

# Road Asset Management Plan 2017-2026

Inverell Shire Council

# Document Control

Title: Road Asset Management Plan 2017-2026

Document Number:

Date	Revision	Author	Reviewer	Approved Date
20/03/2015	Draft Version 0.1	D. Strugnell		
12/09/2015	Draft Version 0.2	D. Strugnell		
30/03/2016	Version 1.0		B. McInnes	22/06/2016

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## Introduction

Local government assets deliver important community services. Their effective management is crucial to the sustainable delivery of those services to meet community needs and aspirations now and in the future. The aim of this plan is to enhance the sustainable management of Inverell Shire Council's road assets by encouraging 'whole of life' and 'whole of organisation' approaches and the effective identification and management of risks associated with the use of the assets. It encourages a long-term view of asset management and requires Council to understand and then meet the impacts of social, economic and environmental change in ways that ensure sustainable use of physical and financial resources.

This plan is concerned with Road assets, which includes the shire's road and street pavements, bridges, signage and related infrastructure. The plan does not include certain elements within the road reserve such as footpaths, street furniture, underground drainage or other infrastructure assets located on parks and reserves that will be covered under separate asset management plans.

### Defining Asset Management

The international standard for asset management (ISO55000:2014) defines asset management as the "coordinated activity of an organisation to realise value from assets". This includes all activities the organisation undertakes from planning, purchase, operation, and maintenance to disposal of assets. It also encompasses integration of asset and service outcomes.

The International Infrastructure Management Manual recognises the goal of asset management is "To meet a required level of service, in the most cost effective manner, through the management of assets for present and future users". It is important to recognise that the singular purpose of the assets in all cases is to provide a service and as such the

focus of this plan is on the services provided by the shires road assets rather than on the assets themselves.

The key elements of infrastructure asset management are:

- providing a defined level of service and monitoring performance;
- managing the impact of growth through demand management and infrastructure investment;
- taking a lifecycle approach to developing cost-effective management strategies that meet the defined level of service;
- identifying, assessing and appropriately controlling risks; and
- having a long-term financial plan which identifies required expenditure and how it will be funded.

Asset management represents more than simply an integration of existing management systems and data. It builds on existing processes and tools to form a continuous improvement framework that complements and supplements existing practice.

An Asset Management Plan (AMP) is a long-term plan that specifies the activities, resources and timescales required for an individual asset, or grouping of assets, to achieve the organisation's asset management objectives.

### Asset Management Drivers and Benefits

It is widely accepted that transport infrastructure is vital to the economic and social well-being of our nation. For Inverell Shire Council, like most local authorities, the road network is the most valuable community asset under Council's control and provides one of the most vital services to the community.

Local Governments exercise their duties to maintain, operate and improve their road network under increasing pressures that include:

- Limited budgets: with competition for funding across a range of services

- Limited resources: both human resources and materials
- Mature networks: which have a significant maintenance demand
- Increased accountability: to customers and funding providers
- Increasing public expectations: the public are increasingly informed and expect a higher level of service from their assets.

Despite these challenges, Council is responsible for effectively accounting for and managing its assets and having regard for the long term and cumulative effects of its decisions. This is a core function of local government authorities and is reflected in the Charter in s8 of the Local Government Act. Furthermore, a strong and sustainable local government system requires a robust planning process to ensure that these assets are managed in the most appropriate way on behalf of local communities.

Asset management plans form part of Council's Resourcing Strategy that supports the community's Strategic Plan. The Strategic Plan provides a vehicle for the community to express its long term aspirations. However, these aspirations will not be achieved without sufficient resources – time, money, assets and people – to carry them out. The Resourcing Strategy is a critical link when it comes to translating strategic objectives into actions.

The asset management actions necessary to achieve the Strategic Plan Strategies relevant to Council's road assets are outlined in Table 1.

### Using this plan

The Road Asset Management Plan provides core resource information for users. It will be continuously reviewed and updated to improve its quality and to ensure continuing relevance. This document has been written with the intention of being informative and readily understood by persons interested in the actions of Council and particularly in road infrastructure matters. It does not contain detailed technical information but rather seeks to provide an overview of the Council's assets and the

directions that must be taken to ensure their sustainability.

This asset management plan is prepared as a 'core' asset management plan in accordance with the International Infrastructure Management Manual 2015. It has been prepared to initially meet minimum legislative and organisational requirements for the sustainable management of road & transport infrastructure and long-term financial planning and reporting.

The plan is considered a 'core' plan due to its top-down approach where key analysis has been applied at the 'system' or 'network' level of asset management planning.

Strategic Plan Strategies	Term Achievements	Asset Management Plan Actions
R.06 Council ensures it is able to provide resources to effectively deliver its Strategy and Programs.	R.06.01 Council provides adequate resources to deliver its programs and has introduced measures to increase its capacity to deliver cost effective and efficient services.  R.06.02 Council's financial sustainability is being managed through best practices, diverse investment strategies and asset management control.	Implement AMP to ensure the Council's assets are managed and maintained to target service levels  Outputs of this plan are to include a report on the sustainability of the road network
C.03 Promote an ordered and safe Community.	C.03.01 Compliance and regulation programs have been developed and implemented to provide a safe environment for citizens and visitors.	Carry out regular inspection and reporting on road safety as per routine maintenance plan requirements.
C.05 Create clean and attractive streets and public places.	C.05.01 Council's maintenance programs are improving and enhancing the cleanliness and safety of streetscapes.	Include improving the amenity of streetscapes as a performance measure.
S.01 Sound Local Government Administration, Governance and Financial Management are provided.	S.01.02 A sound long term financial position is maintained.  S.01.07 A contemporary system of risk management and internal control is operating.  S.01.09 Best Value principles specified in the Local Government Act along with contemporary asset management processes have been implemented for asset sustainability.	Outputs of this plan are to include a report on the required financial expenditure to ensure the sustainability of the road network.  This plan includes an inspection regime and risk management procedure consistent with Council's Risk management policies and industry best practice.
S.02 Council displays leadership, community engagement and collaboration with others.	S.02.01 Council is managing its statutory requirements and the needs of a participatory community in a transparent and balanced way.	Report on progress against performance measures in the annual report. Engage the community to develop desired levels of service and agree on a funding strategy to achieve them.
S.03 Council provides equitable services, consistent with available resources and priorities to meet the Shire's identified needs and preferences.	S.03.01 Services and programs that Council provides are determined based on equity, customer requirements and community benefits, best value and excellence.	This plan includes an evaluation procedure for maintenance and capital works that takes into account these areas.
S.08 Civil infrastructure is secured, maintained and used to optimum benefit.	S.08.01 An asset management strategy is in operation for civil infrastructure that optimises its use and maintained to agreed standards fit for contemporary purpose.	Implement AMP to ensure Council's assets are managed and maintained to target service levels
S.10 Maintain and enhance a safe, efficient and effective local road network.	S.10.01 Road network capacity, safety and efficiency are improved and traffic congestion is reduced.	AMP includes level of service and performance measure to ensure the road network is well connected, well designed and free flowing
S.12 Provision of safe and efficient networks to ensure connectivity between population centres.	S.12.02 A sustainable and strategic approach to the management of Council's Assets is undertaken.  S.12.05 A Bridge Management Plan has been developed and implemented that meets the community needs and Council's duty of care obligations to the community.	Implement AMP to ensure Council's assets are managed and maintained to target service levels

TABLE 1 : ASSET MANAGEMENT ACTIONS RELATING TO STRATEGIC PLAN STRATEGIES

## Understanding our Assets

Understanding what assets Council owns and controls, along with key supporting information such as their condition, age, location and value is a key step to ensuring best practice asset management. Without this knowledge Council cannot be confident that the decisions it makes regarding the assets are in the best interests of the community.

### Asset Inventory

A good asset register is the foundation for enabling most asset management functions. To be able to operate and maintain the assets, staff need to be able to locate and identify them. To accurately value assets, sufficient data is needed to calculate replacement cost (e.g. size, type) and remaining life (age, expected life, condition). Council is also beginning to gather data on maintenance history and costs to support lifecycle optimisation and increase knowledge of the probability and consequence of asset failure for risk management purposes.

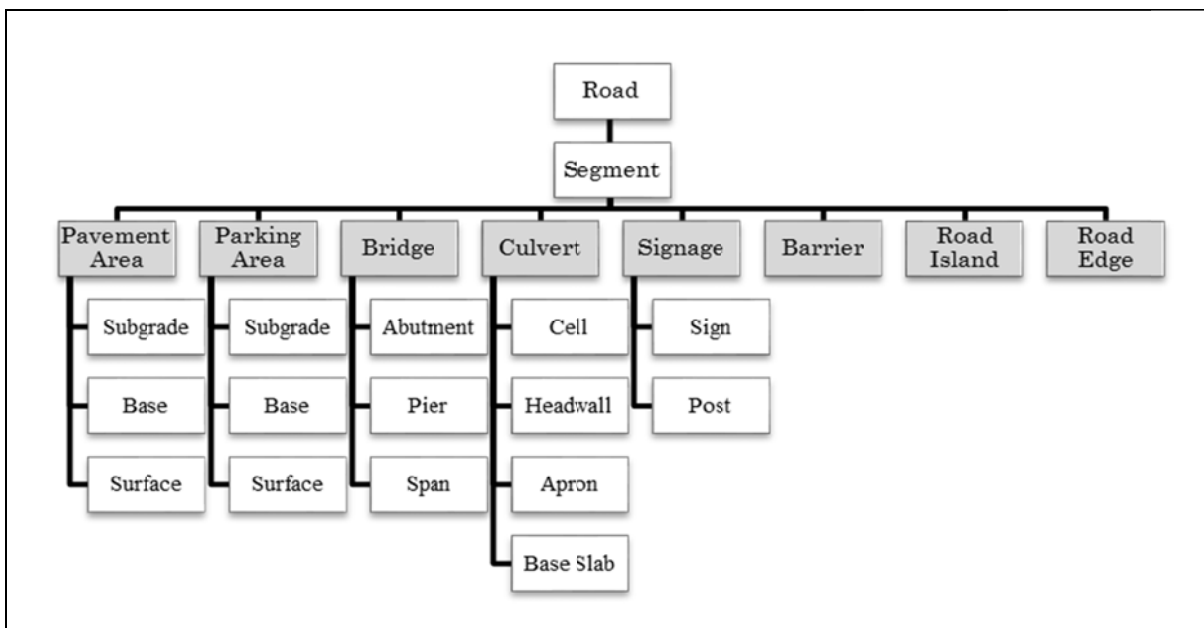
Council uses Technology One Enterprise Suite software to manage its asset data. The system includes an asset register that is fully integrated with the financial and work management modules allowing all work to be captured against the assets affected. The system also

allows for defects to be listed against an asset and work orders to be generated from these, aiding in the collection of long term life cycle cost data. All assets, defects and work orders can also be linked directly to the GIS mapping system to allow accurate location information to be included.

An asset data model provides a framework to structure and store asset data in an information system, segmenting an asset base into appropriate classifications. Inverell Shire Council has developed a hierarchical inventory structure for its road assets that groups them based on their function and their geographic location within the road network. The structure is outlined in Figure 1.

At the top level of the inventory structure, known as the “asset class”, is the *Road*. This encompasses all of the assets along a route with a common Road Name, Road ID and management arrangement i.e. Local, Regional or State. Under this is the “asset group” level of individual road *Segments* which are numbered sequentially along the road.

*Segments* are based on uniformity of purpose, construction type, traffic volumes and topography and contain all of the assets for a given distance along a road. They are described based on their construction type and are





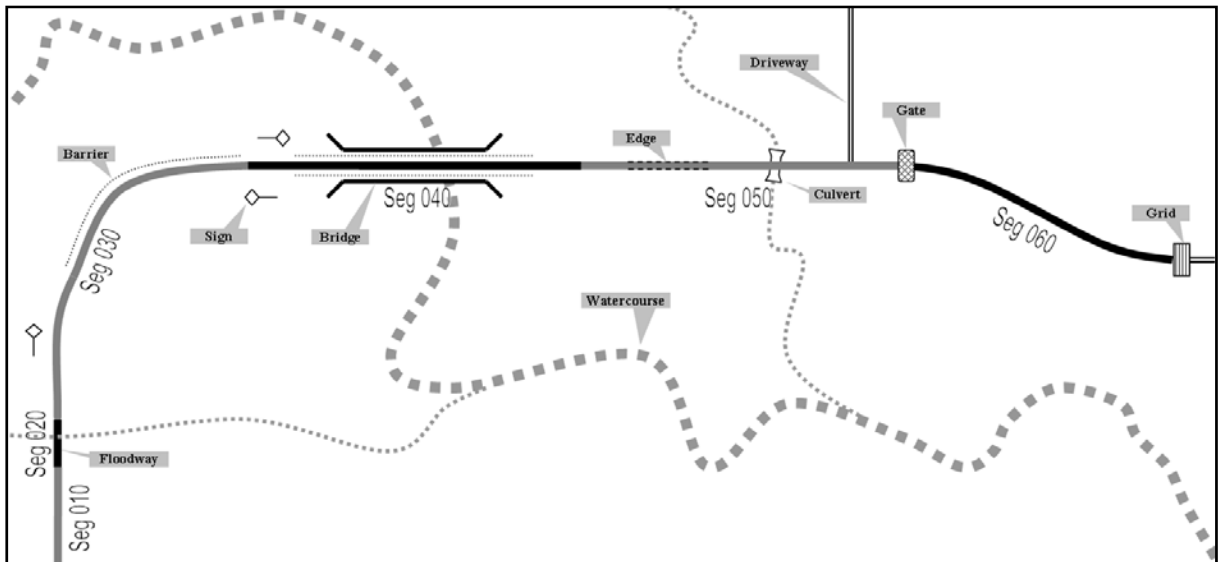


FIGURE 2 : ASSET STRUCTURE EXAMPLE

classified as Sealed Road, Unsealed Road, Floodway, Bridge or Major Culvert. Major Culverts are segments that include a culvert with a road centreline length greater than six metres (from wingwall to wingwall). These culverts are managed and included in the asset register as bridges.

An individual segment can contain a number of other assets and asset categories, for example the Bridge Segment (Seg 040) in Figure 2 contains the *Pavement Area* at each approach, the *Bridge* structure itself, the *Signage* at the end of the bridge and the *Barriers* on either side. Each segment contains a number of assets that may be categorised based on their function, for instance the *Subgrade*, *Base* and *Surface* of the **traffic lanes** of a road are grouped together under the “asset category” *Pavement Area* while the same assets for the **on street parking** areas of that same road are group separately under *Parking Area*.

Each category may contain many or none of each of the individual assets, for example an Unsealed Road would not contain a surface asset, while Signage may include two posts and a culvert may contain several cells.

The type and size of the assets that make up the road network are shown in Table 2 .

Asset Type	Size	Value (000s)
Sealed Road Surfaces	5,515,445m <sup>2</sup>	\$20,659
Sealed Road Bases	5,463,068m <sup>2</sup>	\$121,318
Unsealed Road Bases	6,356,341m <sup>2</sup>	\$43,223
Concrete Road Bases	64,968m <sup>2</sup>	\$14,829
Signage	7,380	\$2,443
Road Islands	6,683m <sup>2</sup>	\$1,634
Culverts	4,084	\$54,907
Bridges	182	\$52,394
Barriers	3,620m	\$469
Off Street Car Parks	86,409 m <sup>2</sup>	\$3,308

TABLE 2 : ROAD ASSETS INVENTORY

### Road Asset Class Hierarchy

All road segments are classified according to a hierarchy that takes into account their specific function, types of users and user numbers. The hierarchical classification is used to assist in prioritising works programs and to develop intervention levels and response times to remedy defects. The classifications for roads covered by this plan are outlined in Table 3.

The “State Highway” and “Main Road” classifications are the same as those used under the Roads Act. These types of roads are known as “Classified Roads” after having been the subject of a declaration order in the government gazette.

Classification	Definition	Code
<b>State Highway</b>	Roads classified under section 47 of the <i>Roads Act 1993</i> that have a Legal Class of Highway as legally described by Declaration Order in the Government Gazette. Whilst these roads are owned by Council, they are in practice maintained, controlled, funded and accounted for by Roads and Maritime Services (RMS) and are included for reference only.	HW
<b>Main Road</b>	Roads classified under section 46 of the <i>Roads Act 1993</i> that have a Legal Class of Main Road as legally described by Declaration Order in the Government Gazette. These roads are owned and operated by Council but are subject to funding from Roads and Maritime Services.	MR
<b>Rural Arterial</b>	Rural roads carrying high to moderate volumes of traffic and connecting local areas to regional roads or providing access from neighbouring shires into Council's rural areas. Roads identified by the community as being important for economic, environment or social reasons.	R1
<b>Rural Collector</b>	Rural roads carrying moderate volumes of local and commercial traffic and connecting local areas to arterial roads in Council's rural areas.	R2
<b>Rural Access</b>	Rural roads carrying low to moderate volumes of local traffic. Their primary function is to provide access to agricultural properties within Council's rural area.	R3
<b>Rural Minor</b>	Rural roads carrying low to very low volumes of local traffic. These roads generally provide limited residential and minor commercial access to one or two rural homesteads.	R4
<b>Urban Arterial</b>	Urban roads carrying high traffic volumes including commercial vehicles and providing the principal routes for vehicles in and around the major urban areas. Roads identified by the community as being important for economic, environment or social reasons.	U1
<b>Urban Link</b>	Urban roads carrying high to moderate volumes of traffic and providing a link between local areas in Council's urban areas.	U2
<b>Urban Collector</b>	Urban roads carrying moderate volumes of traffic and connecting local areas to link and arterial roads in Council's urban areas.	U3
<b>Urban Access</b>	Urban roads carrying mainly local traffic. Their primary function is to provide access to private properties but also provide for some through traffic.	U4
<b>Urban Minor</b>	Urban roads carrying only small volumes of local traffic. Mostly made up of urban laneways and small service roads.	U5

TABLE 3 : ASSET CLASS HIERARCHY

Outside of the above classifications, Council is also responsible for a number of roads that receive no scheduled maintenance. These are the formed and unformed tracks traversing the many council controlled road reserves throughout the Shire (often called paper roads), which are not included on the Shire's asset register and are not managed by this plan.

In order to determine the classification of a given road Council follows a procedure designed to take into account the current and future uses of the road and to decide how much of a social, economic and environmental benefit that road provides to the community.

This involves considering a number of aspects of service delivery such as:

- The road's purpose in relation to other roads in the area,
- the number and types of properties using the road to access the network,
- whether the road is used as a bus route or heavy vehicle route,
- how much traffic uses the road daily,
- whether the road provides access to an area of social, environmental or economic significance
- any predicted future change to the above aspects

## Condition Profile

Inverell Shire Council rates the condition of its assets on a one to five scale in line with the uniform grading framework adopted as part of the NSW Government's integrated planning and reporting reforms.

The condition rating system reflects the performance, integrity and durability of the principal components of each asset. The assessment of the nature and extent of defects for each component type is included in Council's Asset Condition Inspection Manual (Appendix A) which provides examples for each condition rating and a weighting system to calculate an overall condition state for each structure or segment type. The condition states have been developed to align with Austroads, RMS and ISO standards where available.

While specific quantifiable indicators are used to assess each component's condition state, all states are closely aligned to the general descriptions outlined in Table 4

Within the useful life of an asset, the condition may fluctuate from one condition state to another. Judgment is exercised to determine whether the condition of an asset has changed to such an extent as to justify assigning a new condition state for the asset.

If an asset's condition state improves, one of the following must have occurred:

- a) The original evaluation of condition level was incorrect, or
- b) Works of a capital nature were carried out on the asset improving its condition. (Any such works should be capitalised and added to the value of the asset).

It must be recognised that it is possible for an asset to move to a non-adjacent condition state between valuations, either as a result of major works or as a consequence of deterioration over a valuation period.

Rating	Status	Definition
1	Excellent	No work required Asset/Component is in as new condition. Normal maintenance required but no deterioration identified.
2	Good	Only minor maintenance work required Provides a good level of service with some maintenance required. Deterioration identified but renewal not yet required.
3	Fair	Maintenance work required Still meets of level of service requirements but requires regular ongoing maintenance and minor repairs.
4	Poor	Renewal required Level of service impaired..
5	Very Poor	Urgent renewal/upgrading required. Asset/Component no longer provides required level of service. End of useful life.

TABLE 4 : CONDITION RATING GENERAL DESCRIPTIONS

## Current Condition

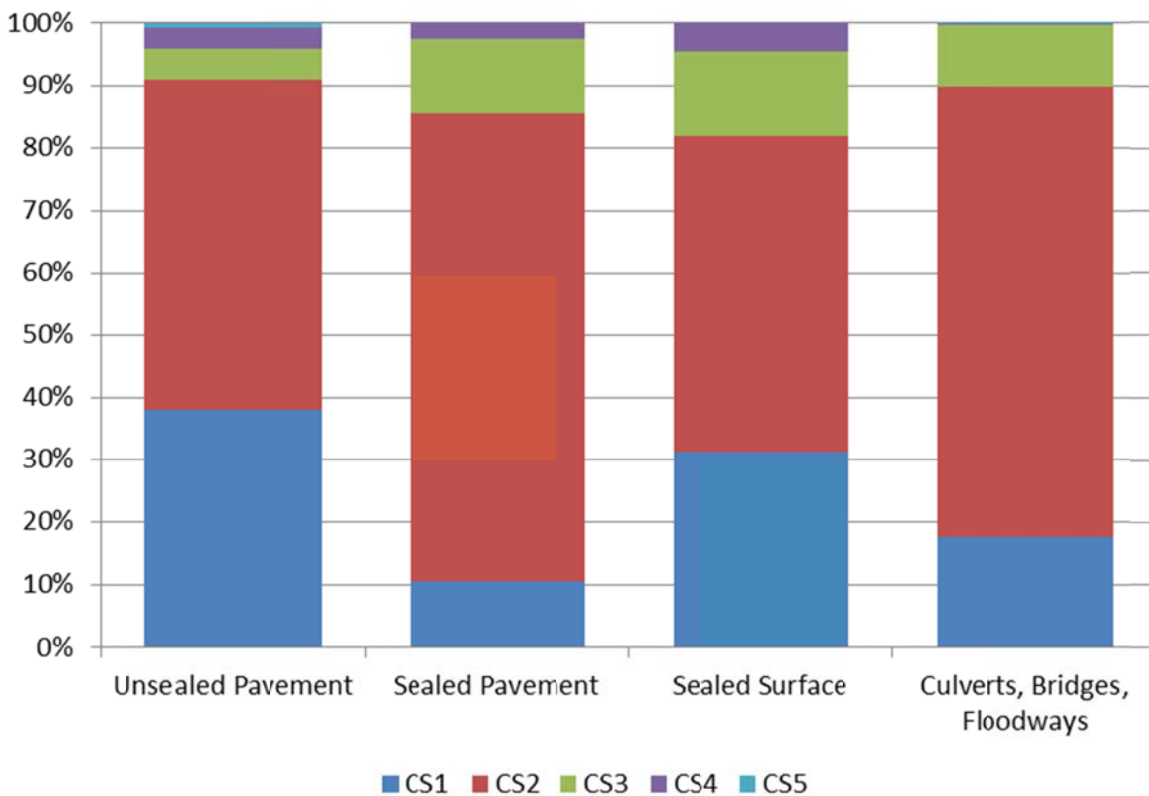
In late 2014 Inverell Shire Council carried out a comprehensive, class-wide inspection and condition assessment program for all road infrastructure assets. This data was collected by expert independent inspectors and will act as a baseline against which we can compare our future condition inspection results.

While the current condition profile in Figure 3 shows that Council has generally kept its assets in good condition, there is an identified backlog of renewal work that is required to be completed to ensure that some of our aged assets meet the community's expectations.

Council's Long Term Financial Plan and Fit for the Future Roadmap provide for significant renewals and upgrades over the life of this plan (see the *Renewing and Expanding the Road Network* section of this plan, pp.26-28 for details).

Inverell Shire Council regularly collects condition information as part of its routine

## 2015 Asset Condition Profile



maintenance inspection program and these condition profiles will be updated as information becomes available. For more information on the inspection program see the [Operating and Maintaining the Network](#) section of this plan.

### Projected Condition

The Useful Life of an asset is the period over which it is expected to provide a service to the community. It is the estimated or expected time between placing the asset into service and removing it from service, or the estimated period of time over which the future benefits embodied in an asset, are expected to be consumed by the community.

The actual time between commissioning a new asset and disposing of it will vary significantly within each class, but for the purpose of this plan Council has adopted the useful lives shown in **Error! Reference source not found.**

Asset Type	Useful Life
Road Subgrade	Infinite
Sealed Road Base	75 years
Sealed Road Surface	25 years
Unsealed Road Base	50 years
Concrete Road Base (Floodways)	100 years
Road Signs	20 years
Road Islands (Roundabouts etc)	40 years
Culverts	100 years
Bridges	100 years
Road Barriers (Guardrail)	70 years
Off Street Car Parks	100 years

TABLE 5 : USEFUL LIVES OF ROAD ASSETS

Both the adopted useful lives and the degradation methods are considered approximations and will be updated and improved as more asset information becomes available.

It is vitally important that Council recognise that its assets have finite useful lives and to ensure that their replacement is planned for. This is implemented in the *Renewing and Expanding the Road Network* section of this plan.

If the Long Term Financial Plan renewal identified in that section of the plan is expended on the assets as suggested, the condition profile of the assets in 2026 at the end of this plan should closely resemble Figure 4

Ongoing condition assessment of all asset classes will ensure that up to date information is provided to plan for condition forecasting as the assets age and the level of service they provide begins to decline. This plan will be monitored and updated to ensure that changes are reflected when condition information is reviewed each year.

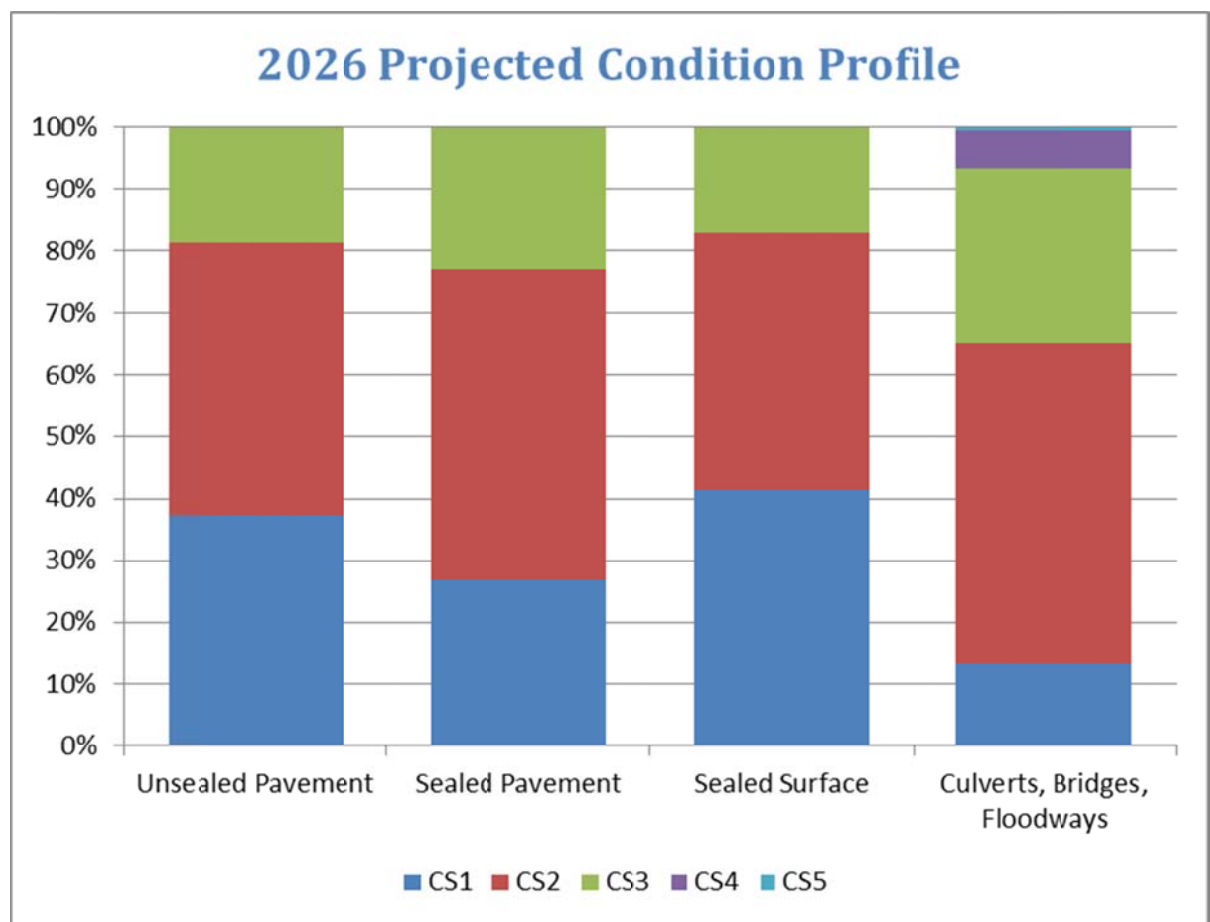


FIGURE 4 : 2026 PROJECTED ASSET CONDITION PROFILE

## Setting Standards & Measuring Performance

A key objective of asset management is to match the standard of service the organisation provides with what the community expects. To ensure we are meeting the expectations of our community it is important for Council to describe what level of service we intend to deliver and then to measure both what we have done to deliver that service and how well our community has received the service.

### Statutory Requirements

Statutory requirements often set the framework for minimum levels of service that infrastructure is required to meet. The following legislative instruments and torts are relevant to this asset management plan.

#### Roads Act 1993

The Roads Act 1993 set out the general principles for road management arrangements in New South Wales. Under the act Inverell Shire Council is the roads authority for all public roads within its Local Government area, except for any freeway, Crown public road, or any public road declared to be under the control of some other authority. The public roads are vested in fee simple in the Council.

#### Tort of Negligence and the Civil Liability Act 2002

The elements of the law of torts are concerned with the accidental injury to person and property. Negligence, essentially, is the failure to take care against unreasonable risk of foreseeable injury to others.

Prior to 2001, Councils had relied upon a common law principle that highway authorities benefitted from immunity to negligence by nonfeasance. In effect, an authority could not be found liable only because they had failed to take positive steps to remove a risk (an omission by the defendant, for example not repairing a

pothole). The High Court's decision in *Brodie v Singleton Shire Council* and *Ghantous v Hawkesbury City Council* on 31 May 2001 removed this long-standing immunity.

The liability of highway authorities in cases of nonfeasance has since been determined by the application of the general negligence principles.

The common law principles governing negligence liability were then reformed by the Civil Liability Act 2002 (NSW). It alters the common law by requiring a greater degree of probability in determining whether there is a foreseeable risk of harm to which a reasonable person would have responded. In addition, the legislation lists four factors that should be considered amongst other relevant things:

- probability of the risk of injury
- gravity of the harm
- burden of eliminating the risk
- utility of the defendant's conduct.

To ensure the above requirements are met, Council takes a proactive approach to ensuring that the service provided does not present a significant risk of injury, loss or damage to the public. This includes carrying out a regular inspection programme and planning to respond to identified defects within a reasonable timeframe, depending on the risk they present. This is implemented in the *Operating & Maintaining the Road Network* section of this plan.

## Levels of Service

Levels of service are a key business driver and influence all of Inverell Shire Council's asset management decisions. Level of service statements describe the outputs we intend to deliver to the community in relation to services attributes such as function, capacity, safety and cost effectiveness. Council has adopted the following level of service for its road assets.

Inverell Shire Council will provide road network that:

- is adequate for the expected volume and type of traffic;
- is well connected, well designed and free flowing;
- provides a comfortable ride and is safe for its users; and
- is economically, socially and environmentally sustainable.

Each of the above statements is supported by one or more performance measures that indicate how successfully we are delivering on that commitment.

Council has defined performance measures in two terms, Community Performance Measures and Technical Performance Measures. Each measures a different aspect of the provision of the service and used together they give Council and the Community a good indication as to how well each of the service statements are being provided.

## Community Performance Measures

Community performance measures relate to how the community receives the service in terms of the expectations listed above. These are generally measured using metrics relating to the number of complaints received, time to respond and overall satisfaction with the aspects of the service measured by surveying the community.

Community satisfaction surveys have not yet been implemented but will be developed in the first year of the plan (See Improvement

Plan action 1.1). Council's performance against these measures will be reported back to the community annually.

## Technical Performance Measures

Supporting the community performance measures are technical performance measures developed to measure how Council provides the service. These focus on the technical aspects of service provision such as cost effectiveness, condition and compliance with technical standards and specifications.

Council's performance against these measures is to be reported annually to the Civil and Environmental Services Committee.

## Desired Levels of Service

Desired levels of service are used to indicate what service the community would like to receive from the assets in the future. This allows Council to work toward providing a better service from the road assets over the life of the plan.

Council will consult with the community during the plan to determine whether the services are meeting the community's expectations and to develop desired levels of service should they fall short (See Improvement Plan action 1.2).

Level of Service	Performance Measure process	Performance Target	Current Performance
The road network is adequate for the expected volume and type of traffic.	Community complaints or requests received regarding capacity of network	Less than 1 per 100km per annum	Zero
	Community satisfaction with network capacity as per survey	85% satisfied	Not yet available
The road network is well connected, well designed and free flowing	Community complaints or requests received regarding network design, connectivity or flow	Less than 1 per 100km of rural road per annum	Zero
		Less than 5 per 100km of urban road per annum	1.4 per 100km
	Community satisfaction with network design, connectivity and flow as per survey	85% satisfied	Not yet available
The road network provides a comfortable ride and is safe for its users	Community complaints or requests received regarding poor ride	Less than 10 per 100km of unsealed road per annum	8.25/100km
		Less than 2 per 100km of sealed road per annum	
	Community satisfaction with ride quality as per survey	85% satisfied	Not yet available
	Community complaints or requests received regarding road safety	Less than 10 per 100km per annum	1.5/100km
	Community satisfaction with network safety as per survey	85% satisfied	Not yet available
	Number of accidents reported by Centre for Road Safety	Less than 0.2 fatal accidents per 1000 population per annum	0.06 per 1000 population
		Less than 5 nonfatal accidents per 1000 population per annum	2.37 per 1000 population
The road network is economically, socially and environmentally sustainable.	Community satisfaction with sustainability as per survey	85% satisfied	Not yet available
	Community complaints or requests received regarding sustainability	Less than 1 per 100km per annum	0.05/100km

TABLE 6 : COMMUNITY PERFORMANCE MEASURES



Level of Service	Performance Measure process	Performance Target	Current Performance
The road network is adequate for the expected volume and type of traffic.	Proportion of Level 2 inspections returning a fair overall rating	80% of Level 2 inspections return an overall rating of fair or better.	Not Yet Available
The road network is well connected, well designed and free flowing	Proportion of traffic surveys in which less than 10% of vehicles experience headway of less than 4 seconds	More than 90% of surveys taken	97.5% of surveys
	Proportion of traffic surveys in which the 85 <sup>th</sup> percentile speed is found to be more than 10km below the posted limit or design speed of the segment.	Less than 10% of surveys taken	4.2% of surveys
The road network provides a comfortable ride and is safe for its users	Proportion of routine Level 1 inspections returning a fair overall rating.	80% of Level 1 inspections return an overall rating of fair or better.	Not yet available
	Time to respond to identified defects	Adopted response times met 90% of the time.	Not yet available
	Average roughness rating as per roughness surveys.	80% of roughness surveys on unsealed roads return IRI of less than 9	100% surveys less than 9 IRI
		80% of roughness surveys on sealed roads return IRI of less than 4	91.7% surveys less than 4 IRI
The road network is economically, socially and environmentally sustainable.	Network operating cost change compared to Local Government Cost Index (LGCI)	Cost to operate network does not exceed previous year by more than LGCI.	Unknown

TABLE 7 : TECHNICAL PERFORMANCE MEASURES

## Planning for the Future

This section of the Road Asset Management Plan attempts to predict future demand for services in order to identify the most effective means of managing that demand. This allows Council to make optimised decisions regarding its asset investment proposals.

It is important to note that demand forecasts are often proven wrong given the passage of time. Influences on demand such as changes in government policy, technological advances and community preferences cannot be predicted with certainty over long periods. As a consequence, assumptions made about factors may change between and during the development of forecasts. Assumptions are often based on judgements that consider past performance and the likelihood of future change. Therefore the following forecasts should be treated with some caution and taken as possible future outcomes rather than definitive statements. Any assumptions essential to the following forecasts have been noted for each factor considered

### Population

Perhaps the most commonly understood factor influencing demand is population change. It is generally the key driver for growth in all areas and drives demand for services provided by Council and, in turn, the number and type of assets that are required to provide these services.

Population projections for the Inverell Shire local government area are outlined in Table 8 and Table 9. The NSW Department of Planning and the Environment predicts that the Shire's population will grow modestly to 2031.

The number of vehicles per person using the road network reached a peak in 2005 (Bureau of Transport and Regional Economics, 2012) therefore future growth in traffic volumes is expected to be at the same rate as the population change above.

The less than one per cent predicted growth per annum is expected to have little impact on Inverell Shire Council's roads due to the significant capacity available throughout the network.

### Higher Mass Vehicles

Total domestic road freight has grown six-fold over the last four decades, from around 27 billion tonne kilometres in 1971 to over 180 billion tonne kilometres in 2007. (A tonne kilometre is one tonne of freight moved one kilometre.) Over that period the average productivity of road freight vehicles - that is, the freight carried per registered freight vehicle, including light commercial vehicles - has more than doubled. As a result, the 2007 road freight task required half as many vehicles as would have been required in the absence of productivity growth.

Totals:	2011	2016	2021	2026	2031
Total Population	16,600	17,200	17,750	18,200	18,600
Total Households	6,700	7,050	7,350	7,650	7,900
Average Household Size	2.44	2.39	2.36	2.33	2.30
Implied Dwellings	7,600	8,000	8,350	8,650	8,950

TABLE 8 : POPULATION PROJECTIONS (NSW DEPARTMENT OF PLANNING AND THE ENVIRONMENT, 2014)

Change	2011 to 2016	2016 to 2021	2021 to 2026	2026 to 2031
Total Population Change	600	550	500	400
Average Annual Population Growth	0.7%	0.6%	0.5%	0.4%
Total Household Change	350	300	300	250
Average Annual Household Growth	1.1%	0.9%	0.7%	0.7%

TABLE 9 : POPULATION CHANGE (NSW DEPARTMENT OF PLANNING AND THE ENVIRONMENT, 2014)

Modelling suggests that future heavy vehicle productivity growth is likely to be more subdued. Fleet-wide heavy vehicle average loads are likely to increase by less than 5 per cent between 2010 and 2030, which contrasts sharply with the 40 per cent growth in average loads over the past two decades.

Increased uptake of higher productivity vehicles is likely to have a relatively small impact on national heavy vehicle productivity since freight that can take advantage of these larger vehicles represents less than 20 per cent of total road freight.

With the Australian road freight task projected to nearly double between 2010 and 2030, slower future freight productivity growth implies significant increases in the number of heavy vehicles to meet the projected future freight task (Bureau of Transport and Regional Economics, 2011).

### **Agricultural Practices and Land Use**

There is a general trend in Australia toward aggregation of small farms into larger holdings, greater production intensity and increased use of larger farm equipment that has more mobility between holdings (Productivity Commission, 2005). Larger farm equipment moving between holdings and increasingly intensive production methods are likely to place greater strain on Council's rural road network causing an increase in maintenance and in some cases the need for upgrades to the road surface. The aggregation of smaller farms may lead to fewer property access roads being required however the effect is expected to be minimal and largely offset by more intensive production driving greater output from the farms.

### **Climate Change**

One of the ways climate change will impact the road network is through the predicted change in rainfall in the region. The consensus according to the CSIRO is that the region will experience little change or slightly less annual rainfall to 2030.

Adding water to unsealed road pavements is an important part of their maintenance and decreased rainfall is expected to place further burdens on road grading activities as locating sufficient water will become more difficult. Should further prolonged droughts be experienced as expected, water may have to be carted in from long distances, increasing costs and eventually forcing some unsealed roads to receive only "dry" grades. This has the potential to lead to an increase in the number of grades required to keep a road reasonably trafficable or a lower level of service being provided to those roads as the surface deteriorates more quickly.

The life of bituminous surface treatments is affected by ambient temperature. An increase in temperature will accelerate the rate of deterioration of seal binders and require earlier surface dressings/reseals, which could lead to higher renewal costs

Although climate change is expected to reduce the average annual rainfall in the region, the Garnaut Climate Change Review found that:

*"... the future precipitation regime may have longer dry spells broken by heavier rainfall events"* (Garnaut, 2008, p. 115)

More intense rainfall events are likely to lead to greater riverine flooding which could have a significant impact on infrastructure located in the flood hazard area, especially the bridges and culverts crossing watercourses throughout the shire. Council needs to consider this when planning to replace or expand its network.

More information will be available about the expected effect of climate change on rainfall when Engineers Australia releases the update to Australian Rainfall and Runoff.

### **Availability of local gravel**

Inverell Shire Council regularly extracts in excess of 100,000 tonnes of gravel from quarries within the Shire each year.

Finding sufficient, good quality gravel to meet road construction demands is becoming

increasingly difficult as current reserves are becoming exhausted and exploration for new sources has been difficult to undertake. In the long term it is anticipated that Council will have to undertake significant expansion of its gravel supply chain to keep up with demand or face increasing cost to haul gravel further distances.

### Bitumen Price

As bitumen can only be effectively manufactured from a relatively small number of crude oils, bitumen supply and cost will be greatly influenced in the future by the worldwide availability of suitable crude oils.. In general, within the life of this asset management plan, an expectation of increased oil prices and ultimately of diminishing oil supply will occur.

In the short to medium term and as a consequence of the above, the approaches proposed for managing the future increased costs of bitumen are:

- (i) adopt as much re-cycling of bitumen surfacings and pavements as practical;
- (ii) extend the life of bitumen surfacings and pavements as much as possible; and,
- (iii) replace the use of bitumen surfacings and pavements as much as possible with alternative materials in the longer term

These approaches will need the strengthening of technical expertise to adapt to the re-cycling and extension of existing bitumen surfacings and the sound evaluation of alternative surfacings (Austroads, 2010).

### Property Development

Expansion of the urban road network is often driven by property development such as the release of new subdivisions. Developers are required to construct roads which become Council assets either as soon as they enter service or at the end of a maintenance period, depending on the conditions of the development approval.

The most recent exercise in demand forecasting was completed for the 2009 Living Lands Strategy(LLS).

This strategy predicted annual yields of 32 residential lots per year based on historical data. This is unlikely to add significant burden to ongoing maintenance and replacement budgets.

The LLS also noted that during the period 1998-2009 there was a larger increase in the number of rural residential lots than residential and while it did not predict future growth for rural residential land development, it is noted that between 1998 and 2008 there were an average of 39 new rural residential lots created per year.

Substantial ongoing rural residential development could hamper cost recovery in the future as population densities decline and Council is left managing a larger road network.

## Operating & Maintaining the Road Network

Maintenance is the regular on-going work that is necessary to keep assets operating. Maintenance does not increase the service potential of an asset or keep it in its original condition; it slows down deterioration and delays when rehabilitation or replacement is necessary. This part of the plan details the specific maintenance activities Council will undertake to keep its road assets performing to the required level of service.

### Inspections

Inspections are formalised assessments undertaken to identify defects and hazards as well as to assess the overall condition of the assets. They are carried out both in response to requests by the community and as part of a regular inspection programme by knowledgeable, skilled personnel. The result of routine inspections, as well as information relating to the speed and quality of Council's response to identified hazards, is to be presented to the Council's Civil & Environmental Services Committee on an annual basis. Council carries out a three level inspection regime as detailed below.

#### Level 1 – Routine Maintenance Inspections

Routine Maintenance Inspections are visual inspections to check the general serviceability of the asset, particularly for the safety of users, and to identify emerging issues. They may be carried out in conjunction with routine maintenance of the asset.

Level 1 inspections provide a check of the asset inventory held in the Register, identification of any hazards or defects present and may recommend a Level 2 inspection be carried out if warranted by observed distress or unusual behaviour of the asset.

Defects or hazards identified during these inspections are either programmed for response during planned maintenance or

responded to immediately via reactive maintenance, depending on the risk they present and the relative importance of the component in the asset hierarchy. The results are also collated for later reporting and to aid in decision making. Each defect is rated according to its severity.

The inspector collects information on the severity and extent of each defect which is passed on to the relevant supervisor for action. The supervisor rates each defect subjectively based on his knowledge of the road, its traffic and its maintenance and defect history.

Council carries out routine inspections on all of its maintained road assets every six months.

#### *Design and safety*

In addition to identifying defects and hazards in the road network inspectors also take note of any instance where a road asset no longer meets the required standards for design and safety. These are noted during routine inspections and used to inform programmed maintenance as well as the renewal decision making process outlined in the *Renewing and Expanding the Road Network* section of this plan.

#### Level 2 – Condition Inspections

Condition Inspections assess and rate the condition of the assets. This information is used as a basis for assessing the effectiveness of past maintenance treatments, identifying current maintenance needs, modelling and forecasting future changes in condition and estimating future budget requirements.

Level 2 inspections are much more detailed than Level 1 inspections. The inspections measure the extent and severity of defects in the asset as well as the general condition of the asset overall.

The condition rating system reflects the performance, integrity and durability of the principal components of each asset. The assessment of the nature and extent of

defects for each component type is included in Council's Asset Condition Inspection Manual (Appendix A) which provides examples for each condition rating and a weighting system to calculate an overall condition rating for each structure or segment type. The condition ratings have been developed to align with Austroads, RMS and ISO standards where available

Inspections are programmed to target 20% of all assets each financial year to ensure that every asset is subject to a Level 2 inspection at least every five years. The results of the Level 2 inspections are used to give an indication of the condition of the entire network which is used to assess the performance of the maintenance budget and is reported in the annual report each year.

### Level 3 – Detailed Engineering Inspections

A Detailed Engineering Inspection is an extensive inspection which may include physical testing and structural analysis to assess the assets structural integrity, to identify and quantify the current and projected deterioration of the asset and to assess appropriate management options.

Level 3 inspections must be carried out by an experienced and qualified engineer and are usually completed as a result of a recommendation in a Level 2 inspection report which has rated the asset in poor or very poor condition or raised significant concerns about its continued performance. Level 3 inspections may also be necessary in order to provide a load rating for a structure or to assess the condition of an asset prior to carrying out programmed works such as rehabilitation, reconstruction or widening.

The inspecting engineer will provide a written report of the results of a Level 3 Inspection to the Director Civil and Environmental Services with a copy to the Manager Civil Engineering within 60 days of the inspection. The report may include assessments of load capacity and condition, recommendations for further testing, remedial action and future inspection

and monitoring or a complete "Structure Management Plan" for individual structures as deemed necessary by the inspecting engineer or as requested by management.

### Routine Maintenance

Routine maintenance includes regular maintenance activities such as light grading and grass cutting along with cyclical maintenance activities such as heavy grading and gravel patching.

### Unsealed Roads

Routine maintenance of unsealed road pavements generally consists of two major activities:

- Patrol maintenance comprises light grading to smooth road surfaces, restoring crossfall, clearing blocked drains and culverts, and the restoration of signs and roadside furniture.
- Periodic or cyclical maintenance comprises heavy formation grading, gravel patching, pavement re-compaction, reshaping of cross sections and restoration of drainage systems – cleaning, replacing, scour checks etc.

### Sealed Roads

Routine maintenance of sealed roads consists of several activities for each of the assets present in the segment:

- the bituminous surface – pothole patching, crack filling/sealing, sweeping, surface correction, minor sealing, and debris clearing
- the pavement – excavating and replacing, scarifying and reshaping, minor stabilising (patching)
- surface drains – Reshaping of cross sections and restoration of drainage systems - cleaning, replacing, scour checks etc.
- culverts, pipes, pits, subsoil drains, flood-ways – cleaning, repairing
- vegetation/roadside – mowing, slashing, trimming, litter collection, sweeping, repairs to retaining structures

- signs and road furniture – cleaning, repairing, replacing, painting
- pavement markings – repainting, replacing

Council’s Maintenance and Operations Budget is included in Appendix B

### Reactive Maintenance

Maintaining Council’s roads through regular investment is the most effective way to preserve the condition of the assets and reduce the risk of defects occurring and intervention becoming necessary. However, even with regular investment, defects will occur; reactive maintenance refers to works that are carried out as a matter of urgency, usually to repair these defects for reasons of safety.

When responding to defects with reactive maintenance Council takes a safety first approach. Where there are clear implications for public safety we will act to allay the danger. Where danger is not implicit we will balance our actions and responses against other criteria and priorities as set out in this plan

In order to prioritise reactive maintenance Council takes a risk management approach when identifying and responding to defects. An inspector collects information on the severity and extent of each defect which is passed on to the relevant supervisor for action. The supervisor takes the extent and severity into account and rates each defect based on those factors and their knowledge of the road, its traffic and its maintenance and defect history. The defects are rated based upon the risk they present as per Table 10.

Rating		Action Required
<b>L</b>	Low	Managed by routine procedures
<b>M</b>	Medium	Planned action required
<b>H</b>	High	Prioritised action required
<b>VH</b>	Very High	Immediate corrective action required

TABLE 10 : DEFECT RISK RATINGS

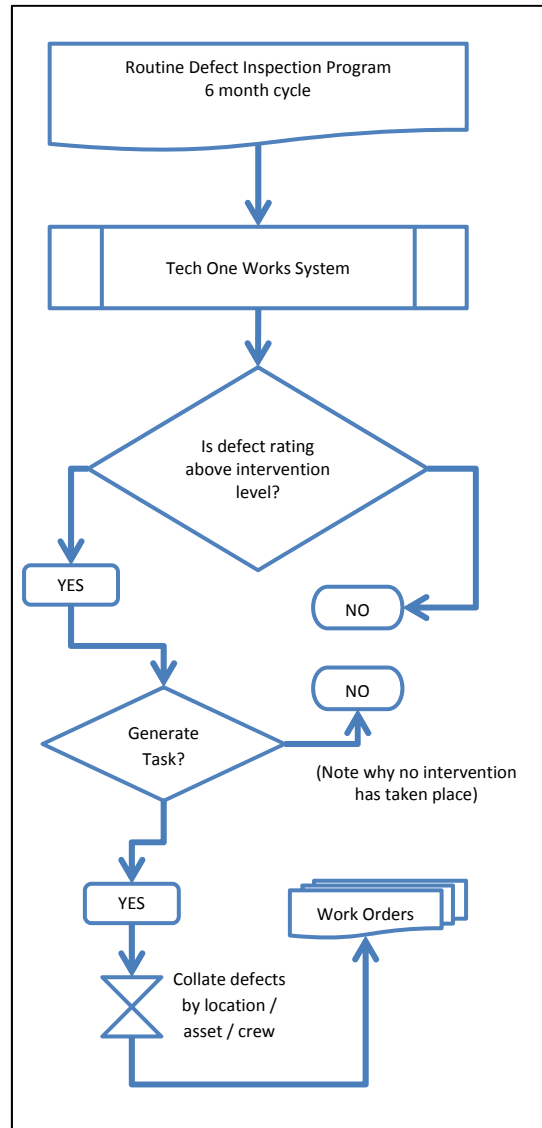


FIGURE 5 : REACTIVE MAINTENANCE PROCESS

Depending on the risk rating applied to the defect the supervisor then either adds it to the defect history of the asset to be monitored, adds it to the routine maintenance program or prepares a work order to immediately rectify the problem or reduce the risk. The process is outlined in Figure 5.

Which course of action is chosen along with the time allowed to respond to the defect is dependent on the defect’s risk rating and the asset’s hierarchical classification as outlined in Table 11 and Table 12.

Council’s performance in responding to identified defects within the adopted timeframe is measured and will be reported annually to Council’s Civil and Environmental Services Committee.

Risk Rating	Action	Class	Response Time
<b>L</b>	Consideration should be given as to whether action needs to be taken	U1	As resources permit
		U2	As resources permit
		U3	As resources permit
		U4	As resources permit
		U5	As resources permit
<b>M</b>	Programme into maintenance works	U1	4 weeks
		U2	6 weeks
		U3	8 weeks
		U4	As resources permit
		U5	As resources permit
<b>H</b>	Make safer	U1	2 working days
		U2	2 working days
		U3	2 working days
		U4	1 week
		U5	2 weeks
	Effect repairs (either temporary or permanent)	U1	2 weeks
		U2	4 weeks
		U3	4 weeks
		U4	6 weeks
		U5	6 weeks
<b>VH</b>	Make safe	U1	4 hours
		U2	4 hours
		U3	1 working day
		U4	1 working day
		U5	1 working day
	Effect immediate repair or replacement	U1	1 week
		U2	1 week
		U3	2 weeks
		U4	4 weeks
		U5	4 weeks

TABLE 11 : DEFECT RESPONSE TIMES URBAN ROADS



Risk Rating	Action	Class	Response Time
<b>L</b>	Consideration should be given as to whether action needs to be taken	MR	As resources permit
		R1	As resources permit
		R2	As resources permit
		R3	As resources permit
		R4	As resources permit
<b>M</b>	Programme into maintenance works	MR	4 weeks
		R1	6 weeks
		R2	8 weeks
		R3	As resources permit
		R4	As resources permit
<b>H</b>	Make safer	MR	2 working days
		R1	2 working days
		R2	2 working days
		R3	1 week
		R4	1 week
	Effect repairs (either temporary or permanent)	MR	2 weeks
		R1	4 weeks
		R2	4 weeks
		R3	6 weeks
		R4	6 weeks
<b>VH</b>	Make safe	MR	4 hours
		R1	4 hours
		R2	4 hours
		R3	1 working day
		R4	1 working day
	Effect immediate repair or replacement	MR	1 week
		R1	2 weeks
		R2	2 weeks
		R3	4 weeks
		R4	4 weeks

TABLE 12 : DEFECT RESPONSE TIMES RURAL ROADS

## Renewing and Expanding the Road Network

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

When deciding whether an item of expenditure is to be capitalised Council refers to the decision tree in the CPA publication *Valuation and Depreciation - A guide for the not-for-profit and public sector under accrual based accounting standards (2013)*.

### Renewal

Renewal expenditure is major work which does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential.

Council has adopted a "Renew before New" approach to planning its long term capital works. This approach recognises that Council should prioritise maintaining, repairing and replacing the current network over development of new or expanded services which add to the ongoing maintenance and replacement burden.

This section of the plan provides a forecast of the notional renewal funding required to keep the assets in satisfactory condition and compares it to the available funding provided in Council's Long Term Financial Plan.

Any renewal forecast for Road Islands, Signs, Barriers or Car Parks is generally below the capitalisation threshold (i.e. not considered "material") and the cost of renewing these assets is instead expensed as maintenance.

The required renewal funding is based on modelling of each class as a whole and assumes

that all assets are spread evenly throughout the condition states. It does not identify specific projects that need to be undertaken to repair or renew assets and is instead intended to show the gradual progression of deterioration that all assets moves through as they near the ends of their useful lives. The renewal requirements identified are therefore often unlikely to be required to be spent in the years indicated. For example, while a bridge asset may lose a proportion of its value into a lower condition state each year, this doesn't mean there are necessarily any issues with the bridge. Intervention will only occur when it is necessary for a project to be completed to the return the asset to its required service level.

Ongoing condition assessment of all asset classes will ensure that up to date information is provided to plan for renewal forecasting as the assets age and the level of service they provide begins to decline. This plan will be monitored and updated to ensure that changes are reflected when condition information is reviewed each year.

### Projected Renewal Requirements

Council intends to ensure that assets do not fail to provide a satisfactory level of service. This means providing enough renewal funding to replace or renew any asset that reaches condition state 4 or 5 throughout the life of this plan.

Figure 6 shows the notional funding required for each year of the plan to renew enough of the assets to meet this target and highlights that as the end of the plan nears, the funding required begins to increase. This is by virtue of the fact that many road assets are currently in condition states 1 and 2 and less intervention is needed until a greater proportion reaches condition state 3.

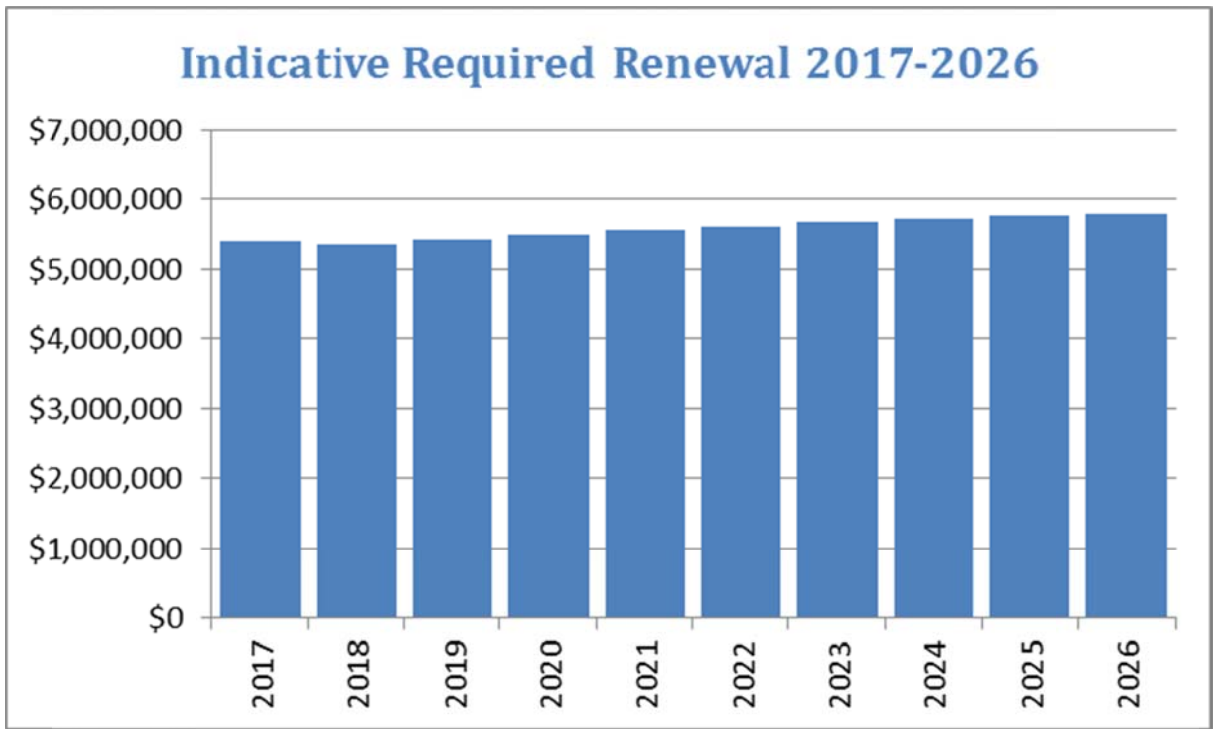


FIGURE 6 : INDICATIVE REQUIRED RENEWAL

### Budgeted Renewal

Councils Long Term Financial Plan 2017-2026 (LTFP) provides the available level of funding to implement the requirements of this Asset Management Plan. The LTFP is used to formulate the annual Operational Plans and

budgets and includes provision for funding from grants and borrowings as well as rates and charges. Figure 7 shows the funding available in the LTFP for each year of the plan.

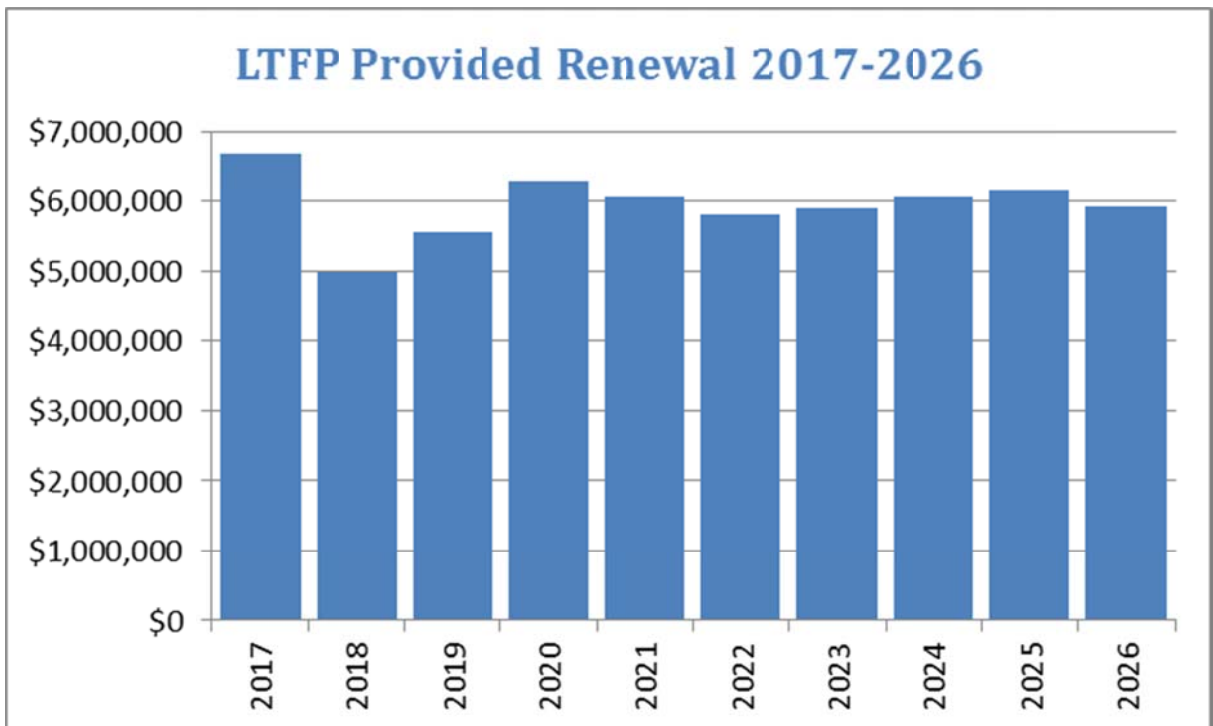


FIGURE 7 : LTFP PROVIDED RENEWAL

The Long Term Financial Plan 2017-2026 includes funding from a proposed special rate variation, intended in part to address the backlog of renewal funding required to return Council’s road assets to a satisfactory condition.

It must be noted that there is significant funding included early in the plan to reduce Council’s infrastructure backlog. With the extra funding provided by the special rate variation, Council

intends to reduce its backlog to zero by 2026 (as shown in Figure 8) after which renewal funding will be closely matched to the ongoing requirements of this plan. This course of action was endorsed as part of Council’s improvement strategy under the NSW Government’s Fit For the Future program and included in Council’s Fit For the Future roadmap which was approved by IPART.

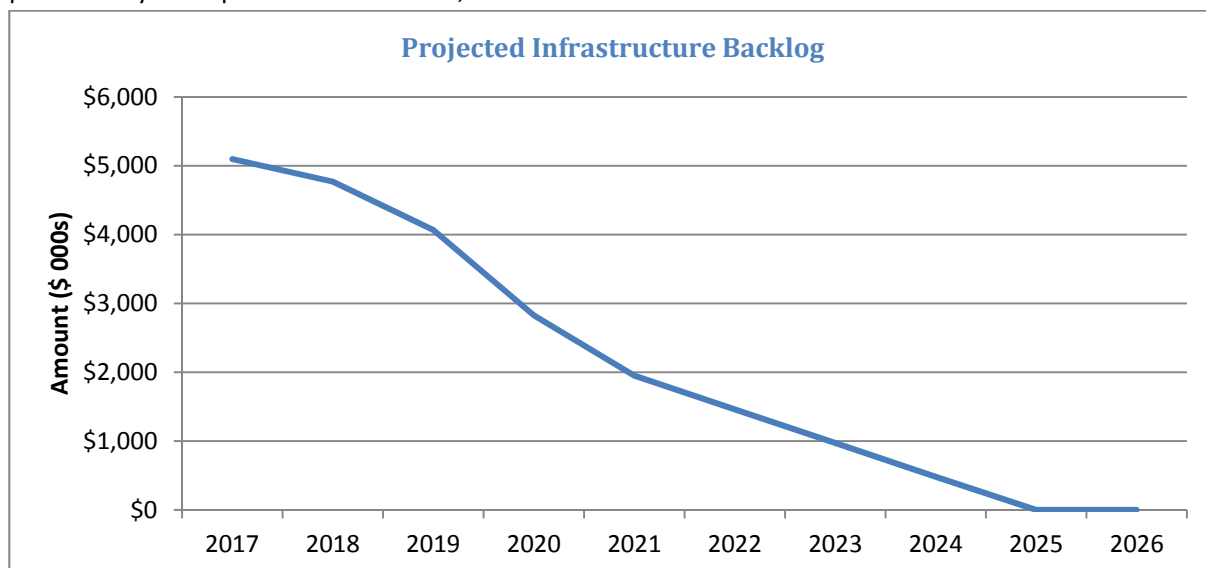


FIGURE 8 : PROJECTED BACKLOG

### Expansion

Expansion expenditure is major work which upgrades or increases the level of service provided by an asset or asset class. This includes improvements to an asset to provide a better service as well as new assets to provide an expanded service. In the short term Council’s focus is on correcting the backlog of renewal works. In the medium to long term there is scope for improvement of the road network, particularly through upgrading current roads to provide a better level of service.

The amount of funding available for each year of the plan is shown in Table 13 along with an estimate of the possible implications for the annual renewal budget. Specific projects have not yet been identified as these works are outside the scope of current Delivery Plan. This plan will be updated to include projects after the adoption of the new Delivery Plan following the 2016 Local Government Elections (See Improvement Plan action 1.10).

Identification of improvement projects will be driven by the demand forecasting undertaken in this plan and the community’s desired levels of service. The effect of the proposed expansion projects on ongoing renewal and maintenance will also be included in the plan at that time.

Year	Expansion Funding	Possible Annual Renewal Impact
2017	\$360,000	+\$14,500
2018	-	-
2019	-	-
2020	-	-
2021	\$225,000	+\$9,000
2022	\$515,000	+\$20,600
2023	\$470,000	+\$18,800
2024	\$345,000	+\$13,800
2025	\$269,000	+\$10,760
2026	\$556,000	+\$22,240

TABLE 13 : EXPANSION FUNDING

N.B. Opportunity exists to divert this funding for renewal works should Council’s asset management system identify renewal as a higher priority at the time

## Rationalising the Network and Retiring Old Assets

Rationalising assets and services can reduce costs, generate operational savings for reinvestment, and allow the delivery of more integrated, customer-focused services. It enables Council to improve our most important assets for the future, and help fund the work through reducing the cost to provide inefficient or unnecessary assets. Making our transport network more efficient, sustainable and fit-for-purpose is key to Council delivering best value services.

For most road assets there is unlikely to be any market through which Council could hope to receive capital receipts from the disposal of its assets. This section of the plan will instead focus on assets identified for possible decommissioning or retirement. These assets will be further investigated to determine the required levels of service and see what options are available for alternate service delivery, if any.

Following review, those assets that are deemed surplus to Council's requirements will generally be mothballed. Road reserves that are no longer required for the provision of legal access due to property amalgamations may be closed and sold with any proceeds to be used for future road maintenance and construction, however this is not likely to provide significant funding.

## Managing the Risks

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

Critical risks, being those assessed as 'Very High' - requiring immediate corrective action and 'High' – requiring prioritised corrective action identified in the infrastructure risk management plan are summarised in Table 14

For more information on the assessment process refer to Council's Infrastructure Risk Management Plan.

Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan
Sealed Roads	Surface ages past its useful life leading to premature pavement failure	H	Increase renewal funding budget via special rate variation
Sealed Roads	Surface cracks and potholes not repaired leading to pavement defects and premature pavement failure	H	Increase maintenance budget via special rate variation
Unsealed Roads	Corrugations and loose surface not repaired leading to reduced level of service and loss of pavement material	H	Increase maintenance budget via special rate variation
Unsealed Roads	Lack of suitable gravel nearby leads to greater cost to purchase and cart gravel for re-sheeting works	H	Assess current quarry reserves and develop exploration program where necessary
Sealed Roads	Increasing cost of road building products such as bitumen	H	Adopt as much re-cycling of bitumen surfacings and pavements as practical; Ensure crack sealing and pothole patching are carried out as soon as possible to prolong asset life
Assets in floodplain	Greater intensity rainfall leads to more frequent and larger riverine flooding events	H	Assess flood prone areas for presence of critical assets and include in future planned upgrade programs

TABLE 14 : CRITICAL RISKS

## Asset Management Practices

### Finance & Database

Council uses Technology One Enterprise Suite as its primary database software. The selected modules form a robust financial and works management system.

### Geographical Information Systems

MapInfo Professional is used to store location based asset data. Data is stored in the MapInfo TAB format in GDA94 datum and accessed through the Exponare platform or directly from Technology One via integration.

Council is updating its guidelines for the management of its spatial data. These guidelines will inform the policies, procedures and processes that Council uses to manage its spatial data (See Improvement Plan Action 1.8).

### Information Inputs

The key information flows into this asset management plan are:

- The asset register data on size, age, value, remaining life of the road network;
- Council strategic and operational plans,
- Service requests from the community,
- Network assets information,
- The unit rates for categories of work/materials,
- Current levels of service, expenditures, service deficiencies and service risks,
- Projections of various factors affecting future demand for services and new assets acquired by Council,
- Future capital works programs,
- Financial asset values.

### Information Outputs

The key information flows from this asset management plan are:

- The projected Works Program and trends,
- The resulting budget and long term financial plan expenditure projections,
- Financial sustainability indicators.

These will impact the Long Term Financial Plan, Delivery Plan, Annual Budget and Operational Plans.

Procedures for the flow of information are heavily dependent upon the needs of the above mentioned plans. Specific requirements for information from this asset management plan will be defined during the process of updating council's other long term planning documents and will be included in future revisions (See Action 1.5 of Improvement Plan).

## Plan Improvement & Monitoring

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

- The degree to which the required cash flows identified in this plan are incorporated into council's long term financial plan;
- The degree to which 4 year detailed works programs, budgets, business plans and organisational structures take into account the 'global' works program trends provided by this plan;
- The degree to which sustainability ratios outlined below meet their targets
- Progress toward achieving the outcomes listed in the Improvement Plan

### Sustainability Ratios

Providing services from infrastructure in a sustainable manner requires the matching and managing of service levels, risks, projected expenditures and funding to achieve financial sustainability over the life of the Asset Management Plan. The following ratios provide a set of Key Performance Indicators that will enable Council to more readily measure and report its overall asset management sustainability.

#### Asset Consumption Ratio

This ratio highlights how much of the service potential of Council's assets has been "consumed". It is expressed as the percentage of assets in "as new" condition and is calculated as written down value as a percentage of current replacement cost.

It is anticipated that the Shire will generally achieve a ratio at or above 75% for the life of this plan.

**Council's Asset Consumption Ratio for Roads as at 30 June 2015 was 79.6%.**

#### Asset Sustainability Ratio

This ratio indicates the extent to which the Shire replaces its road assets as they reach the end of their useful lives. It is expressed as the capital expenditure on renewal and replacement in a given period as a percentage of the depreciation expense for the same period. This has been difficult to calculate as maintenance, expansion and renewal funding have not historically been separated and there have been a number of changes to accounting practice that have affected the method by which depreciation is applied, making it hard to compare historical and contemporary figures.

This ratio is presently calculated only for the 2014/15 financial year. The period included for calculation will in future include the previous five years. The asset sustainability ratio should remain at around 90-100% moving forward.

**Council's Asset Sustainability Ratio for Roads as at 30 June 2015 was 104.86%.**

#### Asset Renewal Funding Ratio

The asset renewal funding ratio is a measure of the ability of Council to fund the renewals and replacement projected by this plan into the future. It compares the outlays budgeted in Council's Long Term Financial Plan (LTFP) to the projected renewal funding requirements identified by this plan. It is calculated as the net present value of LTFP projected outlays as a percentage of the net present value of AMP projected expenditures at a 7% discount rate.

The target ratio is 100% meaning that all renewals required by this plan are able to be funded into the future.

**Council's Asset Renewal Funding Ratio for Roads as at 30 June 2015 was 105.63%.**



## Monitoring and Review

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

## Improvement Plan

The asset management improvement plan generated from this asset management plan is shown in Table 15.

Action ID	Action	Outcome	Responsibility	Due Date
1.1	Develop and implement Annual Satisfaction Survey	Monitor performance of plan and gain insight into desired levels of service	Asset Management Coordinator	End 2016
1.2	Consult the community on the current levels of service and determine desired levels of service for inclusion in AM plan where necessary	Ensure plan is providing for community expectations. Provide targets for AM plan	Integrated Planning and Reporting Manager	End 2016
1.3	Update AMP to reflect adoption of Disability Access Inclusion Plan	Better integration between adopted council plans	Asset Management Coordinator	End 2017
1.4	Continue improvement of asset data and confirm asset locations in GIS system.	Improved inventory and spatial data for use in forward planning	Asset Management Coordinator	End 2017
1.5	Develop formalised procedures for information flows into and out of the asset management plan	Ensure relevant information is shared.	Asset Management Coordinator	End 2017
1.7	Develop formal capital evaluation process for allocation of funding.	Provide better information about life cycle costs for future works	Finance Manager	End 2016
1.8	Develop spatial data guidelines	Ensure location based information is accurate, relevant and up to date	GIS Officer	End 2016
1.9	Undertaken a systematic review of the transport network to determine if levels of service provided match the community's requirements.	Rationalise the transport network to ensure customer value.	Management Team	End 2017
1.10	Update expansion program with specific projects identified in Delivery Plan	Ensure asset expansion and improvements meets the requirements of the new Delivery Plan	Asset Management Coordinator	2017

TABLE 15 : IMPROVEMENT PLAN

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# Appendix A

Asset Condition Inspection Manual



# Appendix B

## Routine Maintenance Plan





