Lismore City Council

ROAD

ASSET MANAGEMENT PLAN

Version 1.0.4

May 2010

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3	5 May 2010	Roads Draft for PAG	CEL & ACEAM		
4	25 May 2010	Roads Draft for Council with changes	CEL & ACEAM		

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1. EXECUTIVE SUMMARY

WHAT COUNCIL PROVIDES

Council provides a Road network in partnership with the Roads and Traffic Authority NSW (RTA) to ensure that Lismore has an extensive transport network and is an accessible, safe and efficient city for motorists, cyclists and pedestrians.

This plan is concerned with roads and their components (sub assets or child assets) as follows:

- Roads
- Sealed Surface
- Road Pavement
- Kerb and Gutter
- Paved Footpaths
- Earthworks

Within the Lismore City Council jurisdiction area there is 18 km of State Roads for which Council has full financial responsibility for the outside trafficable improved pavement lanes only. There is 108 km of Regional Roads which are subject to block grant funding from the RTA. There is 1088 km of Local Roads, 78 km of Footpaths and 299 km of Kerb and Gutter which are the full financial responsibility of Council.

WHAT DOES IT COST?

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

- The life cycle cost being the average cost over the life cycle of the asset, and
- The total maintenance and capital renewal expenditure required to deliver existing service levels in the next 10 years covered by Council's long term financial plan.

The life cycle cost to provide the Road network service is estimated at $10.49 million per annum. Council's planned life cycle expenditure for year 1 of the asset management plan is $6.96 million which gives a lifecycle sustainability index of 0.66.

The total maintenance and capital renewal expenditure required to provide the Road network service in the next 10 years is estimated at $72.6 million. This is an average of $7.26 million per annum.

Council's maintenance and capital renewal expenditure for year 1 of the asset management plan of $6.88 million giving a 10 year sustainability index of 0.88.

LEVELS OF SERVICE

Council has improved its level of service for roads in recent years through increased funding, both internally and through successful grant applications. Consecutive roughness surveys (1999 and 2006) indicate that increased works as a result of this funding has resulted in a small improvement in the overall condition of the road network.

The community has an expectation that the level of service provided for roads will continue to be improved into the future. Council recognises that existing funding is sufficient to maintain the existing level of service but is concerned that in order to meet the expectations of the community further funding is needed. As such there is a "gap" between the level of service that Council is currently able to provide and community expectations.

PLANS FOR THE FUTURE

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

- Ensure the Road network is maintained at a safe and functional standard as set out in this asset management plan.
- Improve Roads, Cycleways and Footpaths.
- Efficient use of Councils Resources.

Modelling in this report assumes the road network is growing at a rate of 0.5 % per annum (based on historical growth statistics and the impact of growth of neighbouring coastal areas). While increased population will result in an increase in general rates income and developer charges collected it will also result in higher traffic volumes which will result in reduced pavement lives and the possibility of increased congestion.

LIFECYCLE MANAGEMENT

The model for management of sealed road pavements relates particularly to the maintenance and renewal stages of asset life. Early in the life of an asset, its condition deteriorates slowly and maintenance is generally not required. This is often referred to the "Do Nothing" phase of an asset's life. As the asset ages, it moves into what is known as the "Maintain" phase. Maintenance activities will need to be performed to minimise continued deterioration. As the asset moves towards the end of its life, activities are undertaken that restore the asset to a condition close to that of the original. This is referred to as the "Renewal" phase.

The importance of the time for intervention for renewal is paramount. If renewal activities are not undertaken in a timely manner, the condition of the asset will deteriorate rapidly to failure, and the cost of reconstruction may be many times that of renewal activities.

FINANCIAL SUMMARY

A ten year analysis of existing pavement conditions and costs has been undertaken to determine funding implications for the asset condition of the road network. Annual adjustment for increases in the cost of road construction materials and services would need to be made to accurately represent long term results.

Modelling indicates that an annual renewal allocation of $4.95 million is not sufficient to keep the sealed road network in the current overall condition. An annual allocation of $5.89 million for renewals in addition to normal maintenance is required to maintain the current overall condition in the sealed road network over the next 10 year period.

MONITORING AND IMPROVEMENT

An asset management plan is a dynamic document, reflecting and responding to changes over time. Monitoring of this roads asset management plan is required to:

- Ensure compliance with the proposed improvement program milestones.
- Ensure compliance with adopted standards and procedures for condition and performance.

A full review of this asset management plan should be undertaken every three to five years to document progress and set out proposals for the next five years. The recommendations below summarise the Improvement Program contained in Section 8 of this document.

RECOMMENDATIONS

1. Obtain Council approval of this asset management plan

2. Confirm desired levels of service by establishing current performance and setting performance targets. Have these levels of service adopted by Council.

3. Review the level of service for routine maintenance response times.

4. Further Investigate and improve estimates of growth in modelling.

5. Expand the asset groups covered by this plan to include all council transport assets (bridges and all road drainage assets).

6. Systematically separate capital upgrade expenditure from capital renewal expenditure and capital new expenditure.

7. Improve the delineation between planned, cyclic and reactive maintenance.

8. Develop data collection models to ensure repeatability and ongoing improvement of condition data collection and modelling processes.

9. Assess the structure and resources within council, to ensure that the asset management plan can be implemented.

2. INTRODUCTION

2.1 Background

The fundamental purpose of this Road Asset Management Plan (RAMP) is to improve Council's long-term strategic management of its road assets in order to cater for the community's desired levels of service in the future. This will be undertaken in accordance with Council's key strategic documents and demonstrates reasonable management in the context of Council's available financial and human resources.

The RAMP achieves this by setting standards, service levels and programmes which Council will develop and deliver. The standards and service levels have been set in accordance with user needs, regulations, industry practice and legislative codes of practice.

The asset management plan is to be read in conjunction with the following associated planning documents:

- DLG Integrated Planning Mandates 2009
- Lismore City Council Management Plan 2009/10 - 2012
- Lismore City Council Draft Community Strategic Plan 2008 – 2018
- Lismore City Council 2007 Resident Satisfaction Survey Results

The assets covered by this roads asset management plan are summarised in Table 2.1.

Asset category	Dimension	Replacement Value ($M)
Sealed Roads	799km	$519.5
Unsealed Roads	415km	$12.9
Footpaths	78km	$13.0
Kerb and Gutter	299km	$18.2
TOTAL		**$563.7**

Table 2.1. Assets covered by this Plan

2.2 Asset Management Frameworks Applicable to RAMP

2.2.1 National Framework for local government financial sustainability

In March 2007 the Local Government and Planning Ministers' Council (LGPMC) agreed to a nationally consistent approach to asset planning and management, financial planning and reporting and assessing financial sustainability. Each State Minister endorsed the National Frameworks for Financial Sustainability in Local Government for implementation in the context of their relationships with their local government sectors.

The National Frameworks consist of three main components as follows:

Asset Planning and Management

This framework consists of seven elements which each State and Territory is expected to adopt as follows:

- Development of an **asset management policy** - Each state/territory is expected to develop an asset management policy, which provides high-level guidance to assist councils in developing their own asset management policy.
- Strategy and Planning – Councils should be provided with guidance from the State on developing an **asset management strategy**, which is designed to support and implement its asset management policy;
- **Governance and Management Arrangements** – Councils should be encouraged to apply and effect good governance and management arrangements **which link asset management to service delivery** and include **assigning roles and responsibility for asset management between the CEO, the Council and senior managers**;
- **Defining Levels of Service** – mechanisms should be established that include community consultation to define the levels of service councils are expected to provide from their asset base;
- **Data and Systems** – a framework for collection of asset management data should be established;
- **Skills and Processes** – the asset management framework should contain a continuous improvement program;
- Evaluation – the asset management framework should contain a **mechanism to measure its effectiveness.**

Financial Planning and Reporting

Focuses on local government's financial management at both the strategic and operational levels. The framework requires the preparation of:

- A **long term strategic plan** which includes a financial component, demonstrating how the outcomes of the plan will be funded.
- An **annual budget format** comparable with the audited financial statements, linked to strategic objectives, which at a minimum should include:
    - Estimates of revenue and expenditure
    - An explanation of how revenue will be applied
    - An explanation of the financial performance and position of the council.
- **Annual financial statements and annual report**, which should include:
    - A report on council's operations during the financial year
    - An explanation to the community on **variations between the budget and the actual** results and how this may impact on the strategic plan
    - Audited financial statements for the financial year (prepared and audited in accordance with Australian Accounting and Auditing Standards).

Criteria for Assessing Financial Sustainability.

The National Frameworks **define a council's long-term financial performance and position as sustainable when planned long term services and infrastructure standards are met without unplanned increases in rates and charges, or disruptive cuts to services**.

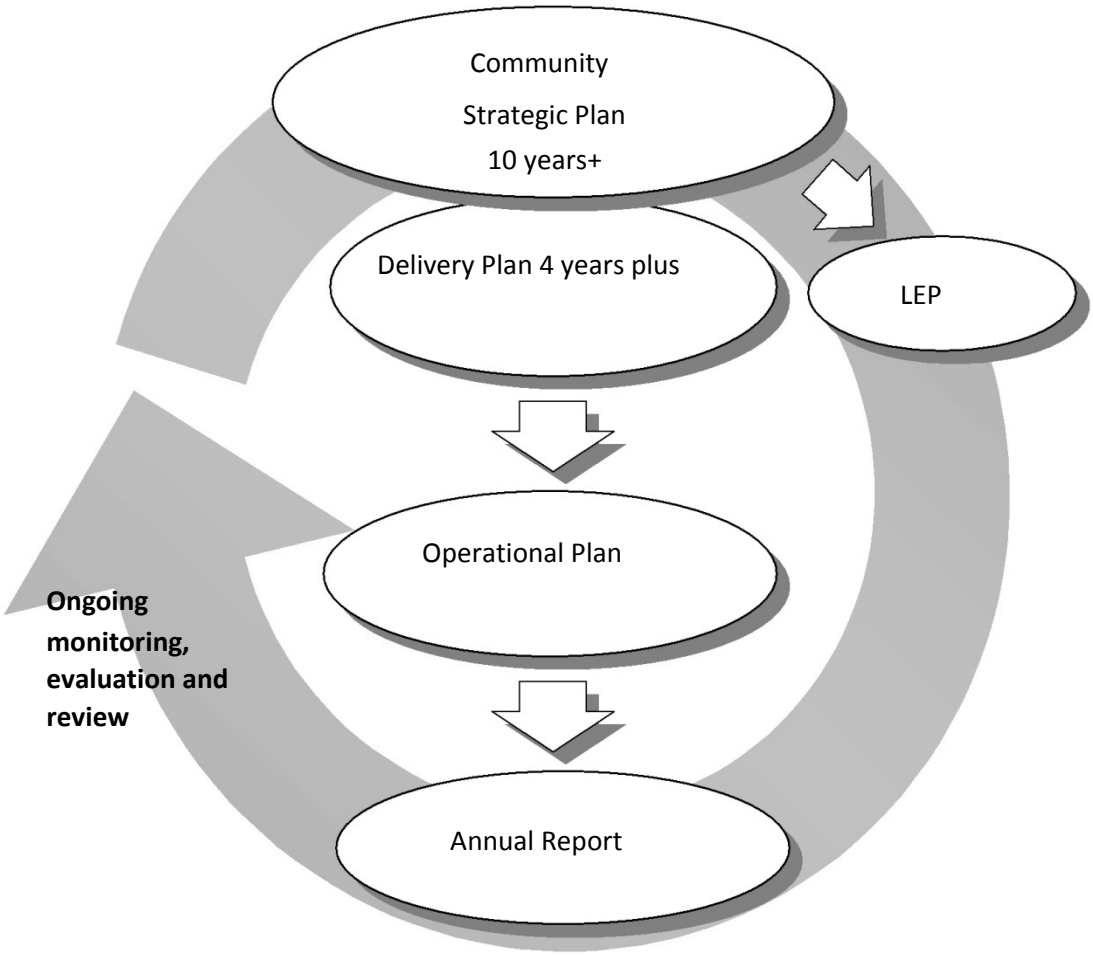
The frameworks provide a range of financial sustainability indicators. However they stress that the usefulness of indicators is not in the numbers themselves but the analysis of what is driving the indicator.

2.2.2 The NSW Department of Local Government - DLG Model

The DLG framework is to reshape the existing framework in some way to strengthen strategic focus, streamline the planning and reporting processes and encourage integration between the various council's strategic documents/plans. The proposed model is designed as a continuous framework, rather than a static planning model.

The recommendations provided through this Plan are essentially equipping Council to take a strategic approach to comply with this framework.

It is designed to allow councils more autonomy in responding to their community's various needs, and encourages elected representatives to play a leading role in developing long term plans.

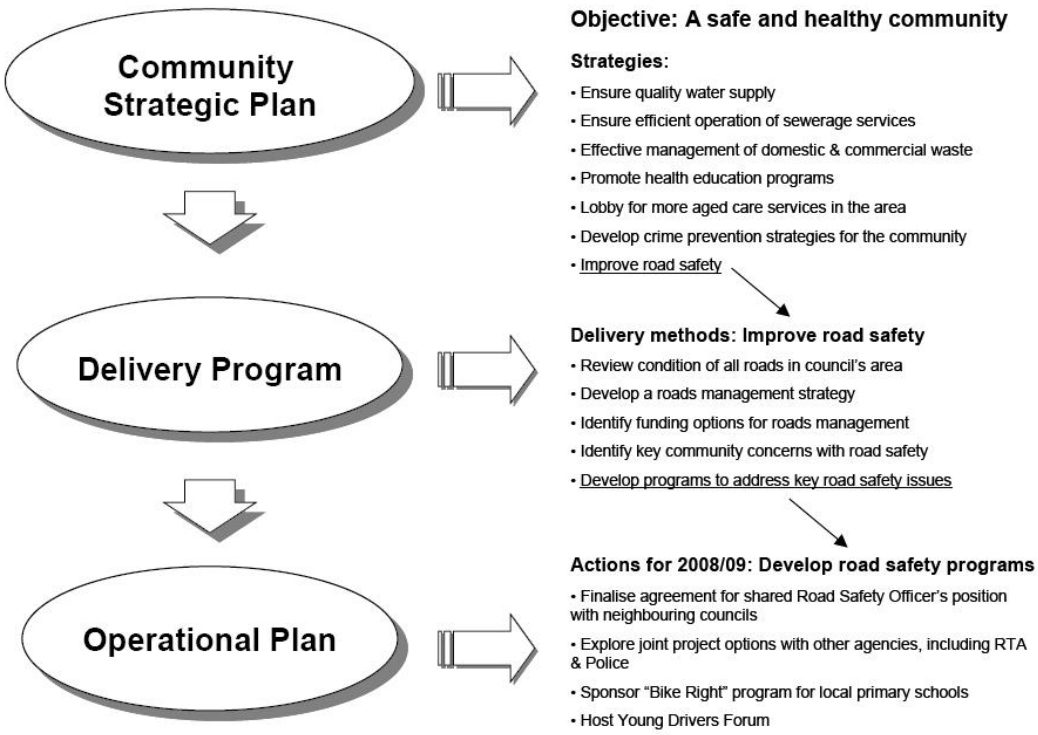


Why mandate strategic planning?

This model includes a mandatory requirement for a long-term asset management plans. One of the recurrent themes emerging from the review is that councils need to develop a stronger **strategic focus**.

How is planning and reporting integrated?

The diagram below shows how the objectives from the Community Strategic Plan may be cascaded through the system.



For example, a council's Community Strategic Plan might identify the objective of "A safe and healthy community" and nominate key strategies for achieving this. These strategies might include a wide variety of approaches, such as ensuring quality water supply and safe operation of sewerage services, ensuring efficient collection of domestic and commercial waste, promoting health education programs, lobbying for more aged care services in the area, developing crime prevention strategies for the community, and improving road safety.

These intentions would be translated into the Delivery Program in the following way, for example:

Plan:
Improving road safety ***Delivery Methods:***

1) Undertake a review of the condition of all roads in council's area.
2) Develop a Roads Management Plan.
3) Identify funding options for roads management.
4) Identify key community concerns with road safety.
5) Develop programs to address key road safety issues.

The Operational Plan would then focus on what council would do towards achieving each of these goals in the coming year. For example:

Develop road safety programs: Actions for 2008-09

1) Optimised Reseal and AC overlay program.
2) Finalise agreement for shared Road Safety Officer's position with neighbouring councils.
2) Explore joint project options with other agencies, including RTA & Police.
3) Sponsor "Bike Right" program for local primary schools.
4) Host Young Drivers Forum.

In this way, the objectives of the Community Strategic Plan are cascaded down through council's planning framework, so that general directions and objectives for the community are translated into plans, then into programs and finally, individual actions.

The Integrated Planning and Reporting project aims to improve councils' capacity for long-term planning and should help them to identify their resourcing needs earlier in the planning cycle. The requirement to consider resourcing over the 10-year period of the plan will help councils to take a wider view of their needs, considering not only finances, but also human resources and asset requirements. They will be able to identify the additional resources that could be raised through borrowings, rate variations or grants and will be in a better position to take maximum advantage of funding opportunities, resource sharing options and strategic alliances.

2.3 Key stakeholders

The key stakeholders are internal custodians as well as external individuals, companies, service authorities, government authorities and community groups who have a vested interest in management of roads. The following groups have been identified as key stakeholders in the management and use of the road network and road related assets:

Elected Members and PAG members	Endorsement of the asset management policy, strategy and plans. Set high level direction through the development of asset management principles in the Community Strategic Plan.
Senior Management	Endorse the development of asset management plans and provide the resources required to complete this task. Set high level priorities for asset management development in Council and raise the awareness of this function among Council staff and contractors. Support the implementation of actions resulting from this plan and prepared to make changes to a better way of managing assets and delivering services. Support for an asset management driven budget and LTFP.
Corporate Services	Consolidating the asset register and ensuring the asset valuations are accurate. Development of supporting policies such as capitalisation and depreciation. Preparation of asset sustainability and financial reports incorporating asset depreciation in compliance with current Australian accounting standards. AM and GIS support and admin.
Field Services Staff	Provide local knowledge level detail on all road assets. They verify the size, location and condition of assets. They can describe the maintenance standards deployed and Council's ability to meet technical and customer levels of service.
Asset Management Consultants	Provide support for the development of asset management plans and the implementation of effective asset management principles within Council. Also independently endorse asset revaluation methodology.
External Parties	• Community residents & businesses; • Tourist and Visitors (as occasional users); • Neighbouring Council's; • Road Users; • Emergency services; • Developers & Utility companies; • Local Businesses and; • Federal and State Government authorities & agencies such as RTA, local law enforcement and land use/development planning.

2.4 Goals and Objectives of Asset Management

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

Council's goal in managing infrastructure assets is to meet the required level of service in the most cost effective manner for present and future consumers. The focus of the asset management plan for roads is to be pro-active. It will enable Council to:

- Take a life cycle approach,
    - Have precise knowledge of what Council own or have responsibility or legal liability for;
    - Record and extract information on these assets in a register down to an identifiable level;
    - Report on our annual depreciations and asset consumption at an asset component level;
- Develop cost-effective management strategies for the long term,
    - Understand the long term (10-20 years) funding needs of our road network to meet our strategic expectations in both capital and maintenance expenditure;
- Provide a defined level of service and monitoring performance,
    - Measure and monitor the condition, performance, utilisation and costs of assets down to the managed component level and aggregate this data up to give outputs of cost and performance at the portfolio level;
    - Understand and record the current levels of service in terms of responsiveness and performance;
    - Understand the likely future levels of service required based on student growth, demographic changes and community expectations;
- Understand and meet the demands of growth through demand management and infrastructure investment,
- Manage risks associated with asset failures,
- Support sustainable use of physical resources,
- Support continuous improvement in asset management practices.
    - Have uniform processes across our whole organisation for the evaluation of any investment in:
        (a) Renewal, upgrades and expansions of existing assets;
        (b) Creation of new assets;
        (c) Maintenance of existing assets; and
        (d) Operational expenditure to deliver services.

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

Council's Vision:

Making Lismore a great place to live and work

Council's Mission:

To work with the community to maintain Lismore as the regional centre in a healthy, rural setting.

Council Values relevant to this asset management plan are:

1. **Community:** We in partnership with the community, respond to needs and aspirations in a caring, fair and accountable manner through the provision of quality services.

2. **Governments:** We encourage an open, productive relationship with all spheres of government and other organisations in the best interests of our community.

3. **Customers and Suppliers:** We conduct our business with integrity and respect, ensuring consistency and accountability in all our dealings.

4. **Environment:** We conserve, enhance and develop our environment in an equitable and sustainable manner, acting as custodians for future generations.

2.5 Plan Framework

Key elements of this plan are

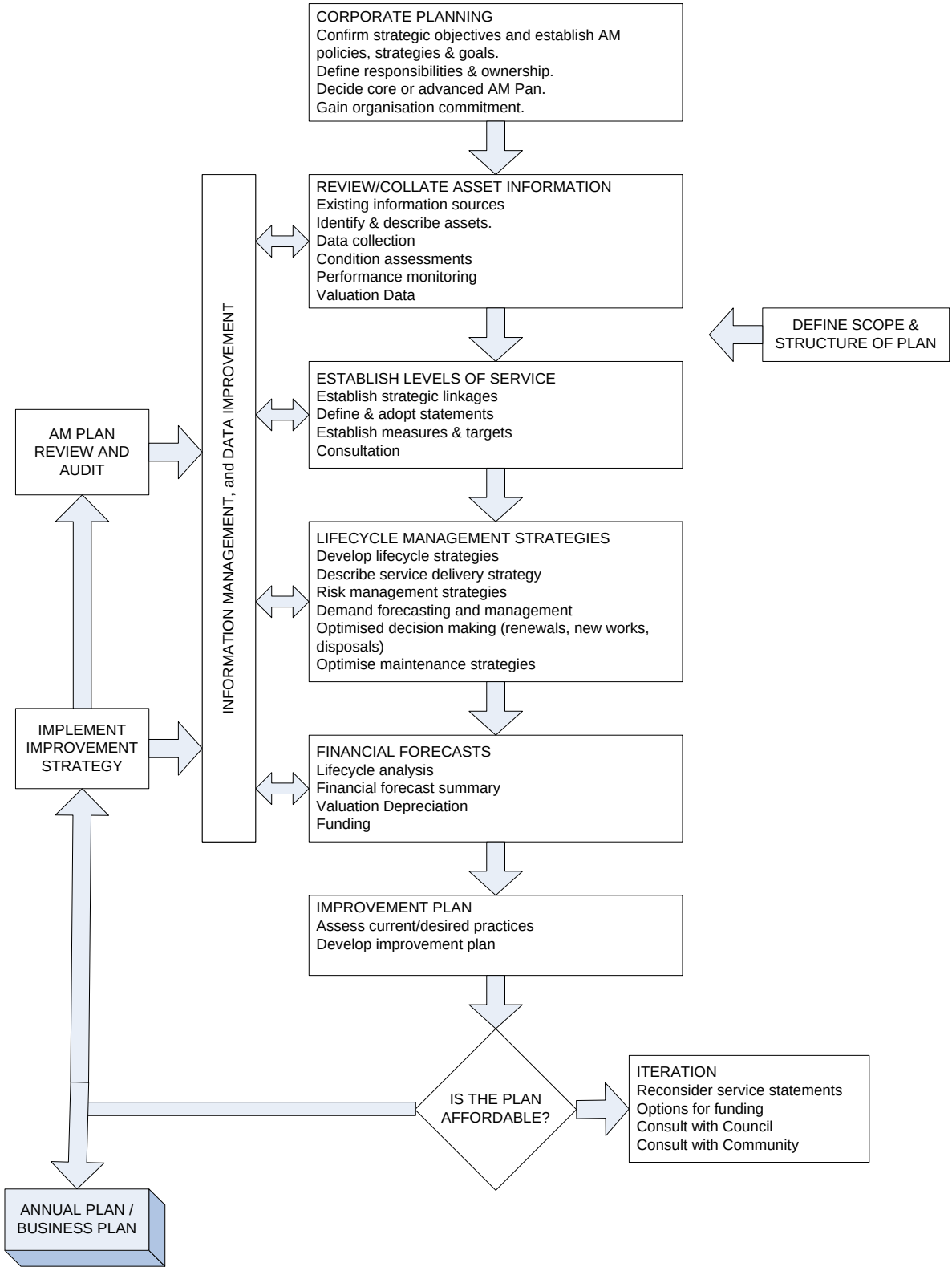
- **Levels of service** – Specifies the services and levels of service to be provided by council.
- **Future demand** – How future transportation changes and technology changes as well as demographic and user demand will impact on future service delivery and how this is to be met.
- **Life cycle management** – How Council will manage its existing and future assets to provide the required services.
- **Financial summary** – 10 year optimised forecast of funding to provide the required services.

A road map for preparing an asset management plan is shown on the following page.

2.4 Core and Advanced Asset Management

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

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



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

3. LEVELS OF SERVICE

Levels of Service relate to outcomes the customer receives in terms of quality, quantity, responsiveness and performance as provided by the asset. To achieve and sustain acceptable standards of service for Council's Road asset network requires an annual commitment of funds. These funds provide for regular and responsive maintenance and for timely renewal or replacement of the asset. The provision of adequate financial resources ensures that the Road network is appropriately managed and preserved. Financial provisions below requirements impacts directly on community development and if prolonged, results in substantial needs for "catch up" expenditure imposed on ratepayers in the future. Additionally, deferred renewal results in increased and escalating reactive maintenance as aged assets deteriorate at increasing rates.

In developing the levels of service as documented in this RAMP, Council has given due regard to the strategic goals and objectives in the 2008-2018 Strategic Plan which sets out the strategic direction of Council to implement its Management Plan over the following four years. Council has also given due regard to Legislative requirements and Australian Standards and stakeholder expectations in the form of customer research and expectation surveys.

The levels of service documented in this RAMP therefore **reflect the best assumptions of current levels of service** provided by Council, for the benefit of the community, in the context of Council's financial and human resources.

3.1 Customer Research and Expectations

Council conducts Resident Satisfaction Surveys, the most recent of which was undertaken in 2007. The survey which was mailed out to 3000 households received responses from 727 residents (25% return). The survey sought information on nine strategic service areas including "Infrastructure and Core Services" which umbrellas the responsibility areas for roads and footpaths.

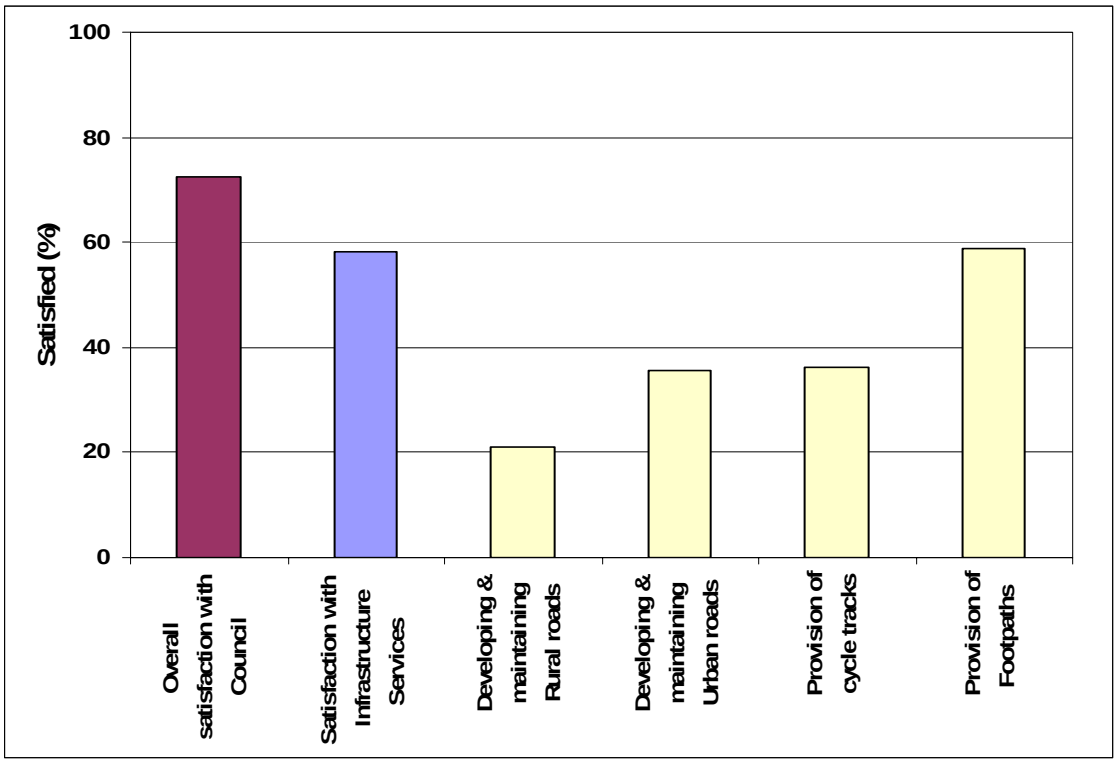


Figure 3.1: Satisfaction Survey for Roads (adopted from Scott & Vitartas).

The results of the survey indicate that the overall level of satisfaction with Council is good (72.6%). The strategic area of council where respondents are least satisfied was Infrastructure Services (58.2%). Whilst this overall result for Infrastructure Services is satisfactory the survey indicates that the two core services that respondents are least satisfied with are "Developing and maintaining rural roads" (21.2 %) and "Developing and maintaining urban roads" (35.5 %) (Refer to Figure 3.1).

3.2 Legislative Requirements

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

Legislation	Requirement
National Asset Management Framework Legislation 2010	Focuses on long term financial sustainability and provides a mandate to have long term strategy, financial statements and annual reporting mechanisms. AM plans are likely to be audited.
DLG Integrated Planning NSW	Key requirement is to integrated community plans with operational and delivery plans.
Local Government Act 1993	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by asset management plans for sustainable service delivery.
Road Transport (Safety and Traffic Management) Act 1999	Facilitates the adoption of nationally consistent road rules in NSW, the Australian Road Rules. It also makes provision for safety and traffic management on roads and road related areas including alcohol and other drug use, speeding and other dangerous driving, traffic control devices and vehicle safety accidents.
Occupational Health and Safety Act 2000 (OH&S Act)	Aims to secure the health, safety and welfare of people at work. It lays down general requirements which must be met at places of work in New South Wales. The provisions of the Act cover every place of work in New South Wales. The Act covers self employed people as well as employees, employers, students, contractors and other visitors.
The Protection of the Environment Operations Act 1997 (POEO Act)	Is the key piece of environment protection legislation administered by Department of the Environment and Climate Change (DECC). The POEO Act enables the Government to set out explicit protection of the environment policies (PEPs) and adopt more innovative approaches to reducing pollution.
Disability Discrimination Act	Sets out the responsibilities of Council and staff in dealing with access and use of public infrastructure.

Table 3.2.: Legislative Requirements

3.3 Standards and Specifications

Standards and Specifications	Requirement
Australian Accounting Standards.	Sets out the financial reporting standards relating to infrastructure assets. Standards of particular relevance to Infrastructure Assets include: • AASB 116 Property, Plant & Equipment – prescribes requirements for recognition and depreciation of property, plant and equipment assets • AASB 136 Impairment of Assets – aims to ensure that assets are carried at amounts that are not in excess of their recoverable amounts • AASB 1021 Depreciation of Non-Current Assets – specifies how depreciation is to be calculated • AAS 1001 Accounting Policies – specifies the policies that Council is to have for recognition of assets and depreciation • AASB 1041 Accounting for the reduction of Non-Current Assets – specifies the frequency and basis of calculating depreciation and revaluation basis used for assets • AAS 1015 Accounting for acquisition of assets – method of allocating the value to new assets on acquisition
Northern Rivers Local Government Development Design and Construction manuals	Provides the standards of design and construction as a result of renewal or upgrade works undertaken by Council or for those assets that will vest in Council following new property developments.
Austroads Guides, Commentaries and Reports	Austroads works with local government to improve Australia's roads and transport systems, recognising the value and importance of developing the local road component of the national road network.
Australian Standards	Including: • Australian Standard 1742.3-1996 – Manual of uniform traffic control devices - Traffic control devices for works on roads • Guide to Traffic Engineering Practice (part 14 Bicycles) • Manual of Uniform Traffic Control Devices – Part 3 - Traffic Control Devices for Works on Roads • Integrated Asset Management Guidelines for Road Networks APR202: 2002 Austroads • AS/NZS 4360:2004 Risk Management • HB 4360:2004 Risk Management Guidelines – Companion to AS/NZS 4360:2004

Table 3.3. Standards and Specifications

3.4 Current Levels of Service

Council has defined two tiers of service levels:

The first being **'Strategic Levels of Service'** – what Council expects to provide in terms of key customer outcomes:

- Ensure the Sealed Road network is maintained at a safe and functional standard as set out in this asset management plan.
- Improve Roads, Cycleway and footpaths.
- Efficient use of Councils Resources.

- Affordability – acknowledging that we can only deliver what we can afford.
- Relevance of the service being provided – in terms of demand characteristics, future demographics, current back-logs and where the pressure points are.
- Improvement – Robust Asset management processes to improve our long-term planning and assist in the prioritisation of works.

The table below outlines the performance measures and targets that will be used to measure Council's achievements in this area.

Key Performance Measure	Strategic Level of Service	Performance Measure Process	Performance Target	Current Performance
Quality	Well maintained and suitable road network	Customer requests	< 400 per year for roads	404 requests (2008/ 09)
	Well maintained and suitable footpaths	Customer requests	< TBC for footpaths	TBC
Customer Satisfaction	Urban Road network meets community expectations	Customer Survey	> 50% customer satisfaction	35.5 % (Satisfaction Survey 2007)
	Rural Road network meets community expectations	Customer Survey	> 50% customer satisfaction	21.2 % (Satisfaction Survey 2007)
Safety	Provide a safe network	Customer requests	< 420 per year	420 requests (2008/ 09)
		Crash reports	250 crash reports (regional & local roads) reducing by 5 % every year	261 crash reports (regional & local roads, RTA 2008)
Accessibility	Provide a fully accessible network	TBC	100% compliance	100% compliance. In the instance where a road or footpath or bridge is closed for reasons such as maintenance, upgrading, renewal or a public event; then appropriate notification shall be given to relevant users in accordance with Council's public information policy
Risk	Sealed road network condition is maintained at a technically optimal threshold		No more than 5% of the asset stock to be in condition 5 in any given year	1% of network in condition 5
Risk	Footpath network condition is maintained at a technically optimal threshold		No more than 5% of the asset stock to be in condition 5 in any given year	2% of network in condition 5
Function	Road network is functionally fit for purpose	Width and connectivity is optimal for use	Functional deficiency rating to show no more that 2% of asset stock at unacceptable thresholds	TBC
Function	Pram ramps at all intersections in CBD	No. of pram ramps at intersections	80% of CBD intersections have compliant pram ramps	TBC

Table 3.4.1. Strategic Levels of Service

Tier 2- Operational or Technical level of service

Operational or Technical levels of service are what Council does in day to day delivery terms, i.e. reliability, functionality and adequacy of the services provided. Typically, this RAMP has documented these standards i.e. at what point Council repair will, renew or upgrade to meet the customer outcomes listed in the strategic levels.

Operational levels of service or Technical levels of service and have been defined for each of the following:

- **Service provision through new assets:** If Council provides new road structures/assets, then what design and maintainability standards shall apply to make them meet Council's strategic outcomes?

  Council will use design standards as required by legislation as well as in line with providing fit for purpose assets. This includes the criteria of functionality and asset capacity.

- **Service alignment based on future needs**: Upgrade, expand or reconstruct an asset to original standard or improved standard: At what point, condition, capacity and functionality will Council intervene to renew/upgrade/expand an asset? Refer to Appendix C for Councils Intervention Levels for Upgrades, Expansion or Reconstruction.

- **Service Continuity through Maintenance Responsiveness:** When will council intervene with a maintenance repair and what will be council responsiveness in terms of customer requests for maintenance faults? Refer to Appendix D for Councils routine maintenance response levels of service.

Key Performance Measure	Technical Level of Service	Performance Measure Process	Performance Target	Current Performance
Quality/ Condition	Keep road condition at current levels for 10 years	Comparative condition profiles from each round of network audits using asset condition assessments. Road Surface Condition measured on a 3-4 year cycle Road Pavement Condition measured on a 3-4 year cycle Gravel condition measured on a 3-4 year cycle	Network performance using condition snapshot to show improvement or at-least hold condition at 2010 levels.	Estimated that we are able to maintain condition with current funding levels.
Function	Road width meets desirable width	Annual Inspection Regular traffic surveys	Hierarchy targets TBC.	TBC
Responsiveness	Intervention Levels and Response Times for maintenance and renewal works. Refer to table 3.5 below.	Response time achievement averaged over 12 month periods.	80%	TBC

Table 3.4.2. Technical Levels of Service

3.5 Desired Levels of Service

At present, indications of desired levels of service are obtained from various sources including the 2007 Resident Satisfaction Survey, residents' feedback to Councillors and staff, service requests and correspondence. In the preparation of the Lismore Community Strategic Plan 2008-2018, extensive community consultation was undertaken. The consultations with the community identified the importance of the following key principles:

- Making informed decisions with a long-term view – aiming to balance current community needs and expectations with the future needs of our community.

- Integrating social, economic and environmental criteria in the management and assessment of our assets – aiming for a more holistic, systems based approach.

Given the outcomes of the internal review with respect to Council's road asset services, the levels of service as detailed above (Tables 3.4.1. and 3.4.2.) are considered reasonable and affordable. The difficulty for Council going forward is that the community currently expects a level of service higher than that which Council provides and which is affordable within current budget allocations. Recent community consultation has also indicated that the community are not prepared to pay more for a higher level of service.

This will be an ongoing challenge for Council to review levels of service and budget allocations and try to more closely match these with the expectations of the community.

4. FUTURE DEMAND

4.1 Demand Forecast

Council's fundamental role is to provide services to the community and its road assets are a means to support this. Consequently, future demand for road assets are tied to the demand for Council's services and this is a more complex consideration than population growth alone. Issues such as changing demands for particular services, changing mixes in the balance between public and private service provisions and changing community expectations of service levels, all affect the need for transportation assets.

Road asset management plans are critically driven by the needs of the services to be delivered and therefore meaningful transportation asset strategies cannot be developed in isolation or in absence of comprehensive service strategies. Maintaining Council's road assets without adequate regard for service needs may result in a well-maintained portfolio of assets, but it may also result in an asset portfolio which does not meet the needs of staff that provide services to the community.

Factors affecting demand include population change, changes in demographics, seasonal factors, vehicle ownership, consumer preferences and expectations, economic factors, agricultural practices, environmental awareness, etc. Demand factor trends and impacts on service delivery are summarised in Table 4.1.

Demand factor	Present position	Projection	Impact on services
Population	Lismore's population at the 2006 census was 44,225. The population increased by 1.89% between the 2001 and 2006 censuses. 61.2% of the population live in the urban area, 34.6% in rural areas and 4.2% in surrounding villages.	Lismore's population is predicted to continue to grow over the next 10 years. Future growth is likely to occur as a result of the widening of the coastal fringe and the continued attraction of a rural lifestyle. Lismore is the regional employment centre of the Northern Rivers and some population growth is expected due to people moving to the area for employment and business opportunities. In particular, nearby coastal areas are growing rapidly with many people travelling to Lismore for work opportunities.	Some impact as road congestion increases
Demographics	A higher proportion of people aged 15-29 live in Lismore than elsewhere on the North Coast. This can be attributed to the presence of key educational institutions, including Southern Cross University. People aged over 65 comprise 14% of our population.	Southern Cross University and other key educational institutions will continue to play a vital role in attracting young people to Lismore. The number of people aged over 65 will continue to increase. This is consistent with the national trend toward an ageing population and longer life expectancy.	Increase in demand for safe multi-use paths linking service infrastructure Increase in demand for accessibility for mobility impaired.

Table 4.1. Demand Factors, Projections and Impact on Services

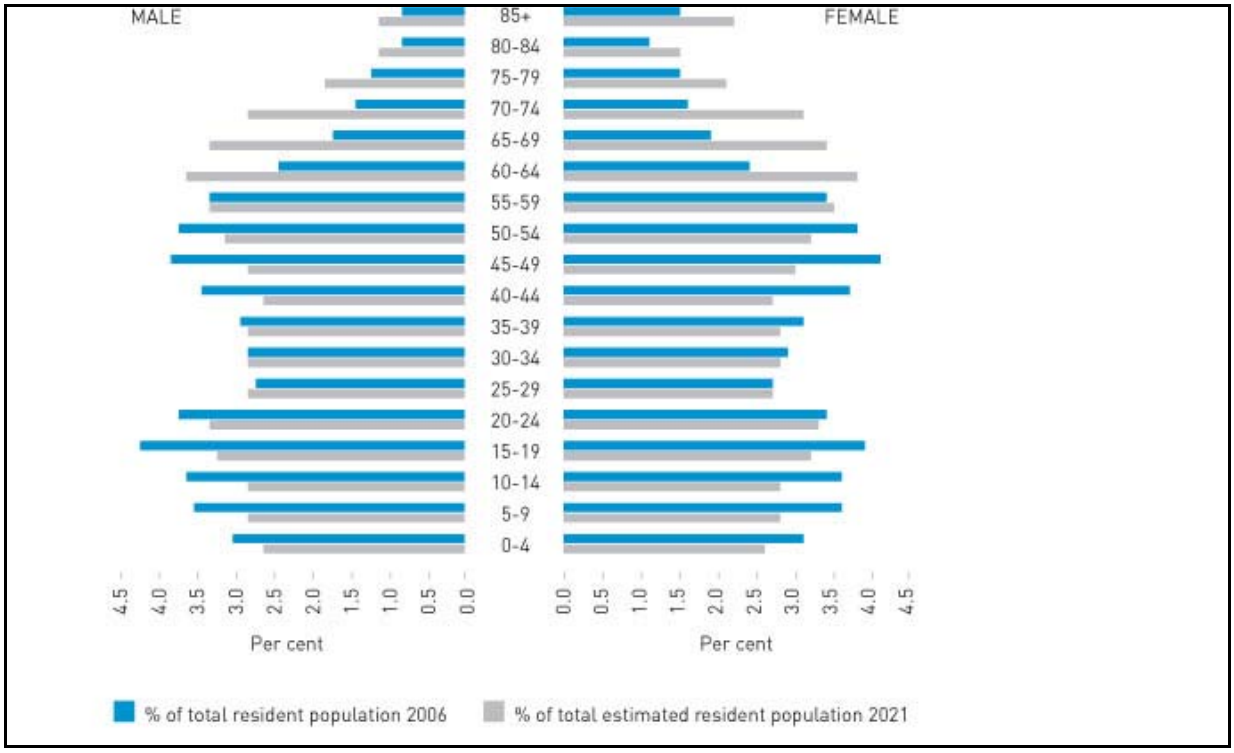


Figure 4.1. 2006 LGA Population by Age and Sex (Anon 2).

4.2 Changes in Technology

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

Technology Change	Effect on Service Delivery
Introduction of new machinery	Reduced costs, improved productivity & OH&S
Road seal renewal treatments	Increased residual life and lower lifecycle costs
Continual improvement to Road design and Pavement materials	Increased resheet/ seal life
Asset data capture by video inspection and the transformation of this information onto Council's GIS.	Spatial location and condition of assets able to be verified from GIS reducing the need for reactive inspections

Table 4.2. Changes in Technology and Forecast effect on Service Delivery

4.3 Demand Management Plan

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

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

Service Activity	Demand Management Plan
Community Engagement	Engage with the community to identify justifiable community needs from other expectations and consider only community needs consistent with Council's charter.
Customer Requests	Analyse customer requests to optimise the use and performance of existing road services and look for non-asset based solutions to meet demand for services.
Traffic load and volume control	Improve road and pavement performance through road mass restrictions and reducing traffic volumes.
Explanatory marketing and education campaigns	Help modify community behaviour through explanatory marketing and education campaigns.

Table 4.3. Demand Management Plan Summary

4.4 New Assets from Growth

The new assets required to meet growth will be acquired from land developments and constructed by Council. Acquiring these new assets will commit Council to fund ongoing operations and maintenance costs for the period that the service provided from the assets is required. Given the long life-cycle of road assets, the impact of this growth (future renewal costs) is only likely to be material after ten years. For the purpose of completing this core asset management plan the impacts of these future costs are not considered to be highly significant and are excluded in developing forecasts of future operating and maintenance costs.

Future versions of this asset management plan will consider the impacts of growth in greater detail. This activity has been included as a priority in the improvement plan. The valuation models in the financial summary section of this report use a rate of growth of 0.5%pa.

5. LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how Council plans to manage and operate the sealed road assets at the agreed levels of service (defined in section 3) while optimising life cycle costs. To undertake lifecycle asset management, means considering all management options and strategies as part of the asset lifecycle, from planning to disposal. The objective of managing the assets in this manner is to look at long-term cost impacts (or savings) when making asset management decisions. Figure 5.0.0. below provides a graphical representation of the asset lifecycle including each of the stages an asset passes through during its life.

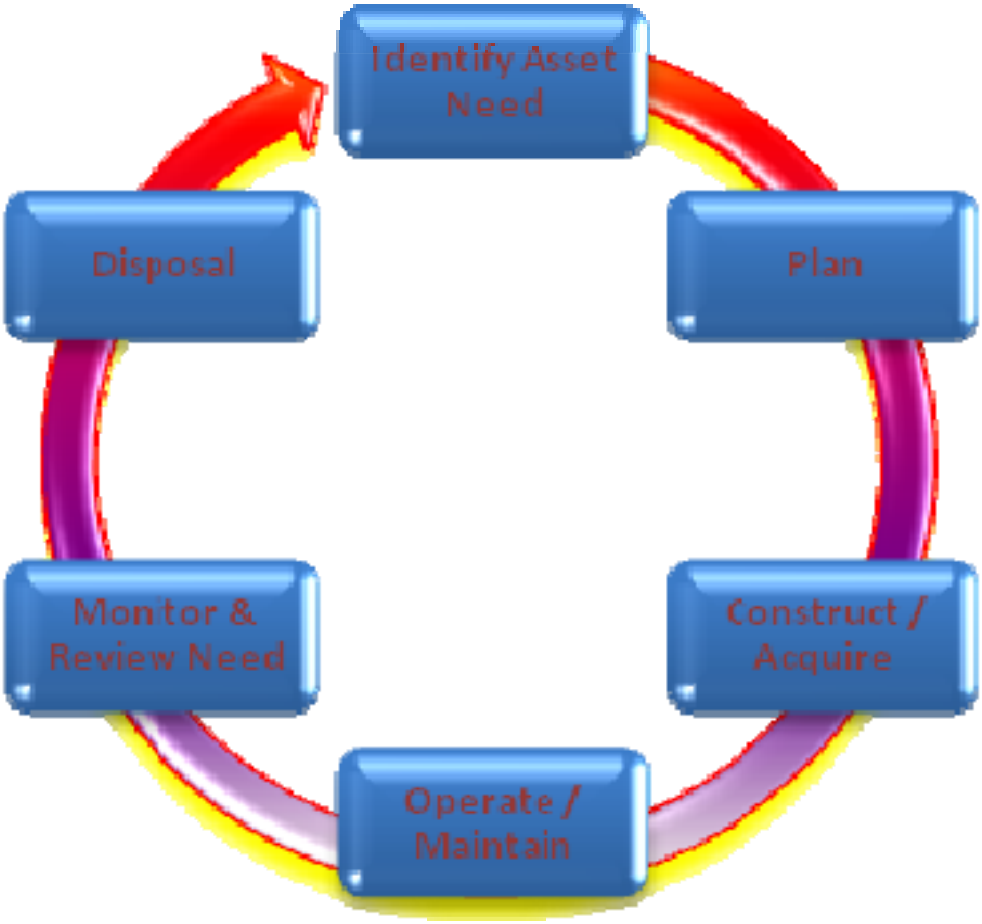


Figure 5.0.0. The Asset Lifecycle

A model for the lifecycle of sealed roads pavements is presented later in this section. This model relates particularly to the maintenance and renewal stages of asset life (refer to Figure 5.0.1 below).

In the “Do Nothing” phase, the asset deteriorates slowly and maintenance is generally not required. In the “Maintain” phase, activities will need to be performed to minimise continued deterioration. In the “Rehabilitate” or “Renewal” phase, activities are undertaken that restore the asset to a condition close to that of the original.

The importance of the time for intervention for renewal is paramount. If renewal activities are not undertaken in a timely manner, the condition of the asset will deteriorate rapidly to failure, and the cost of reconstruction, may be many times that of renewal activities.

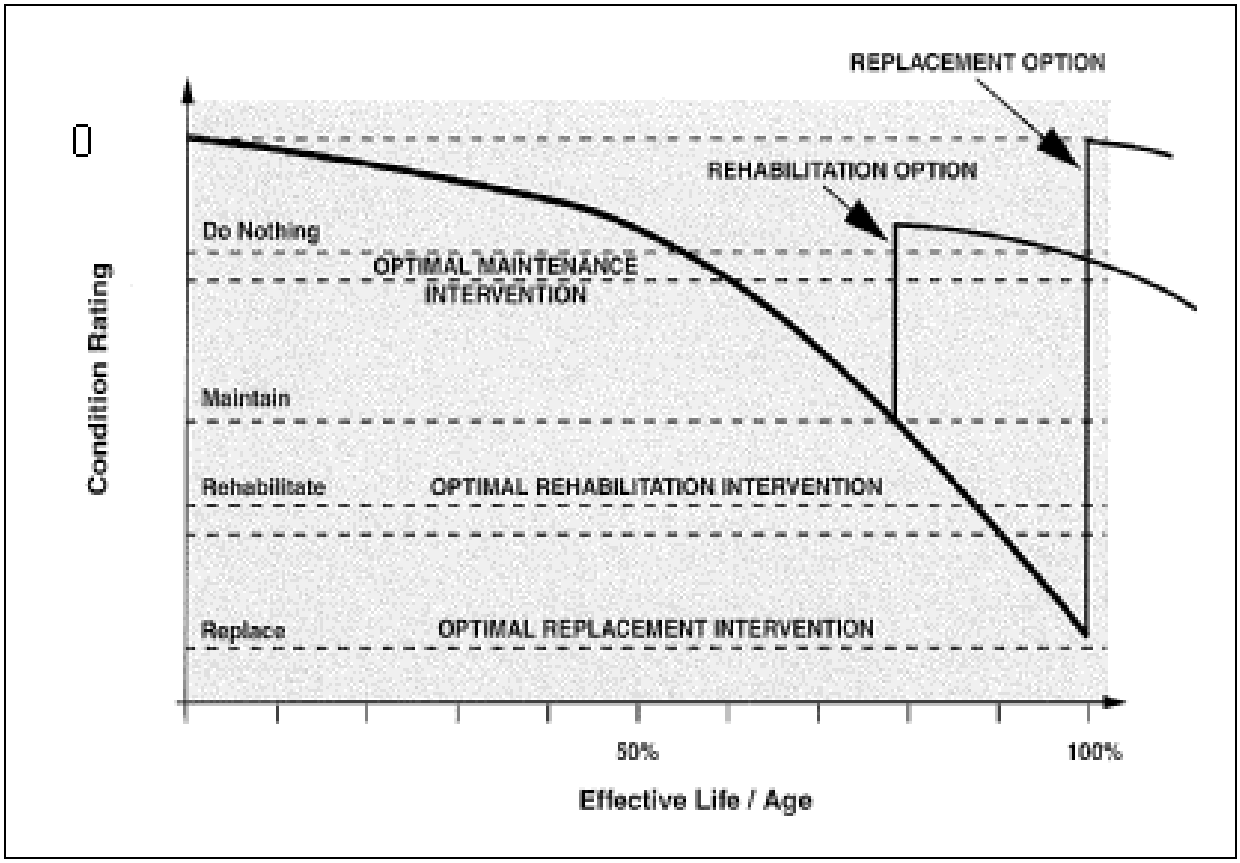


Figure 5.0.1. The Sealed Road Pavement Lifecycle (IPWEA, 2006)

5.1 Background Data

5.1.1 Physical parameters

The assets covered by this asset management plan are shown below. It should be noted that these statistics include approximately 60 km's of State Road which is not the financial responsibility of Council and has not been included in the condition assessment and valuation.

Sealed Roads	Urban and rural roads with a bitumen surface typically spray seal, asphalt or recycled bitumen.
Unsealed Roads	Mostly rural roads formed and surfaced with imported granular material. It should be noted that roads which have not been constructed by Council and private roads constructed by the property owner or other are not included in this RAMP.
Footpaths and Shared Paths	Paths to cater for pedestrian and cycle movements within road reserves.
Kerb and Channel	Typically constructed of concrete on the edge of sealed roads to formalise the traffic corridor and convey surface stormwater to the underground pipe drainage network.

Road Type	Road Length (Km)	Surface Area (km^2)
Spray Seal	755.90	5039.1
Asphalt	92.30	706.6
Brick Pavers	0.41	2.9
Concrete	1.95	14.0
Unsealed	415.10	1632.2
Total	**1265.00**	7394.8
Footpath Type	**Length (Km)**	**Surface Area (km^2)**
Concrete	70.5	126.4
Asphalt	4.8	7.9
Pavers/Others	2.9	10.9
Total	78.2	145.2

Kerb Type	Length (Km)
Concrete Mountable	62.90
Concrete Standard	235.90
Gutter	0.03
Total	299.80

Lismore City Council has a mix of sealed and unsealed roads with most villages exclusively having all sealed roads. The unsealed road network is predominantly in the rural areas and extends to the boundaries of the Council.

The most predominant sealed surface type is Spray Seal which is 88 % off the total sealed network. The figures below detail the various types of road and footpath surfaces and kerb types in the Lismore LGA.

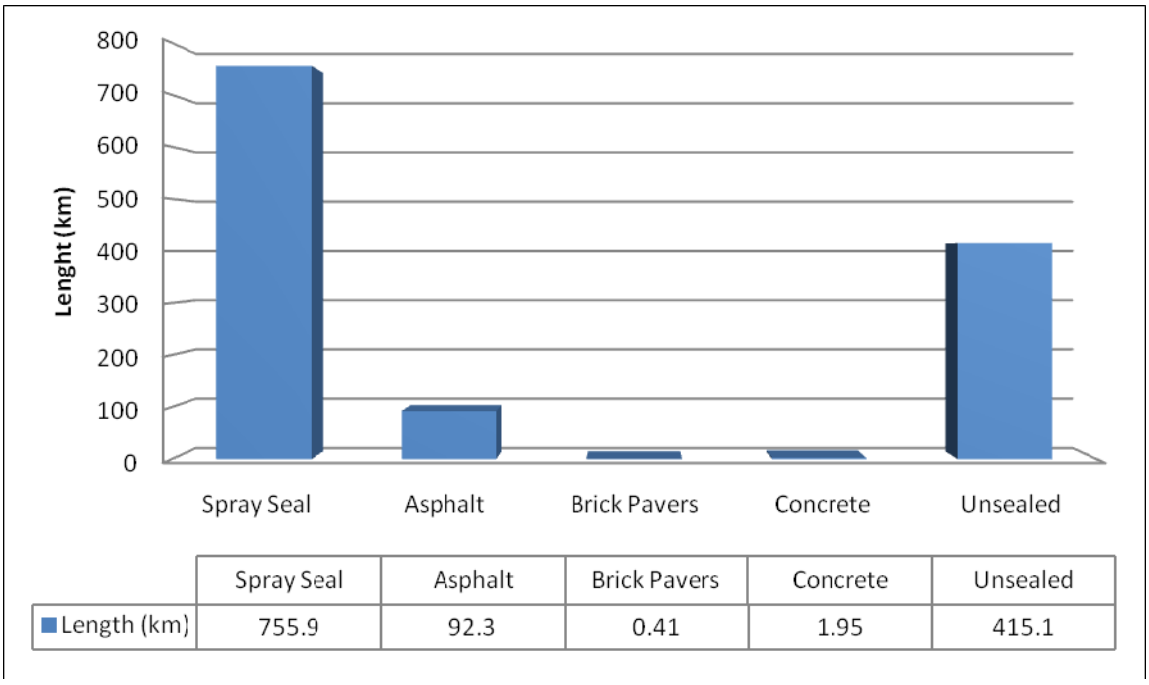
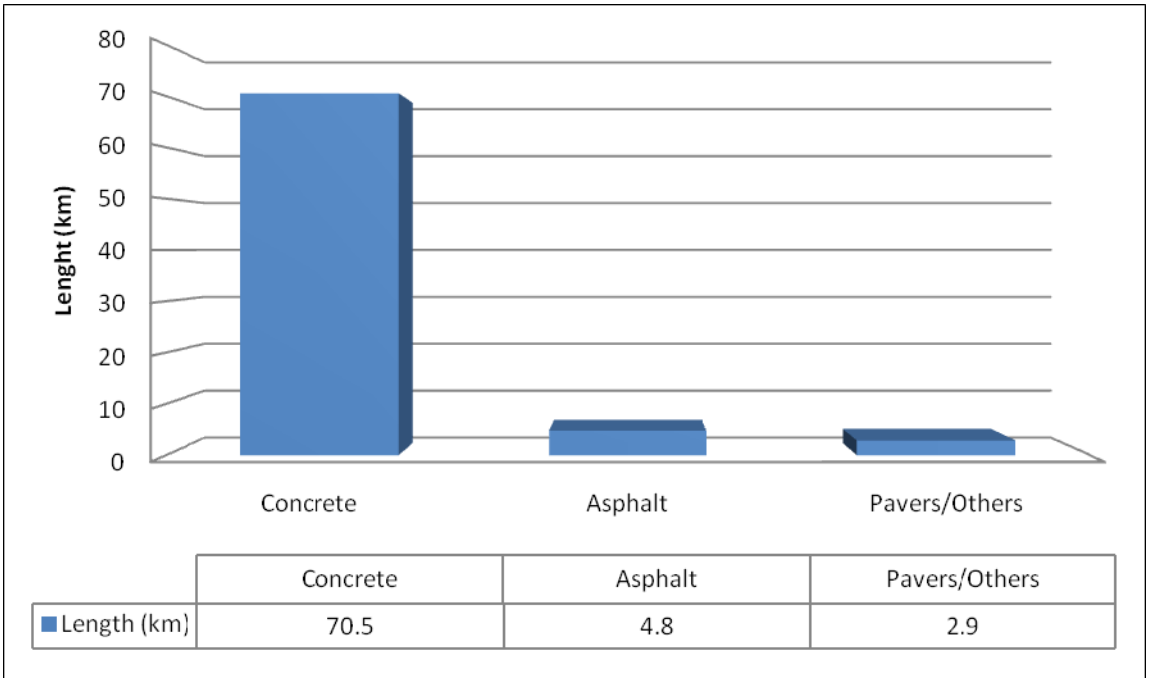
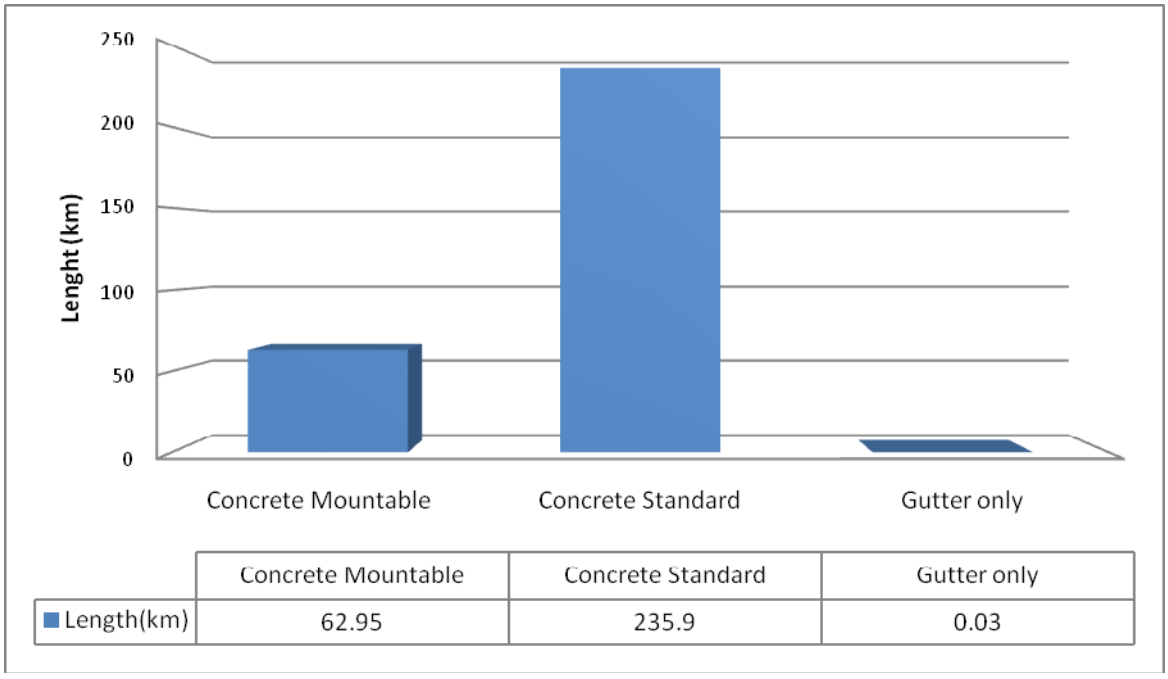


Fig 5.1.1(a). Road Surface Type



	Concrete	Asphalt	Pavers/Others
Length (km)	70.5	4.8	2.9

Fig 5.1.1(b). Distribution of Footpaths by Surface Type



	Concrete Mountable	Concrete Standard	Gutter only
Length(km)	62.95	235.9	0.03

Fig 5.1.1(c). Distribution of Kerbs by Type

5.1.2 Asset capacity and performance

Council's services are generally provided to meet design standards where these are available. Locations where deficiencies in service performance are known are detailed in Table 5.1.2. below.

Location	Service Deficiency
Various Local Rural Roads	Sealed pavement width is below the desirable width for road classification
Various Local Urban Roads	Sealed pavement width is below desirable width, kerb and gutter requires renewal, upgrade or construction.

Table 5.1.2. Known Service Performance Deficiencies

5.1.3 Asset Condition

A simple number rating system has been used to describe asset condition. Condition is measured using a 0 to 5 rating system as described below:

Condition Index	Community Rating Scale	Condition Description
0	Brand New	Brand New.
1	Excellent	Providing a Very High Level of Service.
2	Good	Good condition with no indicators of any future obsolescence and providing a good level of service
3	Fair	Aged and in fair condition providing an adequate level of service. No signs of immediate or short term obsolescence.
4	Poor	Will need to renew, upgrade or dispose in near future. Is reflected via inclusion in the 5 year Capital Works Plan.
5	Very Poor	Below an acceptable level of service. Requires renewal/upgrade immediately within the following year or so.

Table 5.1.3. Roads, Footpaths and Kerb Condition Rating Description

Frequency of Assessment: Every 3-4 years as is the norm for Local Government.

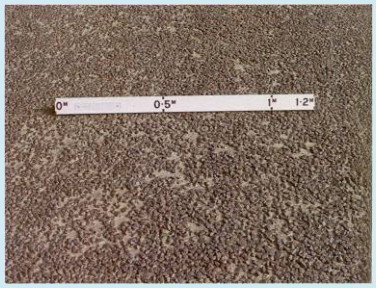
Rating Criteria

Condition assessment is undertaken for the following criteria.

- **Cracking:** Crocodile and linear related to pavement and surface fatigue.
- **Pavement defects:** related to pavement deformities in localised areas such as shape loss and sub grade movements, local rutting, shoving and deformities.
- **Ravelling:** related to asphalt age/fretting and fatigue.
- **Local Surface defects:** Related to minor surface deformities and groups of potholes, delaminating.
- **Stripping**: Loss of stone from spray seal surface.
- **Flushing:** Excess bitumen pumping on surface of spray seals.

- **Kerb and gutter:** alignment, distortion, cracking, shape loss, structural failures, roll backs and channel deficiencies.
- **Footpath:** cracking, stepping, distortion and tree root defects.

Typical surface defects



Typical stripping

Typical local defects

Typical road cracking

Typical pavement defects

Typical rutting

5.1.4 Asset Condition Profile

The current condition profile of the sealed road network is shown below. Approximately 11 % of the Rural and Urban networks are rated as condition 4 or 5 for the pavement component (cracking indicator) and approx. 5 % of the Rural and Urban networks are rated as condition 4 or 5 for the surface component (Stripping).

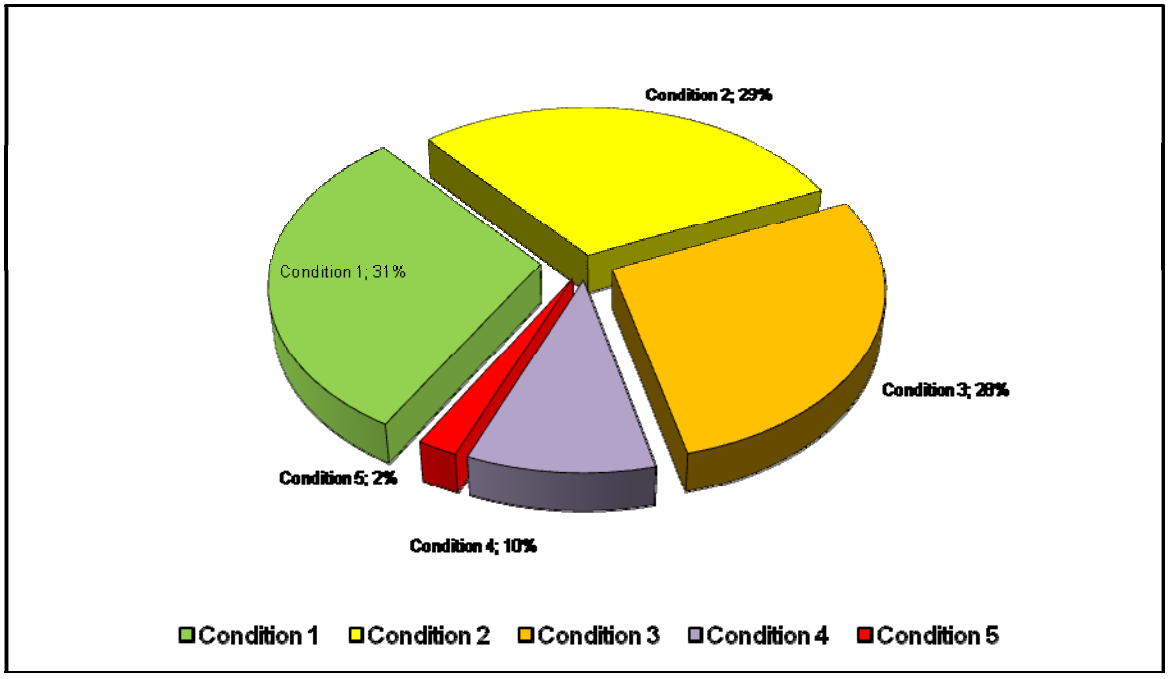


Fig 5.1.4(a). Crocodile Cracking Condition – Rural

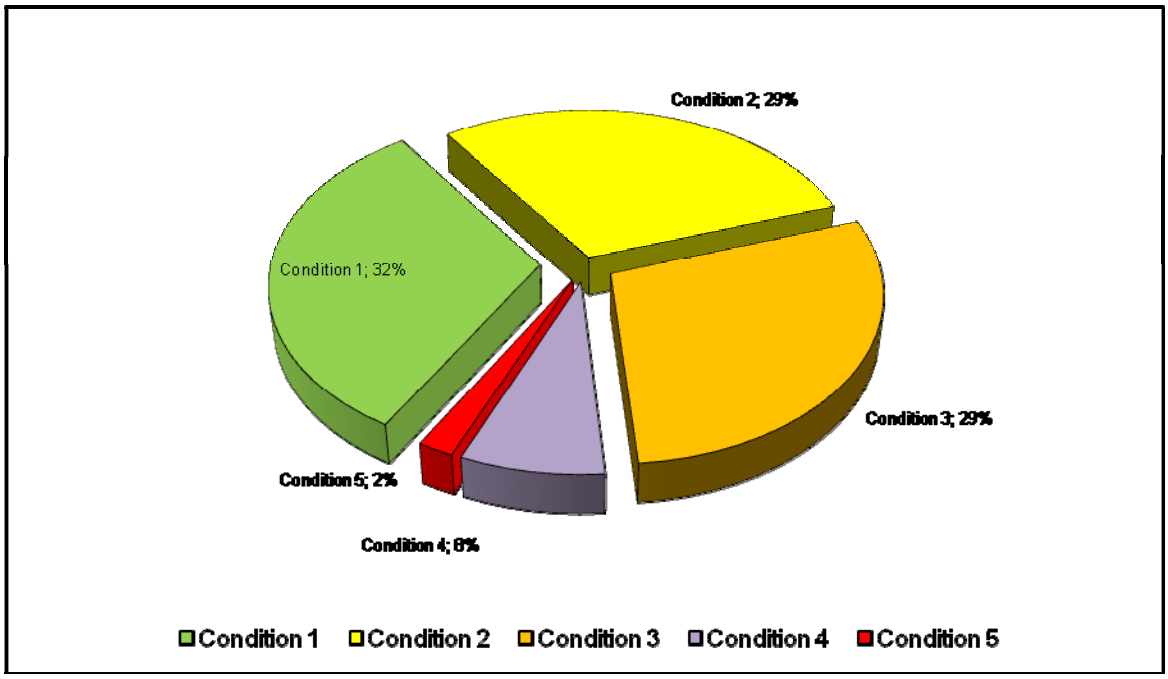


Fig 5.1.4(b). Crocodile Cracking Condition – Urban

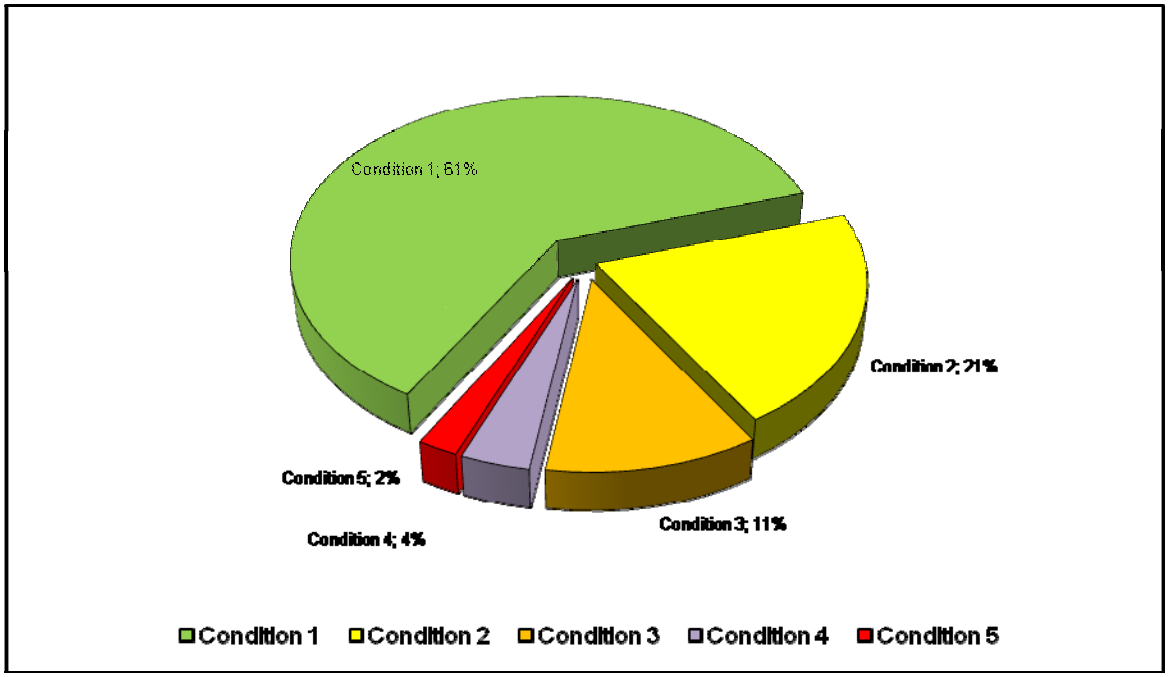


Fig 5.1.4(c). Stripping – Rural

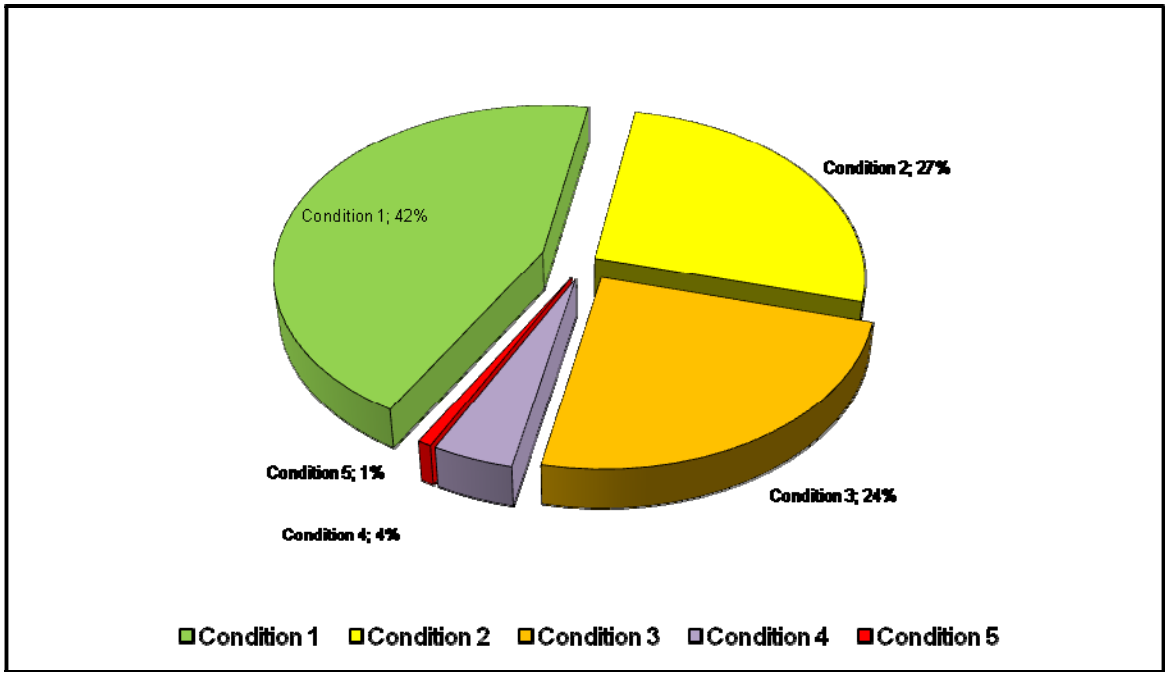


Fig 5.1.4(d). Stripping – Urban

The footpath condition profile below indicates that 66 % of the network is in excellent condition with only 7 % is in poor or very poor condition.

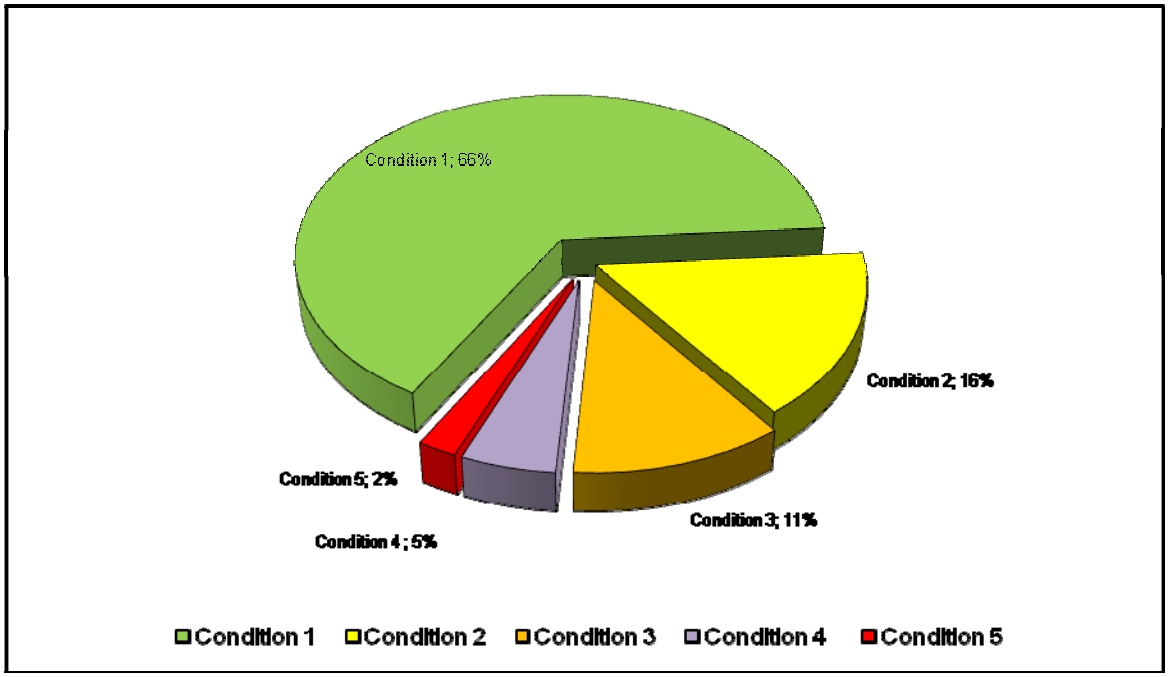


Fig 5.1.4(e). Footpaths Condition Index

The kerb condition profile below indicates that 52 % of the network is in excellent condition with only 8 % is in poor or very poor condition.

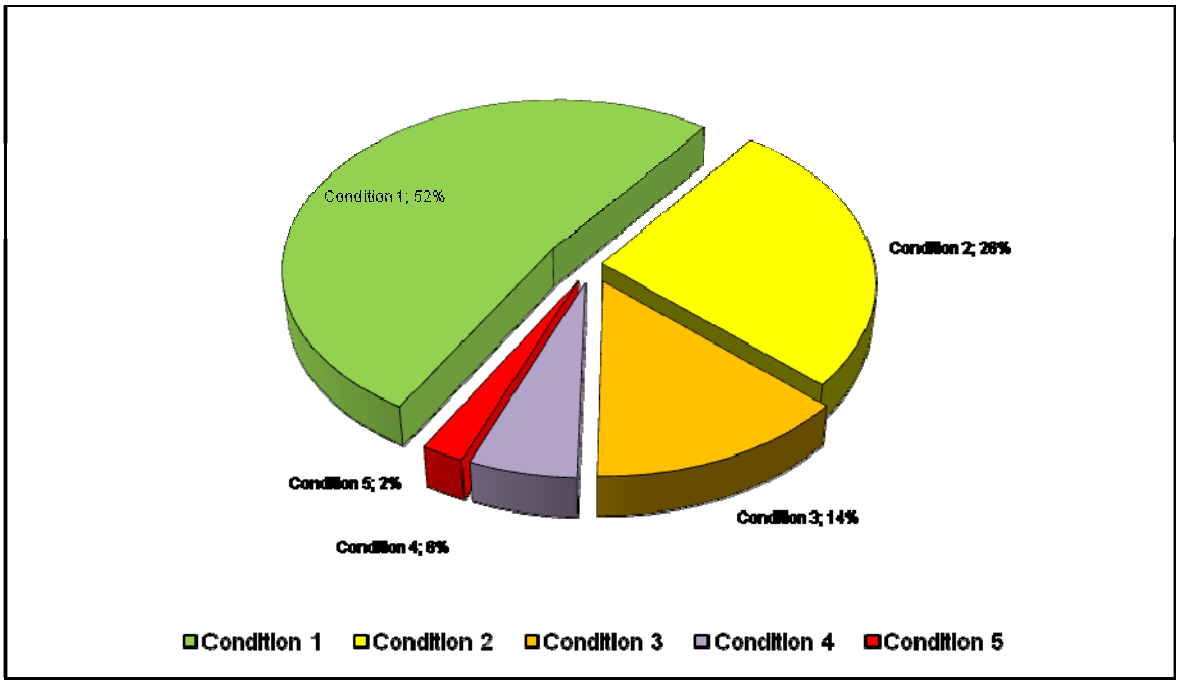


Fig 5.1.4(f). Kerb

5.1.5 Asset Valuations

The value of assets as at 30 June 2010 covered by this asset management plan is summarised below. The value of road and footpath assets at fair value are estimates based on DLG reporting guidelines.

Asset Type	Replacement Value ($,000)	Annual Depreciation ($,000)	Accumulated Depreciation ($,000)	Written Down Value ($,000)
Sealed Roads	$519,482	$7,851	$143,929	$375,553
Unsealed Roads	$12,972	$196	$3,092	$9,880
Kerbing	$18,234	$329	$5,083	$13,151
Footpaths	$13,019	$205	$3,829	$9,190
Total	$563,707	$8,581	$155,932	$407,775

Table 5.1.5 Assets Valuations as at June 30, 2009

As at 30 June 2010, the Annual Depreciation (annual asset consumption) for road assets is calculated at $8,581 million.

Council's sustainability reporting states the rate of annual asset consumption and compares this to asset renewal and asset upgrade and expansion.

Asset Consumption 1.5%

Asset renewal 0.8%

Annual Upgrade/expansion Capital upgrade and new capital expenditure is currently part of capital renewal expenditure and is not recorded separately in Council's financial accounts. Capital upgrade and new capital expenditure is estimated for the purposes of this plan to be 30 % of capital renewal expenditure.

5.2 Risk Management Plan

An assessment of risks[1] associated with service delivery of sealed road assets has identified critical risks to Council. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

Critical risks, being those assessed as 'Very High' - requiring immediate corrective action and 'High' – requiring prioritised corrective action identified in the risk management plan are summarised in Table 5.2.

Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan
Sealed Road Surfaces	Seal defects resulting in pavement failures	H	Monitor seal condition and re-seal prior to normal intervention if necessary
Sealed Road Surfaces	Seal defects resulting in unsafe road conditions	H	Monitor seal condition and re-seal prior to normal intervention if necessary
Sealed Road Pavements	Premature failure due to lack of maintenance and patching	H	Increase maintenance inspections and repairs

[1] Refer to Council's Transport Core Risk Register

Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan
Earthworks and Road Pavements	Erosion during flood events	H	Regular inspections and maintenance of bridges, culverts and retaining structures between roads and waterways
Road Seals and Pavements	Damage due to excessive loading	H	Restrictions on vehicle axle loads, limit speed, and control traffic flows
Footpaths	Trip hazards resulting in litigation claims	H	Increase inspection frequency for major footpaths and increase maintenance to repair hazards

Table 5.2. Critical Risks and Treatment Plans

5.3 Routine Sealed Road Maintenance Plan

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

5.3.1 Maintenance plan

Maintenance includes reactive, planned and cyclic maintenance work activities.

Reactive maintenance is unplanned repair work carried out in response to service requests and management/ supervisory directions. Assessment and prioritisation of reactive maintenance is undertaken by Council staff using experience and judgement. Reactive maintenance work is typically 30 % of total maintenance expenditure.

Planned maintenance is repair work that is identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/ breakdown experience, prioritising, scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance. Planned maintenance work is typically 25 % of total maintenance expenditure.

Cyclic maintenance is replacement of higher value components/ sub-components of assets that are undertaken on a regular cycle including repainting of road markings, grading of gravel roads, etc. This work generally falls below the capital/ maintenance threshold. Cyclic maintenance work is typically 30 % of total maintenance expenditure.

Maintenance expenditure levels are considered to be inadequate to meet required service levels. Future revision of this asset management plan will include linking required maintenance expenditures with required service levels.

5.3.2 Standards and specifications

Sealed roads maintenance work is carried out in accordance with the following Standards and Specifications.

- Austroads standards and specifications
- Australian Standards
- Aus-spec
- Australian Roads and Research Board (ARRB) Sealed Local Roads Manual

5.3.3 Summary of future maintenance expenditures

Maintenance refers to works undertaken to address minor defects such as pothole patching, edge-break patching, minor kerb repair works or footpath grinding. These treatment works are undertaken to keep Council's Road assets in a safe and operational condition, but not necessarily to improve the overall condition of these assets.

It should be noted that when undertaking the lifecycle modelling, these types of costs are taken into consideration by assuming that, each year, a percentage of these distresses (such as potholes, footpath trips) will be repaired as part of Council's routine maintenance. If these assets are left to deteriorate (i.e. sufficient capital expenditure is not allocated), then the amount of distresses being fixed under routine maintenance will increase and hence the routine maintenance expenditure required will also increase. Equally, if the condition of these assets improves then the routine maintenance expenditure required will decrease.

The current prediction models are forecasting a proportional increase in future maintenance with the current levels of capital funding. Using the historical maintenance funding as a baseline, then figure 5.3. below shows future maintenance funding (*costs are in today's dollars).

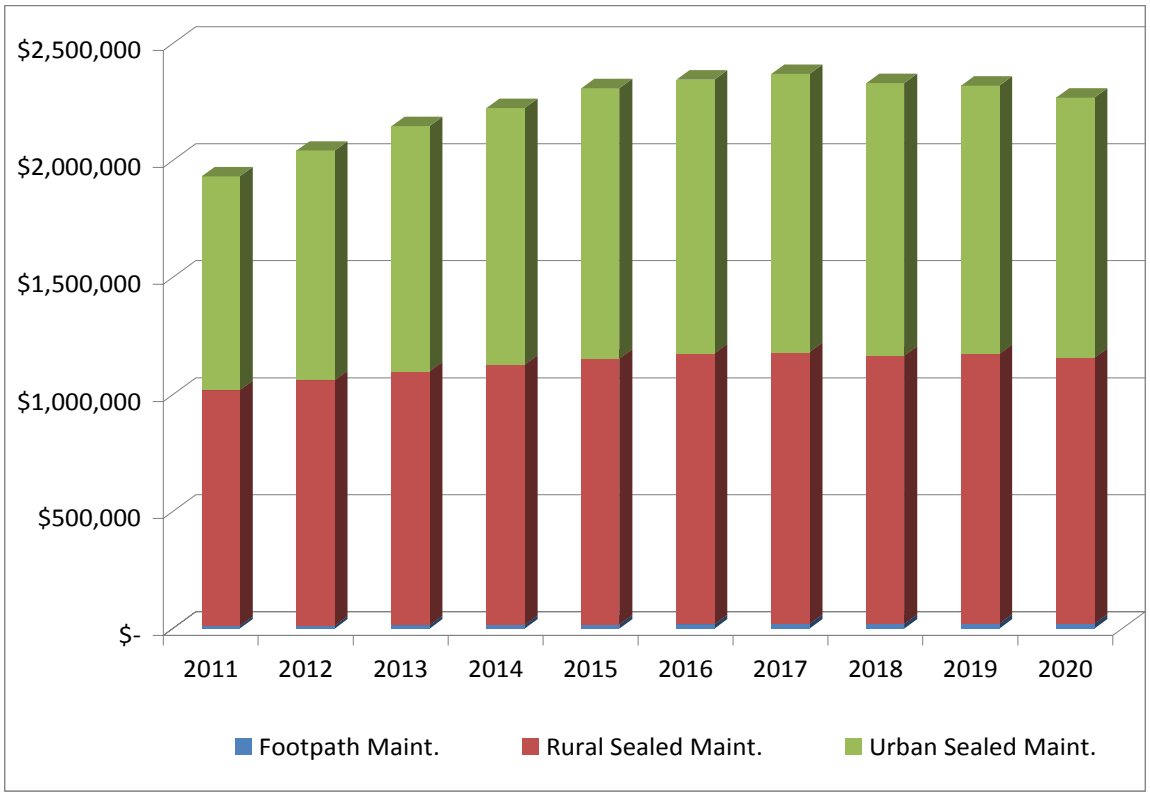


Figure 5.1. Planned Maintenance Expenditure

5.4 Renewal/ Replacement Plan

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

5.4.1 Renewal planning

Council's renewal plan is currently incorporated into the 10 year Capital Works Program (Appendix E). Candidate assets identified for renewal are inspected to verify the accuracy of estimated remaining life and develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds, and scheduled into the future works programmes. The priority ranking criteria is detailed in Table 5.4.1.

Urban Roads Criteria	Weighting	Rural Roads Criteria	Weighting
1. Road Usage	10	1. Road Usage	15
2. Functional Significance	18	2. Functional Significance	15
3. Road Condition	50	3. Road Condition	50
4. Cost Effectiveness	12	4. Cost Effectiveness	10
5. Safety	10	5. Safety	6
		6. Width Deficiency	10
Total	**100**	**Total**	**106**

Table 5.4.1. Renewal Priority Ranking Criteria for Sealed Roads

In addition to the above points system Council's has a policy whereby a cap of 2/3rds is placed on the proportion of the total funding that can be used in either the rural or urban areas.

To investigate and present renewal plans for different scenarios a prediction modelling software tool (myPredictor) has been used in preparation of this asset management plan. The model uses decision criteria to select road assets for renewal treatments based on their condition, treatments available and funding. The decision criteria used to drive the prediction models are described in the decision matrix below along with the available treatments (Refer to Table 5.4.2).

The aim of using this software is to present for consideration alternative renewal plans and corresponding funding scenarios which would optimise the use of funds in future Capital Works Programmes.

What Treatments do we typically do?	Why do we currently use this treatment/ in what situation is this treatment ideal?	When/why would we not use this treatment?	Comments
Widening and Overlay - Urban			
Reconstruction (increase in pavement depth to 100mm-200mm using the existing pavement plus additional) including kerb and stormwater. Width is dependent on hierarchy according to the development code (northern rivers)	*Complaints *Roughness (+180) (may not have this data at the new segmentation, therefore use rutting or shape loss)	* Cross fall is too high	
Widening			
Reconstruction and stabilisation including kerb and stormwater. Width is dependent on hierarchy according to the development code (northern rivers)	Same as above but there is sufficient pavement depth. (basically the old RTA road)		
Full Reconstruction - Urban			
Full reconstruction. Removal of old pavement and laying down bridging layer with pavement on top. Kerb and Stormwater is included	*Complaints *Roughness (+180) (may not have this data at the new segmentation, therefore use rutting or shape loss) *Cross fall is too high for overlay	* if an overlay is possible we will use that treatment.	Very rare and only done when the cross fall is too high for an overlay (approx. 1 every 3 years)
Rural Reconstruction			
Reconstruction and widening including kerb and stormwater where required. Pavement depth is generally increased to 100mm-200mm, using stabilised existing and additional material.	* Rutting and shape loss *Widespread croc cracking (>50%)		
Super Heavy patch			
Reconstruction and widening. Pavement depth is generally increased to 100mm-200mm, using stabilised existing and additional material.	* Rutting and shape loss (Localised) *Croc cracking (Localised)		

What Treatments do we typically do?	Why do we currently use this treatment/ in what situation is this treatment ideal?	When/why would we not use this treatment?	Comments
Initial Seal			
Converting existing unsealed roads to sealed roads. Road Widening and overlay (including kerb and storm water), pavement depth is generally increased to 100mm-200mm, using stabilised existing and additional material.	Traffic volume		Budget $200,000 a year
Chip Seal - Straight binder (Urban)			
	*Age *Flushing *Stripping	*Heavy Vehicle use *Intersection *industrial estates	
Chip Seal - PMB (Poly modified binder) (Urban)			
	*Age *Flushing *Stripping	*Cost (if we can use a straight Binder we would)	
Asphalt (Urban)			
	*Age *Cracking *Oxidisation **Only in high volume areas and the CBD (AADT = +8000) **Major Intersection		
Chip Seal - Straight Binder (Rural)			
	*Age *Stripping *Flushing	*not used in high volume areas, eg entrance to the quarry.	*is used in 95% of cases

Table 5.4.2. Sealed Road Treatments Decision Matrix

5.4.2 Renewal standards

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

Northern Rivers Local Government Development Design and Construction manuals	Provides the standards of design and construction as a result of renewal or upgrade works undertaken by Council or for those assets that will vest in Council following new property developments.
Austroads Guides, Commentaries and Reports and Australian Asphalt Pavement Association Work Tips, Specifications and Guidelines.	Provides industry standards of design and construction, notes, guides and work tips.

5.4.3 Summary of future renewal expenditure

The objective of this Section is to model the deterioration of the Council's Road network by developing simulation models using the myPredictor modelling software to identify the future 10 year renewal expenditure requirements.

This process involved; setting up life cycle paths for condition criteria such as cracking, pavement defects and surface texture, identifying the current treatments and unit rates to deliver renewal treatments and setting up treatment decision matrices (matrices based on selected condition criteria that when matching will drive a treatment based on the condition).

By utilising the above process and setting up the criteria and logic within the myPredictor modelling software, it has been possible to model the future costs of Council's road asset renewal requirements and also to predict the future condition of Council's Road assets based on the current expenditure.

This RAMP is based upon the best information that was available at the time the plan was written. The following Table below summarises the confidence levels of information contained in this RAMP.

Asset Category	Confidence Rating				
	Quantity	Condition	Age	Performance	Overall
Sealed Roads	A	A	N/A	C	B+
Unsealed Roads	A	A	N/A	C	B+
Footpaths	A	A	N/A	C	B+

Confidence Grade	General Meaning
A	Highly Reliable < 2% uncertainty Data based on sound records, procedure, investigations and analysis which is properly documented and recognised as the best method of assessment
B	Reliable ± 2-10% uncertainty Data based on sound records, procedures, investigations, and analysis which is properly documented but has minor shortcomings' for example the data is old, some documentation is missing and reliance is placed on unconfirmed reports or some extrapolation.
C	Reasonably Reliable ± 10 – 25 % uncertainty Data based on sound records, procedures, investigations, and analysis which is properly documented but has minor shortcomings' for example the data is old or incomplete, some documentation is missing and reliance is placed on unconfirmed reports or significant extrapolation.
D	Uncertain ± 25 –50% uncertainty Data based on uncertain records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolation from a limited sample for which grade A or B data is available.
E	Very Uncertain > 50% uncertainty Data based on unconfirmed verbal reports and/or cursory inspection and analysis

Note that uncertainty is cumulative. Therefore the uncertainty limits in financial forecasts will be the sum of the inaccuracies of the data and quality of assumptions that is used to produce it.

Sealed Road Scenarios:

Three scenarios have been modelled for both Urban and Rural networks as shown below:

Scenario (Urban)	Level of Service	Annual Renewal Required	Result
1. Current Spend on Capital works.	Reseal the network Approx. every 20 years. Reconstructed the network approx. every 100 years.	$2.16m	Average Overall Condition is maintained at current level of approximately 2 over the 10 year period.
2. Improve overall condition.	Reseal the network Approx. every 10 years. Reconstructed the network approx. every 60 years.	$3.3m	Average Overall Condition is improved to approximately 1.7 in 10 years.
3. Zero funding for capital works.	Level of service is to only undertake maintenance works like pothole patching to keep the roads serviceable.	$0.00	Average Overall condition index drops to approximately 3.7 in 10 years.

Figure 12 below illustrates the predicted urban sealed road OCI (Overall Condition Index) average condition scores for the 3 scenarios listed above.

As evident from the prediction modelling, the current allocated capital expenditure (Scenario 1) will suffice in terms of maintaining Council's current levels of service for urban roads (1.97 in year 1 to 2.03 in year 10). An increase in funding of 54% to achieve optimal reseal and reconstruction timeframes (Scenario 2) would see a slight improvement in the network OCI.

Scenario 3 illustrates that should no capital works funding be allocated for a period of 10 years, that the average condition score of Council's Urban sealed road network would rapidly deteriorate.

Scenario (Rural)	Level of Service	Annual Renewal Required	Result
1 .Current Spend on Capital works	Marginal reduction in the Level of service	$2.60m	Marginal reduction in the overall condition.
2. Maintain current overall condition.	Maintain the network at approximately the current LOS (Pavement 2.5 and Surface 2)	$3.46m	Current condition maintained.
3. Zero funding for capital works.	Level of service is to only undertake maintenance works like pothole patching to keep the roads serviceable	$0.00	Significant reduction in the overall condition.

Figure 13 below illustrates the predicted rural sealed road OCI (Overall Condition Index) average condition scores for the 3 scenarios listed above.

The prediction modelling indicates that the current allocated capital expenditure (Scenario 1) will result in a decline in the average network condition score for rural sealed roads. An increase in funding of 33% to achieve optimal reseal and reconstruction timeframes (Scenario 2) would maintain the rural network at or above current levels of service (Pavement 2.5 and Surface 2).

Scenario 3 illustrates that should no capital works funding be allocated for a period of 10 years, that the average condition score of Council's Urban sealed road network would rapidly deteriorate.

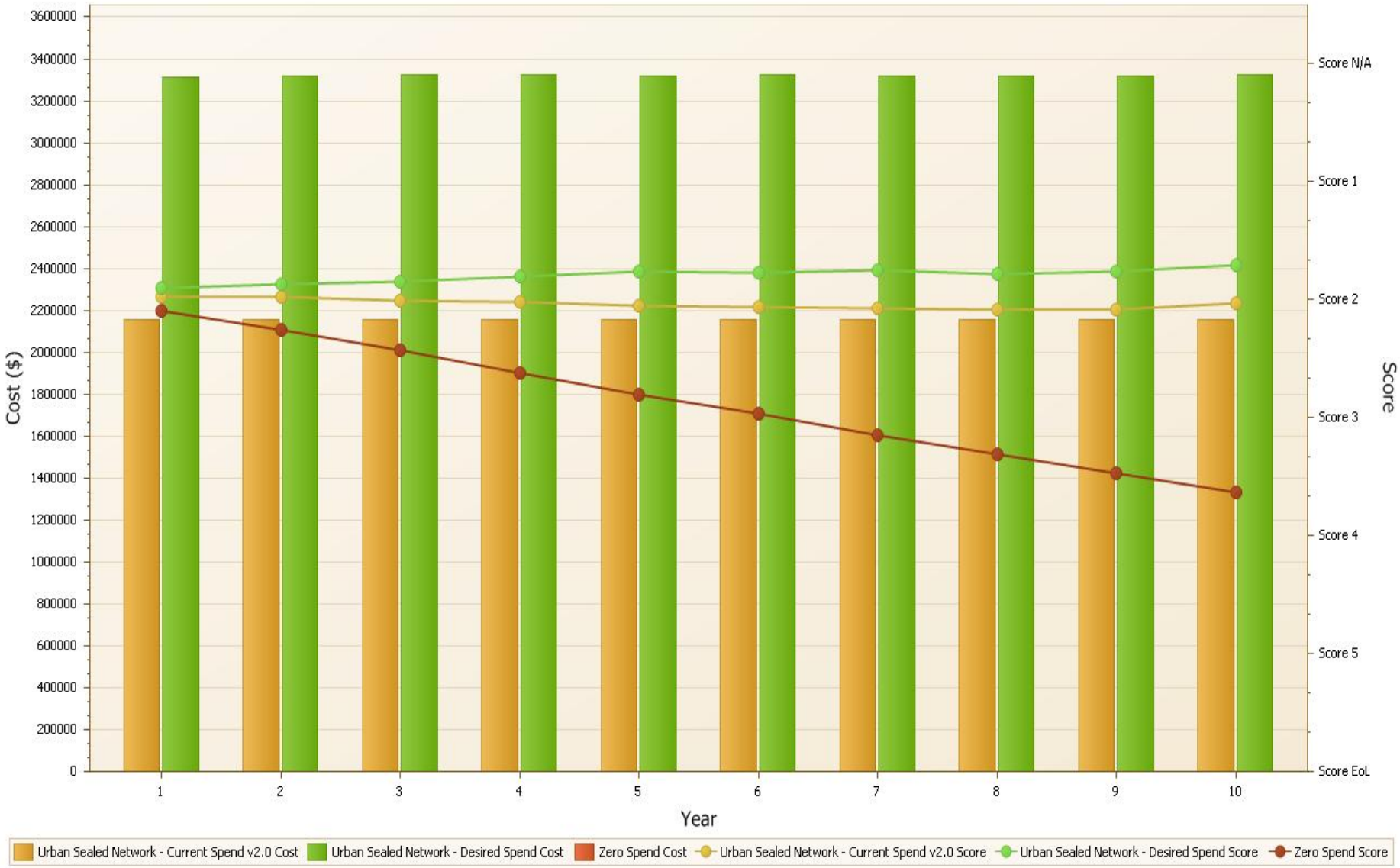


Fig 12: Urban Sealed Road Network – Overall Condition Index

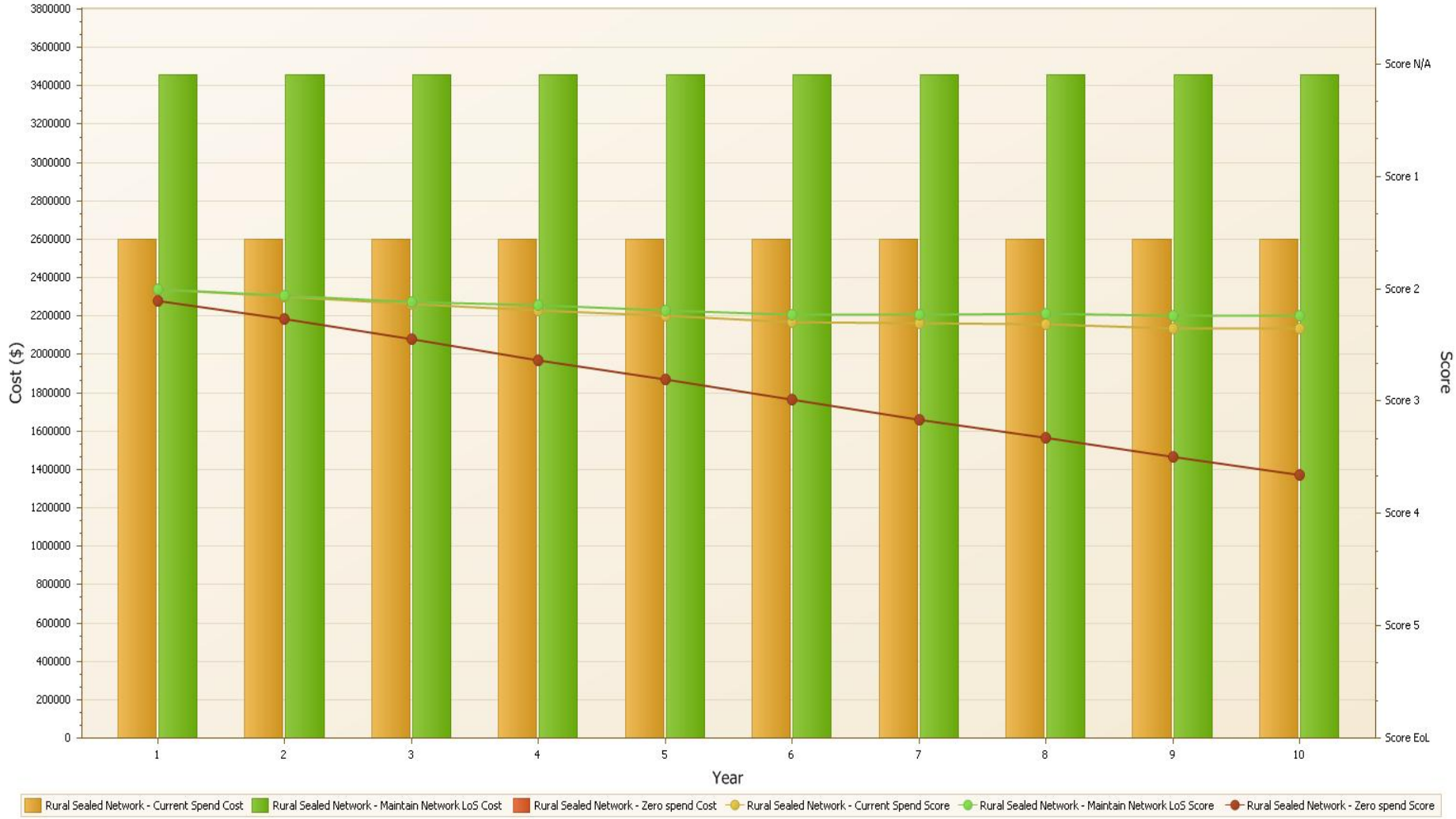


Fig 13: Rural Sealed Road Surface – Average Condition Index

Footpaths

Three scenarios have been modelled as shown below:

Scenario	Level of Service	Annual Renewal Required	Result
1. Current Spend on Capital works		$195,000	Reduction in overall average condition
2. Maintain current overall condition	To maintain optimal LOS possible for the modelled intervention levels.	$275,885	Maintain current overall average condition
3. Zero funding for capital works.	Level of service is to only undertake maintenance works like pothole patching to keep the roads serviceable	$0.00	Overall average condition drops to 2.1 over 10 years

Figure 14 below illustrates the predicted footpath OCI (overall condition Index) average condition scores for the 3 scenarios listed above.

Scenario 1 (Current Spend) indicates a decrease in the footpath network OCI over the next 10 years of the model (1.44 in year 1 to 1.81 in year 10). As the funding allocated is not considered to be adequate to maintain the unsealed road network at their current condition level.

Scenario 2 indicates that the OCI drops decreases from 1.43 to 1.75 over the 10 year model. This represents the Optimal LOS achievable for the modelling intervention level in place. A 41% increase in annual renewal spending is required to achieve the Optimal LOS.

Scenario 3 indicates that should no capital works funding be allocated for a period of 10 years, that the average condition score of Council's Urban sealed road network would not rapidly deteriorate but the deterioration is sharper than scenarios 1 and 2, and given the large useful life of the asset the major affects of the zero spend scenario would start to be felt in years beyond this model.

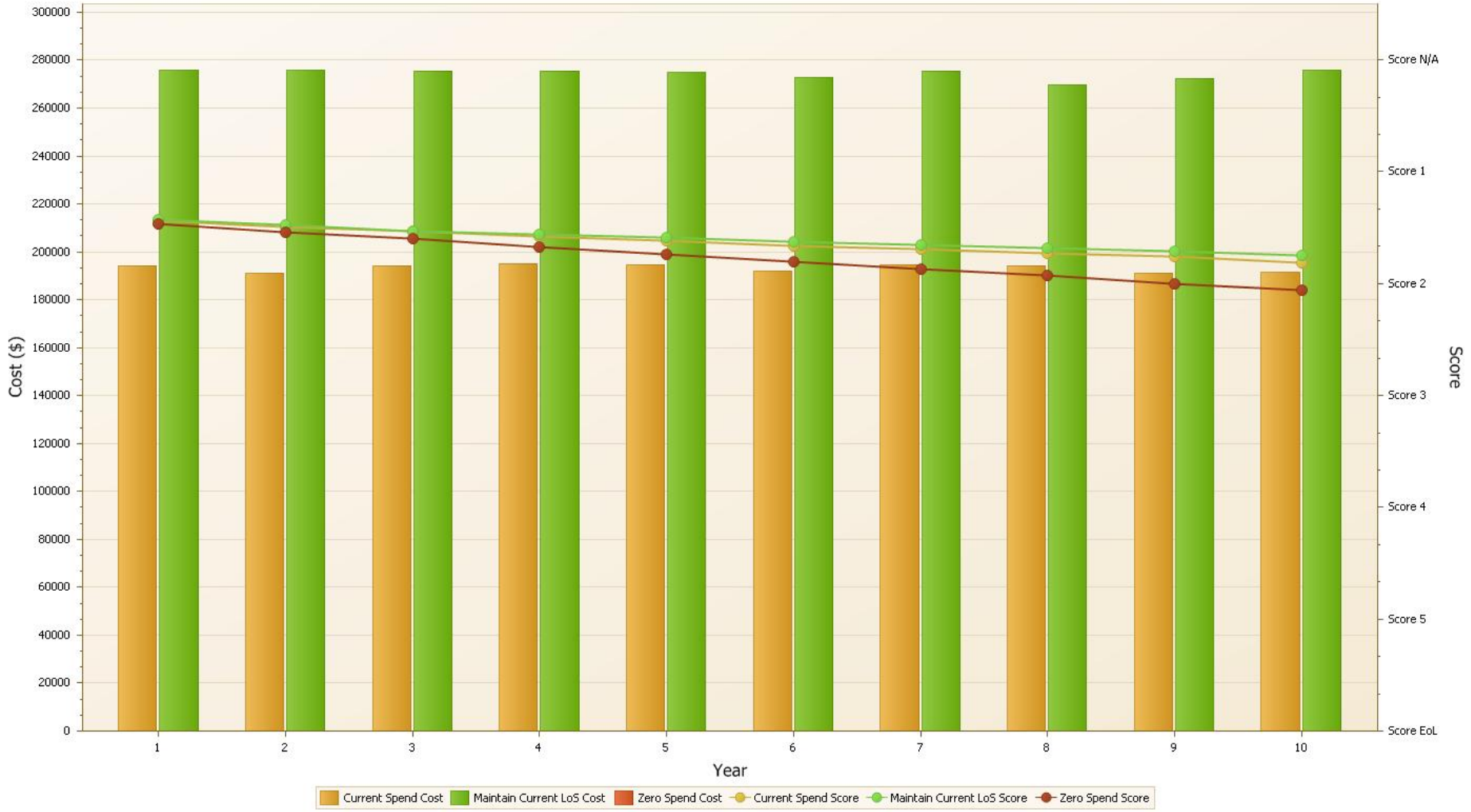


Fig 14: Footpath – Average Condition Index

How will Council manage the road asset funding gap?

Council is putting strategies in place to mitigate the risk of asset loss. The first steps in this first generation plan are:

1) Recording good quality data.
2) Improving confidence levels in financial predictions.
3) Capturing treatment effectiveness to understand if there are cost effective interim holding treatments.
4) Capturing condition data more effectively and regularly to monitor the effectiveness of treatments and funding efficiencies.
5) Targeting more timely maintenance in future mature asset management planning (2nd – 4th generation plans) to slow the degradation patterns.
6) Seeking extra sources of funding.

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

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

5.5 Creation/ Acquisition/ Upgrade Plan

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

5.5.1 Selection criteria

New assets and upgrade/ expansion of existing assets are identified from various sources such as councillor or community requests, proposals identified by strategic plans or partnerships with other organisations. Candidate proposals are inspected to verify need and to develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds and scheduled in future works programmes. The priority ranking criteria is the same as that used for assets requiring renewal (Figure 5.4.1.).

5.5.2 Standards and specifications

Sealed road work for new or upgrade/ expansion of assets is carried out in accordance with the same Standards and Specifications as provided for maintenance work in Section 5.3.2.

5.5.3 Summary of future upgrade /new assets expenditure

New assets and services are to be funded from Council's capital works program and grants where available. This is further discussed in Section 6.2. Council's current 10 year capital works program is shown in Appendix E.

5.6 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. It is unlikely that any constructed sealed road would be disposed of while it is still in service. It is possible that if a sealed road is deemed underutilised then it may revert back to an unsealed road. There are no plans to dispose of any significant lengths of sealed road at this time.

In the carrying out of road realignment works existing road pavement materials may be ripped up and left in-situ or removed and reused elsewhere. For all practical purposes, the value of salvaged road and footpath materials is of little consequence.

6. FINANCIAL SUMMARY

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

6.1 Financial Statements and Projections

A 10 year financial plan based on current funding is presented in Table 6.1 and Fig 6.1 for capital expenditure (renewal and upgrade/expansion/new assets) and maintenance.

Activity	2010/11 ($,000)	2011/12 ($,000)	2012/13 ($,000)	2013/14 ($,000)	2014/15 ($,000)	2015/16 ($,000)	2016/17 ($,000)	2017/18 ($,000)	2018/19 ($,000)	2019/20 ($,000)
Urban Road Reconstruction	1,503	1,503	1,503	1,503	1,503	1,503	1,503	1,503	1,503	1,503
Urban Road Reseal	262	262	262	262	262	262	262	262	262	262
Urban Road Asphalt Overlay	391	391	391	391	391	391	391	391	391	391
Sub-total	***2,156***	***2,156***	***2,156***	***2,156***	***2,156***	***2,156***	***2,156***	***2,156***	***2,156***	***2,156***
Rural Road Reconstruction	1,932	1,932	1,932	1,932	1,932	1,932	1,932	1,932	1,932	1,932
Rural Road Reseal	668	668	668	668	668	668	668	668	668	668
Sub-total	***2,600***	***2,600***	***2,600***	***2,600***	***2,600***	***2,600***	***2,600***	***2,600***	***2,600***	***2,600***
Footpath Major	134	134	134	134	134	134	134	134	134	134
Footpath Minor	61	61	61	61	61	61	61	61	61	61
Sub-total	***195***	***195***	***195***	***195***	***195***	***195***	***195***	***195***	***195***	***195***
Road Upgrades	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC
Footpath New	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC
Maintenance	1,932	2,042	2,146	2,223	2,309	2,345	2,369	2,330	2,320	2,268
Total	***6,883***	***6,993***	***7,097***	***7,174***	***7,260***	***7,296***	***7,320***	***7,281***	***7,271***	***7,219***

Table 6.1. Funding Distribution – Current Funding

Note: All costs are shown in current 2010 dollar values.

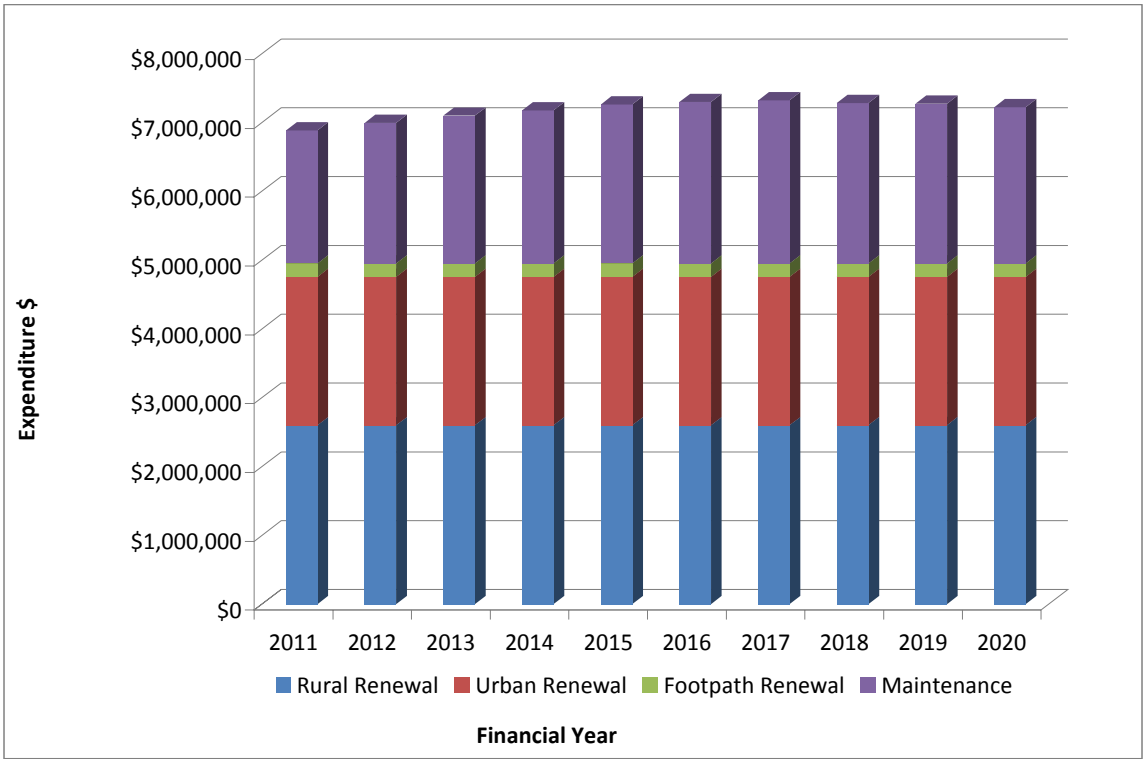


Fig 6.1. Funding Distribution – Current Funding

6.1.1 Sustainability and Service Delivery

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

Long term - Life Cycle Cost

Life cycle costs (or whole of life costs) are the average costs that are required to sustain the service levels over the longest asset life. Life cycle costs include maintenance and asset consumption (depreciation expense). The annual average life cycle cost for the services modelled in this asset management plan is $10.49 million.

Life cycle costs can be compared to life cycle expenditure to give an indicator of sustainability in service provision. Life cycle expenditure includes maintenance plus capital renewal expenditure. Life cycle expenditure will vary depending on the timing of asset renewals. The life cycle expenditure at the start of the plan is $6.88 million.

A gap between life cycle costs and life cycle expenditure gives an indication as to whether present consumers are paying their share of the assets they are consuming each year. Generational equity is an important consideration.

The purpose of this roads asset management plan is to identify levels of service that the community needs and can afford and develop the necessary long term financial plans to provide the service in a sustainable manner.

The life cycle gap for services modelled in this asset management plan is $3.61 million per annum. The life cycle sustainability index is 0.66.

Medium term – 10 Year Financial Planning Period

The projected and planned asset renewal expenditures in the 10 year planning period from the myPredictor model are presented in Table 6.1.1. The budget figures for the projected renewals are based on the calculated costs to maintain the overall condition of the assets at the same level as they currently exist. These figures were presented in section 5.4.3 earlier in the plan.

Year	Projected Renewals	Planned Renewals	Renewal Funding Gap	Cumulative Gap
1	5,890,442.24	4,949,573.24	940,869.00	940,869.00
2	5,890,924.34	4,946,295.99	944,628.35	1,885,497.35
3	5,890,888.44	4,949,668.57	941,219.87	2,826,717.22
4	5,890,317.42	4,950,617.42	939,700.00	3,766,417.22
5	5,890,259.91	4,950,295.41	939,964.50	4,706,381.72
6	5,888,346.69	4,947,716.74	940,629.95	5,647,011.67
7	5,890,443.90	4,949,913.75	940,530.15	6,587,541.82
8	5,883,467.82	4,949,931.52	933,536.30	7,521,078.12
9	5,887,476.83	4,947,213.58	940,263.25	8,461,341.37
10	5,891,158.96	4,947,602.33	943,556.63	9,404,898.00

Table 6.1.1 Projected and Planned Renewals and Expenditure Gap

Council's long term financial plan covers the first 10 years of the 20 year planning period. The total maintenance and capital renewal expenditure required over the 10 years is $72.6 million.

This is an average expenditure of $7.26 million per annum. Estimated maintenance and capital renewal expenditure in year 1 is $6.88 million. The 10 year sustainability index[2] is 0.88.

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

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

Council will manage the 'gap' by developing this asset management plan to provide guidance on future service levels and resources required to provide these services, and what will be the result if the gap is not funded such as:

- Reduced levels of service.
- Reduced customer satisfaction levels.
- Increased risk/safety.
- Greater proportion of asset in poor condition

6.2 Funding Strategy

Projected expenditure identified in Section 6.1 is to be funded from Council's operating and capital budgets. The funding strategy is detailed in the Council's 10 year long term financial plan. Achieving the financial strategy may require increasing rates, receiving larger amounts of State and Federal Government funding, disposing of assets to generate income or accepting a lower level of service.

[2] Sustainability index = Actual expenditure / desired expenditure

6.3 Valuation Forecasts

Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by Council and from assets constructed by land developers and others and donated to Council. Fig 6.3(a) shows the projected replacement cost asset values over the planning period in current 2009 dollar values.

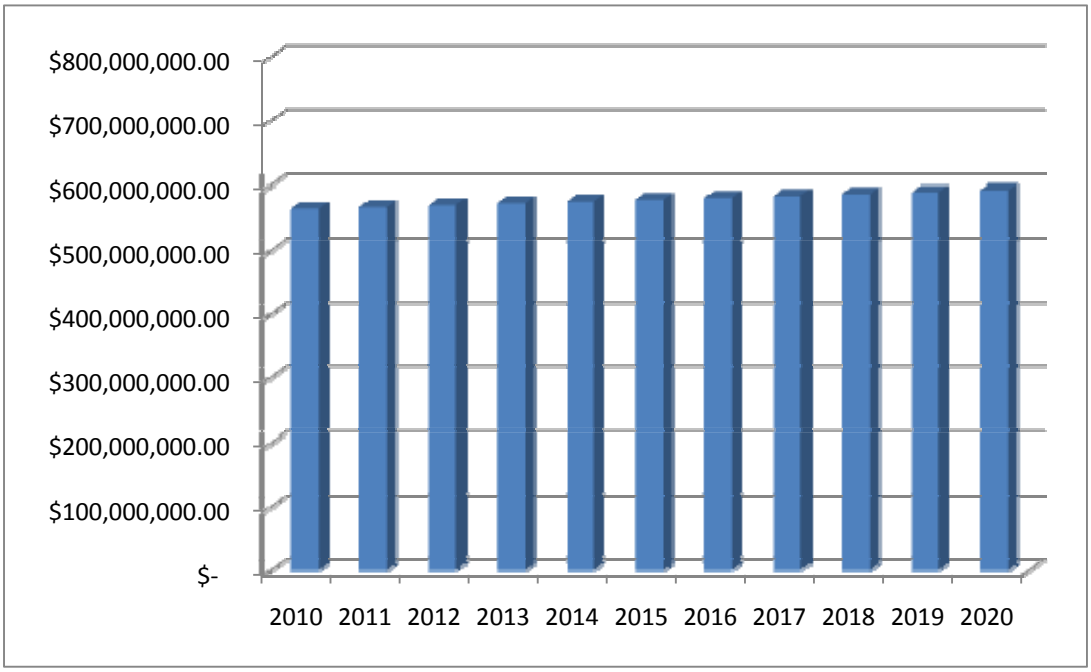


Fig 6.3(a). Projected Asset Values

Depreciation expense values are forecast in line with asset values as shown in Fig 6.3(b).

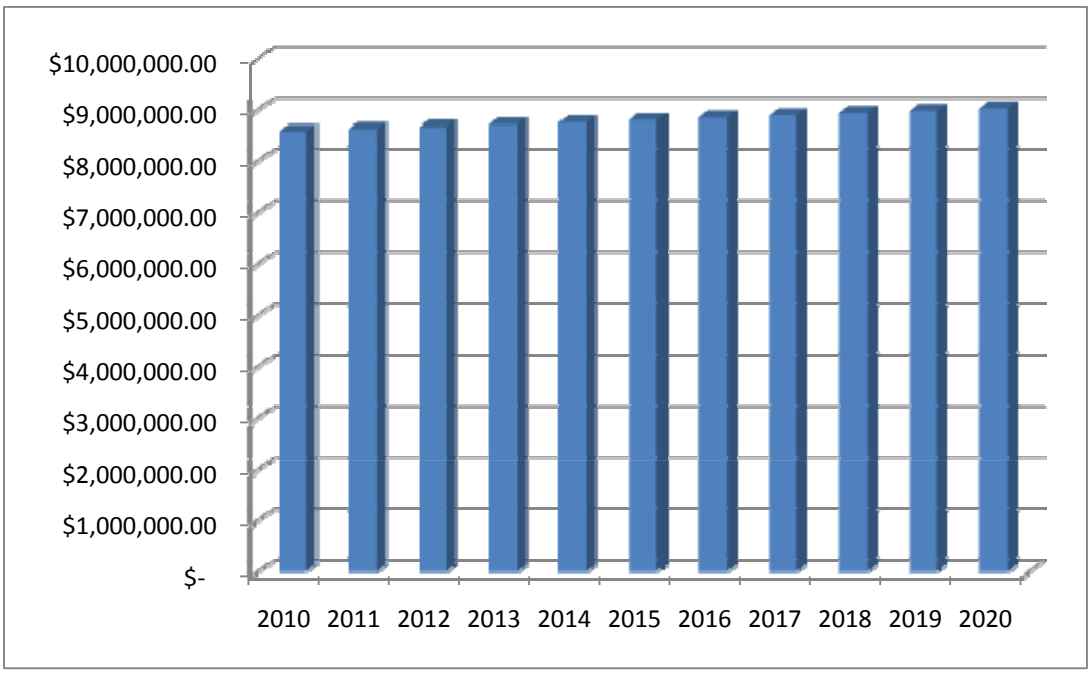


Fig 6.3(b). Projected Depreciation Expense

6.4 Key Assumptions made in Financial Forecasts

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

Key assumptions made in this asset management plan are:

- The current levels of service will remain constant over the life of this RAMP.
- The treatment and maintenance costs are based on Council's current schedule of rates and may not directly compare to Councils internal service provision actual costs.
- All predicted financial figures are based on 2009/10 rates and are not adjusted by the inflation rate for the particular year of works.

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

- Consult with the community and other stakeholders to finalise the levels of service currently being delivered.
- Refine and improve the prediction modelling (life cycle paths and decision matrices).

7. ASSET MANAGEMENT PRACTICES

7.1 Accounting/Financial Systems

Council uses CIVICA's 'Authority' as it corporate computer system. Authority has a suite of accounting/financial modules to meet all day to day operational and reporting requirements.

The Manager Finance is delegated the statutory responsibility as Council's 'Responsible Accounting Officer'. The Responsible Accounting Officer is to ensure that Council has adequate control systems, processes and procedures in place and these being applied to meet all financial operating and reporting requirements.

The Local Government Act 1993 (Act) Chapter 13 sets of requirements for management reporting, accounting, auditing and financial reporting requirements for Council. The NSW Division of Local Government also issues the 'Local Government Code of Accounting Practice and Financial Reporting', which assist in the interpretation and application of the Act, and the application of Australian Accounting Standards to the audit and financial reporting functions.

The Government Code of Accounting Practice and Financial Reporting also provides a mechanism which ensures appropriate accounting policies and practices are adopted. For infrastructure, significant accounting policies are detailed in the annual financial reports. These include polices on the acquisition of assets, initial asset recognition, subsequent costs, asset revaluations, capitalisation thresholds, depreciation and disposal and de-recognition.

It is possible that changes will be required to accounting policies and practices resulting from this RAMP. These will be assessed and implemented as soon as practical.

7.2 Asset Management Systems

Councils adopted Asset Management System is ‘AIM’ (Asset and Infrastructure Management) a component of CIVICA's 'Authority' System.

AIM links to the Authority accounting system through the use of Work Orders and Tasks. Asset Valuations can be stored in AIM but are also stored in the Capital Value Record (CVR) component of Authority.

The Manager Assets is ultimately responsible for Asset Management Systems. AIM securely stores asset data by restricting access to staff delegated with the responsibility of updating information.

The development of the AIM hierarchy for all Road assets is incomplete. Council has engaged consultants to revalue Road Assets at Fair Value and part of this process is the segmentation and componentisation its road assets. Capacity, Condition and Valuation data relating to these road assets may then be bulk loaded into AIM.

7.3 Information Flow Requirements and Processes

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

- The asset register data on size, age, value, remaining life of the network;
- The unit rates for categories of work/material;
- The adopted service levels;
- Projections of various factors affecting future demand for services;

- Correlations between maintenance and renewal, including decay models;
- Data on new assets acquired by council.

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

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

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

As the AM information is stored within a module of the Financial Management System the flow of information from the AM to financial systems is through automated links.

Council recognises that the process for recognising new assets and capitalisation requires reviewing and improving.

7.4 Standards and Guidelines

Council has adopted an Asset Management Policy based on an IPWEA document template which supports the development of Asset Management Plans for all asset groups.

8. PLAN IMPROVEMENT AND MONITORING

8.1 Performance Measures

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

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

8.2 Improvement Plan

The asset management improvement plan generated from this asset management plan is shown in Table 8.2.

Task No	Task	Responsibility	Resources Required	Timeline
1.	Finalise desired levels of service by establishing current performance and setting performance targets. Have these Levels of Service adopted by Council.			
2.	Bulk upload all new segmented and componentised road asset data into AIM			
3.	Consider growth in modelling			
4.	Separation and determination of capital upgrade expenditure from capital renewal expenditure and capital new expenditure			
5.	Improved delineation of planned, cyclic and reactive maintenance activities			
6.	Develop improved asset information flow processes			
7.	Expand the asset groups covered by this plan to include all council transport assets (bridges and all road drainage assets)			
8.	Obtain Council approval of this Plan			
9.	Review response levels of service for reactive maintenance			
10.	Develop Councils Data collection manuals to ensure repeatability and on-going improvement of condition data collection and modelling processes			
11.	Test the current levels of service, to determine 'a confidence level' for reasonableness			
12.	Test the current levels of service to determine if they are achievable for current budgets.			
13.	Undertake a consultation exercise with stakeholders to determine if the levels of service are appropriate and meet community expectations.			
14.	Review budget allocations to ensure they match levels of service.			
15.	Assess the structure and resources within Council, to ensure that the RAMP can be effectively implemented.			

Table 8.2 Improvement Plan

8.3 Monitoring and Review Procedures

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

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

REFERENCES

Lismore Community Strategic Plan 2008 – 2018

Lismore City Council, Management Plan 2009/10 – 2012

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

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

APPENDICES

Appendix A ***Abbreviations***

Appendix B ***Glossary***

Appendix C ***Intervention Levels for Upgrades, Expansion or Reconstruction***

Appendix D ***Routine maintenance response levels of service***

Appendix E ***Planned 10 year Capital Works Program***

APPENDIX A ABBREVIATIONS

ABBREVIATIONS

AAAC Average annual asset consumption

ACEAM Australian Centre for Excellence in Asset Management

AIM Asset and infrastructure management (software)

AMP Asset management plan

CRC Current replacement cost

DA Depreciable amount

EF Earthworks/formation

IMG Infrastructure Management Group

IRMP Infrastructure risk management plan

LCC Life cycle cost

LCE Life cycle expenditure

LOS Level of service

MMS Maintenance management system

OCI Overall condition index

PCI Pavement condition index

RAMP Road asset management plan

RV Residual value

TBC To be confirmed

vph Vehicles per hour

APPENDIX B GLOSSARY

GLOSSARY

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

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

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

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

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

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

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

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

Capital expansion expenditure
Expenditure that extends an existing asset, at the same standard as is currently enjoyed by residents, to a new group of users. It is discretional expenditure, which increases future operating, and maintenance costs, because it increases council's asset base, but may be associated with additional revenue from the new user group, e.g. 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.

Demand Management**
The process of influencing demand for goods or services by controlling the conditions that users will encounter when using the goods or services.

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.

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.

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

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

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

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

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

Maintenance and renewal sustainability index
Ratio of estimated budget to projected expenditure for maintenance and renewal of

assets over a defined time (eg 5, 10 and 15 years).

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

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

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

Non-revenue generating investments
Investments for the provision of goods and services to sustain or improve services to the community that are not expected to generate any savings or revenue to the Council, e.g. 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 **

APPENDIX C INTERVENTION LEVELS FOR UPGRADES, EXPANSION OR RECONSTRUCTION

	Intervention Levels	Widening and Overlay (reconstruction)	Chip Seal – Straight binder.	Chip Seal – Polymer binder.	AC Overlay	Gravel Resheeting
Conditions	Crocodile Cracking	primary driver between condition 5 and 6	Secondary Driver	Secondary Driver		
	Linear Cracking	primary driver between condition 5 and 6				
	Texture (bleeding, flushing, stripping)		primary driver between condition 3 and 5	primary driver between condition 3 and 5		
	Pavement Defects	primary driver			primary driver	
	Surface Type	SS/AC	SS	SS	AC	
	Road width					
	Pavement depth					
	Hierarchy	Priority factor				
	Classification	Urban	Rural	Rural	Urban	Gravel
	Gravel condition					primary driver

APPENDIX D ROUTINE MAINTENACE RESPONSE LEVESL OF SERVICE

ROUTINE MAINTENANCE ITEMS	IL CODE	INTERVENTION LEVEL	RESPONSE TIME				
			CLASS				
			Arterial	Sub Arterial	Collector	Sub Collector	Local Road
1.0 Unsealed Roads							
1.1 Pothole Maintenance on Unsealed Roads	UR01	Pothole > 300mm depth	N/A	N/A	6 months	6 months	12 months
1.2 Repair of General Pavement Defects on Unsealed Roads	UR03	Scouring or corrugations >100mm depth and length < 20m.	N/A	N/A	3 months	3 months	3 months
1.3 Management of Loose Material on Unsealed Roads	UR04	Loose material >100mm depth at any location on the pavement and <20m2	N/A	N/A	1 month	1 month	3 months
2.0 Sealed Roads							
2.1 Pothole Maintenance	SR01	Pothole repair > 75mm	2 weeks	4 weeks	6 weeks	8 weeks	12 weeks
	SR02	Any pothole with depth > 40mm and/or dimension of 350mm in any orientation in the plane of the road surface.	2 weeks	4 weeks	6 weeks	8 weeks	12 weeks
2.2 Pavement Texture Maintenance	SR03	Crocodile cracking < 10m2	2 months	2 months	4 months	4 months	6 months
	SR04	Longitudinal cracking < 20m	4 months	4 months	8 months	8 months	12 months
	SR05	Flushing < 5m2	4 months	4 months	8 months	8 months	12 months
	SR06	Stripping < 5m2	4 months	4 months	8 months	8 months	12 months

ROUTINE MAINTENANCE ITEMS	IL CODE	INTERVENTION LEVEL	RESPONSE TIME				
			CLASS				
			Arterial	Sub Arterial	Collector	Sub Collector	Local Road
2.3 Edge Break Maintenance	SR07	Any edge break with a deviation from the nominal seal edge of > 250mm.	1 week	1 week	2 weeks	2 weeks	4 weeks
2.4 Edge Drop Off Maintenance	SR08	Any edge drop off with a depth > 100mm over 20m length.	1 week	1 week	2 weeks	2 weeks	4 weeks
2.5 Shoving Maintenance	SR09	Any shoving with a depth of 150mm as measured under a 1.2m straight edge, made safe.	1 week	1 week	2 weeks	2 weeks	4 weeks
2.6 Pavement Sweeping, Includes Trafficable Area of Pavements, Traffic Lanes & Sealed Shoulders.	SR10	Accumulation of aggregate, soil or debris. Any individual area where the material is hazardous to vehicles, cyclists or pedestrians.	4 days	4 days	7 days	7 days	3 weeks
3.0 Unsealed Shoulders, Verges and Roadside Amenities.							
3.1 Maintenance of Unsealed Shoulders, Verges & Roadside Amenities.	SV01	Any scouring, corrugations or potholing individually or collectively with a depth > 100mm	1 week	1 week	2 weeks	2 weeks	4 weeks
	SV02	Water ponding in the shoulder over lengths > 5m.	1 month	1 month	2 months	2 months	4 months
	SV03	Any pothole with a depth > 150mm & / or dimension of 400mm in the plane of the unsealed surface.	2 months	2 months	4 months	4 months	6 months

ROUTINE MAINTENANCE ITEMS	IL CODE	INTERVENTION LEVEL	RESPONSE TIME				
			CLASS				
			Arterial	Sub Arterial	Collector	Sub Collector	Local Road
4.0 Drainage							
4.1 Table Drain, Open Drain & Channel Maintenance.	DR01	Isolated (> 10 linear m &/or >2 m3) blockages e.g. rock falls, rubbish, vegetation, cuttings, leaf falls &/or debris that prevent the free flow of water.	1 month	2 months	3 months	4 months	6 months
4.2 Kerb & Gutter Maintenance.	DR02	Isolated blockages <5m in length (>30% of cross sectional area).	4 months	4 months	6 months	6 months	12 months
	DR03	>50% of cross sectional area blocked.	2 months	2 months	4 months	4 months	6 months
5.0 Traffic Facilities.							
5.1 Guideposts (Replacement)	TF01	Identify & replace all missing or damaged guideposts at culverts.	1 month	2 months	3 months	4 months	6 months
5.2 Delineator Replacement	TF02	For all traffic facilities that have delineators, replace any missing, damaged, painted over or ineffective delineators.	1 month	2 months	3 months	4 months	6 months
5.3 Sign Straightening / Slippage	TF03	Intervention is required when sign is: a) Leaning from vertical & / or rotated from correct position by >45 deg. b) Vertically displaced on post by >0.5m.	2 weeks	2 weeks	4 weeks	4 weeks	2 months

ROUTINE MAINTENANCE ITEMS	IL CODE	INTERVENTION LEVEL	RESPONSE TIME				
			CLASS				
			Arterial	Sub Arterial	Collector	Sub Collector	Local Road
6.0 Roadside, Verge & Litter Management.							
6.1 Management of Sight Distance to Signs	VG01	Vegetation that impedes sight distance to signs from a distance of 200m, as viewed from an approaching vehicle.	4 weeks	6 weeks	8 weeks	10 weeks	12 weeks
6.2 Collection of Litter & Debris.	VG02	Litter that creates a hazard to vehicles or pedestrians. e.g. Glass, large dead animals, large obstruction on the pavement.	2 weeks	2 weeks	4 weeks	4 weeks	8 weeks
7.0 Footpath Maintenance							
7.1 Trip Hazards and Footpath Faults	FP01	>20mm steps or displacements >40mm over a 2sqm area	3 months	3 months	6 months	6 months	12 months

APPENDIX E PLANNED 10 YEAR CAPITAL WORKS PROGRAM

10 Year Urban Roads Capital Works Program

Priority Rating	Road Name	Location	Cost ($)
1	New Ballina Road	Milton Street to Rotary Drive	480,000
2	Avondale Avenue - Stage 1	First Avenue to Wyrallah Road	360,000
3	Elizabeth / College Streets	Wyrallah Road to Caldwell Avenue	420,000
4	Bellevue Avenue	High Street to Donnans Road	399,100
5	Jubilee Street	Diadem Street to Hunter Street	270,000
6	Diadem Street - Stage 1	Uralba Street to Gaggin Lane	420,000
7	Conway Street - Stage 3	Keen Street to Molesworth Street	500,000
8	New Ballina Road	Hunter Street to O'Flynn Street	450,000
9	Zadoc Street	Molesworth Street to Keen Street	440,000
10	Avondale Avenue - Stage 2	Second Street to First Avenue	450,000
11	Centre Street	Casino Street to Charles Street	440,000
12	Phyllis Street	Wilson Street to Crown Street	420,000
13	Gaggin Lane	Brewster Street to Diadem Street	220,000
14	Cooling Street	High Street to Mackay Street	280,000
15	Kareela Avenue	Valley View Drive to Donnans Road	100,000
16	Diadem Street - Stage 2	Gaggin Lane to Leycester Street	330,000
17	Bounty Street	Molesworth Street to End	330,000
18	Dawson Street	Ballina Road to Parkes Street	340,000
19	Ostrom Street	From Casino Street	510,000
20	Newbridge Street	Union Street to Wilson Street	100,000
21	Esmonde Street	Wyrallah Road to Stocks Street	180,000
22	O'Flynn Street - Stage 1	New Ballina Road to High Street	440,000
23	O'Flynn Street - Stage 2	New Ballina Road to High Street	700,000
24	Ubrihien Street	Dibbs Street to Shelley Avenue	520,000
25	Walker Street	College Street to Military Road	580,000

Priority Rating	Road Name	Location	Cost ($)
26	McKenzie Street – Stage 1	Crescent Street to Dibbs Street	270,000
27	McKenzie Street – Stage 2	Diadem Street to Hunter Street	390,000
28	Aurora Street	Dibbs Street to Nielson Street	620,000
29	Esmonde Street	Elton Street to Wyrallah Road	380,000
30	Webster Street	Wilson Street to Crown Street	440,000
31	Brewster Street	Drain to Ballina Road	495,000
32	Cathcart Street	Conway Street to Magellan Street	305,000
33	Molesworth Street	Ballina Road to Junction Street	450,000
34	Charles Street	Wilson Street to Crown Street	435,000
		Total:	**$13,464,100**

Rural Roads Capital Works Program

Priority Rating	Road Name	Location	Estimate
1	Rous Road - Stage 1	Taylors Road to Muller Road	520,000
2	Rous Road - Stage 2	Muller Road to Connor Road	500,000
3	Dorroughby Road – Stage 2	Corndale Road (0.3 - 0.7km)	319,100
4	Caniaba Road	Fredericks Road (5.4 - 5.9km)	430,000
5	Newton Drive	Tuntable Falls Road	390,000
6	Cawongla Road - Stage 3	7.5 - 8.0km Nth Rock Valley Road	370,000
7	Cowlong Road - Stage 1	Daniel Roberts Drive	480,000
8	Cowlong Road - Stage 2	Lavis Road to McKenzie Road	480,000
9	Boatharbour Road - Stage 1	Eltham Road – 0.7km South	390,000
10	Boatharbour Road - Stage 2	Alexander Lane – 1km North	560,000
11	Whian Whian Road - Stage 2	MR306 (Dunoon Road) to Bridge	480,000
12	Boatharbour Road - Stage 3	Cameron Road – 1km North	560,000
13	Whian Whian Road - Stage 3	Ashlin Road – 0.8km South	390,000
14	Numulgi Road - Stage 2	2.1 - 3.1km Nth Woodlawn Road	520,000
15	Numulgi Road - Stage 3	3.5 - 4.0km Nth Woodlawn Road	260,000

Priority Rating	Road Name	Location	Estimate
16	Tucki Road - Stage 1	4.4 - 5.4km Nth Wyrallah Road	560,000
17	Tucki Road - Stage 2	3.4 - 4.4km Nth Wyrallah Road	560,000
18	Tucki Road - Stage 3	2.5 - 3.4km Nth Wyrallah Road	504,000
19	James Gibson Road – Stage 1	4.5 - 5.1km East Corndale Road	390,000
20	James Gibson Road - Stage 2	3.3 - 4.5km East Corndale Road	770,000
21	Boatharbour Road - Stage 4	6.0 - 7.0km Nth Bangalow Road	560,000
22	Cawongla Road - Stage 4	10.8 - 11.7km Nth Rock Valley Road	450,000
23	Cawongla Road - Stage 5	12.2 - 12.8km Nth Rock Valley Road	390,000
24	Boatharbour Road – Stage 5	5.3 to 6.0km Nth Bangalow Road	390,000
25	Cawongla Road - Stage 6	9.5 - 10.4km Nth Rock Valley Road	385,000
26	Cawongla Road - Stage 7	13.4 - 13.8km Nth Rock Valley Road	260,000
27	Cawongla Road - Stage 8	13.8 - 15.2km Nth Rock Valley Road	900,000
28	Woodlawn Road	2nd Railway Bridge to Savins Road	450,000
29	Crofton Road	0.1 - 0.5 km north of Nimbin Road	260,000
30	Pinchin Road - Stage 3	3.7 - 4.7km East Nimbin Road	350,000
31	Tatham Road	Bruxner Highway - 2.3 Km south	800,000
32	Pearson Road	McKenzie Road to Eltham Road	650,000
33	Keerrong Road	Various Sections	600,000
34	Kilgin Road	Various Sections	500,000
35	Rosehill Road	Rock Valley Road Intersection	300,000
		Total:	**$16,678,100**