public investigation, international coverage. Management changes demanded
Environmental	**E: Environment** (e.g. damage to aquatic receiving waters, atmospheric pollution or land contamination)	5	Negligible impact. Reversible within 1 week	Material damage of local importance. Prosecution possible. Impact fully reversible within 3 months	Serious damage of local importance. Prosecution probable. Impact fully reversible within 12 months	Serious damage of national importance. Prosecution expected. Impact fully reversible within 5 years	Serious damage of national importance. Prosecution expected. Long term study. Impact not fully reversible.
Economic	**F: Business Costs (total recovery)** (e.g. repair costs, fines, litigation costs, loss of income)	3	Total direct revenue loss & cost to restore service (< $2,000)	Total direct revenue loss & cost to restore service ($2,000 - $20,000)	Total direct revenue loss & cost to restore service ($20,000 - $100,000)	Total direct revenue loss & cost to restore service ($100,000 - $2 M)	Total direct revenue loss & cost to restore service (> $2 M)

Table 1.8.3.1 Risk Consequence Rating System

Asset Group	Asset	RISK CONSEQUENCE (@ asset failure) A	B	C	D	E	F	RCS	Controls	Level of Evaluation	Remarks
Ballina Gateway Airport	▪ Runway Pavement	C	M	M	M	L	C	**3.91**	Inspections, maintenance & renewal programs, pavement testing & analysis	Quantitative – Cost Benefit	Single site
	▪ Taxiway Pavement	L	M	S	S	L	M	2.83	Inspections, maintenance & renewal programs, pavement testing & analysis	Quantitative – Cost Benefit	Single site
	▪ Runway Lighting	C	S	S	S	I	M	**3.13**	Inspections, maintenance & renewal programs, backup power supply	Quantitative – Cost Benefit	
	▪ Taxiway Lighting	L	S	L	L	I	S	2.04	Inspections, maintenance & renewal programs, backup power supply	Quantitative – Cost Benefit	
	▪ GA Area	L	I	L	L	I	M	1.91	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	Single site
	▪ Car-parks	L	L	S	L	I	M	2.22	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Navigation Aids	M	S	S	S	I	S	2.78	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	
	▪ Parking Bay Stations	I	I	L	L	I	L	1.43	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Paths	L	I	L	L	I	L	1.65	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Kerb & Gutter	L	I	I	I	I	L	1.35	Inspections, maintenance & renewal programs	Risk Rating Matrix	
Building	▪ Buildings (major)	M	S	M	S	I	M	**3.09**	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	Analysed individually
	▪ Buildings	S	L	L	L	I	M	2.26	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	
	▪ Structures	L	I	I	L	I	L	1.48	Inspections, maintenance & renewal programs	Risk Rating Matrix	
Public Recreational Areas	▪ Playground Equipment	S	L	L	S	I	I	2.00	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	
	▪ Sporting Equipment	S	L	L	L	I	L	2.00	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	
	▪ Retaining Walls	L	I	I	L	I	S	1.61	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Footpaths	L	I	L	L	I	S	1.78	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Furniture	I	I	L	I	I	I	1.17	Inspections, maintenance & renewal programs	Risk Rating Matrix	
Road & Transport	▪ Road Pavements (major)	C	L	M	S	L	M	**3.39**	Inspections, maintenance & renewal programs, pavement testing & analysis	Quantitative – Cost Benefit	Analysed individually
	▪ Road Pavements	M	L	S	L	L	M	2.87	Inspections, maintenance & renewal programs, pavement testing & analysis	Quantitative – Cost Benefit	
	▪ Footpath / Shared Path (major)	L	I	S	S	I	S	2.09	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	
	▪ Footpath / Shared Path	L	I	L	L	I	L	1.65	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ K&G	L	I	I	L	L	L	1.70	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Bridges (major)	M	L	M	S	L	C	**3.30**	Inspections, maintenance & renewal programs, structural testing	Quantitative – Cost Benefit	Analysed individually
	▪ Bridges	M	L	S	L	L	M	2.87	Inspections, maintenance & renewal programs, structural testing	Quantitative – Cost Benefit	
	▪ Roundabouts	L	I	I	L	I	M	1.74	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Street Lighting	S	I	L	L	I	L	1.87	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Car parks	L	I	L	L	L	S	2.00	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Guardrail / Barrier	M	I	I	L	I	L	1.91	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	
	▪ Signage	I	I	L	I	I	I	1.17	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Unsealed Roads	M	L	L	L	L	S	2.57	Inspections, maintenance & renewal programs	Risk Rating Matrix	
Stormwater	▪ Rural Culverts (major)	L	I	S	L	S	S	2.39	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	
	▪ Rural Culverts	I	I	L	L	L	L	1.65	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Urban Reticulation	I	I	S	L	L	L	1.83	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Open Channel (major)	S	S	S	L	M	M	**3.22**	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	Analysed individually
	▪ Open Channel	L	I	L	L	L	L	1.87	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Detention Basins	S	I	S	L	S	M	2.74	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	
	▪ Stormwater Outlets	I	I	L	L	L	L	1.65	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Pollution Control Devices	I	L	L	L	S	I	1.87	Inspections, maintenance & renewal programs	Risk Rating Matrix	
Swimming Pools	▪ Pools	M	L	S	S	I	M	2.78	Inspections, maintenance & renewal programs, operations review	Quantitative – Cost Benefit	
	▪ Filtration System	S	L	S	S	L	S	2.65	Inspections, maintenance & renewal programs, operations review	Quantitative – Cost Benefit	
	▪ Footpath	L	I	L	L	I	L	1.65	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Furniture	I	I	L	I	I	I	1.17	Inspections, maintenance & renewal programs	Risk Rating Matrix	
Waste	▪ Leachate processing Systems	L	I	L	M	M	M	2.83	Inspections, maintenance & renewal programs, operations review, legislation	Quantitative – Cost Benefit	
	▪ Footpath	L	I	I	L	I	L	1.48	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ K&G	L	I	I	I	I	L	1.35	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Roundabout	I	I	I	I	I	M	1.39	Inspections, maintenance & renewal programs	Risk Rating Matrix	
	▪ Fence	I	I	I	L	I	S	1.39	Inspections, maintenance & renewal programs	Risk Rating Matrix	
Water & Sewer	▪ Sewer Pipes	I	L	S	S	L	L	2.09	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	
	▪ Sewer Pump Station (major)	L	L	M	S	S	C	**3.09**	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	Analysed individually
	▪ Sewer Pump Station	L	I	L	L	L	M	2.13	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	
	▪ Sewer Treatment	S	L	M	M	M	C	**3.65**	Inspections, maintenance & renewal programs, operations review	Quantitative – Cost Benefit	Analysed individually
	▪ Water Reticulation	I	M	S	M	L	L	2.48	maintenance & renewal programs	Quantitative – Cost Benefit	
	▪ Water Pump / Bores	I	I	L	L	L	S	1.78	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	
	▪ Water Treatment	C	M	M	M	S	M	**4.00**	Inspections, maintenance & renewal programs, operations review	Quantitative – Cost Benefit	Single site
	▪ Water Reservoirs (major)	C	L	S	S	M	M	**3.65**	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	Analysed individually
	▪ Water Reservoirs	M	L	L	L	S	M	2.91	Inspections, maintenance & renewal programs	Quantitative – Cost Benefit	

Table 1.8.3.2 Level of Risk Analysis by Asset Group

1.9 PROCESS IMPROVEMENT TASKS

TASK NAME	Item	Action	Responsibility	Target Date	Estimate	Status	Priority
GENERAL							
ALL	Asset Management Strategy	Update and adopt a new Asset Management Strategy.	Civil Services	27-Jan-12	20 days	100%	High
	Asset Information Distribution Policy	Adopt Asset Information Distribution Policy	Council	30-Jan-12	1 day	100%	High
		Information session for civil staff on policy	Civil Services	31-Jan-12	1 day	90%	High
Authority Asset Management Software (AM)	Setup & Implementation	Launch - Team Briefing	Civil Services / IT / Civica	18-Jun-13	1 day	20%	High
		Overview Workshop, cover Work Orders & CVR	Civil Services / IT / Civica	12-Jul-13	5 days	0%	High
		Asset Structure & Data Mapping	Civil Services / IT / Civica	09-Aug-13	20 days	0%	High
		Establish Permissions, Roles and Users	Civil Services / IT / Civica	13-Aug-13	2 days	0%	High
		Establish Asset Hierarchy within Authority / AIM	Civil Services / IT / Civica	15-Aug-13	2 days	0%	High
		Prepare guideline for asset creation, numbering & valuation within AM	Civil Services / IT / Civica	16-Aug-13	5 days	0%	High
		Setup AIM Parameters	Civil Services / IT / Civica	23-Aug-13	5 days	0%	High
		Setup Work Order Parameters	Civil Services / IT / Civica	30-Aug-13	5 days	0%	High
		Establish task & Inspection codes	Civil Services / IT / Civica	06-Sep-13	5 days	0%	High
		Check data sets (excel)	Civil Services / IT / Civica	20-Sep-13	10 days	0%	High
		Prepare data sets (with Authority personnel & BSC IT staff) for transfer	Civil Services / IT / Civica	04-Oct-13	10 days	0%	High
		Asset & Attribute Bulk Loading	Civil Services / IT / Civica	01-Nov-13	20 days	0%	High
		Training: AM Enquiry & Maintenance	Civil Services / IT / Civica	05-Nov-13	2 days	0%	High
		Training: AM Work Orders	Civil Services / IT / Civica	12-Nov-13	2 days	0%	High
		Works Management Setup, inspection scheduling	Civil Services / IT / Civica	06-Dec-13	10 days	0%	High
		Work Order Setup, inspection Scheduling	Civil Services / IT / Civica	13-Dec-13	10 days	0%	High
		Works Maintenance Scheduling (assembly)	Civil Services / IT / Civica	27-Dec-13	10 days	0%	High
		Formally define Authority system & backup -system manager roles	Civil Services / IT / Civica	03-Jan-14	5 days	0%	High
		Review	Civil Services / IT / Civica	28-Feb-14	10 days	0%	High
	Maintain	Maintain Database regularly once established	Civil Services	02-Feb-15	241 days	0%	High
ASSET CONDITION DATA & RISK MANAGEMENT							
ALL	Risk definition	Define expected Asset related Risks and associated Control Measures.	Civil Services	29-Jun-12	20 days	80%	High
		Set up prioritisation procedure for Capital Works	Civil Services	13-Jul-12	10 days	75%	High
		Set up prioritisation procedure for Maintenance Works.	Civil Services	10-Aug-12	10 days	75%	High
		Incorporate results into combined Condition / Risk Assessment template.	Civil Services	17-Aug-12	5 days	25%	High
	Asset Management Plans	Update Risk Chapter within all plans using the above and the NAMS Plus Template.	Civil Services	22-Mar-13	100 days	75%	High
	New Assets details to be sent to Risk Manager once on-line.	New Assets sent as Required		01-Aug-13	239 days		High
PUBLIC RECREATIONAL SERVICES	Data Collection – Physical Asset Data	Define Critical Assets	Civil Services	03-Jan-12	2 days	100%	High
	Data Collection – Condition / Risk Data	Undertake in house 1 to 5 Condition / Risk survey on Open Spaces Assets using SPM software and tablet PC	Civil Services	29-Mar-13	20 days	80%	High
AIRPORT	Data Collection – Physical Asset Data	Building Data will need to be updated after the recent Terminal Building works. They can be done via inspection of constructions plans & on site verification	Civil Services	05-Aug-13	5 days	20%	High
		Will need to redefine building sub-components from current to more practical listing. (refer to Building Goals below)	Civil Services	05-Aug-13	5 days	20%	High
	Data Collection – Condition / Risk Data	Undertake in house 1 to 5 Condition / Risk survey on Airport Assets using SPM software and tablet PC	Civil Services	05-Aug-13	5 days	20%	High
WASTE	Data Collection – Physical Asset Data	Define Critical Assets	Civil Services	22-Apr-13	1 day	100%	High
	Data Collection – Condition / Risk Data	Undertake in house 1 to 5 Condition / Risk survey on Waste Assets using SPM software and tablet PC	Civil Services	05-Aug-13	2 days	10%	High
SWIMMING POOLS	Data Collection – Physical Asset Data	Define Critical Assets	Civil Services	25-Apr-13	1 day	100%	High
	Data Collection – Condition / Risk Data	Undertake in house 1 to 5 Condition / Risk survey on Pool Assets using SPM software and tablet PC	Civil Services	29-Apr-13	2 days	90%	High
BUILDING	Data Collection – Physical Asset Data	Define Critical Assets	Civil Services	29-Apr-13	2 days	100%	High
	Data Collection – Condition / Risk Data	Undertake in house 1 to 5 Condition / Risk survey on Building Assets using SPM software and tablet PC	Civil Services	22-Jul-13	60 days	30%	High
ROAD & TRANSPORT	Critical Assets	Define Critical Assets	Civil Services	04-Dec-12	2 days	100%	High
	Data Collection – Condition / Risk Data for K&G, Carparks, Unsealed Roads & Pathways	Prepare "Generic" Physical Data Collection Condition / Risk Form in Excel.	Civil Services	03-Oct-13	3 days	25%	High
	Data Collection – Condition / Risk Data for Bridges.	Undertake in house 1 to 5 Condition / Risk survey on Bridge Assets using SPM software and tablet PC	Civil Services	24-Oct-13	15 days	50%	High
		Selected bridges (especially those that carry B-doubles) and / or have existing weight restrictions, to undergo deflection testing	Civil Services / NATA accredited assessor	31-Oct-13	5 days	100%	High
	Data Collection – Condition / Risk Data for Sealed Pavements.	Prepare tender document for specialised Pavement Condition Data Collection to appropriate Austroad, NSW RTA & NATA Standards	Civil Services	14-Dec-12	10 days	100%	High
		Condition assessment of Pavements on 3 to 5 year frequency	Civil Services / ARRB	29-Mar-13	20 days	100%	High
		Laser profilometry	Civil Services / ARRB	15-Mar-13	10 days	100%	High
		Digital Video	Civil Services / ARRB	29-Mar-13	10 days	100%	High
WATER & SEWER	Critical Assets	Define Critical Assets	Civil Services	06-Nov-12	2 days	100%	High
	Data Collection – Condition / Risk Data	Undertake in house 1 to 5 Condition / Risk survey on W&S Assets using SPM software and tablet PC for above ground assets	Civil Services	27-Sep-13	65 days	25%	High
		Reticulation - Tender for Risk Based Analysis	Civil Services	26-Jul-13	20 days	50%	High
		Sewer Pump Stations	Civil Services	16-Aug-13	15 days	20%	High
		Sewer treatment Works	Civil Services	30-Aug-13	10 days	20%	High

TASK NAME	Item	Action	Responsibility	Target Date	Estimate	Status	Priority
		Water Storage	Civil Services	06-Sep-13	5 days	20%	High
		Water Treatment	Civil Services	13-Sep-13	5 days	20%	High
		Water Pumping Stations / Bores	Civil Services	27-Sep-13	10 days	20%	High
	Camera selected Sewer Pipes	Develop sewer pipe condition rating hierarchy and apply to video. Develop renewal program.	Civil Services	11-Oct-13	10 days	50%	High
	Water Reticulation analysis	Group water reticulation pipes by geographic area and soil type. Develop renewal program in consultation with Water staff.	Civil Services	25-Oct-13	10 days	50%	High
STORMWATER	Data Collection – Condition / Risk Data for Rural Culverts.	Prepare "Generic" Physical Data Collection Condition / Risk Form in Excel.	Civil Services	29-Oct-13	2 days	95%	High
		Undertake in house 1 to 5 Condition / Risk survey on Culverts using tablet PC	Civil Services	10-Dec-13	30 days	0%	High
	Reticulation Pipes, pits & Inter-Allotment Drainage,	Refine age based analysis on these Assets	Civil Services	24-Dec-13	10 days	0%	High
	Stormwater Outlets, Stormwater Protection Retention Systems	Meet with Works Engineer, Construction Engineer and Works Foreman to obtain list of sites from their recollection.	Civil Services	25-Dec-13	1 day	20%	High
		Locate any historical plans	Civil Services	30-Dec-13	3 days	10%	High
		Verify with site visit & use standard form	Civil Services	13-Jan-14	10 days	10%	High
ASSET DATA MAINTENANCE							
ALL	Asset Registers	Develop Work Procedure for Maintaining Asset Registers. This procedure should cover Authority, SPM, Reflect & Pavement Management System	Civil Services	14-Jun-13	5 days	100%	High
		Develop Work Procedure for Capitalising Works. Include use of Developers Asset Spreadsheet template	Civil Services	21-Jun-13	5 days	100%	High
		Develop Work Procedure for the review of Asset unit lives & unit costs. Define frequency of review.	Civil Services	28-Jun-13	5 days	80%	High
		Maintain Regularly	Civil Services	01-Apr-14	197 days	10%	High
REVALUATION PROCESS							
PLANT & VEHICLE	Asset Revaluations / Indexation	Complete (age based) Revaluations		27-Jun-14	265 days	10%	High
OTHER	Asset Revaluations / Indexation	Complete (condition based) Revaluations		11-Jul-14	285 days	10%	High
ALL	Asset Revaluations	Look at possibility of auditing Revaluations by External Source	Civil Services	01-Oct-13	5 days	0%	High
ASSET MANAGEMENT PLANS	ASSET MANAGEMENT PLANS						
PUBLIC RECREATIONAL SERVICES	Asset Management Plan	Define Components hierarchy	Civil Services	06-Jan-12	5 days	80%	High
		Liaise with Open Spaces Manager and Open Spaces staff throughout process.	Civil Services	11-Sep-12	50 days	80%	High
		Complete Open Spaces Asset Management Plan once data becomes available.	Civil Services	15-Aug-13	20 days	90%	High
ALL	Asset Management Plans	Review at 3 yearly Intervals	Civil Services	07-Jul-14	266 days	10%	High
FUTURE DEMAND IMPACTS							
WATER & SEWER	Growth	Incorporate New Sewer DSP into Asset Plans	Civil Services	15-Feb-13	5 days	85%	High
PUBLIC RECREATIONAL SERVICES	Growth	Incorporate New Open Spaces Strategy into Asset Plans	Civil Services	22-Feb-13	5 days	85%	High
ROAD & TRANSPORT	Growth	Incorporate New Roads Strategy into Asset Plans	Civil Services	01-Mar-13	5 days	85%	High
ASSET IDENTIFICATION & REPORTING							
PUBLIC RECREATIONAL SERVICES	GIS Implementation for Public Recreational Services	Define Components, collate information, setup data trees within SPM software.	Civil Services	12-Apr-13	10 days	90%	High
		After data collection is complete, set up Public Recreational Services Layer in MapInfo (with assistance from GIS Officers)	Civil Services	30-Aug-13	20 days	30%	High
		Maintain Regularly	Civil Services	01-Jul-14	237 days	10%	High
AIRPORT	GIS Implementation for Airport	After data collection is complete, set up Airport Layer in MapInfo (with assistance from GIS Officers)	Civil Services	01-Nov-13	20 days	0%	High
		Maintain Regularly	Civil Services	01-Sep-14	240 days	10%	High
WASTE	GIS Implementation for Waste	Define Components, collate information, setup data trees within SPM software.	Civil Services	25-Sep-13	5 days	100%	High
		After data collection is complete, set up Waste Layer in MapInfo (with assistance from GIS Officers)	Civil Services	09-Oct-13	10 days	0%	High
		Maintain Regularly	Civil Services	01-Oct-14	238 days	10%	High
SWIMMING POOLS	GIS Implementation for Swimming Pools	Define Components, collate information, setup data trees within SPM software.	Civil Services	22-Nov-13	5 days	100%	High
		After data collection is complete, set up Swimming Pools Layer in MapInfo (with assistance from GIS Officers)	Civil Services	06-Dec-13	10 days	0%	High
		Maintain Regularly	Civil Services	05-Jan-15	241 days	10%	High
BUILDING	GIS Implementation for Buildings	Define Components, collate information, setup data trees within SPM software.	Civil Services	14-May-13	10 days	100%	High
		After data collection is complete, set up Building Layer in MapInfo (with assistance from GIS Officers)	Civil Services	19-Jul-13	20 days	25%	High
		Maintain Regularly		01-Jul-14	239 days	10%	High
ROAD & TRANSPORT	GIS Implementation for Road & Transport	After data collection is complete, liaise with IT, GIS Officers to add new data to existing roading MapInfo Layers & to let MapInfo 'speak' with AM Systems	Civil Services	06-Sep-13	20 days	0%	High
		maintain Regularly	Civil Services	01-Sep-14	240 days	10%	High
WATER & SEWER	GIS Implementation for Water & Sewer	Define Components, collate information, setup data trees within SPM software.	Civil Services	25-Oct-13	10 days	100%	High
		After data collection is complete, set up Water & sewer Layer in MapInfo (with assistance from GIS Officers)	Civil Services	08-Nov-13	10 days	50%	High
		Maintain Regularly	Civil Services	03-Nov-14	241 days	10%	High
STORMWATER	GIS Implementation for Water & Sewer	After data collection is complete, liaise with IT, GIS Officers to add new data to existing roading MapInfo Layers & to let MapInfo 'speak' with AM Systems	Civil Services	02-Feb-15	275 days	10%	High
		maintain Regularly	Civil Services			0%	High
LIFECYCLE COSTS & INVESTMENT DECISIONS							
AIRPORT	Asset Unit Rates	Review Component Unit Rates. Compare with Industry, Other Councils & IPWEA Practice Notes	Civil Services	08-Nov-13	5 days	25%	High
	Asset Design Lives / Remaining Lives	Review asset design lives (in consultation with Airport Manager)	Civil Services	15-Nov-13	5 days	25%	High
	Levels of Service	Undertake a review of the level of service and redefine key performance indicators	Civil Services	22-Nov-13	5 days	20%	High

TASK NAME	Item	Action	Responsibility	Target Date	Estimate	Status	Priority
	Analysis (on relevant assets)	Lifecycle analysis	Civil Services	25-Nov-13	1 day	20%	High
		Budget analysis	Civil Services	26-Nov-13	1 day	0%	High
		Works scenarios	Civil Services	27-Nov-13	1 day	0%	High
		Prioritisation	Civil Services	29-Nov-13	2 days	25%	High
BUILDING	Asset Design Lives	Review asset design lives / remaining lives (in consultation with Built Assets Coordinator & Executive Engineer)	Civil Services	26-Jul-13	5 days	90%	High
	Levels of Service	Undertake a review of the level of service and redefine key performance indicators	Civil Services	02-Aug-13	5 days	50%	High
	Analysis (on relevant assets)	Lifecycle analysis	Civil Services	05-Aug-13	1 day	75%	High
		Budget analysis	Civil Services	06-Aug-13	1 day	50%	High
		Works scenarios	Civil Services	07-Aug-13	1 day	30%	High
		Prioritisation	Civil Services	09-Aug-13	2 days	50%	High
PLANT & VEHICLE	Asset Design Lives	Review asset design lives (in consultation with Exec Engineer & Fleet Co-ordinator)	Civil Services	09-Aug-13	5 days	100%	High
	Levels of Service	Undertake a review of the level of service and redefine key performance indicators	Civil Services	16-Aug-13	5 days	95%	High
	Unfunded Renewals	Develop program to incrementally complete unfunded renewals over appropriate time frame with available budgets.	Civil Services	23-Aug-13	5 days	75%	High
PUBLIC RECREATIONAL SERVICES	Asset Design Lives	Review asset design lives (in consultation with Open Spaces & Reserves Manager)	Civil Services	06-Sep-13	5 days	90%	High
	Levels of Service	Undertake a review of the level of service and define key performance indicators	Civil Services	13-Sep-13	5 days	95%	High
	Analysis (on relevant assets)	Lifecycle analysis	Civil Services	16-Sep-13	1 day	75%	High
		Budget analysis	Civil Services	17-Sep-13	1 day	75%	High
		Works scenarios	Civil Services	18-Sep-13	1 day	75%	High
		Prioritisation	Civil Services	20-Sep-13	2 days	75%	High
ROAD & TRANSPORT	Asset Design Lives	Review asset design lives / remaining lives (in consultation with Works Manager & Construction Engineer)	Civil Services	13-Sep-13	5 days	95%	High
	Levels of Service	Undertake a review of the level of service and redefine key performance indicators	Civil Services	20-Sep-13	5 days	70%	High
	Analysis (on relevant assets)	Lifecycle analysis	Civil Services	23-Sep-13	1 day	70%	High
		Budget analysis	Civil Services	24-Sep-13	1 day	70%	High
		Works scenarios	Civil Services	25-Sep-13	1 day	70%	High
		Prioritisation	Civil Services	27-Sep-13	2 days	70%	High
	Pavement Management System	Software purchase in conjunction with pavement condition assessment.	Civil Services	30-Sep-13	1 day	0%	High
		Define treatment and works effect matrices	Civil Services	14-Oct-13	10 days	75%	High
		Data integration from excel & access	Civil Services	28-Oct-13	10 days	0%	High
	Unfunded Renewals	Develop program to incrementally complete unfunded renewals over appropriate time frame with available budgets. Requires works priority & input from Works Manager, Construction Engineer.	Civil Services	04-Nov-13	5 days	50%	High
STORMWATER	Asset Design Lives	Review asset design lives / remaining lives (in consultation with Works Manager & Construction Engineer)	Civil Services	10-Feb-14	5 days	10%	High
	Levels of Service	Undertake a review of the level of service and redefine key performance indicators	Civil Services	17-Feb-14	5 days	10%	High
SWIMMING POOLS	Asset Design Lives	Review asset design lives / remaining lives (in consultation with Executive Engineer & Built Assets Co-ordinator)	Civil Services	06-Jun-14	5 days	10%	High
	Levels of Service	Undertake a review of the level of service and redefine key performance indicators	Civil Services	13-Jun-14	5 days	10%	High
	Analysis (on relevant assets)	Lifecycle analysis	Civil Services	16-Jun-14	1 day	10%	High
		Budget analysis	Civil Services	17-Jun-14	1 day	10%	High
		Works scenarios	Civil Services	18-Jun-14	1 day	10%	High
		Prioritisation	Civil Services	20-Jun-14	2 days	10%	High
WASTE	Asset Design Lives	Review asset design lives / remaining lives (in consultation with Water, Sewer & Waste Manager and Environmental Engineer)	Civil Services	08-Aug-14	5 days	10%	High
	Levels of Service	Undertake a review of the level of service and redefine key performance indicators	Civil Services	15-Aug-14	5 days	10%	High
	Analysis (on relevant assets)	Lifecycle analysis	Civil Services	18-Aug-14	1 day	10%	High
		Budget analysis	Civil Services	19-Aug-14	1 day	10%	High
		Works scenarios	Civil Services	20-Aug-14	1 day	10%	High
		Prioritisation	Civil Services	22-Aug-14	2 days	1%	High
WATER & SEWER	Asset Design Lives	Review asset design lives (in consultation with Water, Sewer & Waste Manager and W&S Engineers)	Civil Services	10-Oct-14	5 days	10%	High
	Levels of Service	Undertake a review of the level of service and redefine key performance indicators	Civil Services	24-Oct-14	10 days	10%	High
	Analysis (on relevant assets)	Lifecycle analysis	Civil Services	28-Oct-14	2 days	10%	High
		Budget analysis	Civil Services	30-Oct-14	2 days	10%	High
		Works scenarios	Civil Services	03-Nov-14	2 days	10%	High
		Prioritisation	Civil Services	07-Nov-14	4 days	10%	High
	Unfunded Renewals	Develop program to incrementally complete unfunded renewals over appropriate time frame with available budgets. Requires works priority & input from Water, Sewer & Waste Manager and W&S Engineers.	Civil Services	14-Nov-14	5 days	10%	High

Table 1.9.1 Process Improvement Tasks

Appendix : DEPRECIATION & CONSUMPTION

Infrastructure Depreciation & Consumption

Australian Accounting Standards AASB116 requirements for depreciation of infrastructure may be summarised as:

- The asset is recognised at the component level.
- The depreciable amount (cost or re-valued amount less residual value) of an asset is allocated on a systematic basis over its useful life.
- The depreciation method used is to reflect the pattern in which the asset's future economic benefits are expected to be consumed by the entity.

For infrastructure assets, future economic benefits arise from the entity's ability to provide services to its customers/community in the future (the asset's service potential). Future economic benefits should be measured in terms of meeting the entity's objectives in providing goods and services.

For example, for a local road, the entity's objectives in providing services may be to facilitate the movement of vehicular traffic.

In this case, the future economic benefits are the potential to convey vehicular traffic over the road. The future economic benefits may be measured by traffic volumes where available using past history and forecast trends or where no reliable data is available the time that the road is available to carry the traffic.

For many local roads, traffic volume is relatively static over their life.

The entity selects the depreciation method that best reflects the pattern of consumption of the future economic benefits embodied in the asset.

The pattern of consumption of future economic benefits may take various forms and hence require a different method of depreciation which includes but is not limited to:

- When consumption is constant over the useful life of the asset – straight line method
- When consumption is greater in the early years and less in the later years – declining balance method,
- When consumption increases as the asset approaches the end of its useful life – output/service basis method,
- When consumption varies with outputs/service – units of production method.

All depreciation methods need to be supported by sufficient audit evidence.

It is the judgement of an entity as to which method to use. Factors to consider in selecting a method of measuring consumption of infrastructure include:

- Compliance with Accounting Standards including AASB 108, AASB 116 and Urgent Issues Group Interpretation 1030 (UIG 1030 defines the characteristics of condition based and similar methods of depreciation that contravene the requirements of Accounting Standards),

- Availability of the entity's information to select a measure of consumption of the asset's future economic benefits,

- Availability of the entity's information to substantiate and justify the selected depreciation method,

- Consideration of materiality involving professional judgement about the margin of error that is acceptable in asset values and depreciation expense and the degree of precision required in estimating asset values and depreciation expense.

- Balancing the costs of obtaining more precise information against the benefits to be gained from that information.

AASB 116 Property, Plant and equipment also requires an annual review of an asset's useful life, residual value and depreciation method. The annual review of remaining and useful life will assist in eliminating the risk of assets being held at a fully depreciated value while still in service. This can occur for all depreciation methods.

Section 12 of the Australian Infrastructure Financial Management Guidelines give detailed guidance on accounting for infrastructure assets.

The rate determination process is a separate issue, even if a depreciation concept is included in the formula for determining rates. Rates are one part of the revenue steams required to provide services and operate, maintain and renew assets. Determining the revenue required and sources is best done from a long term financial plan supported by asset management plans.

In summary, the straight line method is the widely accepted method of depreciation for infrastructure assets in Australia and is appropriate for most councils' infrastructure assets.

Condition - Age Profiles

The condition - age curves defines the expected transition from condition state ‘i’ to condition state ‘j’ over its useful life. Using these condition profiles, the current condition will provide the expected remaining life of the asset.

It would be unlikely that the transition over condition 1 to condition 5 will exhibit a linear pattern, as in most cases the transitions will not encompass equal time periods. This can be seen on page 33, 'Visual Condition Surveys.'

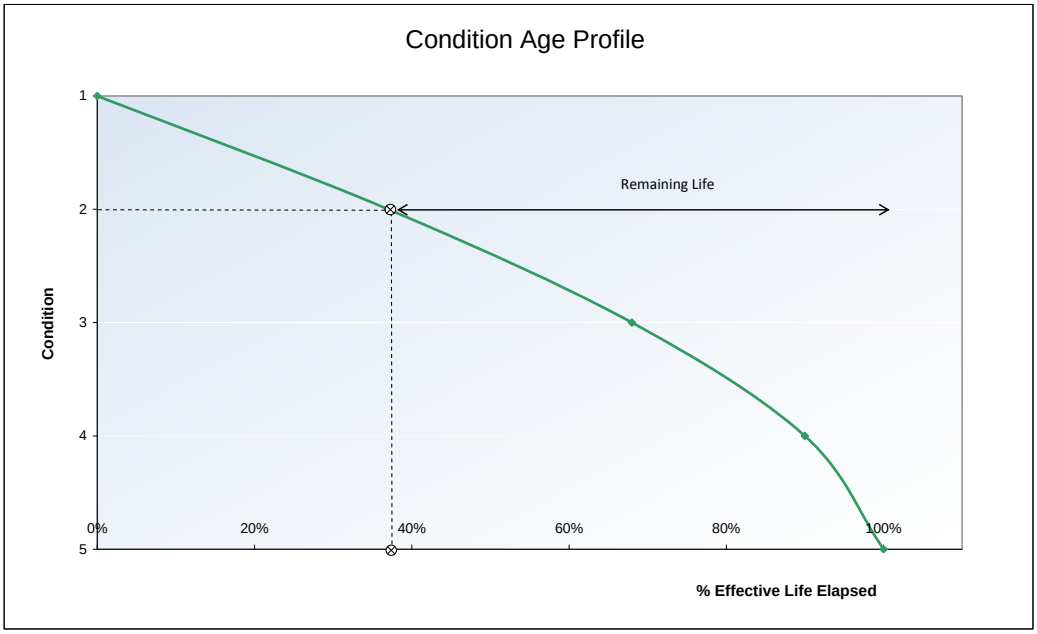

Figure A.1 Generic Condition – Age Profile

For example, it is expected that a road pavement will deteriorate much faster in its final 10 years of its useful life than in its initial 10 years of useful life. This can be seen in comparing the increasing dollars spent in maintaining old pavements against new pavements, hence it would be expected that the condition - age deterioration curves will be non linear.

However, as stated above on page 44, the appropriate consumption model should reflect the consumption of future economic benefit of the asset.

Hence, the roads ability to convey traffic and the traffic volumes themselves would be expected to be relatively uniform over the pavements useful life, hence a uniform consumption (straight line depreciation) model would be applicable.

It should also be noted that in the case of road pavements, and any other asset defined by components, the annual consumption would equal the sum of the annual consumption of its individual components, (pavement, wearing course, line-marking)

Annual Depreciation Expense = value at start of year - value at end of year

$$\$V = (\$RC - \$S) \times \left[1 - \left(\frac{RL}{DL}\right)^n\right] + \$S$$

Where

$\$V = Value$

$\$RC = \text{Replacement Cost}$

$\$S = \text{Salvage at Replacement}$

$DL = \text{Design Life (years)}$

$RL = \text{Remaining Life (years)}$

$n = \text{Consumption Model Exponent (if } n = 1 \rightarrow \text{Linear Model)}$

$\$ADE = \text{Annual Depreciation Expence}$

$$\$ADE = \left(\frac{\$RC - \$S}{DL^n}\right) \times \left[(RL+1)^n - (RL)^n\right]$$

For linear consumption model (n=1)

$$\$ADE = \left(\frac{\$RC - \$S}{DL}\right)$$

The figures below are graphical representations of the four most common asset consumption (depreciation) models. (20% Residual value is arbitrary)

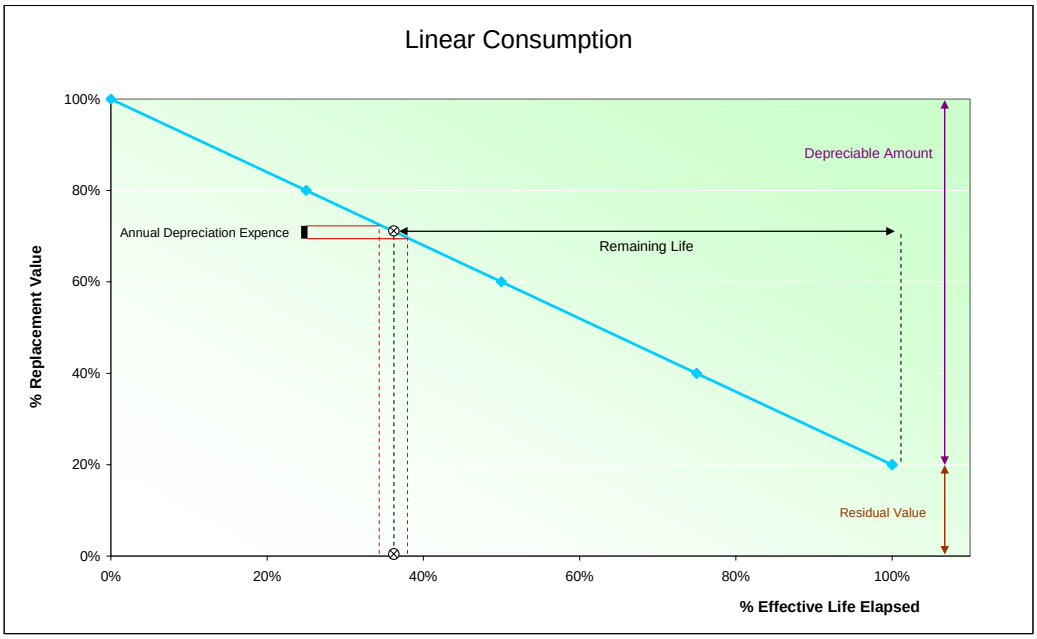

Figure A.2 Linear Consumption Model

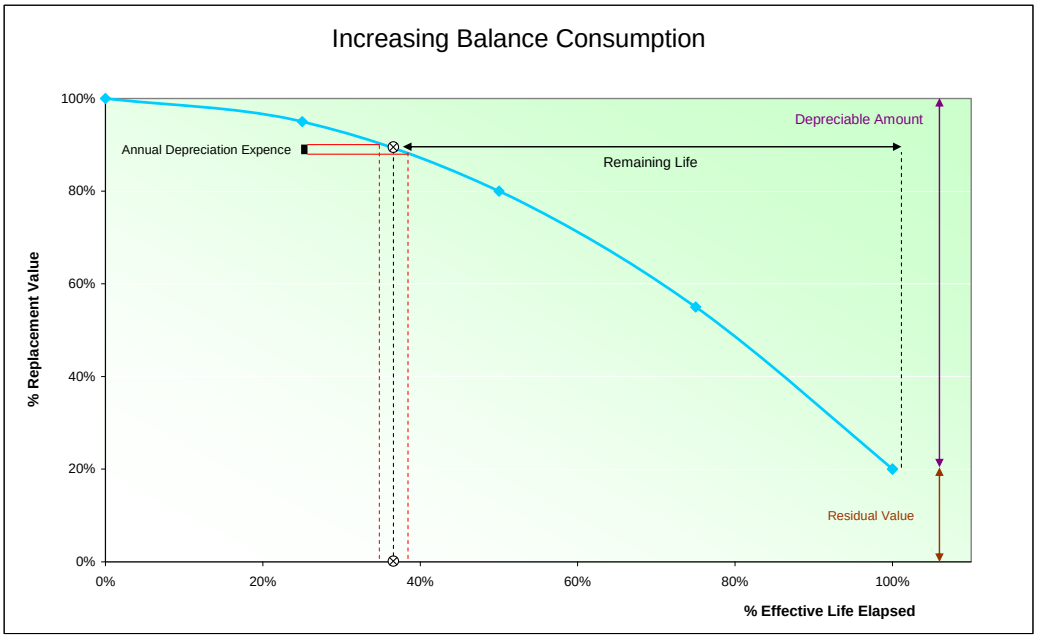

Figure A.3 Increasing Balance Consumption Model

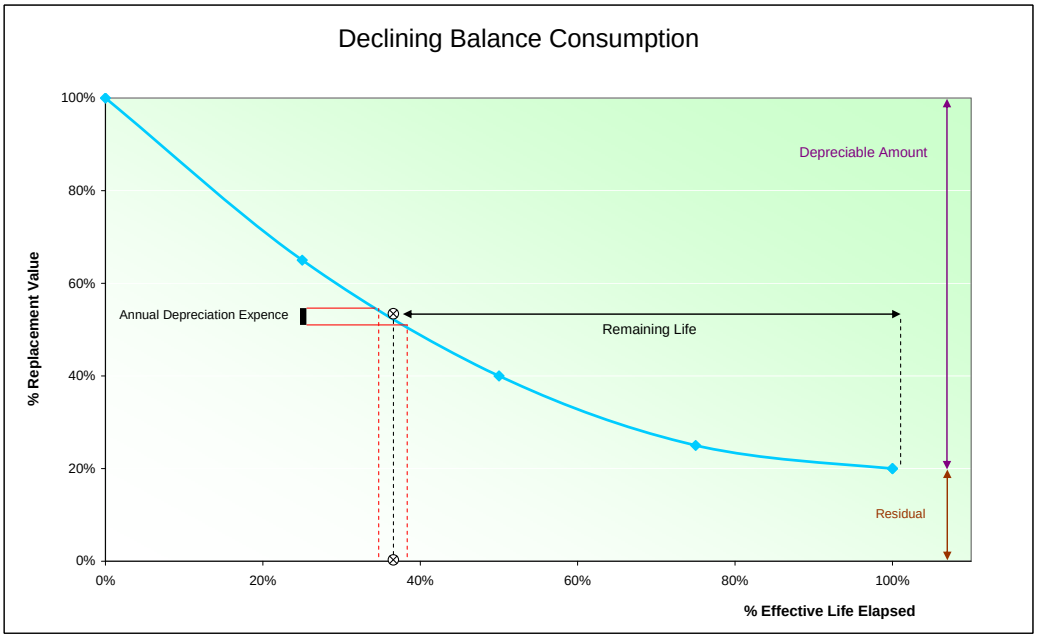

Figure A.4 Declining Balance Consumption Model

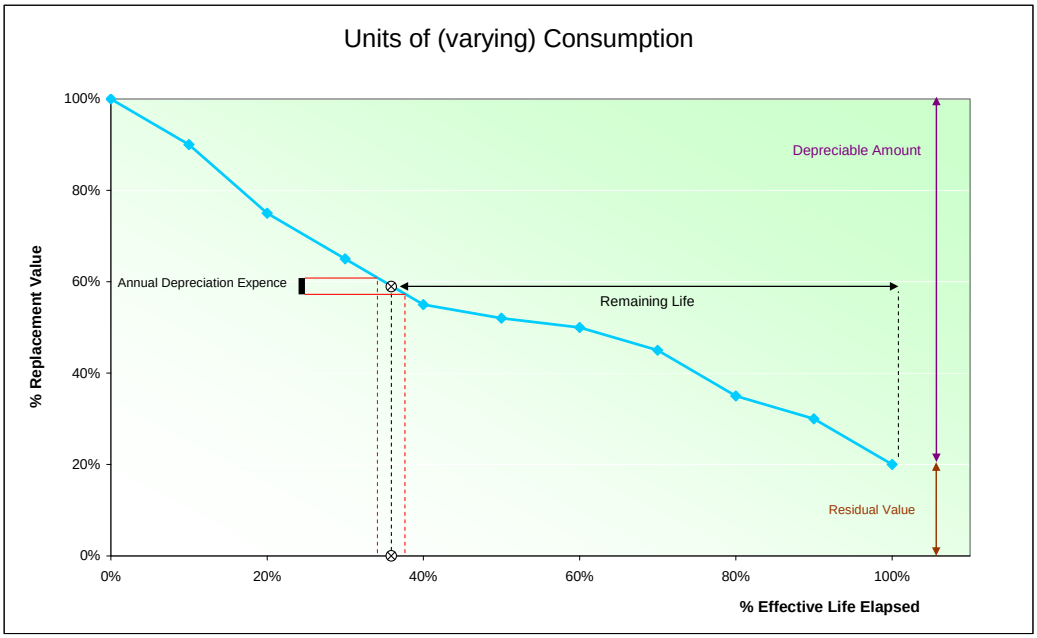

Figure A.5 Units of Production Consumption Model

The proposed depreciation assessment method for each asset sub-group is shown below.

Airport

Asset Category	Components	Residual Value	Consumption Model
Pavement (Runway)	Multiple	Yes	Linear
Pavement (Taxiway)	Multiple	Yes	Linear
Pavement (Internal Roads)	Multiple	Yes	Linear
Car-parks	Multiple	Yes	Linear
Fencing	Single	No	Linear
Navigational Aids	Single	No	Linear
Kerb & Gutter	Single	No	Linear
Footpath	Single	No	Linear
Buildings	Multiple	No	Linear

Buildings

Asset Category	Components	Residual Value	Consumption Model
Civic Buildings	Multiple	No	Linear
Commercial Buildings	Multiple	No	Linear
Operational Buildings	Multiple	No	Linear
Residential Buildings	Multiple	No	Linear
Sporting Buildings	Multiple	No	Linear

Road & Transport

Asset Category	Components	Residual Value	Consumption Model
Pavements	Multiple	Yes	Linear
Bridges	Multiple	No	Linear
Kerb & gutter	Single	No	Linear
Footpaths & Shared Paths	Single	No	Linear
Signage	Multiple	No	Linear
Roundabouts	Multiple	No	Linear
Street lights	Single	No	Linear
Car-parks	Multiple	Yes	Linear
Barriers and guard rail	Single	No	Linear

Plant & Vehicles

Asset Category	Components	Residual Value	Consumption Model
Heavy Vehicles	Single	Yes	Linear
Light Vehicles	Single	Yes	Linear
Small Plant	Single	Yes	Linear

Public Recreational Spaces

Asset Category	Components	Residual Value	Consumption Model
Park & Playground Assets	Multiple	No	Linear
Sporting Fields Assets	Multiple	No	Linear
Cemeteries Assets	Multiple	No	Linear
Reserves Assets	Multiple	No	Linear
Public Conveniences	Single	No	Linear

Stormwater

Asset Category	Components	Residual Value	Consumption Model
Rural Culverts	Multiple	Yes	Linear
Urban Reticulation	Multiple	No	Linear
Stormwater Outlets	Multiple	No	Linear
Stormwater Protection	Multiple	No	Linear
Pollution control devices	Single	No	Linear

Swimming Pools

Asset Category	Components	Residual Value	Consumption Model
Pools	Multiple	No	Linear
Amenity Buildings	Multiple	No	Linear
Plant Rooms	Multiple	No	Linear
Filtration Systems	Multiple	No	Linear
Miscellaneous / Other	Single	No	Linear

Waste

Asset Category	Components	Residual Value	Consumption Model
Buildings	Multiple	No	Linear
Landfill & Buried Assets	Multiple	No	Linear
Pavement	Multiple	Yes	Linear
Footpaths, K&G & Fences	Multiple	No	Linear

Water & Sewer

Asset Category	Components	Residual Value	Consumption Model
Sewer Pipes	Single	No	Linear
Sewer Pump Stations	Multiple	No	Linear
Sewer Treatment Plants	Multiple	No	Linear
Water Pipes	Single	No	Linear
Water Meters	Single	No	Linear
Water Pump Stations	Multiple	No	Linear
Water Storage	Multiple	No	Linear
Water Treatment Plant	Multiple	No	Linear