

# Appendix B – Transport Asset Management Plan

*The Asset Management Plans (Transport, Buildings, Drainage, Fleet and Parks) are available as individual documents on Council's website [www.penrithcity.nsw.gov.au](http://www.penrithcity.nsw.gov.au)*

*or can be made available as a CD by contacting Council's City Works Manager.*





# Penrith




*Regional City*





Version

January 2011

Document Control		  			
Document ID: Transport Asset Management Plan V1					
Rev No	Date	Revision Details	Author	Reviewer	Approver
1.0	20/04/2010		Harold Dulay		
1.0	4/05/2010		Harold Dulay	Alexx Alagiah	
1.1	18 October 2010	Design	Harold Dulay	Alexx Alagiah	
1.2	26 November 2010	Further Details on asset register and finances	Harold Dulay		
1.3	December 2010		Harold Dulay	Alexx Alagiah	
1.4	January 2011		Harold Dulay		

© Copyright 2007 – All rights reserved.

The Institute of Public Works Engineering Australia.

## TABLE OF CONTENTS

ABBREVIATION	5
GLOSSARY	6
1. EXECUTIVE SUMMARY	13
2. INTRODUCTION	16
3. LEVELS OF SERVICE	22
4. FUTURE DEMAND	28
5. LIFECYCLE MANAGEMENT PLAN	33
6. FINANCIAL SUMMARY	44
7. ASSET MANAGEMENT PRACTICES	56
8. PLAN IMPROVEMENT AND MONITORING	60
REFERENCES	62
APPENDICES	63

## ABBREVIATIONS

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

## GLOSSARY

### **Annual service cost (ASC)**

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

### **Asset class**

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

### **Asset condition assessment**

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

### **Asset management**

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

### **Assets**

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

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

### **Average annual asset consumption (AAAC)\***

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

### **Brownfield asset values\*\***

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

### **Capital expansion expenditure**

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

### **Capital expenditure**

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

### **Capital funding**

Funding to pay for capital expenditure.

**Capital grants**

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

**Capital investment expenditure**

See capital expenditure definition

**Capital new expenditure**

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

**Capital renewal expenditure**

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

**Capital upgrade expenditure**

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

**Carrying amount**

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

**Class of assets**

See asset class definition

**Component**

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

**Cost of an asset**

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

**Current replacement cost (CRC)**

The cost the entity would incur to acquire the asset on the reporting date. The cost is measured by reference to the lowest cost at which the gross future economic benefits could



be obtained in the normal course of business or the minimum it would cost, to replace the existing asset with a technologically modern equivalent new asset (not a second hand one) with the same economic benefits (gross service potential) allowing for any differences in the quantity and quality of output and in operating costs.

**Current replacement cost “As New” (CRC)**

The current cost of replacing the original service potential of an existing asset, with a similar modern equivalent asset, i.e. the total cost of replacing an existing asset with an as NEW or similar asset expressed in current dollar values.

**Cyclic Maintenance\*\***

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

**Depreciable amount**

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

**Depreciated replacement cost (DRC)**

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

**Depreciation / amortisation**

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

**Economic life**

See useful life definition.

**Expenditure**

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

**Fair value**

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

**Greenfield asset values \*\***

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

**Heritage asset**

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

**Impairment Loss**

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

**Infrastructure assets**

Physical assets of the entity or of another entity that contribute to meeting the public's need for access to major economic and social facilities and services, e.g. roads, drainage,

footpaths and cycle ways. These are typically large, interconnected networks or portfolios of composite assets. The components of these assets may be separately maintained, renewed or replaced individually so that the required level and standard of service from the network of assets is continuously sustained. Generally the components and hence the assets have long lives. They are fixed in place and are often have no market value.

### **Investment property**

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

- (a) use in the production or supply of goods or services or for administrative purposes; or
- (b) sale in the ordinary course of business (AASB 140.5)

### **Level of service**

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

### **Life Cycle Cost \*\***

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

### **Life Cycle Expenditure \*\***

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

### **Loans / borrowings**

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

### **Maintenance and renewal gap**

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

### **Maintenance and renewal sustainability index**

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

### **Maintenance expenditure**

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

**Materiality**

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

**Modern equivalent asset.**

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

**Non-revenue generating investments**

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

**Operating expenditure**

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

**Pavement management system**

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

**Planned Maintenance\*\***

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

**PMS Score**

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

**Rate of annual asset consumption\***

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

**Rate of annual asset renewal\***

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

**Rate of annual asset upgrade\***

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

**Reactive maintenance**

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

**Recoverable amount**

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

**Recurrent expenditure**

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

**Recurrent funding**

Funding to pay for recurrent expenditure.

**Rehabilitation**

See capital renewal expenditure definition above.

**Remaining life**

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

**Renewal**

See capital renewal expenditure definition above.

**Residual value**

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

**Revenue generating investments**

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

**Risk management**

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

**Section or segment**

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

**Service potential**

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

**Service potential remaining\***

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

**Strategic Management Plan (SA)\*\***

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



**Sub-component**

Smaller individual parts that make up a component part.

**Useful life**

Either:

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

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

**Value in Use**

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

Source: DVC 2006, Glossary

Note: Items shown \* modified to use DA instead of CRC

Additional glossary items shown \*\*

## 1. EXECUTIVE SUMMARY

Council provides a Transport network in partnership with the community to enable a safe, efficient and effective local road network with road assets maintained to an agreed standard fit for their contemporary purpose. Council provides roads to ensure:

- Our community's needs for transportation of goods and services and a means for safe and efficient vehicular movement.
- The City's urban development strategy is enhanced.

*What does council provide?*

The range of assets covered by this plan includes:

- Sealed Road Pavement
- Kerb and Gutter
- Paved footways and cycleway
- Bridges
- Underpasses
- Ground level car parks
- Street name signs
- Regulatory signage
- Line Marking

Over 60% of these assets are rated as being in 'good' condition, meaning that they are serviceable but significant maintenance is required.

Council undertakes a regular community satisfaction survey to assist in determining whether the current level of asset provision is acceptable to the community. This information, plus engagement with user groups, will help Council to establish the required levels of service, and build this into future versions of this plan.





### *What does it cost?*

Council needs to consider the total life cycle cost of an asset when preparing an asset management plan. This includes the cost to create/construct/purchase the asset, maintenance over the lifetime of the asset and disposal. Currently there is a significant shortfall between the projected costs and the budget available to renew transport assets over the next ten years. This means that the current spending pattern is not sustainable, and will ultimately result in a decrease in service levels.

Council is aware of this problem, and is looking at a number of ways to address it. These include:

- Increasing revenue streams rates and user charges or loan borrowings.
- Analysing the implications of a reduced level of service.
- Deferring capital upgrades or new works and reallocating funds to asset renewal.

There are two key indicators of cost to provide the Transport Management and Maintenance service.

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

The life cycle cost to provide the Transport service is estimated at \$ 18 672 000 per annum. Council's planned life cycle expenditure for year 1 of the asset management plan is \$11 169 000 which gives a life cycle sustainability index of 0.60. The total maintenance and capital renewal expenditure required to provide the Transport service in the next 10 years is estimated at \$ 179 090 000. Council's maintenance and capital renewal expenditure for year 1 of the asset management plan of \$ 11 169 000 gives a 10 year sustainability index of 0.62.

How do we measure our performance?

#### **Quality**

Road assets will be maintained in a reasonably usable condition. Defects found or reported that are outside our service standard will be repaired. See our maintenance response service levels and Key Performance Indicators (KPIs) for details of defect prioritisation and response time.



## Function

Our intent is that an appropriate Transport Asset group is maintained in partnership with other levels of government and stakeholders to ensure that the city's needs are catered.

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

- Maintain a safe and functional transport portfolio.
- Ensure the transport assets are presented in an attractive manner to the community
- Maintain the assets to an agreed standard fit for their purpose

The main functional consequence of ensuring the Transport network is maintained at a safe and functional standard as set out in this Asset Management Plan is the continued provision of roads, footpaths and bridges in the Penrith Local Government Area at the highest level acceptable by the community and in compliance with the standards, specifications and legislations.

## Safety

We inspect the transport network regularly and prioritise and repair defects in accordance with our inspection schedule to ensure they are safe.

## *What happens next?*

Council plans to operate and maintain the transport network to achieve the following strategic objectives:

1. Ensure the Transport network is maintained at a safe and functional standard as set out in this asset management plan.
2. Ensure the existing Transport network will meet the need of future urban growth.
3. Optimise the life of assets at the most economic cost over time (lifecycle approach).

Council commissioned an Asset Management Gap analysis and Improvement Plan which were completed in late 2009. The recommendations of these documents are now being implemented, with a view to that process being completed in 2012. This will result in significant improvements in Council's asset management practices.

This plan will be updated as asset management practices change and as the value and make-up of the transport network assets group changes. Significant variations in finance and budget will also be incorporated into future versions of this plan. It is anticipated that this plan will be updated annually, with a significant review occurring every four years.





## 2. INTRODUCTION

### 2.1 *Background*

The transport network assets owned and maintained by Council represent our commitment to provide to our communities strong and stable infrastructure to provide the efficient movement of goods and services and to increase connections between the Penrith CBD and the suburbs of the Penrith Local Government Area. Transport assets constructed and maintained by Council are used by every resident and visitor living and visiting the City. They provide an opportunity for increasing economic trade and movement, transportation of materials to local businesses, a network of roads capable of evacuating the city in times of a disaster and the provision of mobile services to local residents. The provision of transport assets in a variety of forms is becoming even more important as we develop as a regional city, we will rely on the transport network to ensure we can maintain effective connection within the City and with the surrounding communities bordering our Local Government Area. Well developed and utilised road and bridge Infrastructure represents a community capable of providing a variety of reliable services to the residents and local businesses. As a growing regional city, the transport network plays an important role in providing means for progressing the city's needs for a place for local and regional vehicular movement for social, cultural and employment purposes and for economic growth given the increase in local factories, warehouses and other businesses requiring mass vehicular transportation.

Given this, it is critical that council maintains these assets so that they are safe, usable and provide a reasonable level of service to the community. This Asset Management Plan has been prepared to provide a context and framework for the management of all assets that fall within the transport network portfolio. Some of the issues which need to be addressed are common to all forms of assets, while others are more specific. This plan demonstrates responsible management of Council's transport assets, compliance with the regulatory requirements, and explains the funding necessary to provide the required levels of service.

This plan should be read in conjunction with the following documents:

- Roads and Footpaths Management and Maintenance Service Specification
- Community Strategic Plan 2031
- Penrith's Resource Strategy 2011 – 2021



This asset management plan covers the following infrastructure assets:

- Road pavements
- Bridges
- Paved footways and cycle ways
- Road surface drainage
- Road Furniture (footways, kerb ramps, vehicular crossings, retaining walls, street furniture, street name signs, street trees)
- Traffic control assets (line marking, guideposts), Regulatory signage, median islands, roundabouts and traffic control devices, guardrail
- Car parks

**Table 2.1 Assets covered by this Plan**

Asset Category	Dimension	Replacement Value
Sealed road pavement	7.86 km <sup>2</sup>	\$594,158,000
Unsealed road	11.27 km	\$3,395,000
Kerb and gutter	1,373 km	\$150,000,000
Paved pathways and cycle ways	Greater than 360 km	\$24,846,000
Bridges	85	\$11,303
Car parks	159	\$3,338
Road furniture		\$7,771
<i>Street name signs</i>	4,200	
<i>Regulatory signs</i>	16,050	
<b>TOTAL</b>		<b>\$772,421,412</b>

Key stakeholders in the preparation and implementation of this asset management plan are listed in Table 1.2.

**Table 1.2: Internal Stakeholders**

Penrith City Council	City Works staff Financial Services Officers Building Maintenance Staff City Parks Public Domain Amenity and Safety
----------------------	---------------------------------------------------------------------------------------------------------------------------------

External Stakeholders are listed in Table 1.3.

**Table 1.3: External Stakeholders**

Local Government Association Federal and State Government Community Visitors Insurers Roads and Traffic Authority Local businesses
------------------------------------------------------------------------------------------------------------------------------------------------------

## **2.2     *Goals and Objectives of Asset Management***

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

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

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

---

<sup>1</sup> IIMM 2006 Sec 1.1.3, p 1.3

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

Council's vision is:

**One of a sustainable and prosperous region with a harmony of urban and rural qualities with a strong commitment to environmental protection and enhancement. It would offer both the cosmopolitan lifestyles of a mature city and the casual character of a rural community.**

Council's mission is:

**Is to implement council's strategy and program. It will do this through skilled and responsive management, by valuing its staff, partnerships and community involvement, by providing quality customer service and upholding ethical standards and behaviour.**

Relevant Council goals and objectives (as outlined in Council's Delivery Program 2009 – 2013) and how these are addressed in this asset management plan are:

***Table 2.2 Council Goals and how these are addressed in this Plan***

Goal	Objective	How Goal and Objectives are addressed in IAMP
Optimising Council Asset Performance	Implementation of Asset Management Plan	An Asset Management Strategy is in operation for civil infrastructure that optimises its use and maintains it to agree standards fit for its contemporary purpose.
17. A City with infrastructure that responds to community needs 22. A City with design excellence that respects our local identity	Asset Management Strategy.  Effective community involvement in asset investment decision making.  Ensure safe roads, footpaths and crossings.  Promote and enhance the 'liveability' of Penrith.	Demand Forecasting, Level of Service and Monitoring:  The section of this IAMP dealing with future demand, analyses future cash flows required to maintain the City's expanding transport network.  Capital Works are programmed and funded.  Data on forward works programs is available to the community for comments and suggestions. Staff has a significant input into the development of the plan.  Provision of good Asset Management practices and analysis.
4. A Council that manages its finances, services and assets effectively	To improve economic prosperity of the region.  To achieve sustainable infrastructure within the Long Term Financial Plans.	Financial Summary:  Maintenance works are optimised against the capital works program.  Data available to assist in decision making



	Ensure all land developments comply with Council's Transport requirements.	Demand forecasting analysis
11.2 Protect and conserve the natural areas under Council's responsibility 11.1 Work with others to protect and conserve the River, waterways and catchments, and natural environments 16.1 Provide a safe, efficient local road network	A leading and action focused Council for the environment.  Water resources and ecosystems protected and conserved.  Sustainable use of energy.  Transport assets that meet environmental outcomes.	Technology Change:  Improving storm water quality runoff into creeks and streams from the road networks.  Appropriate construction of civil infrastructure to minimise loss of natural habitat and enhance the environment.
15. A City with interconnected, safe public transport 16 – 16.3. A City with an integrated local road and pathways network 7. A City with equitable access to services and facilities	Accessible and safe communities.  Environmentally sustainable development.  Improved transportation services with a safe transport network.  Effective utilisation, ongoing maintenance and improvement of public infrastructure.	Regulatory controls, Planning Documents, Monitoring and Specifications:  Maintain overland flow rates pre and post development.  Minimise nuisance flooding on roadways.  Risk based approach to maintenance management.  Identification of assets in their lifecycle with programs for asset renewal and replacement at appropriate intervals to maintain service delivery expectations.  Required physical and monetary resources are minimised through the development of least life cycle cost techniques.
3. A Council that plans responsibly for a sustainable future	Sustainable community finances and assets.  Effective delivery of services to the community.	Long term planning for the future operation, maintenance, renewal and disposal of assets.  Setting levels of service, both technical and customer focussed, to ensure services are delivered effectively.

## 2.3 Plan Framework

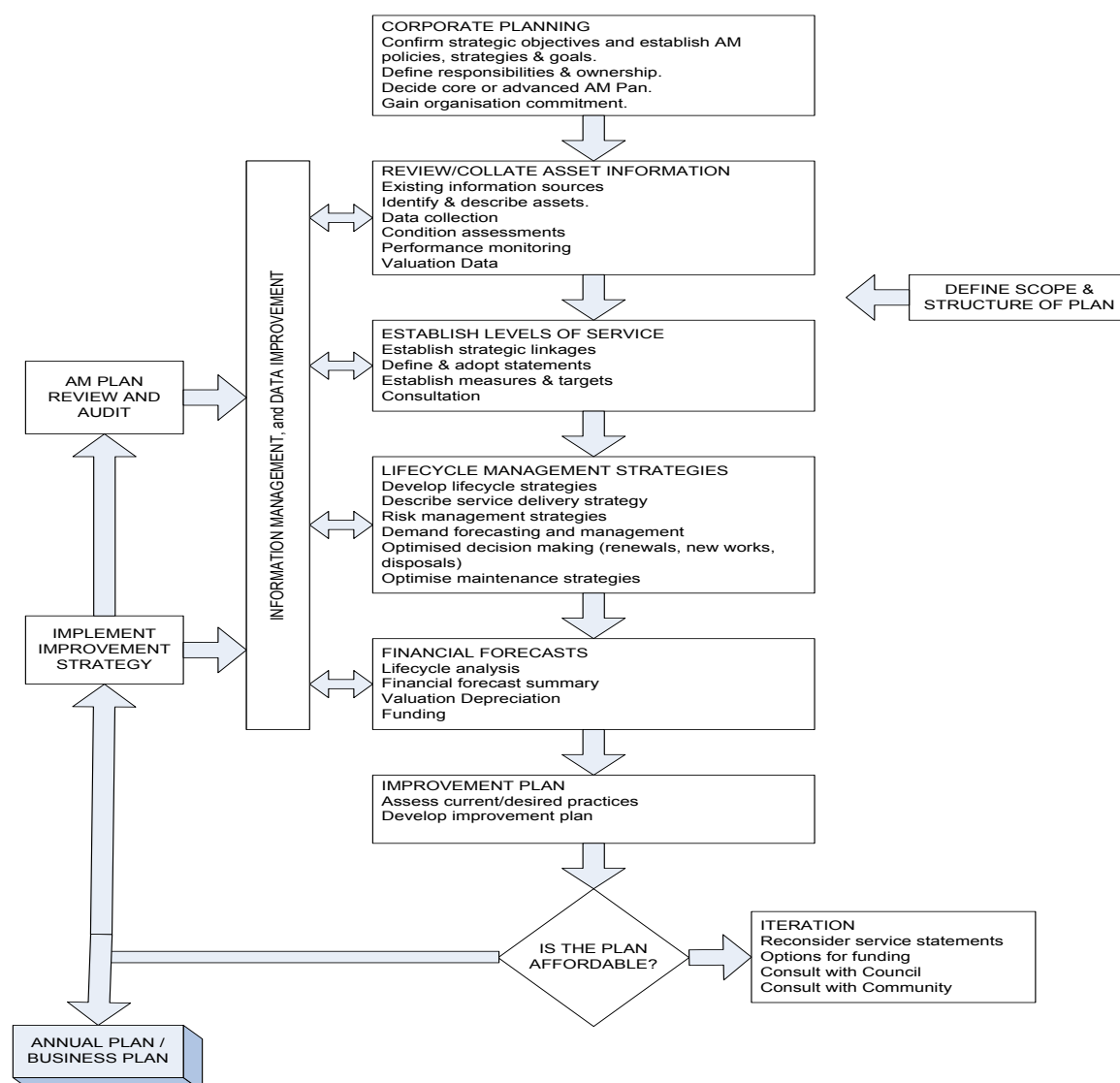
Key elements of the plan are

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

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

### ***Road Map for preparing an Asset Management Plan***

*Source: IIMM Fig 1.5.1, p 1.11*



## **2.4 Core and Advanced Asset Management**

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

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

## **3. LEVELS OF SERVICE**

### **3.1 Customer Research and Expectations**

Council participates in the 2009 Comparative Performance Measures in Local Government Customer Satisfaction survey. This survey polls a sample of residents on their level of satisfaction with Council's services. The most recent customer satisfaction survey reported satisfaction levels for the following services. For a more detailed outline of the results please refer to the 'Penrith City Council' Customer Survey 2009 Final Report prepared by IRIS research.

**Table 3.1 Community Satisfaction Survey Levels**

Performance Measure	Satisfaction Level				
	Very Satisfied	Fairly Satisfied	Satisfied	Somewhat satisfied	Not satisfied
Maintenance of Local Roads			√		
Maintenance of footpaths		√			
Provision of parking for shoppers		√			
Regulation of traffic flow		√			
Provision of commuter parking			√		
Public Safety by the provision of safety and regulatory road signage			√		
Provision of Footpaths		√			
Provision of Cycle ways			√		

Council uses this information in developing the Strategic Management Plan and in allocation of resources in the budget.

### 3.2 Legislative Requirements

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

**Table 3.2 Legislative Requirements**

Legislation	Requirement
Local Government Act	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by asset management plans for sustainable service delivery.
Local Government Act - Annual Reporting Section 428(2)(d)	(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 (i) An estimate (at current values) of the amount of money required to bring the works up to a satisfactory standard; and (ii) An estimate (at current values) of the annual expense of maintain the works at that standard; and (iii) The Council's programme for maintenance for that year in respect of the works.
Australian Accounting Standard AASB116	Reporting on asset condition and consumption to Councillors, management and the community.
NSW Roads Act 1993	Provides the legislative requirements, via delegation for road rule legalities for the purpose of Council implementing the associated traffic control devices and temporary road closures. Section 7: Roads authorities: 1. The RTA is the roads authority for all freeways. 2. The Minister is the roads authority for all crown roads. 3. The regulations may declare that a specified public authority is the roads authority for a specified public road, or for all public roads within a specified area, other than any freeway or crown road. 4. The council of a local government area is the roads authority for all public roads within the area, other than: a) Any freeway or Crown road, and b) Any public road for which some other public authority is declared by the regulations to be the roads authority. 5. A roads authority has such functions as are conferred on it by or under this or any other Act or law.
Environmental Planning and Assessment Act 1979	<ul style="list-style-type: none"> <li>• Requirement for LEP and DCP's.</li> <li>• Council control of service approvals.</li> </ul>
Soil Conservation Act 1938	<ul style="list-style-type: none"> <li>• Preservation of water course environment.</li> </ul>

Public Works Act 1912	<ul style="list-style-type: none"> <li>• Role of City Infrastructure in planning and construction of new assets.</li> </ul>
Occupational Health and Safety Act 2000	<ul style="list-style-type: none"> <li>• Impacts all operations.</li> <li>• Note public safety – insurance.</li> <li>• Cost implications.</li> <li>• Council’s responsibility to ensure health, safety and welfare of employees and others at places of work.</li> </ul>
Protection of the Environment Operations Act 1997	<ul style="list-style-type: none"> <li>• Control of run-off or escape of contaminants entering water courses.</li> <li>• Regulating pollution activities and issue of licenses as well as the monitoring of and reporting on waste output.</li> <li>• This act includes “Due Diligence requirements, disposal procedures for chemicals and sludge and details penalties for causing environmental impacts.</li> </ul>
Civil Liability Act 2002 and Civil Liability Amendment (Personal Responsibility) Act 2002	Protects the Council from civil action by requiring the courts to take into account the financial resources, the general responsibilities of the authority and the compliance with general practices and applicable standards.
All other relevant Australian Standards and Codes of Practice, Acts and Regulations, relevant policies of the Organisation	Water sensitive infrastructure guidelines. Australian Road Rules Several Australian Standards and Codes of practices as relevant to transport assets. Australian Standard 1742 (Traffic)

### 3.3 *Current Levels of Service*

The levels of service that is currently in use by the Assets Team are derived using historical budget information, internal consultation with stakeholders, statutory requirements and a corporate customer service request system (CRS).

Community levels of service relate to how the community receives the service in terms of safety, quality, quantity, reliability, responsiveness, cost / efficiency and legislative compliance.

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

- Maintenance is work undertaken to ensure that the transport network asset continues to meet the required performance and standard throughout its useful life.
- There are two main strategies of maintenance approach, namely “preventive” maintenance and “reactive” maintenance.
- Preventive maintenance – the actions performed to retain an item or asset in its original condition as far as practicable by providing systematic inspection, detection and prevention of incipient failure. Preventive maintenance is normally programmed.
- Reactive maintenance – the actions performed, as a result of failure, to restore an item or asset to its original condition, as far as practicable. Reactive maintenance may or may not be programmed.



**E.g. Service Criteria**

Quality  
Quantity  
Availability  
Safety

**E.g. Technical measures may relate to**

Smoothness of roads  
Amount of road assets per area  
Distance from a dwelling to a sealed road  
Number of injury/accidents

The current levels of services that are currently in use by the Asset Services Department are derived using historical budget information, internal consultation with stakeholders, statutory requirements and feedback from the public.

Council's current service levels are detailed in Table 3.3.

**Table 3.3 Current Service Levels**

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
<b>COMMUNITY LEVELS OF SERVICE</b>				
Quality	Provide a high level of quality across Council's Transport assets including roads and footpaths	Number of customer service requests related to road & footpath faults	Reduce 09/10 customer requests by 2%	
Quality	Sound surface and aesthetic appearance.	Customer Service Requests	Reduced complaints from pedestrians and cyclists	
Quality	Provide comfortable and secure parking for Penrith citizens and visitors	Customer Service Requests In regards to parking conditions Community forums feedback	Less than 20 per annum	
Function	Transport assets meet user requirements for accessibility and use	Annual survey	Achieve overall customer satisfaction score equal to or above State average	
Function	Ensure that the road meets user requirements for travel time and availability	Customer service requests relating to travel time and availability	Reduce 09/10 customer requests by 5%	

Function	Meets user requirements for: Geometry (road width, turning radiuses, gradient) Accessibility Adequate traffic control devices	Customer Requests Service Austroads technical specifications and guidelines	Minimum CRS received. Compliance with current standards and Specs
Safety	Provide safe suitable roads free from hazards	Accident reports, Customer Requests	Roads - fatalities < 5p.a. Footpaths - trip claims < 5 pa
Safety	Increase footpath safety	Accident reports, Customer Requests	Minimum accidents as a result of footpath conditions
Safety	Crime free parking areas	Customer Requests Complaints about break ins, or damage of property	Minimum customer complaints
<b>TECHNICAL LEVELS OF SERVICE</b>			
Quality	Provide a road free or defects	Response time to repairing potholes and cracking	Distributor – 4 days Collector – 6 days Local – 3 weeks
Quality	Maintain seal to minimise water ingress to pavements	Length of resealed / reconstructed footpaths per annum Condition rating. Average age of seals	Length of resealed / reconstructed footpaths per annum Condition rating. Average age of seals
Cost Effectiveness	Proactive scheduled maintenance Re-use of materials Use highly Productive construction machinery.	Percent of Maintenance done by proactive repairs. Use advanced technology methods and new materials	Reduce calculated design cost by 5%  70% of proactive maintenance activities

Function	Adequate capacity and structural strength	Annual compliance inspection	% of transport network per annum
Safety	Provide legible signage, line marking, and sight distance. Maintain traffic control devices	Regular road safety audits Customer Request Service	Less number of accidents and public complaints
Safety	Provide lighting, fencing and security cameras for car parks	Regular inspections Customer Request Service	Less number of public complaints

For more details please refer to the Roads, Footpaths and Maintenance Service Specification.

### **3.4 Desired Levels of Service**

At present, indications of desired levels of service are obtained from various sources including the 2007 Customer Satisfaction survey, residents' feedback to Councillors and staff, service requests and correspondence. Council has yet to quantify desired levels of service. This will be done in future revisions of this asset management plan.

The following principles are adopted in delivering levels of service in relation to transport:

- (a) Safe for use for the community;
- (b) Appearance is acceptable;
- (c) Regular maintenance is undertaken;
- (d) Facilities are appropriate and in good condition;
- (e) Facilities are operational;
- (f) Regular asset inspections are carried out;
- (g) Signage is appropriate;
- (h) Council responds to complaints and issues.

The City of Penrith Transport Service Specifications will reinforce the amenity and functionality of the City's linear corridors that follow our creek lines, transport corridors and infrastructure easements. People will have close access to opportunities for efficient motorised and non-motorised movement throughout a completely connected City, breathing a new life and enhanced functionality in to the space set aside to contrast the built and natural environment in recognition of Penrith's Flood Liable location.

## 4. FUTURE DEMAND

### 4.1 Demand Forecast

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

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

**Table 4.1 Demand Factors, Projections and Impact on Services**

Demand factor	Present position			Projection (2020)			Impact on services
Population	177,152 (2006 Census)			189,052			Increased traffic volume on roads results in additional maintenance & renewal costs & requirement for traffic calming devices
Demographics (By age group)	0 to 4	13,154	7.4%	0 to 4	13,229	7.0%	Increase in younger drivers and need to improve foot paths and pedestrian walkways in recognition of more pedestrians.
	5 to 9	13,225	7.5%	5 to 9	12,934	6.8%	
	10 to 14	13,709	7.7%	10 to 14	12,521	6.6%	
	15 to 19	13,840	7.8%	15 to 19	13,060	6.9%	
	20 to 24	14,553	8.2%	20 to 24	14,698	7.8%	
	25 to 29	13,688	7.7%	25 to 29	15,289	8.1%	
	30 to 34	13,737	7.8%	30 to 34	14,459	7.6%	
	35 to 39	12,826	7.2%	35 to 39	13,381	7.1%	
	40 to 44	12,668	7.2%	40 to 44	12,277	6.5%	
	45 to 49	12,932	7.3%	45 to 49	11,889	6.3%	
	50 to 54	11,628	6.6%	50 to 54	11,028	5.8%	
	55 to 59	10,450	5.9%	55 to 59	10,501	5.6%	
	60 to 64	6,641	3.7%	60 to 64	9,635	5.1%	
	65 to 69	4,535	2.6%	65 to 69	8,306	4.4%	
	70 to 74	3,334	1.9%	70 to 74	6,681	3.5%	
	75 to 79	2,728	1.5%	75 to 79	4,195	2.2%	
	80 to 84	2,064	1.2%	80 to 84	2,770	1.5%	
	85 +	1,430	0.8%	85 +	2,226	1.2%	
Cost of oil	Prices are increasing as supply reaches its maximum.			Decreasing availability of resources and increased costs as supply dwindles			Move to public transport (additional damage to roads from buses) Increased renewal costs for road sealing

Job growth and network expansion	Employment at an all-time low	Increase in job availability over next 20 years	Road network use greater, increased maintenance costs
Population growth through urban expansion	Urban areas are being improved and populated by various new urban release areas	Urban areas will face higher levels of dense urban housing developments.	Increase in impermeable area resulting in increased stormwater flows from roads. Reduction in capacity of the existing system, upgrade of system necessary.
DDA	1.2m wide paths	Selected paths to be upgraded in width to accommodate gophers	Additional funds required to upgrade paths
Consumer expectations - Presentation	Numerous number of path and paver styles	Pressure to install various paver types	Pavers runs may be limited. Difficult to reinstate small areas.
Land use	Councils' development plan maintains control of areas for future development	State Government may encourage larger developments	Increase pressure on existing road network
Road traffic – Increased vehicle ownership.	2-2.5% growth per annum	More Growth	Potential increase in pollution.





## 4.2 Changes in Technology

Technology changes are forecast to have little effect on the delivery of services covered by this plan.

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

Technology Change	Effect on Service Delivery
Pavement Rejuvenation	Life extension of existing pavements prior to more expensive treatments.
Improved pavement construction techniques and bitumen sealing	Existing road reconstructed will be of improved design/materials/practices increasing life above current standards. This can also be attributed to improved bitumen sealing due to advances in mix design.
Improvements in guardrail technology	Longer lives with materials more resistant to weathering and exposure failure.
Drainage technology improvements	Safer roads, improved drainage preventing water ponding and excess water degradation of pavements.
The development of Geographic Information Systems (GIS) and mobile mapping	GIS will improve the management of road infrastructure, particularly the co-ordination of maintenance activities, through enhanced data collection, analysis and dissemination systems.

### 4.3 Demand Management Plan

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

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

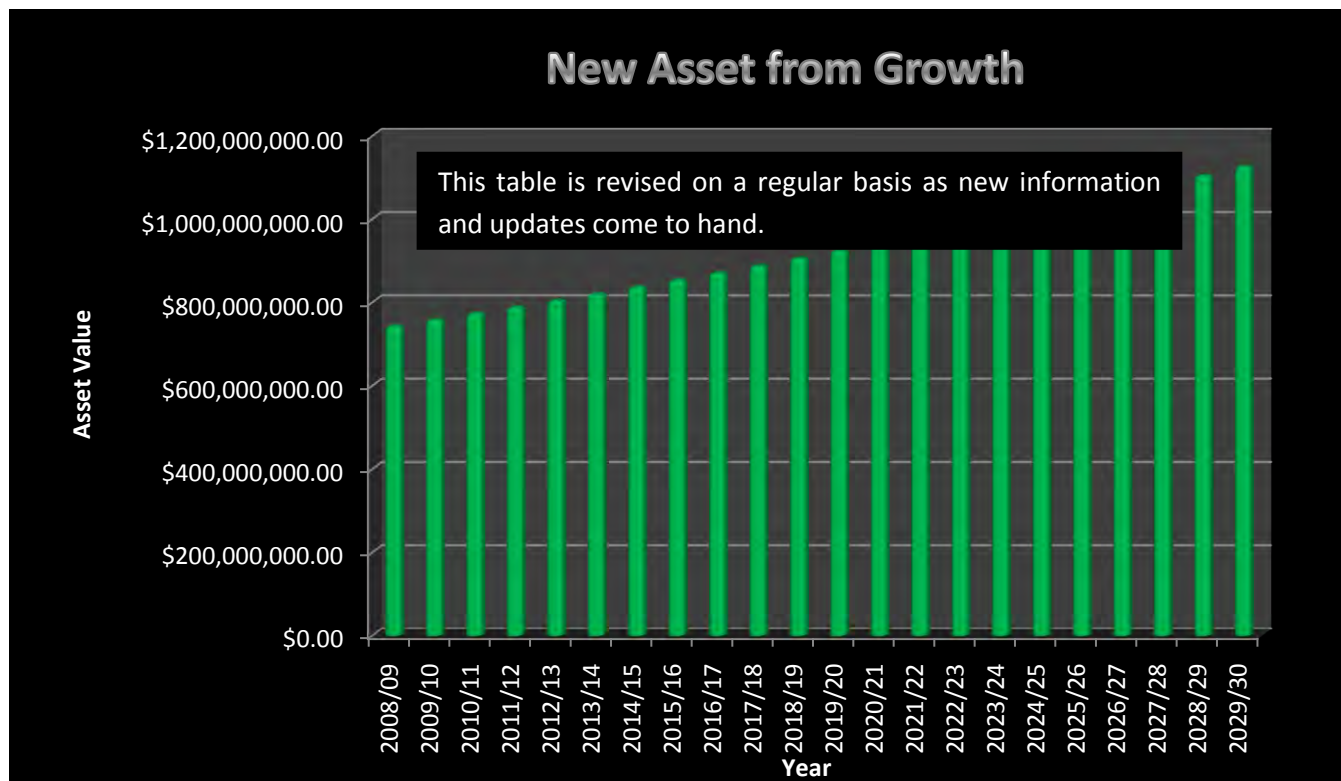
**Table 4.3 Demand Management Plan Summary**

Service Activity	Demand Management Plan
Customer Service Delivery	<p>Study road condition rating from this plan and prioritise a list of roads to be included in the annual reseal / rehabilitation program.</p> <p>Investigate alternative treatments to lower life cycle costs i.e. seal types, rejuvenation.</p> <p>To ensure that the services required (via surveys) are driving the demand for our Transport network assets.</p>
New land Divisions	Implement enhanced quality control measures for donated assets.
Planning	Revise planning controls to increase population density and decrease the extent of new road network.
Financial	<p>Developing long term Financial Management Plans to ensure financial sustainability.</p> <p>Improve maintenance practices to increase cyclic and planned regimes aimed to improve asset life, and decrease future capital renewal costs. There is also scope to develop traffic management schemes that divert flow to arterial roads.</p> <p>Increased focus on gaining State and Federal funding for infrastructure works.</p>
Capital Works	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.

#### 4.4 New Assets from Growth

The new assets required to meet growth will be acquired from land developments and constructed by Council. The new asset values are summarised in Fig 1.

**Fig 1 New Asset from Growth**



The graph above is only a projection of asset value increase. The above graph will be updated when exact costings for new works become available.

Acquiring new assets will commit council to fund ongoing operations and maintenance 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 operating and maintenance costs.

New assets will also be created by developers as part of the development of new subdivisions. The details of works to be carried out are detailed in Section 94 Contribution Plans. These plans are available for viewing at [www.penrithcity.nsw.gov.au/index.asp?id=3204](http://www.penrithcity.nsw.gov.au/index.asp?id=3204)

## 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

Asset Category	Dimension	Replacement Value
Sealed road pavement	7.86 km <sup>2</sup>	\$594,158,000
Unsealed road	11.27 km	\$3,395,000
Kerb and gutter	1,373 km	\$150,000,000
Paved pathways and cycle ways	Greater than 360 km	\$24,846,000
Bridges	85	\$11,303
Car parks	159	\$3,338
Road furniture		\$7,771
Street name signs	4,200	
Regulatory signs	16,050	
<b>TOTAL</b>		<b>\$772,421,412</b>

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

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

**Fig 2 Asset Age Profile**

**\*\*Currently under investigation\*\***

### 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**

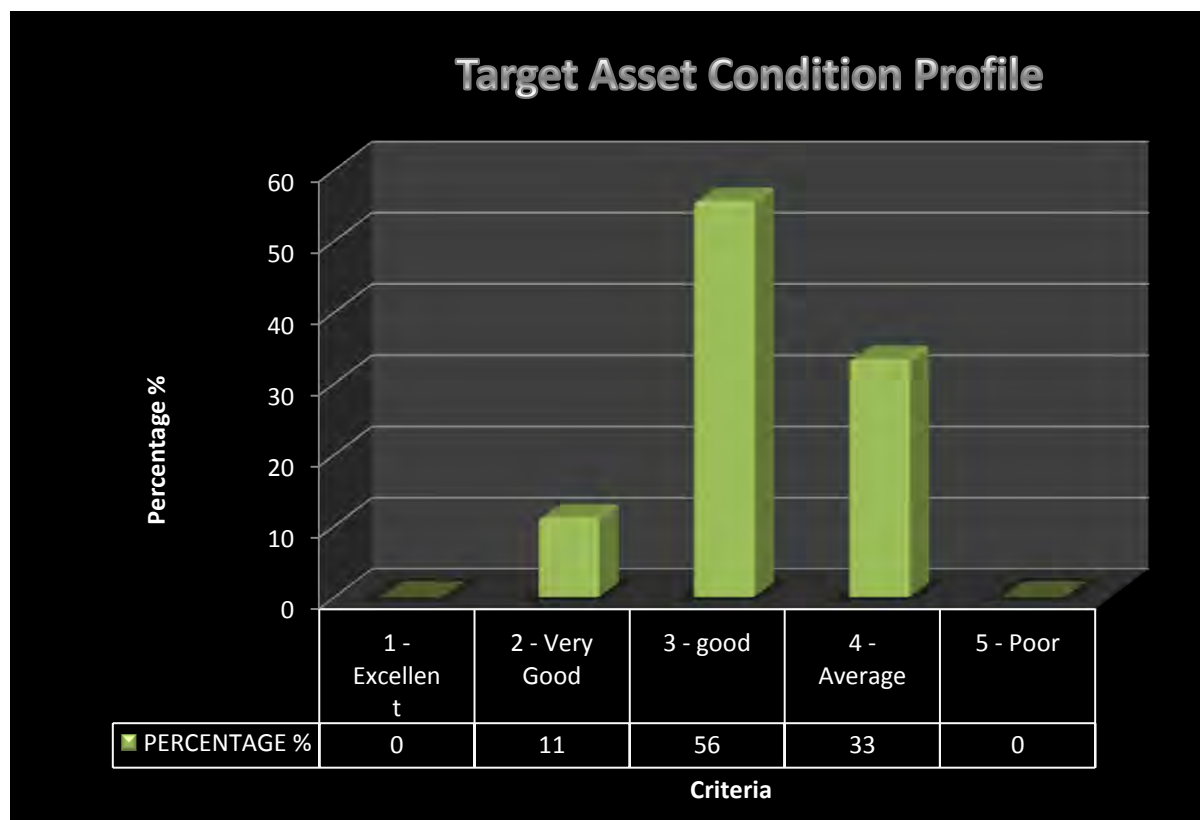
Location	Service Deficiency
Car parks	Unsealed car parks deteriorate rapidly and require expensive treatment.
Asphalt surface	Oxidation and increased traffic loads create cracking, moisture penetration and subsequent pavement failure and safety risk.
Unsealed roads	All weather access is not provided to all residences resulting in resident dissatisfaction.  Poor drainage on many roads resulting in reduced life of pavement.  Poor quality material in some locations resulting in reduced life of pavement. Higher demand of heavier freight movements at the detriment of the surface structural integrity.

The above service deficiencies were identified from Customer requests and regular assets inspections.

### 5.1.3 Asset condition

The condition profile of Council's assets is shown below.

**Fig 3 Asset Condition Profile**



Condition is measured using a 1 – 5 rating system.<sup>2</sup>

Rating	Description of Condition
1	Excellent condition: Only planned maintenance required.
2	Very good: Minor maintenance required plus planned maintenance.
3	Good: Significant maintenance required.
4	Average: Significant renewal/upgrade required.
5	Poor: Unserviceable.

<sup>2</sup> IIMM 2006, Appendix B, p B:1-3 ('cyclic' modified to 'planned')



#### **5.1.4 Asset valuations**

The value of assets as at 30 June 2010 covered by this asset management plan is summarised below. Assets were last revalued at June 2010.

Current Replacement Cost	\$ 772 421 412
Depreciable Amount	\$ 772 421 412
Depreciated Replacement Cost	\$ 767 169 412
Annual Depreciation Expense	\$ 5 252 000

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

Asset Consumption	2.00%
Asset renewal	1.44% [Asset Expenditure/Current Replacement Cost]
Annual Upgrade/expansion	0.15% [Capital Works/CRC]

#### **5.2 Risk Management Plan**

An assessment of risks<sup>3</sup> associated with service delivery from infrastructure assets has identified critical risks to Council. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

Critical risks, being those assessed as 'Very High' - requiring immediate corrective action and 'High' – requiring prioritised corrective action. Council has a separate Risk Management Plan which is used to assess the risks of all assets in the Asset Management Plan for Transport Assets. Please refer to Council's Service Risk Assessment Document.

Climate change is an emerging field of possible risk to the lifecycle management of existing and new assets. The NSW Government Guidelines Economic Appraisal (TPP 07-05) has been updated to reflect upon growing concerns on the possible effects that climate change may have on Asset and Infrastructure Assessments.

An economic appraisal assists efficient public sector resource allocation decisions, by systematically analysing all the quantifiable and non-quantifiable costs and benefits - economic, social and environmental - of various ways of meeting a service objective. Economic appraisal (cost benefit analysis; cost effectiveness analysis) is the standard evaluation framework for resourcing decisions. It is applicable to policy evaluation and analysis of recurrent programs as well as capital projects, to assist decision making.

Transport and Road assets will be maintained and constructed taking into account any risk arising from Climate Change. Risk management for climate change related concerns will form part of the Council's Risk Management Tool kit and asset planning strategies will be formed to adapt to possible

---

<sup>3</sup> Refer to Penrith City Council's Risk Management Tool Kit

uncertain risk from climate change. A key method to aid in the effective use of funding is through the economic appraisal of transport assets to determine adaptability to climate change. This method will assist in determining which assets require replacing or upgrading and that this asset class will be assessed within a standard cost benefit framework (economic appraisal of the costs and benefits of various options to achieve a service objective) in accordance with *NSW Government Guidelines for Economic Appraisal*.

Refer to NSW Treasury Circular NSW TC10/12 15 September 2010 for more information.

### **5.3 Routine Maintenance Plan**

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

#### **5.3.1 Maintenance plan**

Maintenance includes reactive, planned and cyclic maintenance work activities.

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

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

Cyclic maintenance is replacement of higher value components/sub-components of assets that is undertaken on a regular. This work generally falls below the capital/maintenance threshold.

Maintenance expenditure trends are shown in Table 5.3.1

**Table 5.3.1 Maintenance Expenditure Trends**

Year	Maintenance Expenditure			
	Reactive	Planned	Cyclic	Total
2006/07	\$ 4 286 155	\$ 1 827 797	N/A	\$ 6 113 952
2007/08	\$ 4 463 265	\$1 379 448	N/A	\$5 842 713
2008/09	\$ 5 044 945	\$1 305 590	N/A	\$ 6 350 535

Planned maintenance work is 21% of total maintenance expenditure.

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

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

### 5.3.2 Standards and specifications

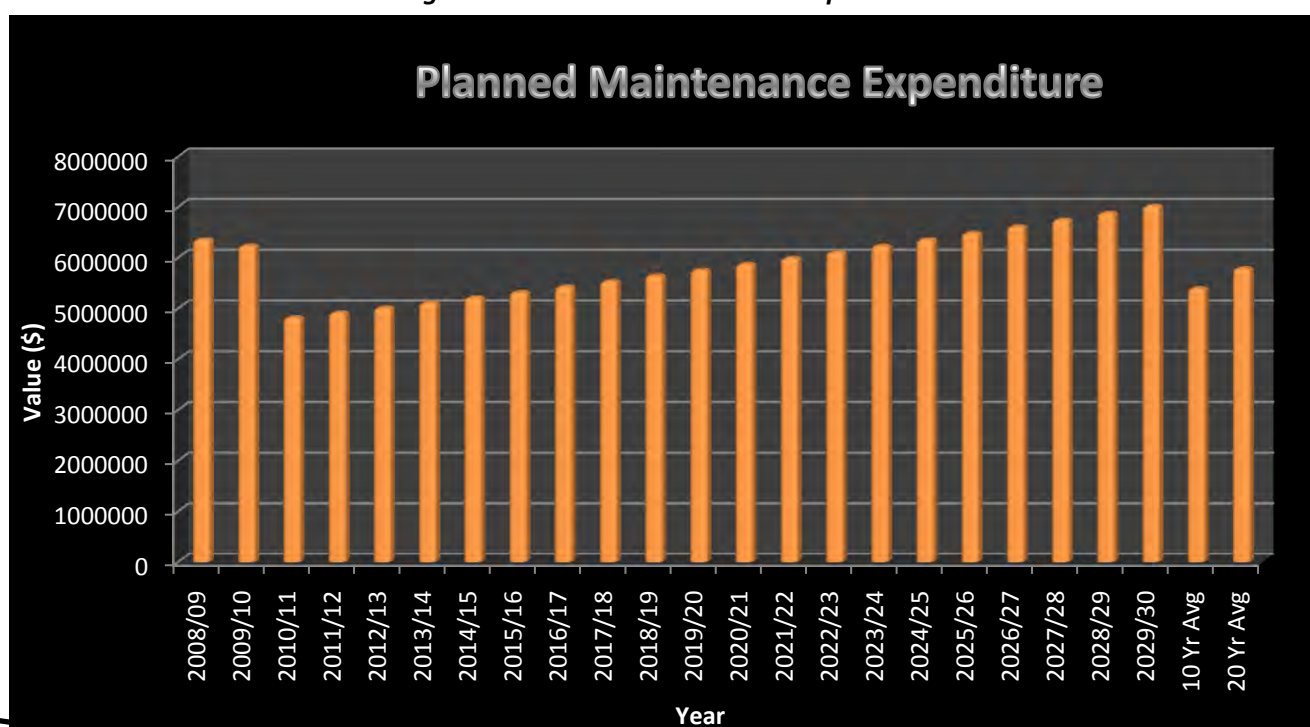
Maintenance work is carried out in accordance with the following Standards and Specifications.

- Ausspec 4 – Road Reserve Maintenance
- AS1160-1990 Bituminous emulsions for construction and maintenance of pavements
- AS2436-1981 Guide to noise control on construction maintenance and demolition sites
- AS4283-1995 Cold mixed asphalt for maintenance patching
- AS4919-2003 General Conditions of contract for the provision of asset maintenance and services
- AS51.1-2004 Bridge design-scope and general principles
- AS2008-1997 Residual Bitumen for pavements
- AS3727-1993 Guide to residential pavements
- Austroads Guide to Traffic Engineering Practice, Part 13 – Pedestrians.
- AS2436-1981 Guide to noise control on construction maintenance and demolition sites.
- Australian Transport Advisory Council-Improving Access to Public Transport for Disabled People.
- AS4919-2003 General Conditions of contract for the provision of asset maintenance and services.
- Building Code of Australia 1990 Clause D.
- AS2008-1997 Residual Bitumen for pavements.
- AS 1158.1 Public Lighting Code Part 4- Supplementary Lighting at Pedestrian Crossings 1987.
- Sealed Local Roads Manual: July 2005 authored by ARRB Group
- Unsealed Roads Manual: August 2000 authored by ARRB Group

### 5.3.3 Summary of future maintenance expenditures

Future maintenance expenditure is forecast to trend in line with the value of the asset stock as shown in Fig 4. Note that all costs are shown in current 2009/10 values.

**Fig 4** *Planned Maintenance Expenditure*



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

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

#### **5.4 Renewal/Replacement Plan**

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

##### **5.4.1 Renewal plan**

Assets requiring renewal are identified from estimates of remaining life obtained from the asset register worksheets. Proposals are inspected to verify accuracy of remaining life estimate and to develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds and scheduled in future works programmes. The priority ranking criteria is detailed in Table 5.4.1.

**Table 5.4.1 Renewal Priority Ranking Criteria**

Criteria	Weighting
Safety - Road section containing pavement deformations is prioritised for reconstruction	60%
Structural Integrity - Road section containing cracks, surface texture deficiencies or edge defects is prioritised for reseal / rehabilitation program	20%
Functionality	10%
Economic Advantages/Availability of materials	10%
Total	100%

Renewal will be undertaken using 'low-cost' renewal methods where practical. The aim of 'low-cost' renewals is to restore the service potential or future economic benefits of the asset by renewing the assets at a cost less than replacement cost.

##### **5.4.2 Renewal standards**

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

- AS1160-1990 Bituminous emulsions for construction and maintenance of pavements.
- AS2436-1981 Guide to noise control on construction maintenance and demolition sites.

- AS4283-1995 Cold mixed asphalt for maintenance patching.
- AS4919-2003 General Conditions of contract for the provision of asset maintenance and services.
- AS51.1-2004 Bridge design-scope and general principles.
- AS2008-1997 Residual Bitumen for pavements.
- AS3727-1993 Guide to residential pavements.
- AS/NZ road design Standards
- Bridge Design code AS 5100 -2004
- ARRB design guide lines
- A guide to the design of new pavement for light traffic (APRG21)
- Sealed roads manual (ARRB)
- Unsealed roads manual (ARRB)
- AP - 3/90 Guide to geotextiles
- AP – 8/81 Visual assessment of pavement condition
- AP 11.1/88 Guide to traffic engineering practices Part 1 Traffic Flow
- AP 11.2/88 Guide to traffic engineering practices Part 2 – Roadway capacity
- AP 11.6/93 Guide to traffic engineering practices Part 6 – Roundabouts
- AP 11.9/88 Guide to traffic engineering practices Part 9 – Arterial Rd traffic management
- AP 11.10/04 Guide to traffic engineering practices Part 10 – Local Area traffic management
- AP 11.11/88 Guide to traffic engineering practices Part 11 – Parking
- AP 11.12/04 Guide to traffic engineering practices Part 12 – Roadway lighting
- AP 11.13/95 Guide to traffic engineering practices Part 13 – Pedestrians
- AP 12/91 Road Maintenance Practice
- AP – 13/91 Bridge management practice
- AP – 14/91 Bridge construction practice
- AP – 23/94 Waterway design – a guide to the hydraulic design of bridges
- AP – 36/95 Australian adaptations and innovations in road and pavement engineering
- AP – 60/98 Guide to stabilisation in roadworks
- AP-232/03 Guidelines for treatment of stormwater run off from the roads infrastructure
- APG – 1/03 Rural road design – a guide to geometric design rural roads
- APG - 17/04 Pavement design – a guide to the structural design of road pavements
- APG – 34/06 Austroads design vehicles and turning templates
- APG – 63/03 Guide to the selection of road surface types
- APG – 66/02 Asphalt guide
- APG – 69/02 Urban road design guide to the geometric design of major urban roads
- APG – 73/02 Guide to the selection and use of bitumen emulsions
- APG – 75/03 Guide to best practise for the construction of in situ stabilised pavements
- APG 76/04 Sprayed sealing guide
- APG - 78/04 Pavement rehabilitation – a guide to the design of rehabilitation treatments for road pavements
- AP – T35/05 Technical basis of Austroads pavement design – charts for light traffic
- AP – T36/06 Pavement design for light traffic
- AO – T 47/06 Guide to traffic engineering practices part 8 Traffic Control Devices
- AS 1160 – 1996 Bituminous emulsions for the construction and maintenance of pavements
- AS 1428.1 Design for access and mobility
- AS 1742 - Various Manual of Uniform Traffic Control, Devices
- AS 1906.3 Retro reflective materiel and devices for traffic control
- AS2436 – 1981 Guide to noise control on construction and maintenance sites

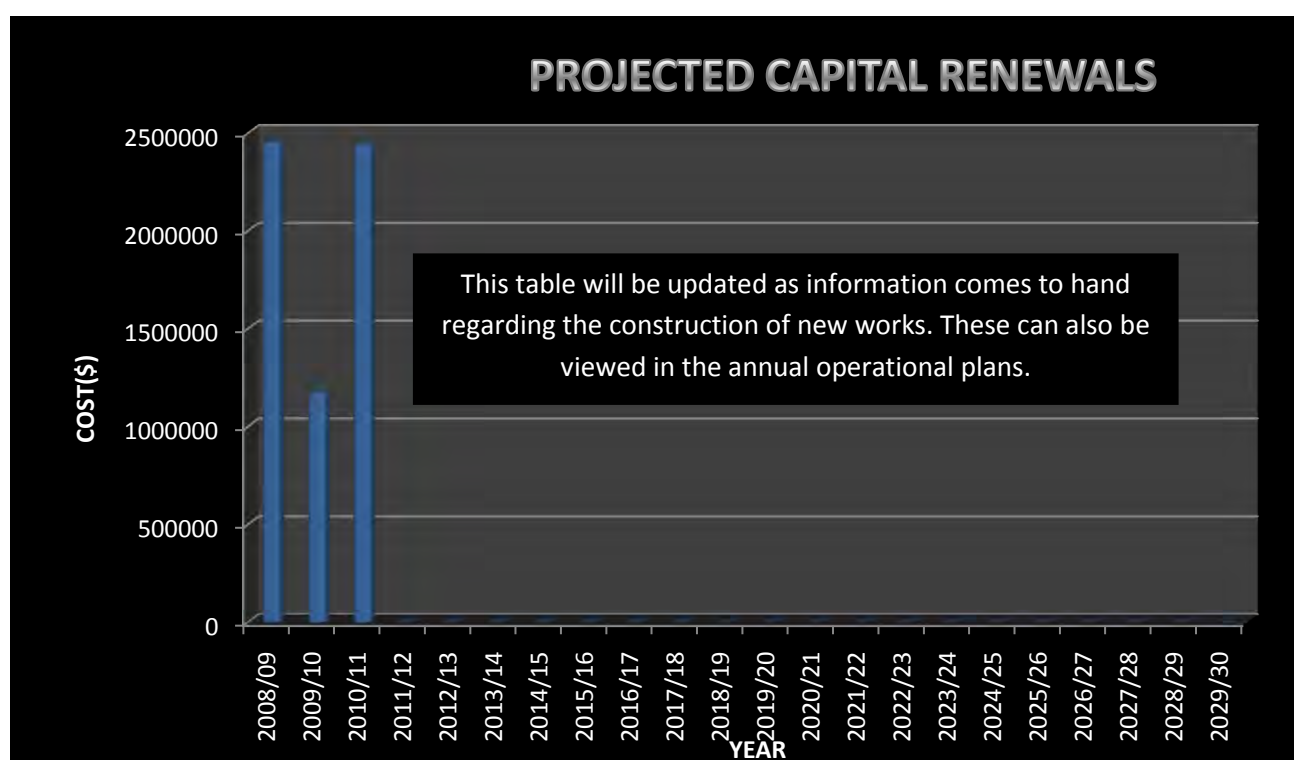


- AS 3671 – 1989 Acoustics road traffic noise intrusion
- HB 69.13 – 1995 Guide to engineering practices pedestrians
- HB 69.12 – 2004 Guide to engineering practices roadway lighting
- HB 69.14 – 1999 Guide to engineering practices bicycles
- HB 77.6 Supp 1 Australian bridge design code
- Austroads Guide to Traffic Engineering Practice, Part 13 – Pedestrians.
- AS2436-1981 Guide to noise control on construction maintenance and demolition sites.
- Australian Transport Advisory Council-Improving Access to Public Transport for Disabled People.
- AS4919-2003 General Conditions of contract for the provision of asset maintenance and services.
- Building Code of Australia 1990 Clause D.

### 5.4.3 Summary of future renewal expenditure

Projected future renewal expenditures are forecast to increase over time as the asset stock ages. The costs are summarised in Fig 5. Note that all costs are shown in current 2009/10 dollar values.

**Fig 5 Projected Capital Renewal Expenditure**



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

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

## **5.5 Creation/Acquisition/Upgrade Plan**

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

### **5.5.1 Selection criteria**

New assets and upgrade/expansion of existing assets are identified from various sources such as councillor or community requests, proposals identified by strategic plans or partnerships with other organisations. 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 Assets Priority Ranking Criteria**

Criteria	Weighting
Community Profiling	45%
Funding Availability	25%
Physical Environment Issues	15%
City Planning	15%

### **5.5.2 Standards and specifications**

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**

Planned upgrade/new asset expenditures are summarised in Fig 6.

**Fig 6 Planned Capital Upgrade/New Asset Expenditure**

**Note\* Current funding and Asset Analysis is based on Asset Renewal and the Long Term Financial Plan, No Upgrade or New Assets have been identified. Customer Feedback and the service review will identify New Assets required.**

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

## 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. These assets will be further reinvestigated to determine the required levels of service and see what options are available for alternate service delivery, if any.

**Table 5.6 Assets identified for Disposal**

Asset	Reason for Disposal	Timing	Cash flow from disposal
Unmade road reserves	Surplus to requirements	To be determined	Minimal

Where cash flow projections from asset disposals are not available, these will be developed in future revisions of this asset management plan.

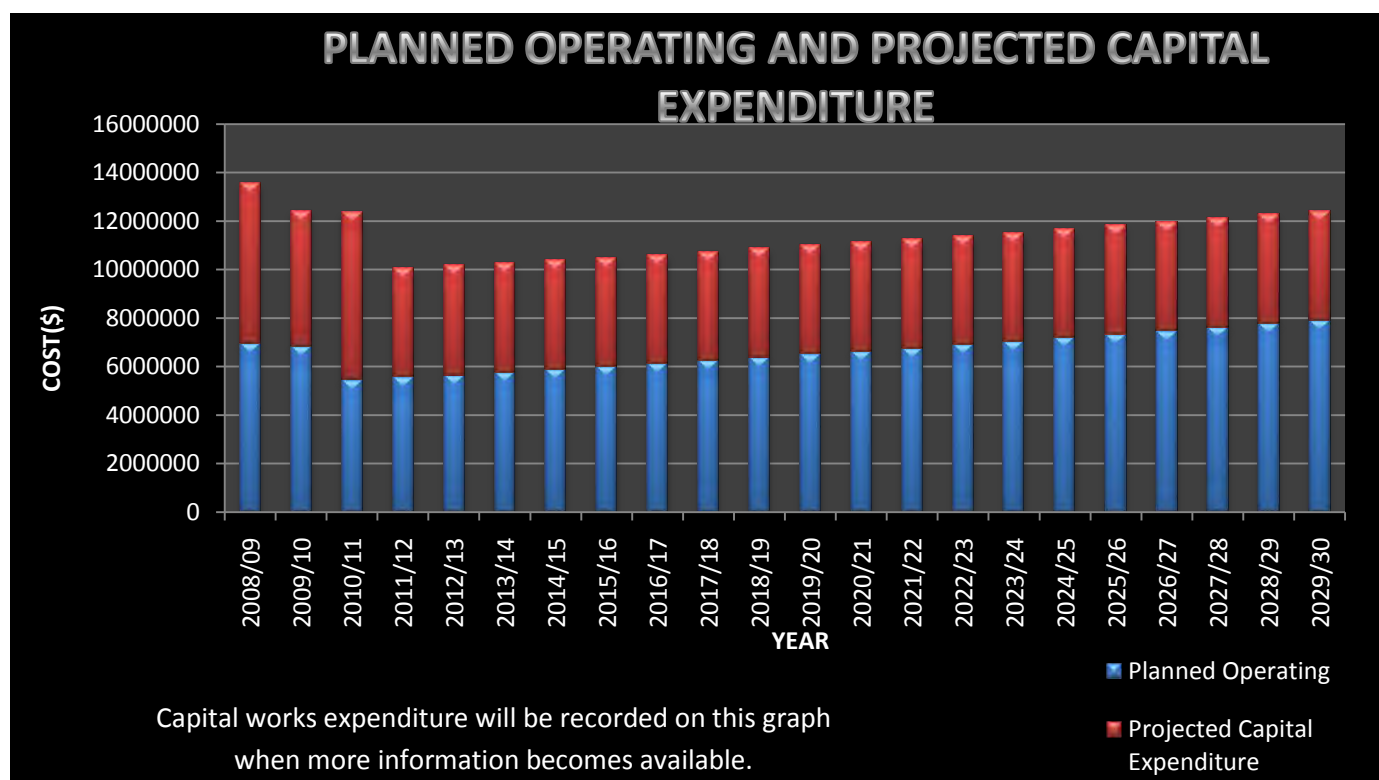
## 6. FINANCIAL SUMMARY

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

### 6.1 Financial Statements and Projections

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

**Fig 7** *Planned Operating and Capital Expenditure*



Note that all costs are shown in current 2009/10 dollar values.

#### 6.1.1 Sustainability of service delivery

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

##### Long term - Life Cycle Cost

Life cycle costs (or whole of life costs) are the average costs that are required to sustain the service levels over the longest asset life. Life cycle costs include maintenance and asset consumption (depreciation expense). The annual average life cycle cost for the services covered in this asset management plan is \$ 18 672 000 per annum.

Life cycle costs can be compared to life cycle expenditure to give an indicator of sustainability in service provision. Life cycle expenditure includes maintenance plus capital renewal expenditure. Life cycle expenditure will vary depending on the timing of asset renewals. The life cycle expenditure on average is \$ 11 169 000 per annum.

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

The life cycle gap for services covered by this asset management plan is \$ 7 503 000 per annum. The life cycle sustainability index is 0.60

### Medium term – 10 year financial planning period

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

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

Due to the long lived life cycle of roads and footpaths there is not any need to undergo major renewals on a regular schedule. However, the financial history does indicate that on average about 0.43% of the road network undergo road reconstruction annually and about 5.43% of the road network undergoes annual road resealing. To cater for these reactive renewal works, these renewal works will typically cost 0.5% to 2% of the total asset value. Fig 8 shows the projected asset renewal expenditure for this asset category. The projections are increasing to keep in line with the annual asset consumption rate and to take into account of the increased asset replacement value as the asset stock increases.

**Fig 8 Projected Renewals Expenditure**

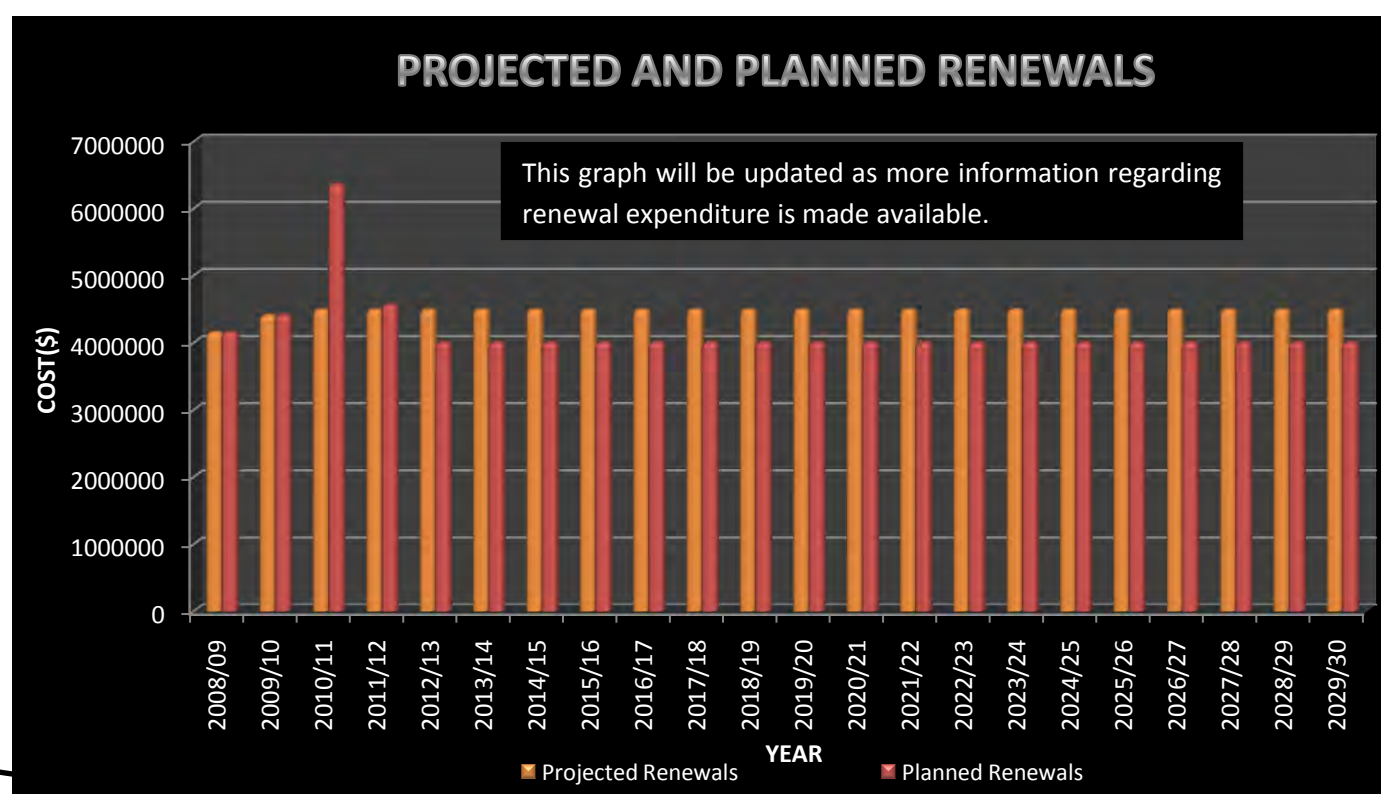




Table 6.1.1(A) and (B) shows the history of major renewal projects achieved.

**Table 6.1.1(A) Roads Resealing**

Year	Major Renewal Jobs	No of Jobs	Expenditure \$	Quantity
1996/97		41	734,900	18.5 kms; 150,000sqm; 1.79% of network.
1997/98		47	920,000	24.0 kms; 195,000sqm; 2.63% of network.
1998/99		59	1,039,000	28.0 kms; 224,000sqm; 2.93% of network.
1999/00		55	1,154,000	25.5 kms; 208,400sqm; 2.73% of network.
2000/01*		74	1,892,000	47.2 kms, 354,000sqm 4.65% of network
2001/02*		67	2,169,000	47.6 kms; 385,000sqm 5.01% of network
2002/03*		111	2,840,000	57.1 kms; 459,000sqm 5.96% of network
2003/04*		98	3,042,000	56.0km; 469,800sqm 6.18% of network
2004/05*		124	3,051,000	66.1km; 480,000sqm 6.24% of network
2005/06*		106	3,110,000	52.4 km; 429,000sqm 5.43% of network
2006/07*		114	3,554,000	53.0 km;423,000sqm 5.42% of network
2007/08*		135	4,210,000	54.4 km;430,000sqm 5.58% of network
2008/09*		128	4,152,000	51.0 km;403,000sqm

2009/10*	162	4,406,809	5.03% of network 52.5 km; 413,000sqm 5.22% of network
----------	-----	-----------	-------------------------------------------------------------

**Table 6.1.1(B) Road Reconstruction**

Year	Major Renewal Jobs	No of Jobs	Expenditure \$	Quantity
1996/97	<ul style="list-style-type: none"> <li>Jamison Road – Mulgoa Road to York Road</li> <li>High Street Reconstruction</li> </ul>	5	\$2,301,700	1.8 kms
1997/98	<ul style="list-style-type: none"> <li>Dunheved Road – Greenbank Drive to Francis Street</li> <li>Forrester Road – Christie Street to Links Road</li> <li>Coreen Avenue – Lemongrove Road to Arakoon Avenue</li> <li>Surveyors Creek Road – Glenmore Parkway to Wari Ave</li> <li>Queen Street – Chapel Street to laneway to East Lane</li> </ul>	12	\$3,397,500	2.4 kms
1998/99	<ul style="list-style-type: none"> <li>Coreen Avenue – Arakoon Avenue to Parker Street</li> <li>Coreen Avenue – Lemongrove Road to SRA roundabout</li> <li>St Marys Road – South Creek to Government Road</li> <li>Queen Street – Laneway to East Lane to Station Street</li> <li>Mulgoa Road/Silverdale Road Roundabout</li> </ul>	7	\$3,354,600	3.6 kms
1999/00		7	\$3,596,000	5.8 kms
2000/01	<ul style="list-style-type: none"> <li>Queen Street, St Marys - Final Stage</li> <li>High Street, Penrith - Station Street to Riley Street</li> <li>Llandilo Road Widening Stage 2- (Fourth Rd to west 2.0km)</li> <li>Coreen Avenue - SRA roundabout to Castlereagh Road</li> <li>Glossop Street - Adelaide to Brisbane Streets</li> </ul>	10	\$4,930,000	13.0 kms (0.44% of network)

	<ul style="list-style-type: none"> <li>• Mt Vernon Road - Mamre Road for 1.2 km</li> <li>• St Clair Avenue - Completion of work commenced in 1999/00</li> <li>• Glenmore Parkway</li> <li>• Links Road Reconstruction Stage 1 (in progress)</li> <li>• Gipps Street - GWH to Caddens Road (in progress)</li> </ul>			
2001/02	<ul style="list-style-type: none"> <li>• Dunheved Cct Reconstruction</li> <li>• Links Road Reconstruction</li> <li>• Llandilo Road Widening. Spence to Fourth Ave</li> <li>• St Marys Road Reonstruction Gov't to Richmond</li> <li>• Werrington Road Reconstruction</li> <li>• The Northern Road Widening (in progress)</li> <li>• Dunheved Road – Werrington Road – Service Station</li> <li>• Gipps Street Reconstruction</li> <li>• Brisbane Street – Sydney to Perth</li> <li>• Melbourne Street – Adelaide to Canberra</li> <li>• Australia Street – Adelaide to GWH</li> <li>• Jackaranda – Wattle to Willow</li> <li>• Glossop Street – Brisbane to Hobart</li> <li>• Kerrs Road/Mt Vernon Road</li> <li>• Craig Ave</li> </ul>	15	4,156,000	8.150 kms (1.03% of network)
2002/03	<ul style="list-style-type: none"> <li>• Henry St – Evan St to Doonmore St</li> <li>• Henry St – North St to Doonmore St</li> <li>• Poplar St – Kurrajong St to Debrincat Ave</li> <li>• Dunheved Cct – Charles St to loop</li> <li>• Fragar Rd – Treetops Ave to Bluegum Ave</li> <li>• Glossop St – Hobart to Brisbane St</li> <li>• Brisbane St – Perth St to Melbourne St</li> <li>• Second Ave – Fourth Ave to Eighth Ave</li> <li>• High St – Henry St to 100m west of Kendall St</li> </ul>	9	2,170,000	6.0 km (0.70% of network)
2003/04	<ul style="list-style-type: none"> <li>• Glossop St – Hobart St to Kurrajong Ave</li> </ul>	21	2,542,000	3.7km

	<ul style="list-style-type: none"> <li>Banks Dr – No. 183 - 204</li> <li>Henry St – Evan St to 100m west</li> <li>Henry St – Lawson St to Woodriff St</li> <li>Forrester Rd – Harris St to railway station</li> <li>Mallee Rd – Jackaranda St to Poplar St</li> <li>Maple Rd – Mallee St to Mulga St</li> <li>Francis St – Valma Cr to cul-de-sac</li> <li>Goldie Pl – entire length</li> <li>Tanderra St – Burford St to Lennox St</li> <li>Bentley Rd – Bennett Rd to Huxley Pl</li> <li>Oleander Rd – Wattle Ave to Parklawn Pl</li> <li>Barlow St – College St to Hollier St</li> <li>Lawson St - Pyramid St to Short St</li> <li>Mt Vernon Rd – chn 400 to Georgina Rd</li> <li>Caines Cr – Shepherd St to 100m sth Witley Cl</li> <li>Sydney St – Edmondson St to Adelaide St</li> <li>Dunheved Cct – Loop to Links Rd</li> <li>Third Ave road widening – Eighth Ave to Ninth Ave</li> <li>Luddenham Rd road widening – north of pipeline</li> </ul>			(0.37% of network)
2004/05		7	2,497,000	0.4km 0.4km 1.6km (0.26% of network)
	<ul style="list-style-type: none"> <li>Glossop St – Kurrajong Ave to Debrincat Ave</li> <li>Forrester Rd – Harris St to 50m sth Glossop St</li> <li>Valance St – Severn St to 430m east</li> <li>Henry St – Woodriff St to Station St</li> <li>Mt Vernon Rd – Georgina Rd to 400m north</li> <li>Luddenham Rd road widening – South Creek bridge to 400m south</li> </ul>			0.4km

2005/06	<ul style="list-style-type: none"> <li>Henry St - Station St to Riley St</li> <li>Glossop St – Wattle Ave to Forrester Rd</li> <li>Adelaide St – Melbourne St to Perth St</li> <li>Power St – 80m sth Wordoo St to Anne St</li> <li>Cedar Cr – Debrincat Ave to end of road</li> <li>Explorers Way – Bennett Rd to Todman Pl</li> <li>Surveyors Creek Rd – Wari Ave to 180m nth</li> <li>Luddenham Rd – 400m sth of South Creek bridge to 1100m south of South Creek bridge</li> </ul>	10	2,597,000	3.2km (0.41% of network)       0.7km
2006/07	<ul style="list-style-type: none"> <li>Explorers Way – Todman Pl to Leicester Pl</li> <li>Surveyors Creek Road – The Lakes Dr to 180m South</li> <li>Forrester Rd – Glossop St to Catalina St</li> <li>Seventh Ave- Wilson Park to Third Ave</li> <li>Charles St – Dunheved Cct to 600m east</li> <li>Luddenham Rd – 1420m sth Mamre to 1730m sth Mamre</li> </ul>	6	2,241,000	2.2km (0.38% of network)     0.3km
2007/08	<ul style="list-style-type: none"> <li>Bent St – Tresco St to Anne St</li> <li>Sydney St – Edmondson St to GWH</li> <li>Forrester Road – Catalina St to 200m north</li> <li>Jamison Rd – York Rd to east of Castlereagh St</li> <li>Luddenham Road – 1km sth Twin Creek s Dr to 2km sth Twin Creeks Dr</li> <li>Mackellar St – capark to end of road</li> </ul>	6	2,437,000	2.1km (0.39% of network)    1.0km
2008/09	<ul style="list-style-type: none"> <li>Luddenham Road – 2km sth Twin Creeks Dr to Elizabeth Drive</li> <li>Shepherd St – Dead end to Marsden Road</li> <li>Debrincat Ave – Cedar Cr to Maple Road</li> <li>Forrester Road – (1/2 only) – 200m north Catalina to Commonwealth Cr</li> </ul>	4	2,450,500	3.5km (0.53% of network) 1.1km



2009/10	<ul style="list-style-type: none"> <li>Forrester Road</li> <li>Harwood Circuit</li> <li>Woodlands Drive</li> <li>Penrith Cemetery (construction - \$229,000)</li> </ul>	4	1,167,125	1.0km (0.18% of network) (excludes new construction length)
---------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---	-----------	-------------------------------------------------------------------

The above projects have occurred reactively to cater for various service requests by the community and to achieve strategic goals set by Council. The Transport Asset Category has a particularly long residual life and therefore regular and constant renewal is not required. Rather the Transport services and maintenance service perform regular maintenance works to ensure that all the functional Levels of Service are achieved. Due to the irregular events of renewal works, renewal expenditure cannot be projected or planned accurately. This plan as indicated by Figure 8 assumes that as the total asset replacement value increases and as the asset stock increases the amount of renewal expenditure amount would typically equal to 0.5% to 2.0% of the current total asset replacement value.

Table 6.1.2 shows the gap between projected and planned renewals.

**Table 6.1.2 Projected and Planned Renewals and Expenditure Gap**

Year	Projected Renewals	Planned Renewals	Renewal Funding Gap	Cumulative Gap
2010/11	\$4,489,000.00	\$6,354,172.00	\$1,865,172.00	\$1,865,172.00
2011/12	\$4,489,000.00	\$4,561,904.00	\$72,904.00	\$1,938,076.00
2012/13	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	\$1,449,076.00
2013/14	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	\$960,076.00
2014/15	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	\$471,076.00
2015/16	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	-\$17,924.00
2016/17	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	-\$506,924.00
2017/18	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	-\$995,924.00
2018/19	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	-\$1,484,924.00
2019/20	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	-\$1,973,924.00
2020/21	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	-\$2,462,924.00
2021/22	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	-\$2,951,924.00
2022/23	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	-\$3,440,924.00
2023/24	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	-\$3,929,924.00
2024/25	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	-\$4,418,924.00
2025/26	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	-\$4,907,924.00
2026/27	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	-\$5,396,924.00
2027/28	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	-\$5,885,924.00
2028/29	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	-\$6,374,924.00
2029/30	\$4,489,000.00	\$4,000,000.00	-\$489,000.00	-\$6,863,924.00

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

Council will manage the 'gap' by developing this asset management plan to provide guidance on future service levels and resources required to provide these services, and to help reduce the implication of funding gaps that include decreased asset values, poor quality and reliability and increased maintenance and renewal costs and failure to meet the needs of the community.

Council's long term financial plan covers the first 10 years of the 20 year planning period. The total maintenance and capital renewal expenditure required over the 10 years is \$ 179 090 000.

Estimated maintenance and capital renewal expenditure in year 1 is \$ 11 169 000. The 10 year sustainability index is 0.62.

## 6.2 Funding Strategy

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

Achieving the financial strategy will require:

- Increasing revenue streams, rates and user charges;
- Cost analysis from a reduced service level and implementation;

- Deferring capital upgrades/new works and reallocate funds to capital renewal/preservation work.

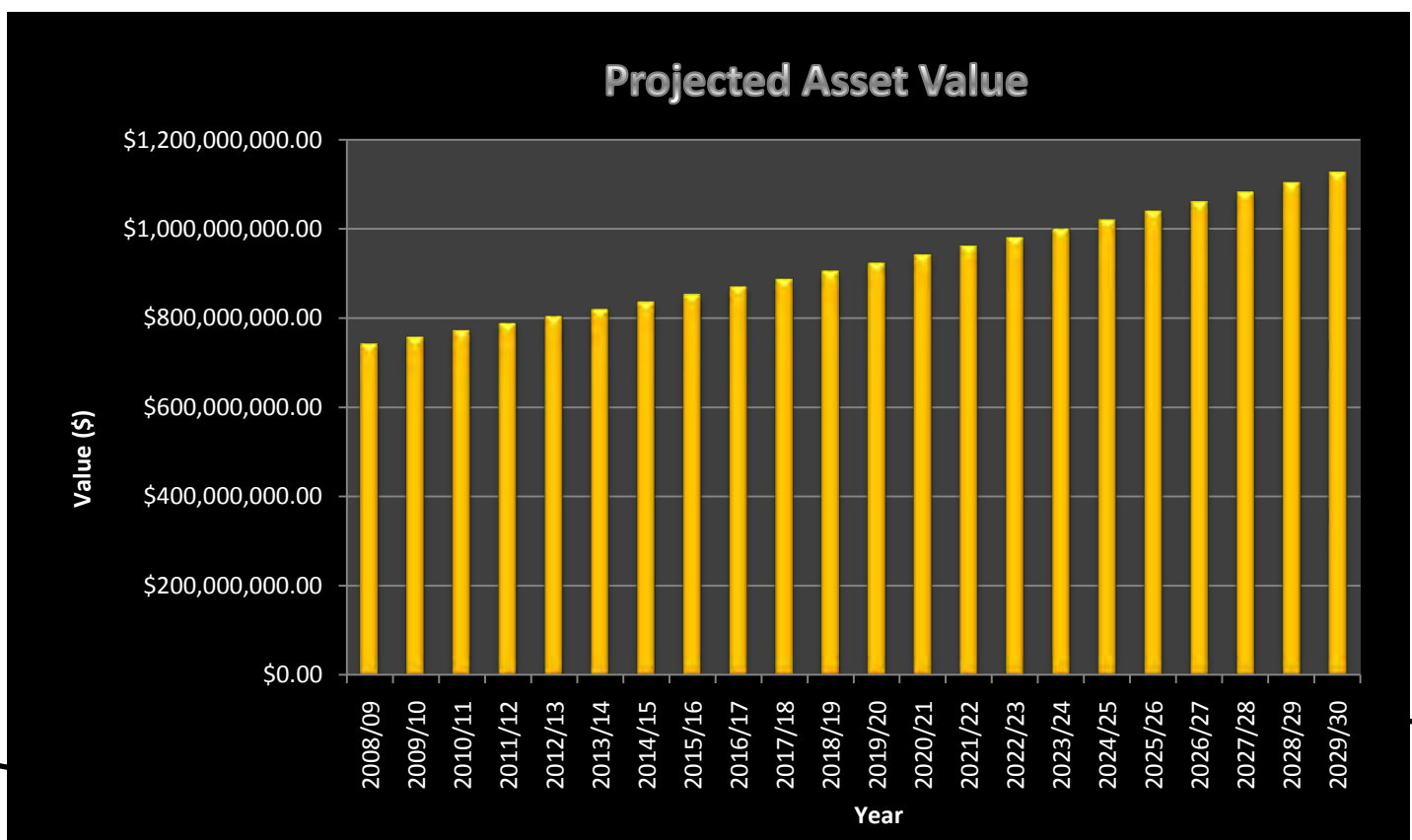
In order to reduce/eliminate the funding gap and provide the required funds for the renewal/replacement of transport assets, the following measures need to be undertaken:

1. Rationalization of asset renewal/replacement – it is very important to thoroughly investigate asset conditions, estimate the remaining of their useful life and prioritize maintenance/renewal/replacement works accordingly. Asset renewal/replacement to be carried out based on asset conditions, rather than asset age.
2. Monitor the fees and charges for maintenance/operations tasks and adjust them based on the actual cost, taking into account elevated charges during drought periods due to low water consumption as a result of water restrictions and for water treatment using activated carbon. Also, taking into account high rainfall season due to changes in weather patterns. Implementing the abovementioned measures should provide substantial savings without affecting the level of service and hence provide sufficient funds for the asset renewal/replacement as required.
3. Cost analysis from a reduced service level and implementation
4. Deferring capital upgrades/new works and reallocates funds to capital renewal/preservation work

### 6.3 Valuation Forecasts

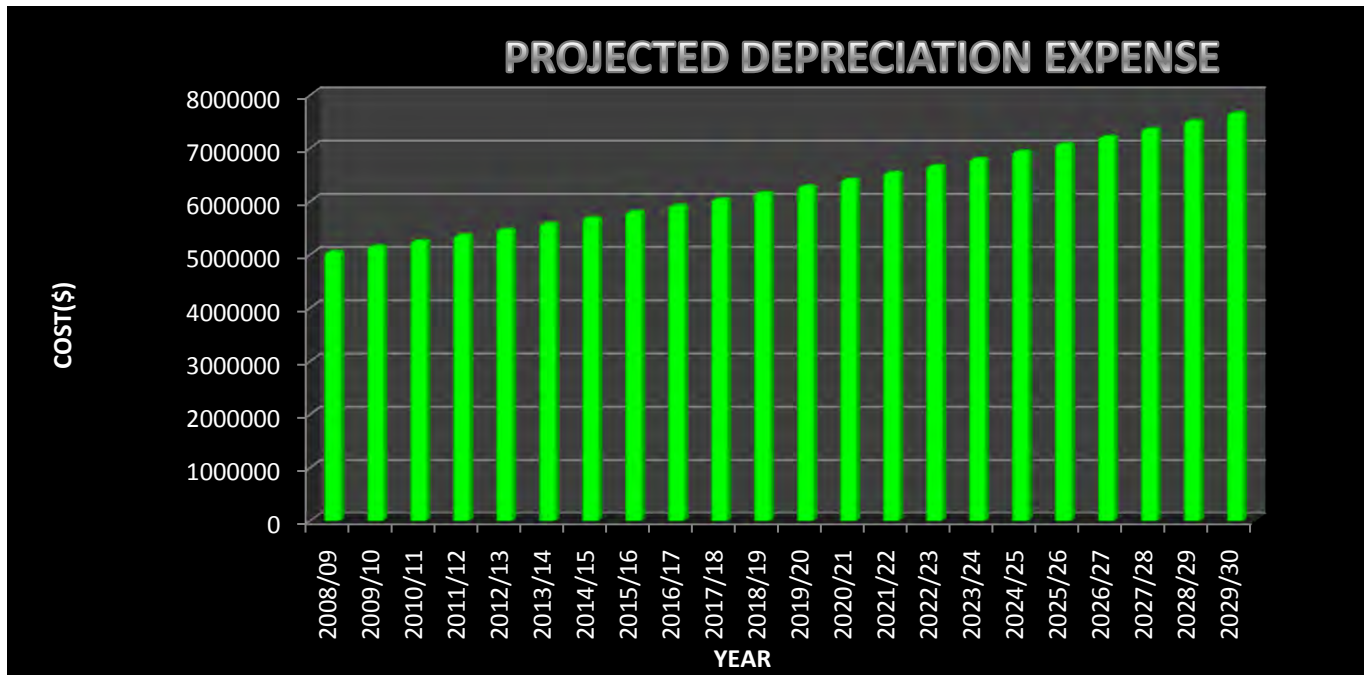
Asset values are forecast to increase as additional assets are added to the asset stock from construction, capitalisation and acquisition by Council and from assets constructed by land developers and others and donated to Council. Fig 9 shows the projected replacement cost asset values over the planning period in current 2009/10 dollar values. These projections are based on a percentage increase using the asset renewal rate.

**Fig 9 Projected Asset Values**



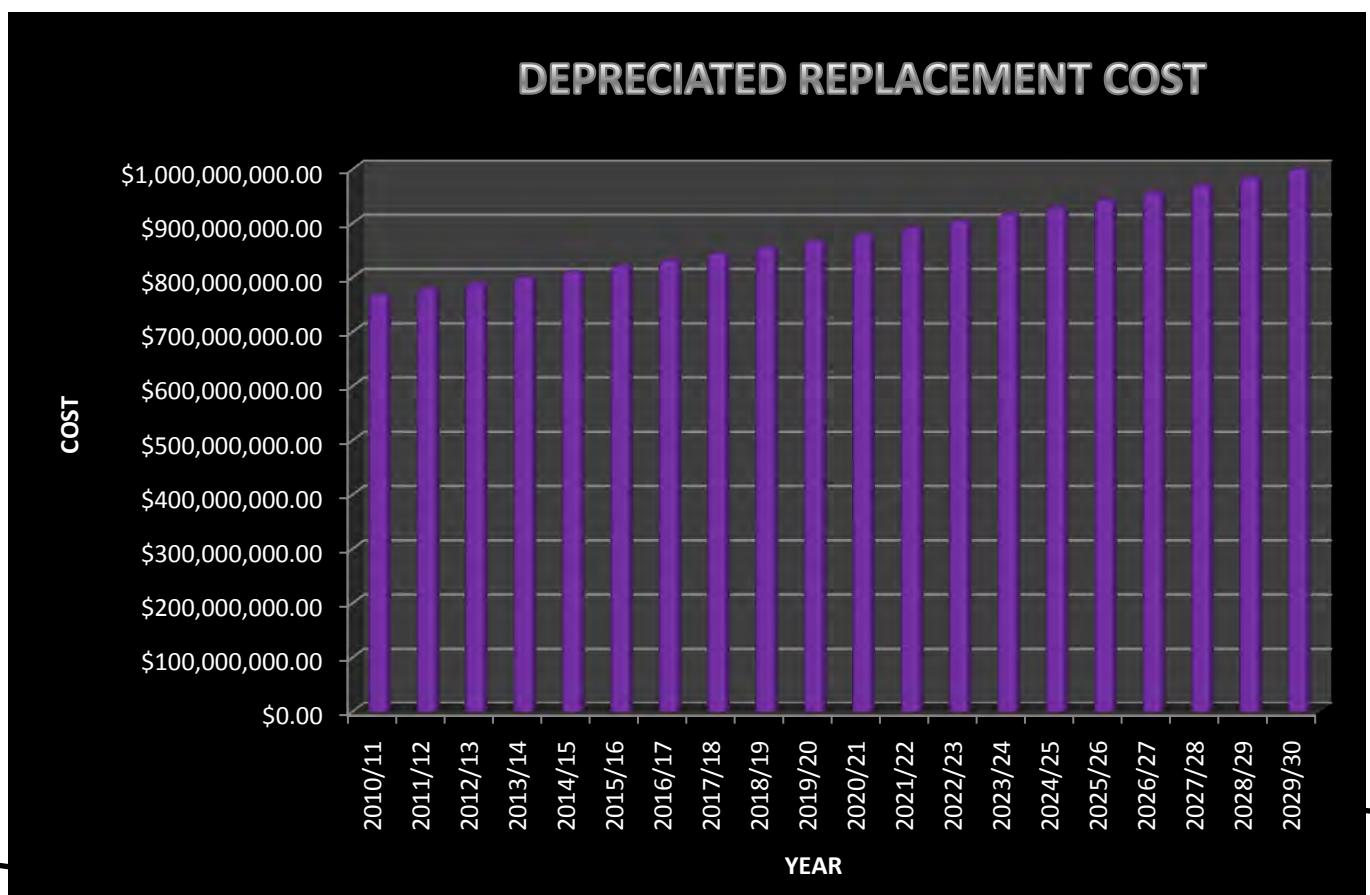
Depreciation expense values are forecast in line with asset values as shown in Fig 10. These projections are based on a percentage increase using the asset renewal rate.

**Fig 10 Projected Depreciation Expense**



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

**Fig 11 Projected Depreciated Replacement Cost**



#### **6.4 Key Assumptions made in Financial Forecasts**

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

Key assumptions made in this asset management plan are:

- Newly constructed assets will have the base allocation for the service specification increased in the subsequent financial year as per the agreed (indexed) rate in the adopted Service Specification.
- Developer constructed assets considering the whole of life costs associated with creating the assets
- Assets will remain in Council ownership throughout the planning period.
- Forecasts are based on current equipment and construction cost and will be influenced by cost increases in materials and labour.
- Asset renewal costs in years 1 to 3 are generally based on staff assessment of renewal needs, and from year 3 on, the costs are based on the life expectancy of the asset and the proposed alignment with other asset groups.
- It is assumed that new release areas in Penrith will significantly increase the population of Penrith City Council Local Government Area thus increasing the need for capital expenditure (new works and renewals).
- Accuracy of future financial forecasts may be improved in future revisions of this asset management plan by the following actions.
  - Confirming rates of development in new release areas
  - Improved tracking of operation / maintenance and rehabilitation costs.
  - Centralised asset management and data analysis.
  - The implementation of a Council wide Asset Management Plan.

## **7. ASSET MANAGEMENT PRACTICES**

This section identifies the strategies, practices and guidelines supporting Asset Management at Penrith City Council. These activities have no direct impact on the condition or performance of the asset themselves, but provide the tools and functions required to support the maintenance, renewal and enhancement plans. These functions include:

- System planning and monitoring
- System record management
- Asset management planning and policy

### **7.1 Accounting/Financial Systems**

Financial transactions are recorded in Council's corporate financial systems (currently Technology 1 – Financials).

The Finance Officers and Financial Accountants are responsible for operating the finance system. A Systems Analyst provides technical support for the systems operation and maintenance.

The Long Term Financial Plan also uses the life cycle program as a stand-alone asset management database for all infrastructure assets. Asset data is manually transferred (at a Group level) into the general ledger (Finance One).

The finance system is the responsibility of the Financial Services Group. The life cycle asset management database is the joint responsibility of the civil maintenance function and the information management function.

Council's long term Financial Model as included in the Resource Strategy demonstrates Council's financial position and its capacity to fund additional major capital expenditure, continued asset renewal and any potential increase in services or service levels. It has been prepared in accordance with the provisions of the Local Government Amendment (Planning and Reporting) Act 2009 and the associated guidelines and manual. It clearly shows that Council, with its current income, has no capacity to fund additional facilities or upgrades unless services or service levels are decreased, or additional funding sources are identified. This has particular relevance given that there is already a gap identified between planned transport asset renewals and projected transport asset renewals.

The Local Government Act 1993 requires that Council prepare and maintain all accounting records, accounts and financial statements in accordance with all relevant Australian Accounting Standards. The following accounting standards and guidelines must be complied with:

- AASB 116 Property, Plant & Equipment – prescribes requirements for recognition and depreciation of property, plant and equipment assets
- AASB 136 Impairment of Assets – aims to ensure that assets are carried at amounts that are not in excess of their recoverable amounts
- AASB 1021 Depreciation of Non-Current Assets – specifies how depreciation is to be calculated
- AAS 1001 Accounting Policies – specifies the policies that Council is to have for recognition of assets and depreciation



- AASB 1041 Accounting for the reduction of Non-Current Assets – specifies the frequency and basis of calculating depreciation and revaluation basis used for assets
- AAS 1015 Accounting for acquisition of assets – method of allocating the value to new assets on acquisition
- AAS 27 Financial reporting by Local Government
- AAS 1010 Recoverable Amounts of Non-Current Assets – specifies requirement to test the reasonableness of valuations

Financial thresholds and activities have been developed to assist in determining when expenditure is capital or maintenance.

The objective of the Accounting Policy is to provide guidance around identifying, classifying, valuing, recording and disposing of non-current physical assets. This will provide for greater understanding and accuracy of Penrith City Council's capital requirements and depreciation expenses in the context of financial sustainability and intergenerational equity as well as ensuring that Penrith City Council is meeting its statutory reporting obligations.

Any changes to our current financial systems will be driven from the Service Review and the Asset Strategy Framework.

## **7.2     *Asset Management Systems***

Physical Asset data are recorded in Council's Transport Technical systems (currently SMEC)

Council is in the process of acquiring a software interface to assist in integrating SMEC data to its counterparts in Technology 1 Financials.

Responsibilities for administering asset management systems are as follows:

- Asset Systems Engineer– (SMEC)
- GIS Officer – MapInfo
- Systems Analyst – Authority

Data entry on a job by job basis is handled via several staff within Penrith City Council City Works department. It is suggested that life cycle is used as the base for a proactive and reactive maintenance program using data collected in the most recent survey.

As a result of this asset management plan, the following changes are proposed for the asset management system:

- Tighter integration with the GIS so that all assets can be located easily with some accuracy
- Transition to work order system for work planning and control
- Add additional asset data to the asset register to make the system more useful for staff
- Link customer requests with specific assets or asset types.

## **7.3     *Information Flow Requirements and Processes***

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

- The asset register data on size, age, value, remaining life of the network;

- The unit rates for categories of work/material;
- The adopted service levels;
- Projections of various factors affecting future demand for services;
- Correlations between maintenance and renewal, including decay models;
- Data on new assets acquired by council.

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

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

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

Penrith City Council in cooperation with other stake holders are in a process of establishing a system where physical data from SMEC can be easily linked to financial data in Technology 1 Financials.

Currently Council is developing it processes for recognising the creation of infrastructure assets. Council has embarked on a journey to capture the back log of asset inventory data primarily for the purposes of asset revaluation. This is on the threshold of being completed and Council recognises the importance of now maintaining the asset register as has been reflected in the asset management policy.

New assets can be realised in any one of the following ways:

- Gifted to Council from developers
- Constructed as part of a project, and
- Installed by Field Services staff

The number of gifted assets to Council is on the increase. It is important that good as-constructed information is supplied by the developer. Council has developed its own digital as-constructed information standards to ensure that this occurs. This standard, when partnered with the Engineering Design Standards, provides the developer with all the information needed to deliver high quality assets and information relating to those assets to the satisfaction of Council. Council's own Engineer ensures that developers follow the correct process for recognising new assets.

Similarly for major projects, the Project Manager is responsible for ensuring that the information pertaining to any new transport assets is provided to Council in adherence with the standards and in a timely manner. Lastly, Council is working on procedures for internal staff to follow when installing new assets. This will involve recording some detail about the new asset and its location and then passing this information to the officer responsible for updating the asset register. Currently this process is very informal.

Council recognises the sensitivity of new asset creation as opposed to maintenance or repair. Council's capitalisation policy describes in financial and non-financial terms what is considered to be a new asset (capital expenditure) and what is considered to be just maintenance. For example; a road resealing with high grades of seals is considered capital in nature or the entire task cost more than \$25,000 to complete.

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

#### **7.4     *Standards and Guidelines***

Local Government Act 1993

Protection of the Environments Act 1979

Environmental Planning and Assessment Act 1979

Occupational Health and Safety Act 2000

Roads Act 1993

Councils' Customer Service Charter

Council's Probity and Governance Policies

AS1742.3 – Traffic Control Devices for Works on Roads

RTA's Traffic Control at Work Sites Manual

Council's Aus-Spec#4 and #6 Standards

Adopted Transport Maintenance Service Specification

## 8. PLAN IMPROVEMENT AND MONITORING

### 8.1 Performance Measures

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

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

### 8.2 Improvement Plan

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

**Table 8.2      Improvement Plan**

Task No	Task	Responsibility	Resources Required	Timeline
1.	Develop distinction between maintenance and Capital works; consider in this assessment the distinction between maintenance and renewal works from a job responsibility consideration.			
2.	Undertake continual research into improved bitumen products mix design, and unsealed construction techniques			
3.	Identify areas of expected growth (in particular industrial) to assess risks to under capacity roads and bridges			
4.	Identify roads with frequent accidents for deficiencies in design and undertake road safety audits			
5.	Improve condition, attribute and component data on all transport assets			
6.	Modify Customer Request reporting to collect the necessary data for measuring customer satisfaction and responsiveness.			
7.	Modify finance system to capture expenditure against all types of maintenance – reactive, planned and cyclic.			
8.	Progressively develop and expand this plan by including other transport assets as they are quantified, valued and assessed.			

- |     |                                                                                                                                                      |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9.  | Improve condition, attribute and component data on all Transport assets                                                                              |
| 10. | Develop a policy in relation to the provision of roads, foot paths and bridges in recognition of risk management issues and climate change concerns. |

### **8.3     *Monitoring and Review Procedures***

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

The Plan will be updated annually, with a significant review occurring every four years.





## REFERENCES

Penrith City Council, 'Strategic Management Plan',

Penrith City Council, 'Annual Plan and Budget.

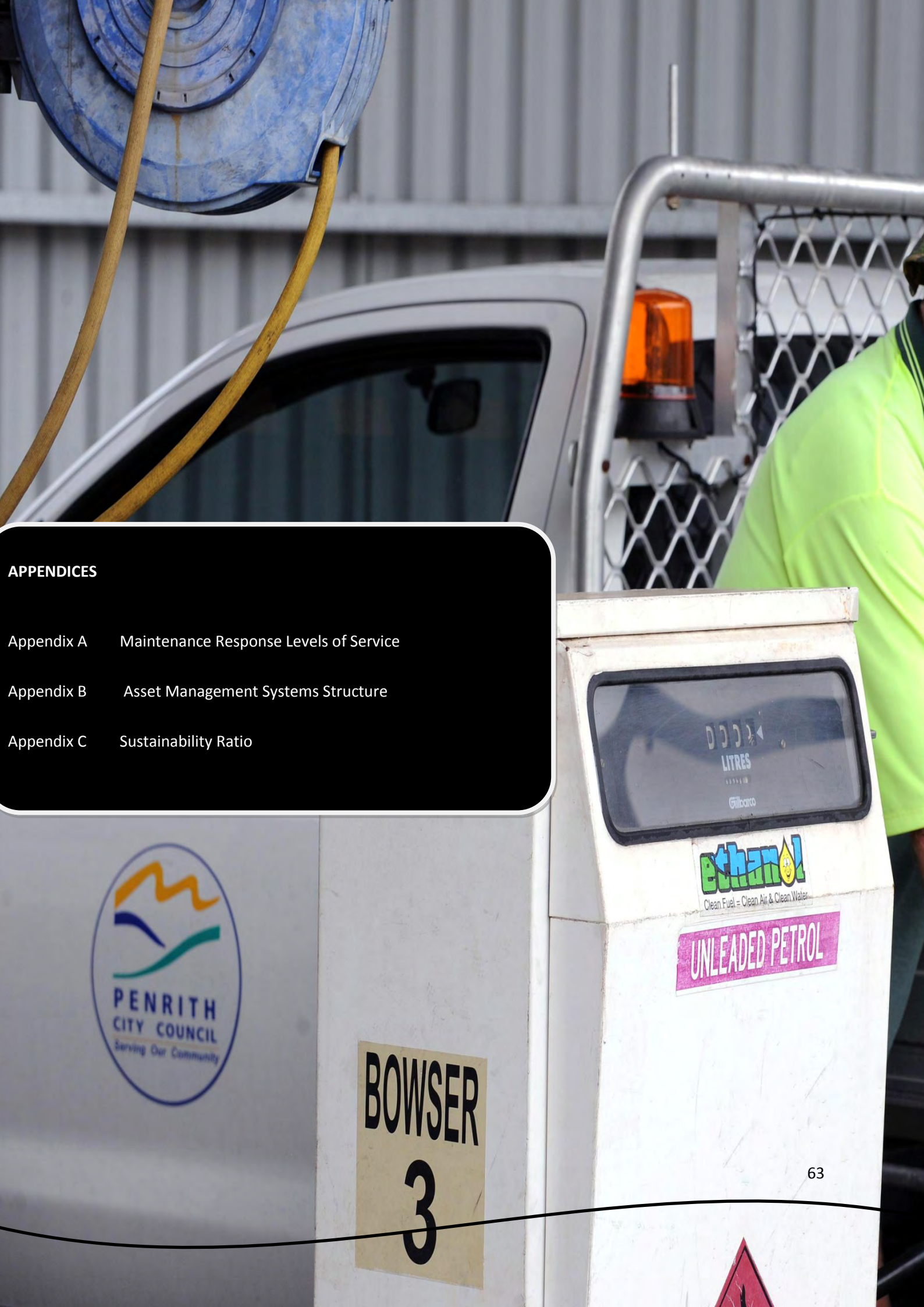
DVC, 2006, 'Asset Investment Guidelines', 'Glossary', Department for Victorian Communities, Local Government Victoria, Melbourne,  
<http://www.dvc.vic.gov.au/web20/dvclgv.nsf/allDocs/RWP1C79EC4A7225CD2FCA257170003259F6?OpenDocument>

IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australia, Sydney,  
[www.ipwea.org.au](http://www.ipwea.org.au)

Penrith City Council, Roads and Footpaths Maintenance and Management Service Specification.

Various AMP





**APPENDICES**

- Appendix A     Maintenance Response Levels of Service
- Appendix B     Asset Management Systems Structure
- Appendix C     Sustainability Ratio

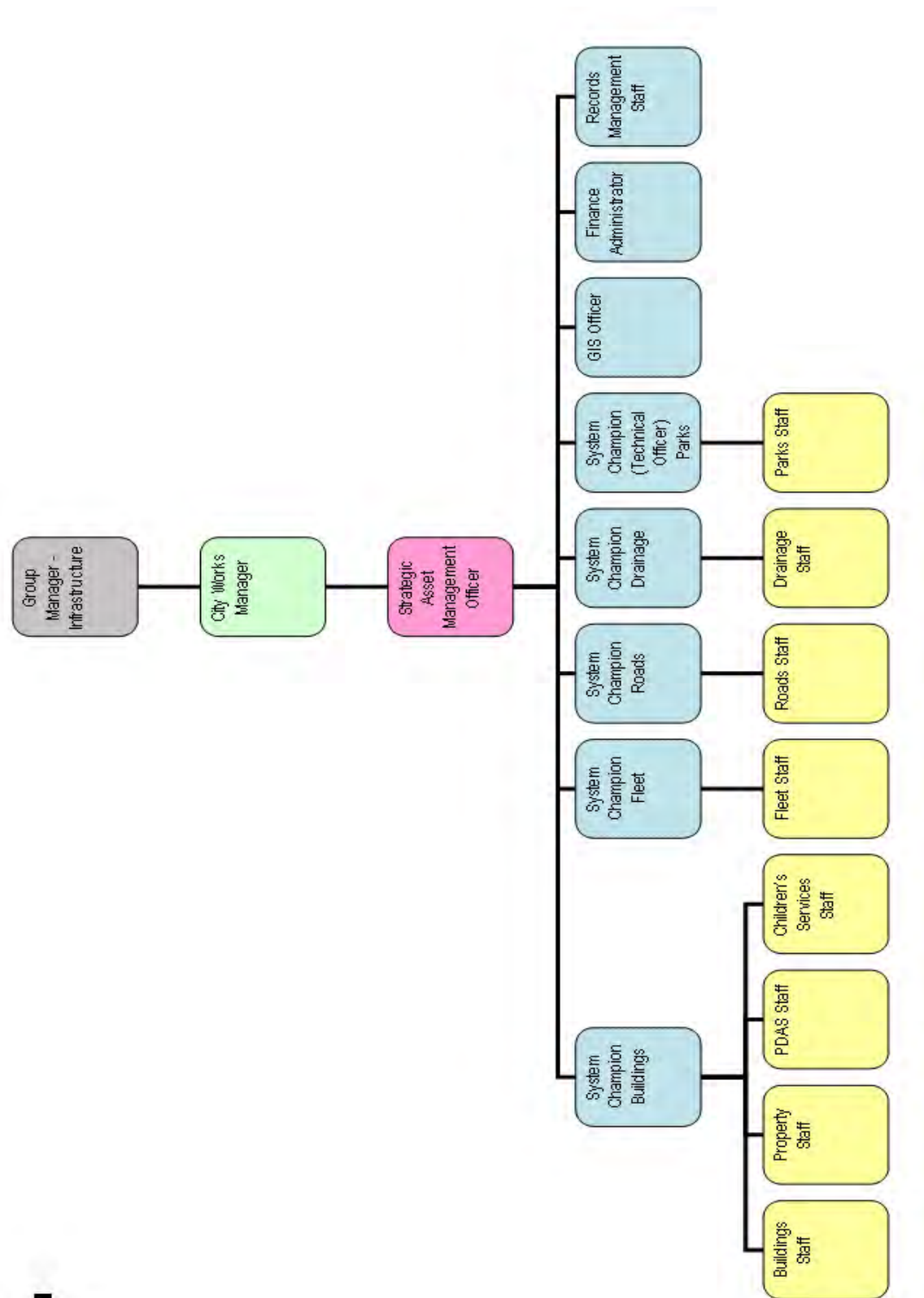
## **Appendix A     Maintenance Response Levels of Service**

Maintenance Response Indicators	LOS Target
% of community satisfied with the maintenance of local roads (medium to high satisfaction) 65.8% from 2003, 64.5% from 2005 Customer Survey	65% in 2007 survey
% of road pavement resurfaced per annum (Road Management)	5%
Average Pavement Condition Index (PCI) of Council's road network (Road Management) ~ (Average condition Index 5.0)	6.0
% of road defects meeting Council's compulsory intervention level are made safe within 5 days	100%
% of community satisfied with the overall appearance of the city (medium to high satisfaction) 89.0% from 2003, 88.6% from 2005 Customer Survey	87% in 2007 survey

**Future revisions of this plan will introduce Key Performance Indicators to maintain the Level of Service for this Asset Category.**

## Appendix B Asset Management Systems Structure

Responsibilities for administering asset management systems are as follows:



## Appendix C Sustainability Ratio

Transport 10 Year Scenario			Notes
10 Year Sustainability Ratio			Renewal and Maintenance
Required 10 Year	Total (\$)	Annual (\$)	
Renewal	\$44,890,000.00	\$4,489,000.00	
Maintenance	\$134,200,000.00	\$13,420,000.00	
Total	\$179,090,000.00	\$17,909,000.00	
Planned 10 Year	Total (\$)	Annual (\$)	
Renewal	\$0.00	\$0.00	
Maintenance	\$111,690,000.00	\$11,169,000.00	
Total	\$111,690,000.00	\$11,169,000.00	
10 Year Sustainability Ratio			
Planned		\$111,690,000.00	
Required		\$179,090,000.00	
Ratio		0.62	
Average Annual Lifecycle Sustainability Ratio			
Lifecycle Cost		Annual (\$)	
Renewal	AAAC	\$5,252,000.00	
Maintenance	10 Year Average	\$13,420,000.00	
Total		\$18,672,000.00	
Lifecycle Expenditure		Annual (\$)	
Renewal	10 Year Average	\$0.00	
Maintenance	10 Year Average	\$11,169,000.00	
Total		\$11,169,000.00	
Average Annual Lifecycle Sustainability Ratio			
Planned		\$11,169,000.00	
Required		\$18,672,000.00	
Ratio		0.60	

THIS PAGE HAS BEEN LEFT BLANK

THIS PAGE HAS BEEN LEFT BLANK





## **Penrith City Council**

Proudly printed in-house at Penrith City Council on 100% recycled paper.

For more information contact Penrith City Council's  
Asset Systems team on 02 4732 7910

Penrith City Council, 601 High St, Penrith NSW 2750

Telephone: 02 4732 7777

Website: [www.penrithcity.nsw.gov.au](http://www.penrithcity.nsw.gov.au)

## Interpreting Assistance

ENGLISH	If you do not understand this, please contact the Telephone Interpreting Service on 131 450 and ask them to contact Penrith City Council on your behalf on (02) 4732 7777. Or come to the Council offices and ask for an interpreter.
ARABIC	إذا لم يكن بإمكانك قراءة النص أعلاه، الرجاء الاتصال بخدمات الترجمة الفورية الهاتفية (TIS) على الرقم 131 450 والطلب منهم الاتصال بدورهم بمجلس مدينة بنريث نيابة عنك على الرقم 4732 7777 (02). أو يمكنك الحضور إلى المجلس وطلب ترتيب مترجم فوري لك.
CHINESE	如果您无法阅读这些文字，请致电 131 450 联系电话传译服务中心，请他们代您拨打 (02) 4732 7777 联系 Penrith 市议会。您也可以亲自到市议会来并要求获得口译服务。
GREEK	Αν δεν μπορείτε να το διαβάσετε αυτό, τηλεφωνήστε στην Τηλεφωνική Υπηρεσία Διερμηνέων στο 131 450 και ζητήστε τους να επικοινωνήσουν με το Δήμο Penrith (Penrith City Council) για λογαριασμό σας στον αριθμό (02) 4732 7777, ή ελάτε στη Δημαρχία και ζητήστε διερμηνέα.
HINDI	यदि आप इसे नहीं पढ़ पाते हैं, तो कृपया 131 450 पर टेलीफोन दुभाषिया सेवा से संपर्क करें और उनसे कहें कि वे आपकी ओर से पेनरिथ सिटी काउंसिल से (02) 4732 7777 पर संपर्क करें. या आप काउंसिल आएँ और एक दुभाषिया की माँग करें.
ITALIAN	Se non riuscite a leggere questo, contattate il servizio telefonico di interpretariato al numero 131 450 e chiedetegli di contattare da parte vostra il comune di Penrith City al numero (02) 4732 7777 oppure venite in comune e richiedete un interprete.
MALTESE	Jekk ma tistax taqra dan, jekk jogħġbok, ikkuntattja lit-Telephone Interpreting Service fuq 131 450 u itlobhom biex jikkuntattjaw Penrith City Council f'isemk fuq (02) 4732 7777. Jew ejja l-Kunsill u itlob għal interpretu.
PERSIAN	اگر نمی توانید این مطلب را بخوانید، لطفاً به خدمات ترجمه تلفنی به شماره 131 450 زنگ بزنید و از آنان بخواهید با شورای شهر پنریث Penrith City Council به شمار 4732 7777 (02) از جانب شما تماس بگیرند. یا اینکه به شهرداری Council آمده و مترجم بخواهید.
SINGHALESE	ඔබට මෙම කියවීමට නොහැකි නම්, කරුණාකර දුරකථන අංක 131 450 ඔබගේ දුරකථන පරිවර්තන සේවාව (Telephone Interpreting Service) අමතා ඔබ වෙනුවෙන් දුරකථන අංක (02) 4732 7777 අමතා පෙන්වන තරු සභාව (Penrith City Council) හා සම්බන්ධ කර දෙන ලෙස ඉල්ලා සිටින්න. නැතිනම් තරු සභාව වෙත පැමිණි නොපැමිණිවීමකට ලක්ව දෙන ලෙස ඉල්ලා සිටින්න.
TAMIL	இதை உங்களால் வாசிக்க இயலவில்லை என்றால், 'தொலைபேசி உரைபெயர்ப்பு சேவையை 131 450 எனும் இலக்கத்தில் அழைத்து 'பென்றித் நகரவையுடன்' (02) 4732 7777 எனும் இலக்கத்தில் உங்கள் சார்பாக தொடர்பு கொள்ளுமாறு கேளுங்கள். அல்லது நகரவைக்கு விஜயம் செய்து உரைபெயர்ப்பாளர் ஒருவர் வேண்டுமெனக் கேளுங்கள்.
VIETNAMESE	Nếu quý vị không thể đọc được thông tin này, xin liên lạc Dịch Vụ Thông Dịch Qua Điện Thoại ở số 131 450 và yêu cầu họ thay mặt quý vị liên lạc với Hội Đồng Thành Phố Penrith ở số (02) 4732 7777. Hoặc hãy tới Hội Đồng và yêu cầu có thông dịch viên.

<b>Contact:</b>	Penrith City Council Civic Centre 601 High Street Penrith NSW	Telephone: 02 4732 7777 Facsimile: 02 4732 7958 E-Mail: <a href="mailto:pencit@penrithcity.nsw.gov.au">pencit@penrithcity.nsw.gov.au</a>
-----------------	------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------