A Wellington Blayney Cabonne Strategic Alliance Project

Blayney Shire Council

Transportation Asset Management Plan

December 2013

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Transportation Asset Management Plan

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1.0 Executive Summary - Addendum

This Asset management Plan was developed based on the level of funding necessary for the long term renewal, maintenance and operation of Councils assets in a sustainable manner. It also allowed for a gradual reduction in the asset renewal back log.

At its Ordinary meeting held 11 November 2013 Council resolved the following:

1. *That Council apply to IPART for a Special Rate Variation of 6% across all rating categories for 2 years starting 2014/2015 financial year excluding existing Special Rate Variations in place;*
2. *That Council modifies its Long Term Financial Plan to project rate increases of 6% for Farmland rate category and 10% for all other categories, excluding existing Special Rate Variations in place, for 4 years starting financial year 2016/2017;*
3. *That Council undertake a review of the rating structure to combine rate groups and review the base rate for the new rate descriptions;*
4. *That Council provide advice through the local media and councils newsletters as to the decision of Council on the special rate variation; and*
5. *That Council work with Village committees and NSW Farmers to consider, review and develop the future special rate variation from 2016/2017.*

In line with the resolution, the projected funding available in the Long Term Financial Plan has decreased. As a result of this the expenditure levels (for operations, maintenance, renewal and new asset spending) contained within this Asset Management Plan will be reviewed. The revised planned funding levels will not be adequate and will require levels of service from these assets to be reduced to align with available funding.

While reading this document, the reader should be aware that all of the expenditure levels contained in this document will be reduced to reflect the adopted funding model, as per resolution(s) of Council for Special Variation(s) to General Income. This will impact on the reported sustainability indices for these assets and result in a growing asset renewal gap.

Executive Summary

Preparation of this Transportation Asset Management Plan (TAMP) represents the second phase of the Asset Management Plan development project by the Wellington Blayney Cabonne Strategic Alliance (WBCSA) of Councils. This second phase of the project introduces the asset classes of bridges & rural culverts, kerb & gutter, footpaths and urban stormwater drainage to join road assets as developed in phase one of the project.

The WBC strategic alliance was formed in 2003 as a mechanism to bring economies of scale and increase the range and quality of services to residents, improve lifestyle, and where possible, reduce the cost of these services to ratepayers. The alliance has identified the need to demonstrate the responsible and sustainable management of its community infrastructure. The preparation and ongoing development of this Transportation Asset Management Plan will give the WBCSA member Councils the necessary instrument to demonstrate to the public and other stakeholders the sustainable management of their infrastructure assets and also act as an internal planning and management tool to guide both day-to-day and long term management of each Council's asset infrastructure.

In order to establish a common basis for asset management in the three participating WBCSA member Councils, common attributes have been established across the TAMP documents prepared for each Council. Key common attributes between all Asset Management Plans include:

- Level of Service
- Asset Hierarchy
- Asset Inspection methodologies
- Defect interventions and response times.

Though the above common attributes have been adopted across all Asset Management Plans, separate planning documents have been prepared for each member Council. This is due to the differing characteristics of each Council in terms of:

- Existing asset network extents and conditions;
- Differing demands and growth patterns for each LGA;
- Differing financial demands and 20 year financial forecasts.

In summary, the asset networks of the three WBCSA member Councils are as follows:

	Wellington Council	Blayney Shire Council	Cabonne Council
Road Assets			
Regional Roads	177.6 km	43.7 km	217.0 km
Local Roads	1,234 km	723 km	1,838 km
Bridges			
Regional Roads	4,332 m^2	1,093 m^2	5,446 m^2
Local Roads	4,856 m^2	5,920 m^2	13,786 m^2
Kerb & Gutter			
All types	58.61 km	65.93 km	58.47 km
Footpaths			
All types	40,915 m^2	36,753 m^2	38,754 m^2
Urban Stormwater Drainage			
All types	25.3 km	17.4 km	N/A

Asset Hierarchies

A key objective of preparation of the Transportation Asset Management Plan is to establish a common set of guiding criteria to be used by all three of the WBCSA member Councils. This has led to the establishment of common methodologies for determination of asset hierarchy across the three WBCSA Councils.

Road asset hierarchies have been based on AUSPEC4 methodologies and establish a six tiered hierarchical table. Asset hierarchies are based on a description of the road's function within the greater road network, rather than a table of absolute traffic volumes or other set criteria. This is to allow elements of professional judgement to be used in determination of appropriate classifications, given the significant variation in network function, use and density across the Council areas. Hierarchical levels have been developed to cover the broad range of function on Council's road network, from high trafficked, major arterial routes; through to road reserves or laneways that have little or any road formation development and serve as secondary accesses only.

Bridge asset hierarchies have been based on the type or method of construction for the assets. This is due to the fact that the asset's type of construction (timber bridges for instance) have a much greater influence in asset condition or deterioration than the asset's position in the road hierarchy.

Other asset classes (kerb & gutter, footpaths and stormwater) have had hierarchical classifications founded on simplified two or three level systems based on the asset's setting (i.e. urban commercial, urban residential or rural location).

The hierarchy tables drive subsequent activities such as:

- Inspection frequencies;
- Defect Intervention level and response times;
- Asset levels of service.

Customer Level of Service

Development of customer levels of service has been undertaken following the same methodology as that of asset hierarchies, namely with the aim of adoption of a common set of guiding criteria to be used by all three of the WBCSA member Councils. Customer levels of service support the Council's strategic goals and are based on customer expectations and statutory requirements. They are used to inform customers of proposed types and levels of services offered by Council for a particular asset classification or hierarchy.

Council relies on customer input and feedback from various forums to guide allocation of resources and forward planning. This Transportation Asset Management Plan seeks to rationalise this community input against the technical needs of Council's asset networks to ensure the sustainable management of the assets in the longer term.

Tables have been developed detailing various Customer and Technical Levels of Service that Council's performance can be measured against.

Demand Forecasting

Analysis of statistical and other data shows that the population demographic of the Blayney Shire Council local government area is experiencing low positive population growth of the order of 0.5-1.0%, which is expected to continue over the next twenty years. All population centres in the LGA are experiencing positive growth. There is also particular focus on population growth in the eastern and northern areas of the LGA, as both urban village and Rural (Lifestyle) Residential development within

close proximity to the major regional centres of Orange and Bathurst. The Blayney Shire LGA has an ageing population trend over successive census periods, such that the over 55 years of age population is currently over three percent higher than the NSW state average.

There is no significant infrastructure expansion demand expected within the 20 year forecast period of this Transportation Asset Management Plan. The overwhelming focus of this Transportation Asset Management Plan is on the management of existing aging infrastructure, with incremental improvements to existing infrastructure to meet increasing customer expectations.

Risk Management

Blayney Shire Council does not presently have established policies on the management of corporate risk. This Transportation Asset Management Plan therefore seeks to establish the framework for future development of Council's corporate risk policies. The framework follows processes outlined in AS/NZ4360 :1999.

Risk management has not been dealt with in detail in this edition of the Asset Management Plan. Detailed development of risk management related processes and policies will be carried out as future revisions of the Asset Management Plan in conjunction with development of corporate risk policies by Council.

Life Cycle Management Plans

Lifecycle management plans have been developed for key Council asset classes, split where appropriate on the basis of their Regional or Local administrative classification. Assets are further differentiated on the basis of their adjacent land use (i.e. urban or rural), pavement surface type (i.e. sealed or unsealed), or material construction type (timber or concrete bridges for example).

Analysis of road assets was based on pavement condition data collected as part of phase one of the AMP project. Council's existing records include footpath condition data which was used for development of forecast expenditure models. Council has insufficient asset condition data though to enable thorough analysis of other asset classes considered in this report, so these have been analysed based on staff knowledge of asset condition, maintenance demands and future asset needs.

Analysis of all assets revealed that much of Council's asset network is aging but largely still serviceable, but vulnerable to damage if circumstances were to change such as traffic loadings or a severe environmental event. There also appears to be a backlog of outstanding renewal works from insufficient historical spending on these activities. Works programs have been developed from staff knowledge, field observation and analysis of the condition data to enable calculation of works and financial resources required over the 20 year forecast period.

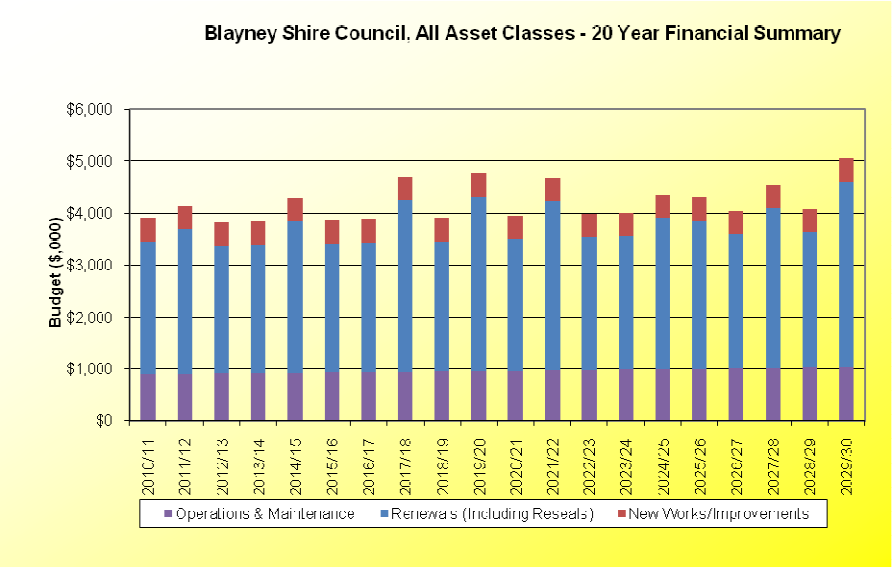
Comparison has been made between historical expenditure levels versus expenditures required to maintain adequate asset cycle lives and return a nil net reduction in asset potential. All asset classes revealed evidence that historical expenditure levels are insufficient to maintain basic asset replacement levels to limit net network aging and losses in service potential (i.e. deterioration (or depreciation) of the network outstripping renewal expenditure).

Financial Implications

Financial forecasts have been prepared, combining all asset classes, for the 20 year forecast period. Financial forecasts were prepared using sustainable expenditure levels derived from Life Cycle analyses in Section 5. Key findings from development of the financial models include:

- The LGA's asset network is largely static in nature, with very little expansion of the asset networks projected in the next 20 years. Increases in maintenance expenditure mainly relate to increased costs from increased traffic loadings over the forecast period (in the order of 1.0% growth p.a. in the case of Regional Roads).
- For all asset classes except bridges, renewal (including reseal) expenditures have been spread evenly over the forecast period to smooth cash-flow requirements. Delivery of the required reseal and renewal works to the values shown will be critical to ensuring sustainable management of the asset networks.
- Projected capital improvement works are generally limited to incidental improvement works carried out as part of reseal and renewal works and initial road sealing works.
- There is little expected measurable increase in asset size due to vesting of assets by third parties such as land developers.

The forecast expenditure for all Blayney Shire Council road asset classes over the next 20 years was determined as:



Development of this Asset Management Plan has exposed the marked gap between historical levels of expenditure on asset maintenance and renewal, versus "sustainable" expenditure levels as derived in this plan. This gap in historical expenditure shows as exceedingly aged assets and poor asset condition, and was noted in collection of road condition rating data through the high number of poor quality pavements and seals throughout Council's road network. This funding gap represents a sizable risk to Council through continued deterioration of Council's road asset networks. As the funding gap is left unabated, there is also a progressive escalation of funding needs required to undertake works to bring the network condition and performance back to desirable levels.

Improvement Plan

A key part of the asset management cycle is the identification of improvements to the system and their integration back into the Asset Management system. The development of this Asset Management Plan has identified several improvement actions that if implemented would improve the robustness of Council's management of its road infrastructure assets.

Several recommendations in the Improvement Plan identified in this section revolve around development of improved data and information management systems by Council. These systems will seek to increase Council's knowledge of the performance of assets under its management and provide a better knowledge base to make informed future management decisions.

2.0 Introduction

2.1 Objectives of this Plan

Council's asset infrastructure represents a significant investment by the community and is vital to its health and well-being. The overall objective of asset management is to demonstrate the responsible and sustainable management of these community assets.

The specific purpose of this plan is to:

- Demonstrate responsible stewardship;
- Define and articulate how the infrastructure is and will be managed to achieve Council's objectives;
- Determine appropriate levels of service;
- Manage risk of asset failure;
- Achieve savings by optimising whole of life costs
- Support long term financial planning; and
- Demonstrate compliance with statutory and regulatory requirements.

2.2 Scope of This Plan

Preparation of this Transportation Asset Management Plan (TAMP) represents the second phase of the Asset Management Plan development project by the Wellington Blayney Cabonne Strategic Alliance (WBCSA) of Councils. This second phase of the project introduces the asset classes of bridges & rural culverts, kerb & gutter, footpaths and urban stormwater drainage to join road assets as developed in phase one of the project.

This project entails the preparation of Transportation Asset Management Plans for the three Local Government authorities making up the Wellington Blayney Cabonne Strategic Alliance (WBCSA). The WBCSA was formed in 2003 as a mechanism to bring economies of scale and increase the range and quality of services to residents, improve lifestyle, and where possible, reduce the cost of these services to ratepayers. The WBCSA is made up of the local governments of Wellington Council, Blayney Shire Council and Cabonne Council and Central Tablelands Water.

The Blayney Shire Council local government area is 1,618 square kilometres in size, with a population of 6,364 (2006 Census). The main administrative centre of Blayney is located approximately 32 km south of Orange, or 235 km west of Sydney. The Blayney local government area is bounded by the adjacent local government areas of Bathurst, Orange, Cabonne, and Cowra.

The Council area contains the major population centres of Blayney (2,745), Millthorpe (725), Lyndhurst (258) and Carcoar (218). (2006 Census)

The Blayney Shire Council local government area is predominantly rural in nature, supporting primary industries such as dairying, beef, lamb, wool, viticulture, orchards, potatoes, canola and other grains. The LGA also supports Industrial activities including mining, manufacturing, transportation and food processing.

Blayney Shire Council is the southern of the three WBCSA Councils, being bounded to the north by Cabonne Council.

Source: NSW Dept Local Government

The scope and value of the assets covered by this plan are identified in the following table:

		Asset Extent	Replacement Value ($,000)
Road Assets	Regional Roads	43.7 km	$ 3,172.0
	Local Roads	723 km	$ 119,827.7
Bridges	Regional Roads	5,920 m^2	$ 3,689.8
	Local Roads	1,093 m^2	$ 22,200.5
Kerb & Gutter	All types	65.93 km	$ 8,219.8
Footpaths	All types	36,753 m^2	$ 3,494.4
Urban Stormwater Drainage	All types	17.4 km	$ 6,691.0
		Total	**$ 167,298.5**

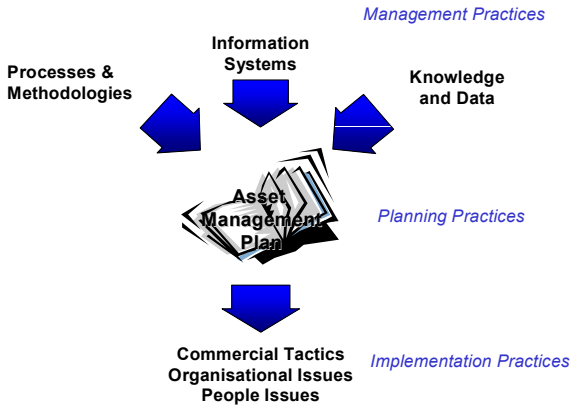
2.3 The Asset Management Plan

The Asset Management Plan is a tool combining management, financial, engineering and technical practices to ensure the level of service required by customers is provided at the most economical cost to the community. The plan is also intended to protect the environmental and cultural values of the assets providing the service.

The Asset Management Plan is a tactical plan that translates broad strategic goals and plans into specific goals and objectives relevant to a particular activity for the organisation. It may be regarded as a tactical plan for implementing infrastructure related strategies, which arise from the strategic planning process.

Tactical planning involves the development of separate sub-plans that allocate resources (natural, physical, financial, etc) to achieve strategic goals through meeting defined levels of service.

The plan is the medium by which Council articulates its management of infrastructure to achieve the desired outcomes.



The scope of the Asset Management Plan relates to the four broad Asset Management Plan inputs and outputs.

Processes: The processes, analysis and evaluation techniques needed to support effective lifecycle asset management.

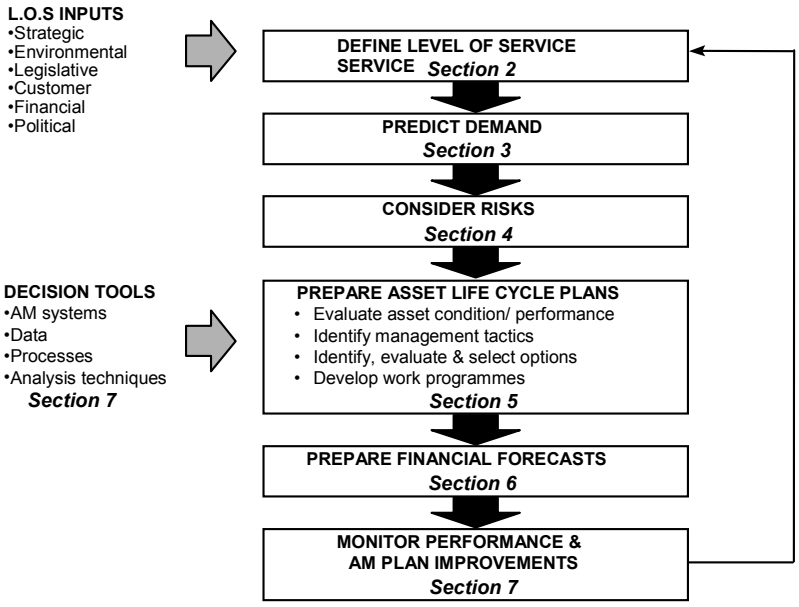
Information Systems: The information systems to support asset management processes and manipulate data.

Data: Appropriate, accessible and reliable data for manipulation by information systems to produce the outputs required.

Implementation Tactics: Including organisation, contractual and people issues.

2.4 Plan Format

The figure below follows the logic of the asset management planning process and illustrates the relevant Asset Management Plan section references in this plan.



2.5 Key Stakeholders

This plan is intended to demonstrate to stakeholders that Council is managing its vested assets responsibly. The key stakeholders include:

- Government;
- Councillors;
- Community;
- Visitors;
- Utilities/Developers;
- Employees/Volunteers;
- Contractors/Suppliers; and
- Insurers.

2.6 Legislative Requirements

The following key legislation is central to the management of the subject assets by the WBCSA member Councils. Compliance with them is considered essential to the satisfactory management of the subject infrastructure assets.

Local Government Act 1993
Roads Act 1993
Environment Planning & Assessment Act 1979
Occupational Health & Safety Act 2000
Native Vegetation Act 2003

2.7 Relationships With Other Plans

Asset Management Plans are a key component of the Council planning process and link with the following plans and documents:

- Strategic 2025 Vision – Council's 2025 Strategic Vision sets Council's corporate long-term vision and goals across all operating areas. It provides focus and direction for the development of subsequent Management Plans and other planning documents.
- Management Plan – The Management Plan provides Council's budget projections and sets Council's goals and strategy for the next five years. It is the key tool for setting of Council's short/medium-term budgets and corporate objectives.
- Contracts – The service levels, strategies and information requirements contained in the Asset Management Plans are translated into contract specifications and reporting requirements.
- Local Laws, standards and policies – These tools for asset creation and subsequent management are needed to support Asset Management tactics.

2.8 Rationale for Asset Ownership

Local Authorities exist principally to supply core services that meet the needs of their communities. What services are provided, and how they are provided, depends on the level of service required by the community. Council has the option of owning road assets or supporting private sector developers/landowners in the provision of roads through development of private access roads and right-of-ways in accordance with engineering standards and planning objectives.

Transportation is generally regarded as the most essential activity associated with enhancing the region's economy and accessibility.

3.0 Levels of Service

3.1 Introduction

Levels of Service provide the basis for the life cycle management strategies and works program identified within the Transportation Asset Management Plan. They support the Council's strategic goals and are based on customer expectations and statutory requirements.

The levels of service will be refined over a period of time to match the expectation of customers, which requires a clear understanding of customer needs, expectations, preferences and their willingness to pay for any increase in the levels of service.

The levels of service in this Section will be used:

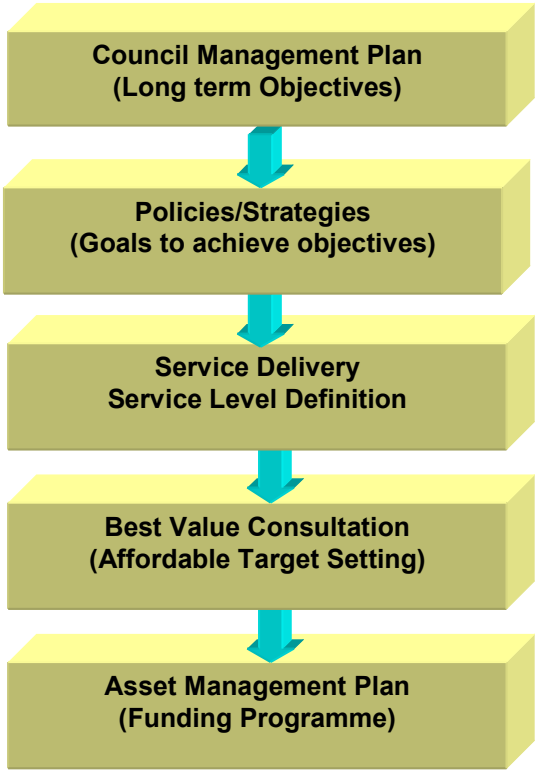
- to inform customers of the proposed type and level of service to be offered;
- to identify the costs and benefits of the services offered;
- to enable customers to asses suitability, affordability and equity of the services offered;
- as a measure of the effectiveness of the Transportation Asset Management Plan, and;
- as a focus for the Transportation Asset Management strategies developed to deliver the required level of service

The levels of service outlined in this Section are based on:

- Strategic and Corporate Goals;
- Availability of resources, particularly financial constraints;
- Council policies and procedures;
- Legislation, Regulations, Environmental Standards and Council Local Laws that impact on the way assets are managed;
- Design Standards and Codes of Practice;
- Feedback from customers on expected quality and cost of services
- Research conducted to predict future trends.
- Community Research and Expectations

Australian Design Standards also provide the minimum design parameters for infrastructure delivery by the engineering professionals.

The relationship between of levels of service with key Council plans is outlined in the figure below:



3.2 Levels of Service Requirements

Council will strive to provide a high level of customer service in the management of its community infrastructure. The following table identifies the necessary criteria to develop appropriate levels of service by considering legislative, customer and strategic needs as shown below.

LEGISLATIVE	
Key Service / Performance Criteria	**Reference:**
1. Responsibility for sustainable management of assets, including preparation of long-term financial plans. 2. Ensuring the safety of employees and the public 3. Environmental compliance	Local Government Act 1993 Roads Act 1993 Occupational Health & Safety Act 2000 Environment Planning & Assessment Act 1979
CUSTOMER	
Key Service / Performance Criteria	**Reference:**
1. Reliability and performance 2. Safety 3. Cost and affordability	Customer research & feedback
STRATEGIC / CORPORATE GOALS	
Key Service / Performance Criteria	**Reference:**

1. Sustainable management of community assets. 2. Provide a safe road network 3. Economic management 4. Legislative compliance 5. Customer Satisfaction	Management Plan Long Term Financial Plan Annual Plan

3.3 Community Research and Expectations

Council's customer research into infrastructure assets needs and satisfaction has included:

- Periodic community Focus Group meetings.
- Feedback from community Progress Associations.
- General customer complaints and feedback.

Key issues for dissatisfaction/complaint received from the above sources is summarised as follows:

- Condition, including dust nuisance from unsealed roads.
- Potholes.
- Footpath trip hazards.
- Slippery unsealed roads during wet conditions.

Customer feedback information is used in the allocation of resources and forward planning and budgets.

3.4 Strategic and Corporate Goals

3.4.1 WBC Strategic Alliance

The Wellington Blayney Cabonne Strategic Alliance Constitution lists a key objective of the WBCSA is to:

"…create a formal strategic alliance between the three councils (and such other councils as may be subsequently identified) to benefit from economies of scale and increase the range and quality of services to residents, improve lifestyle, and where possible, to reduce the cost of these services to ratepayers."

The WBCSA 2007 Annual Report makes the following statement with respect to management of infrastructure assets:

"…Asset management and infrastructure renewal is a major issue for all levels of Government and the proactive stance by the Alliance can only facilitate an integrated approach by our member Councils for the benefit of not only our current ratepayers and residents, but those into the future."

Though there are Asset Management policies specific to each member Council, the purpose of the WBCSA is to facilitate an integrated approach to management of infrastructure assets and to achieve economies of scale through joint procurement of asset management professional services.

3.4.2 Blayney Shire Council

Blayney Shire Council's corporate Vision and Mission are as follows:

Council's Vision : *To ensure that Blayney Shire Council is an active participant in the growth of the Central NSW Region, whilst developing Council's area as an innovative, inspirational and enjoyable environment for its current residents, and those wanting to settle in the area.*

Council's Mission : *Council actively engage all sectors of the community in the delivery of its vision, through provision of cost effective services, investigation of innovative opportunities, development of efficient asset management principles and attracting / retention of the next generation of residents.*

Council's Strategic 2025 Vision lists the following objectives related to management of road related assets:

Engineering Services
To provide and promote Local Government services and facilities to meet the reasonable expectations of the Shire community, creating a living environment of the highest practical standard.

Road Hierarchy
Council will continue to prioritise the Shire's roads on a hierarchy system throughout the term of the 2025 Vision. Through this system any road within the Shire that has a significant usage increase will move up the roads hierarchy for prioritisation for major or minor works to respond to increased vehicle usage.

Improve Logistics and Infrastructure
With increases in developments and road usage, Council will be proactive to continue improvement of the logistic services and infrastructure assets of Council for the improvement of transport services to ratepayers.

Council Strategic objectives are listed in Council's five year Management Plan. The Management Plan also lists Council's works programs and budgets for the term of the plan.

3.5 Legislative Requirements, Standards and Codes of Practice

The following legislative requirements, Standards and Codes of Practice, with respect to levels of service, are to be taken into account in Council's management of its road network.

Reference	Details
Local Government Act 1993	Sets out role, purpose, responsibilities and powers of local governments in NSW, including the preparation of long term financial plans supported by infrastructure and asset management plans for sustainable service delivery. S428 – Requires a report on the condition of public works infrastructure annually including upgrade, renewal and maintenance estimates.
Financial Reporting Requirements	Special Schedule 7 AASB 116
NSW Roads Act 1993	Defines functions, powers & duties of the road authority including opening of public roads, classification of roads and undertaking of activities on public roads. Sets out the rights of members of the public to access public roads from adjoining land and to traverse along public roads.
Environment Planning & Assessment Act 1979	Specifies the environmental considerations required for all development activities.
Occupational Health & Safety Act 2000	This Act details Council's responsibilities to ensure the health, safety and welfare of employees and others at places of work.
Telecommunications Act 1997 **Electricity Supply Act 1995** **Gas Supply Act 1996**	Sets out the rights and responsibilities of service utilities to install works within public road reserves, including the requirement for notification of intended works and reinstatement of damage.
Catchment Management Authorities Act 2003 **Soil Conservation Act 1938** **Fisheries Management Act 1994**	These statutes specify the requirement for conservation of land and water resources and the mitigation of erosion and land degradation. Details the approval process required to undertake works that may affect soil and water quality, including waterway crossings.
Surveying Act 2002	Sets out the road authorities responsibility in the maintenance & repair of Survey Marks. Specifies penalties for damage/removal of survey marks.
Rural Land Protection Act 1993	Sets out the right and responsibilities of road authorities and stock owners regarding movement of stock along Traveling Stock Routes and public roads.
Roads & Traffic Authority Standards & Guides	Details of practices to be employed in the construction and management of road infrastructure.

Reference	Details
All other relevant Australian Standards and Codes of Practice	Reference as required.
All other relevant State and federal Acts and Regulations	Reference as required.
All Local Laws and relevant policies of the Council	Reference as required.

3.6 Current/Target Levels of Service

The service levels as considered in this plan are divided into two types:

- Community based; and
- Operations based.

Community based levels of service relate to the function of the service provided and how the customer receives the service in terms of:

- Appearance;
- Legislative Requirements;
- Availability;
- Comfort;
- Safety;
- Empathy (understanding, individual attention); and
- Assurance (knowledge, courtesy, trust, confidence)

Operations based levels of service relate to the technical measures and the outputs the customer receives in terms of:

- Quality;
- Quantity;
- Maintainability;
- Reliability and Performance;
- Responsiveness;
- Capacity;
- Environmental Impacts; and
- Cost/affordability.

The following tables identify the current service levels adopted and the targets set by council for assets considered in this Transportation Asset Management Plan.

3.7 Levels of Service Tables

3.7.1 Community Levels of Service

Key Performance Indicator	Level of Service	Performance Measurement Process	Target Performance	Current Performance	Actions to meet Performance Target	Resources Required
Reliability and Performance	Road Network remains functional to all users at all times	Number of unplanned road closures	Nil per year due to network failure except for extreme weather event or incidents outside of Council control. For class I & J roads, it is not expected that access could be guaranteed during wet weather conditions.	100 %	N/A	Sustainable, programmed maintenance budget allocations
Access	Provide for distribution of goods and services		100 % compliance for nominated routes.		Progressive upgrading of designated routes	
Responsiveness	Compliance with target response times	% of requests addressed within nominated timeframes	95% compliance	Estimated 70 – 80%	Develop/ improve customer service systems	Allocation of sufficient resources to action requests
Safety	Minimise number of road trauma incidents on Council's road network	Police crash statistics	Nil per year attributed to non-conformance	N/A	Implementation of TAMP	
Visual Amenity (appearance)	Road environment complements the adjacent roadside surroundings	Number of complaints or complements	<10 complaints per year	80% compliance	Commit resources, constrained by vegetation management laws.	

Key Performance Indicator	Level of Service	Performance Measurement Process	Target Performance	Current Performance	Actions to meet Performance Target	Resources Required
Response (Courtesy, empathy, knowledge, trust, understanding, confidence)	Courtesy, empathy and understanding by Council staff of customer request.	Number of complaints or complements	<5 complaints per year	N/A	Customer surveys. Implementation of Customer Request Systems.	Staff training and coaching
Ride Quality/ Comfort	Road surface roughness is minimised	Customer complaints. Pavement Roughness measurement	<10 complaints per year for roughness E – F, Able to be comfortably driven at 80km/h G – I, Able to be comfortably driven at 60km/h Max Roughness count E < 150 NAASRA F < 170 NAASRA G < 190 NAASRA H-J < 220 NAASRA	Not measured	Target rough roads in works programs Periodic pavement roughness measurement	Adequate budget resourcing.
Environmental compliance	Management of the road network to minimise its impact on the surrounding environment.	Legislative compliance and implementation of best practice	Nil breaches of Legislation. No environmental damage due to roadworks.	Not known	Development of Policies and Procedures	Systems development, training

Key Performance Indicator	Level of Service	Performance Measurement Process	Target Performance	Current Performance	Actions to meet Performance Target	Resources Required
Quality	To provide a high quality, long-lasting road network	Realisation of asset life-cycle target performance	Nil failure of new works due to lack of quality control. Maintenance works in accordance with Council Policies, ITPs, and Specifications.	Estimate 95%	Development of Council Policies	Staff training, commitment
Maintainability	Management of the road network to minimise maintenance demands		Optimise management of network within budget constraints. Achievement of nominated maintenance/ operational programs.		Review maintenance programs	
Network Capacity and function	Manage current and future network demands to ensure sufficient network capacity.	Access available to appropriate vehicle classes, minimise delay.	Network performance "fit for purpose" at all times.	N/A		Appropriate strategic planning tools.
Pavement Condition	Sustainable management of network pavements	Non-destructive testing of pavement residual life	Achievement of target pavement design residual life.	N/A	Development pavement testing/ management program	Budget resources
Legislative Compliance	To comply with all relevant legislation and regulatory authorities	Number of non-conformances	Nil non-conformances issued.	100 % compliance	Nil	Nil

4.0 Demand Forecast

4.1 Introduction

This Section of the plan analyses factors affecting demand including population growth, social and technology changes. All impacts of the growth trends are examined, including social, cultural, residential, commercial and industrial, and in particular the impacts on new and existing infrastructure. Demand management strategies are recommended, if required, as a technique to modify demand without compromising customer expectations. A period of twenty years is considered.

4.2 Growth Trends

The key drivers of demand for the infrastructure are:

- Population growth;
- Industrial growth;
- Residential Development;
- Demographic Changes;
- Demand for increased services; and
- Strategic extensions to the network

4.2.1 Population and Demographics

Current and future population demographics of the local government area have an impact on demand on Council's infrastructure. Following is analysis of future trends with regard to population indicators such as age profile and population distribution both overall and within the LGA.

Population Growth (Entire LGA)

Year	Information Source	LGA Population	Period	Annual Growth (%)
1996	1996 Census	6,025		
2001	2001 Census	6,141	1996 – 2001	0.39 %
2006	2006 Census	6,364	2001 – 2006	0.73 %
2026	Extrapolation based on previous Census growth rates	6,997	2006 – 2026	0.5 %

Source : Australian Bureau of Statistics

* The 1996 & 2001 Census Blayney LGA populations figures are based on "place of enumeration" (where a person was located on census night). The 2006 figure is based on "place of usual residence".

Population Growth by Urban Centre

Town Urban Area	Population		Annual Growth (%)
	2001 Census	2006 Census	
Blayney	2,608	2,745	1.1 %
Millthorpe	705	725	0.57 %
Lyndhurst	225	258	2.9 %
Carcoar	-	218	-

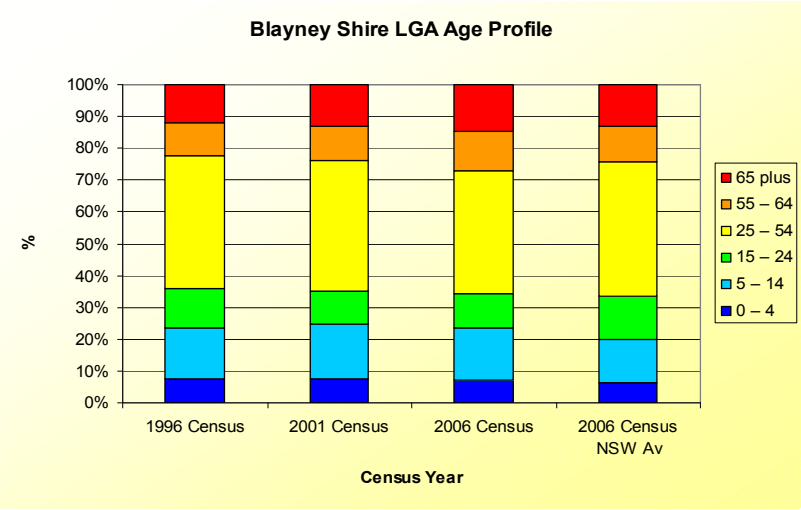
Source : Australian Bureau of Statistics

From the above data, it would appear that Blayney Shire LGA is experiencing positive population growth of the order of 0.5-1.0%. All of the major urban centres above within the LGA are experiencing positive growth.

Age Profile

Age	1996 Census		2001 Census		2006 Census		
	Pop'ln	%	Pop'ln	%	Pop'ln	%	NSW Averages (%)
0 – 4	468	7.7 %	463	7.6 %	460	7.2 %	6.3 %
5 – 14	957	15.9 %	1,052	17.1 %	1,030	16.2 %	13.5 %
15 – 24	735	12.2 %	638	10.4 %	701	11.0 %	13.6 %
25 – 54	2,523	41.9 %	2,506	40.8 %	2,450	38.5 %	42.2 %
55 – 64	619	10.3 %	672	10.9 %	774	12.2 %	11.0 %
65 plus	723	12.0 %	810	13.2 %	949	14.9 %	13.3 %
	6,025	**100 %**	**6,141**	**100 %**	**6,364**	**100 %**	**100 %**

Source : Australian Bureau of Statistics



The following trends can be noted from the above Age Profile data:

- The younger population age groups (0 – 25 years) have remained largely static over the three census periods above.
- There has been a steady increase in population proportion in the over 55 age groups over the 1996 – 2006 period, such that the 2006 Blayney LGA percentage is 3% higher than the 2006 NSW average.
- Accordingly, there has been a steady decline in the "working age" population proportion (14 – 55 age groups) over the three census periods above.

The above data suggests that the Blayney LGA, overall, has an ageing population trend.

4.3 Social and Cultural Significance

4.3.1 Employment Opportunities

The 2006 Census listed the following most common occupations for employed persons (over 15 years of age) normally residing in the Blayney Shire LGA.

Occupation	Number	% of employed persons aged 15 years and over
Managers	561	19.6%
Labourers	410	14.3%
Technicians and Trades Workers	406	14.2%
Professionals	365	12.7%
Machinery Operators And Drivers	327	11.4%
Clerical and Administrative Workers	302	10.5%
Community and Personal Service Workers	249	8.7%
Sales Workers	203	7.1%

Source : Australian Bureau of Statistics, 2006 Census

The most common industries of employment in the Blayney LGA were as follows:

Industry of Employment	Number	% of employed persons aged 15 years and over
Sheep, Beef Cattle and Grain Farming	357	12.5%
School Education	147	5.1%
Metal Ore Mining	134	4.7%
Hospitals	103	3.6%
Other Food Product Manufacturing	98	3.4%

Source : Australian Bureau of Statistics, 2006 Census

As can be seen, primary industry and the government service sectors are high employers in the LGA. Employment in the farming sectors and to a lessor extent school education and hospitals, is relatively robust due to the heavily dispersed nature of their operations. The next highest employers in the LGA though are specific in nature (i.e. Metal Ore Mining and Food Products Manufacturing). Employee

numbers at any one of these single employers could be vulnerable if that employer was to close or significantly change their employment regimes or delivery methods.

4.3.2 Social Attitude / Lifestyle

Persons living in the Blayney Shire LGA identify with the small, village-like population centres of the LGA including aspects of tighter community spirit, physical beauty and heritage. The Blayney LGA is serviced by extensive local services with the support of two major regional centres within an hours drive of Blayney. This provides valued support to residents but opens issues of transport linkages and availability. Transport is a significant issue to many vulnerable groups including the young, disabled and the aged.

Towards the northern and eastern areas of the LGA there is a trend towards rural residential type living with residents commuting to regional centres for employment or undertaking home-based (non-agricultural) employment. This type of lifestyle demands strong transport and communication links to the adjacent regional centres, which is different to the traditional agricultural uses that preceded this type of development. Rural residential development also places high value on open space and rural aspect. This can cause conflict where rural residential development abuts other land uses, particularly intensive agricultural or other primary industries (forestry or mining for instance).

4.3.3 Cultural Background

Country of Birth	2001 Census		2006 Census	
	Pop'ln	%	Pop'ln	%
Australia	5,508	90.0 %	5,906	89.6 %
England	127	2.1 %	143	2.2 %
New Zealand	58	0.9 %	64	1.0 %
Germany	19	0.3 %	26	0.4 %
Scotland	16	0.3 %	19	0.3 %
Ireland	-	-	14	0.2 %
Netherlands	12	0.2 %	-	-

Source : Australian Bureau of Statistics

Language Spoken at Home	2001 Census		2006 Census	
	Pop'ln	%	Pop'ln	%
English	5,829	95.2 %	6,350	96.3 %
German	6	0.1 %	14	0.2 %
Italian	-	-	8	0.1 %
Filipino	-	-	7	0.1 %
Cantonese	8	0.1 %	29	0.2 %
French	6	0.1 %	11	0.1 %
Polish	6	0.1 %	-	-
Urdu	4	0.1 %	-	-

Source : Australian Bureau of Statistics

From the tables above it can be seen that Australian born persons make up the vast majority of the population of the Blayney LGA, followed by persons born in England or New Zealand.

English in the dominant language spoken in the home, with the next highest ranking languages of German and Italian being 0.2% or less of the entire LGA population.

It is not expected that there will be any significant change to the above cultural demographics within the LGA in the next 20 years.

4.4 Residential Impacts

Major residential growth in the Blayney LGA is predicted to be in the eastern and northern areas of the LGA. This growth reflects these areas proximity to the major regional centres of Orange and Bathurst. This residential growth will be both in urban towns and villages and as rural residential development. This will lead to an expectation of enhanced services to service this new development. Typical service expectations include sealed road access and garbage removal services.

In other areas of the LGA, in both urban and rural area, there is not predicted to be significant change to existing residential trends, with existing population remaining static or with negligible population growth.

4.5 Commercial/Industrial Impacts

Major existing industries in the Blayney Shire LGA include the Newcrest Cadia and Ridgeway Mines, Nestle Purina Pet Care, Sealink Ltd, Australian Native Landscapes, the Central Tablelands Livestock Exchange (CTLX) and Blayney's inland freight terminal, owned and operated by FCL.

Future commercial and industrial development within the 20 year forecast period is likely to be sporadic and difficult to predict. Isolated developments will have both initial and sustained impacts on the LGA in the form of:

- Spikes in population for high intensity phases such as construction with an ongoing employment demand dependant on development type.
- Corresponding increased demands on transportation linkages, particularly by heavy vehicles, both at local and regional levels.

There is existing demand for the continued provision of improved freight routes through the LGA to service existing development. This includes demand for provision of B-Double routes on Council roads, requiring works such as shoulder sealing and intersection treatments to ensure these types of vehicles can be carried safely and efficiently.

4.6 Current Developments and Impacts

Due to the relatively minor nature of future growth in the LGA, the primary goal of current asset planning is management of aging current infrastructure and continued upgrade of existing infrastructure to meet modern community expectations and best practice. Such actions include:

- Sealing of gravel roads
- Shoulder sealing (with possible provision of new kerb & gutter) of existing sealed roads to increase safety and load carrying ability.
- Bridge upgrades, primarily undertaken during refurbishment works.
- Upgrade or augmentation of stormwater infrastructure to ensure public safety and property protection objectives are met.

4.7 Impact of Trends on Infrastructure

4.7.1 Existing Infrastructure

Given the lack of any significant growth forecast over the next 20 year period, the overwhelming focus of this Transportation Asset Management Plan is management of Council's existing infrastructure base.

Aging of existing assets is a significant issue, which when combined with a backlog of overdue maintenance and renewal works, has the potential to be a high cost burden on Council in the future.

4.7.2 New Infrastructure

New infrastructure will be provided to Council's road related network generally through either development contribution or upgrade of existing infrastructure by Council.

Additional assets through developer construction are relatively minor with less than one kilometre of new road construction being provided annually.

Council provided new asset infrastructure is generally predicted to be of the nature of sealing of unsealed roads, sealing of road shoulders, provision of kerb & gutter or other such activities that increase the level of service on existing assets.

4.8 Demand Management Strategies

Demand management strategies provide alternatives to the creation of new assets in order to meet demand and look at ways of modifying customer demands in order that the utilisation of existing assets is maximised and the need for new assets is deferred or reduced.

Non-asset solutions include:

- **Transportation Strategies.** The Council will promote alternative forms of transport and review the road hierarchy and linkages to allow the road network to develop in an efficient manner.

- **Traffic Regulation.** Council implements several policies that limit damage to the road network and to preserve remaining asset life. Such policies include implementation of speed, length and weight limits, or modification to the road network to direct traffic away from vulnerable assets (i.e. through one-way segments or road closures).

- **Reduced Level of Service.** In the long term as the condition of the road network fails to meet increased community expectations, it may become appropriate for the Council to provide a reduced level of service. This could include increase in response times to rectify defects or conversion of sealed roads back to unsealed gravel roads. It should be noted however, that Council would be reluctant to reduce the level of service provided.

5.0 Risk Management

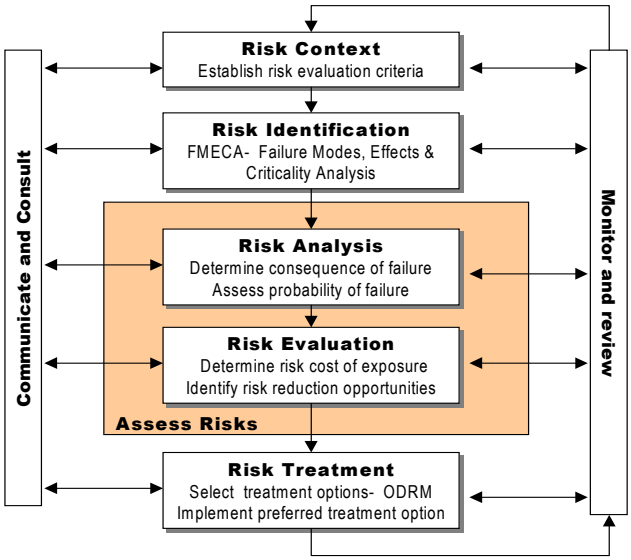
5.1 Introduction

This Section of the plan identifies the Council's approach to Risk Management. It identifies the overall risk objectives of the Council and the responsibilities within the Council for identifying, evaluating and managing risk.

The overall objectives of a formal risk management approach are to:

- Outline the process by which Council will manage risk associated with its assets, so that all risks can be identified and evaluated in a consistent manner,
- Identify operational and organisational risks at a broad level,
- Allocate responsibility for managing risks to specific staff to improve accountability; and,
- Prioritise the risks to identify the highest risks that should be addressed in the short to medium term.

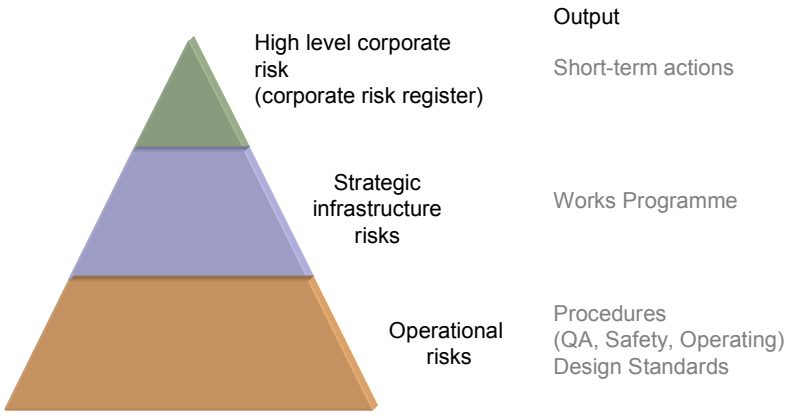
This section follows the process outlined in AS/NZS 4360: 1999, illustrated in the figure below.



Council has yet to develop a policy for the management of risk. Methodologies for the approach to development of risk related procedures have been included as part of this Asset Management Plan and will be used to develop future risk policies by Council. As such, some outcomes of this section on the management of risk are yet to be developed by Council. Future review of this Asset Management Plan will provide a more thorough analysis of risk exposure and risk management strategy.

5.2 Risk Management Framework within Council

Framework for Council's management of risk is for future development. Council's future Risk Management framework will incorporate corporate, strategic and operational risks as illustrated below:



5.2.1 Corporate Risk

Council has no formal policy in place to manage risk at a corporate level. When developed, any policy is likely to comprise the following key components:

- Risk Management Policy
- Risk Management Strategy
- Corporate Risk Register

5.2.2 Risk Management Policy

Council's Risk Management Policy, when developed, will become a formal Council adopted document to enable the sustainable corporate management of risk.

5.2.3 Risk Management Strategy

Council's risk management strategy is to complete, implement and maintain risk plans for principal infrastructure and to minimise the likelihood of non-achievement of critical business objectives.

This Asset Management Plan will in due course be supported by a high level Risk Management Plan which defines the risk process and identifies risk management strategies to minimise risks associated with the provision of council's services.
The risk management plan will be designed to ensure that:

- All significant operational and organisational risks are understood and identified.
- The highest risks within a ten year planning horizon are identified and addressed.
- Risk reduction treatments are implemented which best meet business needs.
- Responsibilities for implementing, evaluating and managing risks are allocated to specific staff and reporting regimes adopted.

5.3 Risk Assessment Process

This section describes the steps to be followed by Council in the development of risk assessment processes.

5.3.1 Step 1: Context – Risk Criteria and Consequences of Risk

The key risk management criteria relating to assets include:

- Financial risk – direct costs
- Public health and safety
- Economic impact on users and businesses
- Environmental and legal compliance
- Network, asset and project performance
- Image, reputation and support.

The establishment of risk management criteria is one of the most important steps in the risk management process, as it sets the framework for consistent risk decision-making. Based on these suggested criteria, they are next used to determine the "consequence" of the risk in the "Risk Consequence Ratings Table".

5.3.2 Step 2: Risk Identification

Council will undertake a review for potential risks. The risks identified will be described and their potential impacts and current controls assessed in a corporate Risk Register.

As noted above, risks require periodic review to ensure that all potential risks using the above criteria have been identified.

5.3.3 Step 3 & 4: Risk Analysis and Evaluation

Risk analysis considers both the likelihood and consequence of events and asset risks.

The probability that a risk could occur can be considered using the "Risk Probability Ratings Table" below.

Code	Likelihood of Occurrence	Current Probability of Condition Based Occurrence	Equivalent Statistical Probability
A	Rare	> 20 years	0.02
B	Unlikely	Within 10 - 20 years	0.05
C	Possible	Within 3 - 10 years	0.2
D	Likely	Within 2 years	0.7
E	Almost Certain	Within 1 year	0.9

The consequences that could occur can be considered using the "Measures of Consequence Table" below.

Table - Measures of Consequences of Failure

		Financial Impact: Direct Costs (Repair, Lost Revenue, 3rd party damage, legal	Impacts on Public health and safety	Service Delivery Impact on Customers and Community	Environmental and Legal Compliance	Environmental damage	Image, Reputation and Public Support
1	Negligible	< $10,000	No health or safety impact. Injury managed with 1st Aid	< 20 Customer-hours. Very localised-little disruptive effect.	No breaches.	Small, reversible environmental harm ,permitted by terms of a resource consent.	No media attention or damage to reputation.
2	Minor	$10,000 - $50,000	Minor health or safety impact on small number of people. Injury dealt with by Dr. No Hospitalisation	20 – 500 Customer- hours. Inconvenience to small group of residents.	Minor breaches affecting very small part of the system or service.	.Localised non persisting contamination which dissipates/disperses. Death of flora /fauna where propagules are available locally for regeneration	Minimal media attention, but minor damage to image to a small group of people. May be some local coverage-not front page
3	Moderate	$50,000 - $200,000	Serious health or safety impact on small number (injuries require hospitalisation) or minor impact on large number of people.	500 to 20,000 Customer-hours. Some disruption to a wider group.	One-off major breach, affecting a small part of the network or service	Serious damage or loss to a locally important habitat or ecosystem. Loss of a population of a locally uncommon species	Negative national media coverage, major decrease in community support. Loss of key
4	Major	$200,000 - $1,000,000	Extensive injuries or significant health or safety impacts, single fatality.	20,000 to 500,000 Customer-hours. Significant effect on large group. Political involvement	Several major breaches affecting a significant part of the network or service.	Damage to or loss of a regionally or nationally important habitat. Local loss of a species. Habitat reduced below 20% of former (1840) extent. Establishment of significant new pest	Negative national media coverage, major decrease in community support. Loss of key staff
5	Catastrophic	> $1,000,000	Widespread health or safety impacts, multiple fatalities.	More than 500,000 Customer hours. Significant effect to community at large. Community alienation.	Widespread and major breaches of standards, failure to meet legislative requirements over most of system area / network.	Loss of a nationally significant habitat or ecosystem.	Negative international media coverage, loss of community support. External enquiry. Appointment of Commissioner.

The results of the risk evaluation process provide a risk rating of 'low', 'moderate', 'high', or 'extreme', as a result of considering together the probability and consequence of the risk occurring, as table below.

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

Table - Risks Priority Rating Matrix

5.3.4 Step 5: Treat Risks

Once the risks have been assessed and rated, the most significant risks (for example, those of extreme or high risk) are isolated for treatment or control.

Risk	Control
Extreme Risk	Immediate Action Required
High Risk	Prioritise action required
Medium Risk	Planned action required
Low Risk	Actioned by routine procedures

Template tables document the evaluation procedure for individual risks, as well as recording current controls and a "risk action plan" for each. This will be completed in future updates of the Asset Management Plan, and will be linked to risk management planning to be undertaken at the corporate level.

The tables provide for "asset based" risks (e.g. sudden pavement or bridge failure due to condition deterioration, landslides, etc), and "event based" risks (such as volcanic activity, loss of key staff, etc).

5.4 Risk Tables

Critical assets are identified by applying a criticality scoring system to assets in each asset category. The critical assets identified are then placed in a risk table, which details the associated failure type, failure mode, likelihood and risk, both before and after a treatment for the risk is considered. The treatment cost is also identified here and a benefit cost ratio calculated. A nominated person for action is included where appropriate.

The following table is used to document and analyse risks:

Item	Asset Description	Failure Event	Failure Mode	Current Controls	Before Treatment			Treatment	Treatment Cost ($)	After Treatment			Required Treatment Date	Risk Reduction ($)	Benefit /Cost	Responsible Officer	Actioned (Y/N)
					Consequence	Likelihood	Risk			Consequence	Likelihood	Risk					
1	Regional Road	Closure due to flooding	Insufficient culvert/ bridge capacity	Location specific (<10yr ARI capacity)	2	D	M	Upgrade culvert	$250 K	2	B	L					
2		Slope instability	Land slippage	Nil	3	A	L	Stabilise slope	$150 K	3	A	L					
3	Unsealed Local Roads	Closure due to wet weather	Loss of pavement strength and trafficable surface	Periodic gravel resheeting	2	B	L	Upgrade to sealed pavement	$$$$	3	A	L					
4	*For future development*																
5																	
6																	

5.5 Project & Operational Risks

A risk assessment process similar to that used above for existing assets is planned to be used to prioritise capital projects. This process forms the basis of the long-term capital works programme. The process takes into account

- Fit with corporate direction
- Consequences of not proceeding
- Community needs.

Operational risks are addressed through

- Occupational Health and Safety processes
- Safe working Practices.

5.6 Contingency Plans

The contingency plans are designed to restore and maintain services in the event of an emergency and would be part of a disaster management response for Blayney Shire Council.

Business Continuance Plan
A Business Continuance Plan would have the objectives of:

- Providing for a response immediately following an incident
- Providing a mechanism for recovery of essential services as soon as possible after an incident, at an alternative site if necessary
- To re-establish business and services to the level expected prior to the incident.

Operating Manuals
Operating manuals contain key procedures for emergency response.

Recovery Plans
These plans are designed to swing into effect in the aftermath of an event resulting by widespread damage and guide the restoration of full service. The council has no specific recovery plan currently and preparation of this has been identified as a future task.

5.7 Risk Accounting and Authority

Accountability and authority within Council for identifying and managing risks is as follows.

5.7.1 Council

Council has a role in the minimisation of corporate risk that it exposes itself to in the running of its Local Government organisation. It must provide the guidance and resources necessary to enable the corporation to develop its risk management procedures and policy.

5.7.2 Risk Management Committees

At a corporate level, management of risk is managed at an executive level underpinned by functional risk management teams or groups.

The executive level team's functions are to oversee and monitor implementation of risk management within each Council functional area and across the Council as a whole, by:

- Developing and maintaining the Council's risk management framework and policy consistent with Council's objectives
- Overseeing and monitoring the implementation of risk Management across Council to ensure compliance with the risk management policy.

Below the executive committee structure, cross functional risk committees have a role in evaluating any identified risks in a consistent manner, assigning priorities and actions and monitoring progress. Risk committees meet regularly to:

- Assess all new risks identified, assign priorities and actions to the risks and record them in the risk register
- Define accountabilities for the risk management programme.
- Review priority and actions for entries on the risk register
- Monitor progress on treatment actions
- Report to the executive committee on high risks and progress on risk treatment

5.7.3 All Employees

All staff and service providers are responsible for reporting any identified risks that come to their notice. Each Council Department is to develop a risk register in which risks, treatments, managements and accountabilities are listed. Some of these risks are dealt with at an operational level and others may be escalated as Council issues and dealt with as part of the overall Council Risk Register.

5.8 Investment Strategy

Proposed actions from the Risk Register are summarised in the following table, which includes reference to other sections of this asset management plan where the risk treatment is incorporated:

Event or Asset	Risk Description	Risk	Risk Action Plan	Treatment Required	Investment Required	Financial Year	AMP Sect. Ref.
For future development							

6.0 Lifecycle Management Plans

6.1 Introduction

6.1.1 Section Contents

This section describes the lifecycle management plans for the following key asset groups:

- Roads, including:
  - Regional Road Pavements,
  - Local Road Pavements,
  - Associated roadside furniture such as signage, guideposts & guardrail.
- Bridges & Rural Culverts (both Regional and Local roads),
- Kerb & Gutter,
- Footpaths,
- Urban Stormwater Drainage.

The lifecycle management plans outline for each asset:

- The objectives for the asset group,
- Supporting data for each asset group including:
  - Key life-cycle management issues,
  - Physical parameters and value,
  - Asset capacity/performance,
  - Asset condition,
  - Historical expenditure.

- The management tactics to achieve the levels of service defined in Section 2, identified in the following work categories:
  - Operations and maintenance,
  - Renewals,
  - New works.

6.1.2 Work Category Definitions

Work categories as referred to in this report are defined as follows:

Operations

Asset operation has no effect on asset condition but is necessary to keep the asset appropriately utilised.

Typical operational activities include:

- Power costs for streetlights,
- Weed control,
- Roadside slashing and mowing, and
- Asset inspections.

Operational expenditure is not distinguished from maintenance expenditure in Council's financial systems.

Routine Maintenance

Maintenance work is the day-to-day work required to maintain the asset's ability to provide the required service levels.

Asset Routine Maintenance activities fall into two broad categories:

- Planned (proactive) Maintenance: Proactive inspection and maintenance works planned to prevent asset failure.
- Unplanned (reactive) Maintenance: Reactive action to correct asset malfunctions and failures on an as required basis (i.e. emergency repairs).

Maintenance is defined in each section of the lifecycle plan, and includes all repairs/maintenance which are not classified as renewals

A key element of advanced Asset Management planning is determining the most cost-effective mix of planned and unplanned maintenance.

Renewals (including Resealing)

Renewal work is the substantial replacement of the asset or a significant asset component to its original size and capacity

These works are defined as being:

- The renewal, rehabilitation or refurbishment of existing assets to their original size and capacity, or,
- The replacement of an entire component of an asset to an equivalent size or capacity, or,
- The replacement component of the capital works which increase the capacity of the assets (that portion of the work which restores the assets to their original size and capacity).

Renewals expenditure includes the following:

- Resurfacing of roads. Maintenance chip seals or asphalt overlays are the predominant treatments utilised.
- Rehabilitation of assets. Replacement of existing assets (including surfacings) with an equivalent structure and is generally applicable for a long length (or major proportion) of the asset.
- Reconstruction of assets. Associated with improvement to alignment, geometry, drainage and other features of the asset. Only the portion that replaces the original asset is regarded as renewal.
- Replacement of associated infrastructure such as traffic signs.

New Works

New works create an asset that did not exist, or extend an asset beyond its original size or capacity.

Projects (including land purchase) for the extension or upgrading of assets required to cater for growth or additional levels of service, including:

- Works which create an asset that did not exist in any shape or form, or
- Works which improves an asset beyond its original size or capacity, or
- Upgrade works which increase the capacity of an asset, or
- Works designed to produce an improvement in the standard and operation of the asset beyond its original capacity.

Asset Disposal

Costs associated with the removal or disposal of decommissioned assets.

6.1.3 Asset Hierarchy

The objective of developing an asset hierarchy is to provide a suitable framework for management of assets, which segments the asset base into appropriate classifications. The hierarchy is based on the asset's function in the greater network. The hierarchy must however meet short and long term asset management requirements.

The intent of the asset hierarchy is to provide the framework in which data is collected, information is reported and decisions are made. In most cases organisations work with an informal asset hierarchy, however, this often leads to data being collected to inappropriate levels, thereby either creating situations where costs escalate with minimal increases in benefit or insufficient information is available to make informed decisions.

The asset hierarchy is used to structure the framework, to formalise the understanding of the levels at which decisions take place and to understand the levels at which actions such as data collection takes place and outputs are generated.

Asset hierarchies for each asset type are set out in the relevant asset sections.

6.1.4 Inspections

Inspections are designed to identify defects that have the potential to create a risk of damage or inconvenience to the public, or may compromise the integrity of the asset itself. The inspections are aligned with the hierarchy and recommend outcomes that may require maintenance or changes to processes.

Personnel undertaking the inspections have been trained to undertake the activity and are conversant with the Council's inspection procedures and safety requirements.

Inspection frequencies for each asset type are set out in the relevant asset sections.

6.1.5 Intervention Levels

The intervention levels support the service levels provided to the community as they define the trigger points and type of works to be carried out. They are also useful in the development of ongoing maintenance programs.

Having defined intervention levels also assists councils in being able to organise maintenance works on a risk priority basis, rather than be susceptible to carrying out works on a chronological basis, or as a result of pressure from individuals within the community.

It is considered, however, that their greatest benefit is served by assisting in providing a sound legal argument as to why certain works were, or were not carried out.

It should be recognised that whilst there is a funding gap between Council's actual maintenance budget allocations to those stated in this Transportation Asset Management Plan, full compliance with the stated intervention levels and response times may not be possible. The intervention levels and response times provided in this TAMP are provided as those desirable to achieve best practice management of Council's road network.

Where Council is aware of a defect, even if it is below the nominated intervention level, it will endeavour to rectify the defect before it reaches the defect's nominated intervention level. An example of this would be that a maintenance truck on a specific maintenance operation would not drive over small potholes and only rectify potholes at the intervention level, but it would generally spot and rectify all potholes encountered on the road during that maintenance trip.

Defect Intervention levels for each asset type are set out in the relevant asset sections.

6.1.6 Performance Monitoring

The following activities are undertaken in the monitoring of assets covered by this Transportation Asset Management Plan.

Inspections

Asset and safety inspections are intended to identify asset deficiencies or defects that have the potential to compromise asset integrity or create a risk of damage or inconvenience to the public. The inspections are aligned with the hierarchy and recommend outcomes that may require maintenance or changes to processes. The inspections are designed to highlight and prioritise maintenance works and assist in the planning of future capital renewal programs.

Complaints

Complaints are received from users of the asset (general public) and are used to identify inadequacies and/or inefficiencies in the system. All complaints and resulting actions are recorded for future reference and used to aid in the prioritisation of future maintenance or capital works.

Legislation

There are several constraints by law relating to the operation of the asset networks that Council must comply with. Compliance with these constraints ensures that the system is operating to a minimum required standard.

The above activities identify inadequacies or gaps in Council asset management systems and are used to identify and prioritise maintenance and future works requirements.

6.1.7 Consultation Process

Public consultation, with respect to management and operation of assets referred to in this plan, is undertaken through the following processes:

- Special interest/stakeholder group liaison (including regulatory bodies),
- Locality meetings,
- Complaints.

Outcomes from the above consultations are used to assess community satisfaction with levels of service offered and also to identify and prioritise future works. Liaison also provides transfer of information between the Council and the consultation groups.

Generally, the majority of public feedback regarding performance of the asset comes through public complaints, or when prompted, through submissions when advertising of documentation such as Management Plans. Public meetings are held to discuss major changes to the asset network.

6.1.8 Boundary Issues

Council's network connects to those of other road related asset managers as identified below:

- Adjacent Local Government Authorities,
- Roads & Traffic Authority,
- Forests NSW,
- National Parks & Wildlife Service (DEC),
- Various private road owners.

The WBCSA and the three Asset Management Plans that have been developed as part of this project gives the opportunity to ensure consistent management of road related assets that abut the common boundaries of the three WBCSA member Councils. Council has no formal agreements with the other LGAs that abut the Blayney Council LGA with regards to management of road related assets adjacent to these boundaries.

Management of assets adjacent to RTA managed assets is done in accordance with the procedures set out in the *Local Government Relations* section of the RTA website, at *www.rta.nsw.gov.au/doingbusinesswithus/lgr/index.html*. These procedures set out the boundaries and responsibilities for maintenance of road and drainage interconnected assets.

6.1.9 Council's Road Ownership Functions

Council, as the "road authority" for the assets managed as part of this Transportation Asset Management Plan, has a responsibility to manage activities that occur within the road reserve.

Key current issues in relation to these functions include:

- The satisfactory control of excavations and works on the road reserve by utility operators and contractors
- The construction of driveway vehicle entrances to private properties.
- Management systems for controlling access to the network by over-weight / over-dimensional vehicles.

These are further described below.

Road Openings – Utilities Management

Council manages the road reserve area, however utility owners have legal rights of access to open the road to install and maintain their assets. This entails issues such as:

- Reinstatement of Council owned assets damaged by the works (ie by direct excavation or by machinery etc).
- Ensuring that works are undertaken in a manner to ensure the safety of the public, employees etc as per the requirements of the OH&S Act and Roads Act.

Works undertaken by utilities in the road reserve is generally done via Council approval under Section 138 of the Roads Act 1993.

Vehicle Crossings

Council manages the control / monitoring of vehicle crossings and entranceways by private parties through the WBCSA "Guidelines for Engineering Works" policy. This policy deals with issues of construction standard, public safety, and protection of Council assets.

6.2 Asset Group 1 – Roads

6.2.1 Objective

Council's objective in the management of its road network is to provide a functional and efficient road network that services the community's expectations.

Regional Roads are typically the highest order roads that Council directly manages, and so they form a key component to the functional operation of both the local and wider road network. Accordingly, Local Roads serve predominately to provide access to adjacent properties and as linkages to higher order road networks.

6.2.2 Background Data

Overview

Council's Road network provides a wide range of functions throughout the LGA, from Regional Roads that serve as key linkages through the LGA and between higher road classifications and Council's local road network, through to Local Roads that serve to provide access to private holdings and local facilities and to provide linkages within the LGA to higher classification connecting roads.

Key life-cycle issues that affect the Regional Roads network include:

- Aging infrastructure on narrow, substandard alignments does not meet current industry or community standards. Progressive upgrading is necessarily to limit exposure to risk and provide for user needs.
- Regional Roads are typically also freight routes between regional centres. This heavy vehicle loading accelerates pavement deterioration in comparison to Council's local road network. There is also demand to introduce larger freight vehicles to these routes, necessitating upgrade of roads to ensure the longer and heavier vehicles can be passed safely and without undue damage to the pavement.
- Resources need to be committed to develop information related to performance of the existing road network, in particular establishment of condition monitoring regimes and development of predictive models to better understand pavement lives and performance.

Key life-cycle issues that affect the Local Roads network include:

- The extensive network of unsealed road pavements within the LGA. Many roads carry less than 50 vehicles per day but still must be maintained in a serviceable condition regardless of weather or other environmental conditions. Conversely, unsealed roads in urban or adjacent areas carry larger traffic flows, which generate dust nuisance to close residential development and high maintenance demand. These roads warrant bitumen sealing to limit nuisance to adjacent residents and to ensure adequate level of service to road users.

Asset Performance

Characteristics of the performance of road pavements are as follows:

- Several segments that have received works in the last 10-20 years are now in demand of resealing if Council's investment in the reconstructed/upgraded pavement is to be protected.
- Many seal ages are greater than desirable. Historical reseal programs have not been of sufficient size to keep pace with aging of existing seals. This has led to a net

increase in the length of aging seals that require resealing to maintain waterproofing performance.

- The existing road network contains some segments of old pavements with very old seals. These segments show signs of (predominantly environmental) cracking and represent a risk to Council through potential failure. Their current trafficable condition can be attributed to the current dry phase of the last several years. They present a risk of failure if they were to have to convey any form of heavy traffic during a wet period.
- An extensive unsealed road network across a variety of climatic, topographical and traffic environments. Most carry very low traffic volumes but are susceptible to damage in adverse weather conditions.
- Council has over the last six years sealed approximately 1-1.5km of unsealed local roads annually, adding to its existing sealed road network. Council has had a negligible local roads resealing program over the past several years, resealing of the order of one kilometre annually.

Asset Value

Asset Valuation data has been provided by Council. The following table identifies the current valuation of Council's road assets.

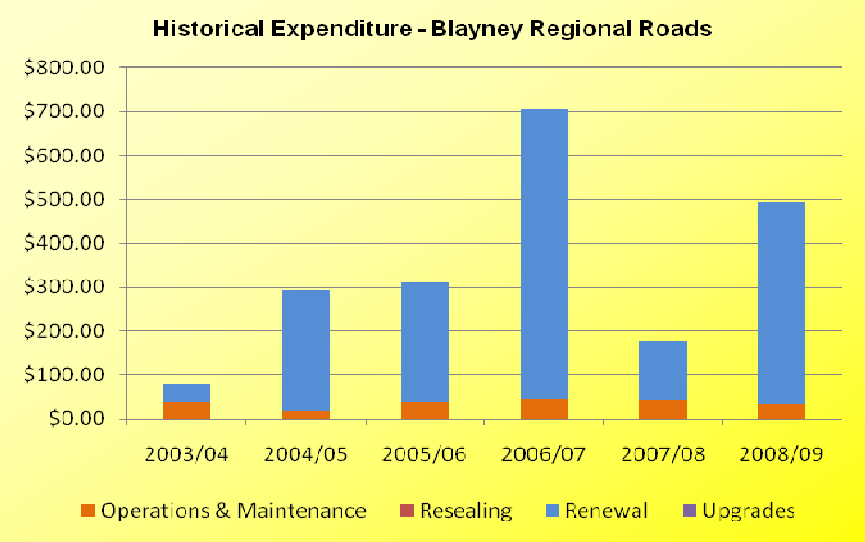
	Type	Length (km)	Replacement Cost ($'000)	Written Down Value ($'000)
Sealed Regional Roads	Formation	45.26	$ 1,362.2	$ 1,362.2
	Bases		$ 1,126.9	$ 762.5
	Surface		$ 682.8	$ 476.3
Unsealed Regional Roads	Formation	0.00	Nil	Nil
	Bases		Nil	Nil
Sub-Total Regional Roads		**45.26**	**$ 3,172.0**	**$ 2,601.1**
Local Rural Sealed Roads	Formation	250	$ 24,586.9	$ 24,586.9
	Bases		$ 22,044.4	$ 13,910.8
	Surface		$ 12,960.2	$ 8,466.9
Local Rural Unsealed Roads	Formation	364	$ 22,878.2	$ 22,878.2
	Bases		$ 21,317.5	$ 12,966.6
Local Urban Roads	Formation	67.9	$ 5,861.9	$ 5,861.9
	Bases		$ 6,434.4	$ 431.3
	Surface		$ 4,426.8	$ 2,952.9
Sub-Total Local Roads		**681.9 km**	**$ 119,827.7**	**$ 95,442.0**
TOTALS		**727.16 km**	**$ 122,999.8**	**$ 98,043.1**

Historical Expenditure

The table and Figure below summarise the asset group historical expenditure over the period 2003/04 – 2008/09

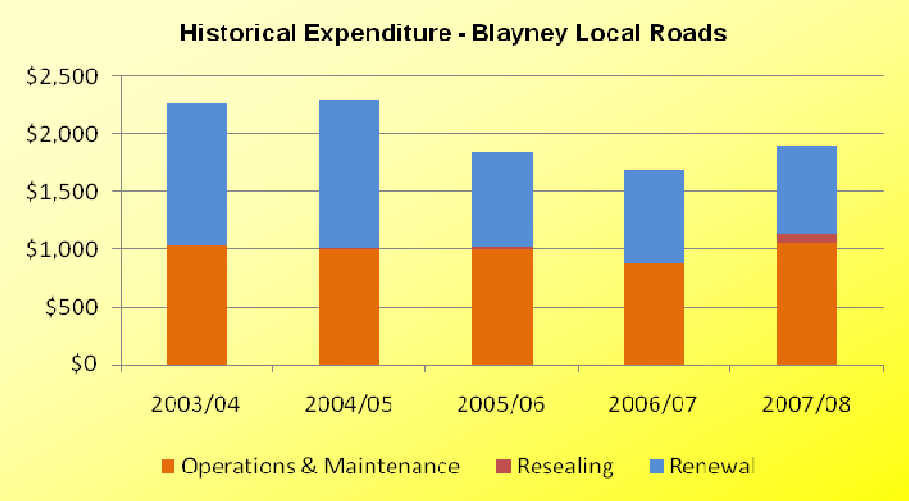
Regional Roads

($,000's)	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Operations & Maintenance	$ 37.7	$ 18.0	$ 35.9	$ 46.9	$ 43.5	$ 32.8
Resealing	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Renewal	$ 39.9	$ 276.5	$ 273.9	$ 660	$ 134.3	$ 461.1
Upgrades	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
TOTALS	**$ 77.6**	**$ 294.5**	**$ 309.8**	**$ 706.9**	**$ 177.8**	**$ 493.9**



Local Roads

($,000's)	2003/04	2004/05	2005/06	2006/07	2007/08
Operations & Maintenance	$ 1,036	$ 996	$ 998	$ 868	$ 1,057
Resealing	$ 4	$ 10	$ 25	$ 0	$ 80
Renewal	$ 1,222	$ 1,300	$ 818	$ 826	$ 761
TOTALS	**$ 2,262**	**$ 2,306**	**$ 1,841**	**$ 1,694**	**$ 1,898**



6.2.3 Road Hierarchy

Road Hierarchies used in this section of the Transportation Asset Management Plan have been based on AUSPEC 4 Specifications. In this specification, classes A,B,C & D apply to high order roads managed by other road authorities (i.e. RTA).

Accordingly, road hierarchy classifications adopted as part of this Transportation Asset Management Plan continue from road class E downward.

Both urban and rural roads will utilise the same classification nominal (i.e. E,F,G etc) and have the same broad description of function in the road network. The main difference between urban and rural networks is the traffic volumes that are used to differentiate road classifications.

The single classification nominal is used to derive inspection regimes, defect intervention levels, and response times.

Hierarchy Classification	Indicative Trigger Traffic Volume (AADT)
E – (Rural/Urban) Sub-Arterial Road • Roads that provide a primary linkage between areas of regional significance, town centres, or link to higher order road networks (i.e. State Highways). • Through traffic function becomes dominant with design traffic speeds and alignment being sufficient to allow efficient transport between nodes. • Measures such as sealed shoulders/turning lanes could be warranted to allow turning into adjacent properties without affecting through traffic efficiency or safety.	Rural > 200 AADT Urban > 1000 AADT
F – (Rural/Urban) Distributor Road • Functions as linkages from lower order roads to the wider road network but also access to adjacent properties becomes more prevalent. • Would generally be of sufficient traffic volume to warrant bitumen sealing of the road.	Rural 100 – 200 AADT Urban 500 – 1000 AADT

Hierarchy Classification	Indicative Trigger Traffic Volume (AADT)
G H – (Rural/Urban) Collector Road • Functions as access to adjacent properties and also serves as linkage from lower order roads to the wider road network, but to a lesser extent than a class F road. The function of access to property is more predominant and through traffic efficiency can be reduced accordingly. • May or may-not warrant bitumen sealing, depending on factors such as traffic volume, topography, environmental considerations etc.	**Class G** Rural 50 – 100 AADT Urban 250 – 500 AADT **Class H** Rural 10 – 50 AADT Urban 100 – 250 AADT
I – (Rural/Urban) Local Access • Road whose general function is to provide access to adjacent properties. • Roads could be of a "through road" configuration but no significant "through" traffic volume should exist. • Could be generally unsealed in large allotment rural areas with low population density and where houses are generally sited well away from the road reserve. • In urban areas, ideally could have features which increase open space amenity, safety, and facilitate pedestrian and cycle movements. Vehicle movements could be considered subservient to these other features. • Single lane carriageway widths (with appropriate passing opportunities) could be considered where environmental or other constraints exist.	Rural < 10 AADT Urban < 100 AADT
J – (Rural/Urban) Minimal Access • Road reserve which may or may not have any constructed road formation within it. • Road whose general function is to provide secondary access to adjacent properties only.	Rural/Urban < 2 AADT

Following from the classification above, special consideration is given to roads that form bus routes. Any road that forms part of a bus route is to be upgraded to a class F road. Class E roads would remain unchanged by this classification rule

All roads are further classified based on the road's surface type (i.e. sealed or unsealed). As such, the hierarchy of roads as described in this section are as follows:

- Sealed Regional Roads
- Unsealed Regional Roads
- Sealed Rural Local Roads
- Unsealed Rural Local Roads
- Sealed Urban Local Roads
- Unsealed Urban Local Roads

6.2.4 Inspections

Council undertakes the following inspections and frequencies:

Road Classification	Hazard/Defect Inspection Interval	Distribution of Inspections
E	Monthly	12 in any 12 month period
F	3 Monthly	4 in any 12 month period
G, H	6 Monthly	2 in any 12 month period
I	12 Monthly	1 in any 12 month period
J	24 Monthly	1 in any 24 month period

Defects identified during the above inspections are logged in a defect register for action subject to budgetary and resource constraints.

6.2.5 Intervention Levels

Defect identification and intervention levels for road assets included in this Asset Management Plan are as follows:

Defect	Intervention Level	Max. Response Time to Rectify Defect
Sealed Roads		
Pothole	300mm dia or 100mm depth	E,F – 10 working days G – 30 days H-J – 60 days
Edge Break/Edge Drop-off	500 mm lateral loss of seal into travel lane or 100mm depth within 300 mm of travel lane.	E – 15 working days F – 1 month G – 3 months H-J – 6 months
Surface Irregularity (Shove, depression etc)	100mm above or below design road levels within travel lanes or in pedestrian areas	E – 15 days F,G – 15 days H-J – 6 months
Spilled or loose materials	Any oil/chemical spill of greater then 3sq.m in area, any granular material deeper than 20mm and 5 sq.m in area.	E,F – 1 working day G-J – 1 week
Linemarking	Reduction in visibility/ retroreflectivity so as to become ineffective	E – 1 month F,G – 3 months H,I – 6 months
Tree suckers	Within 6 metres of edge of seal- Category E Within 4 metres of edge of seal – Categories F-I	E – 6 months F-I – 6 months
Tall Grass adjacent to road formation	>600mm height	E-I – 2 weeks
Unsealed Roads		
Pothole	1000mm dia or 150mm depth	E – 1 month F,G – 3 months H – 6 months I,J – 12 months

Defect	Intervention Level	Max. Response Time to Rectify Defect
Slippery Surface	Lack of pavement material	To be prioritised based on available gravelling funding and category of road E,F – 6 months G-J – 12 months
Surface Defects (Corrugations, Rock bars)	100mm depth and greater than 50 sq.m in area.	E – 1 month F,G – 3 months H – 6 months I,J – 12 months
Loose Material	100mm deep windrows or objects over 100mm	E – 1 month F,G – 3 months H-J – 6 months
Tree suckers	Within 6 metres of edge of travel lane—Category E Within 3 metres of edge of travel lane—Categories F-H Within 1 metre of edge of travel lane—Category I,J	E – 6 months F-J – 12 months
General		
Regulatory Signage	Sign illegible or missing (Night inspection required)	E-G – 14 days H-J – 1 month (no sign to exceed replacement date determined by date of manufacture)
Warning Road Signage	Sign illegible or missing (Night inspection required)	E – 14 days F-H – 1 month I,J – 3 months
Guideposts	Post in-operative or missing	E – 1 month F-H – 3 month I,J – 6 months
Vegetation (fallen branch)	Fallen onto road past edge of formation but not in a dangerous location	E – 1 week F,G – 1 month H,I – 3 months J – 6 months
Vegetation (Overhanging tree limbs)	Overhanging tree limbs in danger of falling onto carriageway	E- 1 week F,G – 1 month H,I – 3 months J – 6 months
Roadside Drainage	Blocked culvert/roadside drainage	E – 1 month F-H – 3 months I,J – 6 months
Litter	Excessive roadside litter	E – 1 month F-H – 3 months I,J – 6 months

Defect	Intervention Level	Max. Response Time to Rectify Defect
Incidence response	– Tree blocking travel lane in dangerous location – Large objects on road (e.g. 150mm solid objects or large dead animal) – Loose guardrail after a Motor Vehicle Accident – Dangerous scours/washouts due to heavy rain – Water over road/causeways – Chemical/Fuel spills	E-I – Inspection mobilised within 1 hour J – Inspection mobilised within 1 day 1 day to repair/make safe (Full repair < 1 month) Note; Extreme events may result in delays in meeting response times.

6.2.6 Operations & Maintenance

Work Definitions

Operational activities are defined as the following:

- Street sweeping
- Roadside slashing and mowing
- Weed Spraying
- Asset inspections

In the case of carriageway assets, maintenance activities affects both surfaces and basecourse assets, and includes:

- Repair of Potholes
- Repair of Surface defects
- Repair of Edge breaks
- Pre-seal repair work (hot mix surfacing, milling high lips, re-levelling surface boxes, patch stabilisation)
- Maintenance grading (unsealed)
- Surface and shape restoration (unsealed)
- Graffiti removal
- Emergency works (repair to storm damage, removal of dead animals, accident cleanups)
- Maintenance of cross-road culverts and longitudinal surface drainage

Maintenance intervention criteria are detailed in Section 5.2.5 of this Asset Management Plan.

General maintenance strategies include:

- Deferring minor maintenance work if road pavements are due for rehabilitation.
- Ensuring all defects are rectified before road pavements are re-sealed.
- Ensuring the network is maintained to deliver the desired levels of service.

Maintenance Expenditure Forecasts

Considerations in development of maintenance expenditure forecasts include:

- Road maintenance costs will increase with increase in traffic volumes, particularly heavy vehicles. Cost could also be impacted by increase to weight limits or change to permitted vehicle class permitted on a given road.
- Historical costs which have been of the order of $18K to $46.9K for Regional Roads and $868K to $1,057K for Local Roads over the last three years.

- The results of the pavement analyses and development of Maintenance Levels of Service and response times indicate routine maintenance needs of approximately $246K per annum for Regional Road and $514K per annum for Local Roads.

Maintenance grading of unsealed local roads is proposed using the following grading frequencies.

Road Classification	Maintenance Grades per Year
E	N/A
F	N/A
G	2
H	2
I	2
J	1 (as required)

The 20-year financial forecasts incorporate a 1.0% nominal increase in maintenance costs predominately to counter increasing heavy vehicle traffic on Regional Roads.

6.2.7 Reseals

Physical data

The vast majority of sealed Regional and Local Roads within the Council LGA are of a sprayed bitumen type. Council does not presently have data to differentiate seal type on its entire road network. The total length of sealed Regional and Local Roads in the Council LGA is 43.66km and 351.1km respectively.

Types of Pavement Surfacing

The type of top surface used depends on the traffic volume, the mix of traffic using the road and the condition of the underlying pavement. The most predominant types of road pavement surfacing used are:

Sprayed Bitumen Seals: Most cost effective wearing surface type for medium-low traffic demand locations. Sprayed bitumen seals waterproof underlying pavement layers with overlying stone layer(s) providing a suitable wearing course/ travelling surface for traffic. Sprayed surfacings have no structural strength but can tolerate some underlying pavement movement without undue distress. Used as the predominant seal type in rural applications.

Asphalt Overlays: Suitable for high traffic stress locations such as intersections and manoeuvring areas. In thin layers can be susceptible to brittle failure if underlying pavement is not of sufficient stiffness. In thicker layers, asphalts can have their own flexural strength and be used as a pavement load-bearing layer. Can be utilised in urban areas to avoid loose stone issues associated with sprayed bitumen seals.

Remaining Life

Wearing Surface Condition/Age
Sealed roads normally require resealing every 10-20 years depending on seal type and condition. Council's pavement management records do not currently include data on seal age. It is thought from field observation though that historical reseal activity has not been sufficient to enable a target 15-20

year seal cycle life and a significant backlog of older seals exists throughout the network. Old seals have significantly reduced waterproofing properties and represent a significant risk of failure of underlying pavement layers through water ingress.

Wearing Surface Expenditure Forecasts
Selection of the actual sections for treatment each year and the treatment used is based on analysis of asset condition records and field observation. Assessment is made of waterproofing properties of the existing seal (cracking, binder condition), maintenance demand (extent of pothole patching) and trafficability of the seal (available skid resistance etc).

Considerations in establishing the network budget needs include:

- The backlog of older sealed surfaces.
- Continuing growth in traffic volumes and loadings.
- Historical treatment unit costs, which have typically ranged between $20,000/km and $35,000/km.

The 20-year financial forecasts dictate a fairly even requirement for resealing of existing sealed pavements across the 20 year forecast period. This resealing requirement is crucial to preserving the underlying pavement from deterioration and avoiding more expensive treatment outcomes.

6.2.8 Renewal

Physical data

All road pavements in the Blayney LGA are considered to be flexible pavements. They are typically of a granular nature quarried from local sources and used in their natural or modified (crushed, addition of cement/lime etc) state. Some pavements are of considerable age and have exceeded their theoretical design traffic loadings, and hence are in various forms of degradation or decline in performance.

Types of Pavement

Selection of pavement type depends on the traffic volume, the mix of traffic using the road and the condition of the underlying subgrades. The most predominant types of road pavement used are:

Flexible Pavements Most cost effective pavement type for most traffic demand locations. Typically use locally quarried materials blended to achieve optimal grading and mechanical strength. Can have addition of additives such as cement, slag or lime at time of pavement construction to further improve materials properties. Pavements are designed to tolerate some movement during traffic loading (typically under 1mm deflection). Used almost universally in rural applications.

Rigid Pavements: Rigid pavements are typically used in high traffic stress locations or for pavements with high level of service (highways, motorways etc). They typically consist of concrete slab type construction methods. Capital costs are substantially higher than for flexible pavement but service life is usually correspondingly longer.

At times various flexible and rigid components can be utilised in the same pavement structure, or pavements constructed that exhibit properties of both flexible and rigid structures, typically known as semi-rigid pavements.

Remaining Life

Pavement Condition/Age
Typical sealed road pavements normally require rehabilitation or reconstruction every 40-70 years depending on traffic loadings, maintenance of good waterproofing layers (resealing) and condition. Council's pavement management records do not currently include data on pavement age. It is thought from field observation though that several pavements are nearing the end of their useable service life. This is exacerbated by poorer quality pavement materials used historically and significant increases to traffic volumes, loadings, and speeds during the pavement's service life. Deterioration of some pavements could also be the result of insufficient resealing attention, resulting in water ingress into the pavement layers.

Pavement Expenditure Forecasts
Selection of the actual sections for treatment each year and the treatment used is based on analysis of asset condition records and field observation. Assessment is made of condition of the existing seal (need for reseal), pavement distress (cracking, roughness) and maintenance demand (extent of pothole or heavy patching).

Considerations in establishing the network budget needs to include:

- The backlog of older poor pavements.
- Continuing growth in traffic volumes and loadings.
- Historical treatment unit costs, which are typically in the order of $150,000/km to $240,000/km, depending on the extent of works required.

Field observation and development of the 20-year financial models indicates an immediate investment required to alleviate a backlog of poor quality pavements requiring remediation. These pavements are typically unsuitable for another reseal due to excessive roughness or underlying pavement distress. Other pavements are of degrading quality but rehabilitation can be effectively deferred by immediate application of a reseal treatment early in the forecast period. During this final reseal cycle roughness and distress will continue to deteriorate to make further resealing at the end of the forecast period unsustainable.

6.2.9 Network Analysis

Condition rating of Council's Regional Road network and 250km of Council's sealed Local Road network was undertaken in 2008. The 250km of local roads condition rated represented Council's entire rural local sealed road network. No condition rating was done of Council's urban local sealed roads network. For works modelling and forecasting purposes, the condition of Council's rural local sealed road network will be assumed to be representative of Council's urban local sealed road network. Therefore, work modelling will be undertaken using the rated sample representing 86% of the total sealed local road network and both rural and urban roads have been combined with analysis taking place on the basis of sealed/unsealed criteria only.

Council's unsealed road network was also condition rated at the same time as Council sealed local roads. Long term analysis of unsealed roads is not practical though due to the rapid potential change in asset condition compared to sealed roads. Analysis of Council's unsealed road network was completed via other means as discussed below.

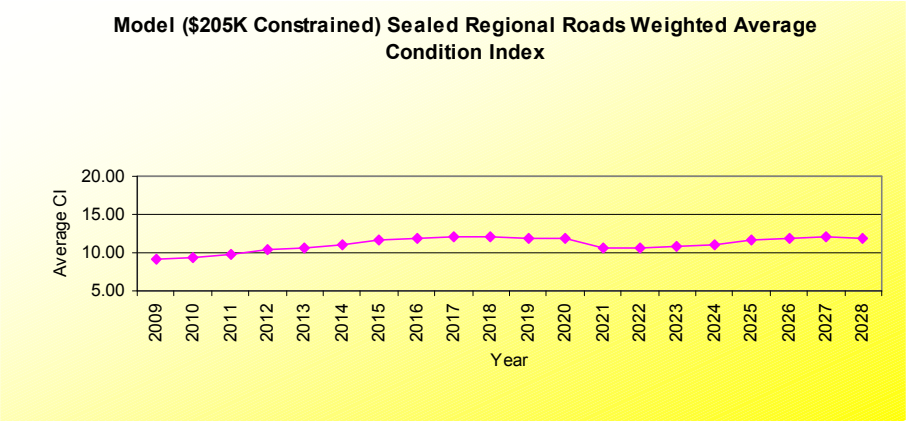
Analysis of both Regional and Local road networks have been undertaken using two key scenarios, namely:

- Historical road based expenditure.
- Expenditure required to sustain the network condition (in both physical and financial terms).

Regional Roads Analysis

Works Model – Regional Sealed Roads, Historical Roads Expenditure

A forward works program was developed, constrained by historical levels of expenditure on Council's Regional Road network. Using historical resealing and renewal expenditure from section 5.2.2 above, these average to an expenditure of $206,000 over the five years of available data.

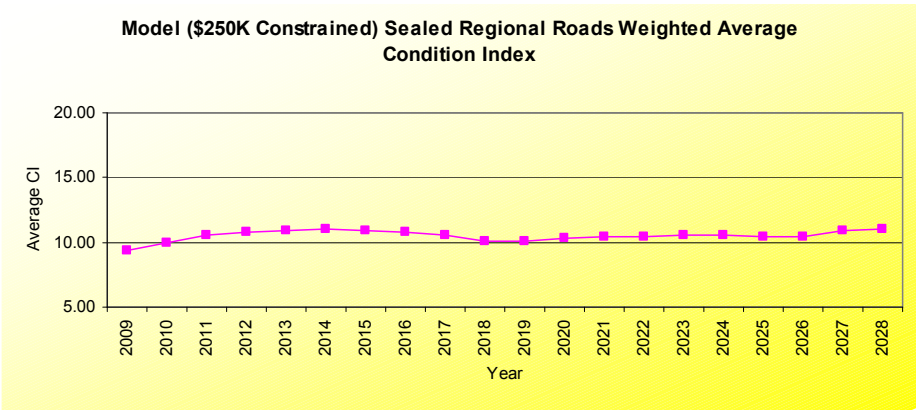


The above chart indicates that the constrained levels of expenditure in the asset model results in a modest net deterioration of the overall network condition over the forecast period and results in a $0.85M loss of service potential over the 20 year forecast period. (This means that deterioration (or depreciation) of the network outstrips renewal expenditure by $0.85M.)

Future expenditure based on historical expenditure will result in a reduction in network condition and performance over the 20 year forecast period.

Works Model – Regional Sealed Roads, Sustainable Expenditure Model

A level of expenditure was sought that gave a target works quantity to achieve desired surface and pavement lifecycle periods and also returned a nil net reduction in asset potential. The required expenditure level was determined as $253,000 per annum.



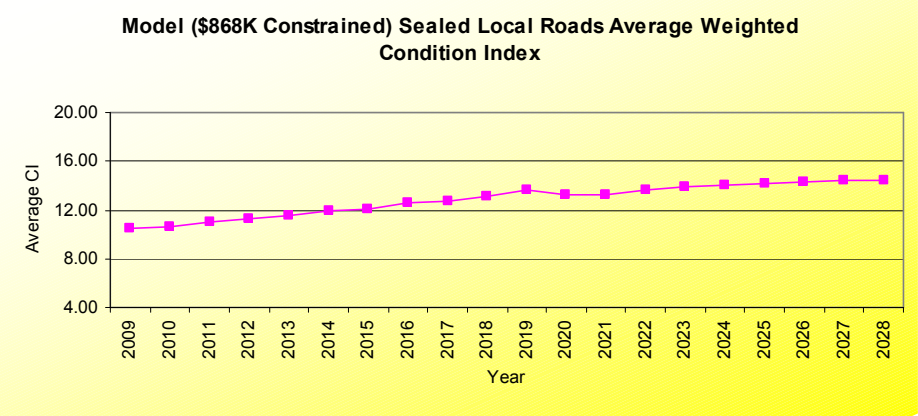
This Works Model returns a negligible amount of asset condition deterioration over the 20 year forecast period and returns a small positive service potential over the 20 year forecast period.

This model indicates the levels of expenditure required to manage Council's sealed Regional Road network on a sustainable basis.

Local Roads Analysis

Works Model – Local Sealed Roads, Historical Roads Expenditure

A forward works program was developed, constrained by historical levels of expenditure on Council's Local Road network. Using historical resealing and renewal figures from section 5.3.2, these average to an expenditure of $1,009,200 over the five years of available data. Using the representative sample analysed as discussed above, the historical expenditure used in the asset model was calculated as 86% of $1.009M, or $867,900.

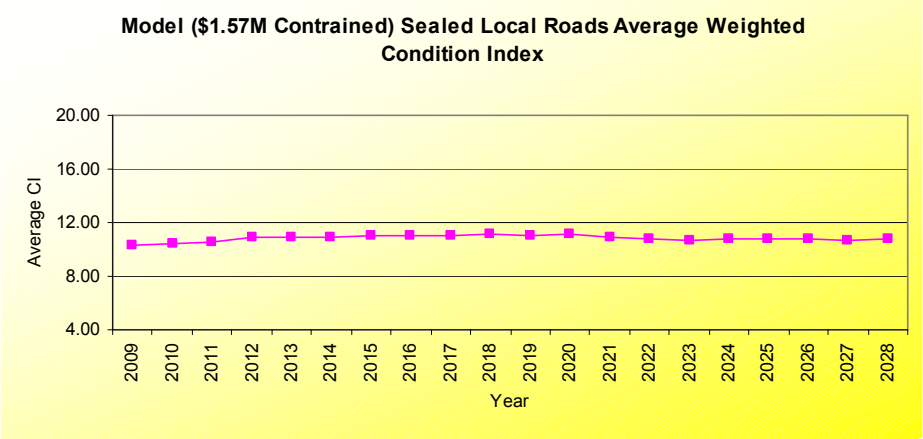


The above chart indicates that the constrained levels of expenditure in the asset model results in a sustained deterioration of the overall network condition over the forecast period and a $14.8M loss of service potential over the 20 year forecast period (for the full local sealed road network). (This means that deterioration (or depreciation) of the network outstrips renewal expenditure by $14.8M.)

Future expenditure based on historical expenditure will result in a marked reduction in network condition and performance over the 20 year forecast period.

Works Model – Local Sealed Roads, Sustainable Expenditure Model

A level of expenditure was sought that gave a target works quantity to achieve desired surface and pavement lifecycle periods and also returned a nil net reduction in asset potential. The required expenditure level was determined as $1,826,000 per annum. Using the representative sample analysed as discussed above, the historical expenditure used in the asset model was calculated as 86% of $1,826,000, or $1,570,000.



This Works Model returns a negligible amount of asset condition deterioration over the 20 year forecast period and a nil loss of service potential over the 20 year forecast period.

This model indicates the levels of expenditure required ($1.83M p.a.) to manage Council's Local Sealed Road network on a sustainable basis.

Unsealed Local Roads Network

Use of condition rating data for unsealed roads for long-term analysis is usually not practical due to the rapid potential change in asset condition, relative to sealed roads. Assessment of network needs is therefore done on the basis of basic models to predict gravel resheeting and other activities using typical treatment life expectancies.

A level of expenditure was sought that gave a target works quantity to achieve desired surface and pavement lifecycle periods and also returned a nil net reduction in asset potential. The required expenditure level was determined as $547K per annum, based on gravel resheeting cycle periods as follow:

Road Classification	Average Gravel Resheet Cycle Period (Years)
E	N/A
F	N/A
G	20
H	20
I	35
J	150+

This level of expenditure results in a nil loss of service potential over the 20 year forecast periodand indicates the levels of expenditure required to manage Council's Local Unsealed Road network on a sustainable basis.

6.2.10 New Works Strategies

Capacity driven development

New works on Regional and Local Roads will be focussed around upgrade of existing pavements and alignments to suit current design standards. Works will also include widening of existing pavements, usually in conjunction with other works such as resealing or rehabilitation.

Private Land Development

Small amounts of private land development (both residential and commercial) in the LGA contribute new roads assets for Council management on a sporadic basis. The quantum of this new road asset is negligible when compared to Council's existing asset size.

New Works Expenditure Forecasts

Major forms of new works to take place of Council's roads network are:

- Realignment or widening works done in conjunction with reseal or renewal works.
- Initial sealing of existing unsealed roads
- Safety improvements
- Isolated intersections

New (or improvement) works will typically be in the form of realignment or widening works done in conjunction with reseal or renewal works. The reseal or renewal works will generally be the primary driver for works to be undertaken, with improvement works being undertaken on an opportunistic basis to take advantage of reduced establishment and other project costs. These new works will generally comprise a relatively small component of the total project costs.

New works as described above have been assumed to comprise approximately $25,000 p.a and $410K p.a. for Regional and Local Roads respectively over the 20 year forecast period.

6.2.11 Disposal

Due to the generally high hierarchical classification of Regional Roads in the road network, there is generally no opportunity for disposal of these assets.

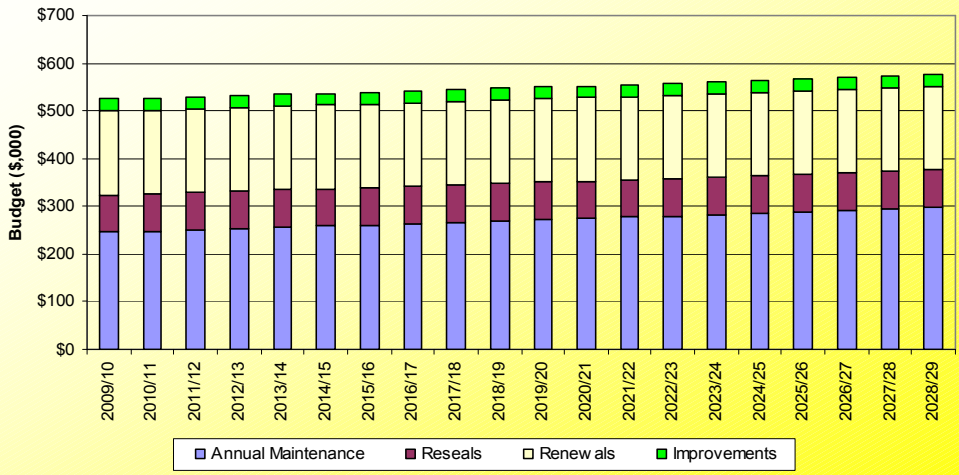
The main mechanism for change to the Regional Road asset base would be an activity such as a "Road Reclassification", where roads could be changed in classification to or from local roads, regional roads or state roads.

Accordingly, due to the relatively static nature of the size and demand on Council's Local Road network, there is generally little opportunity for disposal of Local Road assets. Council may undertake periodic reviews to existing local road networks to determine opportunities to close redundant roads without adversely affecting LOS to adjacent residents. Opportunities for closure of road reserves and/or road formations are generally rare and sporadic in nature. No specific actions have been considered to manage disposal of existing roads assets.

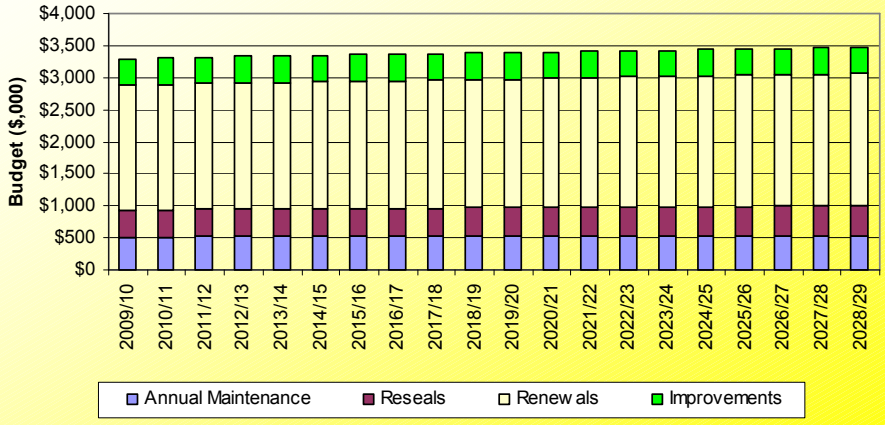
6.2.12 Summary of Financial Expenditure

In summary, utilising findings from the Sustainable Models analysed above, expenditure on Blayney Shire Council's Regional and Local Road networks over the 20 year forecast period are predicted as follows:

Blayney Regional Roads - 20 Year Financial Summary



Blayney Local Roads - 20 Year Financial Summary



6.3 Asset Group 2 – Bridges & Rural Culverts

6.3.1 Objective

Council's objective in the management of its bridge and culvert network is to provide functional and efficient assets that service the community's expectations.

Bridges and culverts form a key component of Council's transportation network in that if a bridge or culvert has a reduced level of service (say a lowered load limit), then it severely restricts the level of service of the adjacent road network that is serviced by that structure.

6.3.2 Background Data

Overview

Council's bridge and culvert networks serve as critical linkages within Council's road network, particularly across adverse terrain types such as creeks and rivers. Key life-cycle issues that affect the bridge and culvert network include:

- Provision of adequate resources (financial and physical) for maintenance of bridge structural integrity, to maintain desired levels of service (traffic load limits).
- High capital costs of major renewal or improvement works, and the lack of opportunity to stage works to disperse funding requirements over several years.

Asset Performance

Characteristics of the performance of Council's bridge assets are as follows:

- Council has 26 timber bridges, of which all are located on Local Roads. These bridges have been periodically refurbished as required but are planned to be ultimately replaced with lower maintenance structures within the 20 year term of this Asset Management Plan.
- The remainder of Council's bridge network is generally of reinforced concrete construction of generally less than 60 years of age. No individual bridge of reinforced concrete construction has been identified for major renewal or replacement within the 20 Asset Management Plan forecast period, but would be expected to start occurring in the ten years after the present forecast (i.e. 20-30 years from now). The majority of these bridges have been built on an optimum road alignment, which will raise issues of replacement on current alignments (with side track construction issues) or to replace on a new alignment with significant road approach construction costs.
- The wide extent and variable condition of Council's minor culverts makes management difficult without extensive resources put into monitoring and assessment.

Asset Value

Asset Valuation data has been provided by Council. The following table identifies the current valuation of Council's bridge and culvert assets.

Type	Quantity	Replacement Cost ($'000)	Written Down Value ($'000)
Regional Roads			
Timber Bridges	Nil	Nil	Nil
Other bridges (Concrete, concrete/steel composites)	825 m^2	$ 3,340.9	$ 2,922.7
Bridge Size Culverts	269 m^2	$ 41.1	$ 32.9
Minor Culverts	406 l.m	$ 307.7	$ 184.6
Sub-total Regional Bridges		**$ 3,689.8**	**$ 3,140.3**
Local Roads			
Timber Bridges	1,664 m^2	$ 5,376.9	$ 2,170.5
Other bridges (Concrete, concrete/steel composites)	2,534 m^2	$ 12,029.5	$ 9,316.5
Bridge Size Culverts	1,772 m^2	$ 950.7	$ 729.5
Minor Culverts	5,634 l.m	$ 3,843.2	$ 2,447.4
Sub-total Local Bridges		**$ 22,200.5**	**$ 14,664.0**
Totals		**$ 25,890.3**	**$ 17,804.3**

Historical Expenditure

The table and figure below summarise the asset group historical expenditure over the period 2004/05 – 2008/9.

($'000)	2004/05	2005/06	2006/07	2007/08	2008/09
Operations & Maintenance	$ 39	$ 57	$ 57	$ 15	$ 43
Renewals & Upgrades	$ 703	$ 364	$544	-	-
TOTALS	**$ 742**	**$ 421**	**$ 601**	**$ 15**	**$ 43**

6.3.3 Hierarchy

Hierarchies used in this section of the Transportation Asset Management Plan have been based on bridge/culvert construction type rather than the hierarchy of road adjacent to the bridge or culvert structure. This is due to the fact that a bridge or culvert structure's construction and material type determines its inspection regime and likely defect types, rather than the hierarchical level of road that it is situated under.

In summary, hierarchical classifications adopted for bridge assets are as follows.

Hierarchy Classification
B1 – Timber Bridges Bridges of primarily timber construction. Includes bridges that have major structural elements of timber construction, even though elements such as decking may be of a different construction type (i.e. concrete).
B2 – Bridges (Other construction types) Bridges of typical bridge construction type (deck with piers etc) of all other material types other than timber, e.g. concrete, steel.
B3 – Bridge Size Culverts (All construction types) Multi-cell culvert structures with a combined cell width exceeding 6.0 metres.
B4 – Minor Culverts (All construction types) Culvert structures greater than 450mm in diameter, up to a combined cell width of less than 6.0 metres.

6.3.4 Inspections

Inspection of bridges and culverts is based on the structure's construction type. Timber bridges have a more frequent inspection regime due to the natural variability of timber components and their potential for rapid deterioration. Council undertakes the following inspections and frequencies:

Asset Classification	Hazard/Defect Inspection Interval	Distribution of Inspections
B1 – Timber Bridges	12 Monthly	1 in any 12 month period
B2-3 – Other Bridges/ Major Culverts	5 Yearly	1 in any 5 year period
B4 – Minor Culverts	10 Yearly	1 in any 10 year period

Defects identified during the above inspections are logged in a defect register for action subject to budgetary and resource constraints.

6.3.5 Intervention Levels

Defect identification and intervention levels for bridge assets included in this Asset Management Plan are as follows:

Defect	Intervention Level	Max. Response Time to Rectify Defect
Timber Bridges		
Splitting, cracking, rot, deformation of timber structural elements,	Deterioration of any structural element sufficient to compromise structural integrity of the bridge structure.	6 months unless otherwise recommended by inspection
Fixings loose/missing	Any bolts, rivets or other fixings loose, missing or otherwise defective.	4 weeks unless urgent
Termite/pest Infestation	Invasion of termites or other invasive insects into bridge elements.	6 months
Protective coatings (paint etc)	Loss of solar/water protection to timber elements	12 months
Other Bridge/Culvert Construction Types		
Concrete spalling	Spalling to expose steel reinforcement.	2 months
Fixings loose/missing	Any bolts, rivets or other fixings loose, missing or otherwise defective.	4 weeks unless urgent
Protective coatings (paint etc)	Loss of solar/water protection to bridge elements	12 months
General		
Loss of skid resistance on Trafficable Surface	Loss of skid resistance on trafficable deck surface to below that of adjacent roadway.	3 months
Vegetation/Debris under bridge within waterway area.	Vegetation/debris against bridge piers and/or causes greater than 30% loss in waterway area.	3 months
Blocked scuppers/ drainage	Causes ponding of water onto trafficable surface	4 weeks
Defective Guardrail/handrail	Loss of serviceability/intended function.	2 weeks
Erosion/scour of piers, abutments or headwalls.	Loss of earth to below design surface levels, exposure of foundation elements.	3 months

Depending on the severity of some individual defects, defect response times may be required to be shortened so as to not unduly compromise the structure's integrity or capacity.

6.3.6 Operations & Maintenance

Work Definitions

Operational activities are defined as the following:

- Weed Spraying
- Asset and Maintenance Inspections

In the case of bridge assets, maintenance activities include:

- Clearing of debris from waterway areas.
- Reinstatement of corrosion protection
- Painting
- Repair to deck surfaces (potholes etc)
- Graffiti removal
- Emergency works (repair to storm damage, removal of dead animals, accident cleanups)

Maintenance intervention criteria are detailed in Section 5.3.5 of this Asset Management Plan.

General maintenance strategies include:

- Deferring minor maintenance work if the asset is due for rehabilitation.
- Ensuring all defects are rectified during major refurbishments.
- Ensuring the asset is maintained to deliver the desired levels of service.

Maintenance Expenditure Forecasts

Considerations in development of maintenance expenditure forecasts include:

- Bridge maintenance costs will increase with increase in traffic volumes, particularly heavy vehicles. Cost could also be impacted by increased to weight limits or change to permitted vehicle class permitted on a given adjacent road.
- Historical costs which have been of the order of $15K to $57K annually over the last five years.
- Development of Maintenance Levels of Service and response times indicate routine maintenance and repair demands of approximately $60K per annum

The 20-year financial forecasts incorporate a 1.0% nominal increase in maintenance costs, predominately to counter increasing heavy vehicle traffic on Council's road and bridge network.

6.3.7 Renewal

Physical data

All bridges and major culverts in the Blayney LGA are generally constructed of a combination of timber, concrete or steel elements. Timber bridges are generally of higher maintenance demand than other construction types and are being progressively phased out and replaced with other construction types.

Types of Structure

Selection of new bridge structure type depends on issues such as watercourse width and topography, road traffic volume and traffic mix. The most predominant types of bridge structure used are:

Concrete Bridge Most new bridge structures constructed would consist of a concrete planked deck underlain by concrete girders. Girders of other construction types such as steel or timber (doolan deck) could be considered in specific locations depending on span required, traffic loading, and site constraints. The bridge structure is usually supported by piled foundations with abutments to retain the road formation and direct water under the structure constructed of concrete or other scour resistant materials.

Culvert Structure: Where the watercourse characteristics allow (such as low head height from stream bed, small spans etc) culvert structures may be constructed. These structures are almost universally constructed of steel reinforced concrete pipes or boxes profiles, often in multiple cells. Traffic can be designed to run directly on top of box structures or fill placed on top to raise the levels to required road carriageway levels. Culvert structures are generally cheaper to construct than a equivalent span bridge structure. Construction of culvert structures requires substantial works in the stream bed, and so are not generally suited to highly sensitive ecological areas.

Remaining Life

Structure Condition/Age
Typical bridge assets normally require rehabilitation or reconstruction approximately every 60-100 years depending on construction type, traffic loadings, maintenance and condition. Council has some records of construction year for bridge structures but very few culverts. Bridges and culverts of concrete and steel construction are generally less than 60 years of age and so have at least 20 years of remaining life before major refurbishment is predicted. Bridges of timber construction, whilst the majority are still of serviceable condition, will be replaced by concrete construction types at their next major renewal due to increasing difficulty sourcing suitable replacement timbers and labour skills required to maintain timber structures.

Expenditure Forecasts
Selection of the bridges for treatment each year and the treatment used is based on analysis of asset condition records and field observation. Assessment is made of condition of the existing bridge structure and maintenance demand.

Considerations in establishing the network budget needs include:

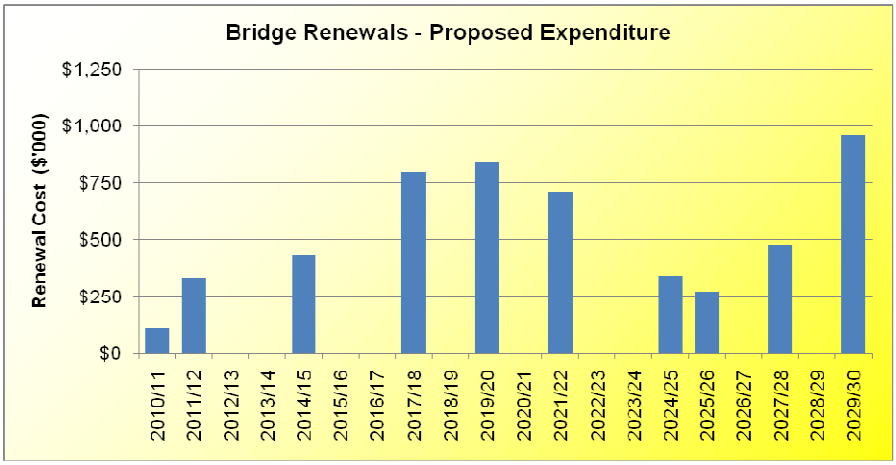
- Condition and type of bridge assets requiring renewal.
- Continuing growth in traffic volumes and loadings.
- Historical renewal and maintenance costs.

Network Analysis

All non-timber bridges on Council's network have been estimated to have a remaining life greater than the 20 year term of this TAMP. A works program has been prepared for the 25 timber and steel bridges on Council's asset register as follows:

Bridge	Replacement Year	Estimated Replacement Cost ($'000)
Carcoar Dam Rd, Carcoar (Chain of Ponds Ck) (CH 9.44km)	1	$110
Garland Rd, Lyndhurst (Grubbenbun Ck) (CH 7.25km)	2	$200
Rosedale Rd, Blayney (Sugarloaf Ck) (CH 1.20km)	2	$130
Forest Reefs Rd, Millthorpe (Cowriga Ck) (CH 3.32km)	5	$160
Newbridge Rd, Newbridge (Evans Plains Ck) (CH12.68km)	5	- **
Old Lachlan Rd, Hobbys Yards) (CH 9.60km)	5	$120
Carcoar Rd (Cowriga Ck) (CH 11.75km)	8	$560
Hines Ln, Lyndhurst (Grubbenbun Ck) (CH 0.12km)	8	$130
Yangoora Rd, Garland (Grubbenbun Ck) (CH 0.21km)	8	$110
Lucan Rd, Garland (Limestone Ck) (CH 3.85km)	10	$190
Four Mile Ck Rd, Panuara (Swallow Ck) (CH 16.84km)	10	$360
Leabeater St, Lyndhurst (Grubbenbun Ck) (CH 0.05km)	10	$140
Coombing St, Carcoar (CH 0.07km)	10	$150
Gallymont Rd, Mandurama (Felltimber Ck) (CH 4.79km)	12	$290
Winterbottoms Ln, Garland (Snake Ck) (CH 0.41km)	12	$110
Kinds Ln, Lyndhurst (Crubbenbun Ck) (CH 0.19km)	12	$110
Gallymont Rd, Mandurama (Gallymont Ck) (CH 6.04km)	12	$200
Glenarvon Rd, Neville (Macquarie Swamp) (CH 1.75km)	15	$110
Pitlochry Rd, Neville (CH 0.54km)	15	$80
Newbridge Rd, Newbridge (Liscombes Ck) (CH10.26km)	15	$150
Snake Ck Rd, Garland (Mandurama Ponds) (CH 4.97km)	16	$120
Mathews Rd, Browns Ck (Cowriga Ck) (3.59km)	16	$150
Errowangbang Rd (Dirt Hole Ck) (CH 4.90km)	18	$340
Dowsetts Ln, Hobbys Yards (Coombing Ck) (CH 0.05km)	18	$140
Naylor St, Carcoar (Belubula River)	20	$960

** Bridge works fully developer funded.



The above expenditure averages to an expenditure of approximately $264K per year for the 20 year life of the TAMP.

The total deck area of Council's bridge network is approximately 4,822 square metres plus 2,081 square metres of major culverts. This equates to an asset replacement cost of approximately $24.7M. Using a predicted asset life of 100 years, this equates to an average required renewal expenditure of $247K per annum. This aligns to within five percent (7%) of the predicted TAMP expenditure above and shows predicted renewal expenditure is at sustainable levels.

6.3.8 New Works Strategies

Capacity driven development

New bridge works will be derived around upgrade of existing assets to suit current design and route standards. Works will also include widening of decks or minor realignments, usually in conjunction with other works such as road improvements.

New Works Expenditure Forecasts

Major forms of new works to take place of Council's bridge assets are:

- Realignment or widening works done in conjunction with adjacent road improvement works.
- Safety improvements

New (or improvement) works will typically be in the form of realignment or widening works done in conjunction with adjacent road works. Bridge renewal works would normally be the primary driver for works to be undertaken, with improvement works being undertaken on an opportunistic basis to take advantage of reduced establishment and other project costs.

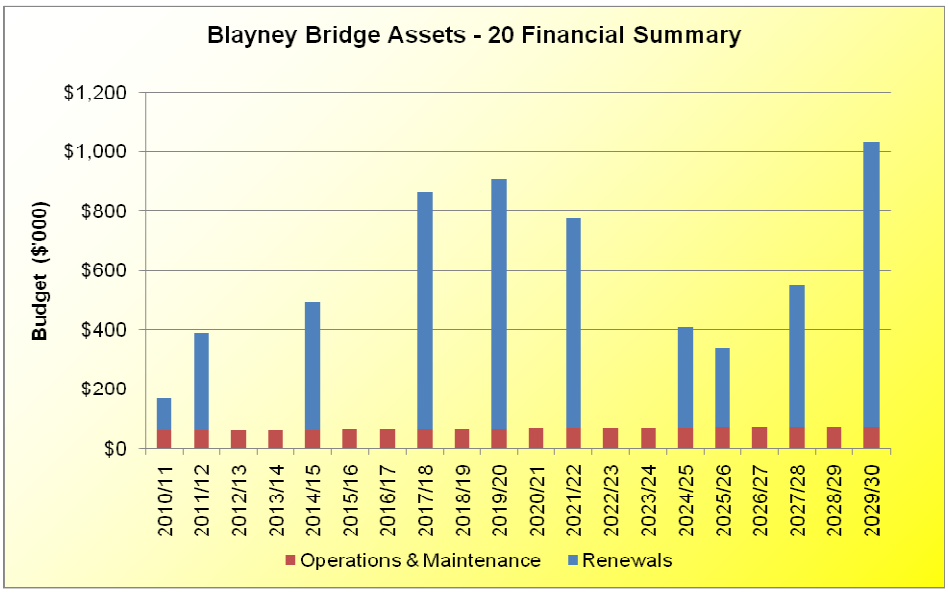
Costs of new works as described above have been incorporated into renewal costs (as above over the 20 year forecast period).

6.3.9 Disposal

Due to the relatively static nature of the size and demand on Council's road (and hence bridge) network, there is generally little opportunity for disposal of bridge and culvert assets. Opportunities for closure of roads and/or bridges are generally rare and sporadic in nature. No specific actions have been considered to manage disposal of existing bridge and culvert assets.

6.3.10 Summary of Financial Expenditure

In summary, utilising findings from the analysis above, expenditure on Blayney Council's Bridge network over the 20 year forecast period is predicted as follows:


Blayney Bridge Assets - 20 Financial Summary
Budget ($'000)
$1,200
$1,000
$800
$600
$400
$200
$0
2010/11
2011/12
2012/13
2013/14
2014/15
2015/16
2016/17
2017/18
2018/19
2019/20
2020/21
2021/22
2022/23
2023/24
2024/25
2025/26
2026/27
2027/28
2028/29
2029/30
Operations & Maintenance
Renewals

6.4 Asset Group 3 – Kerb & Gutter

6.4.1 Objective

Council's objective in the management of its kerb & gutter network is to provide functional and efficient assets that services the community's expectations.

Kerb & gutter forms a key component of Council's transportation network, to transfer stormwater from the road pavement and adjacent areas to stormwater pits or other disposal locations, in a safe and efficient manner and so as to not cause damage to other adjacent infrastructure.

6.4.2 Background Data

Overview

Council's kerb & gutter assets form a key component of Council's urban streetscape. Key life-cycle issues that affect Council's kerb & gutter network include:

- Management of aging kerb & gutter assets in a functional condition, while having respect for heritage issues and community expectations.
- Provision of adequate resources to develop information related to performance of the existing assets, in particular establishment of condition monitoring regimes and development of predictive models to better understand asset lives and performance.

Asset Performance

Characteristics of the performance of Council's kerb & gutter assets are as follows:

- A stable but aging asset network that largely performs to expected function. The kerb & gutter network is generally not subjected to traffic or other loadings that cause asset failure. Failure generally stems from tree root incursions or general material deterioration.

Asset Value

Asset Valuation data has been provided by Council. The following table identifies the current valuation of Council's kerb & gutter assets.

Type	Length (km)	Replacement Cost ($'000)	Written Down Value ($'000)
Concrete Kerb & Gutter (all profiles)	65.24	$ 5,356.8	$ 4,017.6
Blue Stone Kerb & Gutter	0.25	$ 2,205.7	$ 1,654.2
Riverstone kerb & Gutter	0.44	$ 657.4	$ 493.0
Total	**65.93 km**	**$ 8,219.9**	**$ 6,164.8**

Historical Expenditure

The table and figure below summarise the asset group historical expenditure over the period 2004/05 – 2008/09.

($'000)	2004/05	2005/06	2006/07	2007/08	2008/09
Operations & Maintenance	$ N/A	$ N/A	$ N/A	$ N/A	$ N/A
Renewals & Upgrades	$ 0	$ 17	$ 333	$ 61	$ 281
TOTALS	**$ 0**	**$ 17**	**$ 333**	**$ 61**	**$ 281**

Separate K&G Maintenance & Operations historical expenditure is not available.

6.4.3 Hierarchy

Asset Hierarchies used in this section of the Transportation Asset Management Plan have been based on the asset's roadside setting (commercial, other urban or rural setting) as follows

Hierarchy Classification
K1 – Kerb & Gutter, Urban Commercial/CBD Localities Kerb & gutter situated within village or townsite commercial/CBD areas with high vehicle and pedestrian movements.
K2 – Kerb & Gutter, Urban Non-commercial areas Kerb & gutter located in urban areas outside commercial areas, predominately residential localities.
K3 – Kerb & Gutter, Rural areas Kerb & gutter situated in rural locations. (Usually to drain water at the base of roads cuttings or similar)

In addition, kerb & gutter assets are classified in accordance with their construction material or type. As such, kerb & gutter as described in this section is categorised as follows:

- Concrete Kerb & Gutter, including:
  - Extruded concrete profiles (i.e. upright, rollover etc)
  - Concrete Formed K&G
- Historic construction types including Blue-stone blocks.

6.4.4 Inspections

Inspection of kerb & gutter is based on the asset's hierarchy. Council undertakes the following inspections and frequencies:

Asset Classification	Hazard/Defect Inspection Interval	Distribution of Inspections
K1	2 Yearly	1 in any 2 Year period
K2-K3	5 Yearly	1 in any 5 Year period

Defects identified during the above inspections are logged in a defect register for action subject to budgetary and resource constraints.

6.4.5 Intervention Levels

Defect identification and intervention levels for kerb & gutter assets included in this Asset Management Plan are as follows:

Defect	Intervention Level	Max. Response Time to Rectify Defect
All Kerb & Gutter Types		
Displacement (vertical or horizontal) at joints	Vertical or horizontal displacement at joints: K1 – 25mm K2-3 – 50mm	K1 – 3 Months K2-3 – 6 Months
Rolling of kerb	Vertical or horizontal level mismatch to pavement at lip: K1 – 25mm K2-3 – 50mm	K1 – 6 Months K2-3 – 12 Months
Gutter ponds water	Loss of function in effectively transporting of stormwater. Ponding affects adjacent traffic or access to properties.	Determined on a case by case basis.
Cracking	Loss of function due to cracking or loss of material from asset.	K1-3 – 12 Months

6.4.6 Operations & Maintenance

Work Definitions

Operational activities are defined as the following:

- Street sweeping
- Weed Spraying
- Asset Inspections

Maintenance activities affects both surfaces and substrate asset components, and can include:

- Repair of surface defects (cracking, spalling)
- Repair of edge breaks
- Replacement of short sections of failed kerb.
- Graffiti removal
- Emergency works (repair to storm damage, removal of debris)

Maintenance intervention criteria are detailed in Section 5.4.5 of this Asset Management Plan.

General maintenance strategies include:

- Deferring minor maintenance work if adjacent road pavements are due for rehabilitation.
- Ensuring the network is maintained to deliver the desired levels of service.

Maintenance Expenditure Forecasts

Considerations in development of maintenance expenditure forecasts include:

- Kerb & gutter maintenance costs will increase with increase in traffic volumes, particularly heavy vehicles travelling over kerbs to enter and exit properties.

- Historical costs, although these are not known for this asset class.
- Development of Maintenance Levels of Service and response times indicate routine maintenance needs of approximately $27K per annum

The 20-year financial forecasts incorporate a 1.0% nominal increase in maintenance costs predominately to counter increasing heavy vehicle traffic and aging of heritage value assets.

6.4.7 Renewal

Physical data

Kerb & Gutter asset in the Blayney LGA typically consist of extruded concrete or blue-stone construction. Some kerb & gutter assets are of considerable age and have exceeded their theoretical design life, and hence are in various forms of degradation or decline in performance.

Types of Asset Construction

Selection of new kerb & gutter construction type is based on adjacent construction types, structural performance required, and urban setting. The most predominant types of new kerb & gutter construction types are:

Extruded Concrete	Extruded concrete kerbing is the most common form of modern kerb & gutter construction, and can be formed into many kerb profiles including, upright, roll-over or layback, dished or kerb only profiles. Profiles are constructed using a mechanised extrusion machine using standard Portland cement concretes and are usually un-reinforced, though steel or fibre reinforcing may be used in certain high strength situations. Extruded concrete profiles are generally universally preferred except where specific factors may require other kerb construction types (heritage issues or specific CBD streetscape treatments).
Heritage Treatments (Bluestone or Riverstone Kerbing)	Bluestone or Riverstone kerb & gutter is a heritage treatment still existing in various urban areas. These construction types have strong heritage value and cannot be disturbed or replaced with other construction types. Existing Bluestone and Riverstone kerbs would be replaced with new Bluestone or Riverstone units, generally in localised areas to rectify localised failed areas. As such, existing Bluestone and Riverstone kerbing is planned to be maintained indefinitely through localised repairs, rather than whole of asset replacement.

Remaining Life

Asset Condition/Age

Typical kerb & guttering could be expected to have a serviceable life of the order of 80 years, being heavily dependent on traffic loading, subgrade and other environmental conditions. Heritage kerb types (bluestone & riverstone) are expected to last indefinitely with increased maintenance costs over more contemporary kerb types. Council's asset systems do not currently include data on kerb age. It is thought from staff experience and field observation though that several assets are of considerable age but are still performing satisfactorily.

Asset Expenditure Forecasts
Selection of the kerb sections for treatment each year and the treatment used is based on analysis of asset condition records and field observation. Assessment is made of asset condition and maintenance demand.

Considerations in establishing the network budget needs include:

- Condition and type of assets requiring renewal.
- Historical renewal and maintenance costs.
- Environmental issues such as potential change of adjacent land use that may trigger need for asset upgrade.

Network Analysis

Council does not have sufficiently detailed asset condition data for its kerb & gutter assets to enable development of detailed, predictive asset needs models. Assessment of network needs is therefore done on the basis of basic models to predict replacement and other activities using typical treatment life expectancies.

The total length of Council's kerb & gutter network is approximately 65.9 kilometres. This equates to an asset replacement cost of approximately $8.2M. Using a predicted asset life of 80 years, this equates to an average required renewal expenditure of $103K per annum.

Council current Five Year Management Plan does not separate proposed expenditure on kerb & gutter assets. Therefore, comparison with proposed vs required expenditure is not possible.

It is therefore concluded that to achieve a nil net loss of service potential of Council's kerb & gutter network, that renewals expenditure should be increased to at least the order of $103K p.a.

6.4.8 New Works Strategies

New kerb & gutter works will generally be triggered via:

- Works to alleviate a specific drainage issue.
- Developer contributed works.

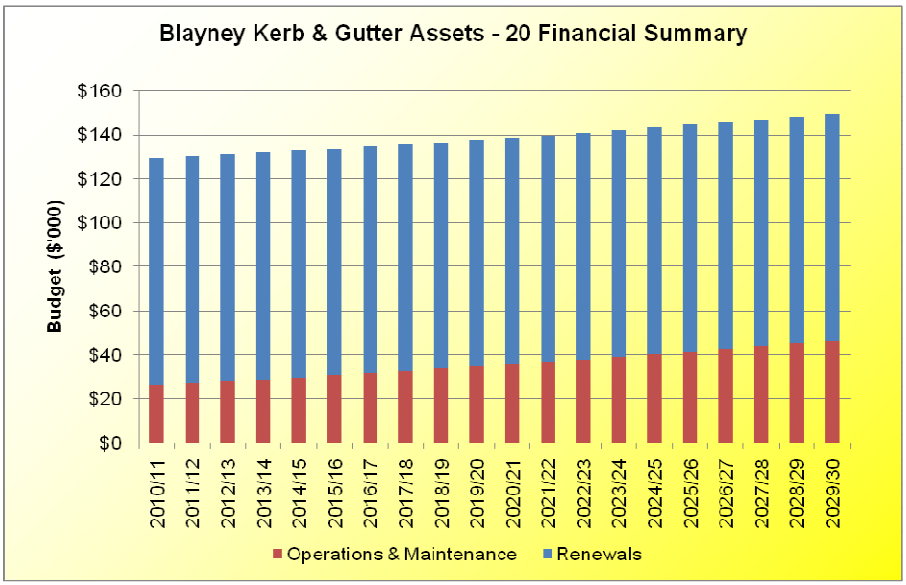
Council has no program of provision of new Council funded kerb & gutter within its urban areas.

6.4.9 Disposal

Due to the public demand for increased urban amenity provided by provision of kerb & gutter in urban areas, there is generally little opportunity for disposal of kerb & gutter assets. No specific actions have been considered to manage disposal of existing kerb assets.

6.4.10 Summary of Financial Expenditure

In summary, utilising findings from the analysis above, expenditure on Blayney Shire Council's Kerb & Gutter network over the 20 year forecast period is predicted as follows:


Blayney Kerb & Gutter Assets - 20 Financial Summary
Budget ($'000)
$160
$140
$120
$100
$80
$60
$40
$20
$0
2010/11
2011/12
2012/13
2013/14
2014/15
2015/16
2016/17
2017/18
2018/19
2019/20
2020/21
2021/22
2022/23
2023/24
2024/25
2025/26
2026/27
2027/28
2028/29
2029/30
Operations & Maintenance
Renewals

6.5 Asset Group 4 – Footpaths & Cycleways

6.5.1 Objective

Council's objective in the management of its footpath and cycleway networks are to provide functional and efficient assets that services the community's expectations.

Footpaths and cycleways form a key component of Council's transportation network to provide safe and efficient avenue for pedestrian and cyclist traffic within urban areas. This Transport Asset Management Plan covers footpath and cycleway assets that perform transport functions, generally located adjacent to road carriageways. Paths that serve recreational purposes, generally located within recreation areas or precincts, are not covered by this TAMP, but will be addressed by development of future AMPs to cover these areas.

In this section of the TAMP the use of the "footpaths" term refers to both footpath and cycleway path types unless otherwise expressed.

6.5.2 Background Data

Overview

Council's footpath assets form a key component of Council's urban streetscape. Key life-cycle issues that affect Council's footpath network include:

- Management of aging footpath assets in a functional condition to community expectations.
- Provision of adequate resources to develop information related to performance of the existing assets, in particular establishment of condition monitoring regimes and development of predictive models to better understand asset lives and performance.

Asset Performance

Characteristics of the performance of Council's footpath assets are as follows:

- A stable but aging asset network that largely performs to expected function. The footpath network is generally not subjected to traffic or other loadings that cause asset failure. Failure generally stems from tree root incursions or general material deterioration.

Asset Value

Asset Valuation data has been provided by Council. The following table identifies the current valuation of Council's footpath assets.

Type	Area (m^2)	Replacement Cost ($'000)	Written Down Value ($'000)
Concrete Footpath	30,602	$ 2,916.2	$ 1,661.9
Brick Paved Footpath	6,151	$ 578.2	$ 386.9
Total	**36,753 m^2**	**$ 3,494.4**	**$ 2,048.8**

Historical Expenditure

The table below summarises the asset group historical expenditure over the period 2004/05 – 2008/09.

($'000)	2004/05	2005/06	2006/07	2007/08	2008/09
Operations & Maintenance	$ 5	$ 7	$ 7	$ 4	$ 14
Renewals & Upgrades	$ 126	$ 11	$ 1	$ 0	$ 0
TOTALS	**$ 131**	**$ 18**	**$ 8**	**$ 4**	**$ 14**

6.5.3 Hierarchy

Asset Hierarchies used in this section of the Transportation Asset Management Plan have been based on the asset's roadside setting (commercial, other urban or rural setting as follows

Hierarchy Classification
P1 – Footpath, Urban Commercial/CBD Localities Footpaths situated within village or townsite commercial/CBD areas with high pedestrian movements or adjacent to high risk precincts (hospitals, aged care facilities & schools).
P2 – Footpath, Urban Non-commercial areas Footpaths located in urban areas outside commercial areas, predominately residential land uses.
P3 – Footpath, Rural areas Footpaths situated in rural locations.

In addition, footpath assets are classified in accordance with their construction material or type. As such, footpaths as described in this section are further classified as follows:

- Concrete Footpaths,
- Brick Paved
- Gravel or other unsealed surfacing

6.5.4 Inspections

Inspection of footpaths are based on the asset's hierarchy. Council undertakes the following inspections and frequencies:

Asset Classification	Hazard/Defect Inspection Interval	Distribution of Inspections
P1	6 Monthly	1 in any 6 Month period
P2-P3	12 Monthly	1 in any 1 Year period

Defects identified during the above inspections are logged in a defect register for action subject to budgetary and resource constraints.

6.5.5 Intervention Levels

Defect identification and intervention levels for footpath assets included in this Transportation Asset Management Plan are as follows:

Defect	Intervention Level	Max. Response Time to Rectify Defect
All Footpath Types		
Abrupt change in Level	Vertical displacement at joints or abrupt change in level. P1 – > 20mm P2-3 - > 30mm	P1 – 5 working days P2-3 – 1 Month
Clearance above Footpath	Vegetation or other obstruction encroaching into clearance envelope bounded by edges of the footpath and to 2.5m height.	P1 – 6 Months P2-3 – 12 Months
Slippery	Loss of surface texture	P1 – 5 Working Days P2-3 – 6 Months
Cracking	Loss of function due to cracking or loss of material from asset.	K1 – 3 Months K2-3 – 12 Months
Edge Drop-off	Greater than 60mm drop-off in height from edge of footpath to surrounding surface levels.	P1 – 3 Months P2-3 – 6 Months
Debris on Footpath Surface	Greater than 40% of footpath surface area obstructed by debris or foreign materials.	P1 – 1 Months P2-3 – 6 Months

6.5.6 Operations & Maintenance

Work Definitions

Operational activities are defined as the following:

- Street sweeping
- Weed Spraying
- Asset inspections.

Maintenance activities affect both surfaces and substrate asset components, and can include:

- Repairs of Minor trip hazards
- Repair of surface defects (cracking, spalling)
- Repair of edge breaks
- Replacement of short sections of failed footpath.
- Graffiti removal
- Emergency works (repair to damage, removal of debris)

Maintenance intervention criteria are detailed in Section 5.5.5 of this Asset Management Plan.

General maintenance strategies include:

- Deferring minor maintenance work if adjacent assets are due for major refurbishment or renewal.
- Ensuring the network is maintained to deliver the desired levels of service.

Maintenance Expenditure Forecasts

Considerations in development of maintenance expenditure forecasts include:

- Footpath maintenance costs will increase with increase in traffic volumes, particularly heavy vehicles travelling over footpaths to enter and exit properties.
- Historical costs, which have been of the order of $4K to $14K over the last five years.
- Development of Maintenance Levels of Service and response times indicate routine maintenance needs of approximately $19K per annum

The 20-year financial forecasts incorporate a 1.0% nominal increase in maintenance costs predominately to counter increasing heavy vehicle traffic and aging of heritage value assets.

6.5.7 Renewal

Physical data

Footpath assets in the Blayney LGA typically consist of cast insitu concrete, brick paved or gravel pavement construction with or without bitumen surfacing. Some footpath assets are of considerable age and have exceeded their theoretical design life, and hence are in various forms of degradation or decline in performance.

Types of Asset Construction

Selection of new footpath construction type is based on adjacent construction types, structural performance required, and urban setting. The most predominant types of new footpath construction types are:

Cast Insitu Concrete Cast Insitu concrete footpaths are the most common form of modern footpath construction adopted in urban areas. Footpaths are constructed using temporary formwork and locally batched concrete, with or without steel reinforcing depending on whether the footpath will be trafficked by vehicles. Cast insitu concrete footpaths are generally universally adopted except where specific factors may require other footpath construction types (heritage issues or specific CBD streetscape treatments).

Brick Paved: Clay Brick footpaths are typically used in urban townscape beautification schemes. They may or may not include a concrete slab under the paving bricks for additional strength. Brick paved footpaths are typically high capital cost assets and are only used in specific locations.

Remaining Life

Asset Condition/Age

Typical footpaths could be expected to have a serviceable life of the order of 80 years, being heavily dependent on traffic loading, subgrade and other environmental conditions. Council's asset systems do not currently include data on footpath age. It is thought from staff experience and field observation though that several assets are of considerable age but are still performing satisfactorily.

Asset Expenditure Forecasts

Selection of the footpath sections for treatment each year and the treatment used is based on analysis of asset condition records and field observation. Assessment is made of asset condition and maintenance demand.

Considerations in establishing the network budget needs include:

- Condition and type of assets requiring renewal.
- Historical renewal and maintenance costs.
- Environmental issues such as potential change of adjacent land use that may trigger need for asset upgrade.

Network Analysis

Council does not have sufficiently detailed asset condition data for its footpath assets to enable development of detailed, predictive asset needs models. Assessment of network needs is therefore done on the basis of basic models to predict replacement and other activities using typical treatment life expectancies.

The total area of Council's footpath network is approximately 36,753 square metres. This equates to an asset replacement cost of approximately $6.25M. Using a predicted asset life of 80 years, this equates to an average required renewal expenditure of $78K per annum.

Comment [CCC1]: See $$$ from Geoff's review…

Council current Five Year Management Plan does not separate proposed expenditure on footpath and cycleway assets. Therefore, comparison with proposed vs required expenditure is not possible.

It is therefore concluded that to achieve a nil net loss of service potential of Council's footpath & cycleway network, that renewals expenditure should be increased to at least the order of $78K p.a.

6.5.8 New Works Strategies

Council does not have a strong demand for provision of new footpaths within the urban areas. New footpath assets in the Blayney urban area have been identified from a needs analysis undertaken as part of development of the Blayney Pedestrian Access & Mobility Plan (2008). Other new works/upgrades over the 20 year forecast period include installing/upgrading of Pedestrian Ramps at intersection to current standards.

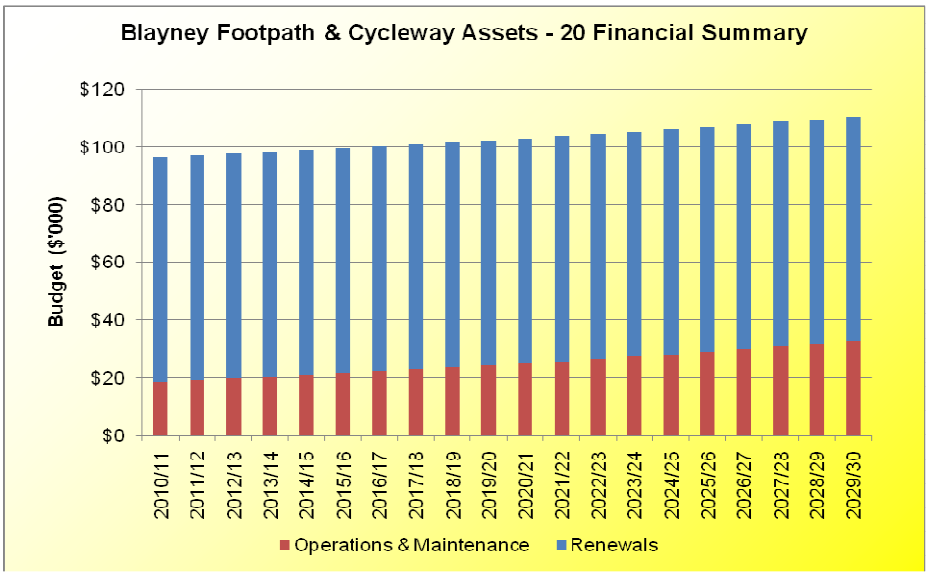
There is limited new works expenditure forecast over the 20 year forecast period.

6.5.9 Disposal

Due to public demand for increased urban amenity provided by provision of footpaths in urban areas, there is generally little opportunity for disposal of footpath assets within the LGA. No specific actions have been considered to manage disposal of existing footpath assets.

6.5.10 Summary of Financial Expenditure

In summary, utilising findings from the analysis above, expenditure on Blayney Shire Council's Footpath & Cycleway network over the 20 year forecast period is predicted as follows:


Blayney Footpath & Cycleway Assets - 20 Financial Summary
Budget ($'000)
$120
$100
$80
$60
$40
$20
$0
2010/11
2011/12
2012/13
2013/14
2014/15
2015/16
2016/17
2017/18
2018/19
2019/20
2020/21
2021/22
2022/23
2023/24
2024/25
2025/26
2026/27
2027/28
2028/29
2029/30
Operations & Maintenance
Renewals

6.6 Asset Group 5 – Urban Stormwater Drainage

6.6.1 Objective

Council's objective in the management of its urban stormwater assets are to provide functional and efficient assets that services the community's expectations.

Urban stormwater drainage forms a key component of Council's asset infrastructure providing a safe and efficient means of conveyance of stormwater through urban areas to discharge at appropriate locations.

6.6.2 Background Data

Overview

Council's urban stormwater assets form a key component of Council's urban streetscape. Key life-cycle issues that affect Council's urban stormwater network include:

- Management of aging assets in a functional condition to community expectations.
- Provision of adequate resources to develop information related to performance of the existing assets, in particular establishment of condition monitoring regimes and development of predictive models to better understand asset lives and performance.

Asset Performance

Characteristics of the performance of Council's urban stormwater assets are as follows:

- An aging but largely stable asset network that largely performs to expected function.

Asset Value

Asset Valuation data has been provided by Council. The following table identifies the current valuation of Council's urban stormwater assets.

Type	Quantity	Replacement Cost ($'000)	Written Down Value ($'000)
Pipes	17.35 km	$ 5,583.9	$ 4,187.9
Structures	68 Items	$ 107.1	$ 66.9
Total		**$ 6,691.0**	**$ 4,254.8**

Historical Expenditure

The table below summarises the asset group historical expenditure over the period 2004/05 – 2008/09.

($'000)	2004/05	2005/06	2006/07	2007/08	2008/09
Operations & Maintenance	$ 11	$ 19	$ 10	$ 20	$ 23
Renewals & Upgrades	$ 211	$ 42	$ Nil	$ Nil	$ Nil
TOTALS	**$ 222**	**$ 61**	**$ 10**	**$ 20**	**$ 23**

6.6.3 Hierarchy

Asset Hierarchies used in this section of the Transportation Asset Management Plan have been based on the asset's roadside setting (commercial, other urban or rural setting as follows

Hierarchy Classification
S1 – Urban Stormwater, Urban Commercial/CBD Localities Urban stormwater assets situated within village or townsite commercial/CBD areas or adjacent to high risk precincts (hospitals, aged care facilities & schools).
S2 – Urban Stormwater, Urban Non-commercial areas Urban stormwater assets located in urban areas outside commercial areas, predominately residential land uses.

In addition, urban stormwater assets are classified in accordance with their construction material or type. As such, urban stormwater assets as described in this section are further classified as follows:

- Concrete pipes,
- Other pipe construction types (i.e. brick, steel etc),
- Concrete structures (i.e. pits, headwalls etc)

6.6.4 Inspections

Inspection of urban stormwater assets are based on the asset's hierarchy. Council undertakes the following inspections and frequencies:

Asset Classification	Hazard/Defect Inspection Interval	Distribution of Inspections
S1	2 Yearly	1 in any 2 Year period
S2	10 Yearly	1 in any 10 Year period

Defects identified during the above inspections are logged in a defect register for action subject to budgetary and resource constraints.

6.6.5 Intervention Levels

Defect identification and intervention levels for urban stormwater assets included in this Transportation Asset Management Plan are as follows:

Defect	Intervention Level	Max. Response Time to Rectify Defect
Concrete spalling	Spalling to expose steel reinforcement.	2 months
Fixings loose/missing	Any bolts, rivets or other fixings loose, missing or otherwise defective.	4 weeks
Erosion/scour of headwalls/ structures.	Loss of earth to below design surface levels, exposure of foundation elements.	3 months
Loss of skid resistance on Trafficable Surface	Loss of skid resistance on trafficable deck surface to below that of adjacent roadway.	3 months
Vegetation/Debris within waterway area.	Vegetation/debris that causes greater than 30% loss in waterway area.	3 months
Defective Guardrail/handrails	Loss of serviceability/intended function.	2 weeks
Protective coatings (paint etc)	Loss of solar/water protection to structural elements	12 months

6.6.6 Operations & Maintenance

Work Definitions

Operational activities are defined as the following:

- Weed Spraying
- Asset inspections.

Maintenance activities affect both surfaces and substrate asset components, and can include:

- Clearing of silt and debris from waterway areas.
- Reinstatement of corrosion protection
- Painting
- Graffiti removal
- Emergency works (repair to storm damage, removal of dead animals, accident cleanups)

Maintenance intervention criteria are detailed in Section 5.6.5 of this Asset Management Plan.

General maintenance strategies include:

- Deferring minor maintenance work if adjacent assets are due for major refurbishment or renewal.
- Ensuring the network is maintained to deliver the desired levels of service.

Maintenance Expenditure Forecasts

Considerations in development of maintenance expenditure forecasts include:

- Urban stormwater maintenance costs will change with variation in environmental conditions, namely variations in rainfall events and/or vegetation growing conditions for instance.
- Historical costs, which have been of the order of $10K to $23K over the last five years.
- Development of Maintenance Levels of Service and response times indicate routine maintenance needs of approximately $23K per annum

The 20-year financial forecasts incorporate a 3.0% nominal increase in maintenance costs predominately to counter increased costs through aging of existing assets.

6.6.7 Renewal

Physical data

Urban stormwater assets in the Blayney LGA typically consist of precast and cast insitu concrete pipes and structures. Some urban stormwater assets are of considerable age and have exceeded their theoretical design life, and hence are in various forms of degradation or decline in performance.

Types of Asset Construction

Selection of new stormwater asset construction type is based on adjacent construction types, structural performance required, and urban setting. The most predominant types of new footpath construction types are:

Cast Insitu / Precast Concrete	The most common materials used for stormwater component construction are cast insitu and precast concrete. Concrete products are usually reinforced with steel or glass fibres. Precast components offer advantages of speed of installation and plant manufactured quality assurance but can be expensive. Insitu cast concrete may be used for pits and structures of non-standard configuration where precast units are not readily available.

Remaining Life

Asset Condition/Age
Typical urban stormwater assets could be expected to have a serviceable life of the order of 100 years, being heavily dependent on soil conditions (acidity etc), stormwater characteristics (debris loads, chemistry etc) and damage such as from incorrect traffic loading. Council's asset systems do not currently include data on asset age. It is thought from staff experience and field observation though that several assets are of considerable age but are still performing satisfactorily.

Asset Expenditure Forecasts
Selection of the urban stormwater sections for treatment each year and the treatment used is based on analysis of asset condition records and field observation. Assessment is made of asset condition and maintenance demand.

Considerations in establishing the network budget needs include:

- Condition and type of assets requiring renewal.
- Historical renewal and maintenance costs.
- Environmental issues such as potential change of adjacent land use that may trigger need for asset upgrade.

Network Analysis

Council does not have sufficiently detailed asset condition data for its urban stormwater assets to enable development of detailed, predictive asset needs models. Assessment of network needs is therefore done on the basis of basic models to predict replacement and other activities using typical treatment life expectancies.

The replacement value of Council's urban stormwater network is calculated as $6.69M. Using a predicted asset useful life of 100 years, this equates to an average required renewal expenditure of $67K per annum.

Council current Five Year Management Plan has no programmed expenditure on urban stormwater renewal. This is not sustainable and will lead to an aging of and net deterioration of Council's stormwater network over the longer term.

It is therefore concluded that to achieve a nil net loss of service potential of Council's urban stormwater network, that renewals expenditure should be increased to at least the order of $69K p.a.

6.6.8 New Works Strategies

Council has periodic demand for provision of new urban stormwater within urban areas. Upgrade or new stormwater works are determined on a needs basis to ensure public safety and protection of public and private property.

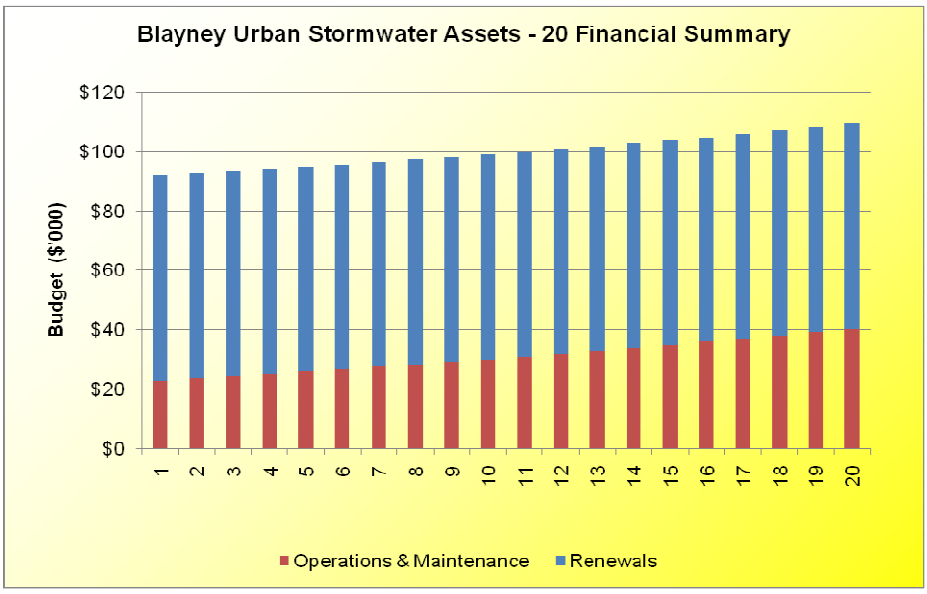
This TAMP provides for nil expenditure on new or upgrading of stormwater assets.

6.6.9 Disposal

Due to public demand for increased urban amenity in urban areas, there is generally little opportunity for disposal of stormwater assets within the LGA. No specific actions have been considered to manage disposal of existing urban stormwater assets.

6.6.10 Summary of Financial Expenditure

In summary, utilising findings from the analysis above, expenditure on Blayney Shire Council's Urban Stormwater network over the 20 year forecast period is predicted as follows:


Blayney Urban Stormwater Assets - 20 Financial Summary
Budget ($'000)
$120
$100
$80
$60
$40
$20
$0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
Operations & Maintenance
Renewals

7.0 Financial Forecast

7.1 20 Year Financial Forecast

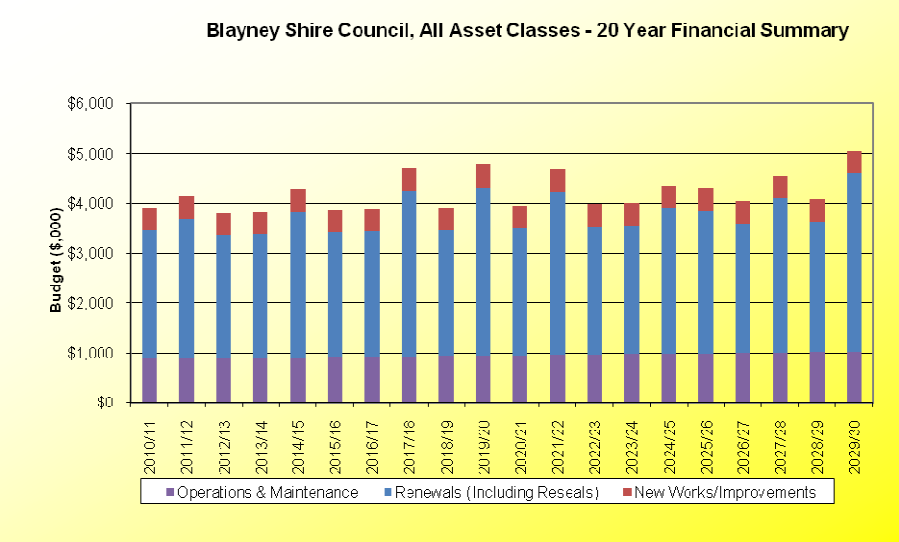
The table and figure below summarises the 20-year financial forecast for transportation infrastructure assets (from 2010/11 to 2029/30) based on Sustainable Model forecasts for each asset group contained in Section 5. These costs exclude inflation and GST.

Expenditure is identified by asset group under the headings of:

- Operational & maintenance
- Renewals (including Reseals)
- New assets (excluding developer funded).

This data is included as tabular data in Appendix C at the rear of this report.

Year	Operations & Maintenance	Renewals (including Reseals)	Improvements	**TOTALS**
	($'000)			
2010/11	$889	$2,565	$450	**$3,904**
2011/12	$895	$2,794	$450	**$4,139**
2012/13	$901	$2,472	$450	**$3,823**
2013/14	$908	$2,481	$450	**$3,838**
2014/15	$914	$2,919	$450	**$4,283**
2015/16	$920	$2,498	$450	**$3,868**
2016/17	$927	$2,506	$450	**$3,883**
2017/18	$934	$3,315	$450	**$4,699**
2018/19	$941	$2,523	$450	**$3,914**
2019/20	$948	$3,372	$450	**$4,770**
2020/21	$955	$2,541	$450	**$3,945**
2021/22	$962	$3,259	$450	**$4,671**
2022/23	$969	$2,558	$450	**$3,977**
2023/24	$976	$2,566	$450	**$3,993**
2024/25	$984	$2,915	$450	**$4,349**
2025/26	$992	$2,853	$450	**$4,295**
2026/27	$999	$2,592	$450	**$4,041**
2027/28	$1,007	$3,080	$450	**$4,538**
2028/29	$1,015	$2,609	$450	**$4,074**
2029/30	$1,023	$3,577	$450	**$5,051**



Expenditure identified within the financial forecasts was obtained from the following sources:

- Estimates of expected financial costs with respect to proposed intervention levels and response times (section 5).
- Projected works quantities from sustainable asset models.

7.1.1 Financial Projection Discussion

Key features of the financial projections in the figure and table above include:

- The LGA's asset network is largely static in nature, with very little expansion of the asset networks projected in the next 20 years. Increases in maintenance expenditure mainly relate to increased costs from increased traffic loadings over the forecast period (in the order of 1.0% growth p.a. in the case of Regional Roads).
- For all asset classes except bridges, renewal (including reseal) expenditures have been spread evenly over the forecast period to smooth cash-flow requirements. Delivery of the required reseal and renewal works to the values shown will be critical to ensuring sustainable management of the asset networks.
- Projected capital improvement works are generally limited to incidental improvement works carried out as part of reseal and renewal works and initial road sealing works.
- There is little expected measurable increase in asset size due to vesting of assets by third parties such as land developers.

The financial analysis above exclude costs such as corporate administration charges, interest costs, and other indirect overheads.

7.2 Key Assumptions

The following general assumptions have been made in preparing the 20-year expenditure forecasts.

(i) All expenditure is stated in dollar values as at June 2010 with no allowance made for inflation over the 20-year planning period.
(ii) No provision has been made for increases to unit rates for renewal or reseal activities over the forecast period.
(iii) A very small net increase in network length has been assumed across the total LGA.

(iv) Several asset classes include provision for an assumed 1.0% escalation of maintenance costs over the planning period.
(v) Continuation of the current rate and pattern of urban and rural development.

The most significant potential changes to the financial projections shown will result from the factors below.

- Assumptions have been made as to the average useful lives and average remaining lives of the asset groups based on current local knowledge and experience and historical trends. These need to be reviewed and the accuracy improved based on real time assessments of asset deterioration. Review of the effective economic asset lives has the potential for greatest variance in future cost predictions.
- Changes in development needs associated with the rate and location of growth.
- Changes in the desired level of service and service standards from those identified in this Transportation Asset Management Plan.

7.3 Asset Valuation

Council's transportation assets have been valued by Council as at June 1010. The results of the valuation are shown in the following table:

Asset		Replacement Cost ($'000)	Written Down Value ($'000)
Road Assets	Regional Roads	$ 3,172.0	$ 2,601.1
	Local Roads	$ 119,827.7	$ 9,8043.1
Bridges	Regional Roads	$ 3,689.9	$ 3,140.3
	Local Roads	$ 22,200.5	$ 14,664.0
Kerb & Gutter	All types	$ 8,219.8	$ 6,164.9
Footpaths	All types	$ 3,494.4	$ 2,048.9
Urban Stormwater	All types	$ 6,691.0	$ 4,254.8
	Totals	**$ 167,295.5**	**$ 130,917.1**

7.4 Funding Strategy

The focus of this Transportation Asset Management Plan is on identifying the optimum cost for each asset group necessary to produce the desired level of service. How the cashflow is to be funded is a matter for separate review and consideration.

Current Funding sources available for the assets included in this plan could include:

- Rates (general, special, differential)
- Federal Government Funding eg Roads to Recovery
- State Government Grants
- Private developer funded works

7.5 Confidence Levels & Sensitivities

7.5.1 Confidence Levels

The confidence in the asset data used as a basis for the financial forecasts has been assessed using the following grading system:

Confidence Grade	General Meaning
A	**Highly Reliable** Data based on sound records, procedure, investigations and analysis that is properly documented and recognised as the best method of assessment.
B	**Reliable** Data based on sound records, procedures, investigations, and analysis which is properly documented but has minor shortcomings, for example the data is old, some documentation is missing and reliance is placed on unconfirmed reports or some extrapolation.
C	**Uncertain** Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolation from a limited sample for which grade A or B data is available
D	**Very Uncertain** Data based on unconfirmed verbal reports and/or cursory inspection and analysis

Confidence levels for aspects of preparation of this Transportation Asset Management Plan are listed as follows:

Asset Management Plan Component	Confidence Level
Knowledge of customer expectations in development of Levels of Service criteria	B-C
Knowledge of future demand on the road network and assets	A
Determination of asset extent	A
Determination of asset condition	A Regional Roads A-C Local Roads B-C Bridges & Culverts C Other asset classes
Asset serviceable life	C Road Pavements B Road Surfacings B Bridges & Culverts D Other asset classes
Development of Financial costings for Forecast Model	A Operational & Maintenance Costs B Renewal Costs C New Works Costs

It is estimated that the confidence level in preparation and findings of this Transportation Asset Management Plan is B overall.

7.5.2 Sensitivities

Development of asset and financial models as part of development of this Asset Management Plan has required estimation of some parameters where little or no existing data is available. This process has the risk of producing inaccuracies in the models where estimated parameters do not reflect actual conditions. The sensitivity of the models to estimation of various parameters is as follows:

Pavements Serviceable Life

The pavements serviceable life has been adopted as 60 years for all road classes in this Asset Management Plan. The asset model is sensitive to selected service life in the following manner:

- 40 year pavement service life. Requires a 35% net increase in combined reseal and renewal forecast expenditures.
- 60 year pavement service life. Base case, no change from as modelled
- 80 year pavement service life. Requires a 17% net decrease in combined reseal and renewal forecast expenditures.

Surfacings Serviceable Life

Surfacings serviceable lives have been adopted as 15 years for Regional Roads and 20 years for Local Roads. The asset model is sensitive to selected service lives in the following manner:

- 5 year reduction in surfacings service life. Requires a 9-16% net increase in combined reseal and renewal forecast expenditures.
- 5 year increase in surfacings service life. Requires a 5-8% net decrease in combined reseal and renewal forecast expenditures.

Treatment Unit Costs

Treatment unit costs have been developed in consultation with Council technical staff. Changes to adopted unit costs have a directly proportional affect on output financial forecasts.

8.0 Asset Management Practices and Improvements

8.1 Overview

This section discusses the status of current asset management practices for assets and identifies improvements. It also outlines the monitoring and review processes for the asset management plan.

8.2 Asset Management Practices

The key asset management practices needed to support good Asset Management Plans can be grouped into three broad areas:

- **Processes:** The necessary processes, analysis and evaluation techniques needed for life cycle asset management.
- **Information systems:** The information support systems which support the above processes and which store and manipulate asset data.
- **Data:** Data available for manipulation by information systems to support AM decision-making. Practices in all of these areas, as well as the AM Plan itself, are assessed. Finally, implementation tactics, covering service delivery, procurement, and organisational arrangements are also part of the review process.

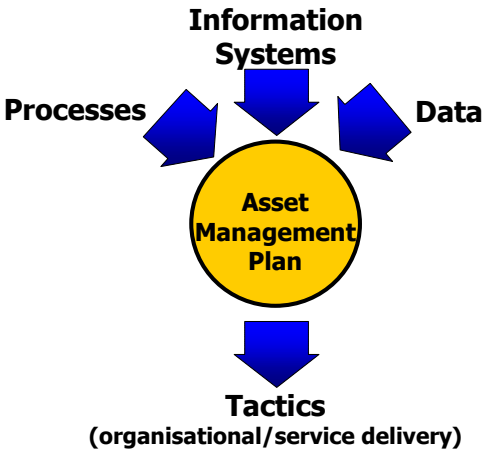


Figure 1: Key AM Practices

8.2.1 Processes

The table below shows the state of current business processes within Council and possible future (desired) business processes that could be developed or improved.

Process	Current Business Practice	Desired Business Practice	Responsibility
AM Planning	Basic systems in place	Development & establishment of robust	Director Engineering

Process	Current Business Practice	Desired Business Practice	Responsibility
		AM Planning systems	
Level of Service	Levels of Service derived from limited customer feedback and staff knowledge.	Undertaken extensive community liaison to confirm community expectations as part of Integrated Planning & Reporting framework.	
Asset Knowledge	Knowledge base fragmented and not adequately recorded.	Consolidate asset knowledge to a centralised AM database.	
Financial Asset Register			Dir Corporate Services
Condition Assessment	No structured methodology for condition assessment.	Establish structured approach and methodology to asset condition assessment.	
Risk Management	No formal corporate risk management policy	Corporate policy on risk management	Dir Corporate Services
Job Costing	Internal procedures established for project cost estimating and control.	Current situation adequate	N/A
Budget Planning Process	Systems in place for short-term planning only, largely drawing on local experience of existing staff.	Development & establishment of robust AM Planning systems	Director Engineering
Maintenance Planning			
Capital Works Planning			
Maintenance Delivery	Internal work procedures and standards in place.	Current situation adequate	N/A
Capital Works Delivery			
Performance Monitoring	No formal process	Establish performance monitoring methodologies	Director Engineering
Safety	Existing procedures	Current situation adequate	N/A
Quality Assurance		Current situation adequate.	N/A
Valuation	Ad hoc as required by DLG.	Establish valuation methodologies	TBA

8.2.2 Data

The table below identifies information needs for council to support effective asset management.

Data	Current Business Requirements	Desired Business Requirements	Responsibility
Asset Hierarchy	Basic hierarchal system only.	Robust hierarchy development via AMP	Director Engineering
Asset Identification	Full knowledge of extent of asset base.	Current situation adequate for most asset components.	
Attribute Data	Basic attribute structure and limited population of data.	Establish data attribute structure and a program for staged collection of required attributes.	Director Engineering
Maintenance History	Existing works achievement databases.	Current situation adequate	Director Engineering
Acquisition History	Basic knowledge only of asset history.	Research available information.	Director Engineering
Condition History	Limited knowledge of condition history	Establish methodology for cyclic condition data collection.	Director Engineering
Lifecycle costing	Limited knowledge of lifecycle costing	Develop knowledge base with increased data.	Director Engineering
Spatial Data	All assets mapped in GIS.	Current situation adequate	Director Engineering

8.3 Asset Management Improvements

Improving the management of Councils assets is a continual and ongoing process. The following key improvements have been identified:

- Development of an Asset Inventory database with fields suitable to capture key asset attributes.
- Development and capture of asset condition data to enable assessment of asset condition and for predictive modelling.
- Development of systems to ensure that works carried out on the road network are captured in the asset databases.
- Development of strategies for the management of risk.

The table below details the activity and timetables adopted to achieve these objectives.

Activity	Action	Target Date	Costs
Development of Asset Inventory database and population with data as available.	Develop and agree on data fields for capture (common between all WBC Councils)	October 2010	
	Populate databases, including field verification where appropriate	Dec 2010	

Activity	Action	Target Date	Costs
Development and capture of asset condition data	Develop and agree on data fields for capture (common between all WBC Councils)	Sept 2010	
	Populate databases, including field verification where appropriate	Dec 2010	
Public Consultation re Level of Service (LOS)	Undertake public consultation program seeking feedback as to public expectation re asset levels of service.	TBN	
Development of Risk Policies and Procedures	Establish working parties to develop corporate methodologies.	TBN	

8.4 Monitoring and Review Processes

8.4.1 Asset Management Plan Review

The Asset Management Plan is a living document which is relevant and integral to daily Asset Management activity. To ensure the plan remains useful and relevant the following on-going process of Asset Management Plan monitoring and review activity will be undertaken.

- Formal adoption of the plan by Council:
- Review and formally adopt levels of service: Council will undertake a service level review (public consultation process as part of Integrated Planning & Reporting framework) to determine an accurate understanding of both the current and future needs and expectations of customers. The explicit levels of service and performance measure defined will be formally adopted by Council.
- Revise Asset Management Plan annually to incorporate outcome of service level review and new knowledge resulting from the Asset Management improvement programme.
- Quality assurance audits of Asset Management information to ensure the integrity and cost effectiveness of data collected.
- Peer review: Annual internal audits will be undertaken to assess the effectiveness with which the Asset Management Plan meets corporate objectives. Periodic internal audits will be undertaken to assess the adequacy of Asset Management processes, systems and data and external audits will be undertaken to measure Asset Management performance against 'best practice'.

The table below details the activity and timetables adopted to achieve these objectives.

Activity	Action	Target Date	Costs
AM Plan Development	• Adoption of AM plan by Council. • Annual update and enhancement, including the extension of the timeframe by one year. • Full review of the AM plan and formal adoption by Council.	October 2010	

Activity	Action	Target Date	Costs
AM Plan Review	• Annual review of plan context by AM Team: - AM plan context - compliance with agreed AM improvement programmes - Effectiveness and adequacy of AM processes, systems and data External review of technical content, with results reported in Annual Plan.	As required	
Level of Service	• Review current level of service / performance measures (including public consultation process) and formally adopt. • Measure actual level of service delivered and report in Annual Report.		

8.4.2 Asset Management Plan Monitoring

The following indicators will be monitored to measure the effectiveness of this Asset Management Plan.

Indicator	Measure	Source of Information
Compliance with legislative requirements	Non-compliances	
Quality of services delivered	Compliance with target response times, customer feedback	Internal Records
Quality of risk management	TBN	TBN
Compliance with documented quality assurance processes for; project prioritisation & financial planning, data management, customer service requests, risk management, contract management and supervision of improvement program implementation.	Compliance with requirements of TAMP	Internal & external review.

Appendix A – Glossary of Terms

The following list provides definitions for acronyms used throughout this report.

AADT	Annual Average Daily Traffic *(Generated from traffic count data collected over a minimum 7 consecutive days, with allowance also made for seasonal traffic volume variations.)*
AMP	Asset Management Plan
CBD	Central Business District
CI	Condition Index *(Condition score for physical road condition, rated 1-5, 1 being Good (as new) Condition, 5 being Poor (unserviceable) Condition).*
GST	Goods & Services Tax
IPWEA	Institute of Public Works Engineers Australia
K&G	Kerb & Gutter
LOS	Level of Service
LGA	Local Government Area
M&R	Maintenance & Repair
NAMS	National Asset Management Strategy
OH&S	Occupational Health & Safety
QA	Quality Assurance
RAMP	Roads Asset Management Plan
RTA	NSW Roads and Traffic Authority
TAMP	Transportation Asset Management Plan
VPD	Vehicles Per Day
WBC / WBCSA	A Strategic Alliance of Wellington, Blayney and Cabonne Councils and Central Tablelands Water
WDV	Written Down Value

Appendix B – References

Local Government Act 1993

Roads Act 1993

NAMS/IPWEA

Draft Blayney Sewer AMP

Blayney Shire Council 2008-2013 Management Plan

Blayney Shire Council Social Plan 2005 – 2010

Blayney Bike Access Plan & Pedestrian Access & Mobility Plan 2008

Appendix C – Asset Model Outputs

All Assets, Financial Summary Spreadsheets

BLAYNEY SHIRE COUNCIL - 20 YEAR SUSTAINABLE FINANCIAL SUMMARY

			Treatment Cost ($000/km)
Av Seal Life (Regional) =	15	yrs	25
Av Seal Life (Local) =	20	yrs	25
Av Sealed Pavement Life =	60	yrs	240
Av Gravel Resheet Life =	20	yrs	15
Av Gravel Road Sealing Cost =			250

Year	2010/11 1	2011/12 2	2012/13 3	2013/14 4	2014/15 5	2015/16 6	2016/17 7	2017/18 8	2018/19 9	2019/20 10	2020/21 11	2021/22 12	2022/23 13	2023/24 14	2024/25 15	2025/26 16	2026/27 17	2027/28 18	2028/29 19	2029/30 20
ROADS																				
Regional Sealed																				
Length Regional Sealed (km)	43.66	43.66	43.66	43.66	43.66	43.66	43.66	43.66	43.66	43.66	43.66	43.66	43.66	43.66	43.66	43.66	43.66	43.66	43.66	43.66
Maintenance																				
Annual Maintenance Budget	$246	$248	$251	$253	$256	$259	$261	$264	$266	$269	$272	$274	$277	$280	$283	$286	$288	$291	$294	$297
Reseals																				
Annual Reseal Length (km)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Annual Reseal Cost ($,000)	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55
Renewals																				
Annual Recon Length (km)	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Annual Recon Cost ($,000)	$175	$175	$175	$175	$175	$175	$175	$175	$175	$175	$175	$175	$175	$175	$175	$175	$175	$175	$175	$175
New Works (Improvements)																				
Annual Gravel Road Sealing Length (km)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0
Annual Gravel Road Sealing Cost ($,000)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
New Sealed Road Length (Development) (km)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Improvements	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0
Regional Sealed Totals	**$500**	**$503**	**$505**	**$508**	**$510**	**$513**	**$515**	**$518**	**$521**	**$523**	**$526**	**$529**	**$531**	**$534**	**$537**	**$540**	**$543**	**$546**	**$548**	**$551**
Regional Unsealed																				
Length Regional Unsealed (km)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance																				
Annual Maintenance Budget (excl Resheeting)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Renewals																				
Annual Resheet Length (km)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Annual Resheet Cost ($,000)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
New Works (Improvements)																				
New Unsealed Road Length (Development) (km)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Regional Unsealed Totals	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**
Total REGIONAL ROADS BUDGET	**$500**	**$503**	**$505**	**$508**	**$510**	**$513**	**$515**	**$518**	**$521**	**$523**	**$526**	**$529**	**$531**	**$534**	**$537**	**$540**	**$543**	**$546**	**$548**	**$551**
Local Rural Sealed																				
Length Local Sealed (km)	302	303.3	304.6	305.9	307.2	308.5	309.8	311.1	312.4	313.7	315	316.3	317.6	318.9	320.2	321.5	322.8	324.1	325.4	326.7
Maintenance																				
Annual Maintenance Budget	$238.0	$239.0	$240.0	$241.0	$242.1	$243.1	$244.1	$245.1	$246.2	$247.2	$248.2	$249.2	$250.3	$251.3	$252.3	$253.3	$254.4	$255.4	$256.4	$257.4
Reseals																				
Annual Reseal Length (km)	10.1	10.1	10.2	10.2	10.2	10.3	10.3	10.4	10.4	10.5	10.5	10.5	10.6	10.6	10.7	10.7	10.8	10.8	10.8	10.9
Annual Reseal Cost ($,000)	$252	$253	$254	$255	$256	$257	$258	$259	$260	$261	$263	$264	$265	$266	$267	$268	$269	$270	$271	$272
Renewals																				
Annual Recon Length (km)	5.0	5.1	5.1	5.1	5.1	5.1	5.2	5.2	5.2	5.2	5.3	5.3	5.3	5.3	5.3	5.4	5.4	5.4	5.4	5.4
Annual Recon Cost ($,000)	$1,208	$1,213	$1,218	$1,224	$1,229	$1,234	$1,239	$1,244	$1,250	$1,255	$1,260	$1,265	$1,270	$1,276	$1,281	$1,286	$1,291	$1,296	$1,302	$1,307
New Works (Improvements)																				
Annual Gravel Road Sealing Length (km)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Annual Gravel Road Sealing Cost ($,000)	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250
New Sealed Road Length (Development) (km)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Other Improvements	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0
Local Rural Sealed Totals	**$1,973**	**$1,980**	**$1,987**	**$1,995**	**$2,002**	**$2,009**	**$2,016**	**$2,024**	**$2,031**	**$2,038**	**$2,046**	**$2,053**	**$2,060**	**$2,068**	**$2,075**	**$2,082**	**$2,090**	**$2,097**	**$2,104**	**$2,111**
Local Rural Unsealed																				
Length Local Unsealed (km)	345	344.00	343.00	342.00	341.00	340.00	339.00	338.00	337.00	336.00	335.00	334.00	333.00	332.00	331.00	330.00	329.00	328.00	327.00	326.00
Maintenance																				
Annual Maintenance Budget (excl Resheeting)	$200.8	$200.2	$199.6	$199.0	$198.5	$197.9	$197.3	$196.7	$196.1	$195.6	$195.0	$194.4	$193.8	$193.2	$192.6	$192.1	$191.5	$190.9	$190.3	$189.7
Renewals																				
Annual Resheet Length (km)	17.3	17.2	17.2	17.1	17.1	17.0	17.0	16.9	16.9	16.8	16.8	16.7	16.7	16.6	16.6	16.5	16.5	16.4	16.4	16.3
Annual Resheet Cost ($,000)	$259	$258	$257	$257	$256	$255	$254	$254	$253	$252	$251	$251	$250	$249	$248	$248	$247	$246	$245	$245
New Works (Improvements)																				
New Unsealed Road Length (Development) (km)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Local Rural Unsealed Totals	**$459.5**	**$458.2**	**$456.9**	**$455.5**	**$454.2**	**$452.9**	**$451.5**	**$450.2**	**$448.9**	**$447.6**	**$446.2**	**$444.9**	**$443.6**	**$442.2**	**$440.9**	**$439.6**	**$438.2**	**$436.9**	**$435.6**	**$434.2**

Local Urban Sealed																				
Length Local Sealed (km)	49.1	49.8	50.5	51.2	51.9	52.6	53.3	54	54.7	55.4	56.1	56.8	57.5	58.2	58.9	59.6	60.3	61	61.7	62.4
Maintenance																				
Annual Maintenance Budget	$61.0	$61.9	$62.7	$63.6	$64.5	$65.3	$66.2	$67.1	$67.9	$68.8	$69.7	$70.5	$71.4	$72.3	$73.2	$74.0	$74.9	$75.8	$76.6	$77.5
Reseals																				
Annual Reseal Length (km)	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.1
Annual Reseal Cost ($,000)	$41	$42	$42	$43	$43	$44	$44	$45	$46	$46	$47	$47	$48	$49	$49	$50	$50	$51	$51	$52
Renewals																				
Annual Recon Length (km)	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Annual Recon Cost ($,000)	$196	$199	$202	$205	$208	$210	$213	$216	$219	$222	$224	$227	$230	$233	$236	$238	$241	$244	$247	$250
New Works (Improvements)																				
Annual Gravel Road Sealing Length (km)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Annual Gravel Road Sealing Cost ($,000)	$125	$125	$125	$125	$125	$125	$125	$125	$125	$125	$125	$125	$125	$125	$125	$125	$125	$125	$125	$125
New Sealed Road Length (Development) (km)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other Improvements	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0
Local Urban Sealed Totals	**$433**	**$438**	**$442**	**$446**	**$450**	**$455**	**$459**	**$463**	**$467**	**$472**	**$476**	**$480**	**$484**	**$489**	**$493**	**$497**	**$501**	**$506**	**$510**	**$514**
Local Urban Unsealed																				
Length Local Unsealed (km)	26.90	26.40	25.90	25.40	24.90	24.40	23.90	23.40	22.90	22.40	21.90	21.40	20.90	20.40	19.90	19.40	18.90	18.40	17.90	17.40
Maintenance																				
Annual Maintenance Budget (excl Resheeting)	$15.0	$14.7	$14.5	$14.2	$13.9	$13.6	$13.3	$13.1	$12.8	$12.5	$12.2	$11.9	$11.7	$11.4	$11.1	$10.8	$10.5	$10.3	$10.0	$9.7
Renewals																				
Annual Resheet Length (km)	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9
Annual Resheet Cost ($,000)	$20	$20	$19	$19	$19	$18	$18	$18	$17	$17	$16	$16	$16	$15	$15	$15	$14	$14	$13	$13
New Works (Improvements)																				
New Unsealed Road Length (Development) (km)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Local Urban Unsealed Totals	**$35.2**	**$34.5**	**$33.9**	**$33.2**	**$32.6**	**$31.9**	**$31.3**	**$30.6**	**$30.0**	**$29.3**	**$28.6**	**$28.0**	**$27.3**	**$26.7**	**$26.0**	**$25.4**	**$24.7**	**$24.1**	**$23.4**	**$22.8**
Total LOCAL ROADS BUDGET	**$2,901**	**$2,910**	**$2,920**	**$2,929**	**$2,939**	**$2,949**	**$2,958**	**$2,968**	**$2,977**	**$2,987**	**$2,996**	**$3,006**	**$3,016**	**$3,025**	**$3,035**	**$3,044**	**$3,054**	**$3,063**	**$3,073**	**$3,083**
BRIDGES																				
Deck Area (m2)	7064	7064	7064	7064	7064	7064	7064	7064	7064	7064	7064	7064	7064	7064	7064	7064	7064	7064	7064	7064
Operations & Maintenance																				
Annual Ops & Maintenance Budget	$60	$61	$61	$62	$62	$63	$64	$64	$65	$66	$66	$67	$68	$68	$69	$70	$70	$71	$72	$72
Renewals																				
Annual Renewals Budget	110.0	330.0	0.0	0.0	430.0	0.0	0.0	800.0	0.0	840.0	0.0	710.0	0.0	0.0	340.0	270.0	0.0	480.0	0.0	960.0
Upgrades/New																				
Annual Upgrades/New Budget	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total BRIDGES BUDGET	**$170**	**$391**	**$61**	**$62**	**$492**	**$63**	**$64**	**$864**	**$65**	**$906**	**$66**	**$777**	**$68**	**$68**	**$409**	**$340**	**$70**	**$551**	**$72**	**$1,032**
KERB & GUTTER																				
Length (km)	65.93	65.93	65.93	65.93	65.93	65.93	65.93	65.93	65.93	65.93	65.93	65.93	65.93	65.93	65.93	65.93	65.93	65.93	65.93	65.93
Operations & Maintenance																				
Annual Ops & Maintenance Budget	$27	$27	$28	$29	$30	$31	$32	$33	$34	$35	$36	$37	$38	$39	$40	$41	$43	$44	$45	$46
Renewals																				
Annual Renewals Budget	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0
Upgrades/New																				
Annual Upgrades/New Budget	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total KERB & GUTTER BUDGET	**$130**	**$130**	**$131**	**$132**	**$133**	**$134**	**$135**	**$136**	**$137**	**$138**	**$139**	**$140**	**$141**	**$142**	**$143**	**$144**	**$146**	**$147**	**$148**	**$149**
FOOTPATHS																				
Area (sq.m)	36753	36753	36753	36753	36753	36753	36753	36753	36753	36753	36753	36753	36753	36753	36753	36753	36753	36753	36753	36753
Operations & Maintenance																				
Annual Ops & Maintenance Budget	$19	$19	$20	$20	$21	$22	$22	$23	$24	$24	$25	$26	$27	$27	$28	$29	$30	$31	$32	$33
Renewals																				
Annual Renewals Budget	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0
Upgrades/New																				
Annual Upgrades/New Budget	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Total FOOTPATHS BUDGET	**$112**	**$112**	**$113**	**$113**	**$114**	**$115**	**$115**	**$116**	**$117**	**$117**	**$118**	**$119**	**$120**	**$120**	**$121**	**$122**	**$123**	**$124**	**$125**	**$126**
RURAL STORMWATER																				
Length (km)	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4
Operations & Maintenance																				
Annual Ops & Maintenance Budget	$23	$24	$24	$25	$26	$27	$27	$28	$29	$30	$31	$32	$33	$34	$35	$36	$37	$38	$39	$40
Renewals																				
Annual Renewals Budget	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0
Upgrades/New																				
Annual Upgrades/New Budget	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total RURAL STORMWATER BUDGET	**$92**	**$93**	**$93**	**$94**	**$95**	**$96**	**$96**	**$97**	**$98**	**$99**	**$100**	**$101**	**$102**	**$103**	**$104**	**$105**	**$106**	**$107**	**$108**	**$109**

BLAYNEY COUNCIL - 20 YEAR SUSTAINABLE FINANCIAL MODEL

All Asset Classes

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Operations & Maintenance	$889	$895	$901	$908	$914	$920	$927	$934	$941	$948	$955	$962	$969	$976	$984	$992	$999	$1,007	$1,015	$1,023
Renewals (Including Reseals)	$2,565	$2,794	$2,472	$2,481	$2,919	$2,498	$2,506	$3,315	$2,523	$3,372	$2,541	$3,259	$2,558	$2,566	$2,915	$2,853	$2,592	$3,080	$2,609	$3,577
New Works/Improvements	$450	$450	$450	$450	$450	$450	$450	$450	$450	$450	$450	$450	$450	$450	$450	$450	$450	$450	$450	$450
TOTALS	**$3,904**	**$4,139**	**$3,823**	**$3,838**	**$4,283**	**$3,868**	**$3,883**	**$4,699**	**$3,914**	**$4,770**	**$3,945**	**$4,671**	**$3,977**	**$3,993**	**$4,349**	**$4,295**	**$4,041**	**$4,538**	**$4,074**	**$5,051**