



Road and Road Infrastructure Network Asset Management Plan

PLANNING FOR OUR PEOPLE
OUR PLACE OUR FUTURE

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1. EXECUTIVE SUMMARY

Context

Cessnock City Council provides a road network in partnership with other Roads authorities such as Roads and Maritime Services and neighbouring Councils to allow for safe and efficient pedestrian, cycle and motor vehicle transportation.

Based on available asset information Cessnock Council's road network comprises of:

- 328 km of Unsealed Roads
- 697 km of Sealed Roads
- 365 km Kerb & Gutter
- 94 km Footpaths
- 55 Carparks
- 83 Bus Shelters
- 100 Pedestrian Refuges
- 21 Round-a-Bouts

These infrastructure assets have a replacement value of approximately **\$577,908,000**.

What does it Cost?

To determine the projected outlays necessary to provide the services covered by this Asset Management Plan (AM Plan/AMP) including; operations, maintenance, renewal and upgrade of existing assets over the 10 year planning period, Council has developed two funding scenarios.

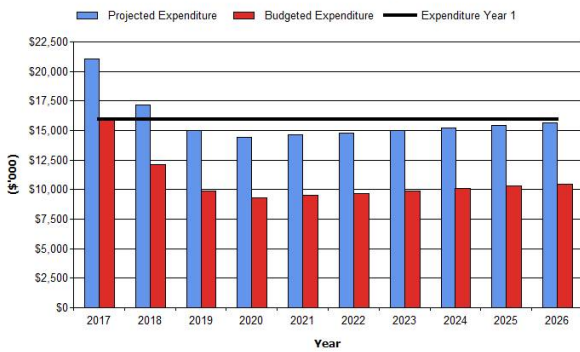
Scenario 2, based on feedback received from Community Consultation undertaken in 2015, is the funding required to keep the asset stock in condition 3 "average" or better. Scenario 3 is development from the available funds outlined in Councils' Long Term Financial Plan. The following tables highlight Councils' financial position when considering the projected outlays of scenario 2 "S2" or scenario 3 "S3":

2017 Roads_S2_V2	
Executive Summary - What does it cost?	(\$000)
10 year total cost [10 yr Ops, Maint, Renewal & Upgrade Proj Exp]	\$158,283
10 year average cost	\$15,828
10 year total LTFP budget [10 yr Ops, Maint, Renewal & Upgrade LTFP Budget]	\$107,101
10 year average LTFP budget	\$10,710
10 year AM financial indicator	68%
10 year average funding shortfall	\$-5,118

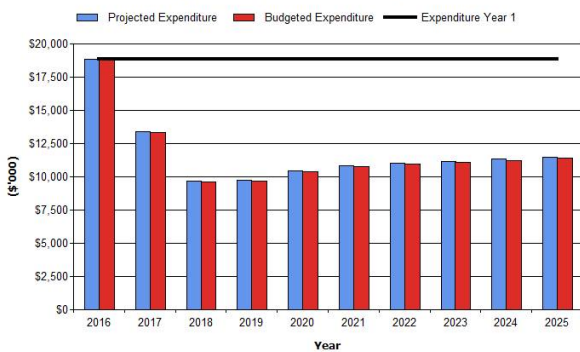
2017 Roads_S3_V2	
Executive Summary - What does it cost?	(\$000)
10 year total cost [10 yr Ops, Maint, Renewal & Upgrade Proj Exp]	\$107,493
10 year average cost	\$10,749
10 year total LTFP budget [10 yr Ops, Maint, Renewal & Upgrade LTFP Budget]	\$107,101
10 year average LTFP budget	\$10,710
10 year AM financial indicator	100%
10 year average funding shortfall	\$-39

The following graphs show the projected expenditure required to provide services in this AMP, which have been developed from the outlays of scenario 2 & 3. It should be noted that capital construction/upgrade projects, as well as accounting for contributed assets from development will have an influence on projected expenditure. There has been no consideration given to the potential offset that may be possible from additional revenue that Council could generate from these developments.

Cessnock CC - Projected and Budget Expenditure for (2017_Roads_S2_V2)



Cessnock CC - Projected and Budget Expenditure for (2016_Roads_S3_V2)



What we will do

We plan to provide the following road network services within the 10 year planning period of this AMP:

- On-going operation, maintenance, renewal and upgrade of local rural and regional roads to meet service levels set by Council in annual budgets.
- Annual Local Road Renewal & Construction Programs
- Annual Regional Road Renewal & Construction Program
- Annual Pathways Construction Program
- Frame Drive/Gingers Lane/Hart Road
- Sandy Creek Road

What we cannot do

We do **not** have enough funding to provide all services at the desired service levels or provide all required new services. Works and

services that cannot be provided under present funding levels are:

- The optimised annual road rehabilitation and renewal

Managing the Risks

There are risks associated with providing the service and not being able to complete all identified activities and projects. We have identified major risks as:

- Major road pavement failure leading to more expensive rehabilitation costs
- Increased risk of motor vehicle accidents due to road failure
- Negative public perception as a result of major pavement failure

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

- Increasing asset inspections.
- Increasing response levels to temporarily repair critical pavement and surface failures.
- Increasing road renewal / reseal programs as an early intervention strategy to reduce the need for more expensive rehabilitation.

Confidence Levels

This AM Plan is based on medium level of confidence information.

The Next Steps

The actions resulting from this asset management plan are:

- Engage the community on Levels of Service (LoS) and funding matters identified in this AM Plan
- Incorporate the agreed LoS into the future planning, design, operational, maintenance and construction activities relating to roads.

Questions you may have:

What is this plan about?

This asset management plan covers the infrastructure assets that serve the Cessnock City Council community's road network needs. These assets include Local & Regional roads that are provided throughout the community area to enable people to freely and safely move around a network of local & regional access and circulation roads.

What is an Asset Management Plan?

Asset management planning is a comprehensive process to ensure delivery of services from infrastructure is provided in a financially sustainable manner.

An asset management plan details information about infrastructure assets including actions required to provide an agreed level of service in the most cost effective manner. The plan defines the services to be provided, how the services are provided and what funds are required to provide the services.

Why is there a funding shortfall?

Most of the Council's road network was constructed by previous Councils through historical development of the LGA and from government grants, often provided and accepted without consideration of ongoing operations, maintenance and replacement needs.

Many of these assets are approaching the later years of their life and require replacement. Services from the assets are decreasing and maintenance costs are increasing.

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

What options do we have?

Resolving the funding shortfall involves several steps:

1. Improving asset knowledge so that data accurately records the asset inventory, how assets are performing and when assets are not able to provide the required service levels,
2. Improving our efficiency in operating, maintaining, renewing and replacing existing assets to optimise life cycle costs,
3. Identifying and managing risks associated with providing services from infrastructure,
4. Making trade-offs between service levels and costs to ensure that the community receives the best return from infrastructure,
5. Identifying assets surplus to needs for disposal to make saving in future operations and maintenance costs,
6. Consulting with the community to ensure that road network services and costs meet community needs and are affordable,
7. Developing partnership with other bodies, where available to provide services,
8. Seeking additional funding from governments and other bodies to better reflect a 'whole of government' funding approach to infrastructure services.

What happens if we don't manage the shortfall?

It is likely that we will have to reduce service levels in some areas, unless new sources of revenue are found. For the road network, the service level reduction may include:

- Reduction in rural road maintenance cycles.
- Decrease in LoS for road surface, examples below.



What can we do?

We can develop options, costs and priorities for future road network services and consult with the community to plan these services to match the community service needs with ability to pay for services and maximise community benefits against costs.

2. INTRODUCTION

2.1 Background

This asset management plan is required to demonstrate responsive management of assets (and services provided from assets), compliance with regulatory requirements, and to communicate funding needed to provide the required levels of service over a 10 year planning period.

The asset management plan follows the format for AM Plans recommended in Section 4.2 of the International Infrastructure Management Manual¹.

The asset management plan is to be read with Council's Asset Management Policy, Asset Management Strategy and the following associated planning documents:

- Cessnock 2027 – Cessnock Community Strategic Plan
- Cessnock City Council Delivery Plan 2017-2021
- Cessnock City Council Operational Plan 2017-2018
- Cessnock City Council Annual Reports
- 2014-2015 Infrastructure Asset Revaluation Manual
- NSW OLG Integrated Planning Guidelines and manual 2013
- Cessnock City Council 2016 Resident Satisfaction Survey Results
- Cessnock City Council 2015 Asset Management Research Satisfaction Survey Results

The infrastructure assets covered by this asset management plan are shown in Table 2.1. These assets are part of the road and road infrastructure network used to provide services to the community to enable people to move from place to place safely and efficiently.

Table 2.1: Assets covered by this Plan

Asset	Quantity
Bus Shelters	83
Carpark	55
Pedestrian Refuge	100
Round-A-Bout	21
Footpath	94 km
Kerb & Gutter	365 km
Roads Sealed	697 km
Roads Unsealed	328 km

Council is not responsible for State Roads/Highways, State reserves or railway land. These are managed by the Office of Environment and Heritage, the RMS, Railways or other parties. Key stakeholders in the preparation and implementation of this asset management plan are: Shown in Table 2.1.1

¹ IPWEA, 2015, Sec 4.2, *Example of an Asset Management Plan Structure*, pp 4|21 – 33.

Table 2.1.1: Key Stakeholders in the AM Plan

Key Stakeholder	Role in Asset Management Plan
Councillors	<ul style="list-style-type: none"> • Represent needs of the community, • Allocate resources to meet the organisation’s objectives in providing services while managing risks, • Ensure the organisation is financially sustainable. • Provide stewardship by ensuring the protection of assets for current and future generations.
General Manager	<ul style="list-style-type: none"> • Ensure the development and implementation of Council’s Asset Management Policy, Plans and Processes and for their integration with Council’s Integrated Planning and Reporting Framework under the Local Government Act. • Report on the status and effectiveness of Asset Management within Council.
Council Staff	<ul style="list-style-type: none"> • Development and implementation of Council’s Asset Management Plans and Processes and for their integration with Council’s Integrated Planning and Reporting Framework under the Local Government Act. • Ensure integration and compliance of the Asset Management Policy and Strategy with other policies and business processes of Council. • Ensure compliance with legal obligations. • Ensure sound business principles are reflected in the Asset Management strategies and plans that are developed. • Implementation of activities in the Plans. • Engage up to date technologies, methodologies and continuous improvement processes. • Facilitate “Best Appropriate Practice in Asset Management”.
Community	<ul style="list-style-type: none"> • Provides input into the services required and the cost the community is prepared to pay • Set expectation levels

2.2 Goals and Objectives of Asset Management

Council exists to provide services to its community. Some of these services are provided by infrastructure assets. We have 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.

Our goal in managing infrastructure assets is to meet the defined level of service (as amended from time to time) in the most cost effective manner for present and future consumers. The key elements of infrastructure asset management are:

- Providing a defined level of service and monitoring performance,
- Managing the impact of growth through demand management and infrastructure investment,
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service,
- Identifying, assessing and appropriately controlling risks, and
- Having a long-term financial plan which identifies required, affordable expenditure and how it will be financed.²

² Based on IPWEA, 2015, IIMM, Sec 1.2.2 p 1|7.

2.3 Plan Framework

Key elements of the plan are:

- **Section 3** - Levels of service – specifies the services and levels of service to be provided by Council;
- **Section 4** - Future demand – how this will impact on future service delivery and how this is to be met;
- **Section 5** - Life cycle management – how Council will manage its existing and future assets to provide defined levels of service;
- **Section 6** - Financial summary – what funds are required to provide the defined services;
- **Section 7** - Asset management practices;
- **Section 8** - Monitoring – how the plan will be monitored to ensure it is meeting organisation’s objectives;
- **Section 9** - Asset management improvement plan.

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

Road Map for preparing an Asset Management Plan

Source: IPWEA, 2015, IIMM, Fig 4.2.2, p 4126.



2.4 Core and Advanced Asset Management

This asset management plan is prepared as a ‘core’ asset management plan over a 10 year planning period in accordance with the International Infrastructure Management Manual³. It is prepared to meet minimum legislative and Council 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.

2.5 Community Consultation

In preparing this ‘core’ asset management plan, community consultation may be received through initial feedback of the AMP’s once on public exhibition. Exhibition will occur prior to Council adoption of the plans. Future revisions of the asset management plan will incorporate community consultation on service levels specific to the asset class and costs of providing the service. This will assist the Council and the community in matching the level of service needed by the community, service risks and consequences with the community’s ability and willingness to pay for the service.

3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

Cessnock Council has engaged Micromex Research to undertake community research. In 2016 a telephone survey poll sample of residents on their level of satisfaction with the Council’s services, and of the Road Network Services identified, the following satisfaction levels were reported:

Table 3.1: Community Satisfaction Survey Levels

Performance Measure	Satisfaction Level				
	Very Satisfied	Fairly Satisfied	Satisfied	Somewhat satisfied	Not satisfied
Developing and Maintaining the Road network					
Regular Traffic Flow					
Cycleways					
Footpaths					
Kerb and Guttering					

Council also engaged Micromex Research in March of 2015 to undertake further Community Consultation. This was to determine what the community finds as an acceptable condition state of the assets. The concluding evidence from this survey found: “*The majority of residents indicated that ‘Condition 3 or better’ was the acceptable condition for all assets*”. This has therefore been incorporated into “scenario 3” modelling within this amp.

³ IPWEA, 2015, IIMM.

3.2 Strategic and Corporate Goals

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

Our vision is:

“Cessnock will be a cohesive and welcoming community living in an attractive and sustainable rural environment with diversity of business and employment opportunities supported by accessible infrastructure and services which effectively meet community needs”.

In summary, the vision is:

“Cessnock - thriving, attractive and welcoming”.

The 2017-21 Delivery Program has five Desired Outcomes as identified in the Community Strategic Plan, Cessnock 2027.

They are:

- 1. A connected, safe and creative community;**
- 2. A sustainable and prosperous economy;**
- 3. A sustainable and healthy environment;**
- 4. Accessible infrastructure, services and facilities;**
- 5. Civic leadership and effective governance.**

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

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

Goal	Objective	How Goal and Objectives are addressed in AM Plan
A connected, safe and creative community		
Objective 1.2 – Strengthening Community Culture	1.2.8a - Finalise the Cessnock City Cycle Strategy and Action Plan. (Completed 2016)	The road network provides for on road cycling.
Accessible infrastructure, services and facilities		
Objective 4.1 – Better Transport Links	4.1.3.a – Complete the Transport and Land Use Planning Needs Analysis component of the City Wide Infrastructure Strategy.	Vital to inform the S94 Review is developed. Section 4 of this AMP.
Objective 4.2 – Improving the Road Network	4.2.1 – Improve the corporate asset management system.	Ongoing asset improvement plan.
	4.2.2 – Advocate for road funding to better manage traffic impacts on the local road network.	Informs future budget cycles and assists with grant submissions.

Goal	Objective	How Goal and Objectives are addressed in AM Plan
	4.2.3 – Delivery prioritised capital works programs in line with adopted asset management plans.	Council’s Road Renewal and Upgrade Programs are significant.
	4.2.4 – Improve support services and facilities to assist works delivery.	Council’s Works Delivery factors in this AMP provide maintenance and capital upgrade services.
	4.2.5 – Adopt the City Wide Section 94 Contributions Plan.	S94 Contribution plans used to develop information for section 4 of this AMP.

3.3 Legislative Requirements

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

Table 3.3: Legislative Requirements

Legislation	Requirement
Local Government Act 1993	<p>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.</p> <p>The purposes of this Act are as follows:</p> <p>(a) to provide the legal framework for an effective, efficient, environmentally responsible and open system of local government in New South Wales,</p> <p>(b) to regulate the relationships between the people and bodies comprising the system of local government in New South Wales,</p> <p>(c) to encourage and assist the effective participation of local communities in the affairs of local government,</p> <p>(d) to give councils:</p> <ul style="list-style-type: none"> • the ability to provide goods, services and facilities, and to carry out activities, appropriate to the current and future needs of local communities and of the wider public; • the responsibility for administering some regulatory systems under this Act; • a role in the management, improvement and development of the resources of their areas. <p>(e) to require councils, councillors and council employees to have regard to the principles of ecologically sustainable development in carrying out their responsibilities.</p>
Local Government Act Annual Report Section 428(2)(d)	<p>(d) A report of the condition of the public works (including public buildings, public road and water sewerage and drainage works) under the control of council as at the end of that year; together with</p> <p>(i) An estimate (at current values) of the amount of money required to bring the works up to a satisfactory standard; and</p> <p>(ii) An estimate (at current values) of the annual expense of maintain the works at that standard; and</p> <p>(iii) The Council’s programme for maintenance for that year in respect of the works.</p>

Legislation	Requirement
Public Works Act 1912	Sets out the role of Council in the planning and construction of new assets.
Environmental Planning and Assessment Act 1979	An Act to institute a system of environmental planning and assessment for the State of New South Wales. Among other requirements the Act outlines the requirement for the preparation of Local Environmental Plans (LEP), Development Control Plans (DCP), Environmental Impact Assessments (EIA) and Environmental Impact Statements.
Work Health and Safety Regulations 2011	Sets out roles and responsibilities to secure the health, safety and welfare of persons at work and covering injury management, emphasising rehabilitation of workers particularly for return to work. Council is to provide a safe working environment and supply equipment to ensure safety.
Threatened Species Conservation Act 1995	An Act to conserve threatened species, populations and ecological communities of animals and plants.
Protection of the Environment Operations Act 1997	Council is required to exercise due diligence to avoid environmental impact and among others are required to develop operations emergency plans and due diligence plans to ensure that procedures are in place to prevent or minimise pollution.
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.
Road Transport (General) Act 2005	Provides for the administration and enforcement of road transport legislation. It provides for the review of decisions made under road transport legislation. It makes provision for the use of vehicles on roads and road related areas and also with respect to written off and wrecked vehicles.
Roads Act 1993	Sets out rights of members of the public to pass along public roads, establishes procedures for opening and closing a public road, and provides for the classification of roads. It also provides for declaration of the RMS and other public authorities as roads authorities for both classified and unclassified roads, and confers certain functions (in particular, the function of carrying out roadwork) on the RMS and other roads authorities. Finally it provides for distribution of functions conferred by this Act between the RMS and other roads authorities, and regulates the carrying out of various activities on public roads.
Disability Discrimination Act 1992	The Federal Disability Discrimination Act 1992 (D.D.A.) provides protection for everyone in Australia against discrimination based on disability. It encourages everyone to be involved in implementing the Act and to share in the overall benefits to the community and the economy that flow from participation by the widest range of people.
Native Vegetation Act 2003	This Act regulates the clearing of native vegetation on all land in NSW, except for excluded land listed in Schedule 1 of the Act. The Act outlines what landowners can and cannot do in clearing native vegetation.
Local Government (Highways) Act 1982	An Act to consolidate with amendments certain enactments concerning the functions of the corporations of municipalities with respect to highways and certain other ways and places open to the public.
AS 1742	Australian Standard 1742 which refers to a variety of road and traffic issues.
NSW Road Rules 2008	A provision of road rules that are based on the Australian Road Rules so as to ensure that the road rules applicable in this State are substantially uniform with road rules applicable elsewhere in Australia.

Council will exercise its duty of care to ensure public safety in accordance with the infrastructure risk management plan linked to this AM Plan. Management of risks is discussed in Section 5.2.

3.4 Community Levels of Service

Service levels are defined service levels in two terms, community levels of service and technical levels of service.

Community Levels of Service measure how the community receives the service and whether Council is providing community value.

Community levels of service measures used in the asset management plan are:

- **Quality** How good is the service?
- **Function** Does it meet users' needs?
- **Capacity/Utilisation** Is the service over or under used?

The Council's current and expected community service levels are detailed in Tables 3.4 and 3.5. Table 3.4 shows the agreed expected community levels of service, which has been based on; Cessnock City Council 2027 Community Strategic Plan, resource levels in the current long-term financial plan, and community consultation/engagement undertaken to date. A detailed community consultation is yet to be undertaken on community service levels specific to each asset class, this will form part of the improvement plan for the next iteration of the AMP's.

Table 3.4: Community Level of Service

Service Attribute	Service Objective	Performance Measure Process	Current Performance	Desired Performance
COMMUNITY LEVELS OF SERVICE				
Quality	Well maintained road network that are fit for purpose	Customer Survey	Developing and maintaining the road network: 8% satisfaction level (6% very satisfied and 2% satisfied)	Desired service standards to be developed after further community consultation.

Service Attribute	Service Objective	Performance Measure Process	Current Performance	Desired Performance
COMMUNITY LEVELS OF SERVICE				
	Provide assets which meet community expectation	Sealed Road Condition Rating Unsealed Road Condition Rating Carparks Condition Rating Kerb & Gutter Condition Rating Footpaths Condition Rating Bus Shelters Condition Rating Pedestrian Refuges Condition Rating Round-a-Bouts Condition Rating	65% in condition 1,2,3 76% in condition 1,2,3 90% in condition 1,2,3 96% in condition 1,2,3 98% in condition 1,2,3 100% in condition 1,2,3 90% in condition 1,2,3 95% in condition 1,2,3	100% in condition 1,2,3
Quality	Council's Performance in maintaining the road and road infrastructure network	Customer service requests relating to pot holes Customer service requests relating to footpaths Customer service requests relating to kerb and gutter	226 customer service requests were received in 2016 173 customer service requests were received in 2016 124 customer service requests were received in 2016	Desired service standards to be developed after further community consultation.
Function	Transport network is accessible	Customer Survey	Regulating Traffic flow: 30% satisfaction level (10% very satisfied and 20% satisfied)	Desired service standards to be developed after further community consultation.

3.5 Technical Levels of Service

Technical Levels of Service - Supporting the community service levels are operational or technical measures of performance.

These technical measures relate to the allocation of resources to service activities that Council undertake to best achieve the desired community outcomes and demonstrate effective organisational performance.

Technical service measures are linked to annual budgets covering:

- **Operations** – the regular activities to provide services such as street cleaning, mowing grass, energy, inspections, etc;
- **Maintenance** – the activities necessary to retain an asset as near as practicable to an appropriate service condition (eg road patching, unsealed road grading, building and structure repairs);
- **Renewal** – the activities that return the service capability of an asset up to that which it had originally (eg frequency and cost of road resurfacing and pavement reconstruction, pipeline replacement and building component replacement);
- **Upgrade** – the activities to provide a higher level of service (eg widening a road, sealing an unsealed road, replacing a pipeline with a larger size) or a new service that did not exist previously (eg a new library).

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

Table 3.5 shows the technical level of service expected to be provided under this Asset Management Plan.

Table 3.5: Technical Levels of Service

Service Attribute	Service Objective	Performance Measure Process	Current Performance	Desired Performance
TECHNICAL LEVELS OF SERVICE				
Operations	Infrastructure meets user's needs. Collected data for all assets is kept up to date and accurate in the asset database (MyData) and GIS.	Defects inspections Reconcile asset data in MyData and GIS	Road and Road Infrastructure are inspected regularly on a reoccurring routine cycle. Reconciliation completed at revaluation intervals	All assets are inspected regularly on a reoccurring routine cycle. Reconciliation completed annually

⁴ IPWEA, 2015, IIMM, p 2.22

Service Attribute	Service Objective	Performance Measure Process	Current Performance	Desired Performance
Maintenance	Provide on-going maintenance of Council's road network to ensure fit for purpose	<p>Customer service requests relating to road maintenance</p> <p>Customer service requests relating to footpaths</p> <p>Customer service requests relating to kerb and gutter</p>	<p>226 customer service requests were received in 2016</p> <p>173 customer service requests were received in 2016</p> <p>124 customer service requests were received in 2016</p>	To Be Determined
Renewal	<p>Deliver annual renewal programs</p> <p>Improvement of condition of all assets</p>	<p>% completion of annual renewal programs</p> <p>Sealed Road Condition Rating</p> <p>Unsealed Road Condition Rating</p> <p>Carparks Condition Rating</p> <p>Kerb & Gutter Condition Rating</p> <p>Footpaths Condition Rating</p> <p>Bus Shelters Condition Rating</p> <p>Pedestrian Refuges Condition Rating</p> <p>Round-a-Bouts Condition Rating</p>	<p>97% of renewal programs in 2015/16.</p> <p>35% in condition 4,5</p> <p>24% in condition 4,5</p> <p>10% in condition 4,5</p> <p>4% in condition 4,5</p> <p>2% in condition 4,5</p> <p>0% in condition 4,5</p> <p>10% in condition 4,5</p> <p>5% in condition 4,5</p>	<p>100% of renewal programs</p> <p>To Be Determined</p>
Upgrade/New	Deliver annual road upgrade program	% completion of annual upgrade programs	67% of upgrade programs in 2015/16.	100% of upgrade programs

4. FUTURE DEMAND

4.1 Demand Drivers

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

4.2 Demand Forecast

The present position and projections for demand drivers that may impact future service delivery and utilisation of assets were identified and are documented in Table 4.3.

4.3 Demand Impact on Assets

The impact of demand drivers that may affect future service delivery and utilisation of assets are shown in Table 4.3.

Table 4.3: Demand Drivers, Projections and Impact on Services

Demand drivers	Present position	Projection	Impact on services
Population	50,840 as at the 2011 Census	The projected population for 2031 is 68,364 ⁵ (low scenario) and 101,987 (high scenario).	Population growth will increase traffic volumes, and increase demand on transport infrastructure, such as bus & transport facilities, footpaths & Cycleways, improved road network, etc.
Demographics	Approximately 9% of the residents in the LGA do not come from an English speaking background.	An increase of migrants settling in Cessnock LGA from non-English speaking backgrounds, are expected to increase.	Better Traffic Management Devices are Required, and Clearer Signage
Demographics	Over 7% of the population need assistance in their day-to-day lives.	Expect to see an increase in demand for services due to the ageing population.	Increase in demand for DDA compliant Infrastructure, Services and Equitable Access
Climate Change	Scientific evidence supporting the notion of climate change.	Increase severity of weather events temperature rise in sea level.	Cessnock Road Infrastructure Assets will need to adapt to new climate risks to ensure appropriate infrastructure investment decisions are made to reduce long-term costs.
Residential Development	Increase in demand for residential land and infrastructure.	Estimated Increase by 2031 in population of between 18,120 (low scenario) and 51,740 (high scenario).	Increase in demand for maintenance of roads, footpaths and associated infrastructure assets.

⁵ Source: Cessnock City Council, Community Planning Unit (current as at August 2015).

Demand drivers	Present position	Projection	Impact on services
Changes in Land use	Changes in land use will result from rezoning and higher density developments.	As part of State Government policy higher density developments will be encouraged in the Hunter Valley Area. The current levels of growth are anticipated to continue.	Increased loading on existing infrastructure from development works (construction works can cause significant damage to existing infrastructure)

4.4 Demand Management Plan

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

Non-asset solutions focus on providing the required service without the need for Council to own the assets and management actions including reducing demand for the service, reducing the level of service (allowing some assets to deteriorate beyond current service levels) or educating customers to accept appropriate asset failures⁶. Examples of non-asset solutions include providing services from existing infrastructure such as aquatic centres and libraries that may be in another community area or public toilets provided in commercial premises.

Opportunities identified to date for demand management are shown in Table 4.4. Further opportunities will be developed in future revisions of this asset management plan.

Table 4.4: Demand Management Plan Summary

Demand Driver	Impact on Services	Demand Management Plan
Community Engagement – Explore community demand for Transport Infrastructure Services	Community expectation may increase	Engage with the community to identify justifiable community needs from other expectations and consider only community needs consistent with Council’s charter.
Optimised Delivery Program	Decrease maintenance and reduce the need for more expensive rehabilitation	Study road condition rating from this plan and prioritise a list of roads to be included in the annual reseal / rehabilitation program. Investigate alternative treatments to lower life cycle costs i.e. seal types, rejuvenation.
Upgrading of Unsealed Roads	Increased LoS, potential decrease in cyclical maintenance	Identify unsealed roads and develop an annual ‘initial seal’ program.
New land Divisions	Increased traffic	Implement enhanced quality control measures for donated assets.
Planning	Increased traffic	Revise planning controls to increase population density and decrease the extent of new road network. Encourage industry to be near State controlled roads.

⁶ IPWEA, 2015, IIMM, Table 3.4.1, p 3|58.

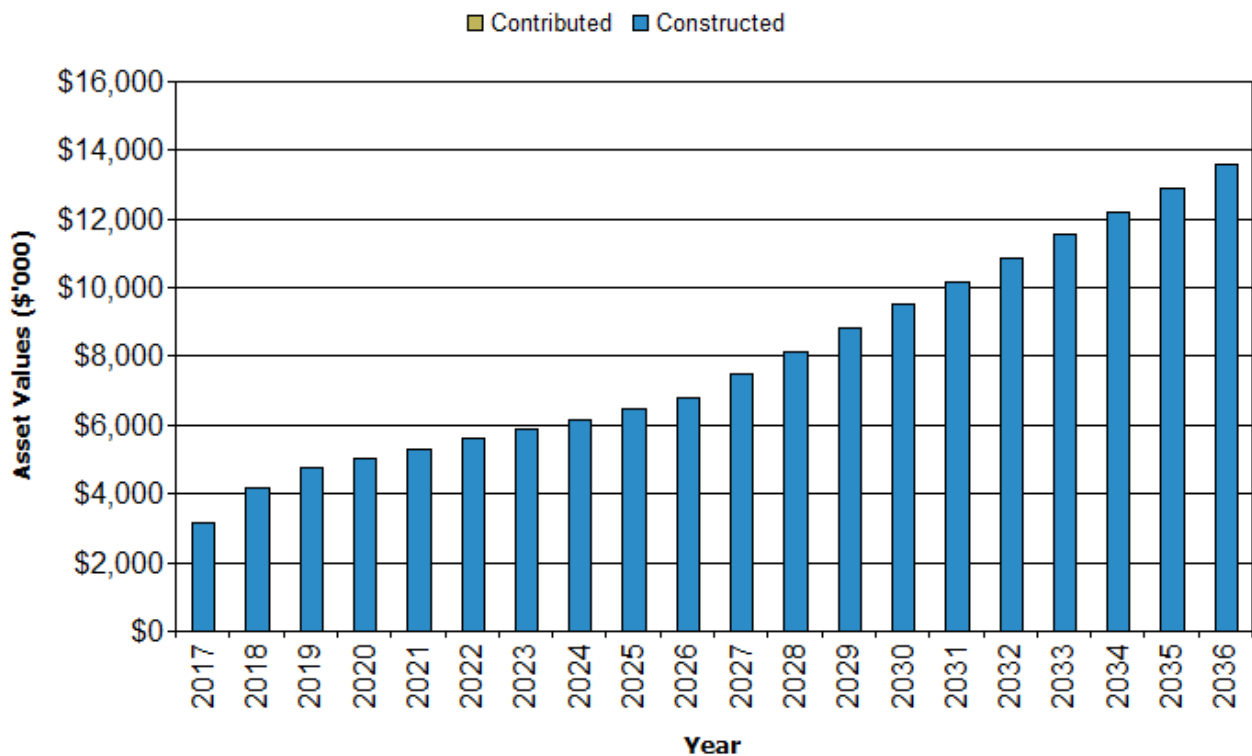
Demand Driver	Impact on Services	Demand Management Plan
Capital Works	Potential decrease in maintenance	Schedule long-term capital works program and investigate partners with the adjacent Councils to achieve economies of scale and cost savings. New projects will need to be assessed with a balance between competing demands for investment to renew existing infrastructure assets such as roads, bridges and drainage, as well as providing expenditure for new infrastructure assets to meet growing service delivery demand.

4.5 Asset Programs to meet Demand

The new assets required to meet growth will be acquired free of cost from land developments and constructed/acquired by Council. New assets constructed/acquired by Council are discussed in Section 5.5. The cumulative value of new contributed and constructed asset values are summarised in Figure 1. Contributed assets gained through development are to be reviewed in future iterations of this AMP.

Figure 1: Upgrade and New Assets to meet Demand

Cessnock CC - Upgrade & New Assets to meet Demand (2017 Roads_S3_V2)



Acquiring these new assets will commit Council to fund ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs

are identified and considered in developing forecasts of future operations, maintenance and renewal costs in Section 5.

5. LIFECYCLE MANAGEMENT PLAN

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

5.1 Background Data

5.1.1 Physical parameters

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

Table 2.1: Assets covered by this Plan

Asset	Quantity
Bus Shelters	83
Carpark	55
Pedestrian Refuge	100
Round-A-Bout	21
Footpath	94 km
Kerb & Gutter	365 km
Roads Sealed	697 km
Roads Unsealed	328 km

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.

Table 5.1.2: Known Service Performance Deficiencies

Location	Service Deficiency
Sealed Roads – Network wide	Based on the data captured in 2014/15 it shows that approximately 14% of the network has a surface condition rating in a very poor condition (condition 5)
Kerb & Gutter – Network wide	Based on the data captured in 2014/15 it shows that approximately 1% of the network has a condition rating in a very poor condition (condition 5)
Round-a-Bouts – Network wide	Based on the data captured in 2014/15 it shows that approximately 5% of the network has a condition rating in a very poor condition (condition 5)
Pedestrian Refuges – Network wide	Based on the data captured in 2014/15 it shows that approximately 4% of the network has a condition rating in a very poor condition (condition 5)
Carparks – Network wide	Based on the data captured in 2014/15 it shows that approximately 3% of the network has a condition rating in a very poor condition (condition 5)
Unsealed Roads	Based on the data captured in 2014/15 it shows that approximately 10% of the network has a condition rating in a very poor condition (condition 5)

The above service deficiencies were identified from the 2014/2015 road and road infrastructure condition data capture. Network level condition assessment will be carried out by an external contractor prior to the next revaluation of this asset category in 2019/20, this table will be updated with current data at that time.

5.1.3 Asset condition

Cessnock City Council has documented a “Transport Asset Inventory and Condition Data Manual”. The manual was developed to ensure the consistency and integrity of Councils transport infrastructure asset inspections, which are undertaken by a trained inspector. Network level condition assessment will be carried out by an external contractor prior to the next revaluation of this asset category in 2019/20.

The current road and road infrastructure network condition assessments were done as part of assigning valuations in 2014/15. The condition profile of our assets are shown in Figures 3, 3.1,3.2, 3.3, 3.4 and 3.5.

Fig 3 Sealed Roads Surface Overall Condition

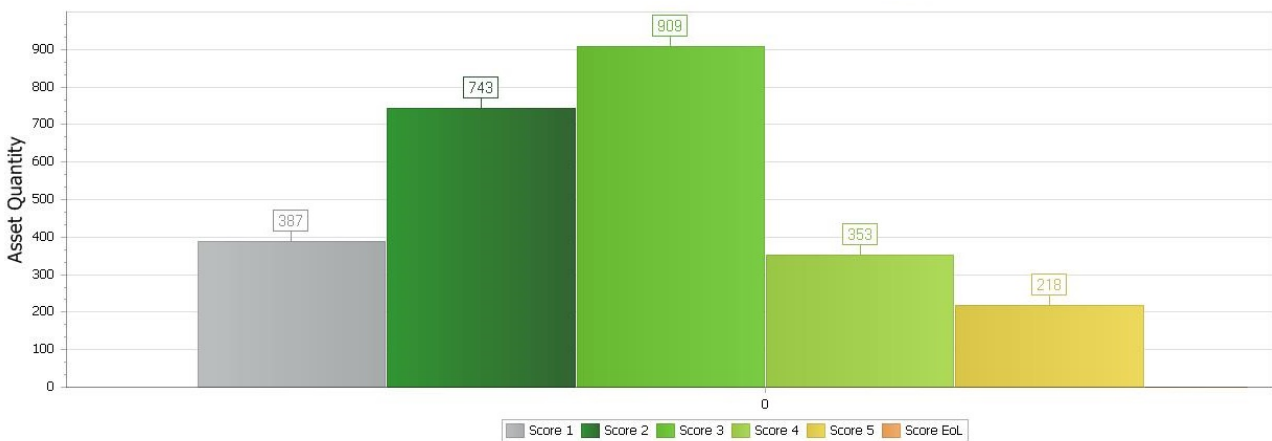


Fig 3.1 Unsealed Roads Surface Overall Condition

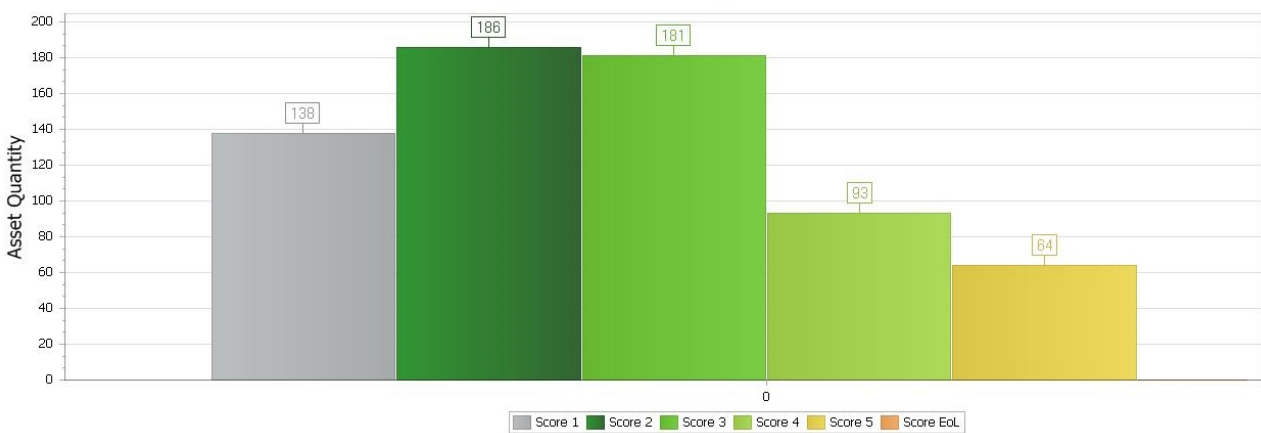


Fig 3.2 Carpark Overall Condition

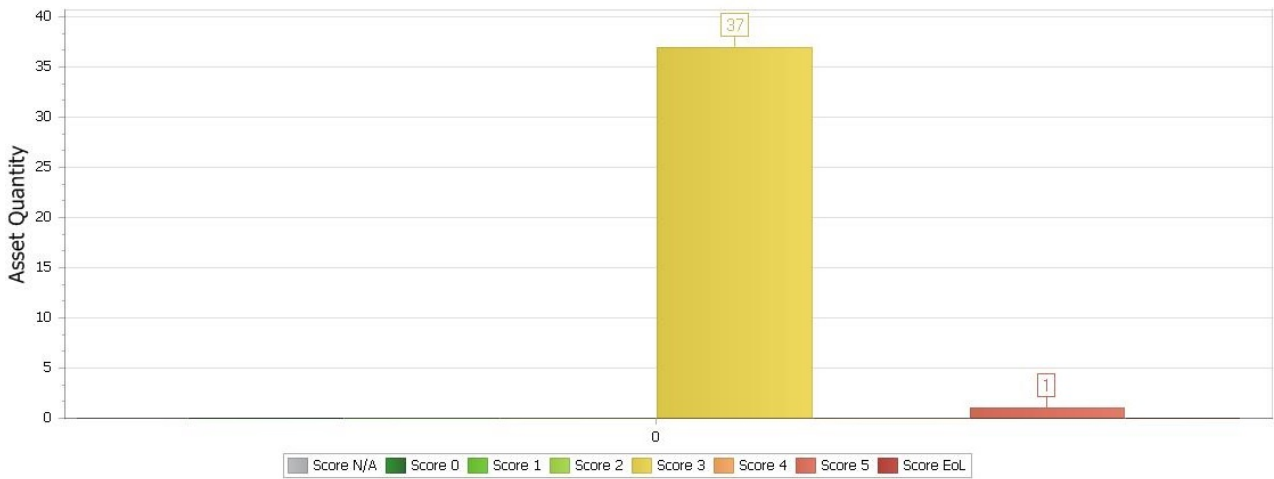


Fig 3.3 Footpaths Overall Condition

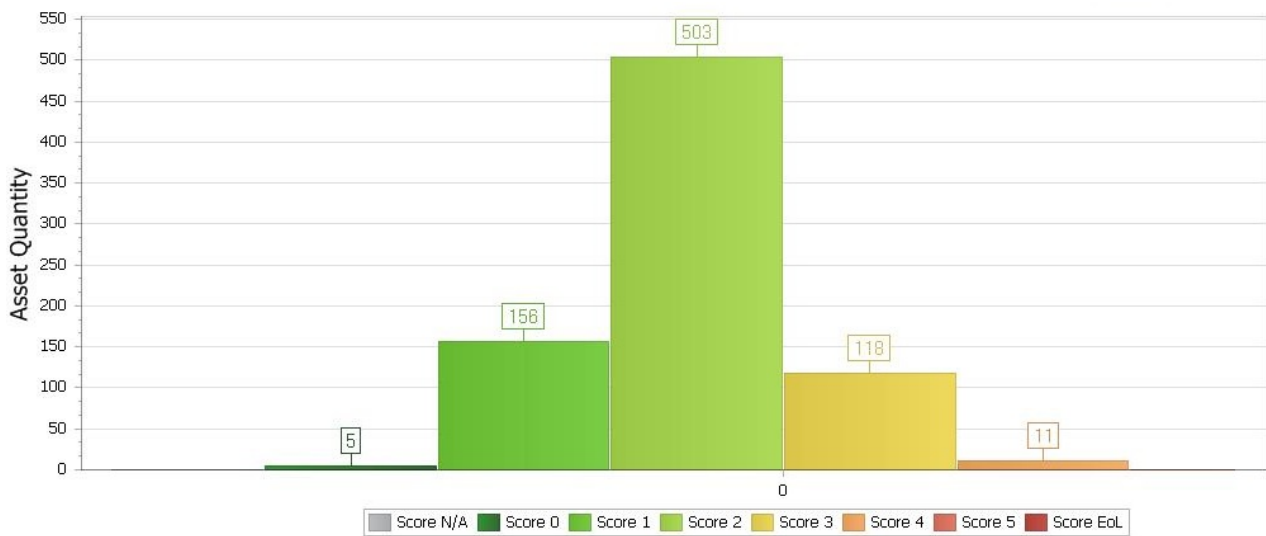


Fig 3.4 Kerb and Gutter Overall Condition

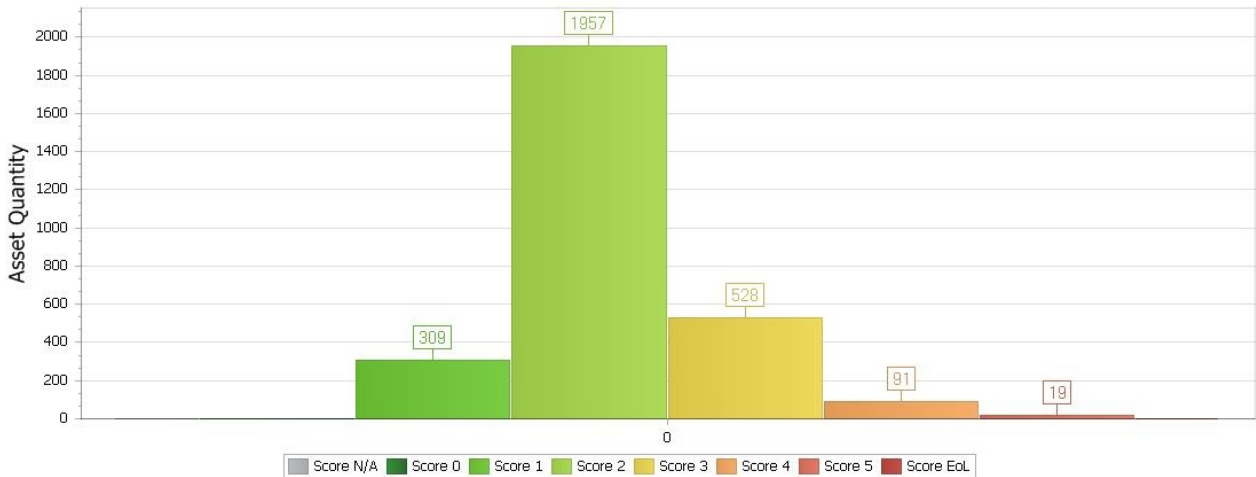


Fig 3.5 Street Furniture and Bus Shelters Overall Condition



Condition is measured using a 1 – 5 grading system⁷ with the addition of condition state 0 to represent newly constructed assets, and end of life (EOL) for assets out of service/closed to the public, see table 5.1.3 below:

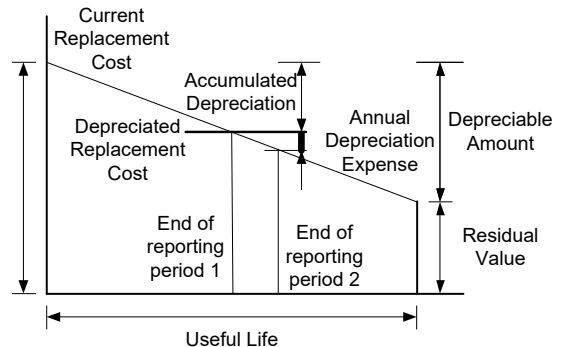
Table 5.1.3: Road and Road Infrastructure Condition Grading Model

Element Condition	Description
0 Constructed	Newly Constructed
1 As New	Very Good Condition – only planned maintenance required
2 Good	Good Condition – Minor Defects Only
3 Fair	Fair to Moderate Condition – Maintenance Required to Return to Accepted Level of Service
4 Poor	Poor Condition – Consider Renewal
5 Very Poor	Very Poor Condition – Approaching Unserviceable
End Of Life	Assets out of service.

5.1.4 Asset valuations

The value of assets recorded in the asset register as at 30 June 2016 covered by this Asset Management Plan is shown below. Assets were last revalued at 30 June 2015. Assets are valued using replacement cost method (based on unit rates and dimensions).

Current Replacement Cost	\$577,908,000
Depreciable Amount	\$577,908,000
Depreciated Replacement Cost ⁸	\$475,078,000
Annual Depreciation Expense	\$4,467,000



⁷ IPWEA, 2015, IIMM, Sec 2.5.4, p 2|80.

⁸ Also reported as Written Down Current Replacement Cost (WDCRC).

Useful lives were reviewed in June 2015 by benchmarking CCC values against industry standards. This is monitored annually but a full review is only undertaken in line with the revaluation cycle. For this asset category the next revaluation will be undertaken in 2019/20.

Key assumptions made in preparing the 2014/15 valuations were:

- Current condition of assets is based on 2014/15 revaluation and condition assessment exercise;
- The depreciation matrix has been assumed to be straight line condition based throughout all assets in the roads and road infrastructure network

Major changes from previous valuations are due to:

- Revised unit rates for various assets
- Additional found assets
- Removal of duplicated assets
- Reviewed and updated useful life's of all assets
- Removal of residual values

Various ratios of asset consumption and expenditure have been prepared to help guide and gauge asset management performance and trends over time.

Rate of Annual Asset Consumption (Depreciation/Depreciable Amount)	0.8%
Rate of Annual Asset Renewal (Capital renewal exp/Depreciable amount)	1.4%
Rate of Annual Asset Upgrade	0.5%

In 2016 Council plans to renew assets at 181.9% of the rate they are being consumed and will be increasing its asset stock by 0.5% in the year.

5.1.5 Historical Data

Table 5.1.5.1: Expenditure for Road and Road Infrastructure

	2012	2013	2014	2015	2016
Operational	\$571,191	\$680,532	\$722,585	\$304,118	\$355,845
Maintenance	\$2,788,754	\$3,322,596	\$3,527,917	\$2,942,141	\$5,284,819
Renewal	\$2,761,431	\$3,911,907	\$3,405,484	\$4,287,558	\$3,943,228
Construction	\$3,881,032	\$6,130,772.00	\$8,140,449	\$9,240,942	\$4,719,377

5.2 Infrastructure Risk Management Plan

An assessment of risks⁹ associated with service delivery from infrastructure assets has identified critical risks that will result in loss or reduction in service from infrastructure assets or a 'financial

⁹ CCC Infrastructure Risk Management Plan TRIM Reference DOC2015/012452

shock' to the 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 Infrastructure Risk Management Plan, together with the estimated residual risk after the selected treatment plan is operational as shown below in Table 5.2. These risks are reported to management and Council.

Table 5.2: Critical Risks and Treatment Plans

Service or Asset at Risk	What can Happen	Risk Rating	Risk Treatment Plan	Residual Risk *	Treatment Costs
All road and road infrastructure assets	Inadequate resources/funding to maintain infrastructure to an appropriate standard, resulting in asset failure, injury, reputational damage, legal action.	VH	Regular inspections, asset management plan, & undertake community consultation to establish affordable service levels.	M	TBC
Roads and Carparks	Failure of the surface of the road.	VH	Regular inspections, Community Feedback, Customer Service Requests, Maintenance and renewal programs.	M-L	TBC
Roads	Accidents due to road failure, polished surface or edge break, resulting in injury, reputational damage, or legal action.	VH	Maintain annual works program, and inspect complaints from public regarding dangerous conditions on road. Routine maintenance and Asset Inspections.	M	TBC
Roads	Shortened designed life expectancy, premature road failure due to historic pavement design practices.	M	Geotechnical investigation and/or formal pavement design for all projects. Maintenance and renewal programs.	M-L	TBC

Roads Pavement	Failure of road pavement or pavement overloads due to more heavy vehicles usage, resulting in water penetration, geotechnical issues, reduced carrying capacity.	H	Regular inspections, maintenance and renewal programs. Work with strategic planners to identify critical heavy vehicle freight routes and future demand in these areas. Impose load limits where necessary.	M	TBC
Roads	Road works not undertaken in accordance with correct Design Standards, Regulations and Legislation.	M	Community feedback on unauthorised works, correct planning, adherence to guidelines and procedures.	L	TBC
Round-a-bouts, Pedestrian Refuges,	Structural failure or damage to asset due to age, vandalism, inadequate design.	M	Planned inspections, maintenance and renewal programs.	L	TBC
Bus Shelters	Structural failure or damage to asset due to age, vandalism, inadequate design.	L	Planned inspections, maintenance and renewal programs.	L	TBC
Footpaths	Structural failure, deterioration leading to safety risks.	H	Planned inspections, maintenance and renewal programs. Correct footpath design procedures.	M	TBC
Kerb & Gutter	Structural failure, deterioration due to age, drain blockage from inadequate maintenance.	M	Planned inspections, maintenance and renewal programs, community feedback.	M	TBC

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

5.3 Routine Operations and Maintenance Plan

Operations include regular activities to provide services such as public health, safety and amenity, eg cleaning, street sweeping, grass mowing and street lighting.

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

5.3.1 Operations and Maintenance Plan

Operational activities affect service levels including quality and function through frequency (e.g. street sweeping, and grass mowing), intensity (e.g. spacing of street lights) and opening hours (of building and other facilities).

Maintenance includes all actions necessary for retaining an asset as near as practicable to an appropriate service condition including regular ongoing day-to-day work necessary to keep assets operating, eg road patching but excluding rehabilitation or renewal. Maintenance may be classified into reactive and planned maintenance.

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

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

Actual past maintenance expenditure is shown in Table 5.3.1.

Table 5.3.1: Maintenance Expenditure Trends

Maintenance Activity	2012	2013	2014	2015	2016
Maintenance	\$2,788,754	\$3,322,596	\$3,527,917	\$2,942,141	\$5,284,819

Required Maintenance is considered to be the amount of funding originally budgeted for in the adopted Long Term Financial Plan, this is reviewed annually. Future iterations of this AMP will further define the required maintenance.

Maintenance expenditure levels are considered to be adequate to meet projected service levels, which may be less than or equal to current service levels. Where maintenance expenditure levels are such that will result in a lesser level of service, the service consequences have been identified and highlighted in this AM Plan.

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

5.3.2 Operations and Maintenance Strategies

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

- Scheduling operations activities to deliver the defined level of service in the most efficient manner;
- Undertaking maintenance activities through a planned maintenance system to reduce maintenance costs and improve maintenance outcomes. Undertake cost-benefit analysis to determine the most cost-effective split between planned and unplanned maintenance activities (50 – 70% planned desirable as measured by cost);

- Maintain a current infrastructure risk register for assets and present service risks associated with providing services from infrastructure assets and reporting Very High and High risks and residual risks after treatment to management and Council;
- Review current and required skills base and implement workforce training and development to meet required operations and maintenance needs;
- Review asset utilisation to identify underutilised assets and appropriate remedies, and over utilised assets and customer demand management options;
- Maintain a current hierarchy of critical assets and required operations and maintenance activities;
- Develop and regularly review appropriate emergency response capability;
- Review management of operations and maintenance activities to ensure Council is obtaining best value for resources used.

Note: A detailed Road Network Maintenance Network Service Manual is provided in Appendix A.

Unsealed Rural Roads

The maintenance program for unsealed rural roads as summarised in the below schedules and maps was adopted by Council on 31 March 1999 after a period of public exhibition and consideration of submissions from the community.

The roads are listed in two groups:

Group 1 – Roads previously maintained by Council. These roads have been classified within a road hierarchy based on average daily traffic, as shown in the following table:

Class	Average Daily Traffic (vehicles per day)	Proposed Maintenance Frequency Per Annum
A	>300	8
B	300 > 150	6
C	150 > 75	4
D	75 > 25	3
E	<25	0

Group 2 – Roads not previously maintained by Council. These roads have been identified within three (3) categories, as follows:

2(a) – Council public roads and crown public roads.

2(b) – Council public roads and crown public roads with road maintenance agreements over all or part of the roads pending registration of an approved subdivision.

2(c) – Council public roads and crown public roads with road maintenance agreements existing over all or part of the road.

Asset hierarchy

An asset hierarchy provides a framework for structuring data in an information system to assist in collection of data, reporting information and making decisions. The hierarchy includes the asset

class and component used for asset planning and financial reporting and service level hierarchy used for service planning and delivery.

Council's service and road hierarchy is shown in Tables 5.3.2.and 5.3.3.

Table 5.3.2: Asset Service Hierarchy

Service Hierarchy	Service Level Objective
Road and infrastructure assets on Regional Roads (Urban & Rural)	Regional Roads are a category of Council controlled road agreed with Roads and Maritime Services (RMS) for road administration purposes. Regional Roads perform an intermediate function between the main arterial network of RMS controlled State Roads and the network of local access and circulation roads controlled by Council.
Road and infrastructure assets on Local Roads	For movement of cars and trucks in urban and rural areas, from higher hierarchies for access to residences or businesses within the LGA.

Table 5.3.3: Road Hierarchy

A further defined hierarchy has been developed for Roads.

Hierarchy	Definition
Urban / Rural Sub Arterial (Regional Roads)	Mainly connects the highways to areas of development or carries traffic from one part of a region to another.
Urban / Rural Collector	Connects regional roads to the local road system.
Urban / Rural Local	Local access roads providing through traffic access to residential properties and some commercial premises.
Laneways	Roads that provide rear access to various land uses.

Critical Assets

Critical assets are those assets which have a high consequence of failure but not necessarily a high likelihood of failure. By identifying critical assets and critical failure modes, organisations can target and refine investigative activities, maintenance plans and capital expenditure plans at the appropriate time.

Operations and maintenance activities may be targeted to mitigate critical assets failure and maintain service levels. These activities may include increased inspection frequency, higher maintenance intervention levels, etc. For this iteration critical assets have not been defined to a road or hierarchy level, future revisions of this AMP will further define critical assets and include a critical assets management plan. Critical assets failure modes and required operations and maintenance activities are detailed in Table 5.3.2.1.

Table 5.3.2.1: Critical Assets and Service Level Objectives

Critical Assets	Critical Failure Mode	Operations & Maintenance Activities
Sealed Roads	Deformation due to increase in heavy vehicles and traffic volumes. Structural failure due to pavement deformation.	Regular inspections and repair replacement programs.
Unsealed Roads	Potholing, Rutting, corrugations & scouring.	Regular inspections and on-going rural road maintenance programs.
Footpaths	Deformation and uplift due to tree roots	Regular inspections and repair replacement programs.
Road Infrastructure	Damage by vehicles.	Regular inspections and repair replacement programs.
Kerb & Gutter	Deformation and uplift due to tree roots and/or vehicle damage	Regular inspections and repair replacement programs.

Standards and specifications

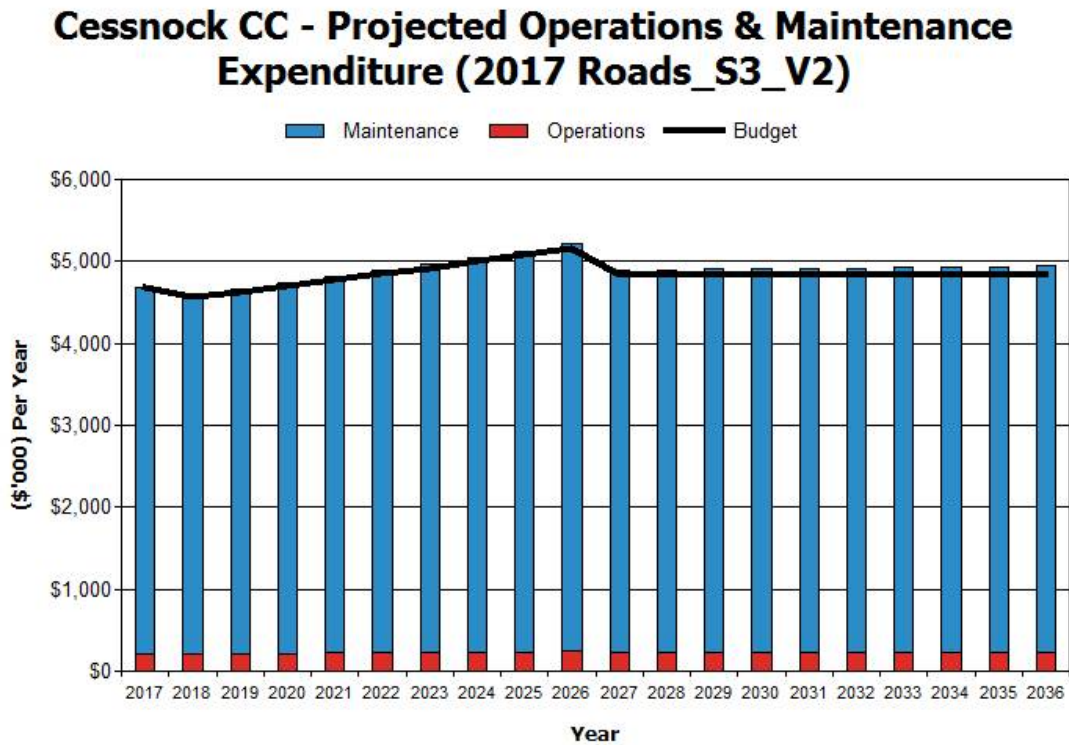
Road maintenance work is carried out in accordance with the following Standards and Specifications;

- Cessnock City Council (CCC) Road Network Maintenance Service Level
- CCC Engineering Guidelines for Design
- Austroads Standards/Specification
- Australian Standards/Specification
- IPWEA Standards/Specification
- Roads and Maritimes – Design Guide

5.3.3 Summary of future operations and maintenance expenditures

Future operations and maintenance expenditure is forecast to trend in line with the value of the asset stock as shown in Figure 4. Note that all costs are shown in current dollar values (i.e. real values).

Figure 4: Projected Operations and Maintenance Expenditure



5.4 Renewal/Replacement Plan

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

5.4.1 Renewal plan

Assets requiring renewal/replacement are identified from one of three methods provided in the ‘Expenditure Template’.

- **Method 1** uses Asset Register data to project the renewal costs using acquisition year and useful life to determine the renewal year, or
- **Method 2** uses capital renewal expenditure projections from asset managers knowledge of network and external condition modelling systems (such as Pavement Management Systems), or
- **Method 3** uses a combination of average *network renewals* plus *defect repairs* in the *Renewal Plan* and *Defect Repair Plan* worksheets on the ‘Expenditure template’.

Methods 2 & 3 are both used for this Asset Management Plan.

The useful lives of road and road infrastructure assets used to develop the projected asset renewal expenditures are shown in Table 5.4.1. Asset useful lives were last reviewed on 30th June 2015. This is monitored annually but a full review is only undertaken in line with the revaluation cycle. For this asset category the next revaluation will be undertaken in 2019/20.

Table 5.4.1: Useful Lives of Assets

Asset (Sub)Category	Useful Life (Yrs)
Roads & Carpark	
• Road Surface – Concrete (CC)	120
• Road Surface – Asphalt Concrete (AC)	34
• Road Surface – Spray Seal (SS)	24
• Road Surface – Gravel (US)	25
• Base	80
• Sub Base	1000
• Formation	1000
Bus Shelter	30
Pedestrian Refuge	120
Round-A-Bout	50
Footpath	
• Concrete (CC)	120
• Asphalt Concrete (AC)	34
• Brick Pavers (BP)	34
• Gravel (US)	25
Kerb & Gutter	120

Renewal Standards

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

- NSW Roads and Traffic Authority Road Design Guide;
- AUSTRROADS Guide to Traffic Engineering Practice;
- AUSTRROADS Pavement Design Guide;
- RTA Interim Guide to Signs and Markings 1978;
- Aus-spec;
- Australian Standards;
- Australian Roads and Research Board (ARRB) Sealed Local Roads Manual.

In addition to these legislative standards and codes of practices, maintenance works and standards are intuitive to staff who have had a number of years undertaking this type of work. Council will however, endeavour to formally document these standards in future revisions of this AM Plan.

5.4.2 Renewal and Replacement Strategies

Council will plan capital renewal and replacement projects to meet level of service objectives and minimise infrastructure service risks by:

- Planning and scheduling renewal projects to deliver the defined level of service in the most efficient manner,
- Undertaking project scoping for all capital renewal and replacement projects to identify:
 - the service delivery 'deficiency', present risk and optimum time for renewal/replacement;
 - the project objectives to rectify the deficiency;
 - the range of options, estimated capital and life cycle costs for each options that could address the service deficiency;
 - and evaluate the options against evaluation criteria adopted by Council; and
 - select the best option to be included in capital renewal programs;
- Using 'low cost' renewal methods (cost of renewal is less than replacement) wherever possible;
- Maintain a current infrastructure risk register for assets and service risks associated with providing services from infrastructure assets and reporting Very High and High risks and residual risks after treatment to management and Council;
- Review current and required skills base and implement workforce training and development to meet required construction and renewal needs;
- Maintain a current hierarchy of critical assets and capital renewal treatments and timings required;
- Review management of capital renewal and replacement activities to ensure Council is obtaining best value for resources used.

Renewal ranking criteria

When developing renewal programs the best long-term strategy is to intervene when the surface condition of the road has deteriorated but the pavement condition is still good. Optimising this strategy for renewal will reduce the need for most costly rehabilitation of road pavements in future.

Asset renewal and replacement is typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (eg replacing a bridge that has a 5 t load limit), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (eg roughness of a road).¹⁰

It is possible to get some indication of capital renewal and replacement priorities by identifying assets or asset groups that:

- Have a high consequence of failure,
- Have a high utilisation and subsequent impact on users would be greatest,
- The total value represents the greatest net value to Council,
- Have the highest average age relative to their expected lives,
- Are identified in the AM Plan as key cost factors,
- Have high operational or maintenance costs, and

¹⁰ IPWEA, 2015, IIMM, Sec 3.4.4, p 3 | 60.

- Where replacement with modern equivalent assets would yield material savings.¹¹

The ranking criteria used to determine priority of identified renewal and replacement proposals is detailed in Tables 5.4.2.1 and 5.4.2.2.

Table 5.4.2.1: Renewal and Replacement Sealed Roads Priority Ranking Criteria

Asset Category	Criteria	Treatments			
Sealed Roads	Based on ratings 2014/2015 valuations	Reseal	Reseal & Heavy Patch	AC Mill and Resheet (Localised H Patch)	Overlay and Stabilisation
	% Cracking >10%	⌘	⌘	⌘	⌘
	% Pavement Defects >10%	< 5%	5-10%	10-20%	>20%
	% Surface Defects >10%	< 5%	5-10%	>10%	⌘
	% Pothole / Patching Existing >10%	< 5%	⌘	⌘	⌘
	% Stripping and Flushing >10%	⌘	⌘	⌘	⌘
	Average Rutting > 10mm	x	x	0-10mm	⌘
	Roughness Counts >180 (NAASRA) generally used as a cross check				

Additional to the renewal ranking criteria tables above roads are weighted based on the hierarchy of the roads using the specific distress parameters which have been captured as part of the 2014/15 revaluation and condition assessment exercise. The methodology can be found in Appendix D.

Table 5.4.2.2: Renewal Sealed Carpark Priority Ranking Criteria

Criteria	Weighting
Hierarchy	30%
Surface Condition	30%
Pavement Condition	20%
Risk	10%
Future Capital Works	10%
Total	100%

Table 5.4.2.3: Renewal Unsealed Carpark Priority Ranking Criteria

¹¹ Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|66.

Criteria	Weighting
Hierarchy	40%
Condition	40%
Risk	10%
Future Capital Works	10%
Total	100%

Table 5.4.2.4: Renewal and Replacement Pathways Priority Ranking Criteria

Criteria	Weighting
Proximity to Commercial Development	11%
Proximity to Aged Citizens	11%
Proximity to Schools	11%
Pedestrian Hourly Volume	10%
Link to Public Transport	6%
Provides Missing Link Between Existing Footpaths	6%
Provides Tourism &/or Recreational Culture Benefit	6%
Residential Development Density	6%
Identified Access for Disabled	11%
Council Resolution	11%
Identified as Part of a Link to a Development Project	11%
Total	100%

NOTE: Renewal and replacement ranking criteria for other road infrastructure assets is to be developed and included in future revisions of this asset management plan.

5.4.3 Summary of future renewal and replacement expenditure

Projected future renewal and replacement expenditures are forecast to increase over time as the asset stock increases from growth. Figures 5 & 5.1 below summarise future projected expenditure, Fig.5 utilising scenario 2 financial outlays (based on community desired condition state) and Fig 5.1 scenario 3 (LTFP outputs). Note that all amounts are shown in real values. The Draft Projected Capital Renewal, Replacement and Upgrade Works Program is shown in Appendix B.

Fig 5: Projected Capital Renewal and Replacement Expenditure – Scenario 2

Cessnock CC - Projected Capital Renewal Expenditure (2017 Roads_S2_V2)

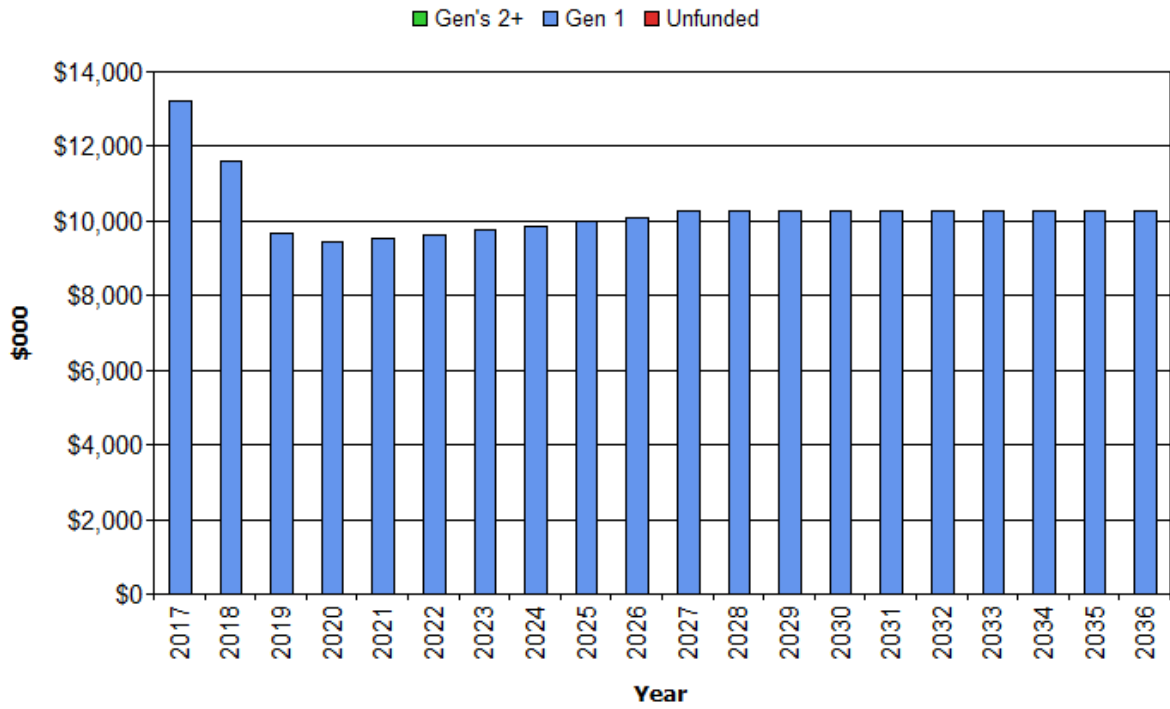
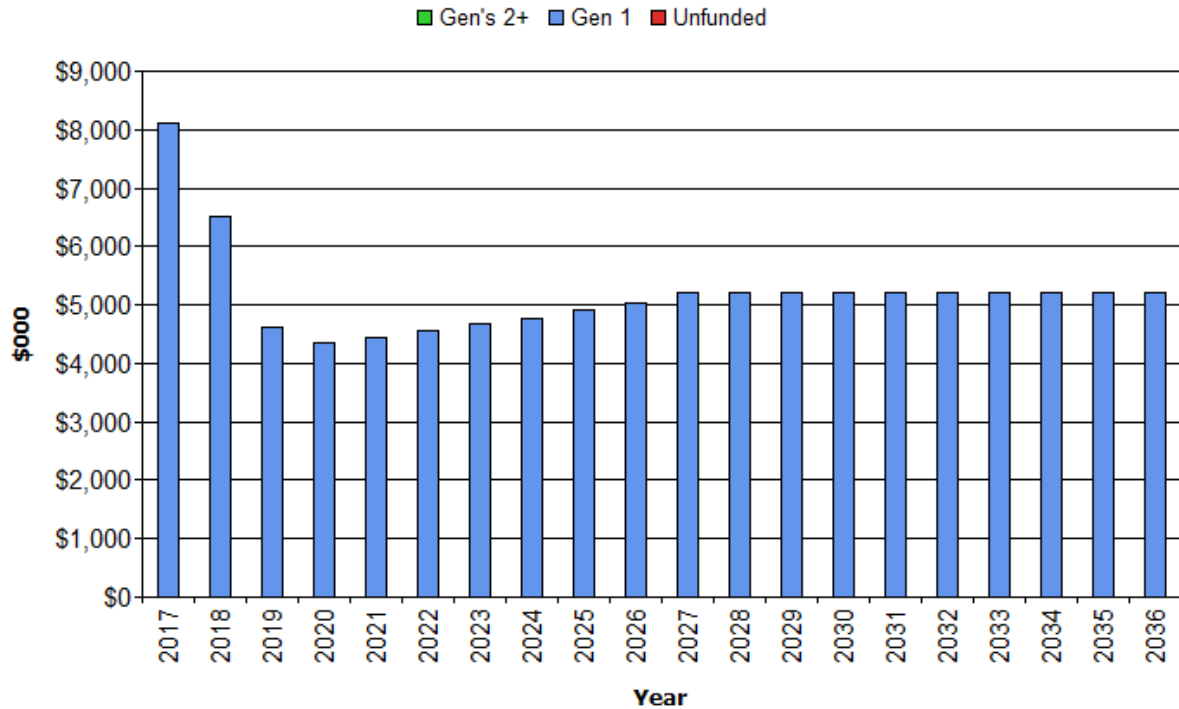


Fig 5.1: Projected Capital Renewal and Replacement Expenditure – Scenario 3

Cessnock CC - Projected Capital Renewal Expenditure (2017 Roads_S3_V2)



Renewals and replacement expenditure in Council’s capital works program will be accommodated in the long term financial plan. 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 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/director 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 detailed below.

Table 5.5.1: New Road Assets Priority Ranking Criteria

Criteria	Weighting
New Development	100%
Total	100%

Table 5.5.2: New Pathways Priority Ranking Criteria

Criteria	Weighting
Proximity to Commercial Development	11%
Proximity to Aged Citizens	11%
Proximity to Schools	11%
Pedestrian Hourly Volume	10%
Link to Public Transport	6%
Provides Missing Link Between Existing Footpaths	6%
Provides Tourism &/or Recreational Culture Benefit	6%
Residential Development Density	6%
Identified Access for Disabled	11%
Council Resolution	11%
Identified as Part of a Link to a Development Project	11%
Total	100%

NOTE: A new ranking criterion for other road infrastructure assets is to be developed and included in future revisions of this asset management plan.

5.5.2 Capital Investment Strategies

Council will plan capital upgrade and new projects to meet level of service objectives by:

- Planning and scheduling capital upgrade and new projects to deliver the defined level of service in the most efficient manner;
- Undertake project scoping for all capital upgrade/new projects to identify:
 - the service delivery 'deficiency', present risk and required timeline for delivery of the upgrade/new asset;
 - the project objectives to rectify the deficiency including value management for major projects;
 - the range of options, estimated capital and life cycle costs for each option that could address the service deficiency;
 - management of risks associated with alternative options;
 - evaluation the options against evaluation criteria adopted by Council; and
 - select the best option to be included in capital upgrade/new programs;
- Review current and required skills base and implement training and development to meet required construction and project management needs;
- Review management of capital project management activities to ensure Council is obtaining best value for resources used.

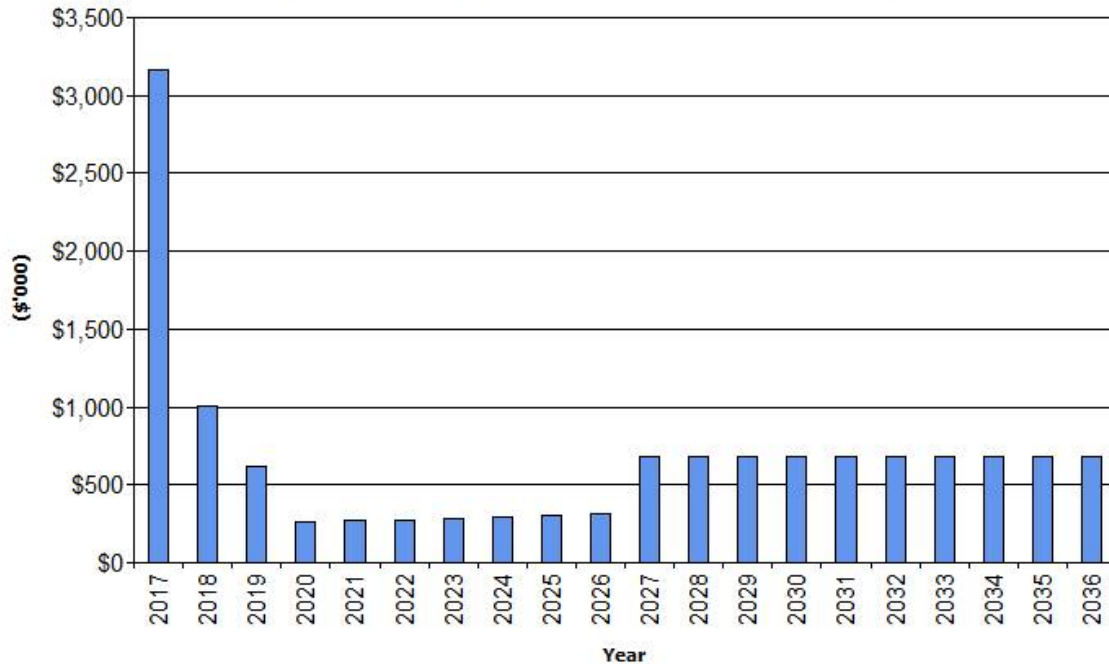
Standards and specifications for new assets and for upgrade/expansion of existing assets are the same as those for renewal shown in Section 5.4.2.

5.5.3 Summary of future upgrade/new assets expenditure

Projected upgrade/new asset expenditures are summarised in Fig 6. The Draft Projected Capital Renewal, Replacement and Upgrade Works Program is shown in Appendix B. All amounts are shown in real values.

Fig 6: Projected Capital Upgrade/New Asset Expenditure

Cessnock CC - Projected Capital Upgrade/New Expenditure (2017 Roads_S2_V2)



Expenditure on new assets and services in Council’s capital works program will be accommodated in the long term financial plan. This is further discussed in Section 6.2. The projected upgrade / new capital works reflect the proposed upgrade of Frame Drive and Sandy Creek Road to be completed in conjunction with Frame Drive Bridge and Fosters Bridge works in the 2017/18 and 2018/19 Financial Years.

5.6 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. Assets identified for possible decommissioning and disposal are shown in Table 5.6, together with estimated annual savings from not having to fund operations and maintenance of the assets. These assets will be further investigated to determine the required levels of service and see what options are available for alternate service delivery, if any. Revenue gained from asset disposals is accommodated in Council’s long term financial plan.

Table 5.6: Assets Identified for Disposal

Asset	Reason for Disposal	Timing	Disposal Expenditure	Operations & Maintenance Annual Savings
Roads	None proposed	N/A	N/A	N/A
Bus Shelters	None proposed	N/A	N/A	N/A
Carpark	None proposed	N/A	N/A	N/A
Pedestrian Refuge	None proposed	N/A	N/A	N/A
Round-A-Bout	None proposed	N/A	N/A	N/A
Footpath	None proposed	N/A	N/A	N/A
Kerb & Gutter	None proposed	N/A	N/A	N/A

5.7 Service Consequences and Risks

Council has prioritised decisions made in adopting this Asset Management Plan to obtain the optimum benefits from its available resources. Decisions were made based on the development of 3 scenarios of Asset Management Plans.

Scenario 1 - What we would like to do based on asset register data.

Scenario 2 – What we should do with existing budgets and identifying level of service and risk consequences (ie what are the operations and maintenance and capital projects we are unable to do, what is the service and risk consequences associated with this position). This may require several versions of the Asset Management Plan.

Scenario 3 – What we can do and be financially sustainable with Asset Management Plans matching long-term financial plans.

The development of scenario 1 and scenario 2 Asset Management Plans provides the tools for discussion with the Council and community on trade-offs between what we would like to do (scenario 1) and what we should be doing with existing budgets (scenario 2) by balancing changes in services and service levels with affordability and acceptance of the service and risk consequences of the trade-off position (scenario 3).

5.7.1 What we cannot do

There are some operations and maintenance activities and capital projects that are unable to be undertaken within the next 10 years. These include:

- All of the required renewal and maintenance items required annually for all road and road infrastructure assets to stay in average/fair condition (3) or better
- Renewal / rehabilitation work to enable the removal of all service deficiencies identified in Table 5.1.2.
- Increase in the required maintenance for assets to achieve their useful life

5.7.2 Service consequences

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

- Potential increase in pavement failure, potholing, cracking and rutting as a result of insufficient road renewal funding
- Potential increase in footpath displacement, cracking and uplift as a result of insufficient footpath renewal funding
- Potential increase in kerb & gutter displacement, cracking and uplift as a result of insufficient kerb & gutter renewal funding

5.7.3 Risk consequences

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

- Potential increase in vehicle damage and accidents as a result of insufficient road renewal funding
- Likely increase in more expensive rehabilitation costs due to insufficient road resurfacing & resealing
- Negative public perception / political risk

These risks have been included with the Infrastructure Risk Management Plan summarised in Section 5.2 and risk management plans actions and expenditures included within projected expenditures.

6. FINANCIAL SUMMARY

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

6.1 Financial Statements and Projections

The financial projections are shown in Fig 7 (scenario 2) and 7.1 (scenario 3) for projected operating, maintenance, and capital expenditure, including; renewal and upgrade/expansion/new assets. Note that all costs are shown in real values.

Fig 7: Projected Operating and Capital Expenditure – Scenario 2

Cessnock CC - Projected Operating and Capital Expenditure (2017 Roads_S2_V2)

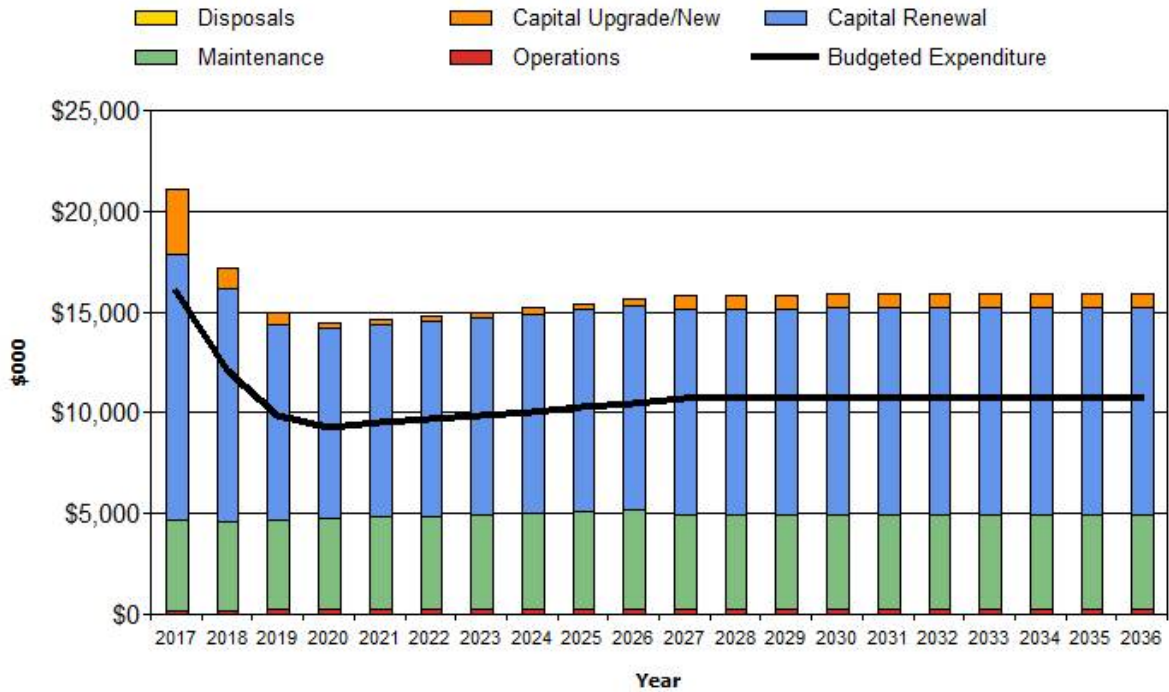
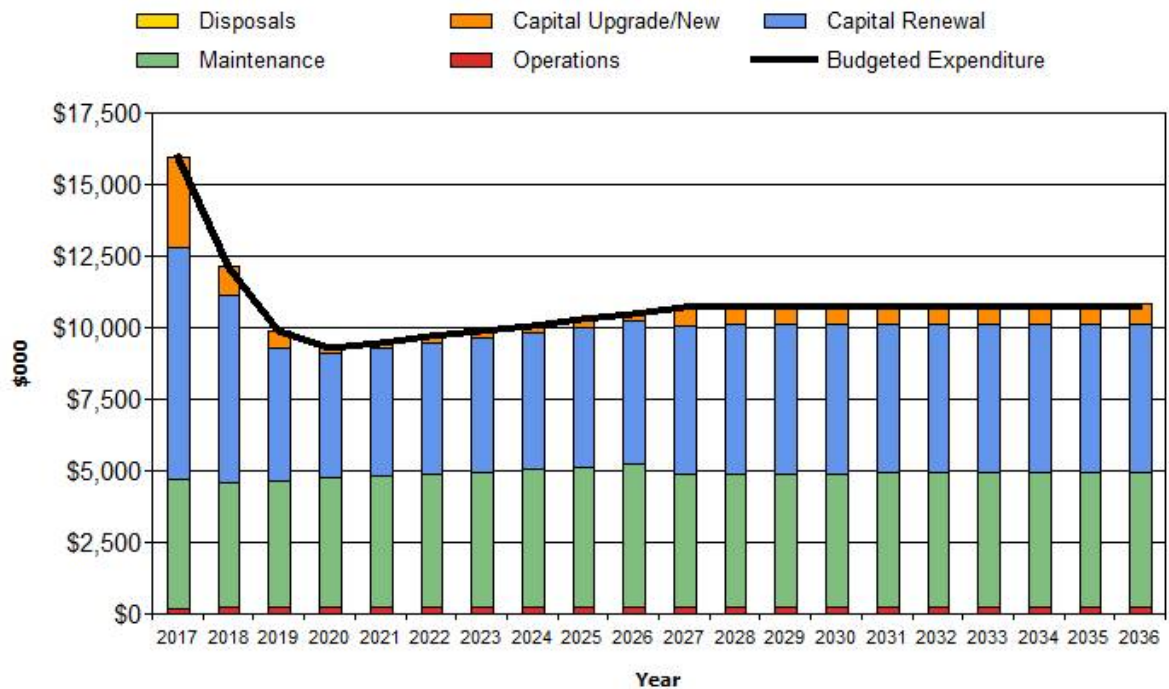


Fig 7.1: Projected Operating and Capital Expenditure – Scenario 3

Cessnock CC - Projected Operating and Capital Expenditure (2017 Roads_S3_V2)



6.1.1 Sustainability of service delivery

There are four key indicators for service delivery sustainability that have been considered in the analysis of the services provided by this asset category, these being the asset renewal funding ratio, long term life cycle costs/expenditures and medium term projected/budgeted expenditures over 5 and 10 years of the planning period.

Asset Renewal Funding Ratio

Asset Renewal Funding Ratio **100%** (Scenario 3 – LTFP)

The Asset Renewal Funding Ratio, when considering the budget allocations set out in Councils' Long Term Financial Plan (scenario 3), and the current level of service is 100%. This ratio does not take into account any planned upgrade/new works, or impact of contributed assets, nor does it consider the associated operating and maintenance requirements for these assets as this is seen as a 'want' rather than a requirement. As a result this ratio differs to the 10 year AM financial indicator in the executive summary.

When considering the outcome of Councils' community consultation; all asset stock is to be in condition 3 'average' or better (scenario 2), the Asset Renewal Funding Ratio is 51%.

The Asset Renewal Funding Ratio is the most important indicator and reveals that over the next 10 years, the Council is forecasting that it will have 51% of the funds required to keep assets performing at the desired level of service.

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 asset life cycle. Life cycle costs include operations and maintenance expenditure and asset consumption (depreciation expense). The life cycle cost for the services covered in this asset management plan is \$9,338,000 per year (average operations and maintenance expenditure plus depreciation expense projected over 10 years).

Life cycle costs can be compared to life cycle expenditure to give an initial indicator of affordability of projected service levels when considered with age profiles. Life cycle expenditure includes operations, maintenance and capital renewal expenditure. Life cycle expenditure will vary depending on the timing of asset renewals. The life cycle expenditure over the 10 year planning period is \$10,031,000 per year (average operations and maintenance plus capital renewal budgeted expenditure in LTFP over 10 years).

A shortfall between life cycle cost and life cycle expenditure is the life cycle gap. The life cycle surplus for services covered by this asset management plan is +\$693,000 per year (-ve = gap, +ve = surplus). Life cycle expenditure is 107% of life cycle costs. This surplus is likely to be due to the use of a long term average budget amount for the 10 years past where the LTFP ends. An average is used due to the reduced confidence in accurate funding options more than 10 years into the future. In this case the average is considerably higher than the final year budgeted in the LTFP.

The life cycle costs and life cycle expenditure comparison highlights any difference between present outlays and the average cost of providing the service over the long term. If the life cycle expenditure is less than that life cycle cost, it is most likely that outlays will need to be increased or cuts in services made in the future.

Knowing the extent and timing of any required increase in outlays and the service consequences if funding is not available will assist organisations in providing services to their communities in a financially sustainable manner. This is the purpose of the asset management plans and long term financial plan.

Medium term – 10 year financial planning period

This asset management plan identifies the projected operations, maintenance and capital renewal expenditures required to provide an agreed level of service to the community over a 10 year period. This provides input into 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

These projected expenditures may be compared to budgeted expenditures in the 10 year period to identify any funding shortfall. In a core asset management plan, a gap is generally due to increasing asset renewals for ageing assets.

The projected operations, maintenance and capital renewal expenditure required over the 10 year planning period is \$10,070,000 on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is \$10,031,000 on average per year giving a 10 year funding shortfall of **-\$39,000** per year. This indicates that Council expects to have 100% of the projected expenditures needed to provide the services documented in the asset management plan.

Medium Term – 5 year financial planning period

The projected operations, maintenance and capital renewal expenditure required over the first 5 years of the planning period is \$10,308,000 on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is \$10,279,000 on average per year giving a 5 year funding shortfall of **-\$29,000**. This indicates that Council expects to have 100% of projected expenditures required to provide the services shown in this asset management plan.

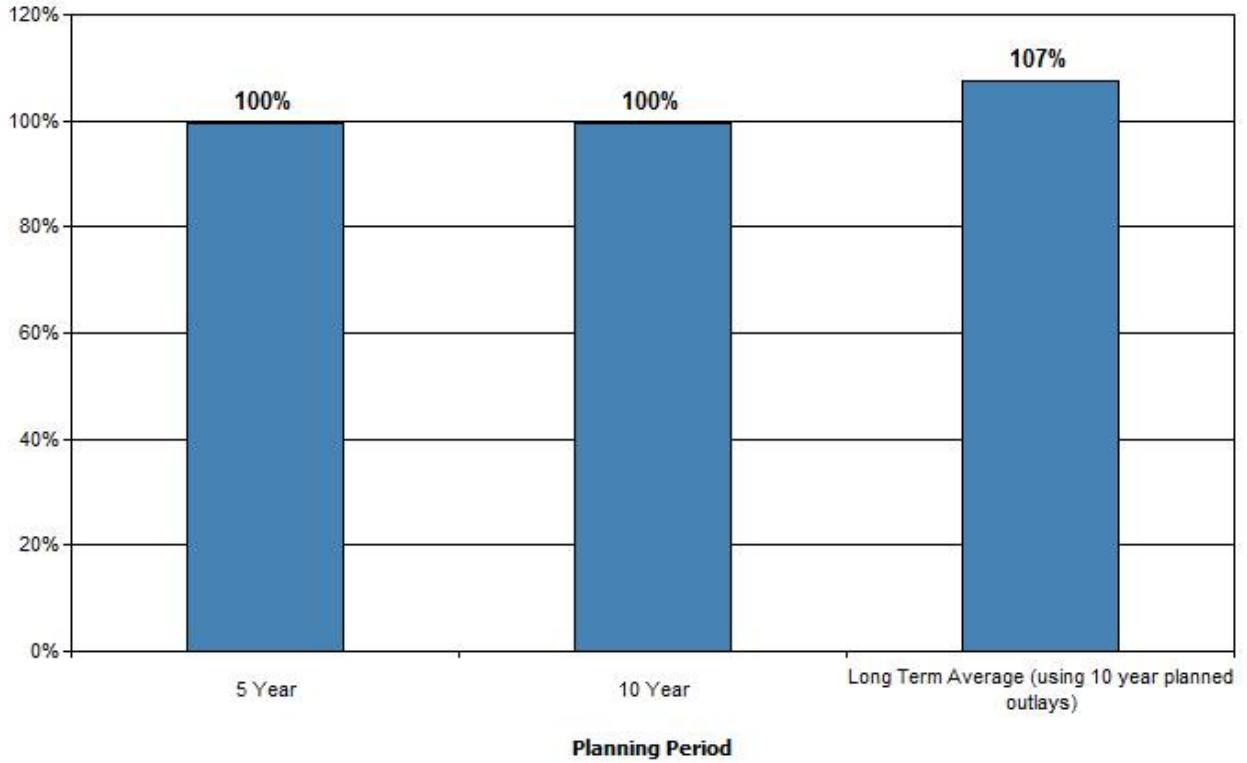
Asset management financial indicators

Figure 7A shows the asset management financial indicators over the 10 year planning period and for the long term life cycle, this is based on scenario 3 which matches the LTFP .

Figure 7A: Asset Management Financial Indicators

Cessnock CC - AM Financial Indicators (2017 Roads_S3_V2)

■ Comparison of LTFP Outlays as a % of Projected Requirements



Providing services from infrastructure in a sustainable manner requires the matching and managing of service levels, risks, projected expenditures and financing to achieve a financial indicator of approximately 1.0 for the first years of the asset management plan and ideally over the 10 year life of the Long Term Financial Plan.

Figure 8 shows the projected asset renewal and replacement expenditure required from Scenario 2 over a 20 year planning period. The projected asset renewal and replacement expenditure is compared to planned renewal and replacement expenditure in the capital works program, which is accommodated in the long term financial plan.

Figure 8: Projected & LTFP Budgeted Renewal Expenditure

Cessnock CC - Projected & LTFP Budgeted Renewal Expenditure (2017 Roads_S2_V2)

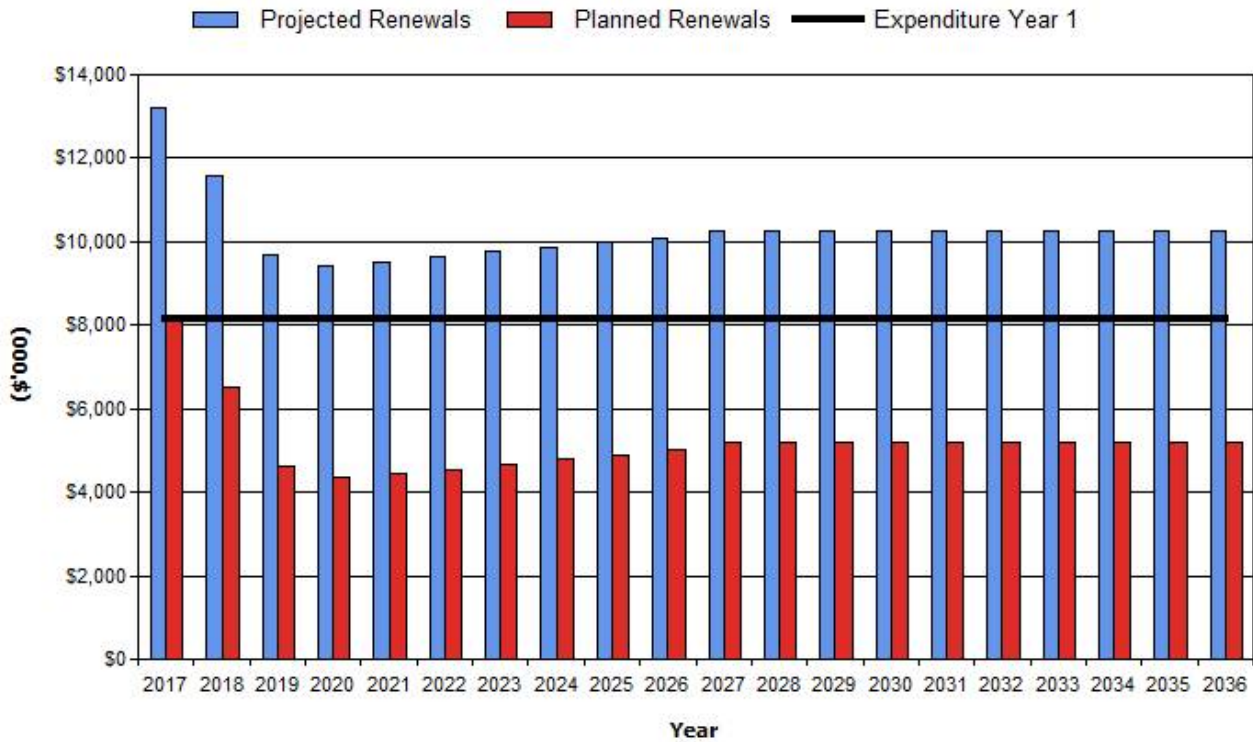


Table 6.1.1 shows the shortfall between projected renewal and replacement expenditures required from scenario 2 and expenditure accommodated in long term financial plan. Budget expenditures accommodated in the long term financial plan or extrapolated from current budgets are shown in Appendix C.

Table 6.1.1: Projected and LTFP Budgeted Renewals and Financing Shortfall

Year End June 30	Projected Renewals (\$'000)	LTFP Renewal Budget (\$'000)	Renewal Financing Shortfall (- gap, + surplus) (\$'000)	Cumulative Shortfall (- gap, + surplus) (\$'000)
2017	\$13,203	\$8,125	\$-5,078	\$-5,078
2018	\$11,598	\$6,519	\$-5,079	\$-10,157
2019	\$9,686	\$4,608	\$-5,078	\$-15,235
2020	\$9,429	\$4,351	\$-5,078	\$-20,313
2021	\$9,528	\$4,450	\$-5,078	\$-25,391
2022	\$9,632	\$4,554	\$-5,078	\$-30,469
2023	\$9,753	\$4,664	\$-5,089	\$-35,558
2024	\$9,859	\$4,781	\$-5,078	\$-40,636

Year End June 30	Projected Renewals (\$'000)	LTFP Renewal Budget (\$'000)	Renewal Financing Shortfall (- gap, + surplus) (\$'000)	Cumulative Shortfall (- gap, + surplus) (\$'000)
2025	\$9,979	\$4,901	\$-5,078	\$-45,714
2026	\$10,102	\$5,024	\$-5,078	\$-50,792
2027	\$10,277	\$5,198	\$-5,079	\$-55,871
2028	\$10,277	\$5,198	\$-5,079	\$-60,950
2029	\$10,277	\$5,198	\$-5,079	\$-66,030
2030	\$10,277	\$5,198	\$-5,079	\$-71,109
2031	\$10,277	\$5,198	\$-5,079	\$-76,188
2032	\$10,277	\$5,198	\$-5,079	\$-81,267
2033	\$10,277	\$5,198	\$-5,079	\$-86,346
2034	\$10,277	\$5,198	\$-5,079	\$-91,426
2035	\$10,277	\$5,198	\$-5,079	\$-96,505
2036	\$10,277	\$5,198	\$-5,079	\$-101,584

Note: A negative shortfall indicates a financing gap, a positive shortfall indicates a surplus for that year.

Should the Council wish to meet the community demand for assets to improve to a minimum of condition 3, in order to be sustainable in meeting this service level, there will be a requirement to match projected asset renewal and replacement expenditure with the corresponding capital works program accommodated in the long term financial plan.

A gap between projected asset renewal/replacement expenditure and amounts accommodated in the LTFP indicates that further work is required on reviewing service levels in the AM Plan (including possibly revising the LTFP) before finalising the asset management plan to manage required service levels and funding to eliminate any funding gap.

We 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 review future services, service levels and costs with the community.

6.1.2 Projected expenditures for long term financial plan

Table 6.1.2 shows the projected expenditures for scenario 2 for the 10 year long term financial plan. Expenditure projections are in 2015/16 FY real values.

Table 6.1.2: Projected Expenditures for Long Term Financial Plan (\$000)

Year	Operations	Maintenance	Projected Capital Renewal	Capital Upgrade/New	Disposals
2017	\$206	\$4,476	\$8,125	\$3,163	\$0
2018	\$210	\$4,383	\$6,520	\$1,003	\$0
2019	\$214	\$4,448	\$4,608	\$623	\$0
2020	\$217	\$4,520	\$4,351	\$262	\$0
2021	\$221	\$4,591	\$4,450	\$269	\$0
2022	\$225	\$4,663	\$4,554	\$276	\$0
2023	\$228	\$4,738	\$4,665	\$285	\$0

Year	Operations	Maintenance	Projected Capital Renewal	Capital Upgrade/New	Disposals
2024	\$232	\$4,814	\$4,781	\$293	\$0
2025	\$235	\$4,891	\$4,901	\$303	\$0
2026	\$239	\$4,971	\$5,024	\$313	\$0
2027	\$224	\$4,667	\$5,198	\$679	\$0
2028	\$224	\$4,672	\$5,198	\$679	\$0
2029	\$224	\$4,677	\$5,198	\$679	\$0
2030	\$224	\$4,683	\$5,198	\$679	\$0
2031	\$225	\$4,688	\$5,198	\$679	\$0
2032	\$225	\$4,694	\$5,198	\$679	\$0
2033	\$225	\$4,699	\$5,198	\$679	\$0
2034	\$225	\$4,705	\$5,198	\$679	\$0
2035	\$226	\$4,710	\$5,198	\$679	\$0
2036	\$226	\$4,715	\$5,198	\$679	\$0
All dollar values are in (\$'000)'s					

6.2 Funding Strategy

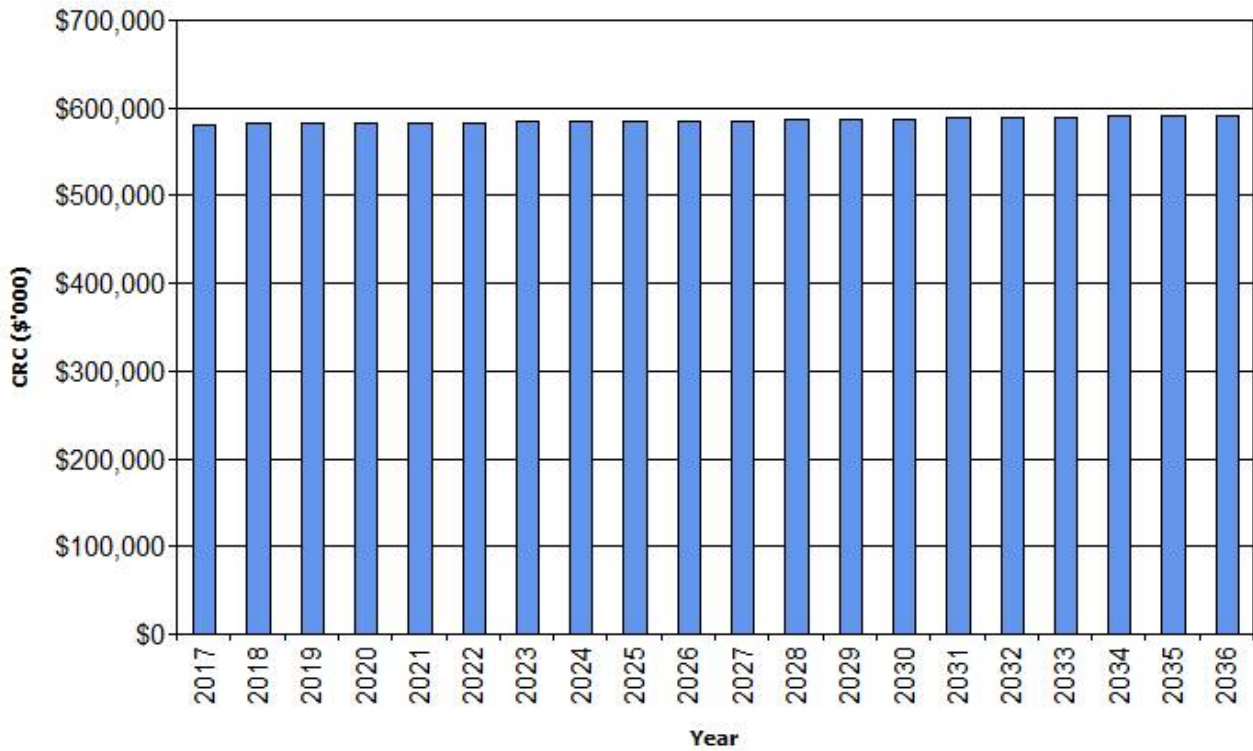
After reviewing service levels, as appropriate to ensure ongoing financial sustainability projected expenditures identified in Section 6.1.2 will be accommodated in the Council's 10 year long term financial plan.

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. Figure 9 shows the projected replacement cost asset values over the planning period in real values.

Figure 9: Projected Asset Values

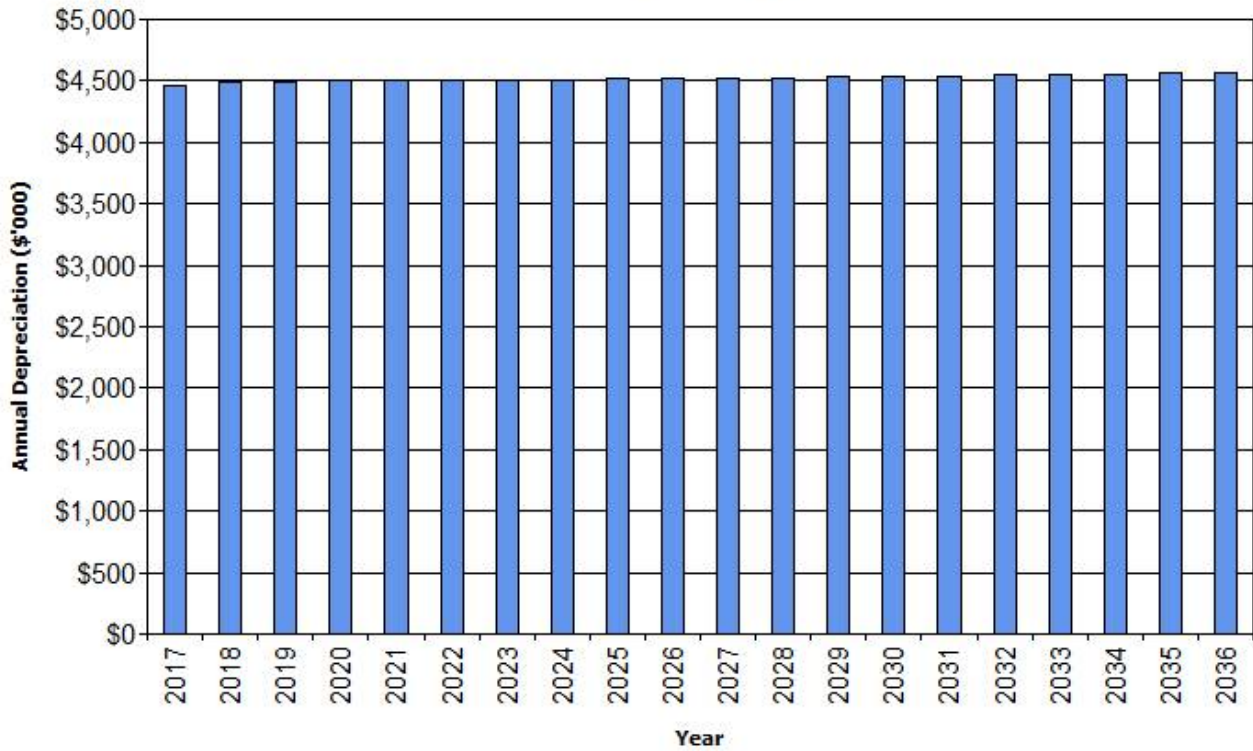
Cessnock CC - Projected Asset Values (2017 Roads_S3_V2)



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

Figure 10: Projected Depreciation Expense

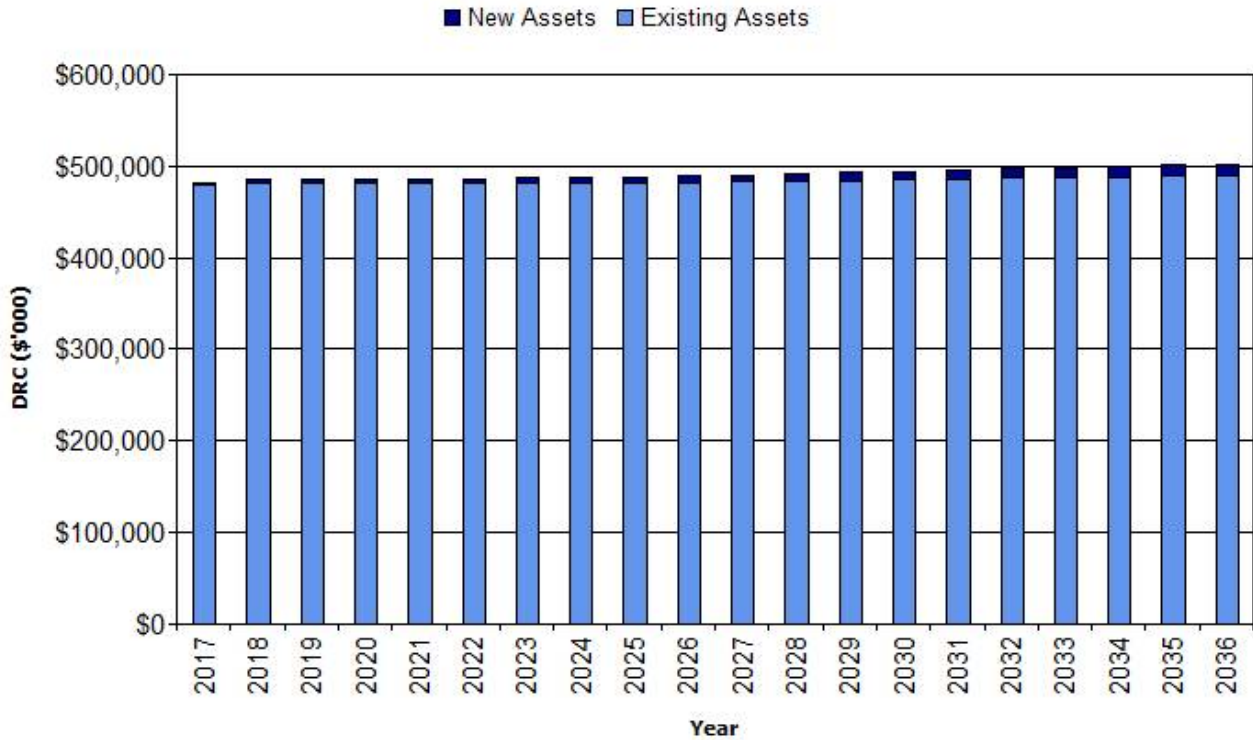
Cessnock CC - Projected Depreciation Expense (2017 Roads_S3_V2)



The depreciated replacement cost will vary over the forecast period depending on the rates of addition of new assets, disposal of old assets and consumption and renewal of existing assets. Forecast of the assets' depreciated replacement cost is shown in Figure 11. The depreciated replacement cost of contributed and new assets is shown in the darker colour and in the lighter colour for existing assets.

Figure 11: Projected Depreciated Replacement Cost

Cessnock CC - Projected Depreciated Replacement Cost (2017 Roads_S3_V2)



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 and risks that these may change are shown in Table 6.4.

Table 6.4: Key Assumptions made in AM Plan and Risks of Change

Key Assumptions	Risks of Change to Assumptions
Use of existing inventory and condition data as at 30 June 2015.	Condition data was last compiled during the revaluation exercise undertaken in 2014/15.
Use of 2014/15 Asset Revaluation Manual.	This Asset Management Plan is based on asset revaluation undertaken in 2014/15 that would be subject to change by revaluation in 2019/20.
Planned expenditure values obtained from current budgets and Council's four year delivery program (2017-2021), and Council's updated LTFP 2017 – 2027.	The four year Delivery Program and LTFP may change in the future. Any changes in funding, planned capital and maintenance will be reflected in future asset management plans.

6.5 Forecast Reliability and Confidence

The expenditure and valuations projections in this AM Plan are based on best available data. Currency and accuracy of data is critical to effective asset and financial management. Data confidence is classified on a 5 level scale¹² in accordance with Table 6.5.

Table 6.5: Data Confidence Grading System

Confidence Grade	Description
A Highly reliable	Data based on sound records, procedures, investigations and analysis, documented properly and recognised as the best method of assessment. Dataset is complete and estimated to be accurate $\pm 2\%$
B Reliable	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate $\pm 10\%$
C Uncertain	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated $\pm 25\%$
D Very Uncertain	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete and most data is estimated or extrapolated. Accuracy $\pm 40\%$
E Unknown	None or very little data held.

The estimated confidence level for and reliability of data used in this AM Plan is shown in Table 6.5.1.

Table 6.5.1: Data Confidence Assessment for Data used in AM Plan

Data	Confidence Assessment	Comment
Demand drivers	B	Based on demographic analysis undertaken in 2014 and State Government projections.
Growth projections	B	Based on demographic analysis undertaken in 2014 and State Government projections.
Operations expenditures	A	Council financial records.
Maintenance expenditures	A	Council financial records.
Projected Renewal exps. Asset values	B	Assets revalued in 2014/15.
Asset useful lives	B	Useful lives based on industry standards.
Condition modelling	B	Condition assessment based on 2014/15 revaluation exercise.
Network renewals	B	Based on Renewal and Replacement Priority Ranking Criteria Table 5.4.2
Defect repairs	B	Developed from customer requests and officer inspections.
Upgrade/New expenditures	A	Based on known capital allocations from State Government

¹² IPWEA, 2015, IIMM, Table 2.4C.6, p 2 | 59.

Data	Confidence Assessment	Comment
		Grand funding.
Disposal expenditures	B	Nil assets identified for disposal.

Over all data sources the data confidence is assessed as medium confidence level for data used in the preparation of this AM Plan.

7. PLAN IMPROVEMENT AND MONITORING

7.1 Status of Asset Management Practices

7.1.1 Accounting and financial systems

Council's accounting and financial system is CIVICA/Authority.

Accountabilities for financial systems

The financial systems are primarily managed by Council's Finance section within the Corporate and Community Services Directorate.

Accounting standards and regulations

In accounting for Cessnock City Council assets the following statutory requirements shall be adhered to:

- Australian Accounting Standards (AASB116).
- NSW Local Government Act 1993.
- NSW Code of Accounting Practice and Financial Reporting (updated annually).
- Australian Infrastructure Management Guideline

Capital/maintenance threshold

A summary of capital / maintenance threshold for road and road infrastructure assets is provided in Table 7.1.

Table 7.1: Capital / Maintenance Threshold for Road and Road Infrastructure Assets

	Operations	Maintenance and Repair	Capital Renewal	Capital New
Roads & Associated Infrastructure	<ul style="list-style-type: none"> • Service delivery including condition assessment, defect inspection. • Pavement markings signs. • Mowing, slashing, etc. 	<ul style="list-style-type: none"> • Reactive maintenance (pothole repair, guidepost replacement, signs repair, etc. • Heavy patching. • Components replace/renew < \$10,000 • Components 	<ul style="list-style-type: none"> • Pavement renewal to same standard. • Resurfacing with same standard. • Component replace/ renew >\$10,000 or component replace/renew > 20% of road segment. 	<ul style="list-style-type: none"> • New assets/upgrade assets • Pavement upgrade – renewal with higher standard. • Resurfacing upgrade with higher

	Operations	Maintenance and Repair	Capital Renewal	Capital New
	<ul style="list-style-type: none"> Street sweeping. Street lighting. 	replace/renew < 20% of the road segment or component.	<ul style="list-style-type: none"> Traffic facilities > \$3,000. 	standard. <ul style="list-style-type: none"> Land acquired for road works.

Required changes to accounting financial systems arising from this AM Plan

In order to assist with future iterations of this AM Plan it is recommended that the accounting ledger be restructured to better reflect the different types of expenditure, i.e. operational, maintenance, capital renewal and capital upgrade.

7.1.2 Asset management system

Cessnock City Council Asset Management Implementation Project includes the deployment of MyData (Assetic Software Package) Asset Management System.

ASSETIC – MyData

MyData, is an ‘Asset Management System’ (AMS) designed to assist with the management of all infrastructure assets as well as the potential to expand to non-infrastructure assets such as fleet, plant, computer, etc.

The MyData register has the ability to:

- Assign global formulae for remaining life based on age and/or condition.
- Use predictive modelling as basis for defensible valuations (written down value and remaining life).
- Automatically update annual or monthly valuations.
- Add or remove assets but maintain an archived list.
- Perform audit trails for changes between two valuations.
- Import and export reports.
- Apply a range of unit replacement costs across asset categories.
- Classify each asset class into various sub-classes.

Asset registers

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;
- Projects of various factors affecting future demand for services;
- Correlations between maintenance and renewal, including decay models;
- Data on new assets acquired by Council.

Linkage from asset management to financial system

The key information flows from this Asset Management Plan are:

- The assumed asset renewal profile 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 department business plans and budgets.

Accountabilities for asset management system and data maintenance

See Asset Management Strategy.

Required changes to asset management system arising from this AM Plan

Changes to the asset management system resulting from this Asset Management Plan may include:

- Modification of asset categories or sub-categories to assist in maintenance management systems;
- Improving the work order system for job planning and control;
- Improving the quality of specific data;
- Improving software systems and links to other systems (e.g. GIS and Authority to MyData, and;
- Adopting a more frequent reconciliation cycle between the financial and technical asset registers.

7.2 Improvement Plan

The asset management improvement plans generated from this asset management plan is shown in the following tables:

Table 7.2: Improvement Plan

Task No	Task	Responsibility	Resources Required	Timeline
1	Review and update road network maintenance service level manual (appendix A)	Works & Infrastructure/Assets	In-house	Prior to adoption 2018.
2	Review finance system to provide clear separation of capital expenditure into renewal, upgrade / expansion, and new works.	Works & Infrastructure/Assets and Finance	In-house	Prior to adoption 2018.
3	Review and further develop a critical asset management plan and further define critical assets	Works & Infrastructure/Assets	In-house	Prior to adoption 2018.
4	Undertake community consultation specific to all road assets.	Works & Infrastructure/Assets	In-house	June 2017
5	Finalise desired levels of service by establishing current performance and setting performance targets. Have these Levels of Service adopted by Council	Works & Infrastructure/Assets /Finance & Admin Services Manager / Service Delivery Managers	In-house	Prior to adoption 2018.
6	Review the further develop priority ranking criteria and triggers for determining capital works program for all assets	Works & Infrastructure/Assets	In-house	Prior to adoption 2018.
7	Assess the structure and resources within Council, to ensure that the Road Asset Management Plan can be effectively implemented	Works & Infrastructure/Assets / Finance & Admin Services Manager / Service Delivery Managers	In-house	Prior to adoption 2019.
8	Review finance system to provide clear separation of each asset category into both maintenance and operational works.	Works & Infrastructure/Assets and Finance	In-house	Prior to adoption 2018.

NOTE: In 2015, an independent assessment was undertaken by an external consultant on Councils' overall asset maturity TRIM reference number DOC2015/020878. Council is intending to obtain another review of their asset maturity by the end of 2018.

7.3 Monitoring and Review Procedures

This asset management plan will be reviewed during annual budget planning processes and amended to recognise any material changes in service levels and/or resources available to provide those services as a result of budget decisions.

The AM Plan will be updated annually to ensure it represents the current service level, asset values, projected operations, maintenance, capital renewal and replacement, capital upgrade/new and asset disposal expenditures and projected expenditure values incorporated into Council's long term financial plan.

The AMP is to be reviewed annually in line with the budget, and a full revision undertaken during the year after the asset class is revalued.

7.4 Performance Measures

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

- The degree to which the required projected expenditures identified in this asset management plan are incorporated into Council's long term financial 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;
- The degree to which the existing and projected service levels and service consequences (what we cannot do), risks and residual risks are incorporated into the Council's Strategic Plan and associated plans;
- The Asset Renewal Funding Ratio achieving the target of 1.0.

8. REFERENCES

IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australia, Sydney, www.ipwea.org.au/namsplus.

IPWEA, 2015, 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australia, Sydney, www.ipwea.org.au/AIFMG.

IPWEA, 2015, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australia, Sydney, www.ipwea.org.au/IIMM

Cessnock City Council, Asset Management Policy,

Cessnock City Council, Asset Management Strategy,

Cessnock Community Strategic Plan (Cessnock 2027)

Cessnock City Council Community Research Report 2016

Cessnock City Council 2015 Asset Management Research Satisfaction Survey Results

Cessnock City Council 2017-21 Delivery Plan

Cessnock City Council 2017-2018 Operational Plan

NAMS.Plus Maturity Assessment Report Cessnock City Council 2015

9. APPENDICES

Appendix A Road Network Maintenance Service Level Manual

Appendix B Draft Projected Road and Road Infrastructure Capital Renewal, Replacement and Upgrade Works Program

Appendix C Budgeted Expenditures Accommodated in LTFP

Appendix D Overall Condition Index Methodology

Appendix E Abbreviations

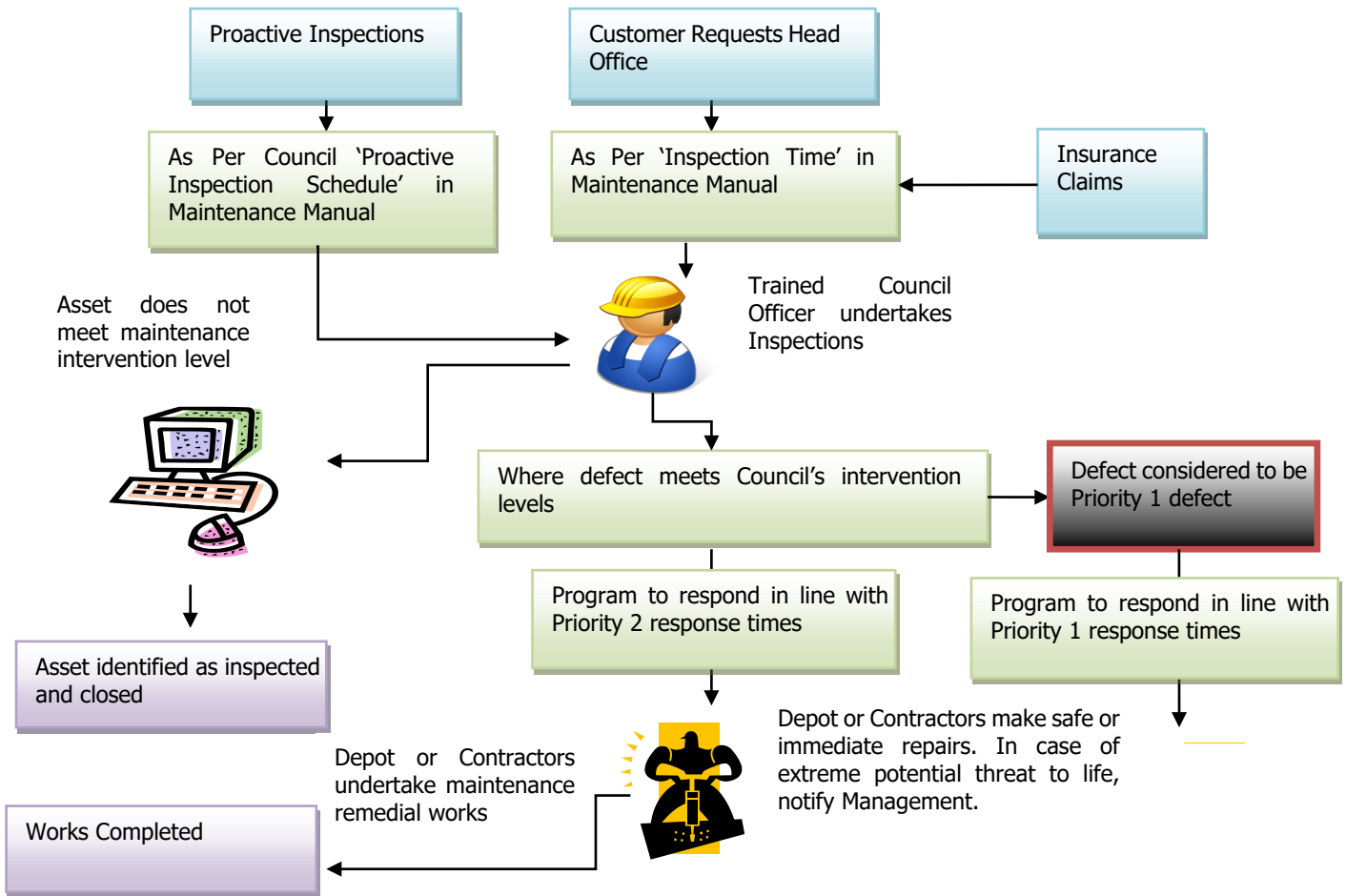
Appendix F Glossary

Appendix A Road Network Maintenance Service Level Manual



**ROAD NETWORK
MAINTENANCE
SERVICE LEVEL MANUAL**

Maintenance Inspection Flow Chart



Road Network Hierarchy

Road Hierarchy	Road Function	Road Description
RR	Regional Roads (Urban & Rural)	Regional Roads are a category of council controlled road agreed with the RTA for road administration purposes. Regional Roads perform an intermediate function between the main arterial network of RTA controlled State Roads and the network of local access and circulation roads controlled by Council.
LU	Local Urban	For movement of cars and trucks in urban areas, from higher hierarchies for access to residences or businesses within the LGA.
LR	Local Rural	For movement of cars and trucks in rural areas, from higher hierarchies for access to residences or businesses within the LGA.
AP	Airport Pavement	Airport Pavement Structures at Cessnock Airport including runway, taxiway, parking area and re-fuelling station
CP	Carparks	A cleared area that is intended for parking vehicles
LN	Laneways	Service roads within the LGA

Note 1: All times specified in this manual other than for proactive inspections are in working days.

Note 2: Performance Indicator Targets measure number and quality of defects repaired within prescribed response times.

Note 3: Customer requests reported as a safety issue will be inspected within 2 working days, where practical.

Note 4: Response times are considered to apply during normal operating conditions and circumstances and not under times of disaster.

ROAD NETWORK PROACTIVE INSPECTIONS

Programmed Inspection Times – Roads	
Road Hierarchy	Frequency
RR - Regional Roads	Annually
LU - Local Urban	4 x Annual Routine Inspection
LR - Local Rural	4 x Annual Routine Inspection
AP - Airport Pavement	4 x Annual Routine Inspection
CP - Carparks	Annually
LN - Laneways	As Required

ROAD ANCILLARY PROACTIVE INSPECTIONS

Programmed Inspection Times			
Road Hierarchy	Frequency - Signs	Frequency – Bus Shelters	Frequency – Other Road Ancillary (i.e. guard rails, bins)
RR	2 Yearly	Annually	As Required
LU	2 Yearly	Annually	As Required
LR	2 Yearly	Annually	As Required
AP	Annually	N/A	As Required
CP	2 Yearly	2 Yearly	As Required
LN	2 Yearly	N/A	As Required

POTHOLE PATCHING / PAVEMENT REPAIRS

Pothole Patching



Intervention Level	Priority 1 Guideline	Response Time					
		Activity/s	Hierarchy	Inspection time*	Priority1 Repair time	Priority 2 Repair time	Performance Indicator Targets
Pothole > 50mm deep and/or greater than 300 mm in width & a minimum of 9m2 per segment.	Priority increases from 2 to 1 if assessed as a safety issue e.g. when pothole is likely to cause vehicle damage or potential accident		RR	5 Days	48 hrs	60 Days	90%
			LU	5 Days	48 hrs	10 Days	90%
			LR	5 Days	48 hrs	10 Days	90%
			AP	5 Days	48 hrs	10 Days	90%
			CP	10 Days	48 hrs	60 Days	90%
			LN	10 Days	48 hrs	60 Days	90%

*** Emergency Works are to be carried out within 5 hrs of notification**

Pavement Failures / Repairs



Intervention Level	Priority 1 Guideline	Response Time					
		Activity/s	Hierarchy	Inspection time*	Priority1 Repair time	Priority 2 Repair time	Performance Indicator Targets
Pavement failures, with height displacement > 100mm and > 10m2 per segment.	Priority increases from 2 to 1 if assessed as a safety issue e.g. when defect is on a bend or is likely to cause vehicle damage or potential accident		RR	5 Days	48 hrs	60 Days	90%
			LU	5 Days	48 hrs	10 Days	90%
			LR	5 Days	48 hrs	10 Days	90%
			AP	5 Days	48 hrs	10 Days	90%
			CP	10 Days	48 hrs	60 Days	90%
			LN	10 Days	48 hrs	60 Days	90%

Note: For affected pavement areas >50% of segment refer for inclusion on forward works program.

EDGE DEFECTS AND SHOULDER REPAIRS

Edge Breaks / Edge Drop



Intervention Level	Priority 1 Guideline	Response Time					
		Activity/s	Hierarchy	Inspection time*	Priority1 Repair time	Priority 2 Repair time	Performance Indicator Targets
Edge break is > 150mm from the average existing seal edge and is > 25% of length for the segment Edge drop > 75mm where seal width is < 6.5m or >150mm where seal width is > 6.5m	Priority increases from 2 to 1 if assessed as a safety issue e.g. when defect is on a bend or is likely to cause vehicle damage or potential accident		RR	5 Days	5 Days	90 Days	80%
			LU	5 Days	5 Days	90 Days	80%
			LR	5 Days	5 Days	90 Days	80%
			AP	5 Days	5 Days	90 Days	80%
			CP	10 Days	5 Days	90 Days	80%
			LN	10 Days	5 Days	90 Days	80%

Shoulder Defects



Intervention Level	Priority 1 Guideline	Response Time					
		Activity/s	Hierarchy	Inspection time*	Priority1 Repair time	Priority 2 Repair time	Performance Indicator Targets
Any defect present that causes water to pond. Crossfall in excess of 6%.	Priority increases from 2 to 1 if defect is > 150mm or if assessed as a safety issue.		RR	5 Days	5 Days	90 Days	80%
			LU	5 Days	5 Days	90 Days	80%
			LR	5 Days	5 Days	90 Days	80%
			AP	5 Days	5 Days	90 Days	80%
			CP	10 Days	5 Days	90 Days	80%
			LN	10 Days	5 Days	90 Days	80%

*** Undertake Shoulder sealing works within 90 days of notification / inspection.**

STORMWATER DRAINAGE MAINTENANCE

Table Drains and Culverts



Intervention Level	Priority 1 Guideline	Response Time					
		Activity/s	Hierarchy	Inspection time*	Priority1 Repair time	Priority 2 Repair time	Performance Indicator Targets
Build up of debris and sediment obstructing flow of water in the table drain.	Priority increases from 2 to 1 where water encroaches the carriageway and/or endangers private property or ponding within 200mm of shoulder point.		RR	10 Days	48 hrs	60 Days	90%
			LU	10 Days	48 hrs	60 Days	90%
			LR	10 Days	48 hrs	60 Days	90%
			AP	10 Days	48 hrs	60 Days	90%
			CP	10 Days	48 hrs	60 Days	90%
			LN	10 Days	48 hrs	60 Days	90%

*** Emergency Works are to be carried out within 5 hrs of notification**

Kerb and Channel Defects



Intervention Level	Priority 1 Guideline	Response Time					
		Activity/s	Hierarchy	Inspection time*	Priority1 Repair time	Priority 2 Repair time	Performance Indicator Targets
Water ponding > 100mm in the gutter for a continuous length of up to 20m and/or has a height displacement > 100mm.	Priority increases from 2 to 1 if assessed as a safety issue or locality is in a high rainfall area.		RR	10 Days	20 Days	90 Days	80%
			LU	10 Days	20 Days	90 Days	80%
			LR	10 Days	20 Days	90 Days	80%
			AP	10 Days	20 Days	90 Days	80%
			CP	10 Days	20 Days	90 Days	80%
			LN	10 Days	20 Days	90 Days	80%

Note: For affected kerb lengths >50% of segment refer for inclusion on forward works program.

Objects on Road



Intervention Level	Priority 1 Guideline	Response Time					
		Activity/s	Hierarchy	Inspection time*	Priority1 Repair time	Priority 2 Repair time	Performance Indicator Targets
Any hazard present on roadway including but not limited to dead animals, rocks, loose material, re-treads, branches and timber	Priority increases from 2 to 1 if assessed as a safety issue e.g. likely to cause vehicle damage		RR	10 Days	48 hrs	30 Days	90%
			LU	10 Days	48 hrs	30 Days	90%
			LR	10 Days	48 hrs	30 Days	90%
			AP	10 Days	48 hrs	30 Days	90%
			CP	10 Days	48 hrs	30 Days	90%
			LN	10 Days	48 hrs	30 Days	90%

*** Emergency Works are to be carried out within 5 hrs of notification**

Vegetation Maintenance



Intervention Level	Priority 1 Guideline	Response Time					
		Activity/s	Hierarchy	Inspection time*	Priority1 Repair time	Priority 2 Repair time	Performance Indicator Targets
Roadside vegetation requires maintenance	N/A		RR	10 Days	N/A	30 Days	90%
			LU	10 Days	N/A	30 Days	90%
			LR	10 Days	N/A	30 Days	90%
			AP	10 Days	N/A	30 Days	90%
			CP	10 Days	N/A	30 Days	90%
			LN	10 Days	N/A	30 Days	90%

UNSEALED ROAD MAINTENANCE

Grading / Unsealed Road Maintenance



Intervention Level	Priority 1 Guideline	Response Time					
		Activity/s	Hierarchy	Inspection time*	Priority1 Repair time	Priority 2 Repair time	Performance Indicator Targets
Multiple Potholes at a Depth > 100mm in depth and/or diameter > 300mm	Priority increases from 2 to 1 when pothole on a bend or is likely to cause vehicle damage		RR	10 Days	48 hrs	60 Days	90%
			LU	10 Days	48 hrs	60 Days	90%
			LR	10 Days	48 hrs	60 Days	90%
			LN	N/A	5 Days	N/A	N/A

Shape Loss Defects



Intervention Level	Priority 1 Guideline	Response Time
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		Activity/s	Hierarchy	Inspection time*	Priority1 Repair time	Priority 2 Repair time	Performance Indicator Targets
<p>Non localised shape loss defects affecting vehicle rideability (i.e rutting, scouring corrugations etc)</p> <p>Height displacement exceeds 75mm for more than 15% of a roads length</p>	<p>Priority increases from 2 to 1 when pothole on a bend or is likely to cause vehicle damage</p>		RR	10 Days	48 hrs	60 Days	90%
			LU	10 Days	48 hrs	60 Days	90%
			LR	10 Days	48 hrs	60 Days	90%
			LN	N/A	5 Days	N/A	N/A

ROADSIDE FURNITURE

Sign Works & Maintenance



Intervention Level	Priority 1 Guideline	Response Time					
		Activity/s	Hierarchy	Inspection time*	Priority1 Repair time	Priority 2 Repair time	Performance Indicator Targets
Missing sign or dirty sign or damaged which does not comply with AS1742 or is beyond repair or supporting structure is beyond repair. Installation of new sign or change of sign type. Relocation or Removal of sign and/or post.	Priority increases from 2 to 1 when sign is a regulatory sign.		RR	5 Days	48 Hrs	40 Days	90%
			LU	5 Days	48 hrs	40 Days	90%
			LR	5 Days	48 hrs	40 Days	90%
			AP	5 Days	48 hrs	40 Days	90%
			CP	5 Days	48 hrs	40 Days	90%
			LN	5 Days	48 hrs	40 Days	90%

Guide Post or Delineator Defects



Intervention Level	Priority 1 Guideline	Response Time					
		Activity/s	Hierarchy	Inspection time*	Priority1 Repair time	Priority 2 Repair time	Performance Indicator Targets
Any missing guide post or delineator.	When post or delineator missing on bend or at culvert.		RR	10 Days	48 hrs	40 Days	90%
			LU	10 Days	48 hrs	40 Days	90%
			LR	10 Days	48 hrs	40 Days	90%
			AP	10 Days	48 hrs	40 Days	90%
			CP	10 Days	48 hrs	40 Days	90%
			LN	10 Days	48 hrs	40 Days	90%

Guard Rail Maintenance & General Works



Intervention Level	Priority 1 Guideline	Response Time					
		Activity/s	Hierarchy	Inspection time*	Priority1 Repair time	Priority 2 Repair time	Performance Indicator Targets
Installation of new guard rail or change of guard rail type. Relocation or Removal of guard rail. Deformed sections, loose fittings, misaligned/damaged posts, damaged end units, overgrown with vegetation, defective delineation, including night vision	When damaged asset considered to be a potential safety hazard such OR Requires quick action to prevent further damage or injury OR located on a bend, within a high speed signed zone or at a steep embankment		RR	10 Days	48 hrs	40 Days	90%
			LU	10 Days	48 hrs	40 Days	90%
			LR	10 Days	48 hrs	40 Days	90%
			AP	N/A	N/A	N/A	N/A
			CP	10 Days	48 hrs	40 Days	90%
			LN	N/A	N/A	N/A	N/A

Bus Shelter Maintenance



Intervention Level	Priority 1 Guideline	Response Time					
		Activity/s	Hierarchy	Inspection time*	Priority1 Repair time	Priority 2 Repair time	Performance Indicator Targets
Bus shelter is damaged or not functional, i.e. broken glass, damaged seat, damaged footings	When damaged asset considered to be a potential safety hazard such as broken glass OR Requires quick action to prevent further damage or injury		RR	10 Days	48 hrs	40 Days	90%
			LU	10 Days	48 hrs	40 Days	90%
			LR	10 Days	48 hrs	40 Days	90%

FOOTPATHS – GENERAL MAINTENANCE

Footpath Trip Hazards & Defects





Intervention Level	Priority 1 Guideline	Response Time					
		Activity/s	Hierarchy	Inspection time*	Priority1 Repair time	Priority 2 Repair time	Performance Indicator Targets
Where observed lip is between 10mm to 20mm in height variation. 20 to 50mm in height variation when measured from a 1.2m straight edge Uneven or Unsafe Surface, showing obvious signs of deterioration	N/A		Emergency	3 hrs	N/A	5 hrs	90%
			Urgent	5 hrs	N/A	48 hrs	90%
			Routine	5 Days	N/A	60 Days	90%

Appendix B Draft Projected Road and Road Infrastructure Capital Renewal, Replacement and Upgrade Works Programs

LOCAL ROAD CONSTRUCTION PROGRAM (CRL)		FUNDING YEAR							
LOCATION	PROJECT	2017/18		2018/19		2019/20		2020/21	
CBD/Civic Precinct	Roads Component			\$480,000	CRL-2019-001				
Fosters Bridge Project	Roads Component	\$1,347,000	CRL-2018-001	\$1,353,000	CRL-2018-001				
Frame Drive Bridge Project	Roads Component	\$2,400,000	CRL-2018-002						
Stanford St Kitchener	(VPA funded) Investigation and concept design		CRL-2018-003						
	TOTAL	\$3,747,000		\$1,833,000					
<i>Funding Source:</i>									
	Grants	\$2,273,012		\$735,000					
	Reserves	\$608,631		-					
	s94	-		\$410,000					
	General Fund	\$865,357		\$688,000					

LOCAL ROAD RENEWAL PROGRAM (RRL)		FUNDING YEAR							
LOCATION	PROJECT	2017/18		2018/19		2019/20		2020/21	
Aberdare St, Kitchener	From Abermain to Stanford	\$114,400	RRL-2018-011			\$93,600	RRL-2020-005		
Buckland Ave, Cessnock	From Mills to Burnett					\$172,380	RRL-2020-009		
Butler Pde, Kurri Kurri	From Deakin to Deakin					\$176,800	RRL-2020-008		
Car Park Resurfacing/Rehabilitation		\$50,000	RRL-2018-004	\$50,000	RRL-2019-004	\$50,000	RRL-2020-004	\$50,000	RRL-2021-004
Congewai Rd, Paxton	From Millfield to CH500							\$227,084	RRL-2021-005
Deakin St, Kurri Kurri	From Alexandra to Mitchell	\$463,515	RRL-2018-009						
Government Rd, Cessnock	From Anzac to Pangari			\$146,250	RRL-2019-010				
Heddon St, Heddon Greta	From Radford to MR195	\$210,470	RRL-2018-007						
Heddon St, Kurri Kurri	From Northcote to Deakin			\$157,300	RRL-2019-007				
Kendall St, Bellbird	From Mary to Bimbadeen	\$111,150	RRL-2018-008						
Local Road Resurfacing Program			RRL-2018-001		RRL-2019-001	\$221,120	RRL-2020-001	\$112,132	RRL-2021-001
Local Road Special Rate Variation Resurfacing Program		\$576,208	RRL-2018-002	\$361,220	RRL-2019-002	\$1,296,000	RRL-2020-002	\$1,296,000	RRL-2021-002
Macquarie Ave, Cessnock	From Arcadia to Wangi			\$228,670	RRL-2019-005				
Mansfield St, Greta	From Nelson to Camp					\$249,600	RRL-2020-006	\$114,400	RRL-2021-008
McGrane St, Cessnock	From Leonard to Bridge			\$169,065	RRL-2019-009				
Mitchell Ave, Kurri Kurri	From Rail Crossing to Northcote							\$375,960	RRL-2021-009
Mount View Rd, Cessnock	From Barrett to Links	\$300,300	RRL-2018-010						
Mount View Rd, Millfield	From CH13978 to Second			\$295,295	RRL-2019-008				
Quorrobolong Rd, Kitchener	From CH3259 to Heddon			\$209,300	RRL-2019-006				
Sanctuary Rd, Paxton	From CH1300 to CH1800					\$260,000	RRL-2020-010		
Sandy Creek Rd, Quorrobolong	From Bridge to CH800							\$267,800	RRL-2021-006
Scott St, Cessnock	From Mount View to Maclean					\$78,000	RRL-2020-007		
Sheddon St, Cessnock	From Cessnock to Florence							\$219,024	RRL-2021-007
	TOTAL	\$1,826,043		\$1,417,500		\$2,597,500		\$2,662,400	
<i>Funding Source:</i>	Grants	-		-		\$700,000		\$700,000	
	Special Rate Variation	\$1,360,200		\$1,333,800		\$1,307,000		\$1,296,000	
	General Fund	\$465,843		\$83,700		\$590,500		\$666,400	

TRAFFIC FACILITIES PROGRAM (CFT)		FUNDING YEAR							
LOCATION	PROJECT	2017/18		2018/19		2019/20		2020/21	
Bowen Street Branxton	Public school parking and footpath		CFT-2018-001						
Ruby Street Ellalong	Public school childrens crossing		CFT-2018-002						
Abermain Street Pelaw Main	Public school parking and footpath		CFT-2018-003						
King Street Abermain	Holy Spirit Infants School parking and footpath		CFT-2018-004						
Sixth Street Weston	Weston Public School children's crossing		CFT-2018-005						
Percy Street Cessnock	Pedestrian crossing at intersection of Wollombi Rd - upgrade		CFT-2018-006						
Doyle Street Bellbird	School Zone Improvements at Bellbird School		CFT-2018-007						
Keene Street Cessnock	Install pedestrian facility to service new Cessnock Central		CFT-2018-008						
Rawson Street Aberdare	Local area traffic management		CFT-2018-009						
Oakey Creek Road Pokolbin	Pavement rehabilitation and create clear zone - stage 1				CFT-2019-001				
Millfield Road Millfield	Median "fingers" at intersection of Eleventh Av and Millfield Rd				CFT-2019-002				
Wollombi Road Wollombi	Study and pre-construction works for intersection				CFT-2019-003				
Allworth Street Kurri Kurri	Provide kerb ramp for accessible car parking space				CFT-2019-004				
Fourth Street Weston	Develop designs and construction of a traffic calming scheme				CFT-2019-005				
Bathurst Street Abermain	Provide accessible car parking space				CFT-2019-006				
Heddon Street Heddon Greta	Provide footpath on Heddon St to link existing footpath						CFT-2020-001		
Wollombi Road Cessnock	7-Eleven development - traffic facilities remediation						CFT-2020-002		
Gingers Lane Weston	Investigation						CFT-2020-003		
Wollombi Road Cessnock	Remediate 7 traffic facilities for recent 7-Eleven development						CFT-2020-004		
Wollombi Road Cedar Creek	Safety investigation and improvements						CFT-2020-005		
Cessnock	Coach stop						CFT-2020-006		
Wollombi Road West Cessnock	Upgrade to two approach and departures lanes eastbound								CFT-2021-001
John Street Abermain	Design and construct road widening and drainage improvement								CFT-2021-002
Sandy Creek Road Quorrobolong	Investigate traffic calming measures at intersection of Quorrobolong Road								CFT-2021-003
Vincent Street Cessnock CBD	Implementation of CBD Masterplan works								CFT-2021-004
Mount View Road Cessnock	Investigate pedestrian refuge on McGrane St at Mount View Rd								CFT-2021-005
TOTAL		\$0		\$0		\$0		\$0	

Funding Source:

PATHWAY CONSTRUCTION PROGRAM (CPW)		FUNDING YEAR							
LOCATION	PROJECT	2017/18		2018/19		2019/20		2020/21	
Cessnock	Campbell St - move pedestrian crossing further away	\$50,000	CPW-2018-001						
Victoria Street Cycleway	Connection from Dowlan Lane to Bridges Hill Park	\$9,000	CPW-2018-003						
Weston Overpass Cycleway	Connect existing path on Northcote St	\$200,100	CPW-2018-004						
Bellbird	Kendall St - from intersection of Doyle St to Mary St			\$113,500	CPW-2019-001				
Branxton to Greta Cycleway	(Grant Funding Dependent)		CPW-2018-005						
Bridge Street Cycleway	Stage 1 - investigation and design			\$50,000	CPW-2019-002				
Cessnock	Buckland Ave and View St - pram ramps and extension of path			\$10,000	CPW-2019-003				
Cessnock	Rawson St - pathway from Quarrybylong Street to brandis Street			\$60,000	CPW-2019-004				
Kearsley	Caledonia St from Allandale St to Tomalpin St			\$30,000	CPW-2019-006				
Bridge Street Cycleway	Stage 2 construction					\$268,000	CPW-2020-001		
Abermain	Melbourne St - construct path from Goulburn St to car parking							\$10,000	CPW-2021-001
Cessnock	Alfred St - children's school crossing							\$16,000	CPW-2021-002
Cessnock	Cumberland Street from Cooper St to Hall St							\$55,000	CPW-2021-003
Cessnock	Hall St - (intersection with Darwin St)							\$5,000	CPW-2021-004
Cessnock	Maitland Rd - intersection with Gallagher St							\$10,000	CPW-2021-005
Cessnock	Quarrybylong St - replace a section of existing path							\$5,000	CPW-2021-008
Cessnock	West Ave - hazard markers and signage							\$5,000	CPW-2021-010
Kurri Kurri	Merthyr St - from Lang St to Barton St (both sides)							\$74,100	CPW-2021-012
Kurri Kurri	Mitchell Ave - pathway from Lang Street to Maitland Street							\$20,000	CPW-2021-013
Weston	First St - kerb ramp and pedestrian refuge							\$10,000	CPW-2021-014
Weston	First St - from Station St to Hall St							\$63,000	CPW-2021-015
	TOTAL	\$259,100		\$263,500		\$268,000		\$273,100	
<i>Funding Source:</i>	General Fund	\$259,100		\$263,500		\$268,000		\$273,100	

REGIONAL ROAD RENEWAL PROGRAM (RRR)		FUNDING YEAR							
LOCATION	PROJECT	2017/18		2018/19		2019/20		2020/21	
Regional Roads Special Rate Variation Resurfacing Program		\$627,400	RRR-2018-002	\$633,800	RRR-2019-002	\$740,600	RRR-2020-002	\$771,100	RRR-2021-002
MR181 Wollombi Rd Millfield	Stage 4	\$400,000	RRR-2018-003						
MR181 Wollombi Rd Millfield	Stage 5			\$400,000	RRR-2019-003				
MR181 Wollombi Rd Millfield	Stage 6					\$400,000	RRR-2020-003		
MR181 Wollombi Rd Millfield	Cedar Ck to Hayes Stage 1							\$400,000	RRR-2021-003
MR181 Wollombi Rd Cedar Creek	East of Stonehurst Winery	\$30,000	RRR-2018-008						
Paynes Crossing Road, Paynes Crossing	Geotechnical Risk Assessment - works 2km north of the intersection with Wollombi Rd	\$395,000	RRR-2018-004						
Dog Hole Road, Stockrington	Geotechnical Risk Assessment - works approximately 1km west of the Lenagnans Drive, Minmi interesection			\$395,000	RRR-2019-004				
Cessnock Rd, Weston	Peace Park access intersection investigation	\$20,000	RRR-2018-005						
Cessnock Rd, Weston	Peace Park access intersection construction			\$150,000	RRR-2019-005				
Wollombi Rd, Cessnock	James to Allandale Rd - Investigation & concept design	\$50,000	RRR-2018-006						
Maitland Rd, Cessnock	Allandale Rd to Old Maitland Rd - Investigation & concept design	\$30,000	RRR-2018-007						
George Downes Rd, Bucketty	Geotechnical Risk Assessment - works minor slip in road cutting near 2821 George Downes Drive approximately 170 km west of intersection with Private Road No.6 Bucketty					\$465,000	RRR-2020-004		
Paynes Crossing Rd, Paynes Crossing	Geotechnical Risk Assessment - works north of Williams Bridge 1.3 to 1.7 km							\$465,000	RRR-2021-004
TOTAL		\$1,552,400		\$1,578,800		\$1,605,600		\$1,636,100	
<i>Funding Source:</i>		Grants	\$752,600	\$752,600	\$752,600	\$752,600	\$752,600	\$752,600	
		Special Rate Variation	\$799,800	\$826,200	\$853,000	\$864,000	\$864,000	\$864,000	
		General Fund	-	-	-	\$19,500	\$19,500	\$19,500	

RMS BLACKSPOT OR SAFER ROADS PROGRAM (CRR)		FUNDING YEAR							
LOCATION	PROJECT	2017/18		2018/19		2019/20		2020/21	
State Grant Funded Safety Initiatives	Safer Roads Program								
Federal Grant Funded Road Safety Initiatives	Black Spot Program								
Cessnock Road, Weston (Grant Funding Dependent)	Median treatment - Eisholz		CRR-2018-001						
Abernethy / Murray Street, Abernethy (Grant Funding Dependent)	Road Safety Audit for full length 3km		CRR-2018-002						
Rothbury, Old North Road (Grant Funding Dependent)	Road Safety Audit from Wine Country Drive to Hermitage Road		CRR-2018-003						
Richmond Vale Road, Richmond Vale (Grant Funding Dependent)	800m south of Sheppard Drive for 600m - Road Widening		CRR-2018-004						
Alexander St & Shedden St (Grant Funding Dependent)	Intersection Safety Analysis		CRR-2018-005						
Allandale Rd & McGrane St (Grant Funding Dependent)	Intersection Safety Analysis				CRR-2019-001				
Old Maitland Road, Cessnock (Grant Funding Dependent)	Road Safety Audit full length				CRR-2019-002				
Paynes Crossing Road (Grant Funding Dependent)	Road Safety Audit works				CRR-2019-003				
Majors Lane, Keinbah (Grant Funding Dependent)	Road Safety Audit works				CRR-2019-004				
Lovedale Road, Lovedale (Grant Funding Dependent)	Road Safety Audit works				CRR-2019-005				
Great North Road (Grant Funding Dependent)	Road Safety Audit works						CRR-2020-001		
George Downes Drive, Bucketty (Grant Funding Dependent)	Road Safety Audit works						CRR-2020-002		
Wollombi Road, Pelton - the pinch (Grant Funding Dependent)	Road Safety Audit works						CRR-2020-003		
Sandy Creek Road, Mount Vincent (Grant Funding Dependent)	Motorcycle Safety works						CRR-2020-004		
Sandy Creek Road, Quorrobolong (Grant Funding Dependent)	Church Street to Whittings Lane						CRR-2020-005		
Cessnock Road & Orange St, Charles St Abermain (Grant Funding Dependent)	Intersection Safety works								CRR-2021-001
Cumberland St & Cooper St, Cessnock (Grant Funding Dependent)	Intersection Safety works								CRR-2021-002
Cumberland & Hall Sts, Cessnock (Grant Funding Dependent)	Intersection Safety works								CRR-2021-003
Wollombi Rd & Darwin St, Cessnock (Grant Funding Dependent)	Intersection Safety works								CRR-2021-004
Wollombi Rd & Chidgey St, Cessnock (Grant Funding Dependent)	Intersection Safety works								CRR-2021-005
TOTAL		\$0		\$0		\$0		\$0	

Funding Source:

Appendix C Budgeted Expenditures Accommodated in LTFP

Projected Expenditure	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Capital Expenditure on Renewal/Replacement of existing assets	\$8,125	\$6,520	\$4,608	\$4,351	\$4,450	\$4,554	\$4,665	\$4,781	\$4,901	\$5,024
Capital Expenditure on Upgrade/New assets	\$3,163	\$1,003	\$623	\$262	\$269	\$276	\$285	\$293	\$303	\$313
Operational cost of existing assets	\$206	\$209	\$212	\$215	\$219	\$223	\$226	\$230	\$233	\$237
Maintenance cost of existing assets	\$4,476	\$4,358	\$4,415	\$4,482	\$4,551	\$4,621	\$4,693	\$4,767	\$4,842	\$4,919
Operational cost of New assets	\$0	\$1	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2
Maintenance cost of New assets	\$0	\$25	\$33	\$38	\$40	\$42	\$45	\$47	\$49	\$52
Disposal of Surplus assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Appendix D Overall Condition Index Methodology



1 OVERALL CONDITION INDEX (OCI)

The overall condition index of the road (OCI) is a composite index representing the condition of the underlying road. The OCI is a weighted index of each road related distress, with the distress items perceived to be of most importance given the highest weighting. The resulting index ranges from 10 (brand new) to 0 (end of life) and can be used to convert to other ranges such as 0 to 100 or 1 to 5 using a linear transformation.

For the purposes of determining the OCI a level of acceptability needs to be defined that is relevant to the terminal condition whereby the road asset will be replaced in practice and is done so according to each distress parameter. Representatives of Cessnock City Council provided a copy of council's Road Network Asset Management Plan (DOC2014/043990) and the criteria listed in Table 5.4.2 of this document has been used as the basis for the maximum extent values. These maximum values are typically assigned based on the road class or hierarchy of the road network and can be found in Table 1-2. As the Asset Management Plan (AMP) did not differentiate a renewal or replacement priority that incorporated the hierarchy, all classes have been considered equally for each distress parameter.

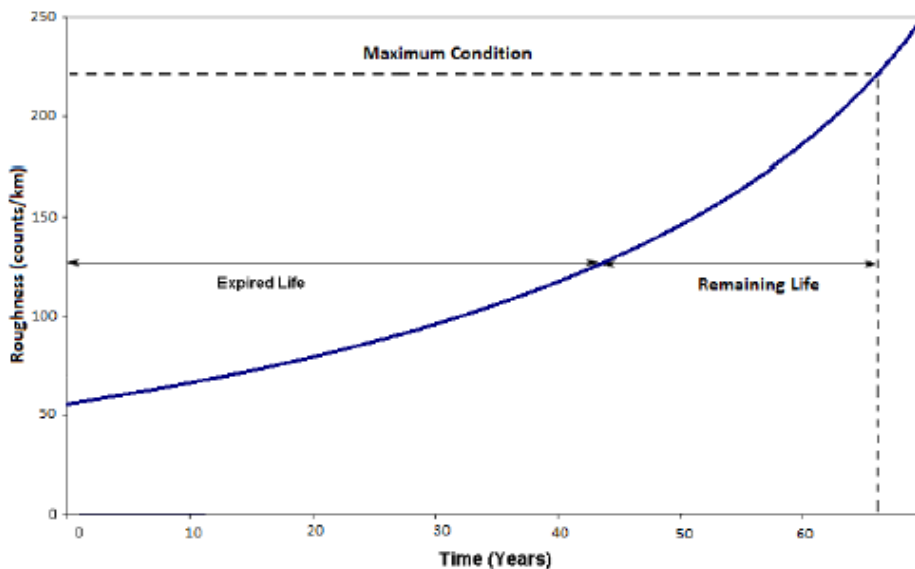


Figure 1-2 Example Road Condition Deterioration (Roughness)

The relationship for determining the overall condition index is as follows;

$$OCI^* = 10 - \left(10 - \sum_{i=1}^{nc} WF_{nc} \max \left[0, \left(\min \left(1, \frac{PD_{nc} - PM_{nc}}{MD_{nc}} \right) \right) \right] \right) * \left(\frac{2}{5} \right) + 1$$

where

- OCI* = overall condition index, interchangeable with PCI and SCI
- n = number of distresses included in the OCI, PCI and SCI
- c = segment road class
- WF = weighting factor of surface distress type *n* for road class *c*
- PD = extent of pavement distress type *n*
- PM = minimum extent of distress type *n* allowed for road class *c*
- MD = maximum extent of distress type *n* allowed for road class *c*

The following weightings have been used based on consultation with representatives of Council and their AMP and each distress item is shown in Table 1-2

Table 1-2 OCI Distress Weighting & Maximum Values by Road Class

Distress (n)	Road Class (c)	Weighting (WF)	Maximum Extent (MD)	Minimum Value (PM)
Roughness (counts/km)	Rural Sub Arterial	3	180	50
	Rural Collector	3	180	50
	Rural Local	3	180	50
	Urban Sub Arterial	3	200	50
	Urban Collector	3	200	50
	Urban Local	3	200	50
	Laneway	3	350	50
Rutting (mm)	Rural Sub Arterial	2	10	3
	Rural Collector	2	10	3
	Rural Local	2	10	3
	Urban Sub Arterial	2	10	3
	Urban Collector	2	10	3
	Urban Local	2	10	3
	Laneway	2	10	3
Fatigue Cracking (%)	Rural Sub Arterial	4	7	0
	Rural Collector	4	7	0
	Rural Local	4	7	0
	Urban Sub Arterial	4	7	0
	Urban Collector	4	7	0
	Urban Local	4	7	0
	Laneway	4	7	0
Heavy Patching (%)	Rural Sub Arterial	1	10	0
	Rural Collector	1	10	0
	Rural Local	1	10	0
	Urban Sub Arterial	1	10	0
	Urban Collector	1	10	0
	Urban Local	1	10	0
	Laneway	1	10	0
Local Surface & Pavement Defects (%)	Rural Sub Arterial	1	5	0
	Rural Collector	1	5	0
	Rural Local	1	5	0
	Urban Sub Arterial	1	5	0
	Urban Collector	1	5	0
	Urban Local	1	5	0
	Laneway	1	5	0
Ravelling / Stripping	Rural Sub Arterial	2	10	0
	Rural Collector	2	10	0
	Rural Local	2	10	0
	Urban Sub Arterial	2	10	0
	Urban Collector	2	10	0
	Urban Local	2	10	0
	Laneway	2	10	0
Linear / Transverse Cracking	Rural Sub Arterial	2	3	0
	Rural Collector	2	3	0

	Rural Local	2	3	0
	Urban Sub Arterial	2	3	0
	Urban Collector	2	3	0
	Urban Local	2	3	0
	Laneway	2	3	0
Bleeding / Flushing	Rural Sub Arterial	1	10	0
	Rural Collector	1	10	0
	Rural Local	1	10	0
	Urban Sub Arterial	1	10	0
	Urban Collector	1	10	0
	Urban Local	1	10	0
	Laneway	1	10	0

The condition data collected for the distress items used in the OCI for each road segment will be used.

Table 1-3 PCI Distress Weighting & Maximum Values by Road Class

Distress (n)	Road Class (c)	Weighting (WF)	Maximum Extent (MD)	Minimum Value (PM)
Roughness (counts/km)	Rural Sub Arterial	5	180	50
	Rural Collector	5	180	50
	Rural Local	5	180	50
	Urban Sub Arterial	5	200	50
	Urban Collector	5	200	50
	Urban Local	5	200	50
	Laneway	5	350	50
Rutting (mm)	Rural Sub Arterial	4	10	3
	Rural Collector	4	10	3
	Rural Local	4	10	3
	Urban Sub Arterial	4	10	3
	Urban Collector	4	10	3
	Urban Local	4	10	3
	Laneway	4	10	3
Fatigue Cracking (%)	Rural Sub Arterial	4	7	0
	Rural Collector	4	7	0
	Rural Local	4	7	0
	Urban Sub Arterial	4	7	0
	Urban Collector	4	7	0
	Urban Local	4	7	0
	Laneway	4	7	0
Heavy Patching (%)	Rural Sub Arterial	2	10	0
	Rural Collector	2	10	0
	Rural Local	2	10	0
	Urban Sub Arterial	2	10	0
	Urban Collector	2	10	0
	Urban Local	2	10	0
	Laneway	2	10	0
Local Surface &	Rural Sub Arterial	1	5	0

Pavement Defects (%)	Rural Collector	1	5	0
	Rural Local	1	5	0
	Urban Sub Arterial	1	5	0
	Urban Collector	1	5	0
	Urban Local	1	5	0
	Laneway	1	5	0
Ravelling / Stripping	Rural Sub Arterial	0	10	0
	Rural Collector	0	10	0
	Rural Local	0	10	0
	Urban Sub Arterial	0	10	0
	Urban Collector	0	10	0
	Urban Local	0	10	0
Linear / Transverse Cracking	Rural Sub Arterial	0	3	0
	Rural Collector	0	3	0
	Rural Local	0	3	0
	Urban Sub Arterial	0	3	0
	Urban Collector	0	3	0
	Urban Local	0	3	0
Bleeding / Flushing	Rural Sub Arterial	0	10	0
	Rural Collector	0	10	0
	Rural Local	0	10	0
	Urban Sub Arterial	0	10	0
	Urban Collector	0	10	0
	Urban Local	0	10	0
	Laneway	0	10	0

Table 1-4 SCI Distress Weighting & Maximum Values by Road Class

Distress (n)	Road Class (c)	Weighting (WF)	Maximum Extent (MD)	Minimum Value (PM)
Roughness (counts/km)	Rural Sub Arterial	0	180	50
	Rural Collector	0	180	50
	Rural Local	0	180	50
	Urban Sub Arterial	0	200	50
	Urban Collector	0	200	50
	Urban Local	0	200	50
	Laneway	0	350	50
Rutting (mm)	Rural Sub Arterial	0	10	3
	Rural Collector	0	10	3
	Rural Local	0	10	3
	Urban Sub Arterial	0	10	3
	Urban Collector	0	10	3
	Urban Local	0	10	3
	Laneway	0	10	3
Fatigue Cracking (%)	Rural Sub Arterial	4	7	0

	Rural Collector	4	7	0
	Rural Local	4	7	0
	Urban Sub Arterial	4	7	0
	Urban Collector	4	7	0
	Urban Local	4	7	0
	Laneway	4	7	0
Heavy Patching (%)	Rural Sub Arterial	1	10	0
	Rural Collector	1	10	0
	Rural Local	1	10	0
	Urban Sub Arterial	1	10	0
	Urban Collector	1	10	0
	Urban Local	1	10	0
Local Surface & Pavement Defects (%)	Laneway	1	10	0
	Rural Sub Arterial	3	5	0
	Rural Collector	3	5	0
	Rural Local	3	5	0
	Urban Sub Arterial	3	5	0
	Urban Collector	3	5	0
	Urban Local	3	5	0
Ravelling / Stripping	Laneway	3	5	0
	Rural Sub Arterial	4	10	0
	Rural Collector	4	10	0
	Rural Local	4	10	0
	Urban Sub Arterial	4	10	0
	Urban Collector	4	10	0
Linear / Transverse Cracking	Urban Local	4	10	0
	Laneway	4	10	0
	Rural Sub Arterial	5	3	0
	Rural Collector	5	3	0
	Rural Local	5	3	0
	Urban Sub Arterial	5	3	0
	Urban Collector	5	3	0
Bleeding / Flushing	Urban Local	5	3	0
	Laneway	5	3	0
	Rural Sub Arterial	2	10	0
	Rural Collector	2	10	0
	Rural Local	2	10	0
	Urban Sub Arterial	2	10	0
	Urban Collector	2	10	0

Appendix E Abbreviations

AAAC	Average annual asset consumption
AM	Asset management
AM Plan	Asset management plan
ARI	Average recurrence interval
ASC	Annual service cost
BOD	Biochemical (biological) oxygen demand
CRC	Current replacement cost
CWMS	Community wastewater management systems
DA	Depreciable amount
DRC	Depreciated replacement cost
EF	Earthworks/formation
IRMP	Infrastructure risk management plan
LCC	Life Cycle cost
LCE	Life cycle expenditure
LTFP	Long term financial plan
MMS	Maintenance management system
PCI	Pavement condition index
RV	Residual value
SoA	State of the Assets
SS	Suspended solids
Vph	Vehicles per hour
WDCRC	Written down current replacement cost

Appendix F Glossary

Annual service cost (ASC)

- 1) Reporting actual cost
The annual (accrual) cost of providing a service including operations, maintenance, depreciation, finance/opportunity and disposal costs less revenue.
- 2) For investment analysis and budgeting
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 operations, maintenance, depreciation, finance/ opportunity and disposal costs, less revenue.

Asset

A resource controlled by an entity as a result of past events and from which future economic benefits are expected to flow to the entity. Infrastructure assets are a sub-class of property, plant and equipment which are non-current assets with a life greater than 12 months and enable services to be provided.

Asset category

Sub-group of assets within a class hierarchy for financial reporting and management purposes.

Asset class

A group of assets having a similar nature or function in the operations of an entity, and which, for purposes of disclosure, is shown as a single item without supplementary disclosure.

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 hierarchy

A framework for segmenting an asset base into appropriate classifications. The asset hierarchy can be based on asset function or asset type or a combination of the two.

Asset management (AM)

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.

Asset renewal funding ratio

The ratio of the net present value of asset renewal funding accommodated over a 10 year period in a long term financial plan relative to the net present value of projected capital renewal expenditures identified in an asset management plan for the same period [AIFMG Financial Sustainability Indicator No 8].

Average annual asset consumption (AAAC)*

The amount of an organisation's asset base consumed during a reporting period (generally a year). This may be calculated by dividing the depreciable amount by the useful life (or total future economic benefits/service potential) and totalled for each and every asset OR by dividing the carrying amount (depreciated replacement cost) by the remaining useful life (or remaining future economic benefits/service potential) and totalled for each and every asset in an asset category or class.

Borrowings

A borrowing or loan is a contractual obligation of the borrowing entity to deliver cash or another financial asset to the lending entity over a specified period of time or at a specified point in time, to cover both the initial capital provided and the cost of the interest incurred for providing this capital. A borrowing or loan provides the means for the borrowing entity to finance outlays (typically physical assets) when it has insufficient funds of its own to do so, and for the lending entity to make a financial return, normally in the form of interest revenue, on the funding provided.

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 expenditure - expansion

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

Capital expenditure - new

Expenditure which creates a new asset providing a new service/output that did not exist beforehand. As it increases service potential it may impact revenue and will increase future operations and maintenance expenditure.

Capital expenditure - renewal

Expenditure on an existing asset or on replacing an existing asset, which returns the service capability 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 generally has no impact on revenue, but may reduce future operations 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.

Capital expenditure - upgrade

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 discretionary and often does not result in additional revenue unless direct user charges apply. It will increase operations and maintenance expenditure in the future because of the increase in 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.

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.

Capitalisation threshold

The value of expenditure on non-current assets above which the expenditure is recognised as capital expenditure and below which the expenditure is charged as an expense in the year of acquisition.

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

Specific parts of an asset having independent physical or functional identity and having specific attributes such as different life expectancy, maintenance regimes, risk or criticality.

Core asset management

Asset management which relies primarily on the use of an asset register, maintenance management systems, job resource management, inventory control, condition assessment, simple risk assessment and defined levels of service, in order to establish alternative treatment options and long-term cashflow predictions. Priorities are usually established on the basis of financial return gained by carrying out the work (rather than detailed risk analysis and optimised decision-making).

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, including any costs necessary to place the asset into service. This includes one-off design and project management costs.

Critical assets

Assets for which the financial, business or service level consequences of failure are sufficiently severe to justify proactive inspection and rehabilitation. Critical assets have a lower threshold for action than non-critical assets.

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.

Deferred maintenance

The shortfall in rehabilitation work undertaken relative to that required to maintain the service potential of an asset.

Depreciable amount

The cost of an asset, or other amount substituted for its cost, less its residual value.

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 outlays.

Expenses

Decreases in economic benefits during the accounting period in the form of outflows or depletions of assets or increases in liabilities that result in decreases in equity, other than those relating to distributions to equity participants.

Fair value

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

Financing gap

A financing gap exists whenever an entity has insufficient capacity to finance asset renewal and other expenditure necessary to be able to appropriately maintain the range and level of services its existing asset stock was originally designed and intended to deliver. The service capability of the existing asset stock should be determined assuming no additional operating revenue, productivity improvements, or net financial liabilities above levels currently planned or projected. A current financing gap means service levels have already or are currently falling. A projected financing gap if not addressed will result in a future diminution of existing service levels.

Heritage asset

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

Impairment Loss

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

Infrastructure assets

Physical assets that contribute to meeting the needs of organisations or the 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 separate market value.

Investment property

Property held to earn rentals or for capital appreciation or both, rather than for:

- (a) use in the production or supply of goods or services or for administrative purposes; or
- (b) sale in the ordinary course of business.

Key performance indicator

A qualitative or quantitative measure of a service or activity used to compare actual performance against a standard or other target. Performance indicators commonly relate to statutory limits, safety, responsiveness, cost, comfort, asset performance, reliability, efficiency, environmental protection and customer satisfaction.

Level of service

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

Life Cycle Cost *

1. **Total LCC** The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal costs.
2. **Average LCC** The life cycle cost (LCC) is average cost to provide the service over the longest asset life cycle. It comprises average operations, maintenance expenditure plus asset consumption expense, represented by depreciation expense projected over 10 years. 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 average operations, maintenance and capital renewal expenditure accommodated in the long term financial plan over 10 years. Life Cycle Expenditure may be compared to average Life Cycle Cost to give an initial indicator of affordability of projected service levels when considered with asset age profiles.

Loans / borrowings

See borrowings.

Maintenance

All actions necessary for retaining an asset as near as practicable to an appropriate service condition, including regular ongoing day-to-day work necessary to keep assets operating, eg road patching but excluding rehabilitation or renewal. It is operating expenditure required to ensure that the asset reaches its expected useful life.

- **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.

- **Reactive maintenance**
Unplanned repair work that is carried out in response to service requests and management/ supervisory directions.
- **Specific maintenance**
Maintenance work to repair components or replace sub-components that needs to be identified as a specific maintenance item in the maintenance budget.
- **Unplanned maintenance**
Corrective work required in the short-term to restore an asset to working condition so it can continue to deliver the required service or to maintain its level of security and integrity.

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

The notion of materiality guides the margin of error acceptable, the degree of precision required and the extent of the disclosure required when preparing general purpose financial reports. Information is material if its omission, misstatement or non-disclosure has the potential, individually or collectively, to influence the economic decisions of users taken on the basis of the financial report or affect the discharge of accountability by the management or governing body of the entity.

Modern equivalent asset

Assets that replicate what is in existence with the most cost-effective asset performing the same level of service. It is the most cost efficient, currently available asset which will provide the same stream of services as the existing asset is capable of producing. It allows for technology changes and, improvements and efficiencies in production and installation techniques

Net present value (NPV)

The value to Council of the cash flows associated with an asset, liability, activity or event calculated using a discount rate to reflect the time value of money. It is the net amount of discounted total cash inflows after deducting the value of the discounted total cash outflows arising from eg the continued use and subsequent disposal of the asset after deducting the value of the discounted total cash outflows.

Non-revenue generating investments

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

Operations

Regular activities to provide services such as public health, safety and amenity, eg street sweeping, grass mowing and street lighting.

Operating expenditure

Recurrent expenditure, which is continuously required to provide a service. In common use the term typically includes, eg power, fuel, staff, plant equipment, on-costs and overheads but excludes maintenance and depreciation. Maintenance and depreciation is on the other hand included in operating expenses.

Operating expense

The gross outflow of economic benefits, being cash and non-cash items, during the period arising in the course of ordinary activities of an entity when those outflows result in decreases in equity, other than decreases relating to distributions to equity participants.

Operating expenses

Recurrent expenses continuously required to provide a service, including power, fuel, staff, plant equipment, maintenance, depreciation, on-costs and overheads.

Operations, maintenance and renewal financing ratio

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

Operations, maintenance and renewal gap

Difference between budgeted expenditures in a long term financial plan (or estimated future budgets in absence of a long term financial plan) and projected expenditures for operations, maintenance and renewal of assets to achieve/maintain specified service levels, totalled over a defined time (e.g. 5, 10 and 15 years).

Pavement management system (PMS)

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

PMS Score

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

Rate of annual asset consumption *

The ratio of annual asset consumption relative to the depreciable amount of the assets. It measures the amount of the consumable parts of assets that are consumed in a period (depreciation) expressed as a percentage of the depreciable amount.

Rate of annual asset renewal *

The ratio of asset renewal and replacement expenditure relative to depreciable amount for a period. It measures whether assets are being replaced at the rate they are wearing out with capital renewal expenditure expressed as a percentage of depreciable amount (capital renewal expenditure/DA).

Rate of annual asset upgrade/new *

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

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 operations and maintenance expenditure.

Recurrent funding

Funding to pay for recurrent expenditure.

Rehabilitation

See capital renewal expenditure definition above.

Remaining useful life

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

Renewal

See capital renewal expenditure definition above.

Residual value

The estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life.

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 total future service capacity of an asset. It is normally determined by reference to the operating capacity and economic life of an asset. A measure of service potential is used in the not-for-profit sector/public sector to value assets, particularly those not producing a cash flow.

Service potential remaining

A measure of the future economic benefits remaining in assets. It may be expressed in dollar values (Fair Value) or as a percentage of total anticipated future economic benefits. 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 (Depreciated Replacement Cost/Depreciable Amount).

Specific Maintenance

Replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including repainting, 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.

Strategic Longer-Term Plan

A plan covering the term of office of councillors (4 years minimum) reflecting the needs of the community for the foreseeable future. It brings together the detailed requirements in the Council's longer-term plans such as the asset management plan and the long-term financial plan. The plan is prepared in consultation with the community and details where the Council is at that point in time, where it wants to go, how it is going to get there, mechanisms for monitoring the achievement of the outcomes and how the plan will be resourced.

Sub-component

Smaller individual parts that make up a component part.

- (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.

Value in Use

The present value of future cash flows expected to be derived from an asset or cash generating unit. 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 net cash inflows, where the entity would, if deprived of the asset, replace its remaining future economic benefits.

Source: IPWEA, 2009, Glossary

Additional and modified glossary items shown

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Useful life

Either: