

The City of Marion



# ROAD INFRASTRUCTURE ASSET MANAGEMENT PLAN



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## 1. EXECUTIVE SUMMARY

Council provides road infrastructure to meet the needs of motorists (including commercial and commuter movements), public transport, cyclists and pedestrians. Furthermore, it also involves understanding and consideration of future plans of other stakeholders.

The development of this asset management plan will provide the opportunity to:

- Improve Council's resource allocation and management of its road assets.
- Assist in providing a consistent and logical response to community requests.
- Effectively link with the arterial road network.
- Proactively support the state level strategic plan in relation to road infrastructure.
- Set intervention/service levels and standards for prioritisation of maintenance and construction works.

This plan deals with the Road Base and Sub Base, Road Seal, Kerb and Watertable, Signage, Footpaths, Bridges and Traffic Control Devices. The road types included herein are:

### Arterial Roads

These roads cater for significant to high numbers of vehicles moving between regions. These roads (which are generally maintained by the Department of Transport, Energy and Infrastructure) are of a high design, often with a number of lanes separated by a wide median.

### Sub-Arterial Roads

The primary function of these roads is to cater for reasonably high volumes of traffic travelling between regions. These roads (which are generally maintained by council) are normally one lane in each direction, although the travel lane is separated from parking. Examples of these roads are Lander Road and Winifred Avenue. The new 'connector' road at Hallett Cove will also be sub-arterial.

### Distributor Roads

This is a road that disperses traffic into or within a local area. In general these roads (maintained by Council) consist of one lane in each direction of travel, free of parking and provide direct access to residential properties.

### Collector Roads

These roads generally provide a link between either arterial roads or distributor roads and local roads. These roads usually provide for the movement of traffic, have one lane in each direction, allow parking and provide direct access to residential properties. Collector roads are the responsibility of Council. Examples of this category of road are George Street, and Dwyer Road Oaklands Park and Capella Drive Hallett Cove.

### Local Roads

These roads are local streets that provide access to properties. Generally this type of road caters for low traffic volumes and speeds, with parking allowed on both sides

## **What does it Cost?**

Council plans to manage and maintain the Road network to achieve the following strategic objectives:

1. Ensure the road network is maintained at a safe and functional standard as set out in this Infrastructure and Asset Management Plan.
2. Reviews and allows for the replacement and upgrade of existing roads that have reached the end of their serviceable life.
3. Provides a strategy for determining the City of Marion's road network improvement and maintenance requirements and priorities over the next 10 years in order to maintain the Council's road network.

## **Measuring our Performance**

### Quality

Road assets will be maintained in a reasonably usable condition. Defects found or reported that are outside our service standard will be repaired. The section on maintenance response service levels provides details of defect prioritisation and response time.

### Function

Our intent is that an appropriate road network is maintained in partnership with other levels of government and stakeholders to adequately meet our users' needs.

Road asset attributes will be maintained at a safe level and associated signage and equipment will be provided as needed to ensure public safety. The following key functional objectives will be met:

- Improve the management of road assets.
- Optimise road management decision making.
- Utilise lifecycle asset planning philosophies.

The main functional consequence of the road service levels is to determine the operational requirements of the asset so that it meets the user needs. The service levels support Council's strategic goals and incorporate community expectations, technical standards and statutory requirements.

### Safety

All road assets are inspected regularly and prioritised to repair defects in accordance with our inspection schedule to ensure they are safe.

### Community Consultation

This infrastructure and asset management plan needs a community consultation process to explain the proposed service levels, costings and impact on all people that use the road network. The proposed consultation process is to:

- On finalisation and internal acceptance of plans for all infrastructure types a discussion

paper will be prepared outlining Council's road Infrastructure and Asset Management Plan (IAMP) and setting out the impact of the plan on different users. This will form the basis of future consultation and service level reviews.

## **2. INTRODUCTION**

The City of Marion has committed to the introduction of a strategic asset management framework that is consistent with the approach outlined in the national Infrastructure Manual, and as promoted by the Local Government's Asset Management advisory group.

### **2.1. Objectives of the Road Infrastructure Asset Management Plan**

The Key objectives of this plan are to:

- Provide a context for Strategic Asset Management Planning for road infrastructure assets within the City of Marion
- Define a framework and structure for Asset Management of the Council's road infrastructure asset portfolio
- Effectively manage the Council's financial investment in road infrastructure assets
- Ensure community requirements and expectations are translated into services through the application of appropriate service levels
- Facilitate and demonstrate strategic asset management and the implementation of whole of life strategies to the asset portfolio
- Effectively manage the risks associated with the transport portfolio
- Use a set of specific goals and objectives to guide the development and implementation of strategies for management of Council's transport assets

### **2.2. Scope of the Plan**

The Road Infrastructure Asset Management Plan covers all access and transportation related infrastructure assets within the road reserve, including the road, road-bridges, footpaths, kerb and watertable, spoon drains and traffic devices. It should be noted that:

- The road asset elements include the wearing surface (asphaltic seal or spray seal), the asphaltic base and the rubble base material.
- Kerb and water table asset elements include the concrete structure.
- Road-bridges are generally concrete and/or steel beam structures, the asset elements of which include the wearing surface, the beams, support columns, wingwalls and abutments, and guardrails.
- Spoon drain asset elements are generally concrete, purpose-built road drainage systems, incorporated within the road structure.
- Traffic devices include signs (directional and regulatory), linemarking, median strips, traffic control islands, kerb protruberances roundabouts, pedestrian safety zones and speed

humps.

- Footpath asset elements include the concrete or block units and the base material (sand).

### **2.3. Purpose of the Plan**

The overall purpose of the Road Infrastructure Asset Management Plan is to:

- Ensure Council can manage the road transport network in a sustainable manner for the long-term;
- Develop a road transport asset management system that is integrated with other elements of the asset portfolio;
- Ensure Council minimises any adverse environmental impacts caused by transport asset users; and
- Maintain transport assets to a level of service commensurate with community expectations and Council needs.

It is also the purpose of this Road Infrastructure Asset Management Plan ('IAMP') to demonstrate responsive management of assets (and services provided from these assets), compliance with regulatory requirements, and to communicate funding required to provide the required levels of service.

The IAMP is to be read with the following associated planning documents:

- The City of Marion Strategic Plan
- The City of Marion Asset Management Framework (draft)
- City of Marion Bike Plan
- The City of Marion's Development Plan
- Road Hierarchy Plan

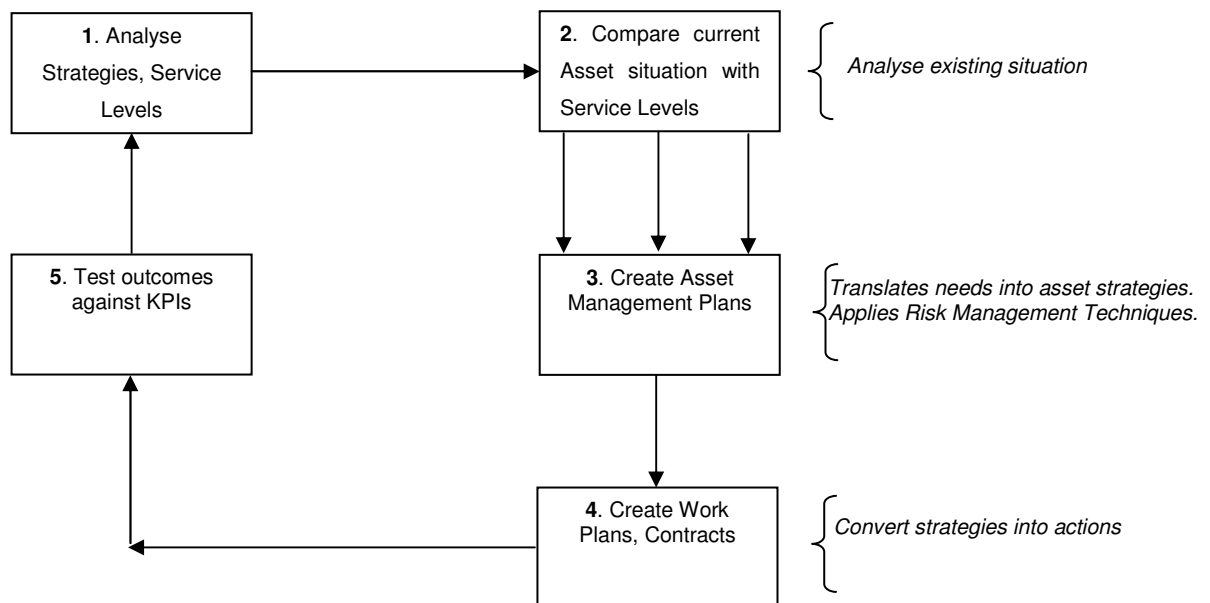
### **2.4. Asset Management Plan Framework**

The key elements of the Asset Management Planning framework are:

- **Service Levels** - This element specifies the services levels to be provided by Council
- **Future demand** - Outlines how future demand will impact on future service delivery and how this is to be met
- **Risk management** – Ensures risk-centric issues are managed within the guidelines described in AS/NZS4360 – Risk Management
- **Financial summary** -Describes what funds are required to provide the required services.
- **Asset management practices**
- **Performance measurement** - how the outcomes of the plan will be monitored to ensure that the plan is meeting Council's objectives
- **Asset management improvement plan** - constant improvement process to ensure best practice

- **Life-cycle management** - Describes how Council will manage its existing and future assets to provide the required services
- **Operational management**
- **This Asset Management Plan** analyses and translates broad strategic plans into specific objectives relevant to a particular activity for the organisation. The asset management plan is the medium by which the organisation articulates its management of its assets to achieve the desired outcomes

The figure below outlines the approach taken in developing and implementing the plan within the City of Marion.



**Figure 1: Asset Management Planning Process**

## 2.5. Key Stakeholders

Key stakeholders in the preparation and implementation of this Road Infrastructure Asset Management Plan are:

City Assets Staff	Prioritisation and programming of maintenance and capital works, preparation and revision of asset management plans
City Services Staff	Undertaking programmed and reactive maintenance works
Finance Division Staff	Allocation of required funds for the implementation of this asset management plan is achievable, applying long term financial plans and organisational strategies and in consideration of all other financial policies.
Elected Members	Approval of this plan

## 2.6. Council's Approach to delivering the Asset Management Framework

The Council exists to provide services to its community, some of which are delivered through its infrastructure assets. Its approach to managing infrastructure assets is to meet the determined level of service in the most cost effective manner for present and future consumers.

The key elements of infrastructure asset management are:

- Adopting a whole-of-life approach to asset management,
- Developing cost-effective management strategies for the long term,
- Providing a defined level of service and monitoring performance,
- Understanding and meeting the demands of growth through demand management and infrastructure investment,
- Managing risk associated with asset failure,
- Ensuring a sustainable use of physical resources,
- Providing continuous improvement in asset management practices.<sup>1</sup>

This Road Infrastructure Asset Management Plan is prepared under the direction of Council's community and corporate vision and their associated strategies.

### **2.6.1. Council's Community Vision**

The Community Vision for the Marion Council is as follows:

*Marion is a safe, accepting and understanding community. Our people work together to create a rich community environment. People in Marion respect and support each other and they feel empowered to make a difference. Our residents share a sense of belonging and many are active community members.*

*Marion is an accessible city and our communities enjoy healthy lifestyles. People meet and relax in vibrant, beautiful public areas that are well used and well cared for.*

*The physical infrastructure and design of the City of Marion is developed to meet the changing community needs for information technology, housing, transport, environmental management and community support.*

*Marion is a diversified regional centre serving the inner south of Adelaide. It offers extensive community and business facilities with a focus on learning, health, retail, business services, arts, culture and recreation. Business growth has been based on innovation, advanced manufacturing, new technologies and collaborative networks.*

*Resources are used wisely and our community is committed to reducing its ecological footprint; people embrace the use of alternative energy sources, minimize waste, save water and work actively to maintain the natural environment.*

*Marion is recognised by communities across the Adelaide metropolitan area as contributing to creating a more sustainable future for South Australia and is seen as a model for community and neighbourhood development.*

### **2.6.2. Council's Corporate Vision is:**

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

- A leader in the delivery of the Community Vision – ‘A heart for Adelaide’s inner south’
- An Organisation of Excellence by being;
  - Recognised for excellence in governance
  - Recognised for service quality
  - An employer of choice

The Corporation of the City of Marion is committed to the Excellence in Local Government Framework (EiLGF) to guide its strategies and enable benchmarking of its achievements. The organisation is also committed to developing a constructive culture that supports individuals and the organisation to achieve their goals.

### **2.7. Rationale for Ownership**

Local Government 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.

In most cases Council has no option other than owning road transport assets. However there are opportunities for Council to take advantage of advertising revenue and have some road transport assets like bus shelters and street signs being provided and maintained by private enterprise; these opportunities are however limited. Road Transportation is generally regarded as the essential activity associated with enhancing the Citys’ economy and accessibility.

### 3. SERVICE LEVELS

Service Levels provide the basis of the life cycle management strategies and capital works programs identified within an Asset Management Plan. They encapsulate the Organisation's strategic goals and are based on customer expectations, corporate goals and statutory requirements.

Service Levels need to be refined over a period of time to match the expectations of customers. This in turn requires a clear understanding of customer needs, expectations, preferences and their willingness (or not) to pay for any increase in the levels of service.

#### 3.1. Legislative Requirements

Council has to deal with many legislative issues including Federal and State legislation and State regulations. Some of these Legislative issues are 'drivers', however most are constraints in that they do not drive the need for asset provision. The 'Drivers' include:

Legislation	Requirement
SA Local Government Act 1999	<p><u>Driver</u></p> <p>The Act (1999) requires Council to have an asset management plan in place by the 30 November 2008.</p> <p>The Act (1999) further outlines the requirements for Councils to deliver infrastructure, facilities and services to the community, and ensures that certain performances are met for this infrastructure. (See Sections 6 and 7 of the Local Government Act).</p> <p>This does not demand that Councils must own the assets, but that where the provision of facilities is the means by which services are delivered, facilities may be owned, leased or delivered by some other mechanism.</p>
Highways Act 1926	<p><u>Driver</u></p> <p>An Act to ..... "make further and better provision for the construction and maintenance of roads and works, and for other purposes".</p>

**Table 1: Legislative Drivers**

The Legislative 'Constraints' for this asset class include:

<b>Legislation</b>	<b>Requirement</b>
Road Traffic Act	<u>Constraint</u> Defines layout and format of roads within the city. Defines control requirements including use of traffic control, traffic calming, crossings, speed setting and indicating and general limitations on use.
AS 1742 (Traffic)	<u>Constraint</u> Manual of Uniform Traffic Control Devices.
Occupational Health, Safety and Welfare Act 1986 & Regulations.	<u>Constraint</u> An Act to provide for the health, safety and welfare of persons at work; and for other purposes.
Disability Discrimination Act	<u>Constraint</u> Sets out the responsibilities of Council and staff in dealing with access and use of public infrastructure.

**Table 2: Legislative Constraints**

### **3.2. Community Expectations**

The level of community expectation is couched in terms of the need to provide facilities that are available, safe, accessible and cost effective. In this regard, Council has initiated a number of community surveys which test the needs of the community, the outcomes of which are used to drive changes to the service delivery elements of the portfolio.

Council participated in the Local Government Association of South Australia Comparative Performance Measures in Local Government Customer Satisfaction survey. This telephone survey polls a sample of residents on their level of satisfaction with Council's services. The most recent customer satisfaction survey reported that customers were 'satisfied' with the delivery of asset management services, however there was no specific data provided about roads as an asset group. Council monitors customer service demands through its Customer Service Request (CSR) reporting system and uses the issues identified to initiate repairs, monitor and review maintenance practices relating to the particular asset. It would be advisable that council conducts targeted surveys with the community on the community's expectations on roads and related infrastructure.

#### **3.2.1. Availability**

The level of availability of road transport assets is essential for the ease of access to residences, institutions and businesses within the City. Wherever possible any planned or unplanned unavailability of the road and footpath network is communicated to the general public in a timely manner so that alternative access arrangements can be made and inconvenience and financial losses minimised.

### **3.2.2. Accessibility:**

It is important that transport assets are fully accessible to all. It is council policy that:

- Every street has a footpath in accordance with the City of Marion Road Hierarchy Plan.
- Main roads, (arterial, sub arterial, local distributor, and local collector) should have footpaths on both sides.
- Local streets should have at least one footpath.
- Cul-de-Sac – Not necessary to have a footpath unless a direct need is recognised in consultation with residents.

Priority will be given to constructing footpaths on streets that have no paths ahead of streets that have a path on one side already. The location of footpaths within the road verge may be varied to suit local conditions, street landscape etc.

### **3.2.3. Comfort and Safety**

Safety is of paramount importance, both in terms of public liability and occupational health and safety. As a consequence Council has determined that:

- Footpaths shall be paved.
- New footpaths and replacement footpaths are to be constructed of interlocking block paving in residential areas.
- Concrete paths are the preferred treatment for industrial areas due to traffic loadings.
- Footpath width shall be a minimum of 1.2metres. This will increase to 1.5m to cater for wheelchair and pram access in locations where this access is needed and constraints allow. These areas are still to be defined.

### **3.2.4. Disabled Access**

In order to comply with the requirements of the Commonwealth Disability Discrimination Act, Council will ensure disabled access provisions in all footpath reconstruction or new construction works. Implementation to new standards will be prioritised on the basis of identified need with a focus on footpaths servicing shops, schools and other pedestrian focal points. Disabled provisions are to be included at bus stops in line with Federal Government legislation.

### **3.2.5. Sustainability**

As with all levels of Government, the City of Marion is attempting to promote environmental sustainability; one element of which is to encourage the use of alternative modes of transport. In this regard, Council has and is continuing to support a number of initiatives to promote non-car transport, these are the "*Safe Routes to School Program*" and the "*Living Neighborhood/Travel Smart SA program (Save a K)*".

Furthermore, Council has implemented, and is continuing to develop its Local Area Bike Plan. At present Council is installing the Coast to Vines Rail Trail (formerly the Willunga – Marino Recreational Trail).

Other suggestions for promoting alternative modes of transport within the City are:

- The provision of bicycle routes within existing rail corridors, e.g. the Tonsley Railway Line;
- Identifying opportunities to provide and promote 'Park and Ride' facilities. These facilities should be multi-modal and cater for cyclists and pedestrians;
- Design of roads in new southern sections of Council should cater for low ride buses; and
- Identifying precincts that may require the provision of bus services in the future.

### **3.2.6. Capacity**

The transport network must have the capacity to deliver the level of service that has been determined after measuring the level of demand. Council's services are generally delivered within design standards for capacity where these are available, however because of the different elements associated with the transport network, it is not necessary for each element to be measured for capacity. The following exceptions apply:

#### Road Capacity

Road capacity is defined as *the maximum hourly rate at which vehicles can reasonably be expected to traverse a point (intersection) or section of a lane/roadway during a given time period*. The Level of Service (LOS) is a qualitative measure to describe the operational conditions within the traffic flow. There are six qualitative levels (A to F) as defined in the Austroads publication "Guide to Traffic Engineering Practice, Roadway Capacity Part 2", outlined below:

Level A	Free flowing traffic conditions, motorists virtually unaffected by other drivers. Freedom to select travel speed and to manoeuvre. Excellent level of comfort and convenience.
Level B	Stable traffic flow, drivers have reasonable freedom to select their desired travel speed and to manoeuvre. Slightly reduced levels of comfort and convenience.
Level C	Stable traffic flow, but drivers are restricted in their freedom to select travel speed and manoeuvre. The general level of comfort and convenience declines noticeably.
Level D	Close to the limit of stable traffic flow. All drivers are restricted in their freedom to select their speed and manoeuvre. The level of comfort and convenience is generally poor.
Level E	Traffic volumes are at or near capacity and there is virtually no freedom to select either vehicle speed or manoeuvre. Flows are unstable and minor disturbances in the traffic causing break-down.
Level F	This is forced traffic flow. That is the amount of traffic approaching a point exceeds that which can pass it. Flow break-out has occurred, resulting in queuing and delays.

#### Road Bridge Capacity

The capacity of road bridges is determined by the engineer's calculated structural load bearing capacity in tonnes.

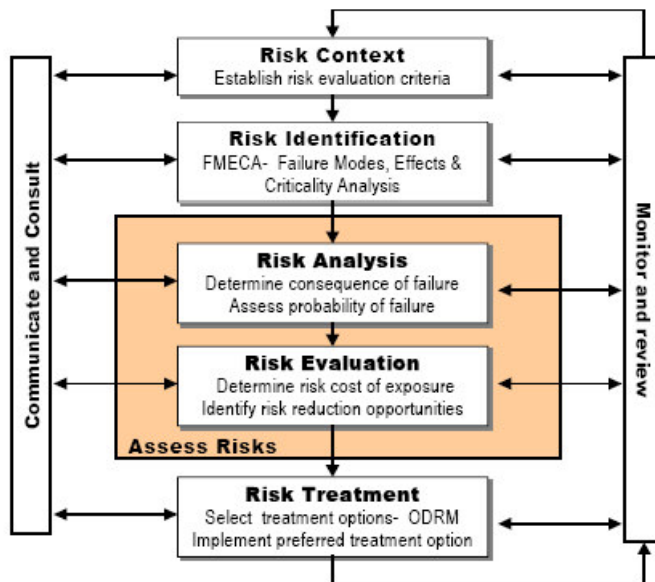
### 3.2.7 . Risk Management

The City of Marion recognises that risk management is an integral part of sound asset management practice. Risks arise out of uncertainty, and whilst it is acknowledged that it is not possible to have a totally risk free environment, it is possible to manage risk by avoiding, reducing, transferring or accepting risks.

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

- Outline the process by which the Organisation 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.

A comprehensive process of risk identification has yet to be carried out within each service unit. When this occurs, Council will adopt a systematic, holistic approach to managing risks, based on the process outlined in AS/NZS 4360: 2004, and illustrated in the figure below.



**Figure 2: Risk Management Framework**

Council, as part of its Risk Management program has identified a number of risk sources for the organisation. These risk sources are as follows; business practices, economic conditions, environmental management, financial operations, natural hazards/events, OHS&W, Professional Indemnity, Property Loss, Public Liability, and Statutory Compliance.

An assessment of risks associated with service delivery from infrastructure assets has been

identified as being a critical risk 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.

### 3.2.8. Cost Effectiveness

The measure of cost effectiveness is a qualitative measure, based on a cost-benefit analysis for each of the services delivered. The measures are based on a benchmark standard for service delivery, compared to the cost to deliver that service (e.g. on a square metre basis). These figures are yet to be calculated:

Service	Standard	Cost (\$) per sqm
Arterial road construction		
Arterial road maintenance		
Sub-arterial road construction		
Sub-arterial road maintenance	Council	
Local distributor road construction		
Local distributor road maintenance	Council	
Local collector road construction		
Local collector road maintenance	Council	
Footpath construction	Council	
Footpath maintenance	Council	
Kerb and watertable construction		
Signage provision	Rate per km	
Linemarking provision		
Linemarking maintenance		
Roadbridge provision		
Roadbridge maintenance		

**Table 3: Cost effectiveness standards**

### 3.2.9. Condition

Council has devised its own condition rating system for each of the asset elements that make up the transport network. These include the following:

Element	Rating system
---------	---------------

Roads	Road seal condition ratings from 1 (excellent) to 8 (very poor). Road Pavement ratings from 1 (excellent) to 10 (very poor).
Traffic control devices	Based on failure rates
Bridges	Use road seal ratings and failure rates.
Footpaths	Condition ratings from 1 (cosmetic cracks only) to 5 (extreme risk, 3cm height difference).
Kerbs and watertables	Condition ratings from 1 (cosmetic cracks only) to 5 (extreme risk, 3cm height difference).

**Table 4: Condition ratings**

### **3.2.10. Operational Management**

The following have been identified as key operational management issues for the future management of the transport portfolio:

#### **3.2.10.1 Speed and Volume of Traffic**

Council receives numerous requests to reduce both the speed of traffic and number of vehicles using residential streets within the City. In March 2003, the State Government introduced the 50 km/h general urban speed limit, which applied to all roads in the metropolitan area unless signed otherwise. In the City of Marion all but five roads maintained by Council, are speed zoned 50 km/h. These roads which are speed zoned 60 km/h are:

- A short section of Young Street, Trott Park;
- The Cove Road, Hallett Cove;
- Lander Road, Sheidow Park;
- Morphett Road, Seacombe Heights; and
- Miller Street, Sturt.

It should be noted that all arterial roads within the Council area are speed zoned at 60 km/h or higher.

#### **3.2.10.2. Inappropriate Driver Behaviour**

This issue is of concern to the majority of residents in all areas of the Council, with the problem continually being raised with Council staff and the Police. Particular areas of concern are:

- Within car parks;
- Adjacent to reserves;
- Along the coast areas of the Council;
- Within the 'grid pattern' roads; and
- Steep terrain areas, such as Seaview Downs and Seacombe Heights.

#### **3.2.10.3. Safety**

Despite the introduction of the lower speed limit, poor driver behavior and in particular that displayed by the 'hoon element' remains a concern to many residents. In particularly, the safety

of unprotected road users (pedestrians and cyclists) around schools and along the local road network is an on-going issue. These concerns are often seen as impediments to encouraging greater pedestrian and cycle movements.

#### **3.2.10.4. Public Parking**

Generally there is ample on-street parking throughout the City. However in commercial and industrial areas such as Edwardstown, there is a lack of premise-specific parking areas which creates problems when combined with insufficient on-street parking for both employees and customers. In many situations there is competition for loading areas, parking for staff and visitors and storage areas all of which exacerbates the problems.

#### **3.2.10.5. The Movement of Freight**

The majority of heavy vehicle movement within the City of Marion is along the arterial road network. In order to cope with the continuing economic development of the City, it has become necessary to permit heavy vehicles to access the industrial areas (such as Edwardstown) from the arterial roads. It is anticipated that the development of the Local Government Association's Metropolitan Transport Strategy (which includes all 18 metropolitan Local Government Authorities) will assist in the planning of the road network across the entire metropolitan area. This will lead to a more Regional approach to transport concerns and the development of strategies for all modes (including heavy vehicle transport).

#### **4. FUTURE DEMAND ISSUES**

This Section of the plan analyses factors affecting demand including population growth, social changes and technology changes. All impacts of the growth trends are examined; that is social, cultural, residential, commercial and industrial and in particular the impacts on new and existing infrastructure.

##### **4.1. Demand Forecast**

It is considered that the majority of traffic within the City of Marion is generated by:

- Residential population movement - journeys to work, school, shopping related trips, medical services, recreation and sports activities.
- Employment - the number people entering the area to go to and from work and work related trips.
- Commercial and industrial - trips generated by business activities (delivery and heavy vehicles).
- Visitors - social activities (friends and family), recreation and tourism.
- Technological change

##### **4.1.1. Residential Population Movement**

Analysis of the 1996, 2001 and 2006 Census of population and housing (undertaken by the Australian Bureau of Statistics) indicates the following changes to the demographic profile of the City of Marion:

- Population has increased by 2%;
- The average age has increased from 37 years in 2001 to 39 years in 2006;
- The number of people per household is 2.4 persons; and
- The number of vehicles per household has increased slightly, with 41.9% of households now having two or more vehicles compared to 39.4% in 2001;

The table below provides a more detailed look at the demography of the City.

Population Statistics 2001 – 2006

Location	2001 Population	2006 Population	% + or -
Sheidow Park	4185	5667	35.4%
Glandore*	2650	2827	6.6%
Marion	3415	3628	6.2%
Clovelly Park	2720	2864	5.2%
Mitchell Park	4745	4973	4.8%
Warradale	4369	4502	3.0%
Oaklands Park	3036	3126	2.9%
Hallett Cove	11954	12272	2.6%
Sturt	1968	2019	2.5%
Plympton Park	2909	2954	1.5%
Seacombe Gardens	1981	2009	1.4%
Seaview Downs	2632	2643	0.4%
South Plympton	3791	3805	0.3%
Marino	1983	1986	0.1%
Ascot Park	2614	2586	-1.0%
Seacombe Heights	1476	1459	-1.1%
Seacliff Park*	2048	2016	-1.5%
Edwardstown	3995	3907	-2.2%
Dover Gardens	2183	2126	-2.6%
Trott Park	3051	2969	-2.6%
Park Holme	2505	2319	-8.0%
<b>City of Marion</b>	<b>70210</b>	<b>72657</b>	<b>3.4%</b>

**Table 5: Demographic Profile**

\* Shared with adjacent council. Bedford Park, Darlington, Glengowrie, Morphettville and O'Halloran Hill not included due to comparison figures for 2001 not being available for the City of Marion portion of the suburbs.

Within the City of Marion the main areas of growth ( $\geq 2.5\%$ ) are in the following suburbs:

- Shiedow Park
- Marion
- Mitchell Park
- Oaklands Park
- Glandore
- Clovelly Park
- Warradale
- Hallett Cove

Growth in Hallett Cove and Sheidow Park is predominantly the result of new development, while urban regeneration and younger people moving into the area would account for some of the increase in other established suburbs.

The Metropolitan Planning Strategy (Jan 2003) has indicated that the population projections for the various portions of the City of Marion are:

Portion of Council	Comment	2001 Census	2016 projection	Change
<u>North</u> - along tramline to Daws and Oaklands Rds.	Very small increase over 15 years	25,397	25,523	+ 126
<u>Central</u> - Daws/Oaklands Rds. to the southern areas	Very small increase over 15 years	33,394	34,377	+ 983
<u>South</u> - Hallett Cove, Trott Pk. Sheidow Pk. and part O'Halloran Hill	Major increase due to the Sheidow Pk. development	19,422	25,272	+5850

(Source: ABS Census of Population and Housing 1996 and 2001)

In keeping with the rest of SA, the residential population of Marion is aging, particularly in the central and northern suburbs. This will involve consideration of facilities and improvements to infrastructure to ensure continued access and mobility for an aging population. Accompanying this trend is redevelopment of aging and rental housing, involving consolidation of housing block sizes and shifting density of population.

Further analysis of the 2006 census data is still in the process of being completed at the time of writing this report.

#### **4.1.1.1. Journeys to Work**

The 2001 Census indicates the following daily movements into the city of Marion:

	Mode of Transport				
	Car	Motor Bike	Truck	Public Trans.	Other
North	5839	42	51	172	459
Central	8148	49	50	345	577
South	1271	3	28	32	76
TOTAL	15258	94	129	549	1112

**Table 6: Traffic Movements into Marion**

The census also indicates the following daily movements out of the City:

	Mode of Transport				
	Car	Motor Bike	Truck	Public Transport	Other
North	6555	42	82	845	710
Central	8832	58	114	952	892
South	7175	21	82	480	641
TOTAL	22562	121	278	2277	2243

**Table 7: Traffic Movements out of Marion**

Of the out-bound movements, the majority of trips (the top five) were to the following Local Government Areas:

- Within the City of Marion (Marion residents who work in Marion);
- City of West Torrens;

- City of Adelaide;
- City of Mitcham; and
- City of Port Adelaide / Enfield.

Transport Planning Division of the Department of Transport, Energy and Infrastructure has indicated that with the exception of the southern portion of the City of Marion (Sheidow Park) traffic volumes as a result of population and employment growth is expected to be relatively low,.

#### **4.1.2. Industry Related Activity**

The main industry areas, and therefore the concentration of heavy vehicle activities on the local road network within the Council are in Edwardstown and Clovelly Park. Planning SA has indicated that there is little opportunity for growth within these areas.

#### **4.1.3. Changes in Technology**

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

<b>Technology Change</b>	<b>Effect on Service Delivery</b>
Higher mass limits associated with the development of new heavy vehicle suspension systems	Increased vehicle loading may affect the lifespan of existing road pavements negatively
Development of new road 'resealing' methods	The further development of technology in resealing and rejuvenation may reduce whole of life costs
Development of new road pavement reconstruction options	Use of alternate materials or further reuse of road materials may lower costs
Implementation of Asset Management System	Information utilised to support condition assessments and change will be available as needed. The changing condition (including timely update of works completed) will aide direct comparison of capital against maintenance works for forward planning.  Asset management system improvements will improve communication and data flow with GIS and pavement management systems. The system will also eventually allow cross asset comparison of condition and costs.

**Table 8.** Changes in Technology and Forecast effect on Service Delivery

#### **4.1.4. Tourism**

Currently the only significant 'tourist destination' within the City of Marion is the Marion Shopping Centre although there is evidence to suggest that interest is increasing in relation to tourism along sections of the coastline between Marino and Hallett Cove.

#### **4.2. Demand Management**

Demand management strategies and techniques provide alternatives to the creation of new, or the modification of existing assets in order to meet demand. Instead, these strategies and techniques look at ways to modify customer demand so that the opportunity to maximise utilisation of existing assets and the need for new or modified assets is deferred or reduced.

Typical non-asset solutions include:

- Introduction of innovative strategies to improve efficiency and effectiveness of transport assets,
- Introduction of new or modified traffic controls at appropriate places,
- Changes (often reduction) in the level of services, combined with an increase to public education programs,
- Promotion of public transport as a viable alternative mode of transport,
- Promotion of walking and bicycles,
- Improving park-and-ride facilities at public transport interchanges,
- Expanding the public transport service frequency and route choice for local residents,
- Including public transport information on the Council's web site,
- Limiting opportunities for 'rat-runs' through local roads,
- Promoting residential and commercial development around public transport stations,
- Reviewing weight limits, width restrictions and delivery hour limits along existing road sections,
- Supporting alternative delivery and access arrangements for local business activities.

##### **4.2.1. Key Demand Drivers**

Deficiencies in the road network within the City of Marion can be divided into two main road network categories, these being the Arterial Road Network (State Road Authority) and the Local Road Network (City of Marion).

###### **4.2.1.1. Arterial Road Network (State Road Authority)**

###### Network Issues

Within the "grid pattern" of the northern portion of the City of Marion, there are a number of main arterial roads. The north-south routes are at a regular spacing of approximately 2 kms, providing an adequate system to access the major traffic generators within the Council area. The east-west routes, which are generally minor arterial roads, are at a larger and inconsistent spacing. Ideally, based on this spacing Bray Street and Raglan Avenue should be part of the arterial road network.

The road network in the Hallett Cove, Sheidow Park and Trott Park (the southern areas) is not a “grid pattern” and there are only two north-south arterial roads within this area (Lonsdale Road and South Road, which is the Council boundary). Majors Road is the only east-west arterial road serving the southern areas. This lack of arterial routes has resulted in poor definition of the road network and has resulted in traffic relying on local roads to commute through the area, (eg Lander Road and Cove Road.

Capacity Issues

The following capacity issues will affect the ability of the road network to meet demand.

<b>Future Deficiencies</b>	<b>Location</b>	<b>Responsibility</b>	<b>Issue</b>
Intersection deficiencies	Sturt Rd and Diagonal Rd	State	Expected growth in traffic volumes.
	Sturt Rd and Morphett Rd	State	Expected growth in traffic volumes
	Sturt Rd and Marion Rd	State	The safe movement of vehicles and the expected growth in traffic volumes
	Sturt Rd and South Rd	State	Expected growth in traffic volumes. (It should be noted that this intersection is the boundary with the City of Mitcham so any upgrade of this intersection would only have lesser impact on the City of Marion)
	Morphett Rd and Cliff St	State	The safe movement of vehicles and the expected growth in traffic volumes
	Seacombe Rd & Miller St	State	The safe movement of vehicles and the lack of delineation.
	Lander Rd and Lemon Rd	Council	Expected growth in traffic volumes due to the construction of the Southern Collector Road
	Bray St and Hendrie St	Council	The safe movement of vehicles and the expected growth in traffic volumes

<b>Future Deficiencies</b>	<b>Location</b>	<b>Responsibility</b>	<b>Issue</b>
Road deficiencies	Sturt Rd in the vicinity of Marion Shopping Centre	State	Anticipated growth in traffic volumes generated by the Shopping Centre

	Diagonal Rd in the vicinity of Marion Shopping Centre	State	Anticipated growth in traffic volumes generated by the Shopping Centre
	Cliff Street	Council	The road forms part of an east-west link.

Intersection Issues

There are a number of busy intersections along the arterial road network within the City of Marion. The Level Of Service at these locations seems to be low, either service D or E (that is, traffic volumes are close to capacity or at a critical levels, with little freedom to select desired speeds or to manoeuvre within the traffic stream). These locations are:

- South Road and Sturt Road
- Sturt Road and Marion Road
- Marion Road and Cross Road
- Marion Road, Daws Road and Oaklands Road
- Diagonal Road and Morphett Road

Length of Road Issues

Generally the mid-block capacity (between intersections) of the arterial road network within the City of Marion is adequate, with the exception of two arterial roads. These roads have similar pavement width, but two different operational configurations; they are:

- Seacombe Road, with one wide lane in each direction. The wide lanes do not define the travel area for motorists and therefore this can result in confusion; and
- Morphett Road with two lanes in each direction, separated by a broken centre line. As a result the kerbside lane is only 3.4 metres, which is insufficient to cater for both vehicle and bicycle movements (as per Austroads Part 14 - Bicycles). Furthermore, during the day (outside the Clearway times) many motorists perceive that it is difficult or unsafe to park along the road.

**4.2.1.2. Local Road Network (City of Marion)**

Network Issues

There are five roads within the Council area that form a direct alterative link through the Council area and are heavily utilised by through traffic. These roads are:

- Cliff Street;
- Bray Street;
- Raglan Avenue;
- Lander Road; and
- The Cove Road

It should be noted that the road network within the area, of Sheidow Park, Trott Park and Hallett Cove is not based on a grid pattern system and therefore the classification of the roads is not easy to define. In some instances, there is limited access to and from various areas and as a

consequence roads such as Adam and Lemon Roads are required to cater for higher volumes of traffic.

#### Capacity Issues

At present the section of Lander Road Sheidow Park between Lonsdale Road and Adams Road has congestion problems in peak periods. This congestion is caused by the residents of the Southbank development have to use Lander Road to access Lonsdale Road. This current congestion will be relived when the new collector road has been completed in mid 2009.

#### Intersection Issues

At this stage, based on the abovementioned definition of capacity, there are no local intersections of concern. It would appear from general observations that the LOS is the mid range, level C.

#### Length of Road

A single lane road with one lane in either direction has a mid-block capacity of approximately 15,000 vehicles per day. Accordingly, a broad assessment of the local road network has indicated that no road maintained by Council appears to have mid-block capacity problems. It should however be noted that a section of Lander Road carries approximately 13,500 vehicles per day. This may change with the proposed construction of the new southern collector road at Hallett Cove. The arterial and local network deficiencies discussed above are summarised in the following table.

**City of Marion  
Road Infrastructure Plan  
2008/09**

<b>Deficiencies</b>	<b>Location</b>	<b>Responsibility</b>
Road deficiencies:	Marion Road	State Government
	Seacombe Road	State Government
	Morphett Road	State Government
	South Road	State Government
	Lander Road, Sheidow Park	Council
	Bray Street, Morphettville	Council
	Raglan Avenue, Edwardstown	Council
	The Cove Road	Council

Intersection deficiencies	South Road and Sturt Road	State Government
	Sturt Road and Marion Road	State Government
	Marion Road and Cross Road	State Government
	Marion Rd, Daws Rd and Oaklands Rd	State Government
	Diagonal Road and Morphett Road	State Government

## **5. ASSET STRATEGY PLAN**

The Asset Strategy focuses on the economic and physical management options and strategies from the initial planning stage through to disposal stages of an asset.

The Asset Strategy uses Lifecycle Management techniques to develop decision support information, to model future asset maintenance and renewal requirements and to compare these predictions with historical expenditure trends. In order to be effective, the lifecycle model of road transport assets needs accurate and timely data which allows management of the expected economic useful life, estimates of remaining life, maintenance costs and replacement costs. Any estimate of asset economic life of an asset assumes a certain level of quality of the construction/manufacture, maintenance and operation in order to achieve that life span.

Council maintains a series of Asset Registers for the management of its asset data including section parameters, classes, condition details, treatment details and dates. This data is available in a Geographical Information System (GIS) which allow users the flexibility to graphically identify the location of assets as well as draw on the asset information from a database file. In addition to this initiative, Council maintains a defects database, (also in GIS) for road pavement, footpath, kerb and gutter assets which essentially holds all defects that were identified in the condition survey.

The Road Transport assets are considered to be all those assets within the road reservation and include the following key asset components:

- Road Pavements
- Kerbs and Gutters
- Street Signs and Traffic Facilities
- Footpaths and Cycle Ways
- Bridges, Culverts and Retaining Walls
- Street Furniture

The lifecycle management plans for each asset component will outline:

- The objectives for the asset group
- Supporting data for each asset group
- Network analysis
- Key life-cycle management issues
- Asset capacity & performance
- Asset Valuation

### **5.1. Asset Valuations**

The value of Council's road infrastructure assets as at 30 June 2007 is summarised below. Assets were last revalued at 30 June 2007 utilising 'brownfield' rates (i.e rates that enable the replacement of infrastructure with as new).

• Current Replacement Cost	\$39,756,413
• Depreciable Amount p.a.	\$12,415,594
• Depreciated Replacement Cost	\$28,869,912
• Annual Depreciation Expense	\$1,529,093

**Table 9: Replacement Costs**

## **5.2. Management Strategies**

The management strategies to achieve the levels of service are identified in the following work categories:

### Capital investment

The capital works program is based on an analysis of the drivers for supply, as well as the outcomes of condition appraisals and maintenance plans.

Where assets are deemed to be under capacity, in the wrong place, not cost effective, lacking functionality, not maintainable or in poor condition, an injection of capital funds may be required

### Renewals

Asset renewals are generally on a like-for-like basis, with normal capability and capacity being replaced.

### Maintenance

Maintenance programs are normally focused on either legislative requirements, designed specifications or community expectations. The maintenance requirements include Reactive, Planned and Major Cyclic maintenance activities.

- Reactive maintenance is defined as unplanned repair work which is carried out in response to service requests and management/supervisory directions (e.g. pothole repair).
- Planned Routine maintenance is work that is identified and managed through a Maintenance Management System. These activities include inspection, assessing the condition against failure/breakdown standards, prioritising, scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.
- Major Cyclic Maintenance involves higher value components/sub-components of assets. It is undertaken on a regular cycle, and includes line-marking, roundabout refurbishments, traffic light replacement, etc. This work generally falls below the capital/maintenance threshold.

In terms of transportation assets, the legislative requirements are outlined in ASXXXX, and these generally drive the designed specification. Community expectations are generally safety, accessibility, cost effectiveness and functionality.

## **5.3. Roads Strategy**

The length of the Council's sealed road network is 497km with a sealed surface area of about 3,750,000 m<sup>2</sup>. The surface seal is predominately hotmix asphalt with a small number of streets having a bitumen spray seal. Council's preferred practice has been to use asphalt seals rather than spray seal due to the longer life, (the average life expectancy of asphalt is 26 years compared to 16 years for spray seal), smoother texture and tidier appearance.

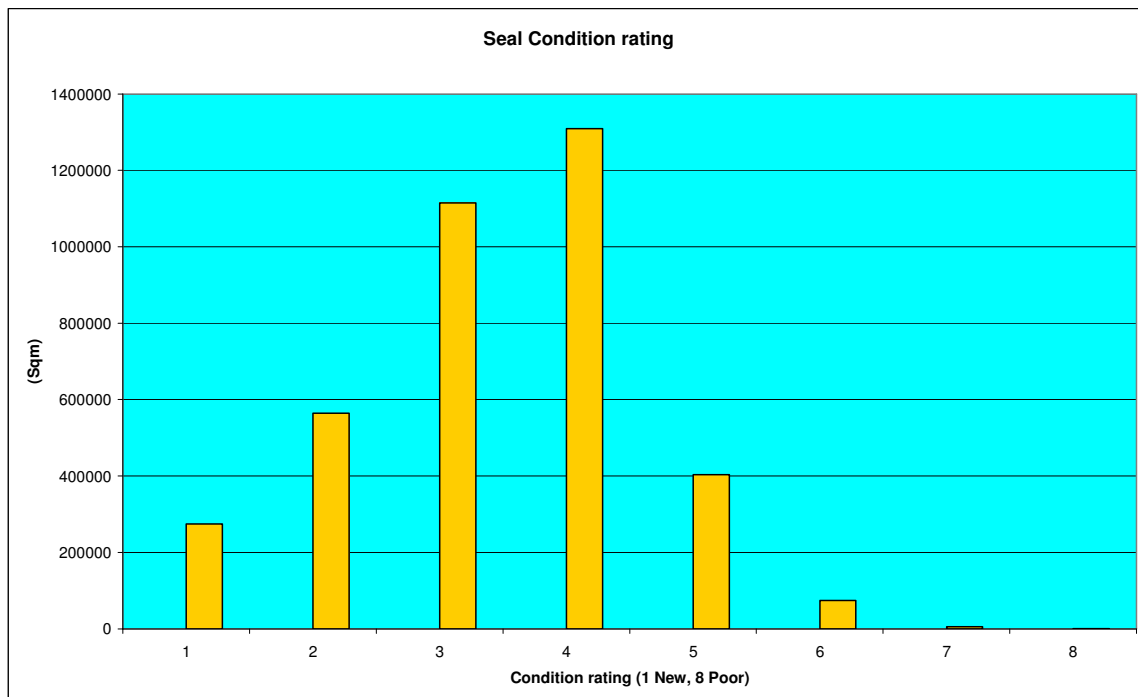
### **5.3.1. Road Seal Condition**

The road seal condition has been rated by condition index from 1 to 8 where condition 1 represents new surface seals, and condition 8 indicates seals where the entire surface requires replacement. Table 10 below shows the area of pavement assessed to be at the various condition ratings identified within the network. This survey was undertaken in 2006 and the rationale used to assess the condition rating is described in *Appendix 2*.

<b>Seal condition Rating</b>	<b>Area M<sup>2</sup></b>	<b>% of Total</b>
1	274,068	7.32
2	564,156	15.07
3	1,114,618	29.79
4	1,309,628	34.9
5	403,009	10.8
6	74,231	2.0
7	5,220	0.1
8	570	0.02
<b>Total</b>	<b>3,745,500</b>	<b>100%</b>

**Table 10: Asset Condition ratings**

The current road-seal condition distribution for the road network is shown in table 10 and in the graph below (figure 2). From this it can be seen that the condition of road seals within the road network is very good with only 2.12% of seals at intervention level of Condition 6 or greater.



**Figure 3: Area by seal condition**

The network contains a significantly higher proportion of asphalt than other seal types, the average age of which is very close to 26 years. The majority of sealed segments are currently rated at Condition 3 to 5, with these anticipated to deteriorate to Condition level 6 over the next 3 to 10 years if no intervention takes place. This will represent a deterioration of 75.5% of the road network to level 7 by 2015.

This deterioration to level 7 represents \$34,174,848 of the total Replacement Value of the assets (see Table 11 below). Based on deterioration rates, this represents between \$11,391,616 pa (deteriorated over 3 years) and \$3,417,484 pa (deteriorated over 10 years).

The following quantities have been determined.

Asset category	Dimensions	Replacement Value (\$M)
Roads – Seal	469.35km	\$45,264,699
Road Base	469.35km	\$116,284,512
Kerbs	870.87km	\$30,584,271
Spoon Drains	21.44km	\$1,077,363
Sub Total		\$193,210,845
Footpath	1,131,794m <sup>2</sup>	\$56,596,672
Traffic Devices	1042	\$11,282,367
Bridges	9	\$2,637,080
<b>TOTAL</b>		<b>\$263,487,230</b>

**Table 11.** Assets covered by this Plan

- From 2006/07 AAS27 Revaluation Report

### **5.3.2. Capital Investment – new roads**

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

New assets and the upgrade/expansion of existing assets are identified from various sources such as community requests, Council business needs, proposals identified by strategic plans or partnerships with other organisations. These proposals are inspected to verify the need for them and to develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds and are then scheduled in future works programs.

#### Standards and specifications

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

### **5.3.3. Finance Strategy**

New road assets and services are to be funded from Council's capital works program and grants where available.

### **5.3.4. Roads Maintenance**

The road pavement is the constructed road structure above the natural ground including the seal. Its performance is influenced by a number of factors each of which determine the most appropriate maintenance strategies to be adopted to maximise service life.

Of the total of 3,745,446 m<sup>2</sup> of pavement network, 74% are local and minor roads with low traffic volumes, 18% are collector roads with low to moderate traffic volumes and 8% are distributor and sub-arterial roads with moderate to high traffic volumes.

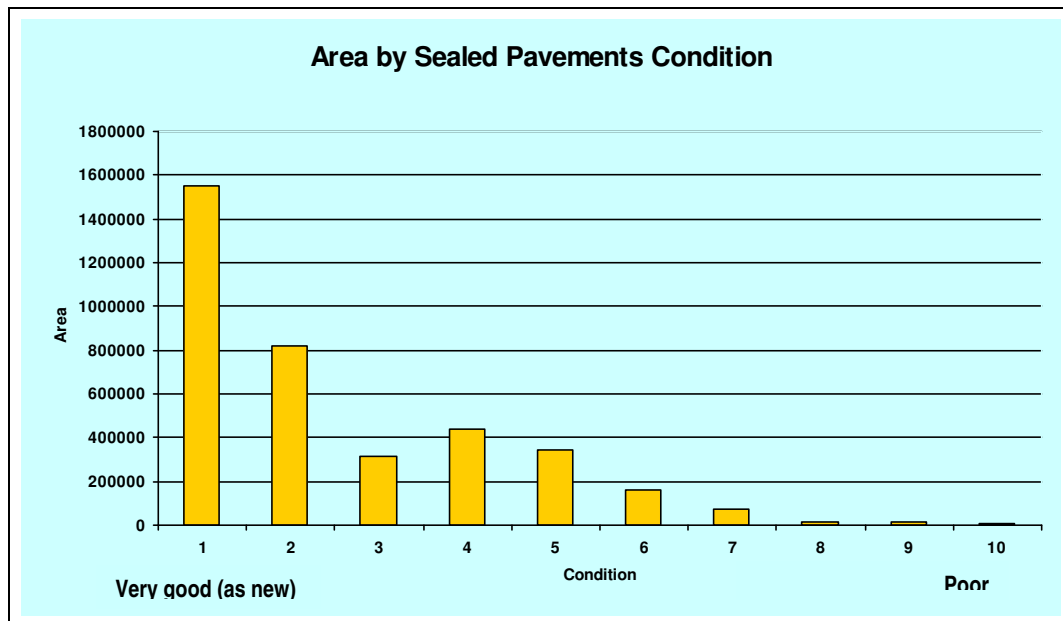
Therefore, approximately 92% of roads in the network carry low to moderate traffic loads, and as a result are more likely to deteriorate from environmental influences given adequate drainage and no unforeseen changes in conditions. These roads are expected to continue to provide adequate service for up to 80 years, with appropriate cyclical maintenance interventions, such as resealing, crack sealing, patching and minor rehabilitation work.

The current pavement condition of the road network in the City of Marion is shown in Table 13 below:

Pavement Condition Rating	Pavement Area m <sup>2</sup>	% of Total
1	1,553,382	41.5
2	821,423	21.9
3	315,434	8.4
4	436,233	11.7
5	345,475	9.2
6	161,658	4.3
7	70,964	1.9
8	16,769	0.4
9	13,390	0.4
10	10,772	0.3
Total	3,745,500	100%

**Table 12: Pavement Condition**

The pavement condition distribution within the City of Marion is represented graphically in figure 4 below. Pavement condition is rated between 1 and 10 where 1 represents new pavement through to 10 which reflects a requirement to reconstruct the entire pavement. Generally pavements between 1 and 4 are considered to be in sound condition.



**Figure 4: Pavement Condition**

This graph shows that the majority of the pavement is in sound condition and a small but significant percentage of the network (16%) is at condition 5 or more indicating that a program of rehabilitation is required to manage progressively worsening pavement deterioration.

There are currently 111,895 m<sup>2</sup> of road pavement (3% of the road network) at condition 7 or worse requiring an estimated rehabilitation cost (including new asphalt seal) of \$2.6 million. This cost is based on current contract unit rates for asphalt reseal and rehabilitation. Roads with

condition 8 or less are considered suitable for rehabilitation. Roads with condition 9 or 10 are considered beyond rehabilitation and require reconstruction. The condition assessment predicts that pavement at condition level 5 will decline over the next 5 – 7 years due to continuing pavement degradation caused by traffic and other environmental factors and will require a further \$9.05 million for rehabilitation.

A more detailed review of pavement network rehabilitation needs for the next 10 years has been undertaken to develop a better understanding and a program of requirements. From this it is apparent that much of the work for roads with average condition of less than 7 could be addressed with timely intervention adopting routine patching and reseal programs.

An initial expenditure of \$1.3 million p.a. in 2006/07 and 2007/08 was allocated, increasing to \$1.4 million in 2008/09. The average overall expenditure is \$1.37 million over the next 10 years. The initial budget costings of \$1.3 million per annum allowed for the adjusted rehabilitation approach with future network condition surveys being used to confirm the longer term needs.

It should be noted that the pavement deterioration models and assumptions need to be continually reviewed as more data becomes available. The next audit of pavement condition is proposed in 2010/2011 to assess the impact of the proposed pavement strategy and review funding allocations.

### **5.3.5. Roads Operations**

Operational expenditure is currently not distinguished from maintenance expenditure in the organisation financial systems. Typical operational activities for road transport assets include, pavement sweeping, street & gutter litter collection, weed spraying/treatment, mowing, graffiti removal and traffic control. It is envisaged that in the new Asset Management System, these activity types will be separately identified and costs identified against each asset.

### **5.3.6. Roads Disposal**

There are no plans to dispose of roads in the near future, although some portions of road reserves are sold following request from residents.

### **5.3.7. Roads Budget**

<b>Road Budget</b>	<b>2008/09</b>	<b>2009/10</b>	<b>2010/11</b>	<b>2011/12</b>	<b>2012/13</b>
New roads	5,253,972				
Road Renewals	4,436,825	3,800,000	3,900,000	4,050,000	4,175,000
Road Maintenance	283,801	299,054	314,531	330,927	348,303
Road Operations					
Road Disposal	0	0	0	0	0
<b>Totals</b>	<b>9,974,598</b>	<b>4,099,054</b>	<b>4,214,531</b>	<b>4,380,927</b>	<b>4,523,303</b>

**Table 13: 5-year Roads budget**

## **5.4. Footpath Strategy**

The footpath strategy is based on capital investment in new footpaths, maintenance, renewals and replacement of existing footpaths. The objective of footpath and cycleway assets is to, provide a safe, comfortable and efficient network of footpaths and facilities catering for pedestrians (including the physically disabled), and cycleway and facilities catering for cyclists.

The capital replacement value of Council's existing footpath network is \$50.5million. This is based on an overall length of footpaths of 938 km equating to a total of 1.132 million square meters of paving. (1.2m wide footpaths). This network services Council's 1645 roads, streets and walkways, within which 1,165 streets have a footpath on both sides of the road, 350 streets have only one footpath and 130 streets have no footpaths at all. Footpath paving consists of asphalt, concrete or brick paving.

The length and capital replacement value of each is as follows:

<b>Type</b>	<b>Total Length</b>	<b>Capital Value</b>	<b>Depreciation p.a.</b>
Brick Paved	194km	\$10.2m	\$0 .21m
Concrete	740km	\$40.2m	\$0.80m
Asphalt	4km	\$ 0.1m	\$0.01m
<b>Total</b>	<b>938km</b>	<b>\$50.5m</b>	<b>\$1.02m</b>

#### **Table 14: Capital Depreciation**

Annual depreciation is defined as the capital value of the asset consumed every year over the assumed design life of the footpath. It provides a means of evaluating the minimum level of funding needed to maintain the footpath network in a serviceable condition.

##### **5.4.1. Footpath Condition**

A footpath condition audit was undertaken in 2007/8 and identified damage and deterioration of footpaths and rated the risk potential of all faults and tripping hazards (ratings 1 cosmetic cracking to 5 trip hazard over 3um in height) for infrastructure within the footpath belonging to Council and other authorities. A total of 41,030 defects were identified with an estimated total repair cost of \$9.6m. The cost of repairing all high-risk trip hazards (rating 4 and 5) was also determined. Whilst unsightly, the lower rating deficiencies (ratings 1, 2 and 3), pose an acceptable low injury risk. The number of defects by suburbs and estimated cost to repair all rating 4 & 5 faults in the City of Marion's 26 suburbs is shown in table 12 below.

<b>Suburb</b>	<b>No. of Defects</b>	<b>Repair Cost</b>	<b>Proposed Fin Year</b>
Mitchell Park	1,055	\$381,936	08/09
Oaklands Park	885	\$299,919	
Bedford Park	77	\$37,379	
Clovelly Park	1,179	\$433,822	09/10
Darlington	119	\$46,176	
Seacombe Heights	470	\$205,242	
Sturt	949	\$390,046	
O'Halloran Hill	60	\$22,887	
Seacliff Park	171	\$65,192	
Dover Gardens	814	\$328,264	10/11
Morphetteville	663	\$253,455	
Seacombe Gardens	938	\$382,351	
Ascott Park	568	\$245,982	
Trott Park	452	\$162,042	
Marino	440	\$170,117	11/12
Seaview Downs	887	\$368,239	
Hallett Cove	2,735	\$1,084,801	
<b>Total</b>	<b>19,200</b>	<b>\$4,877,850.00</b>	

Table 15: Proactive Maintenance Schedule Rating 4-5 Trip Hazards

In order to repair these identified level 4 and 5 rated deficiencies within a reasonable timeframe, it will be necessary to increase the proactive footpath maintenance expenditure above the current level and it is proposed that funding be allocated within the total footpath budget allocation to enable all level 4 and 5 hazards to be repaired within seven years (by December 2012).

It should be noted that the above costs do not involve funding repairs due to damage done by private work or service authorities, which are now largely self-funded. Procedures have been put in place to follow up damage and reconcile reported faults through the CSR system. This includes formal notification to developers, builders and service authorities to repair footpath damage caused by their activities. Resultant repairs are undertaken by the relevant owner and this has resulted in significant avoided costs to the Council currently estimated to be \$250,000 pa.

#### **5.4.2. Current Funding Provisions**

There is already a significant and long-standing funding program in place to maintain and upgrade the councils existing footpath network. This program was set up in 1999/2000 to enable the replacement of asphalt footpaths on arterial roads with block paving.

Recurrent funding for footpath maintenance and capital construction, which covers footpath

reconstruction, is allocated in the 10-year financial plan (refer Appendix 1). Capital renewal expenditure is currently (08/09) **\$1.42m p.a.** and operating (maintenance) expenditure for footpath maintenance is \$830,000 p.a. The projected expenditures are based on CPI increases and include provision for completion of arterial road footpath repaving and increased proactive maintenance.

#### **5.4.3. Construction of New Footpaths**

It is proposed that there should be an ongoing program for new footpath construction. There are approximately 130 streets or sections of streets within the City of Marion with no footpaths at all. It should be noted that not all of these streets will be suited for a footpath because of site constraints and the fact that most are cul-de-sacs. It is also appropriate for a second footpath to be constructed in some streets, which currently have only one and these are those streets where traffic volumes, adjacent land use and pedestrian demands warrant paths on both sides of the road. These streets can be identified by their status as defined in the Road Hierarchy Plan and are typically arterial, sub arterial, distributor and collector roads.

Staff assessed those streets identified as requiring a footpath or additional footpath and a report was submitted to Council in August 2006. Following this, streets identified for new footpath construction were included on a program which commenced with a feasibility study and included consultation with residents, then a detailed design. It is intended that all new footpaths will be designed a year ahead of construction if approved. The footpath network is also expanding with construction of new subdivisions in the southern suburbs. These footpaths are constructed as part of the subdivision development and taken over by Council as contributed assets after a 12-month defect liability period.

#### **5.4.4. Replacement of Asphalt Footpaths**

A substantial footpath construction / renewal program is in place to renew and upgrade asphalt footpaths on arterial roads with brick paving. The annual capital expenditure on this program this current financial year is \$1,429,125 which will gradually increase in the future.

The program for replacing asphalt paths in local streets can be expanded with the completion of the arterial road footpaths. Current expenditure is around \$125,000 p.a. which enables approximately 13 residential streets to be upgraded. This expenditure level has been in place since 06/07 to enable the remaining 4 km of asphalt paths in local streets and walkways to be reconstructed in block paving (refer Appendix 2).

#### **5.4.5. Footpath Renewal**

##### Arterial Road Footpaths

The current renewal programme will effectively end in 2008/2009. Expenditure has reduced from \$940,000 (05/06), \$670,000 (06/07) to \$244,000 (07/08), with an ongoing \$101,000 (CPI indexed) from 2008/09, to renew paved sections of arterial footpath as a rolling programme. The effectiveness of this strategy and the anticipated level of funding identified to sustain the arterial footpaths in serviceable condition will be monitored and reviewed as part of regular

future footpath condition audits.

#### Residential Street Footpaths

Increased funding will be allocated to these footpaths from the reduced expenditure on arterial road footpaths. It is proposed that the remaining 4 km of asphalt footpaths be repaved in block paving by 2009. The estimated total cost of these works is \$550,000 involving actual annual expenditure of \$214,000 in 2006/07 and \$275,000 in 2007/08 with the program expected to be completed in 2008/09.

Ongoing funding of \$100,000 pa (CPI indexed) is included for a rolling program of footpath renewal from 2008/09 onwards.

#### **5.4.6. Maintenance - Footpaths**

Ongoing maintenance involving customer service requests and other urgent or complaint-initiated repairs will continue as part of reactive footpath maintenance. An ongoing funding level of \$380,000 is provided from 08/09 onwards. Separate funding is currently provided for the operation of the City Audit team. Additional funding over CPI increases will be required to provide the extra resources needed to expand current audit capacity to cater for additional and more detailed ongoing audits and inspections. It is anticipated that the City Audit function will continue to expand and systems and processes are improved.

#### **5.4.7. Disposal - Footpaths**

There are no plans to dispose of footpaths in the near future.

#### 5.4.8. Budget - Footpaths

<b>Footpath Budget</b>	<b>2008/09</b>	<b>2009/10</b>	<b>2010/11</b>	<b>2011/12</b>	<b>2012/13</b>
New footpaths	200,000	225,500	231,110	236,940	242,550
<b>Total Capital</b>	<b>200,000</b>	<b>225,500</b>	<b>231,110</b>	<b>236,940</b>	<b>242,550</b>
DDA Provisions	40,000	44,000	44,000	44,000	44,000
Proactive Rehabilitation	1,025,000	1,127,500	1,127,500	1,155,000	1,210,000
Replacements	125,000	137,500	137,500	137,500	137,500
Renewals – Arterial	101,551	114,499	117,934	121,471	125,400
Renewals – Residential	100,000	112,750	115,500	118,470	121,000
Inspections	159,000	178,200	222,200	228,800	236,500
Maintenance	380,000	418,000	418,000	418,000	440,000
Disposal	0	0	0	0	0
<b>Total Recurrent</b>	<b>1,930,551</b>	<b>2,132,449</b>	<b>2,182,634</b>	<b>2,223,241</b>	<b>2,314,400</b>

**Table 16: 5-year Footpath Budget**

#### 5.5. Kerbs and Watertables Strategy

The objective of the kerb and gutter asset is to provide a stormwater carrying capacity for runoff from the road pavement, footpaths and adjacent properties to a stormwater discharge point. The background asset details are as follows:

	Length
• Kerb and Water Tables	870,871 metres
• Spoon drains	21,442 metres
• Total Length	892,313 metres

The age of these assets corresponds to the development and upgrading of road network within Marion Council. The oldest kerbing dates to the mid 1950's when post war and immigration related suburbs development commenced. The estimated economic useful life of concrete kerbing is 80 years. The majority of kerbing in Marion is around 50 years and remains in sound condition. Any deterioration is largely due to environmental factors. Much of Marion is built on reactive clays which cause seasonal moisture related movement of soil which in turn impact on foundations including road pavement, footpaths and kerb and water table. Street trees in verges further these problems. Kerb cracking and lifting are the main factors and are predominately due to the above environmental factors.

The value of the kerb and spoon drain assets as of **June 2007** is summarised below. These assets are currently valued using 'greenfield' rates, that is the construction cost of providing new

kerbing only with no requirement to remove old. Valuation rates are to be reviewed as part of a project to standardise asset valuation and depreciation rates among Councils in our region.

Description	Current Repl'mt Cost	Written Down value	Annual Depreciation
Kerb and Watertable	\$30,584,271	\$17,659,000	\$315,000
Spoon drains	\$1,077,363	\$601,000	\$13,000

### 5.5.1. Asset Condition

A checklist of all kerbs/watertable in the Marion Council was completed in July 2007 to assess the overall condition of this asset. A condition rating system identical to that of the footpath rating system was used. Refer table 15 below.

Rating	Description	Trip Ht	Reported Faults CSR Required
1	Little risk to the public. Cosmetic cracks (non structural defect). Reassess within 3 years	None	Include fault on audit register
2	Little risk to the public. Cosmetic cracks but may affect structural integrity of the footpath. Repair as funding allows.	None	As above
3	Likely risk to the public 0-1 cm difference in height Repair as funding allows	Low	As above
4	High risk to public. 1-3 cm difference in height. Repair as funding allows	Medium	Raise CSR for prompt repair if reported fault is hazardous and not currently scheduled for repair in near future. If service authority fault report to service authority e.g. Telstra, SA Water
5	Extreme risk to the public More than 3cmdifference in height Repair on priority programme	High	As above

**Table 17: Condition Rating Index for Kerb & Watertable**

Using the assessment table above, the following results were found.

Condition of Rating	Risk Assessment	No. of Defects
1. Very Good	No risk	1,742
2. Good	No risk	0
3. Adequate	Low risk; 0-1 cm trip hazard	1,564
4. Poor	Medium risk; 1-3 cm trip hazard	3,655
5. Very Poor	High risk; greater than 3cm trip hazard	4,728
<b>TOTAL</b>		<b>11,689</b>

**Table 18: Total Kerb Defects by Condition and Risk Rating**

The audit included an assessment of the length of damaged kerbs and the repair cost based on the current contract rate for replacement of existing kerb and water. This rate includes provision

for removal and disposal of existing kerbing and the cost of reinstating adjacent verge, footpath and road pavement.

This more detailed analysis is shown in Table 19 below. The table also includes costs for 4 and 5 defects to assist in determining an appropriate funding strategy to repair the highest property defects.

<b>Suburb</b>	<b>Med(4)</b>	<b>High(5)</b>	<b>Total defects</b>	<b>Total length (m)</b>	<b>Total cost (p/m)</b>	<b>Cost of rating 4&amp;5 only (p/m)</b>
Ascot Park	147	145	474	1,642	\$197,040	\$67,232
Bedford Park	6	4	12	43	\$5,160	\$2,552
Clovelly Park	205	188	587	1,833	\$219,960	\$88,704
Darlington	16	28	54	112	\$13,440	\$7,656
Dover Gardens	96	129	268	634	\$76,080	\$41,624
Edwardstown	250	384	1,062	4,113	\$493,560	\$154,088
Glandore	98	127	543	1,971	\$236,520	\$46,376
Glengowrie	56	47	228	780	\$93,600	\$27,896
Hallett Cove	626	1,085	1,988	3,207	\$384,840	\$196,592
Marino	90	148	298	608	\$72,960	\$33,176
Marion	82	160	324	668	\$80,160	\$36,960
Mitchell Park	321	240	713	2,421	\$290,520	\$129,448
Morphettville	112	140	332	660	\$79,200	\$39,512
Oaklands Park	7	13	25	104	\$12,480	\$6,688
O'Halloran Hill	12	25	45	85	\$10,200	\$4,488
Parkholme	162	155	430	900	\$108,000	\$50,600
Plympton Park	134	142	375	750	\$90,000	\$40,920
Seacliff Park	37	43	94	244	\$29,280	\$15,312
Seacombe Gardens	90	123	279	872	\$104,640	\$37,136
Seacombe Hgts.	81	78	198	486	\$58,320	\$26,312
Seaview Downs	211	213	516	1,360	\$163,200	\$95,832
Sheidow Park	150	235	475	1,045	\$125,400	\$57,288
South Plympton	189	235	872	3,377	\$405,240	\$93,280
Sturt	124	175	385	929	\$111,480	\$56,848
Trott Park	91	172	322	660	\$79,200	\$35,640
Warradale	262	294	713	1,754	\$210,480	\$101,376
<b>Total</b>	<b>3,655</b>	<b>4,728</b>	<b>11,689</b>	<b>31,258</b>	<b>\$3,750,960</b>	<b>\$1,493,536</b>

**Table 19: Kerb Defects and Repair Cost by Suburb**

\* Based on current contract repair rate of \$120 per linear metre, it should also be noted that the

costing's for the repair of the 4 & 5 only has been worked out with a minimum cost of \$330 per repair.

**5.5.2. New Capital Investment – Kerbs and Watertables criteria**

New kerb/water and spoon-drain assets are created as part of new road network construction associated with new subdivision development. Council policy is that all sealed roads are kerbed and as a consequence their assets are inherited following handover. They are inspected to ensure compliance with Council specifications.

**5.5.3. Maintenance Plan**

Maintenance planning to the kerbs and spoon-drains includes reactive, planned and cyclic maintenance work activities.

Year	Maintenance Expenditure		
	Reactive	Planned	TOTAL
2007/08 (Actual)			\$163,260
2008/09 (Budgeted)			\$179,590

**Table 20: Maintenance Expenditure Trends**

Planned maintenance work is currently not undertaken as the recent condition audit has identified categories of defect that require intervention to meet public safety and risk management related service levels (refer to 5.1.2). These will influence the future maintenance processes and expectations.

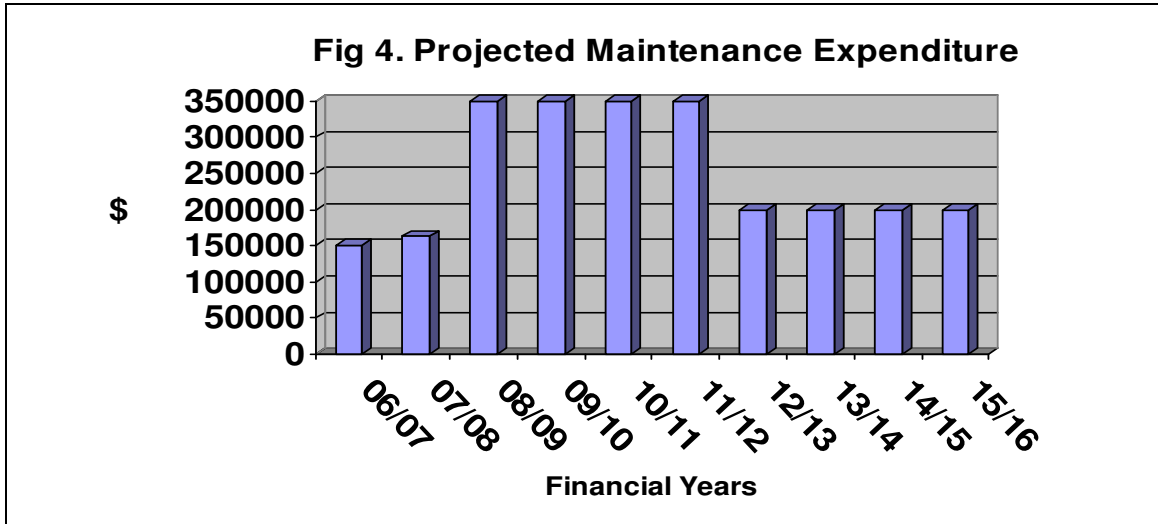
Maintenance expenditure levels are therefore considered to be inadequate to meet required service levels. Future revision of this infrastructure and asset management plan will include linking required maintenance expenditures with required service levels.

Reactive maintenance is carried out in accordance with response levels of service identified in the Customer Service System and established work practices for all roads assets detailed in Appendix A and includes the repair of broken and missing systems of kerbing for safety reasons.

**5.5.4. Summary of future maintenance expenditures**

It is proposed that future maintenance expenditure on kerb/watertable and spoon-drain follow the system used to program the proactive footpath repair and maintenance activities of Council. With this system it is proposed that all high risk tripping hazards (V13 rating 4 and 5) be repaired by June 2012, and that they then be maintained at maximum rating of 3 until 2015. The associated forecast maintenance expenditure to do this is as shown in Fig 4. The condition of kerb/watertable and spoon-drains should be reaudited in 2010/2011 at the latest to assess the impact of this proposed maintenance expenditure.

Expenditure for the proactive repair of remaining hazards commences in 2008/09. Note that all costs are shown in current dollar values.



**Figure 5: Projected Maintenance expenditure – Kerbs and Watertables**

Deferred maintenance, i.e. works that are identified for maintenance and unable to be funded are to be included in the risk assessment process in the infrastructure risk management plan. Maintenance is funded from Council's existing operating budget with a proposed maximum level of \$350,000 p.a. achieved in the 08/09.

**5.5.5. Disposal Plan – Kerbs and Watertables**

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. There are no kerb/watertable or spoonrain assets identified for possible decommissioning and disposal.

5.5.5. Budget – Kerbs and Watertables

<b>Kerbs/Watertables Budget</b>	<b>2008/09</b>	<b>2009/10</b>	<b>2010/11</b>	<b>2011/12</b>	<b>2012/13</b>
New kerbs/watertables	0	0	0	0	0
Replacement kerbs/watertables	0	0	0	0	0
Renewals	329,714	337,957	346,406	355,066	363,943
Maintenance kerbs/watertables	163,000	179,300	179,300	179,300	179,300
Disposal kerbs/watertables	0	0	0	0	0
<b>Totals</b>	<b>492,714</b>	<b>517,257</b>	<b>525,706</b>	<b>534,366</b>	<b>543,243</b>

**Table 21: kerb and Watertable Budget**

**5.5.6. Risk Management Plan – Kerbs and Watertables**

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 5.5.7. below.

**5.5.7. Risk Management Issues - Kerb, Watertable and Spoondrains**

<b>Summarised Risk Description (Event)</b>	<b>Cause of Risk (How)</b>	<b>Mitigation Strategies (Controls)</b>	<b>Effectiveness Rating (Controls)</b>	<b>Consequence Rating (Residual)</b>	<b>Likelihood Rating (Residual)</b>	<b>Level of Risk (Residual)</b>	<b>Treatment Plans</b>
Kerb in poor condition (uneven, displaced, segments, broken off pieces)	Inadequate maintenance	Reactive inspection and customer service requested repairs. Proactive condition audit survey and prioritise rolling maintenance program	2	2	4	Moderate	Include kerb in regular audit inspection. Develop and implement a proactive kerb maintenance program to repair/remove level 4 or 5 tripping hazards in the shortest practicable timeframe. Increase funding for maintenance. Review kerb design adjacent trees, storm water connections etc.
			1	3	4	Major	
<b>Not Meeting Community Needs</b>							
Inadequate levels of service e.g. access, amenity, safety	Inadequate flow along gutter. Water retained in	Inspection by field staff in preparation for annual road	2	2	3	Moderate	More frequent inspections after periods of rain.

Summarised Risk Description (Event)	Cause of Risk (How)	Mitigation Strategies (Controls)	Effectiveness Rating (Controls)	Consequence Rating (Residual)	Likelihood Rating (Residual)	Level of Risk (Residual)	Treatment Plans
	depressions.  Inevitable failure of kerb at ... stormwater pipe connection at kerb.	reseal programmes.  Advice provided to owners, developers and builder at time of development.	2	1	5	Moderate	Review current consultation practices; provide suitable standards, guidelines and compliance controls to ensure improved performance. Consider installation of steel sleeve as mandatory treatment.
Poor/Slow response to public complaints	Failure to deliver agreed service levels	Customer Service Reporting system to record, monitor program and close actions.	3	1	4	Moderate	Monitor customer service complaints register. Undertake user community surveys and monitor performance measures. Review maintenance procedures if required.
<b>Ineffective Management of Assets</b>							
Failure to maintain	Insufficient	Maintenance	3	2	3	Moderate	Establish

<b>Summarised Risk Description (Event)</b>	<b>Cause of Risk (How)</b>	<b>Mitigation Strategies (Controls)</b>	<b>Effectiveness Rating (Controls)</b>	<b>Consequence Rating (Residual)</b>	<b>Likelihood Rating (Residual)</b>	<b>Level of Risk (Residual)</b>	<b>Treatment Plans</b>
assets	<p>maintenance funding</p> <p>Inappropriate level of service</p>	<p>resourcing reviewed annually as part of budget process</p> <p>Review service levels in response to customer complaints and survey and condition asset and asset</p>	3	2	4	Moderate	<p>maintenance standards and guidelines. Monitor performance and review resourcing requirements.</p> <p>As above</p>

## 5.6. Bridge Strategy

This strategy deals with the 12 road and pedestrian traffic bridges in the Marion Council Area. These are outlined below:

<b>Name, Crossing, Location</b>	<b>Type and Construction</b>	<b>Spans</b>	<b>Year Built</b>	<b>L x W</b>
Halletts Bridge - South Rd/Main South Rd. Old Road Reserve.	Pedestrian over river, masonry Arch	1	1867	11x6.4
Sturt River - Maxwell Tce, Glenelg East, 0.12km from Morphett Rd.	Road over River, Concrete slab	1	1969	16x13.1
Sturt River, Finniss St, Marion. 0.1km NE from Oliphant Street.	Road over River, PSC Planks.	1	1971	9x15.3
Armco Over Railway - The Cove Rd. 0.07km east from Dutchman Drive	Road over Rail, Steel Armco	1	1964	11.8x15
Sturt River - Claines Ave, Nilpena Ave, Morphettville	Pedestrian Footbridge over Sturt River. Steel girders.	1	1969	23x2
Sturt River - Stephens Pl, Hunt Ave, Morphettville	Pedestrian Footbridge over Sturt River. Steel girders.	1	1969	20.6x2
Sturt River - Oaklands Reserve, Minchinbury Tce	Pedestrian Footbridge over Sturt River. Concrete.	1	1985	17.8x1.2
Sturt River - Jacobs Street, Oliphant Ave, Marion	Pedestrian Footbridge over Sturt River. Landmark steel truss.	1	1998	16.3x2.5
Sturt River - Adjacent Sturt Rd, Bedford Park, Warraparinga Wetlands, Bedford Park	Pedestrian Footbridge over Sturt River. Landmark steel girder.	1	2000	21x2.2
Sheidow Creek, Hugh Johnson Boulevard, Sheidow Park, Hugh Johnson Reserve, U/S Bridge	Pedestrian Footbridge over River. Landmark timber truss.	1	1997	8x1.2
Sheidow Creek, Hugh Johnson Boulevard, Sheidow Park, Hugh Johnson Reserve, D/S Bridge	Pedestrian Footbridge over River. Landmark timber truss.	1	1997	8x1.2
Field River, Cormorant Drive, Hallett Cove. 0.02km from Osprey Court.	Road over River. Precast concrete arch.	2	1992	19.6x18.5

The aim of the bridge strategy is to ensure bridges are safe, accessible and well presented.

To this end, regular maintenance inspections have taken place, with attention to vegetation, footpaths, deck joints, graffiti, wingwalls, abutments, signs, approaches, structure barriers, road pavements, pedestrian barriers, girders, telephone ground pits and decks.

The last inspection (2004) identified the following maintenance issues;

<b>Location</b>	<b>Maintenance Cost</b>
Halletts Bridge - South Rd/Main South Rd. Old Road Reserve.	380.00
Sturt River - Maxwell Tce, Glenelg East, 0.12km from Morphett Rd.	1,139.00
Sturt River, Finniss St, Marion. 0.1km NE from Oliphant Street.	4,238.00
Armco Over Railway - The Cove Rd. 0.07km east from Dutchman Drive	18,659.00
Sturt River - Claines Ave, Nilpena Ave, Morphettville	75,963.00
Sturt River - Stephens Pl, Hunt Ave, Morphettville	76,975.00
Sturt River – Oaklands Reserve, Minchinbury Tce	3,099.00
Sturt River – Jacobs Street, Oliphant Ave, Marion	949.00
Sturt River – Adjacent Sturt Rd, Bedford Park, Warraparinga Wetlands, Bedford Park	1,961.00
Sheidow Creek, Hugh Johnson Boulevard, Sheidow Park, Hugh Johnson Reserve, U/S Bridge	190.00
Sheidow Creek, Hugh Johnson Boulevard, Sheidow Park, Hugh Johnson Reserve, D/S Bridge	443.00
Field River, Cormorant Drive, Hallett Cove. 0.02km from Osprey Court.	1,012.00
<b>TOTAL</b>	<b>\$185,008.00</b>

These maintenance or renewal requirements are not currently funded. To minimise risk to Council a regular inspection program needs to be implemented (every five years) to ensure we know the structural capacity and suitability of bridges.

**6. Appendix 1 - Road Funding 10 Year Financial Plan**

Item	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
<b>Current 10 year Financial Plan</b>										
Road Renewal	3,103,900	3,608,220	3,703,700	3,923,480	4,156,680	4,404,301	4,667,630	4,944,500	4,961,000	5,060,000
Kerb & Water Table	504,700	572,000	587,510	603,460	619,520	636,960	652,600	671,000	687,500	715,000
Includes Federal R2R Grant (602,541p.a.)	<b>3,608,600</b>	<b>4,180,220</b>	<b>4,291,210</b>	<b>4,526,940</b>	<b>4,776,200</b>	<b>5,040,431</b>	<b>5,320,590</b>	<b>5,615,500</b>	<b>5,648,500</b>	<b>5,775,000</b>
Supplementary R2R Grant (one off \$602,541 payment)	153,000									
<b>TOTAL</b>	<b>3,761,600</b>	<b>4,180,220</b>	<b>4,291,210</b>	<b>4,526,940</b>	<b>4,776,200</b>	<b>5,040,431</b>	<b>5,320,590</b>	<b>5,615,500</b>	<b>5,648,500</b>	<b>5,775,000</b>
<b>Proposed 10 Year Financial Plan</b>										
New Roads	5,253,972									
Road Renewal Base	4,107,111	3,100,000	3,180,000	3,682,281	3,798,088	4,013,665	4,254,007	4,444,107	4,561,384	4,675,419
Road Renewal Seal										
Road Maintenance (including all road components)	550,000	563,750	577,844	592,290	607,097	622,275	637,831	653,777	670,122	686,875
Kerb & Water Table Rehabilitation	329,714	350,000	360,000	370,000	380,000	390,000	395,000	405,000	416,000	426,000
<b>TOTAL</b>	<b>10,240,797</b>	<b>4,013,750</b>	<b>4,117,844</b>	<b>4,642,290</b>	<b>4,782,097</b>	<b>5,022,275</b>	<b>5,287,831</b>	<b>5,503,777</b>	<b>5,647,546</b>	<b>5,788,735</b>
Unallocated funding (Roads)		22,459	420,099	1,009,317	2,266,249	3,148,699	3,887,468	5,566,170	7,215,443	7,395,829
<b>Current 10 year plan assumes R2R funding will remain at \$602,541 for foreseeable future; if discontinued Council will need to find additional funds after 2008/2009</b>										

Proposed expenditures are adjusted to include CPI provision										
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**7. Appendix 2 – Footpath Budget 2008/09 to 2017/18**

<b>Funding Elements</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>
Current Capital Works Budget Allocation	\$1,429,125	\$1,611,276	\$1,659,615	\$1,709,403	\$1,760,685	\$1,813,506	\$1,867,911	\$1,925,000	\$1,980,000	\$2,090,000
Current Operating Budget Allocation	\$830,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$902,000	\$935,000	\$990,000
<b>Total Funding Currently Allocated</b>	<b>\$2,259,125</b>	<b>\$2,491,276</b>	<b>\$2,539,615</b>	<b>\$2,589,403</b>	<b>\$2,640,685</b>	<b>\$2,693,506</b>	<b>\$2,747,911</b>	<b>\$2,827,000</b>	<b>\$2,915,000</b>	<b>\$3,080,000</b>
<b>Proposed Recurrent Funding Programme</b>										
Arterial Road Footpath Renewal	\$101,551	\$114,499	\$117,934	\$121,471	\$125,116	\$128,869	\$132,768	\$137,500	\$143,000	\$148,500
Residential Street Footpath Renewal	\$112,750	\$112,750	\$115,570	\$118,470	\$121,440	\$124,454	\$127,600	\$132,000	\$137,500	\$143,000
Proactive Footpath Rehabilitation	\$1,025,000	\$1,127,500	\$1,127,500	\$1,155,000	\$550,000	\$563,750	\$577,830	\$583,000	\$594,000	\$605,000
Reactive Footpath Maintenance	\$380,000	\$418,000	\$418,000	\$418,000	\$418,000	\$418,000	\$418,000	\$429,000	\$440,000	\$451,000
DDA Provisions in Footpaths only	\$40,000	\$44,000	\$44,000	\$44,000	\$55,000	\$55,000	\$55,000	\$60,500	\$63,800	\$66,000
Ongoing inspection/audit/admin etc	\$159,000	\$178,200	\$222,200	\$228,800	\$234,300	\$240,350	\$246,400	\$264,000	\$275,000	\$280,500
<i>Subtotal - proposed recurrent funding</i>	<i>\$1,805,551</i>	<i>\$1,994,949</i>	<i>\$2,045,134</i>	<i>\$2,085,741</i>	<i>\$2,503,856</i>	<i>\$1,530,423</i>	<i>\$1,557,598</i>	<i>\$1,606,000</i>	<i>\$1,653,300</i>	<i>\$1,694,000</i>
<b>New Funding Programme</b>										
New Residential Street Footpath (Streets with no footpaths)	\$200,000	\$225,500	\$231,110	\$236,940	\$242,700	\$248,930	\$255,200	\$275,000	\$280,500	\$286,000
<b>Total - Recurrent &amp; new funding</b>	<b>\$2,005,551</b>	<b>\$2,220,449</b>	<b>\$2,276,244</b>	<b>\$2,322,681</b>	<b>\$1,745,856</b>	<b>\$1,779,353</b>	<b>\$1,812,798</b>	<b>\$1,881,000</b>	<b>\$1,933,800</b>	<b>\$1,980,000</b>

**8. Appendix 3 - Signage Budget**

Funding Elements	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Current Expenditure pa	\$171,000	\$177,000	\$148,567	\$153,024	\$157,614	\$162,343	\$167,213	\$172,230	\$177,397	\$182,718
Meet Shortfall Signage	\$35,000	\$35,000	\$38,500	\$38,500	\$38,500	\$38,500	\$38,500	\$38,500	\$38,500	\$38,500
Meet Shortfall Poles	\$25,000	\$25,000	\$27,500	\$27,500	\$27,500	\$27,500	\$27,500	\$27,500	\$27,500	\$27,500
Total Yearly need Inc Shortfalls	\$231,000	\$237,000	\$214,567	\$219,024	\$223,614	\$228,343	\$233,213	\$238,230	\$243,397	\$248,718
<b>Increasing Amount @. 10% Failure Rate</b>	<b>\$254,100</b>	<b>\$260,700</b>	<b>\$236,023</b>	<b>\$240,926</b>	<b>\$245,976</b>	<b>\$251,177</b>	<b>\$256,535</b>	<b>\$262,053</b>	<b>\$267,736</b>	<b>\$273,590</b>

Signage Failures	Number of Affected in Audit	as %	as \$
1-Not Diamond Grade	2276	37.3	\$208,867
2-Dirty Sign Face	208	3.4	\$7,159
2-Incidental Graffiti	1318	21.6	\$63,301
3-Not 5 Degrees Away	41	0.6	\$1,440
3-Some Fading	231	3.7	\$10,124
4-Blocked By Other	8	0.1	\$666
4-Blocked By Vegetation	131	2.1	\$6,232
4-Face Bent / Twisted	584	9.5	\$22,113
4-Sign Faded	153	2.5	\$7,406
5-Sign Lower Than Standard	14	0.2	\$728
5-Sign Missing	1137	18.6	\$111,413
<b>TOTALS</b>	<b>6101</b>	<b>100</b>	<b>\$439,449</b>

**9. Appendix 4 - Maintenance Response Levels**

This section documents the intervention level used to determine whether repair work is required to restore service levels within the City of Marion.

(These need to be reviewed and amended by City Services)

Inspection type	Description	Road Hierarchy Classification	Frequency	Manager	Resources
Safety & Defect	Sealed road day time maintenance inspection	Local Street Collector Arterial	2 months 2 months 3 months 1 months 2 months	Manager Construction/Maintenance	Road patrol gang/Maintenance Supervisor
Safety & Defect	Sealed Road – Night inspections	All sealed roads	12 months	Manager Construction/Maintenance	Delegated Officer
Safety & Defect	Ancillary areas inspection	Ancillary Areas Rural	12 months	Manager Construction/Maintenance	Maintenance Supervisor
Safety & Defect		Ancillary Areas Urban	6 months	Manager Construction/Maintenance	
Safety & Defect	Bridges – minor (Level 1)	All road categories	12 months	Manager Construction/Maintenance	Allocated field staff
Safety & Defect	Bus shelters	All road categories	3 years	Manager Assets	Delegated Officer
Safety & Defect	Guard Rail – maintenance inspections	All road categories	3 months	Manager Construction/Maintenance	Road Patrol gangs
Safety & Defect	Footpath/Bicycle Paths	All road categories	12 months	Manager Construction/Maintenance	Delegated officer
Safety & Defect	Traffic control devices				
Safety & Defect	Regulatory signage				
Safety & Defect	On street – public lighting				

**10. Appendix 5 – Risk Matrix**

In developing a risk profile, it is necessary to identify the consequence or impact of a particular event or risk on City of Marion. The scale used for ranking consequence is outlined below:

Rank	Level
Catastrophic	5
Extreme	4
Major	3
Moderate	2
Minor	1

The detailed consequence table is included in Appendix A

**Likelihood**

We also considered the likelihood of the risk occurring.

Rank	#	Frequency
Almost Certain	5	May occur at least several times a year
Likely	4	May occur once in a year
Possible	3	May occur at least once in a 5 year period
Unlikely	2	May occur during the next 5 to 10 years
Rare	1	Unlikely to occur in the next 10 years

**Effectiveness of Mitigation Strategies**

Mitigation strategies for identified risks and their effectiveness are ranked using the following scale.

Rank	#	Effectiveness
Effective	4	Effective (actively managed controls)
Adequate	3	Adequate (some strategies, partially effective)
Inadequate	2	Inadequate (some strategies, ineffective)
None	1	No strategies in place

**Risk Profile**

Applying the above scale the risk profile can be illustrated as follows:

Likelihood	1	2	3	4	5
5	Moderate	Major	Major	Extreme	Extreme
4	Moderate	Moderate	Major	Major	Extreme
3	Minor	Moderate	Major	Major	Major
2	Minor	Minor	Moderate	Moderate	Major
1	Minor	Minor	Moderate	Moderate	Major
	1	2	3	4	5

**Consequence**

## 11. Appendix 6 – Glossary of Terms

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

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

### **Asset class**

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

### **Asset condition assessment**

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

### **Asset management**

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

### **Assets**

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

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

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

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

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

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

### **Capital expansion expenditure**

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

### **Capital expenditure**

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

### **Capital funding**

Funding to pay for capital expenditure.

### **Capital grants**

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

### **Capital investment expenditure**

See capital expenditure definition

### **Capital new expenditure**

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

### **Capital renewal expenditure**

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

### **Capital upgrade expenditure**

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

**Carrying amount**

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

**Class of assets**

See asset class definition

**Component**

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

**Cost of an asset**

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

**Current replacement cost (CRC)**

The cost the entity would incur to acquire the asset on the reporting date. The cost is measured by reference to the lowest cost at which the gross future economic benefits could be obtained in the normal course of business or the minimum it would cost, to replace the existing asset with a technologically modern equivalent new asset (not a second hand one) with the same economic benefits (gross service potential) allowing for any differences in the quantity and quality of output and in operating costs.

**Current replacement cost "As New" (CRC)**

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

**Cyclic Maintenance\*\***

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

**Depreciable amount**

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

**Depreciated replacement cost (DRC)**

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

**Depreciation / amortisation**

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

useful life.

### **Economic life**

See useful life definition.

### **Expenditure**

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

### **Fair value**

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

### **Greenfield asset values \*\***

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

### **Heritage asset**

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

### **Impairment Loss**

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

### **Infrastructure assets**

Physical assets of the entity or of another entity that contribute to meeting the public's need for access to major economic and social facilities and services, e.g. roads, drainage, footpaths and cycleways. These are typically large, interconnected networks or portfolios of composite assets. The components of these assets may be separately maintained, renewed or replaced individually so that the required level and standard of service from the network of assets is continuously sustained. Generally the components and hence the assets have long lives. They are fixed in place and are often have no market value.

### **Investment property**

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

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

### **Level of service**

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

### **Loans / borrowings**

Loans result in funds being received which are then repaid over a period of time with interest (an additional cost). Their primary benefit is in 'spreading the burden' of capital expenditure over time. Although loans enable works to be completed sooner, they are only ultimately cost

effective where the capital works funded (generally renewals) result in operating and maintenance cost savings, which are greater than the cost of the loan (interest and charges).

**Maintenance and renewal gap**

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

**Maintenance and renewal sustainability index**

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

**Maintenance expenditure**

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

**Materiality**

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

**Modern equivalent asset.**

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

**Non-revenue generating investments**

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

**Operating expenditure**

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

**Pavement management system**

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

**Planned Maintenance\*\***

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

**PMS Score**

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

**Rate of annual asset consumption\***

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

**Rate of annual asset renewal\***

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

**Rate of annual asset upgrade\***

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

**Reactive maintenance**

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

**Recoverable amount**

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

**Recurrent expenditure**

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

**Recurrent funding**

Funding to pay for recurrent expenditure.

**Rehabilitation**

See capital renewal expenditure definition above.

**Remaining life**

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

**Renewal**

See capital renewal expenditure definition above.

**Residual value**

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

**Revenue generating investments**

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

**Risk management**

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

**Section or segment**

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

**Service potential**

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

**Service potential remaining\***

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

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

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

**Sub-component**

Smaller individual parts that make up a component part.

**Useful life**

Either:

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

It is estimated or expected time between placing the asset into service and removing it from service, or the estimated period of time over which the future economic benefits embodied in a

depreciable asset, are expected to be consumed by the council. It is the same as the economic life.

**Value in Use**

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

Source: DVC 2006, Glossary

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

Additional glossary items shown \*\*