

Adelaide Hills Council






# TRANSPORT ASSET MANAGEMENT PLAN



Version E

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## **ABBREVIATIONS**

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

## GLOSSARY

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

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

### **Asset class**

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

### **Asset condition assessment**

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

### **Asset management**

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

### **Assets**

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

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

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

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

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

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

### **Capital expansion expenditure**

Expenditure that extends an existing asset, at the same standard as is currently enjoyed by residents, to a new group of users. It is discretionary expenditure, which increases future operating, and maintenance costs, because it increases council's asset base, but may be associated with additional revenue from the new user group, eg. 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, eg. resurfacing or resheeting a material part of a road network, replacing a material section of a drainage network with pipes of the same capacity, resurfacing an oval. 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, eg. widening the sealed area of an existing road, replacing drainage pipes with pipes of a greater capacity, enlarging a grandstand at a sporting facility. 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, eg. roads, drainage, footpaths and cycleways. These are typically large, interconnected networks or portfolios of composite assets. The components of these assets may be separately maintained, renewed or replaced individually so that the required level and standard of service from the network of assets is continuously sustained. Generally the components and hence the assets have long lives. They are fixed in place and are often have no 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 (eg 5, 10 and 15 years).

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

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

### **Maintenance expenditure**

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

### **Materiality**

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

### **Modern equivalent asset.**

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

### **Non-revenue generating investments**

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

### **Operating expenditure**

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

### **Pavement management system**

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

### **Planned Maintenance\*\***

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

### **PMS Score**

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

### **Rate of annual asset consumption\***

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

### **Rate of annual asset renewal\***

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

### **Rate of annual asset upgrade\***

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

### **Reactive maintenance**

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

### **Recoverable amount**

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

### **Recurrent expenditure**

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

### **Recurrent funding**

Funding to pay for recurrent expenditure.

### **Rehabilitation**

See capital renewal expenditure definition above.

### **Remaining life**

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

### **Renewal**

See capital renewal expenditure definition above.

**Residual value**

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

**Revenue generating investments**

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

**Risk management**

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

**Section or segment**

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

**Service potential**

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

**Service potential remaining\***

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

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

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

**Sub-component**

Smaller individual parts that make up a component part.

**Useful life**

Either:

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

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

**Value in Use**

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

Source: DVC 2006, Glossary

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



# 1. EXECUTIVE SUMMARY

## What Council Provides

Adelaide Hills Council is responsible for managing its Transport Assets at a level that ensures the desired standards of service are achieved and maintained in a cost effective and timely manner. This asset management plan outlines the long-term management framework for Council to manage its assets and resources, with well-developed asset management programs, financial plans, funding decisions and strategic forward plans.

This asset management plan also provides the framework to deliver optimum operational performance of Council's Transport Assets in the most cost effective manner based on a "Best Value" approach.

The assets covered by this Transport Asset Management Plan include:

- Sealed and Unsealed Roads
- Bridges and Footbridges
- Kerbing
- Guardrails
- Footpaths
- Retaining Walls
- Traffic Control Devices

## Purpose of the Plan

Council plans to operate and maintain its Transport Assets to achieve the following strategic objectives:

- Deliver the required level of service to existing and future customers in the most cost-effective way
- Anticipate, plan and prioritise spending on the assets
- Optimise the life of assets at the most economic cost over time (lifecycle approach)
- Use a risk based approach to identify operational, maintenance, renewal and capital investment needs, and apply economic analysis techniques to select the most cost effective work program

## What Assets does it Cover & Cost?

The current replacement cost of Council's transport infrastructure assets is \$197,840,000 as at 30 June 2009. This following table shows the various asset subcategories and replacement costs.

Asset category	Area / Length / Nos	Replacement Value (\$) (30 June 2008)
Sealed roads - Seal	590 km	\$29,147,000
Sealed roads - Pavement	590 km	\$115,331,000
Unsealed roads	385 km	\$18,019,000
Bridges & Footbridges	107	\$16,212,000
Kerbing	169.3 km	\$7,582,000
Retaining walls	5430 m <sup>2</sup>	\$2,463,000
Guardrails	4.6 km	\$1,088,000
Footpaths	91 km	\$7,119,000

Traffic Control	28	\$879,000
<b>TOTAL</b>		<b>\$197,840,000</b>

Based on the analysis of asset condition and depreciation rates, the average spend required per annum over the 20 year plan timeframe on Transport Assets is forecast at \$6.78m per annum. Council's planned expenditure per annum (based on current 10 year Long Term Financial Plan) over the same period is forecast to be \$6.56m. This represents a long term life cycle sustainability index of 0.97.

The forecast maintenance and capital renewal expenditure required for Transport Assets in the medium term (10 years as per Long Term Financial Plan) is \$6.97m per annum. The planned expenditure based on Council's current 10 year Long Term Financial Plan is around \$6.31m, giving a 10 year asset sustainability index of 0.90 which is considered appropriate.

Life cycle Cost – 2009/10 (Projected)				Life cycle Expenditure 2009/10(proposed)			
Asset category	Depreciation	Maintenance cost	Total cost	Capital renewal expenditure	Maintenance expenditure	Total cost	Life cycle 'Gap'
Transport	\$4,279,840	\$2,437,060	\$6,716,900	\$3,872,200	\$2,358,400	\$6,230,600	-\$486,300

**Note: Above figures are used as a 10 yr average**

Whilst the planned v's projected maintenance + renewal expenditure indicis above indicate reasonable sustainability. The table above indicates that there is an intergenerational liability developing as the planned renewals do not match the projected depreciation based on current asset attribute data. The plan describes this in further detail.

## Measuring our Performance

### Quality

Transport Assets will be maintained in a condition that is fit for the purpose to which it is provided and appropriate to the location of the asset. That is not to mean that all assets will be serviced and maintained to the same level but that each asset will have a servicing and maintenance regime appropriate for the asset and its location. Defects found or reported that are outside our service standard will be repaired.

### Function

Our intent is that appropriate Transport Assets are maintained in partnership with other levels of government and stakeholders to manage the whole Transport portfolio owned by Council in a comprehensive and holistic manner.

Transport Asset attributes will be maintained at a appropriate and safe level to ensure the asset performs to the desired level. We need to ensure key functional objectives are met:

- Identify risks and reduce Council liability.
- Improve functionality, performance and reliability of infrastructure.
- Improve maintenance scheduling.

Continuous improvement of the Asset Management processes, knowledge and data, will result in more efficient service delivery and performance for Council and its customers.

### Knowledge of Asset and Safety

Inspecting Transport Assets regularly to understand the condition of the asset and prioritise and repair defects in accordance with our inspection schedule is important to ensure they are performing to the required level and are safe.

## Next Steps

Although the modelling over the 20 year planning period shows a shortfall in total life cycle investment, Council's long term financial plans show that there is sufficient funding being provided to cover all required maintenance and renewal expenditure over the 20 year planning period. On the analysis to date, Council does not appear to be providing for sufficient funding to cover

all maintenance, renewal and depreciation charges. Given that this largely affects the last 10 years of the 2 year planning cycle, further detailed analysis is proposed to examine the likely causes of this unfunded component. Council's current investment program is considered appropriate for the next 5 year period subject to review of long term sustainability.

Based on these sustainability indexes and the likelihood for increased renewal expenditure requirements beyond the 20 year period based it is recommended that Council continue to fund the asset renewals to the current expenditure levels to reduce the risk of future renewal expenditure shortfalls.

In addition:

- Establish service and maintenance specifications and performance standards to allow the establishment of contracts with key suppliers and vendors.
- Conduct a district wide Transport Master Plan for consideration by council.
- Establish minimum design standards and standard asset components.
- Establish unit rates by first principals where appropriate, provide clarity and verification to useful lives conventions and obtain better age profile data at major component level.
- Continue to develop the capture of condition based data at major component level for example bridges.
- Implement programs to obtain better data information at component level and assess asset remaining life/acquisition dates based on condition assessment.

## 2. INTRODUCTION

### 2.1 Background

This transport asset management plan is to demonstrate responsive management of assets (and services provided from assets), compliance with regulatory requirements and to communicate funding required to deliver the required levels of service.

The infrastructure and asset management plan should be read in conjunction with the following documents:

1. AHC Strategic Management Plan – The Strategic Management Plan provides a focus for Council’s service delivery over the next three year period. In each service area the plan provides details of how services meet the objectives of the goal area.
2. Development Plan – The Development Plan has two purposes. Firstly, it sets out objectives to guide the type and location of future development across the Council area. Secondly, it provides the detail for the assessment of individual development proposals through the establishment of a network of zones together with detailed criteria against which development applications are assessed.
3. Long Term Financial Plan – This plan outlines all aspects of the key financial strategy objectives and commitments. Since financial resources are limited, the long term financial plan will both inform and interpret the Strategic Management Plan.
4. Annual Budget & Business Plan – The Budget details resources needed to deliver services on an annual basis. In addition, it outlines the service delivery programs and projects of the Council and details performance measures (both financial and non-financial) in which the efficiency and effectiveness of the service delivery can be gauged.

### 2.2 Asset Summary

**Table 2.1. Transport Infrastructure Assets**

Asset category	Area / Length / Nos	Replacement Value (\$) (30 June 2008)	Useful Life (years)
Sealed roads - Seal	590 km	\$29,147,000	Spray Seal - 20 Asphalt – 25
Sealed roads - Pavement	590 km	\$115,331,000	Distributors – 50 Collectors & Local – 80
Unsealed roads	385 km	\$18,019,000	Re sheets – 8 to 16
Bridges & Footbridges	107	\$16,212,000	Long life – 60 to 100 Short life – 50 to 60
Kerbing	169.3 km	\$7,582,000	150 K&G – 75 100 Mountable – 60 Bitumen – 55
Retaining walls	5430 m <sup>2</sup>	\$2,463,000	40 to 80
Guardrails	4.6 km	\$1,088,000	40 to 50
Footpaths	91 km	\$7,119,000	Concrete – 60 Pavers – 60 Asphalt - 30 Rubble – 15
Traffic Control	28	\$879,000	15 to 60
<b>TOTAL</b>		<b>\$197,840,000</b>	

## 2.3 Key Stakeholders

A range of stakeholders are interested in ensuring that sound asset management, operational practice and legislative compliance are in place. The key stakeholders include Elected Members, internal stakeholders and external parties.

### 2.3.1 Internal Customers

- Rate payers (residents and business)
- Road & paths users
- Visitors to the Council area
- Councillors
- Asset managers
- Financial managers
- Information managers
- Strategic planning managers
- Internal auditors

### 2.3.2 External Parties

- Government agencies (e.g. DTEI)
- Catchments Management Authorities (CMA)
- Ministry of Transport
- Standards Australia
- Local government Association of South Australia
- IPWEA
- Department of Sustainability and Environment
- Adelaide Mt Lofty Ranges NRMB

## 2.4 Goals and Objectives of Asset Management

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

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

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

This asset management plan is intended to reflect Council's vision, mission, goals and objectives as outlined below:

### **Council's vision**

*To value our diversity, our landscape and our people*

### **Council's mission**

*To improve services and protect our landscape for the people who live and visit our area by providing quality and appropriate infrastructure, planning, community services and good governance.*

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

**Council's Asset Management Policy** states that:

*It is necessary for council to meet a specified level of service in the most cost effective way through the creation, acquisition, maintenance, operation, rehabilitation and disposal of assets to provide service for present and future ratepayers.*

Relevant Council goals and objectives and how these are addressed in this transport infrastructure and asset management plan can be seen below:

**Table 2.2. Adelaide Hills Council Goals  
(Reference 2007/08 – 2010/11 Strategic Management Plan)**

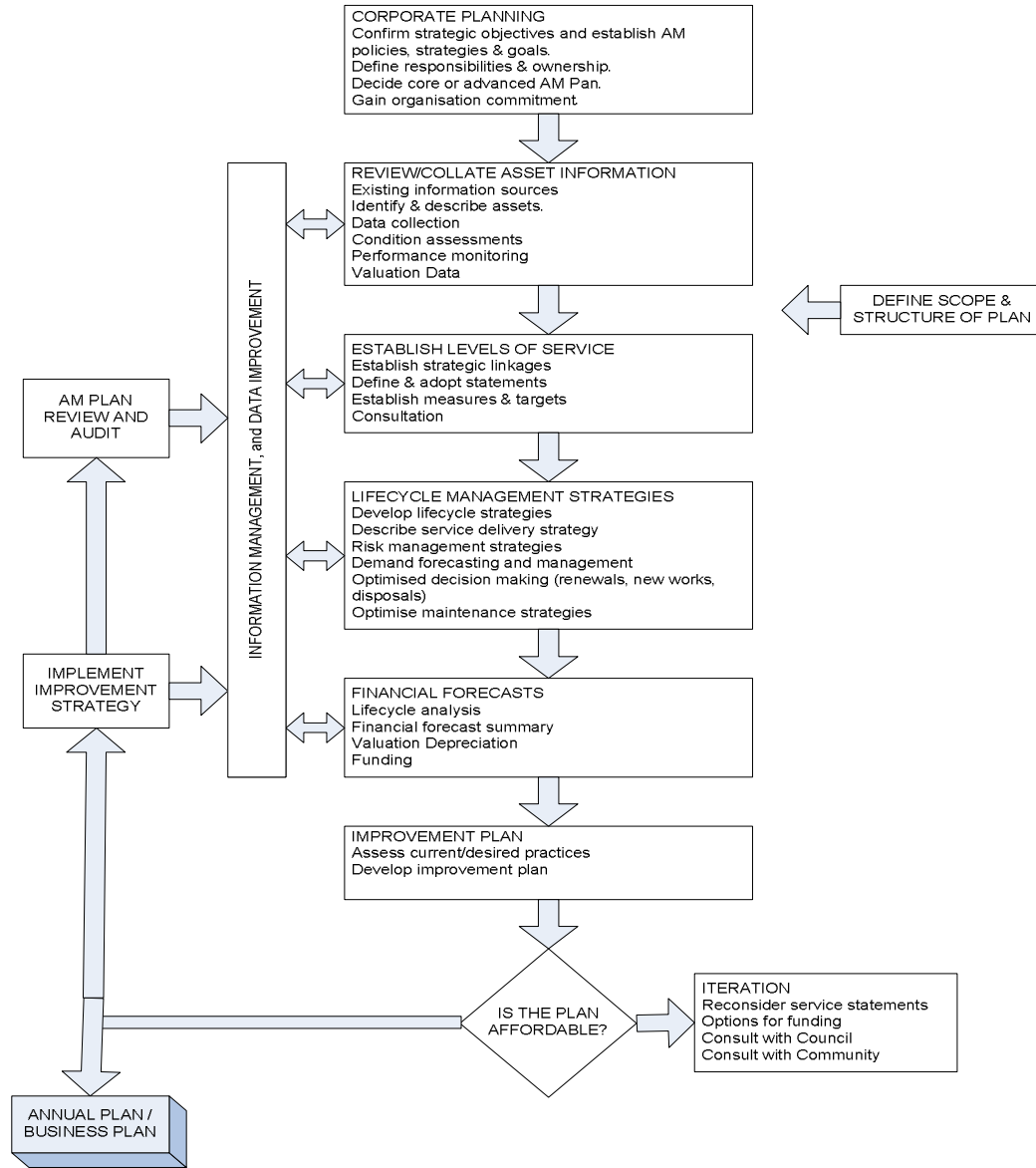
Goal	Objective	How Goal and Objectives are addressed in IAMP
Well managed and maintained community infrastructure	Infrastructure is planned, maintained & managed to meet the community's social, economic environmental and financial needs	<p>Adopt annual planning of maintenance, rehabilitation and upgrading programs.</p> <p>Asset management plans will define outcomes, service standards, condition, performance, maintenance and investment requirements.</p> <p>Annual infrastructure works programs will be developed to reflect maintenance and investment priorities, risk and available resources and will link to council's long term financial plan.</p> <p>Asset management plan will outline the projected future funding requirements and funding gaps for the next 20 years.</p> <p>Asset Management Plan and system will outline for optimised maintenance cost through next 3-5 years by looking at best mixture of reactive and planned maintenance, asset rehabilitation \ renewal interventions.</p>
A Healthy, Safe and Connected Community	<p>a) Infrastructure planning and maintenance will reflect, as far as practicable, the community's social, economic, environmental and financial needs.</p> <p>b)Progressively minimise the life cycle cost of Infrastructure assets(Lifecycle asset management)</p> <p>c) Community's economic, social, environmental and financial needs and service level are identified and addressed through cost effective asset management</p>	<p>Plan will outline community's desired service levels, target service levels against current performance with strategies to achieve set targets</p> <p>Prepare Long term financial plans &amp; funding forecasts for long term sustainability of infrastructure assets.</p> <p>Identify long term funding gaps, discuss strategies for minimise those gaps as on going.</p> <p>Life cycle costing and long term sustainability index for infrastructure assets</p> <p>Prepare maintenance and rehabilitation plans, identify interventions for provide agreed service levels at a minimum life cycle cost.</p>
A prosperous, Growing and Vibrant Economy	<p>a) Community infrastructure will be managed in accord with sustainability principles.</p> <p>b) Infrastructure will be in place to allow people to connect with each other</p> <p>c) Sound infrastructure supports economics activity &amp; encourage investment</p>	<p>Sustainable service delivery through recognition, record, value and depreciate assets in the financial records and to report for annual depreciation charge as appropriate.</p> <p>Planning for all the transport infrastructure assets account the needs of an ageing population</p> <p>Plan outlines the other State Government agencies to work with their strategic infrastructure plans.</p>

## **2.5 Plan Framework**

Key elements of the transport asset management plan are:

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

A road map for preparing an infrastructure and asset management plan is shown below:



**Road Map for preparing an Asset Management Plan**  
 Source: IIMM Fig 1.5.1, p 1.11

## 2.6 Core and Advanced Asset Management

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

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

An advanced asset management approach contains optimisation of activities and programs to meet agreed service standards, through the development of management tactics based on the collection and analysis of key information on asset condition, performance, lifecycle costs, risk costs and treatment options.



### 2.6.1 Limitations

This asset management plan initially provides an approach to basic asset management based on:

- Best available current information
- Current level of service
- Contrasting existing management strategies with opportunities for improvement.
- A long term financial plan for 20 years with an advanced approach, resulting from financial needs predictions through particular asset's economic life span then prioritise work for rolling three years program focusing in detail on capital, operational and maintenance requirements.
- A life cycle approach

This initial plan is based on the best information available at the time of preparation. The plan will be regularly reviewed and updated with the level of sophistication improving incrementally to an optimum level that is appropriate to the needs of council and the community.

The full implementation of the Conquest asset management system will enable council to improve processes and prepare asset management plans based on increased data accuracy, including expenditure history and asset performance.

### 3. LEVELS OF SERVICE

#### 3.1 Customer Expectations

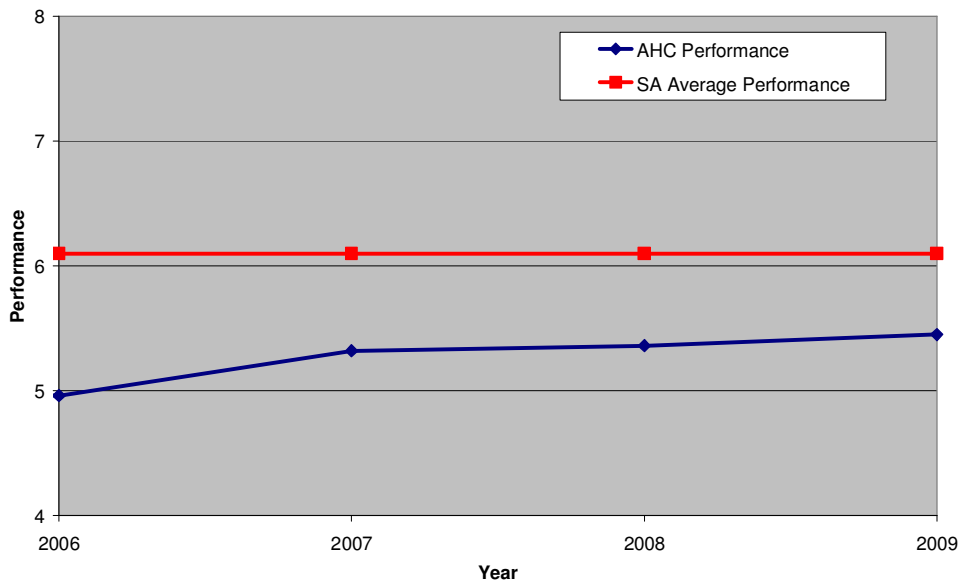
Council participates in the Local Government Association of South Australia Comparative Performance Measures in Local Government Customer Satisfaction survey. This telephone survey polls a sample of residents on their level of satisfaction with Council's services. The most recent customer satisfaction survey covered two Transport Asset related questions, with reported satisfaction levels as follows:

**Table 3.1. Community Satisfaction Survey Levels**

	Year and Score (out of 10)				
	2006	2007	2008	2009	STATE AVERAGE
Importance that Council provides & maintains roads, footpaths & cycle tracks	9.21	9.15	9.19	9.01	9.04
Performance in providing & maintaining roads, footpaths & cycle tracks	4.96	5.32	5.36	5.53	6.23

As can be seen from the survey results, the community sees the provision of assets as covered within this Transport Asset Management Plan as having high importance. This provides a clear indication that the community expects the transport assets to be suitably funded and maintained to a high level of service.

However, the results of the survey in regards to Council's current performance at providing and maintaining the Transport assets, indicate that while the community perceive the service they are receiving in this area to be increasing compared with previous years, the resulting score is generally quite low, and well below the South Australian score in total. The comparison between Council's annual performance score and the State average can be seen below:



The increase in performance score can be correlated to the steadied increase in expenditure on transport assets by Council over the survey period; however from the required spending modelling (see Section 6), it can be seen that Council has a minimal amount of backlog works, and appears to have been adequately funding its Transport Assets. Despite the spending it is noted that there are still large amounts of areas where there is no footpath, no bridge, or the road remains unsealed, which provides some justification for the low average performance score compared to the rest of the State over the survey period.

### 3.2 Definition of Levels of Service

Council has defined service levels for its transport assets based on two terms:

#### Community Levels of Service

Relate to how the community receives the service in terms of customer expectation for drive/ride quality, utilisation, availability, safety, cost/efficiency and legislative compliance.

#### Technical or Operational Service Levels

Relates to the internal management of the service provided by the assets and how the physical assets themselves are designed, operated, and maintained. The technical service levels are related to the Community Levels of Service.

Council's current service levels are detailed in Table 3.2:

**Table 3.2. Current Service Levels**

Performance Indicator	Level of Service	Performance Measure	Performance Target	Current Performance
<b>COMMUNITY LEVELS OF SERVICE</b>				
Quality (roads)	Provide a high level of quality across Council's Transport assets including roads and footpaths	Number of customer service requests related to road & footpath faults	Reduce 09/10 customer requests by 5%	121 p.a
Function - accessibility - capacity	Transport assets meet user requirements for accessibility and use	Annual survey	Achieve overall customer satisfaction score equal to or above State average (2009 State Avg = 6.10)	5.45
Safety	Reduce hazards, and increase safety across all Transport assets	DTEI reported fatality accidents, footpath trip claims	Roads - fatalities < 5p.a.  Footpaths - trip claims < 5 pa	Roads - Fatalities 9 pa  Footpaths - trip claims = 2 p.a.
<b>TECHNICAL LEVELS OF SERVICE</b>				
Condition (roads)	Provide a road free or defects	Response time to repairing potholes and cracking	Distributor – 4 days Collector – 6 days Local – 3 weeks	Distributor – 4 days Collector – 6 days Local – 3 weeks
	Maintain seal to minimise water ingress to pavements	% of seals beyond useful life	Seals beyond useful life To be less than 3%	0.6%
Cost Effectiveness	Maintain high levels of proactive maintenance	Ratio of planned & cyclic maintenance vs reactive maintenance	Planned/cyclic >50%	Planned/cyclic 40%
Safety	Provide a safe road networks	Accidents involving fatalities reported to DTEI	< 5 p.a.	Average 9 p.a.

### 3.3 Desired Levels of Service

Council currently uses data obtained from various sources including the LGASA Customer Satisfaction survey, residents' feedback to Councillors and staff, service requests and correspondence to define the Community's desired levels of service. As work on the asset management plans progresses, detailed surveys, focus groups and modelling will be used to more accurately forecast the Community's desired levels of service. This will be done as part of future revisions of this infrastructure and asset management plan.

### 3.4 Legislative Requirements

Council has to meet many legislative requirements as part of their minimum service level provision, including Australian and State legislation, and State regulations. These include:

**Table 3.3. Legislative Requirements**

Legislation	Requirement
Local Government Act	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by infrastructure and asset management plans for sustainable service delivery.
Road Traffic Act (SA)	The Australian Road Rules have been made into Regulations under the Road Traffic Act (SA) and came into operation throughout Australia on 1 December 1999.
Disability Discrimination Act	An Act relating to discrimination on the ground of disability
Occupational Health and Safety Act	To secure the health, safety and welfare of persons at work To eliminate, at their source, risks to the health, safety and welfare of persons at work To protect the public against risks to health or safety arising out of or in connection with the activities of persons at work or the use or operation of various types of plant To involve employees and employers in issues affecting occupational health, safety and welfare To encourage registered associations to take a constructive role in promoting improvements in occupational health, safety and welfare practices and assisting employers and employees to achieve a healthier and safer working environment
Development Act 1993	The Development Act 1993 is the core legislation enacted by the South Australian State Parliament to establish the planning and development system framework and many of the procedures required to be followed within that framework. The Act came into effect on 15 January 1994 but has been amended on several occasions since then.
Other Acts/Policies	Telecommunication, Electricity and Gas Acts. Councils Asset Management Policy.
AS1742 (Traffic)	Standard covers the signs used for controlling vehicular and pedestrian traffic on the road.
Australian Road rules	Sets out rules to secure safety of the road users.
Native Vegetation Act	Sets out roles and responsibilities to secure native vegetation
Road Safety Act 1986 Part 7A Private Parking area, section 99	Sets out roles and responsibilities to secure health & safety of all road users
Road Safety Act 1986, Road Safety (road Rules)Regulations 1999 No 120	Sets out roles and responsibilities to secure health & safety of all road users

## 4. FUTURE DEMAND

### 4.1 Demand Forecast

The Adelaide Hills Council area is located to the east of metropolitan Adelaide. The Council has an area of 795 square kilometres and extends from Mount Bold Reservoir in the south to the South Para Reservoir in the north and from the lower slopes of Hills Face escarpment in the west to the eastern side of the Onkaparinga River valley.

**Land Area:** 795.08 km<sup>2</sup> / 79,508 hectares

**Population Density:** 0.46 people per hectare (2001)

Residential development varies from more urban areas of the foothills and around Stirling/Aldgate/Bridgewater to rural townships including Woodside, Gumeracha, Lobethal, Birdwood, Kersbrook, Mt Torrens, Mylor and Cudlee Creek. There are 50 towns and settlements within the Council area.

The South Eastern Freeway has given impetus to development centred on the towns of Stirling, Bridgewater, Aldgate, Balhannah and Woodside. Transportation routes have also influenced the towns in the north of the area such as Birdwood, Gumeracha and to a lesser extent Kersbrook.

The majority of Adelaide Hills Council area lies within the Mt Lofty Ranges Watershed which supplies around 24% of metropolitan Adelaide's water supply. This presents limitations in the amount of growth that the Council can undertake (both residential and industrial/commercial), due to the tight planning controls that limit development and urbanisation in an effort to conserve the water quality.

#### Historic and Future Growth Increases

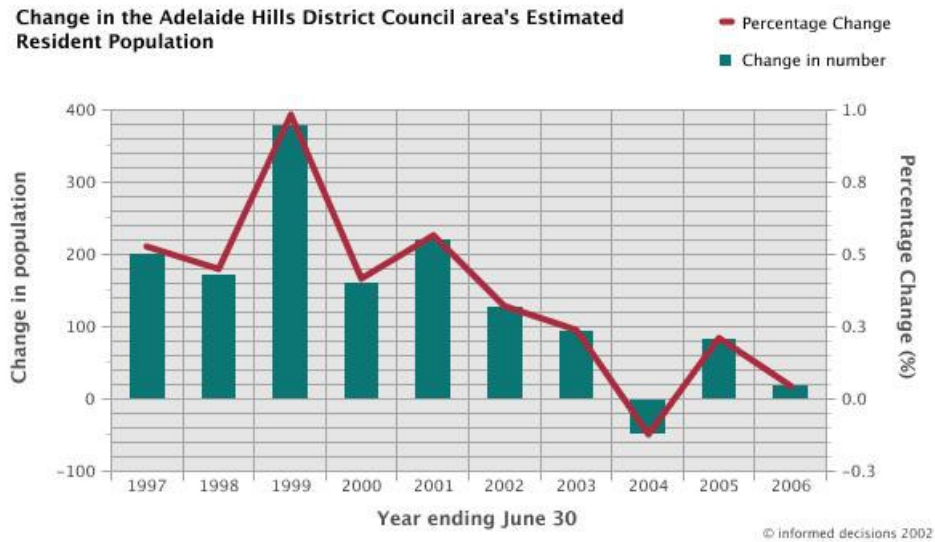
The AHC population growth rate has grown slightly since 1999 (see Table 4.1 and Figure 4.1 below ), after experiencing higher growth rates in the mid to late 1990's following construction of the South Eastern Freeway. It is expected that future growth will be in line with the recent (past 5 years) increases, which is in the order of 0.2 to 0.3 percent pa. The population is currently estimated at 39,028 as at June 2005. The population is forecast to grow to 40,403 by 2016, representing a population growth rate of around 0.3%.

**Table 4.1. Population Forecasts**

Estimated resident population		Annual Change	
Year (ending June 30)	Number	Number	Percent Change (%)
2016 (forecast)	40,403		
2006 (preliminary)	39,048	17	0.04
2005	39,031	83	0.21
2004	38,948	-48	-0.12
2003	38,996	93	0.24
2002	38,903	126	0.32
2001	38,777	220	0.57
2000	38,557	160	0.41
1999	38,397	377	0.98
1998	38,020	171	0.45
1997	37,849	199	0.53
1996	37,650	--	--

Source: ABS Estimated Resident Population Cat. No. 3218.0.55.001 Regional Population Growth, Australia ('Preliminary' refers to preliminary figures that may be subject to revision. All other figures are final)

Figure 4.1. Population Changes – Adelaide Hills



**Projected Social and Cultural Population Changes**

For people 60 years and older, the percentage is considerably lower than the average for the State as a whole, but is growing in percentage terms. Just over 11% of the population is over 65. The ageing of the population will have impacts on service provision, which is being addressed as part of our Community Plan. Improvements in aged services and infrastructure like footpaths will be required to improve access to facilities to older persons.

The AHC area has a relatively young and family-orientated population in comparison to the State as a whole. Young people aged between 10 and 24 years make up 20% of our population. Our youth population is expected to reduce by around 12% over the next 10 years, numbering around 7,400 people. For young adults (in the 20 to 29 year old age groups), there is a lower percentage than for the State as a whole.

Family composition is changing in the area. The traditional nuclear family makes up around 34% of households, but nearly the same number were couple only households. This reflects the ageing population and the delay many couples choose to have before starting a family. Lone person households make up 18% of all households, again due to ageing of the population, family breakdown, later age of marriage or people living singly by choice. The average size of households has been steadily decreasing to the 2001 level of 2.71 people per household.

Our area has a substantially higher percentage of tertiary educated residents than the State average and also the percentage of employed people is higher than the State average. About 68% of employed people work outside the area, with 31% employed locally.

Demand factor trends and impacts on service delivery are summarised in Table 4.2:

**Table 4.2 Demand Factors, Projections and Impact on Services**

Demand factor	Present position	Projection	Impact on services
Ageing Population	10% over 65	Consistent with the rest of Australia, we have a growing group of older residents. Nearly 10% of the population is over 65 and the over 80 age group grew by 30% between 1996 and the last census carried out in 2001. The ageing of the population will have impacts on service provision, which is being addressed as part of our Community Plan.	Improvements in aged services and infrastructure like footpaths will be required to improve access to facilities to older persons.
Lack of Population Increase	~39,000	The population is only expected to increase by a very minor amount over the next 20 years, which although limits the amount of new assets, it also limits the income from rates growth, which means Council will continue to be limited in the amount of capital budget it has.	Service levels provided may not meet customer expectations
Increase in percentage of people from urban areas for 'tree change' reasons		The increase over recent years of new residents who have come from existing urbanized areas with long term standard infrastructure, provides pressure on Council to provide a similar level of service and 'urbanised assets'	More money required on upgrades and new assets putting strain on budgets and limiting capital renewal
Industrial development in areas requiring bridge upgrades		In some areas that are serviced by only single lane or load limited bridges, development could lead to requirements to upgrade bridges to higher standards	Significant spending required to upgrade bridges

## 4.2 Changes in Technology

Technology changes are forecast to affect the delivery of services covered by this plan. The likely impacts are outlined in Table 4.3 below.

**Table 4.3 - Changes in Technology and Forecast effect on Service Delivery**

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

### 4.3 Demand Management Plan

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

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

**Table 4.4 - Demand Management Plan Summary**

Demand component	Service Activity	Demand Management Plan
Ageing Population	Footpaths	Develop a footpath and access management plan for the Council area as a whole assessing high risk areas and linkage deficiencies.
Lack of Rate Increase	All assets	Improve maintenance practices to increase cyclic and planned regimes aimed to improve asset life, and decrease future capital renewal costs. There is also scope to develop traffic management schemes that divert flow to arterial (DTEI) roads. Increased focus on gaining State and Federal funding for infrastructure works.
Urbanisation Pressures	All assets	Focus on providing minimal cost works that achieve maximum benefit to meet the needs of the community, or alternatively more public education of the financial limitations.
Bridge Upgrades	Bridges	Work with Strategic Planners to identify areas that may be subject to development (in particular Industrial) to identify bridges that may require major reconstruction/rehabilitation. Develop alternative traffic routes or area linkage plans.

### 4.4 New Assets from Growth

Due to the tight planning restrictions on residential and industrial sub divisions it is expected that growth resulting in new infrastructure construction will be minimal, and Council will be unlikely to inherit any significant new assets as a result of this.



## 5 LIFECYCLE MANAGEMENT PLAN

### 5.1 Introduction

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

### 5.2 Background Data

#### 5.2.1 Physical parameters

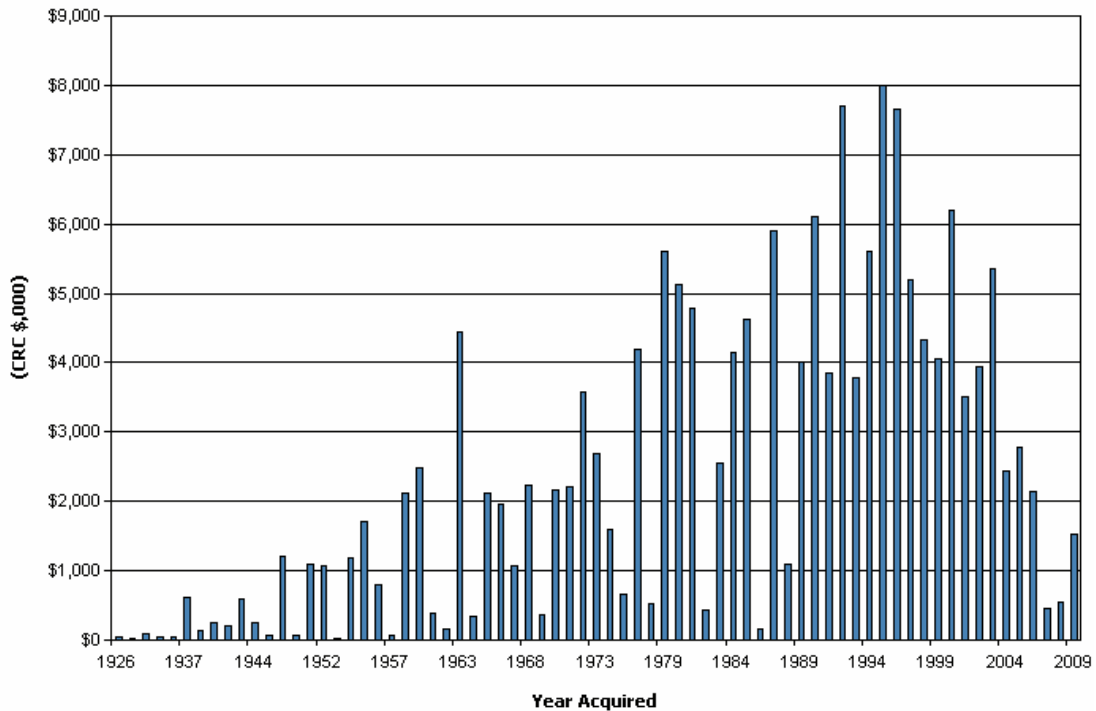
The assets covered by this infrastructure and asset management plan are shown below:

	Length / Area / Quantity
Sealed Roads	590 km
Unsealed Roads	385 km
Bridges & Footbridges	107
Footpaths	91 km
Kerbs	169.3 km
Retaining Walls	5430 m <sup>2</sup>
Guardrails	4.6 km
Traffic Control	28

Data on the assets construction year have been input into Council's asset software, and where this year was unavailable or unknown a year has been interpolated based on the most recent condition inspection of the asset. The age profile for all Transport Assets can be seen below:

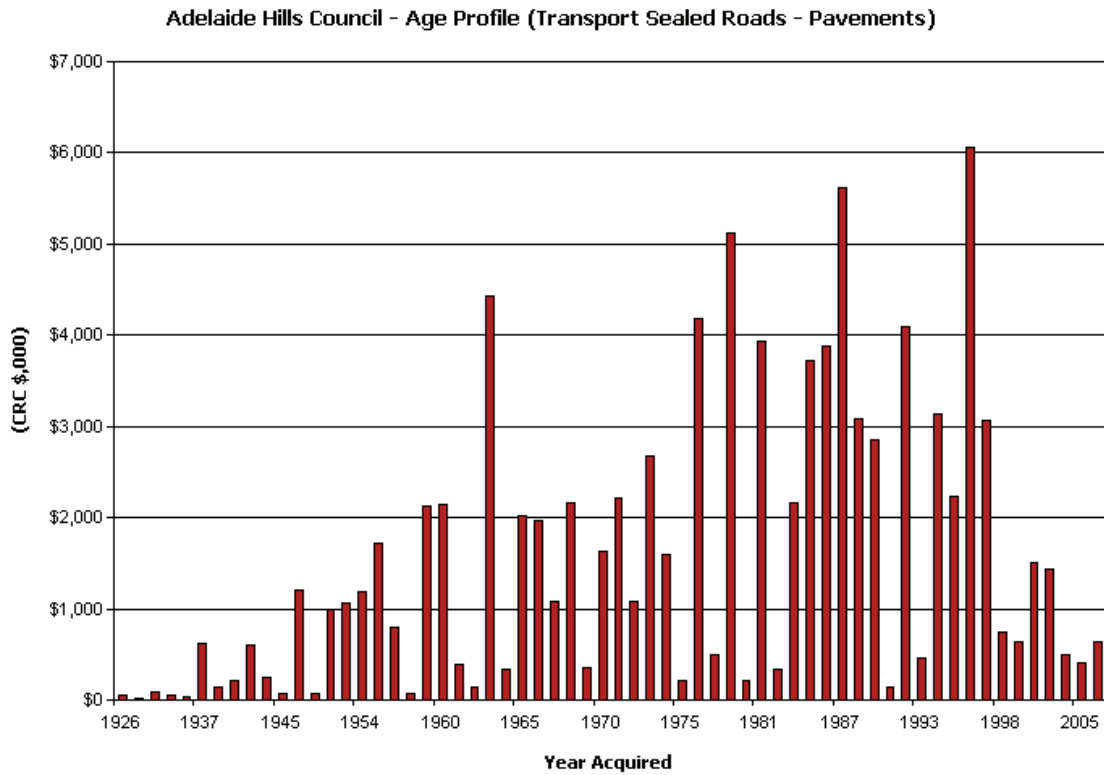
**Fig 5.1 Age Profile of All Transport Assets**

**Adelaide Hills Council - Age Profile (Transport)**



Road assets (both sealed and unsealed roads) account for close to 81% of the total replacement value for all transport assets. Given the large influence of road assets as a percentage of total transport assets, the key 'spikes' in the age profile correlate predominantly to the construction year for Council's sealed roads network. The age profile for sealed road pavements can be seen in Figures 5.2:

**Fig 5.2 Age Profile of pavements**



The average age and percentage through their useful life for pavements is considered below:

**Average Age** 29.9 Years

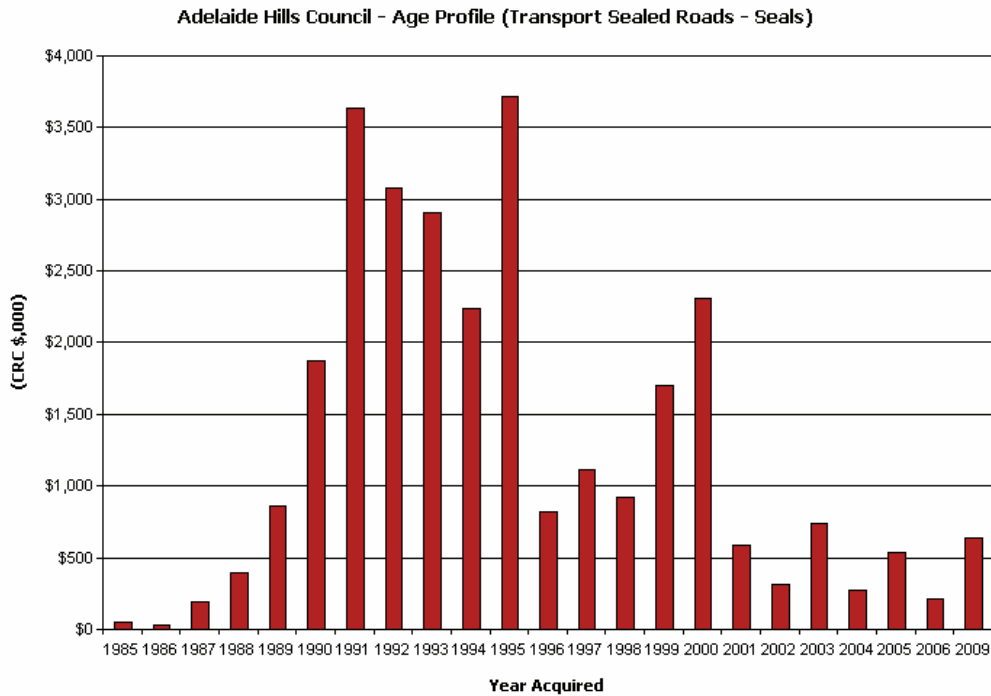
**Average Percentage through Useful Life** 33.9%

The same can be considered for the seals within the network, whose average life and percentage can be seen below, with the age profile in Figure 5.3.

**Average Age** 13.9 Years

**Average Percentage through Useful Life** 63.9%

**Fig 5.3 Age Profile of seals**



The spikes in the mid 1990's correlate with a large amount of road reconstruction and new construction works close to, and immediately after amalgamation of the four Councils into the current Adelaide Hills Council. The spike in the late 1960's and early 1970's in pavements as the area experienced its first growth pressures are also strongly reflected in the overall Transport Asset age profile.

5.2.2 Asset Condition

At present the condition of an asset is gauged by a visual rating system that assigns a condition rating on the asset based on how it appears to be functioning in providing its service to the community. This rating is undertaken by Council's Technical Officers who are familiar with the various stages of distress for the asset types and can provide a reliable assessment for what condition the asset is in based on its visual appearance. The visual condition assessment was measured using a 0 – 10 rating system as follows:

**Table 5.1 – Asset Condition Ratings**

Rating	Description
0 - 1	As new condition
2 - 3	Very good: No maintenance required
4 - 5	Good: Minor maintenance required.
6 - 7	Average: Some maintenance required
8	Poor: End of Useful Life
9-10	Unserviceable

For the purposes of this core asset management plan the financial modelling has been based on the age profile of the assets, however for assets where there is little or no age information the construction date if the asset has been inferred from the asset's condition data.

### 5.2.3 Asset Valuation

The value of transport assets as at 30 June 2009 covered by this infrastructure and asset management plan is summarised below. Assets are valued at brownfield rates with the unit rates for each asset types based on recent similar construction projects or supplier's current rates.

**Table 5.2 – Asset Valuation (as at 30 June 2009)**

Current Replacement Cost	\$197,840,000
Accumulated Depreciation	\$65,491,000
Written Down Value	\$132,349,000
Annual Depreciation Expense	\$4,030,000

Council's sustainability reporting reports the rate of annual asset consumption and compares this to Council's current asset renewal rate. As can be seen from below Council is not adequately funding renewals to the same rate as their consumption (projected future average renewals \$4,200,000):

Asset Consumption	2.04%	(Depreciation/CRC)
Asset renewal	2.12%	(Average Renewals/CRC)

### 5.2.4 Asset Consumption

The average age and the average percentage through useful life across all asset types can be considered to gain an appreciation of Council's current position in terms of asset consumption. The figures are shown in Table 5.3 below:

<b>Asset Type</b>	<b>Average Age (years)</b>	<b>Average Consumption (as % of useful life)</b>
Pavements	29.9	33.9%
Seals	13.9	63.9%
Unsealed Roads	7.65	61.2%
Bridges & Footbridges	43.2	53.1%
Footpaths	22.4	75.0%
Kerbs	28.0	42.6%
Retaining Walls	26.5	47.8%
Guardrail	21.5	42.9%
Traffic Control	13.0	43.9%

### 5.2.5 Asset Data Limitations

It should be noted that a large amount of the asset attribute and condition data was collected approximately two to three years earlier. A full field data capture was undertaken for unsealed roads and this data is regarded as current. Field verification was undertaken to confirm that the current asset data was still reflective of the physical condition of the assets as at 30 June 2009. The verification indicated that the majority of the asset data was still applicable to current conditions. However within the next few years, field inspection will need to be undertaken on the majority of the transport assets to ensure the condition and attribute data is maintained in an up-to-date state. Asset data collection techniques will also be developed to ensure efficient collection and robust data standards are applied for future modelling and analysis.

### 5.3 Risk Management Plan

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

Critical risks, being those assessed as 'Very High' - requiring immediate corrective action and 'High' – requiring prioritised corrective action. The risk rating convention and analysis is based on the LGA Core Risk Register template which refers to AS 4360. The risk management plan are summarised in Table 5.4. as follows:

**Table 5.4 Critical Risks and Treatment Plans**

Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan
Roads	Existing unsafe elements in the road environment. Poor Signal, Poor Geometry. Can result in accidents/fatalities	H	Identify roads that may these issues based on recent accident history. Undertake design and construct to improve the roadway. Attempt to source black spot funding where possible.
Roads	Poor sight distance and visibility at a number of intersections	H	Undertake road safety audits where areas are identified and rectify issues.
Roads	Poor or inappropriate maintenance practices accelerate network deterioration.	H	Monitor various maintenance procedures undertaken on assets to identify optimum treatments
Roads	Pavement overloads due to more heavy vehicles usage	H	Work with strategic planners to identify critical heavy vehicle freight routes and future demand in these areas.
Footpaths	Path user trips and injures themselves. Personal injury / Successfully claims liability.	H	Aim to increase planned and cyclic footpath maintenance to eliminate risk of untreated hazards in footpaths.
Bridges	Collapse due to structural deterioration.. Personal injury / fatality / property damage / flow obstruction	H	Introduce detailed inspection programme for all bridges, including structural testing to identify bridges at risk.
Retaining Walls	Collapse due to overloading, surcharges, subgrade failure, poor design, or asset deterioration	H	Increase frequency of inspection of retaining walls, and identify risks of failure modes and structural analysis.

### 5.4 Routine Maintenance Plan

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

#### 5.4.1 Maintenance plan

Maintenance includes reactive, planned and cyclic maintenance work activities. Reactive maintenance is unplanned repair work carried out in response to service requests and management/supervisory directions.

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

Cyclic maintenance is replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including repainting, building roof replacement, etc. This work generally falls below the capital/maintenance threshold.

#### 5.4.2 Current Maintenance Regime

To date Council has only recorded the maintenance expenditure against three Transport Asset groups, roads, footpaths, and bridges. The split between the different types of maintenance expenditure for Council from the previous financial year can be seen below in Table 5.4:

**Table 5.5 - Maintenance Expenditure Trends**

Asset Type	Maintenance Expenditure (2008/2009)		
	Reactive	Planned	Cyclic
Roads	\$1,200,000	\$856,000	\$115,000
Footpaths	\$121,000	\$0	\$0
Bridges	\$5,800	\$52,200	\$0
<b>ALL TRANSPORT</b>	<b>\$1,331,000</b>	<b>\$912,000</b>	<b>\$115,000</b>

As can be seen from the recorded expenditure, the planned and cyclic maintenance for all Transport Asset work represents only 42% of total maintenance expenditure. It is Council's goal to increase this amount progressively, and reduce the amount of reactive maintenance, which should then provide operational cost savings, and maximised asset performance.

Based on the required expenditure outputs in Section 6 it can be seen that there is minimal backlog of works and that most assets are reaching their full useful life or beyond. This would indicate that existing maintenance expenditure levels are considered to be adequate 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 detailed in Appendix A.

#### 5.4.3 Standards and specifications

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

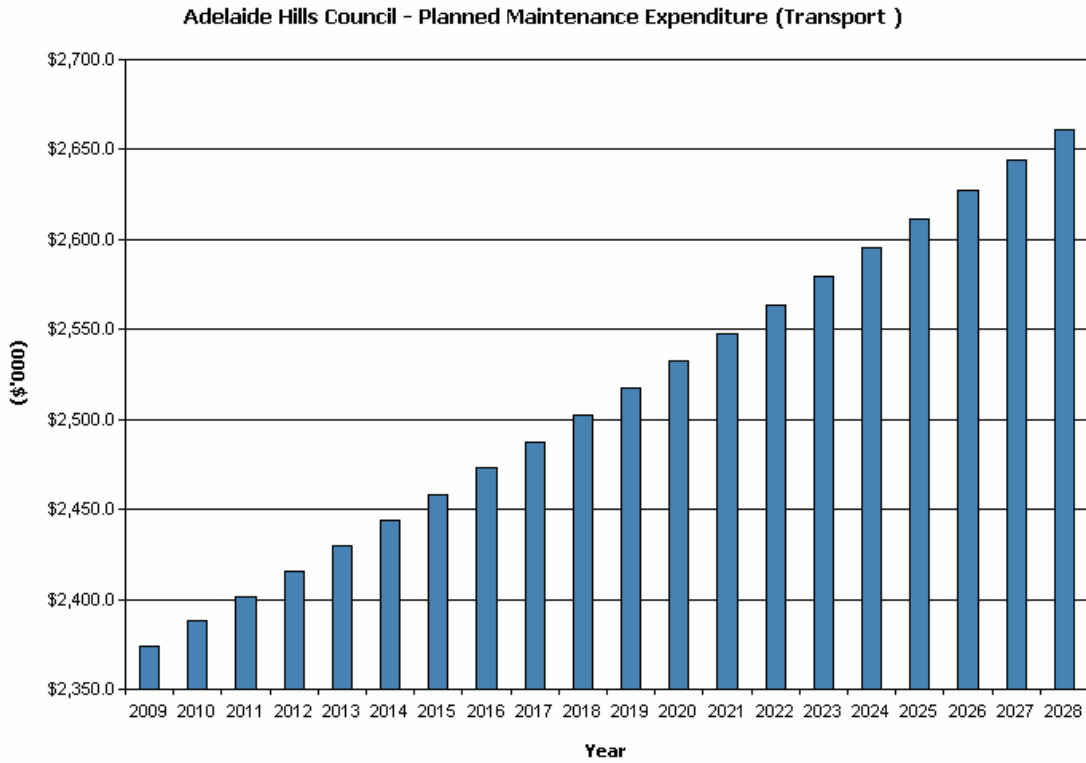
- Councils road works construction specifications
- Aus Roads road design standards
- DTEI road design guide lines
- ARRB road design guide lines and sealed road specification and technical bulletins
- ARRB rural road pavement design guide lines
- Aust Roads Traffic management manuals

Note that Council is currently working towards developing standard detailed designs and construction specifications, which for subsequent asset plans will be able to be specified and referred to directly.

#### 5.4.4 Summary of Future Maintenance Expenditures

Future maintenance expenditure is forecast to trend in line with the increasing value of the Council's Transport Assets as shown in Fig 5.4, which are all in current 2009 dollar values.

**Fig 5.4 Planned Maintenance Expenditure**



Maintenance is funded from Council’s operating budget and grants where available, which is further discussed in Section 6.2. As can be seen from Figure 4 above this represents some significant additional maintenance expenditure required by Council over the future years to maintain the assets (increase of \$300,000+ above current day expenditure). Its is Council’s aim to reduce some of the increase in required costs by increasing the percentage of planned and cyclic maintenance and reducing reactive maintenance; however this may still not offset all the expected future increases.

**5.5 Renewal/Replacement Plan**

5.5.1 Renewal Plan

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

Assets requiring renewal are identified from estimates of remaining life obtained from the asset register through the ‘*Renewal Model*’. Candidate proposals are inspected to verify accuracy of remaining life estimate and to develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds and scheduled in future works programmes. The priority ranking criteria is detailed in Table 5.5 below:

**Table 5.6 - Renewal Priority Ranking Criteria**

Criteria	Weighting
Quality	25%
Function	25%
Risk	50%
<b>Total</b>	<b>100%</b>

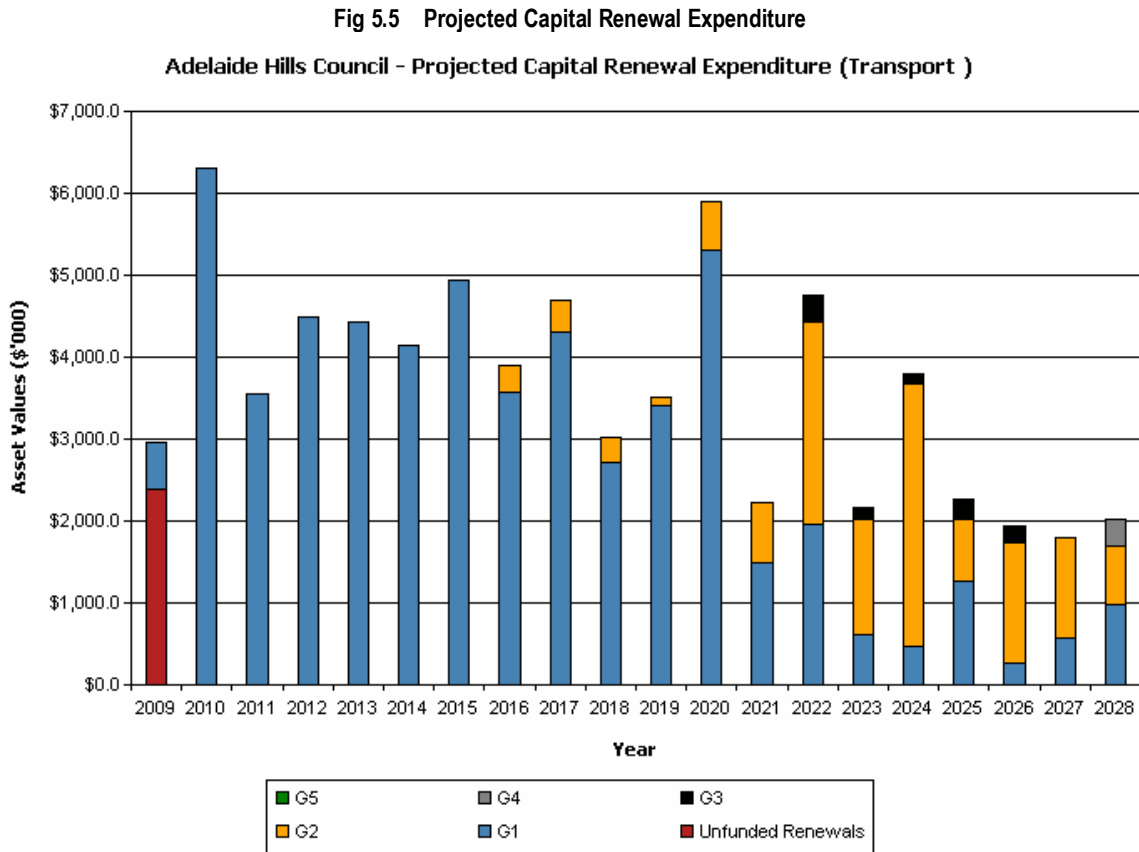
5.5.2 Renewal Standards

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

- AS/NZ road design Standards
- Bridge Design code AS 5100 -2004
- ARRB design guide lines
- DTEI road design standards and specifications
- A guide to the design of new pavement for light traffic (APRG21)
- Sealed roads manual (ARRB)
- Unsealed roads manual (ARRB)

5.5.3 Summary of Future Renewal Expenditure

Projected future renewal expenditures are forecast to increase over time as the asset stock ages. The projected capital renewal expenditure over the 20 year period is shown below in Figure 5.5:



**Note:** G1, G2, G3, G4, G5 = Generations of Renewals. i.e. an unsealed road re-sheet with useful life of 10 years and first renewal required in 5 years – the first renewal will be G1 & second renewal at 5+10=15yrs time will be G2, etc.



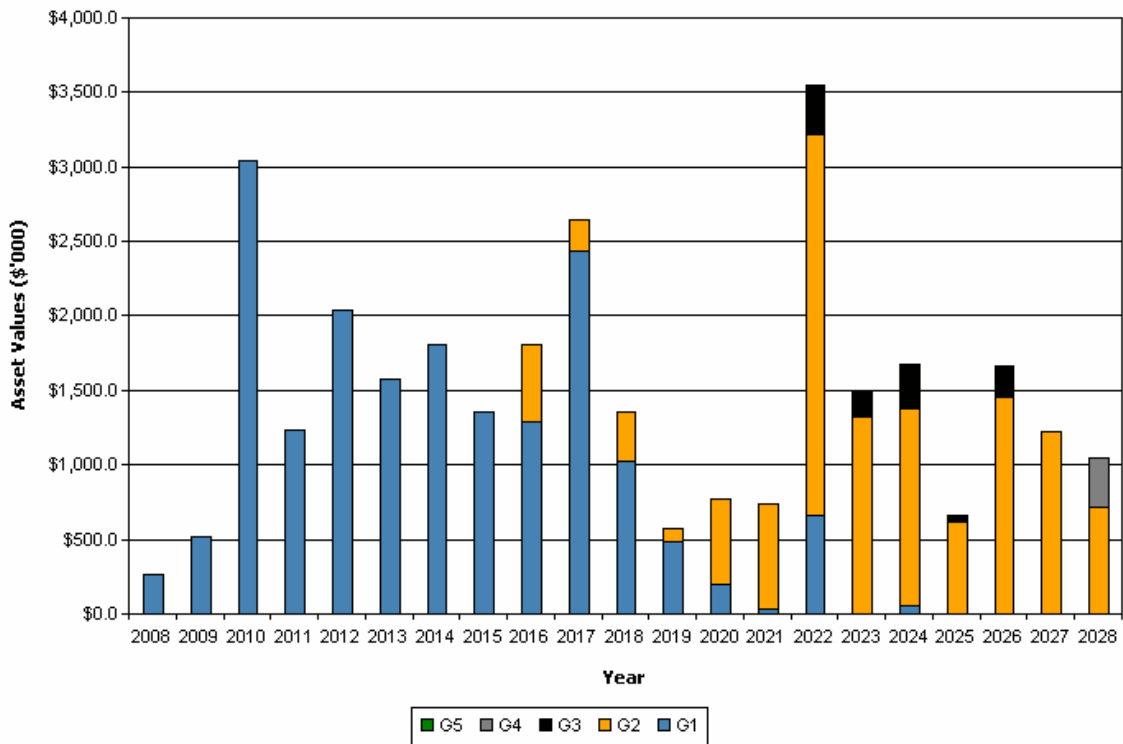
As can be seen from Figure 5.5 above there is constant significant required renewal expenditure per year over the 20 year period (again noting current renewal expenditure is approx \$3.5m and future planned is \$4.2m per annum).

The generation two (G2) and generation three (G3) renewals towards the end of the 20yr period can be attributed to the on going renewal of the relatively short lived unsealed roads that require continual spending over the duration of the modelling period. The projected capital renewal for unsealed roads only can be seen in Figure 5.6. Note an important aspect to consider when referring to the unsealed roads projected renewal is that the current expenditure per annum is only \$420,000, which is considerably less than the annual projected expenditure forecast. Council in future will have to devote considerably more attention to unsealed road re sheeting in an effort to increase the useful lives and decrease the costs to reduce this impact.

The large cluster of higher expenditure around 2015 can be established based on the upcoming renewal of a large number of seals on roads that were constructed in the mid 1990's (refer age profile, figure 5.3), with expected lives in the range of 20 to 25 years. The large spike in 2020 can also be attributed to the high volume of seals requiring replacement in that year. The projected renewal chart for seals can be seen in Figure 5.7.

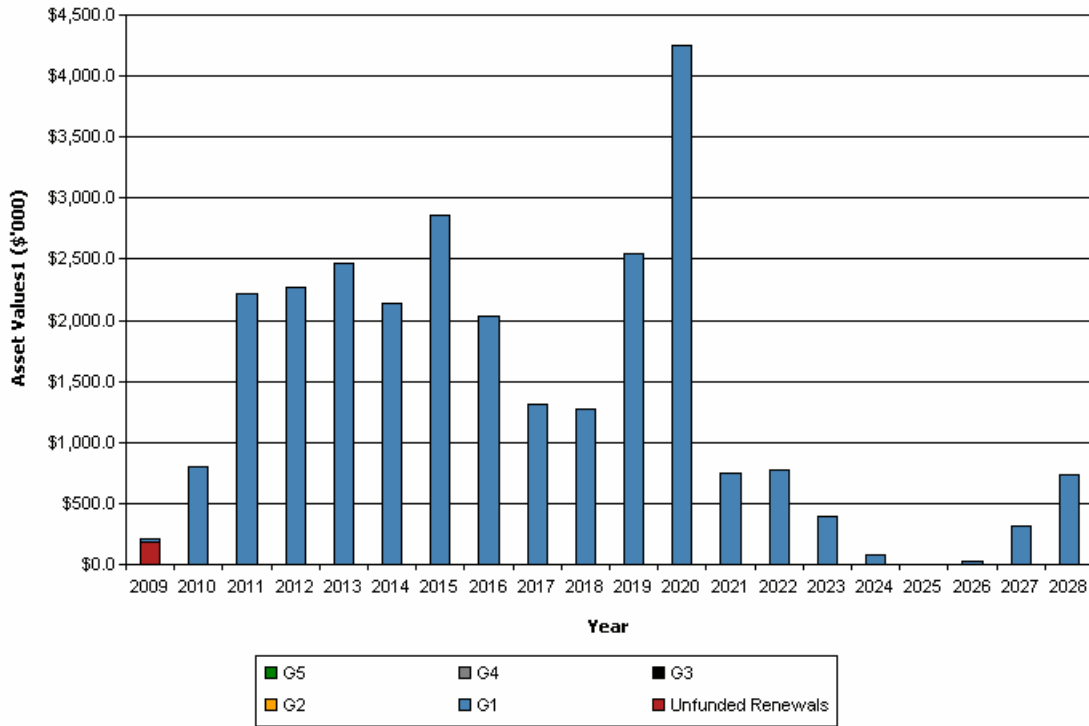
**Fig 5.6 Projected Capital Renewal Expenditure of Unsealed Roads**

**Adelaide Hills Council - Projected Capital Renewal Expenditure (Transport - Unsealed)**



**Fig 5.7 Projected Capital Renewal Expenditure of Seals**

**Adelaide Hills Council - Projected Capital Renewal Expenditure (Transport - Seals)**



This presents a critical dilemma for Council, as despite the high costs involved the need to renew seals is of high importance given that allowing the seals to operate beyond their useful life can lead to an increased rate of deterioration of the underlying pavement due to water ingress.

Based on Council's renewal priority criteria, the major roads can be prioritised and renewed in a staged approach, to balance total cost over a number of years.

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

## 5.6 Creation/Acquisition/Upgrade Plan

New works are those works that create a new asset that did not previously exist, or works which upgrade or improve an existing asset beyond its existing capacity. They may result from growth, social or environmental needs. Assets may also be acquired at no cost to the Council from land development. These assets from growth are considered in Section 4.4, and based on current knowledge and expectations, there is to be limited assets from growth and they will not have a significant impact on Council's financial position.

### 5.6.1 Standards and specifications

Standards and specifications for new assets and for upgrade/expansion of existing assets are the same as those for renewal shown in Section 5.4.3.

### 5.6.2 Summary of future upgrade/new assets expenditure

Projected upgrade/new asset expenditures are summarised in Fig 5.7 below. All costs are shown in current 2009 dollar values.

**Fig 5.8 Projected Capital Upgrade/New Asset Expenditure**

**Adelaide Hills Council - Planned Capital Upgrade/New Expenditure (Transport )**

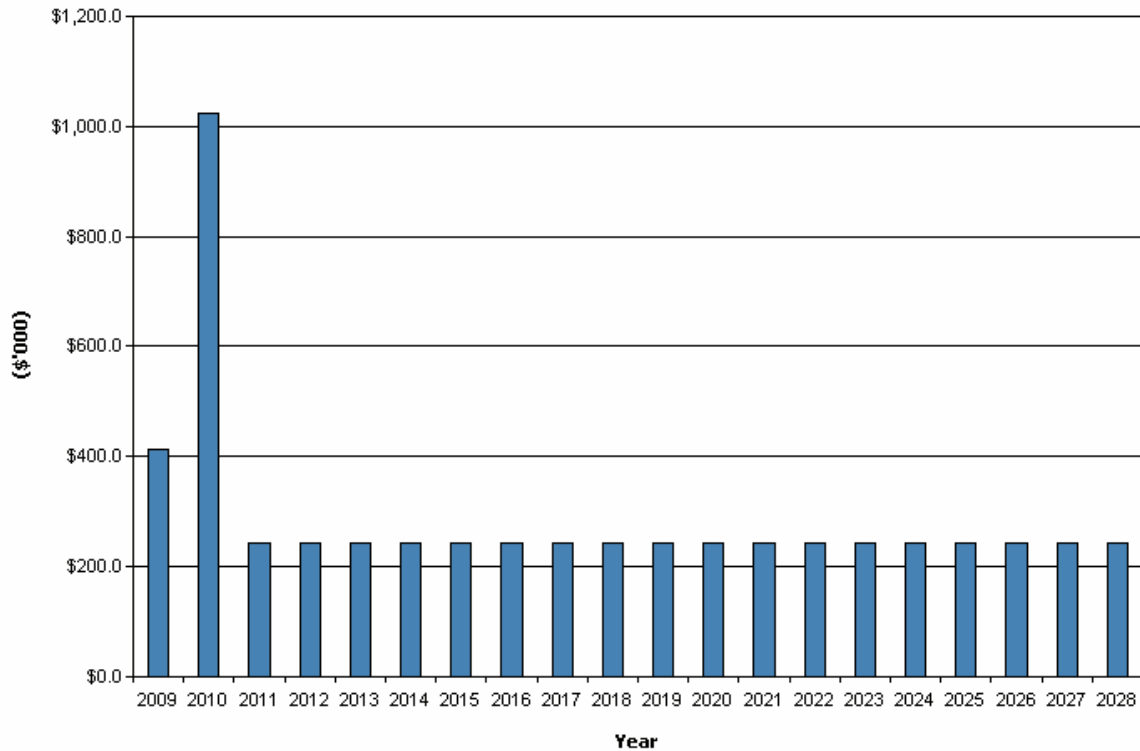


Figure 5.8 represents the proposed expenditure on new assets over the 20yr period (such as new footpaths, roads etc) New assets and services are to be funded from Council's capital works program and grants where available.

The significant cost in financial year ended 2010 represents the Council expenditure on footpaths for the main street upgrades as part of the Power Line Electrical Commission's (PLEC) undergrounding works in Lobethal and Woodside.

## 5.6 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation.

There is currently no policy to close or dispose of any roads within Adelaide Hills Council's boundaries. Therefore road disposal costs will only be recognised in the 20 year plan once a management strategy is in place to deal with road disposal.

## 6. FINANCIAL SUMMARY

### 6.1 Financial Statements and Projections

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

The financial projections are shown in Fig 6.1 for planned operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets). Operations costs include amounts for on going licences for Asset Management systems, data collection and condition inspections, and staff time and resources.

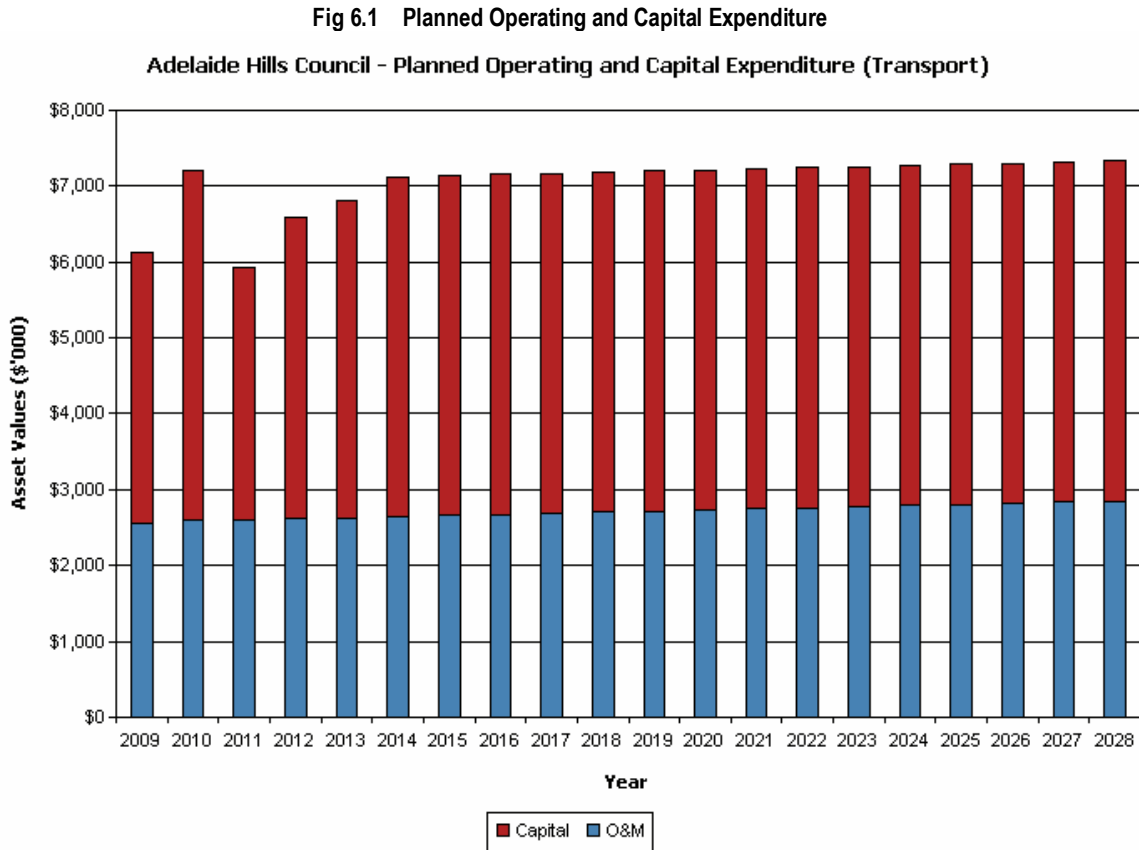


Figure 6.1 (in current day 2009 values) indicates that Council can expect its total financial expenditure required for Transport Assets to increase over the duration of the 20 year planning period. Operating expenditure includes maintenance on all Transport Assets over the period.

The implication for Council of the projected planned expenditure is that long term financial plans (over the medium to long term) will have to accommodate this required increase in overall expense.

### 6.2 Sustainability of Service Delivery

#### 6.2.1 Sustainability Indexes

There are two key indicators for financial sustainability that have been considered in the analysis of the services provided by this asset category. These are long term Life Cycle Cost and Life Cycle Expenditure.

Both parameters are considered medium term costs over the 10 year financial planning period.

Life cycle cost (or whole of life costs) is defined as being the average costs that are required to sustain the service levels over the longest asset life. Life cycle cost is determined by adding the maintenance costs and asset depreciation expense over the life cycle of the assets. It is a measure of how much expenditure should be made to sustain the asset over its entire life.

Life cycle expenditure is the amount planned to be spent on the asset over its life cycle. It included planned maintenance expenditure and planned renewal expenditure. It does not include expenditure on new assets. Life cycle expenditure will vary depending on the timing of asset renewals.

By comparing the Life Cycle Cost and the Life Cycle Expenditure, a sustainability index can be which indicates whether the planned expenditure is more or less than that which is theoretically required to maintain the assets in accord with the maintenance plan and forecast depreciation.

Both medium (10 year) and long term (20 year) assessments are provided in this report to ensure that a balanced view of planned spend versus required spend is obtained.

#### **Life Cycle Cost - Long term (20 year)**

The forecast long term annual average life cycle cost for the transport assets covered in this asset management plan (20 year timeframe) is \$6,784,453 per annum. The forecast average long term planned expenditure is \$6,561,211 pa.

Based on these figures, this give a long term (20 year) life cycle sustainability index is 0.97.

#### **Life Cycle Cost - Medium term (10 year)**

The forecast medium term annual average life cycle cost for the transport assets covered in this asset management plan (10 year timeframe) is \$6,973,943. The forecast average medium term planned expenditure is \$6,309,260.

Based on these figures the medium term (10 year) life cycle sustainability index is 0.90.

### **6.2.2 Sustainability Assessment**

As can be seen from above, the sustainability index for Transport Assets as a whole decreases when considered over a longer period of time. For the medium term (10yr) the index is considered acceptable, however when considered further into the future (20yr) the index decreases as the age of the asset portfolio increases and more reach the end of their useful life.

This indicates that if Council continues with its current planned expenditure profile in the last 10 years of the 20 year program, it is likely to be under-funding depreciation and maintenance expenses over the long term, which may lead to a backlog of work as time progresses.

Table 6.1 shows the 10 year and 20 year asset sustainability indices for each asset class within the Transport Asset Management Plan.

**Table 6.1 – Sustainability Indices**

	Sustainability Index	
	10yr Index	20yr Index
Roads – Seals	1.29	1.16
Unsealed Roads	<b>0.59</b>	<b>0.57</b>
Roads (ALL)	0.92	0.95
Bridges	1.13	1.09
Footpaths	0.65	0.66
Retaining Walls	1.93	0.77
Kerbs	1.81	0.71
Guardrails	2.08	<b>0.67</b>
<b>TOTAL</b>	<b>0.90</b>	<b>0.97</b>

As the road assets represent such a significant proportion of the Current Replacement Cost, the long term sustainability for each type (sealed and unsealed) was also considered separately. Although the index for all roads produced an acceptable figure of 0.95 over 20 years, it can be seen however that the index for the Unsealed roads component of that amount is only 0.57.

The low index for unsealed roads is due to the relatively short lived nature of unsealed roads, and that based on current expenditure trends this would not be sufficient over the medium or long term. However, noting the high indices for sealed roads and the overall value for all roads it can be considered that funding to roads is suitable, however there needs to be further analysis into the planned expenditure on each and a re-distribution of the funding between asset types from sealed to unsealed.

In general, apart from Footpaths it can be seen that the long term index (over 20 years) is lower than the medium term index. This correlates with the progressive ageing of the asset stock, and the on going addition of new assets that then require future maintenance and future capital replacement which will require increases in planned expenditure to meet this requirement.

The overall index increase over the longer term indicates that Council is in general providing an acceptable amount of funding to its Transport Assets, and although the index is below 1.0, the modelling period occurs over a 20 year horizon, it is not considered a major constraint for this asset management planning period. Further analysis is therefore planned towards the development of an advanced asset management plan that will aim to achieve a sustainability index over the long term of 1.0

### 6.3 Projected and Planned Renewals Shortfall Analysis

This infrastructure and asset management plan identifies the estimated maintenance and capital expenditures required to provide an agreed level of service to the community over a 20 year period. This may be compared to existing or planned expenditures in the 20 year period to identify any gap. In a core infrastructure and asset management plan, a gap is generally due to increasing requirement for more asset renewals.

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

Fig 6.2 shows the projected asset renewals in the 20 year planning period from the asset register. The projected asset renewals are compared to planned renewal expenditure in the capital works program and capital renewal expenditure in year 1 of the planning period as shown in Fig 6.2. Table 6.2 shows the annual and cumulative funding gap between projected and planned renewals.

Fig 6.2 Projected and Planned Renewals and Current Renewal Expenditure

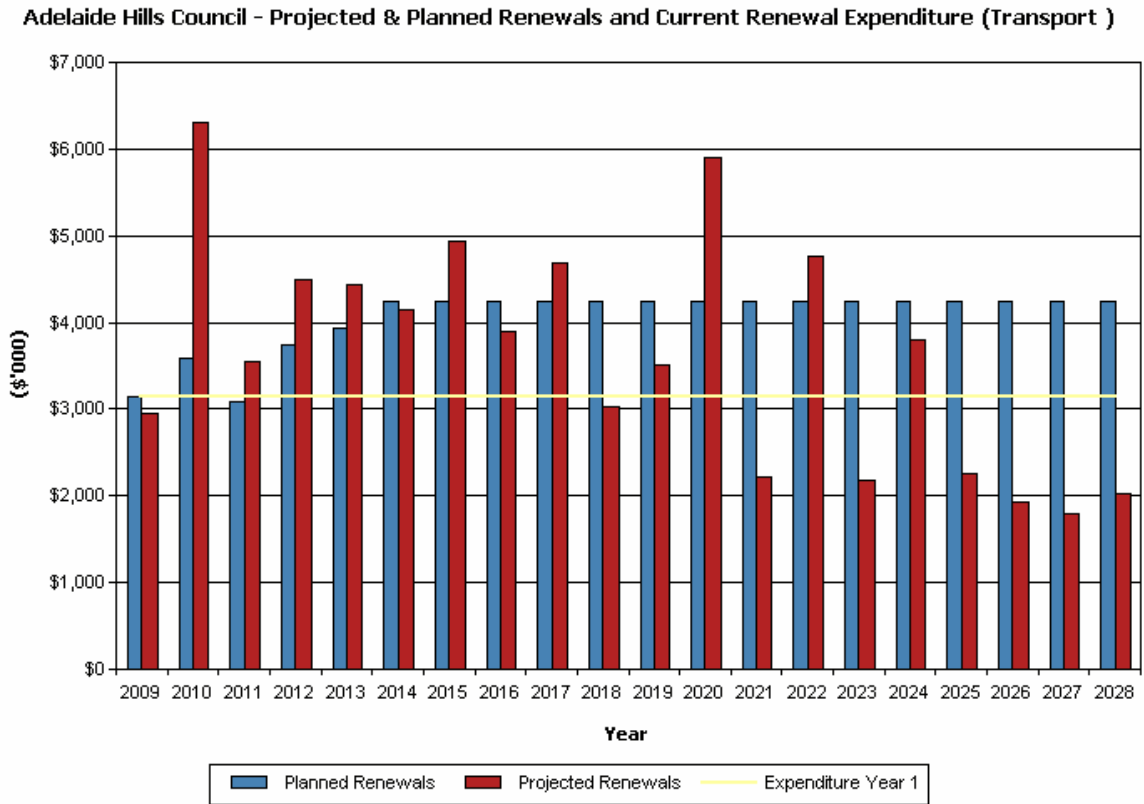


Table 6.2 shows the gap between required renewals and planned expenditure, and the cumulative expenditure gap/surplus after 10 and 20 years:

Table 6.2 - Projected and Planned Renewals and Expenditure Gap

Year	Required Renewals	Planned Renewal Expenditure	Renewal Funding Gap	Cumulative Gap
2009	\$6,284.33	\$3,152.00	\$3,132.33	\$3,132.33
2010	\$6,275.70	\$3,592.00	\$2,683.70	\$5,816.03
2011	\$3,541.14	\$3,091.00	\$450.14	\$6,266.17
2012	\$4,495.84	\$3,741.00	\$754.84	\$7,021.00
2013	\$4,408.42	\$3,941.00	\$467.42	\$7,488.42
2014	\$4,150.58	\$4,241.00	-\$90.42	\$7,398.01
2015	\$4,720.94	\$4,241.00	\$479.94	\$7,877.95
2016	\$3,901.81	\$4,241.00	-\$339.19	\$7,538.76
2017	\$4,614.59	\$4,241.00	\$373.59	\$7,912.35
2018	\$2,975.49	\$4,241.00	-\$1,265.51	\$6,646.85
2019	\$3,487.30	\$4,241.00	-\$753.70	\$5,893.14
2020	\$5,611.94	\$4,241.00	\$1,370.94	\$7,264.08
2021	\$2,222.01	\$4,241.00	-\$2,018.99	\$5,245.10
2022	\$4,701.85	\$4,241.00	\$460.85	\$5,705.95
2023	\$2,170.88	\$4,241.00	-\$2,070.12	\$3,635.83

2024	\$3,782.92	\$4,241.00	-\$458.08	\$3,177.76
2025	\$2,062.45	\$4,241.00	-\$2,178.55	\$999.20
2026	\$1,935.49	\$4,241.00	-\$2,305.51	-\$1,306.30
2027	\$1,800.80	\$4,241.00	-\$2,440.20	-\$3,746.50
2028	\$2,018.19	\$4,241.00	-\$2,222.81	-\$5,969.31

For Council this implies that over the course of the 20 year financial modelling period, Council will spend close to \$6.0M more than the projected renewals would require, which in real terms would mean the assets would be providing a better service level than the minimum required.

However, from Section 6.2 it was clearly demonstrated that although Council may have undertaken surplus renewals over this period, this does not mean that the assets are being over funded when considering them over the life cycle. If the cumulative shortfall/surplus comparison was undertaken over a longer period, the data available from the sustainability indices would suggest that the cumulative gap (shortfall) would increase indicating that Council may not be adequately renewing its assets and running them at below service level.

As indicated earlier, further detailed analysis is planned in the development of the advanced asset management plan to investigate the specific factors influencing apparent lower long term sustainability.

**Road Assets**

Fig 6.3 and Table 6.3 present comparable data for the roads assets only and the cumulative gap after 10 and 20 years. As road assets comprise such a large proportion of Council’s Transport asset value, the implications of their cumulative gap on the Transport Assets as a whole can be considered.

**Fig 6.3 Projected and Planned Renewals and Current Renewal Expenditure (roads only)**

**Adelaide Hills Council - Projected & Planned Renewals and Current Renewal Expenditure (Transport Roads)**

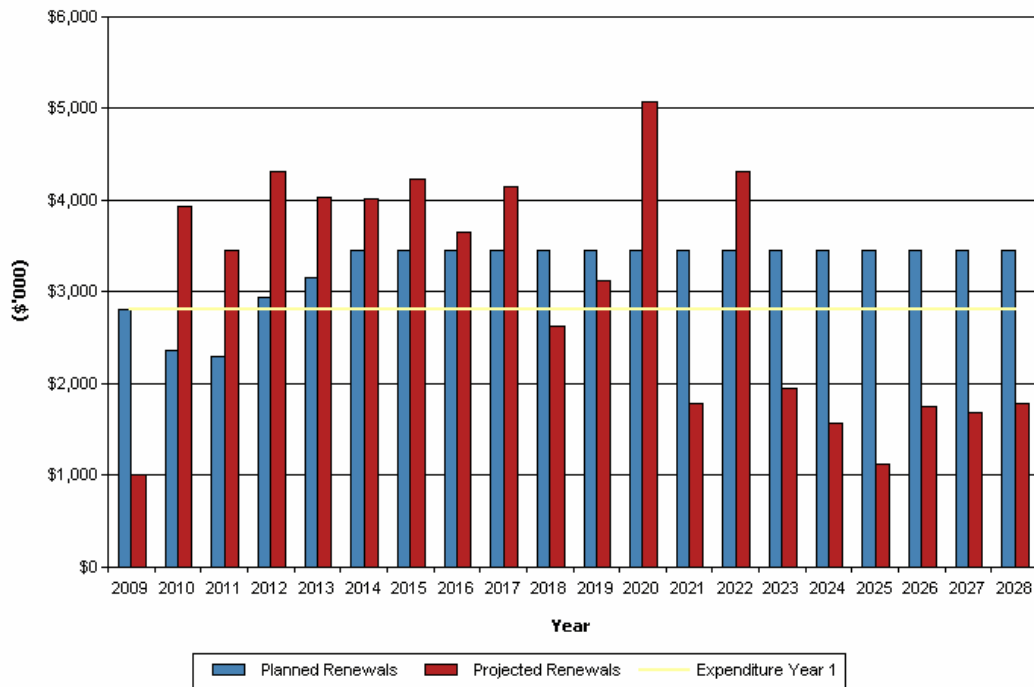




Table 6.3 shows the gap between projected and planned renewals for the road only. The output shows that over the full term of the 20 year funding period, Council will be ahead in its overall spending on roads; however note that over the 20 year period the sustainability index was still less than 1.0.

**Table 6.3 - Projected and Planned Renewals and Expenditure Gap (Roads Only)**

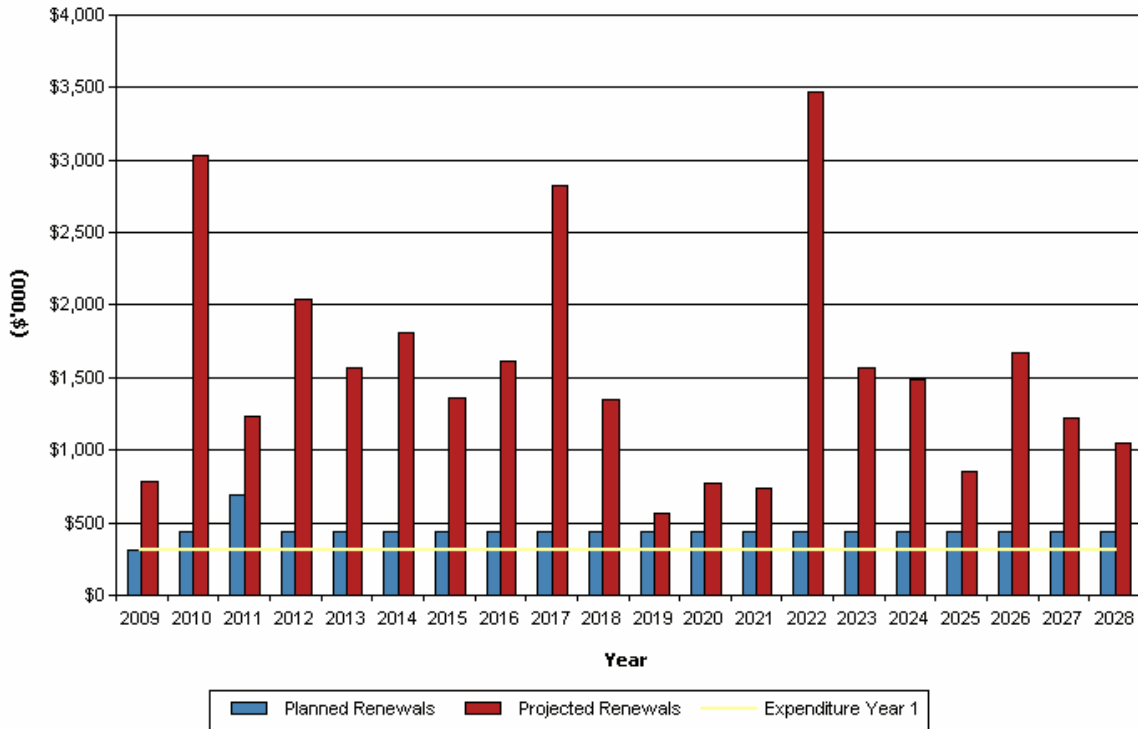
Year	Required Renewals (\$,000)	Planned Renewal Expenditure (\$,000)	Cumulative Gap (\$,000)
2009 – 2018 (10 years)	\$35,410	\$30,812	\$4,598
2009 – 2028 (20 years)	\$2,318.08	\$3,449.00	<b>-\$5,727</b>

Although overall Council appears to be funding roads as a whole adequately, from the sustainability indices the value for unsealed roads appeared lower and would indicate that Council should further develop its priority of spending towards developing its advanced asset management plan to even out the indices.

Figure 6.4 and Table 6.4 below show the disparity between projected and planned renewals on unsealed roads, and also the cumulative gap over the planning period.

**Fig 6.4 Projected and Planned Renewals and Current Renewal Expenditure (unsealed only)**

**Adelaide Hills Council - Projected & Planned Renewals and Current Renewal Expenditure (Transport Unsealed Roads)**



**Table 6.4 - Projected and Planned Renewals and Expenditure Gap (Unsealed Only)**

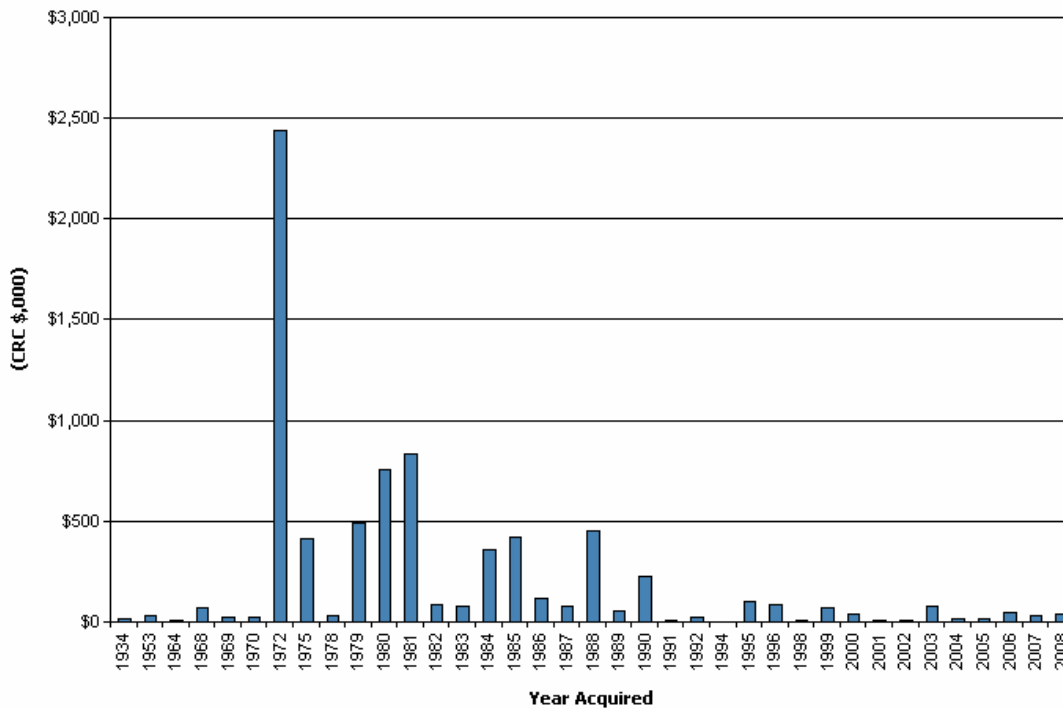
Year	Required Renewals (\$,000)	Planned Renewal Expenditure (\$,000)	Cumulative Gap (\$,000)
2009 – 2018 (10 years)	\$17,619	\$4,533	<b>\$13,086</b>
2009 – 2028 (20 years)	\$31,004	\$8,943	<b>\$22,061</b>

**Kerbing Assets**

From the sustainability indices for kerbing, the longer term value presented as significantly different from the medium term value. Based on the financial modelling the kerbing asset class at the end of 20 years has a cumulative gap of close to \$2.5m surplus. This value may be deceiving due to the minimal required renewal expenditure over the 20 year modelling period, however when considering the age profile of the kerbing assets:

**Fig 6.5 Age Profile (Kerbs)**

**Adelaide Hills Council - Age Profile (Transport Kerbs)**



There is a significant amount of kerbing constructed in the 1970's and 1980's that would not appear for renewal within the 20 year modelling period, and similar to roads if considered over a longer period such as 25 to 30 years would present a significant amount of required renewal expenditure on the kerbing assets constructed with that period. Any surplus renewal expenditure on kerbing would then be consumed within this bulk of works, and based on the sustainability index it could be expected that there would be a considerable shortfall in funding towards the required renewals.

Any renewals on kerbs in advance of their failure can be considered a positive outcome as kerb failure often leads to increased water ingress into the underlying pavement structure, which then can lead to increased deterioration rates of the pavement and the road failing prematurely.

## 6.4 Funding Strategy

Projected expenditure identified in Section 6.1 is to be funded from Council's operating and capital budgets. The funding strategy is detailed in the Council's 10 year long term financial plan. For the purposes of this asset management plan, the investments proposed in the second 10 year period of the long term (20 year) plan are assumed to be the same as that in the first 10 year period.

Based on the outcomes of the analyses above, the additional expenditure required to increase the sustainability index of all Transport Assets to a minimum of 1.0 would amount to increasing the expenditure over all asset groups on renewal and maintenance by \$220,000 per annum. This would be in addition to the renewal funding surplus presented in Table 6.2.

Subject to further detailed analysis towards the development of an advanced asset management plan, options to improve the 20 year sustainability indices could include:

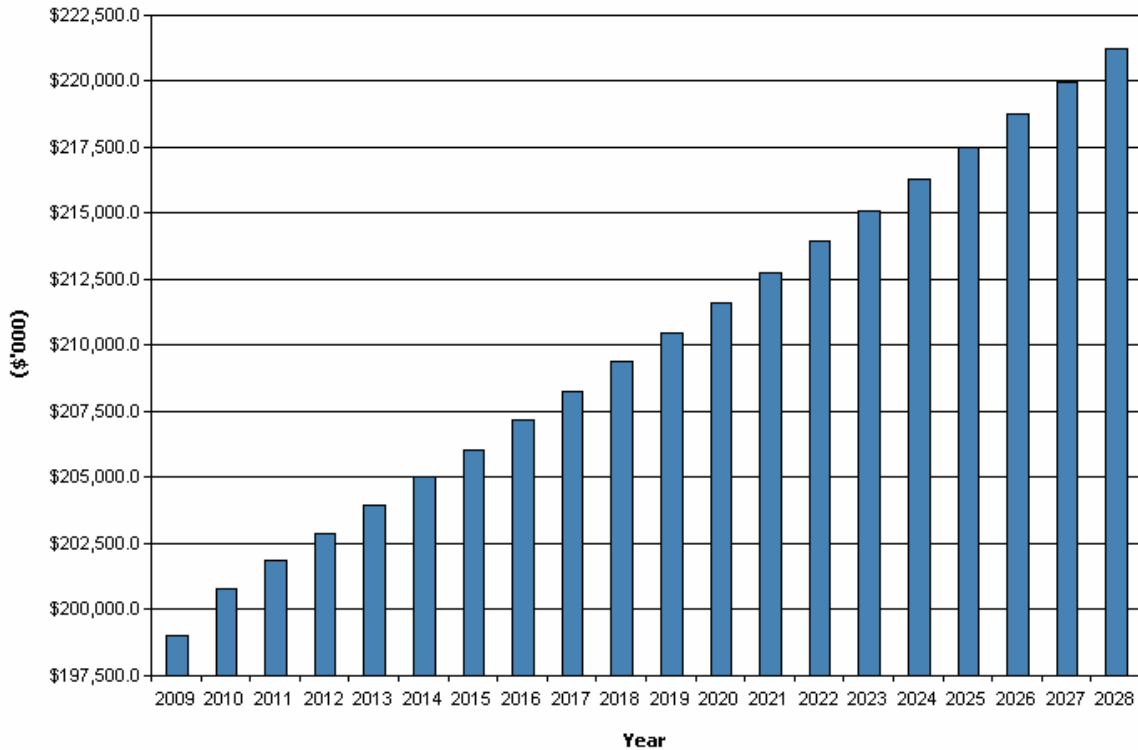
- Increase expenditure on transport assets
- Optimise maintenance and renewal intervention to reduce long term life cycle costs
- Reduce levels of service
- Dispose of assets

## 6.5 Valuation Forecasts

Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by Council, from assets constructed by land developers and from donated assets. Fig 9 shows the projected replacement cost asset values over the planning period in current 2009 dollar values.

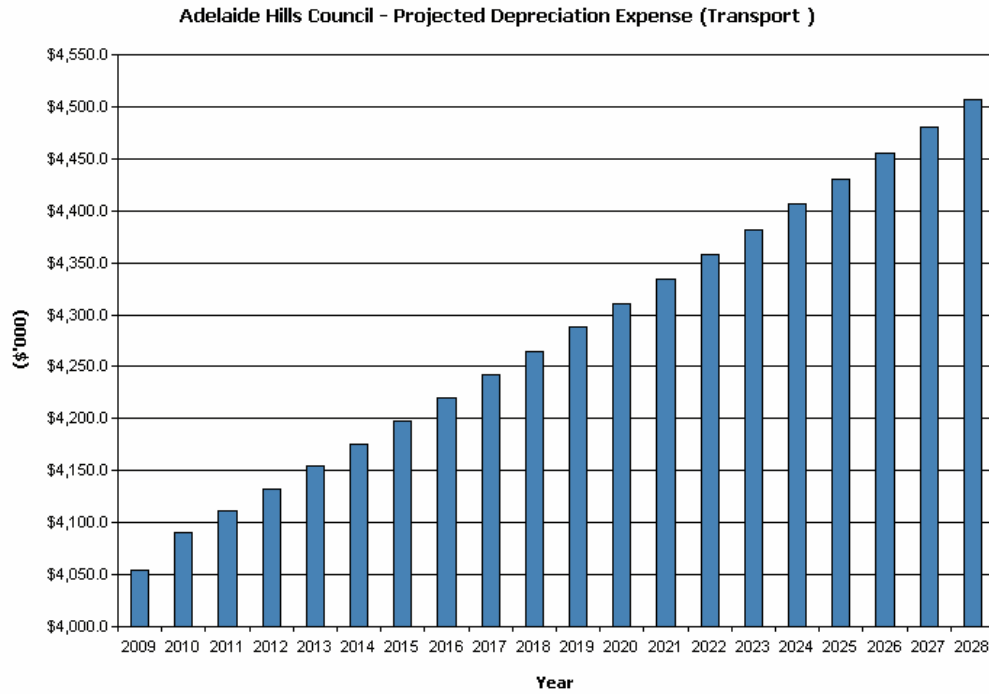
**Fig 6.4 Projected Asset Values**

**Adelaide Hills Council - Projected Asset Values (Transport )**



Depreciation expense values are forecast in line with asset values as shown in Fig 6.5:

**Fig 6.5 Projected Depreciation Expense**



The depreciated replacement cost (current replacement cost less accumulated depreciation) will vary over the forecast period depending on the rates of addition of new assets, disposal of old assets and consumption and renewal of existing assets. Forecast of the assets' depreciated replacement cost (written down value) is shown in Fig 6.6:

**Fig 6.6 Projected Depreciated Replacement Cost**

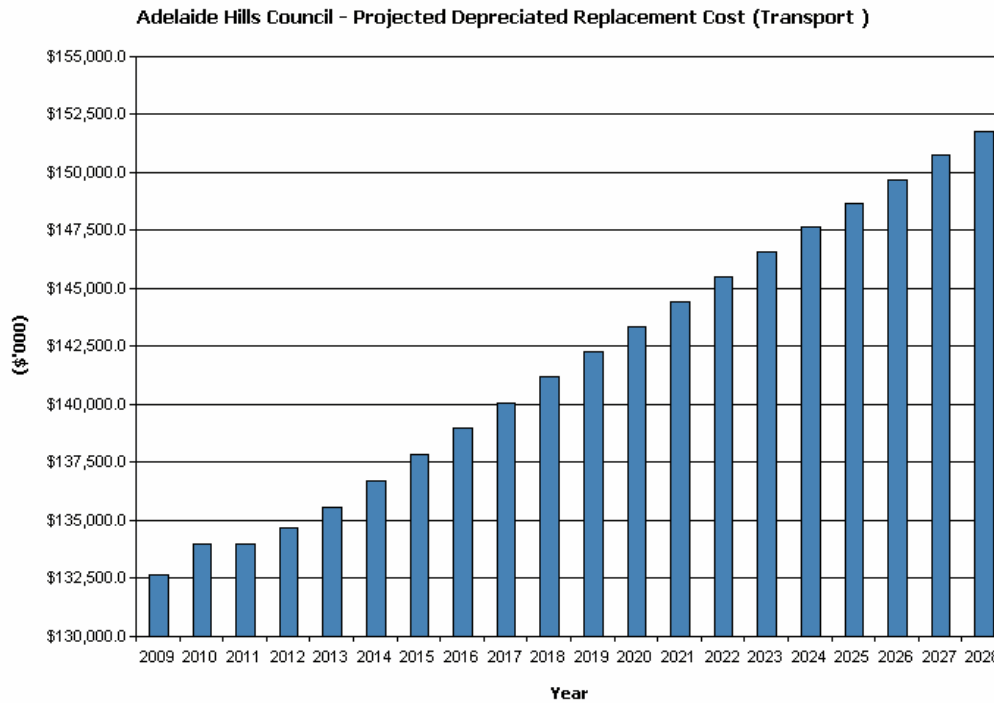


Figure 6.6 correlates with the increasing sustainability index over the 20 year period due to the increase in planned renewal expenditure across all asset types. The written down value also increases over the duration of the plan as the Council acquires additional new assets that have no accumulated depreciation and the written down value is the full replacement cost.

## 6.6 Financial Model & Key Assumptions

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

Key assumptions made in this infrastructure and asset management plan are:

- Residual values for sealed road pavements are taken as 25-33% of replacement cost
- Road formation has not been considered for depreciation.
- Life cycle costs are based on 2009 AAAC and 2008/09 maintenance costs.
- Average annual rehabilitation expenditure – Determined from the average of previous two years
- Average annual maintenance expenditure – Determined from the average of previous two years
- All expenditure is stated in dollar values as at June 2009 with no allowance made for inflation over the next 20-years planning period.
- Initial renewal costs have been reviewed on the basis of historical costs.

Accuracy of future financial forecasts may be improved in future revisions of this infrastructure and asset management plan by the following actions.

- Implementing and using the Conquest Asset Management system.
- Implementing an appropriate Pavement Management System for Sealed roads pavement re-constructions.
- Improvements to current project costing approach relate to operational, maintenance and Capital works.

## 7. ASSET MANAGEMENT PRACTICES

### 7.1 Accounting/Financial Systems

Council currently uses the Civica Authority Financial system (using Business Intelligence solution (BIS) interface). Authority is an integrated system, used for all financial and accounting activities, including budget control, purchasing/debtors, invoicing/creditors, taxation, and reporting.

The system operates on a Windows platform, with most employees across the organisation having regulated access on a needs basis. The Finance department generally operates the system, with other parties utilising it for purchasing tasks, and for interrogation and reporting. Records are generally at a fairly high level.

The Local Government (Financial Management) Regulations 1999 require that following accounting principles be met;

- Unless otherwise specified by the regulations, a council, council subsidiary or regional subsidiary must ensure that all accounting records, accounts and financial statements are prepared and maintained in accordance with all relevant Australian Accounting Standards
- A council, council subsidiary or regional subsidiary must undertake a revaluation of all material non-current assets in accordance with the requirements of Australian Accounting Standard AASB 116.

The relevant accounting standard covers the recognition, value, revaluation and depreciation of assets.

Under the doctrine of materiality (AAS5 Materiality in Financial Statements) entities record items as assets where information resulting from their application is material.

### 7.2 Asset Management Systems

Council has recently undertaken the significant purchase of a Computerised Integrated Asset Management System, with the implementation of the Conquest Asset management System completed for the June 2009 valuation.

The Conquest database currently consists of:

- Road Asset Register
- Condition monitoring – Condition inspection system (visual inspection and GPS inputs to MapInfo GIS layers and database)
- Asset Maintenance Systems - Authority Customer Action Requests (CAR) and routine inspections
- Asset Maintenance Tracking System – Authority CARs / TRIM document management system.
- Civica Authority Financial System and Business Intelligence Solutions (BIS)
- Asset valuation databases
- Document Management System – TRIM
- Geographic Information System (GIS), GPS – MapInfo / future Exponare
- Bridges and Roads criticality tables for capital works prioritisation
- Risk Management, corporate risk matrix and risk tables for work prioritisation
- Corporate Risk Register
- Forward Works Program ( LTFP for 10 years)
- Annual Rehabilitation and Maintenance programs
- Minimum Level of Service

### 7.3 Information Flow Requirements and Processes

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

- The asset register data on size, age, value, remaining life of the network;
- The unit rates for categories of work/material;
- The adopted service levels;
- Projections of various factors affecting future demand for services;

- Correlations between maintenance and renewal, including decay models;
- Data on new assets acquired by council.

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

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

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

An asset is recognised in the balance sheet when it is probable that the future economic benefits will flow to the entity and the asset has a cost or value that can be measured reliably.

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

The International Infrastructure Management Manual and the templates provided by the Local Government Association are the major procedures and references used for asset management.

## 8. PLAN IMPROVEMENT AND MONITORING

### 8.1 Performance Measures

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

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

### 8.2 Improvement Plan

The asset management improvement plan generated from this infrastructure and asset management plan is shown in Table 8.1.

**Table 8.1 - Improvement Plan**

Task No	Task	Responsibility	Resources Required	Timeline
1.	Undertake continual research into improved bitumen products mix design, and unsealed construction techniques	Engineering Works	Staff time	On going
2.	GIS mapping of all assets	Assets Officer	Staff, equipment ~\$10,000p.a.	On going
3.	Develop a footpath access management plan	Engineering	Staff/consultants \$25,000	2009/10
4.	Traffic Management and LATM schemes to manage traffic flows and encourage arterial road use	Engineering	Staff/consultants \$5,000p.a.	2009-2012
5.	Identify areas of expected growth (in particular industrial) to assess risks to under capacity roads and bridges	Engineering, Planning	Staff/consultants \$10,000	2009-2011
6.	Identify roads with frequent accidents for deficiencies in design and undertake road safety audits	Engineering	Staff	On going
7.	Implement detailed inspection program for bridges and retaining walls	Engineering	Staff/consultants \$2,000p.a.	2009-2010
8.	Improve condition, attribute and component data on all Transport assets	Engineering	Staff, equipment ~\$20,000p.a.	On going
9	Unit rates - Establish unit rates from first principals as a means of robustness.	Engineering Operations	Staff Time	Within 2 years
10	Useful lives - Clarify and verify useful lives by demonstrating how they are derived	Engineering Operations	Staff Time	Within 2 years
11	Risk Management - Risk Management applied in accordance with core risk register plan and reflected through corporate budget process & LTFP. Risk Assessment also undertaken to prioritise defects and programs. Risk analysis to be used to define inspection programs.	Engineering Finance Operations	Staff Time	Within 2 years

### 8.3 Monitoring and Review Procedures

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

The Plan has a life of 4 years and is due for revision and updating within 2 years of each Council election.

### 8.4 Processes Improvements

The following Table 8.2 is based on requirements as defined in the Transport Asset Management Plan. The table summarises the current business practice and the desired business practices which are areas identified for improvement.



**Table 8.2 - Business Practices**

<b>Process</b>	<b>Current Business Practice</b>	<b>Desired Business Practice</b>	<b>Key Responsibility</b>
Level of Service	Currently stipulated through council with minimal external stakeholder consultation.	Inclusion of external stakeholders to a higher level.	Customer service Asset and engineering
Asset Knowledge	Inventory of Assets being finalised.	Full asset inventory as defined under the Data Collection and Condition Assessment Guidelines.	Engineering
Financial Asset Register	Financial information is currently stored within BIS and finance Authority.	Fully valued asset inventory.	Engineering Finance
Condition Assessment	Previously no formal or recurring condition assessment process employed. Currently defining requirements.	Periodic Condition Assessments being undertaken	Engineering Operations
Risk Management	Risk Management applied under corporate budget process	Risk Management applied under corporate budget process & LTFP. Risk Assessment also undertaken to prioritise defects and programs. Risk analyses to be used to define inspection programs.	Engineering Finance Operations
Job Costing	Costs are currently allocated against projects and maintenance cost accounts.	Work Order based costing providing project and asset based cost allocations. Operation & maintenance, renewals and rehabilitations to be charged separately in different accounts for each asset.	Engineering Operations
Budget Planning Process	Undertaken in line with the Corporate strategic planning and Budgeting processes.	Improve same	Engineering Operations Finance
Maintenance Planning/ programming	Currently based on customer requests, fully reactive. Treatments identified by Leading Worker.	Initiate Proactive program formation based on condition and risk assessment. Some reactive where required but to minimise.	Operations
Maintenance Delivery	Delivery provided by internal concrete and paving crews. Some contractors engaged when required. Delivered under the defined maintenance service specifications.	Service specifications to be reviewed to reflect Life Cycle AM and revised delivery standards.	Operations
Capital Works Planning	Capital works are prioritised and adopted under the corporate Budgeting processes. Scoping and estimating is undertaken as part of the project management framework.	Include Demand forecasting to project new works. Renewal modelling required projecting new works. Scope to be estimated as part of project and Capital works processes.	Engineering
Capital work prioritisation	Risk based approach, resource allocation	Need reviewing as suits to transport assets	Engineering
Valuation\ Depreciation	Based on AAS116 requirements. Currents construction rates (brown field), with estimated useful lives and age.	Derived as an outcome of the asset criteria and condition assessment, and remaining life with construction dates to determine useful life. Conquest AMS	Engineering Finance
Data collection for significant assets	Formal data collection does not exist	Require collection for major assets where significant reflection on asset valuation e.g. detention wet lands large structures	Engineering
Planning control	Introduce requirement of individual/combined detention systems for all the new developments including extensions /expansions to existing structures as appropriate.	Review planning approval standard conditions and adopt councils development guide lines	Engineering Planning
As built information	GIS, plans	To be updated	Engineering

Process	Current Business Practice	Desired Business Practice	Key Responsibility
Data collection, condition assessment	None	Program to be initiated	Engineering
Prepare as built	Available for some areas and for contributed assets	Prepare for existing assets and new assets. Request for contributed assets	Engineering Contractors Consultants
Reactive maintenance program	Some exists	To be prepared for all the assets activities with pit cleaning/street weeping program.	Operations
Reactive maintenance program	Some exists	To be prepared for all the assets activities with pit cleaning/street weeping program.	Operations
Renewal and rehabilitation plan	Does not exist	To be prepared based on age, risk and available condition assessment	Engineering Operations

## 8.5 Information Systems Improvements

The following Table 8.3 is based on requirements as defined in the Transport Asset Management Plan. The table summarises the current business systems and the desired business systems.

**Table 8.3 – Information Systems**

System	Current Business System	Desired Business System	Responsibility
Asset Register	a. Layer on GIS, reduced scope to primary network only. b. Limited textual based data.	a. Centralised on Conquest System and lined to Conquest Map and MapInfo b. Expanded asset criteria with condition assessment. c. Extended to ALL.	Assets Officer IT Administration
Financial Asset Register	Financial information stored in summary format to satisfy AAS116 and financial reporting purposes.	Fully valued asset inventory.	Finance Officer(s)
Job Costing	New works, renewals and upgrades are allocated as individual projects. Maintenance activities are allocated to various maintenance accounts related to type of activity or subclass of asset.	a. Existing approach to projects is sound providing costs are transferred to asset inventory structures once completed. b. Maintenance allocations require review to assess validity of allocation to assets or groups of assets.	Engineering Department
Spatial (Mapping)	Layer on GIS, reduced scope to primary network only.	Extended to ALL Asset classes	Assets Officer IT Administration
Maintenance Management	Systems comprised of excel spreadsheet, Access data base, authority customer action request system	Centralised maintenance management system providing work order, individual asset and life cycle functions integrated with financial, procurement and payroll systems- Conquest.	Engineering Department Works Management Finance
Risk Management	Project and Capital works are recorded in Authority.	a. Project and Capital works are recorded in Conquest. b. Defect risks are stored in Conquest as transaction against defect condition assessment. c. Generation of risk assessment layer for analyses of inherent risk and defect risks are recorded in Conquest	Assets Officer Engineering Department Works Department
Annual Maintenance Programs	Specific defined in spreadsheets.	a. Programs defined in Conquest based on condition and risk assessment. b. Progression towards Conquest generated programs from proactive and reactive inputs.	Assets Officer Engineering Department Works Department

## 8.6 Data Improvements

The following Table 8.4 is based on requirements as defined in the Transport Asset Management Plan. The table summarises the current business requirements and the desired business requirements.

**Table 8.4 – Data & Business Requirements**

<b>Data</b>	<b>Current Business Requirements</b>	<b>Desired Business Requirements</b>	<b>Responsibility</b>
Financial Classification	Defined under the financial Directions and Budgeting processes.	Further breakdown and classifications based on Asset hierarchy	Assets Officer Finance Department
Asset Hierarchy	As defined under the financial Directions and Budgeting processes.	Defined Asset hierarchy for all assets.	Assets Officer Engineering Department Finance Department
Asset Identification	Minimum inventory on GIS	Expand inventory to ALL assets.	Assets Officer Engineering Department
Attribute Data	Moderate asset criteria and textual data.	Expand asset information and textual data.	Assets Officer Engineering Department
Maintenance History	History details not tracked to individual assets.	Maintenance history available against individual assets or groups of assets will be built up in Conquest.	Engineering Department Works Department
Acquisition History	Details not recorded.	Construction and ownership dates to be recorded along with original costs of construction to be recorded in Conquest.	Assets Officer All Departments
Condition History	History details not recorded. Some prior audit data available.	a. Condition history available against individual assets. b. Changes in condition to be recorded as part of the inspections and maintenance activities.	Engineering Department Works Department

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

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

## APPENDICES

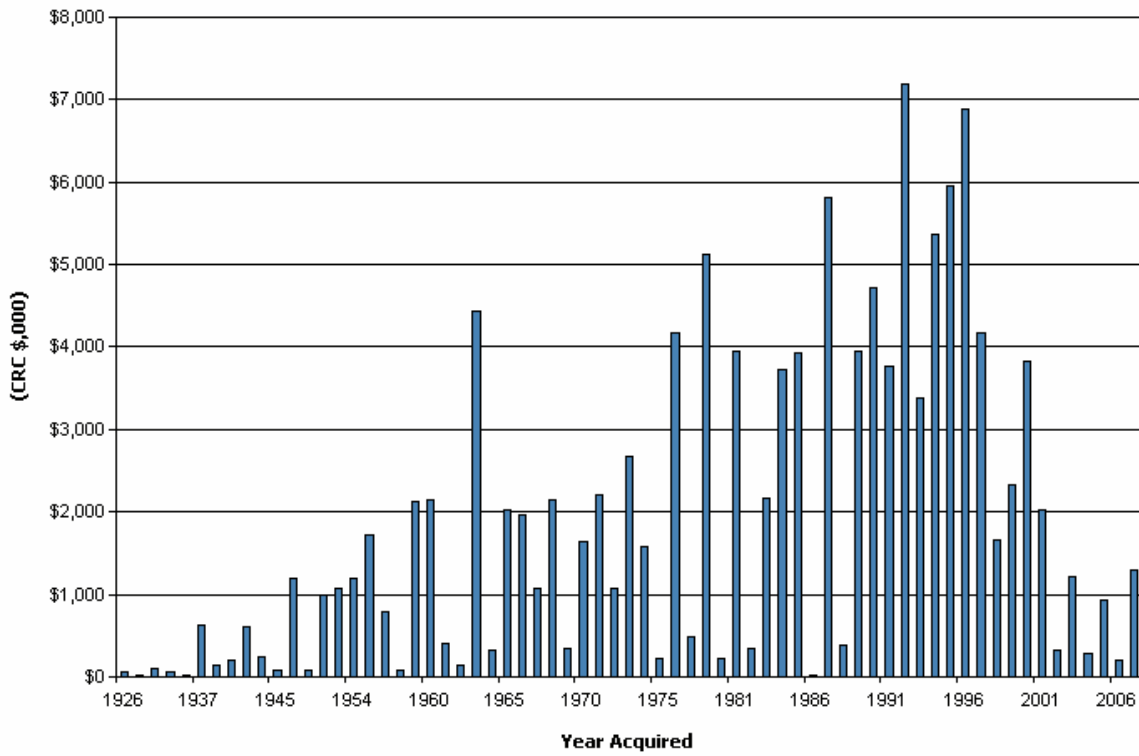
Appendix A – Website Outputs for Individual Transport Asset Types

Appendix B - Maintenance Response Levels of Service

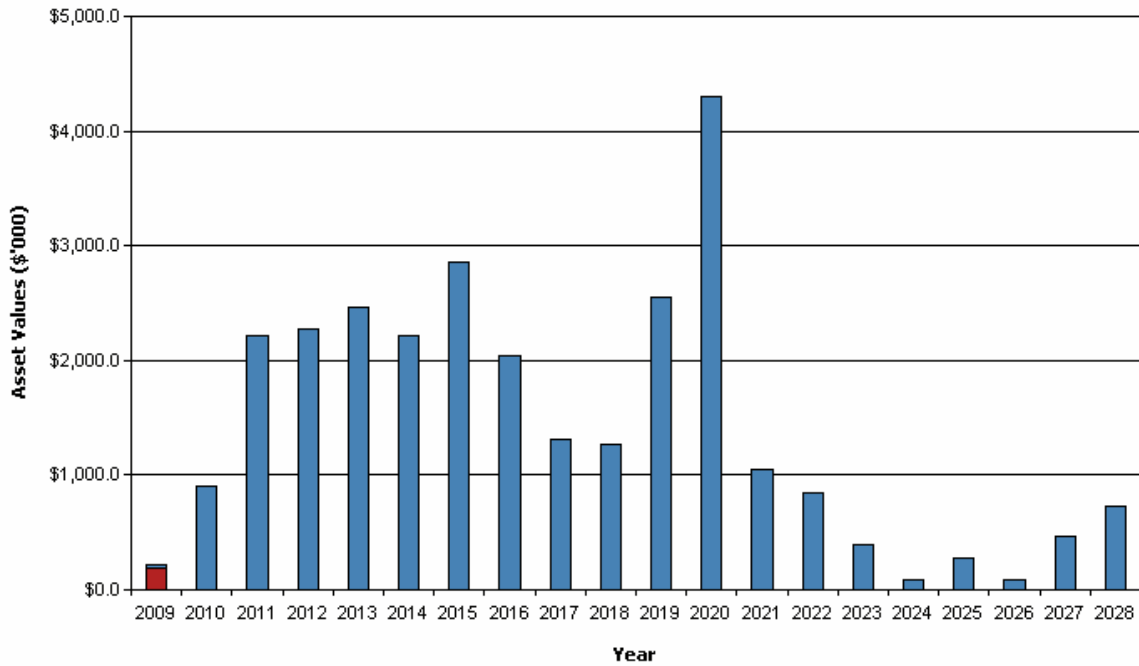
## **Appendix A – Website Outputs for Individual Transport Asset Types**

## ROADS (Seals and Pavements)

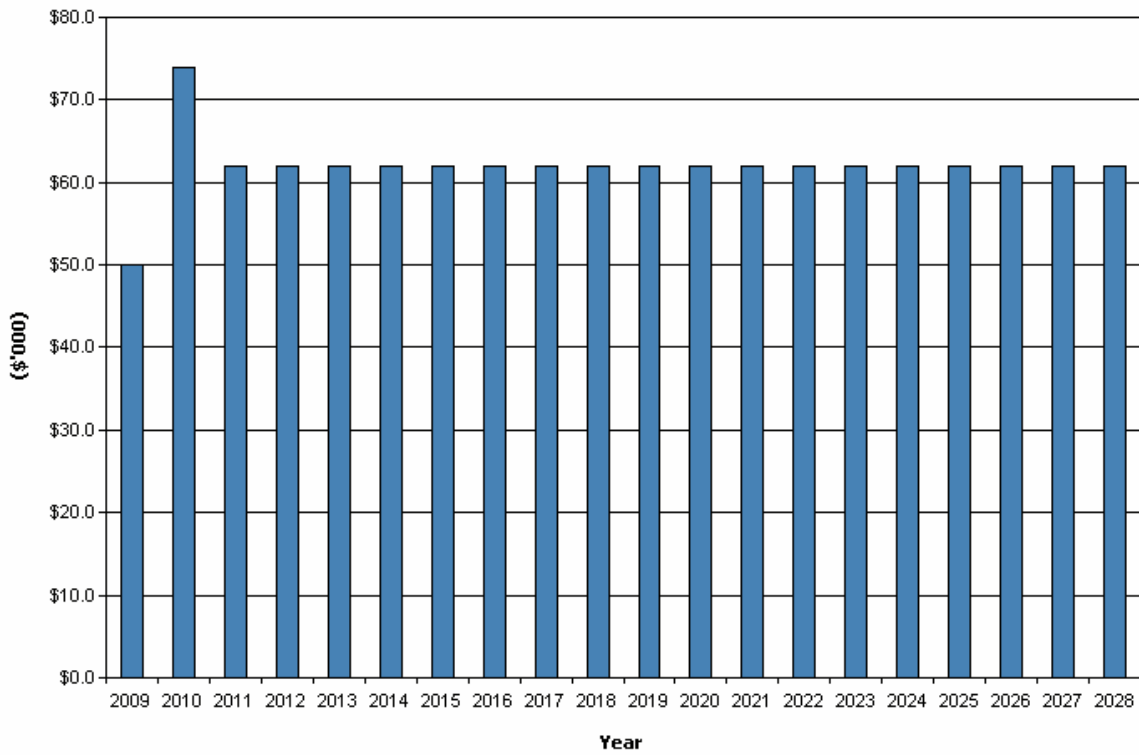
Adelaide Hills Council - Age Profile (Transport Sealed Roads)



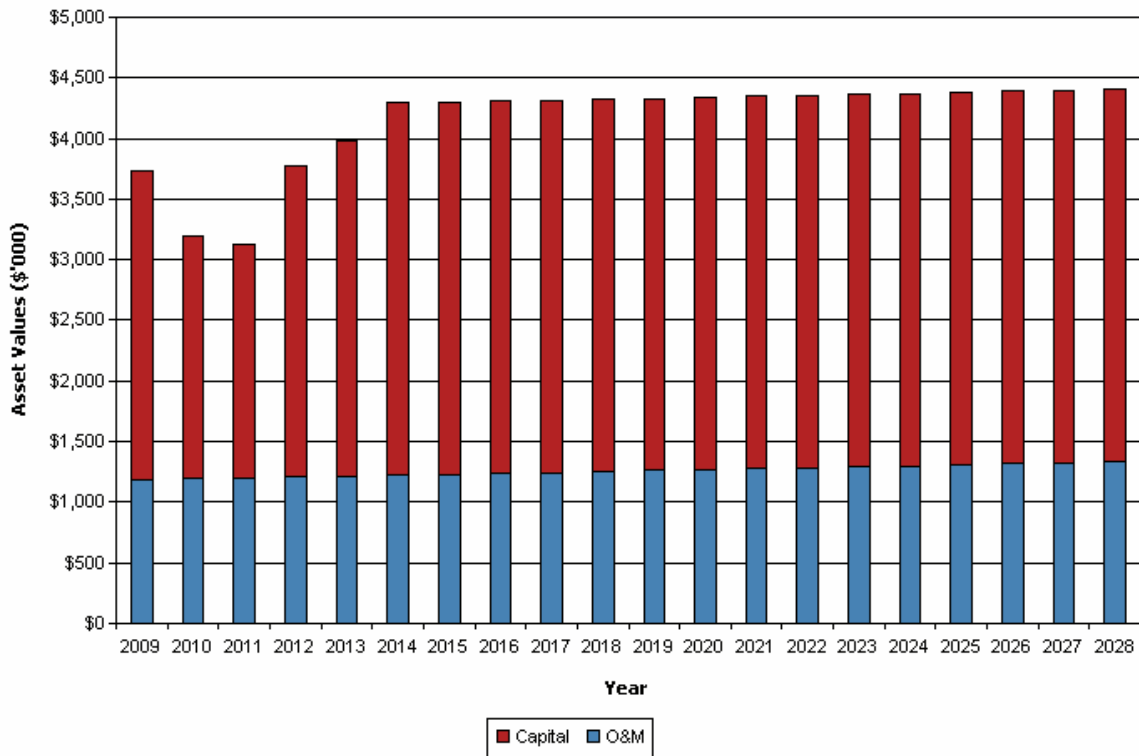
Adelaide Hills Council - Projected Capital Renewal Expenditure (Transport Sealed Roads)



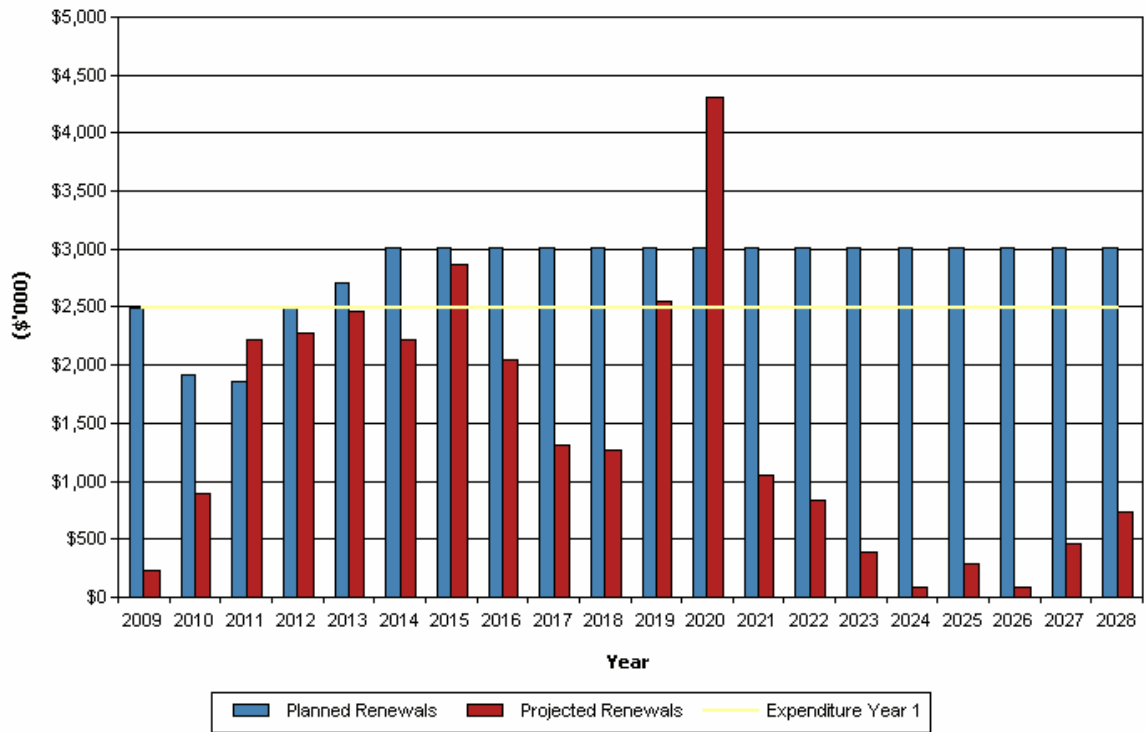
**Adelaide Hills Council - Planned Capital Upgrade/New Expenditure (Transport Sealed Roads)**



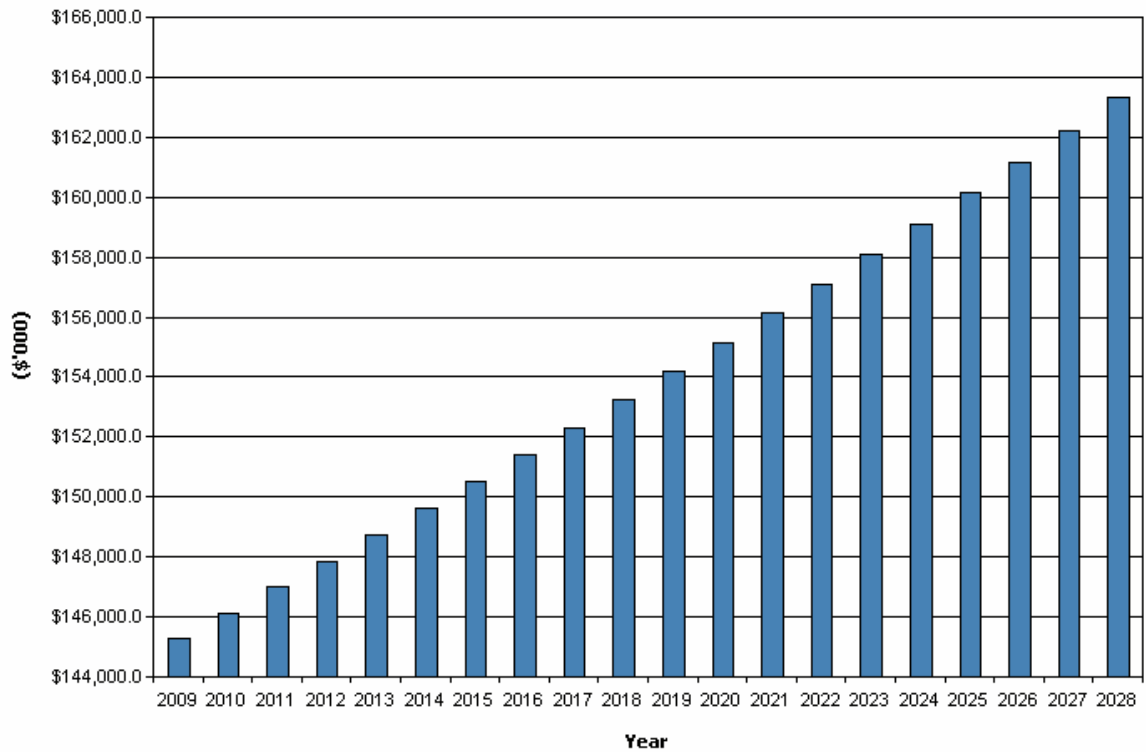
**Adelaide Hills Council - Planned Operating and Capital Expenditure (Transport Sealed Roads)**



**Adelaide Hills Council - Projected & Planned Renewals and Current Renewal Expenditure (Transport Sealed Roads)**

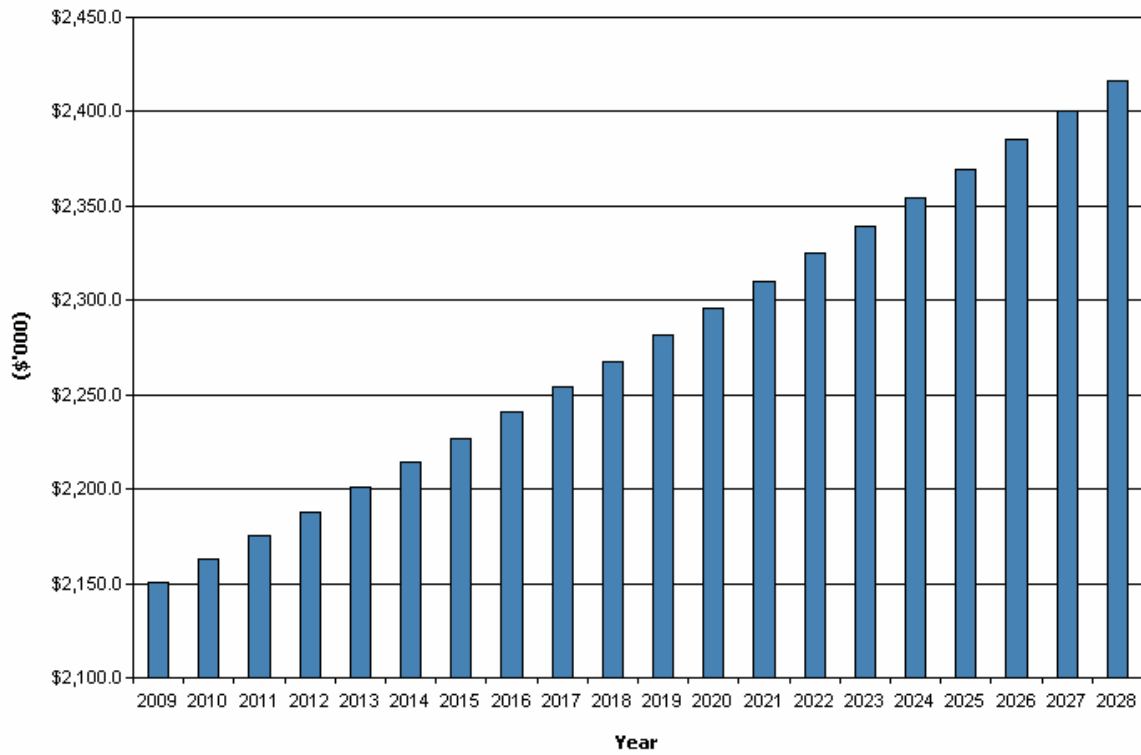


**Adelaide Hills Council - Projected Asset Values (Transport Sealed Roads)**

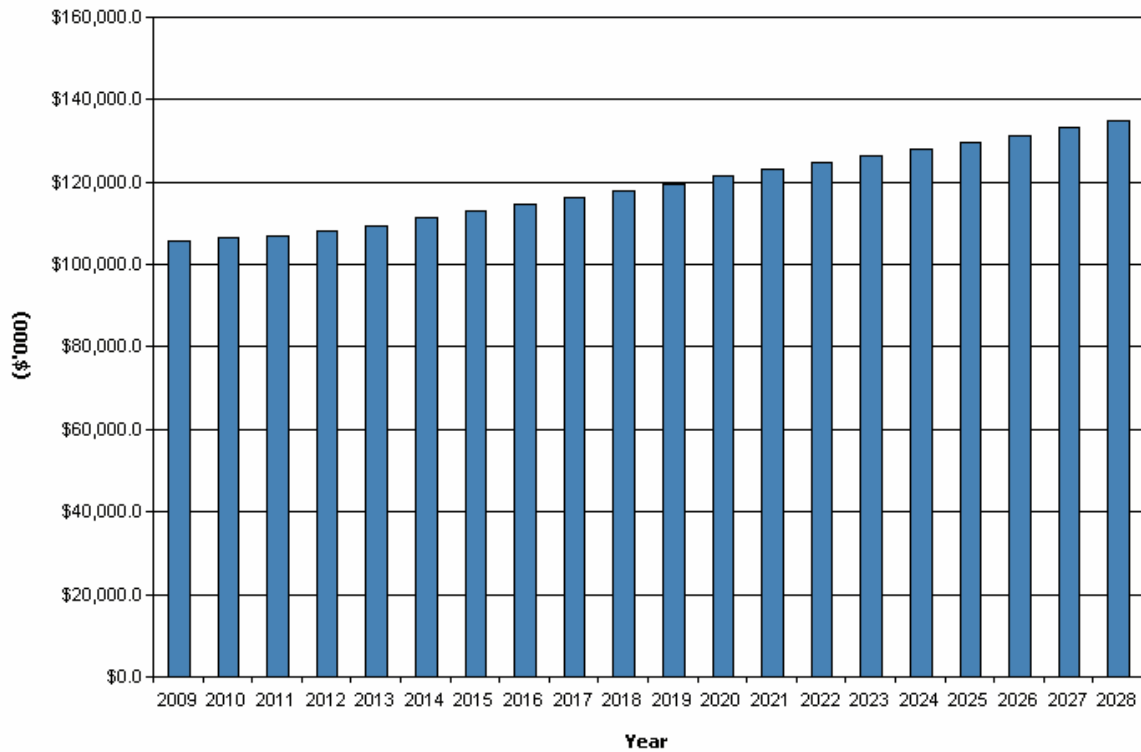




**Adelaide Hills Council - Projected Depreciation Expense (Transport Sealed Roads)**

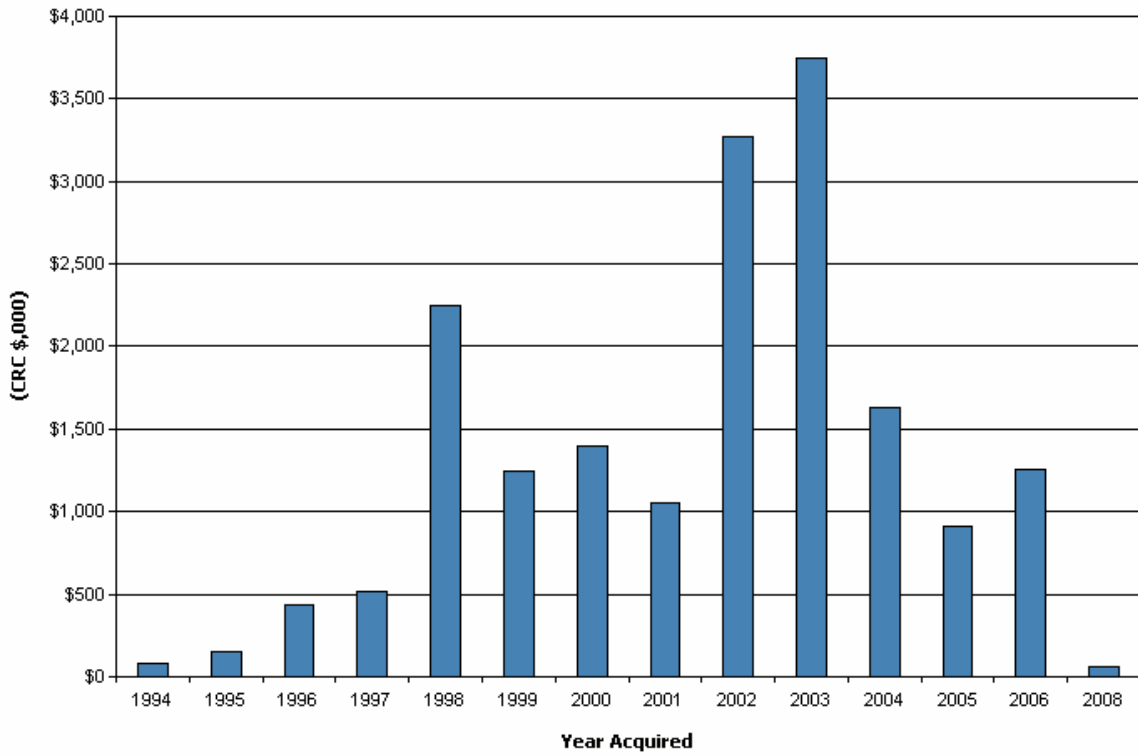


**Adelaide Hills Council - Projected Depreciated Replacement Cost (Transport Sealed Roads)**

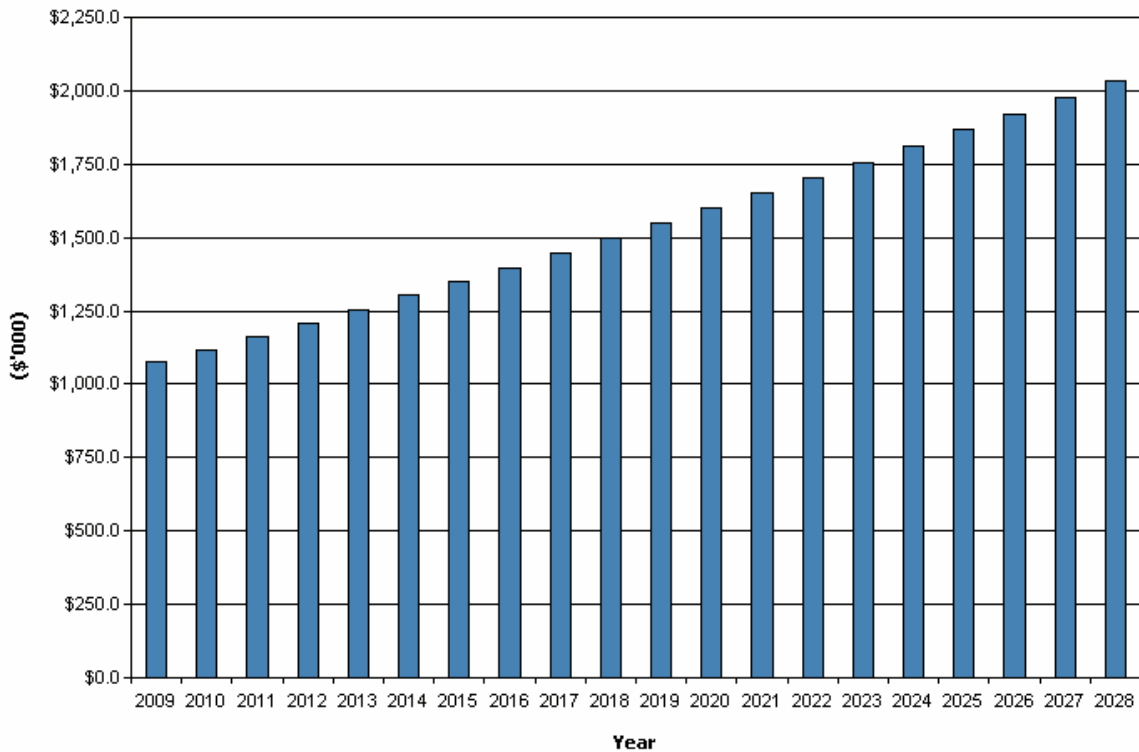


## ROADS (Unsealed)

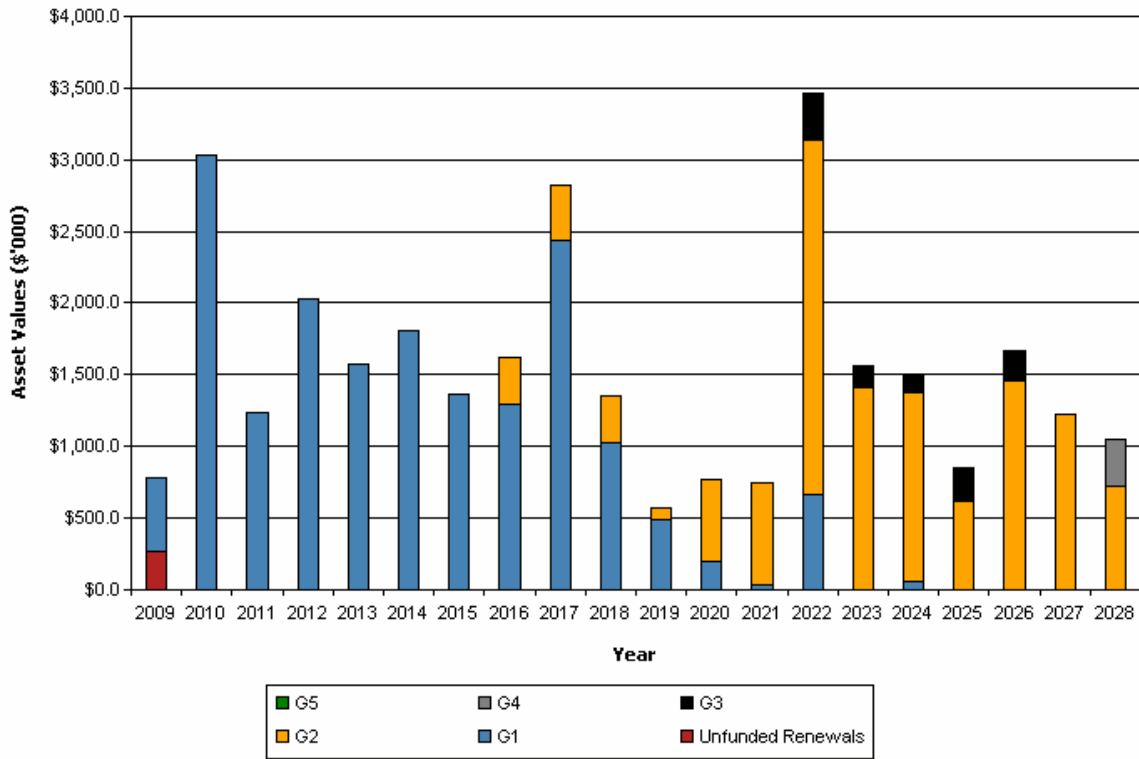
Adelaide Hills Council - Age Profile (Transport Unsealed Roads)



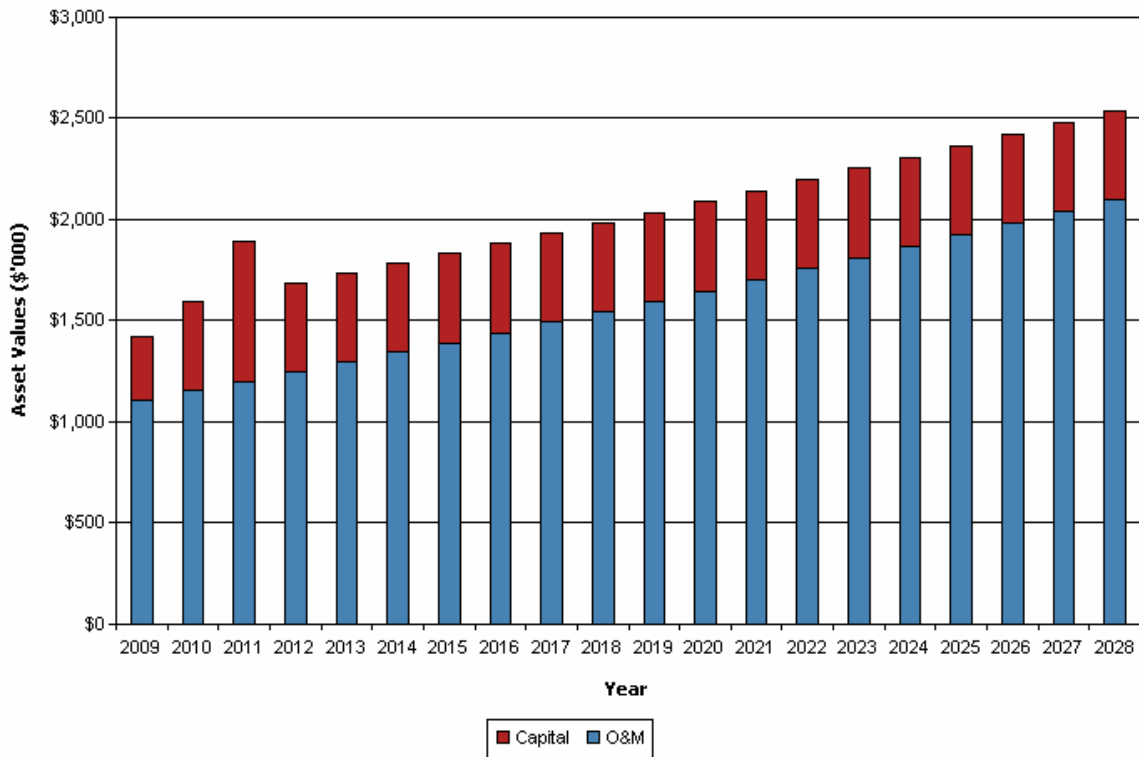
Adelaide Hills Council - Planned Maintenance Expenditure (Transport Unsealed Roads)



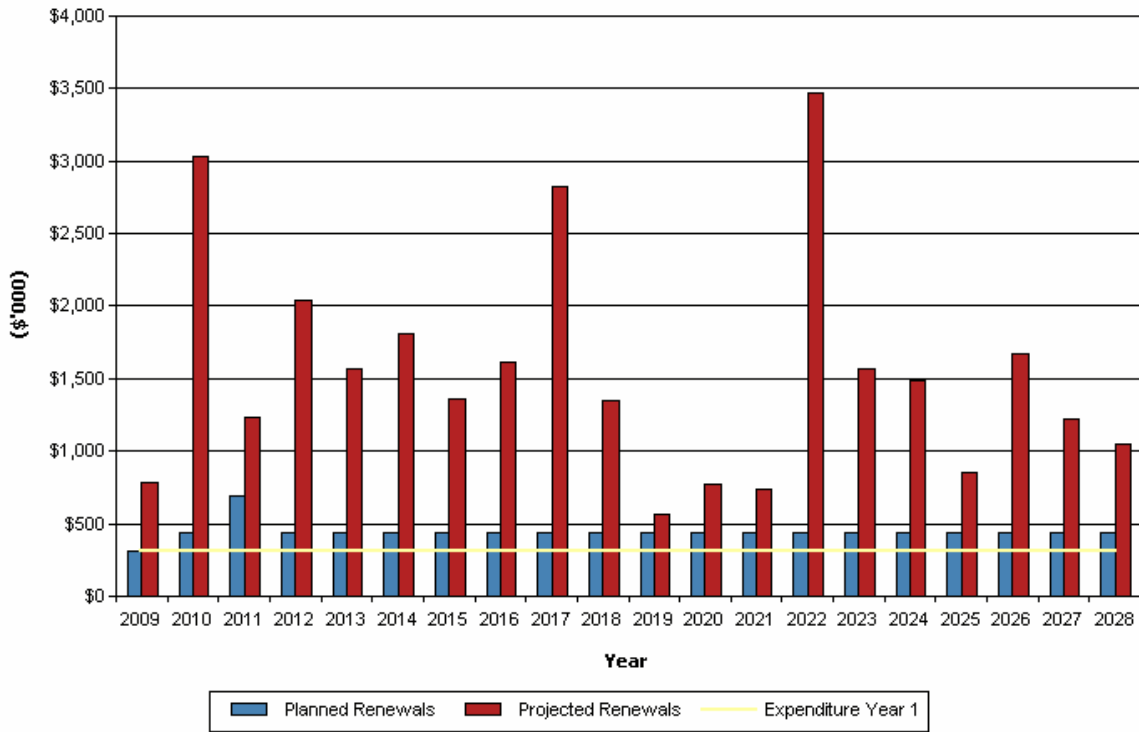
Adelaide Hills Council - Projected Capital Renewal Expenditure (Transport Unsealed Roads)



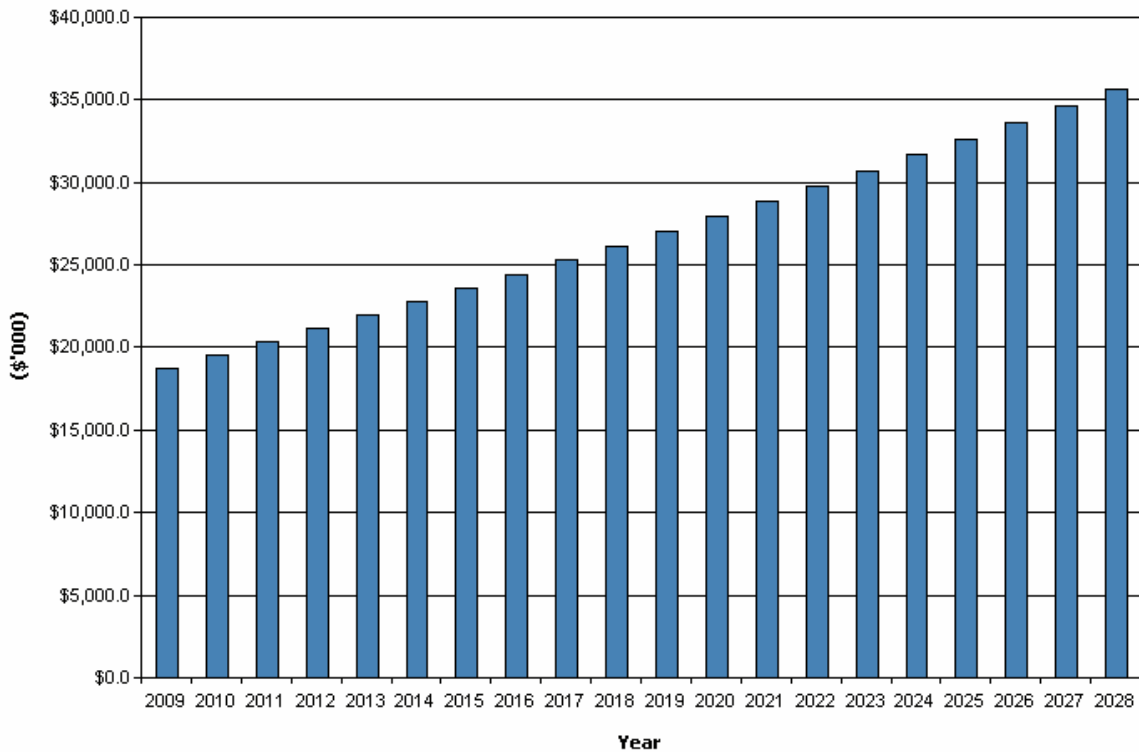
Adelaide Hills Council - Planned Operating and Capital Expenditure (Transport Unsealed Roads)



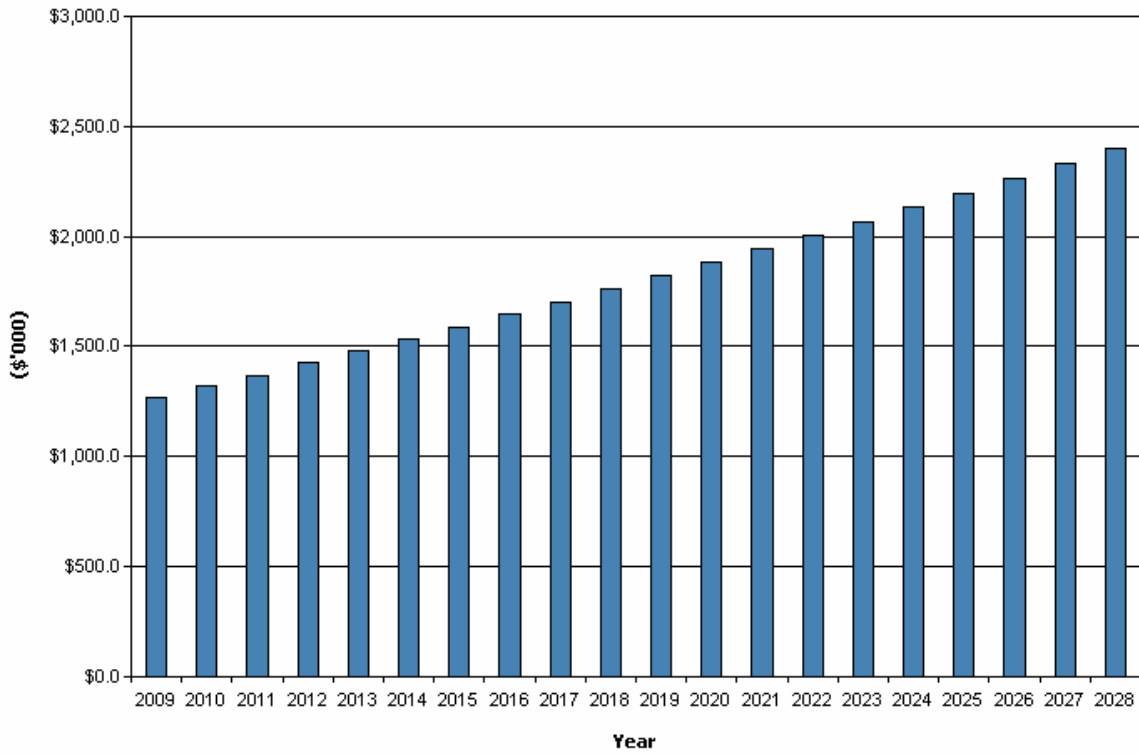
**Adelaide Hills Council - Projected & Planned Renewals and Current Renewal Expenditure (Transport Unsealed Roads)**



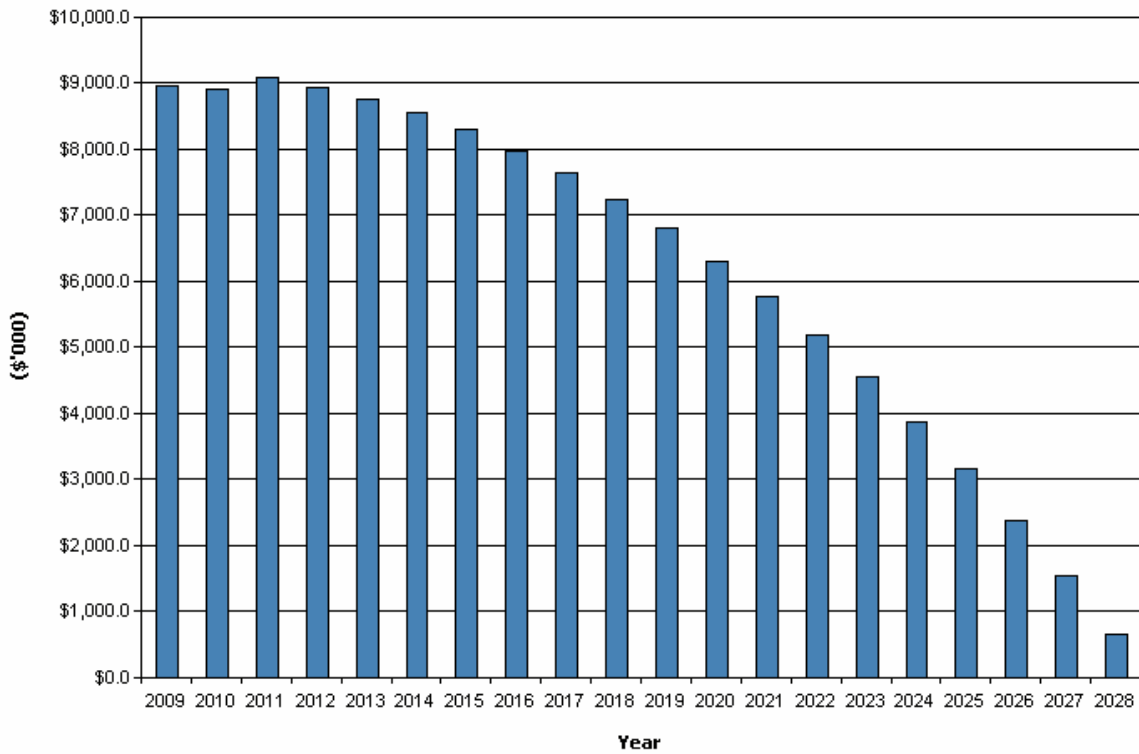
**Adelaide Hills Council - Projected Asset Values (Transport Unsealed Roads)**



**Adelaide Hills Council - Projected Depreciation Expense (Transport Unsealed Roads)**

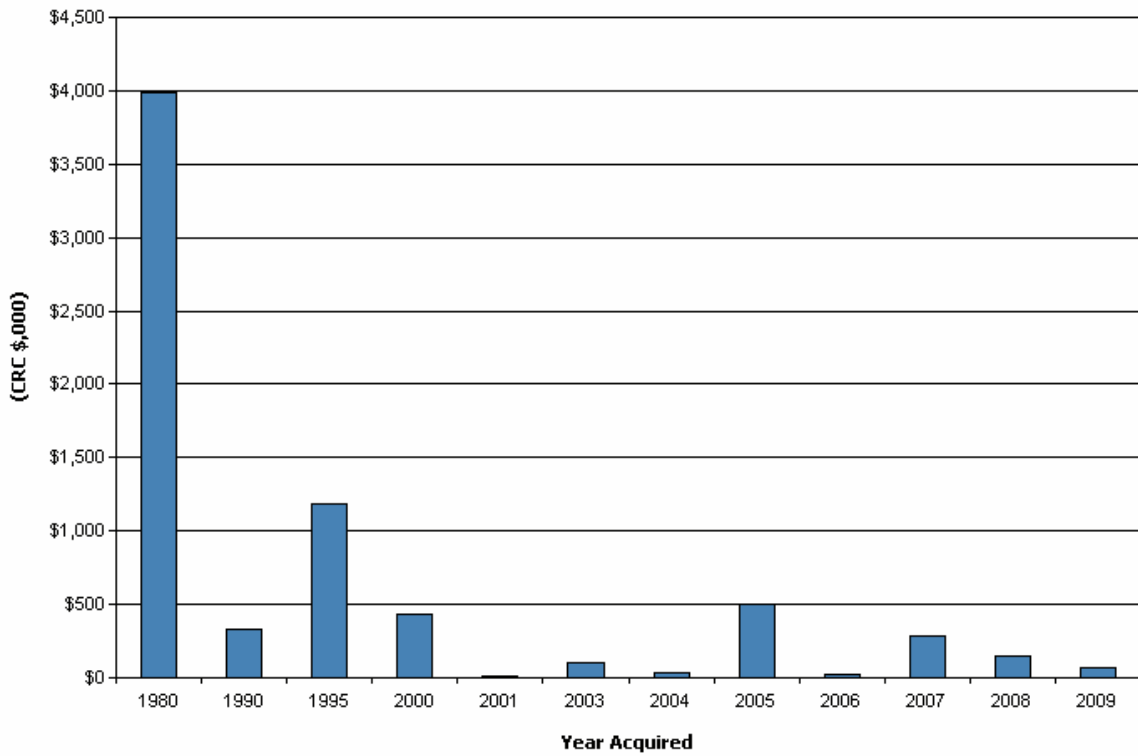


**Adelaide Hills Council - Projected Depreciated Replacement Cost (Transport Unsealed Roads)**

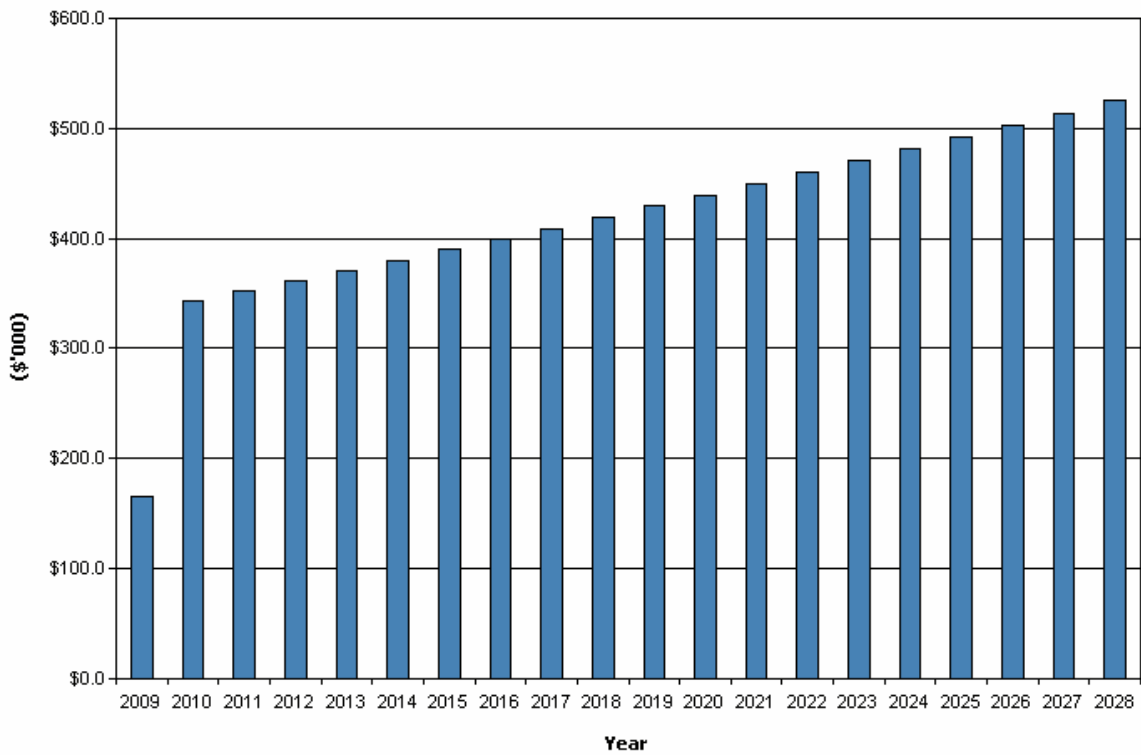


### FOOTPATHS (All Types)

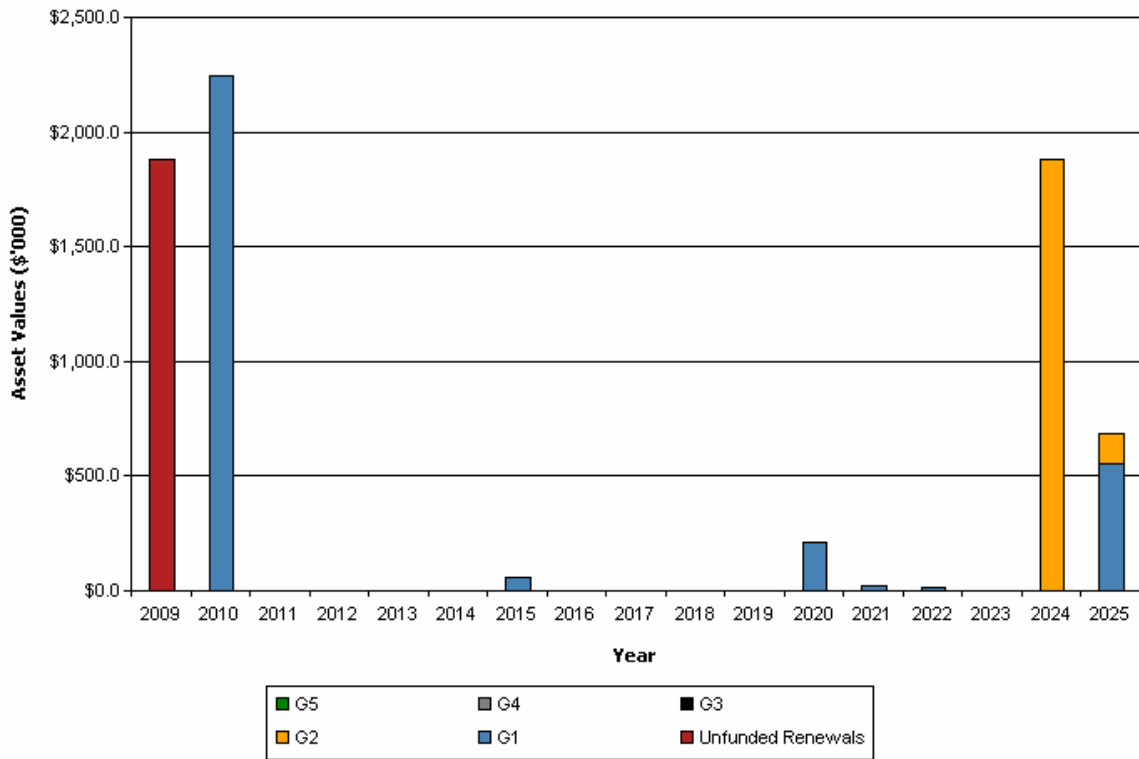
Adelaide Hills Council - Age Profile (Transport Footpaths)



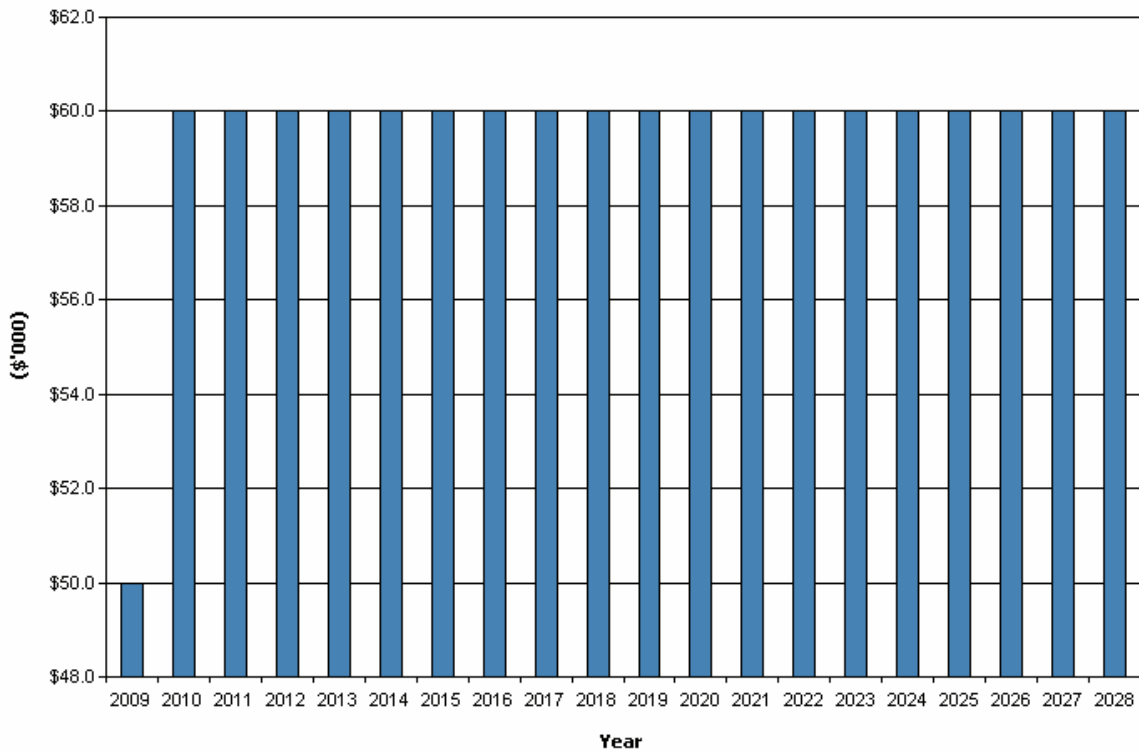
Adelaide Hills Council - Planned Maintenance Expenditure (Transport Footpaths)



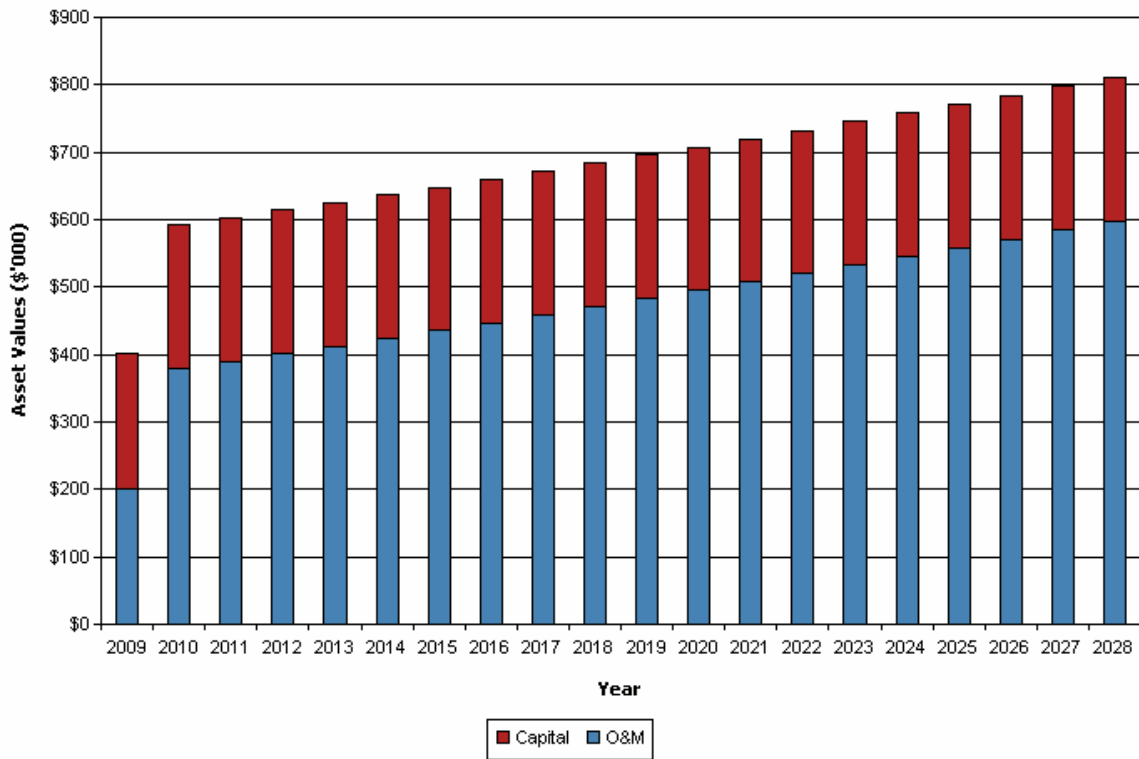
Adelaide Hills Council - Projected Capital Renewal Expenditure (Transport Footpaths)



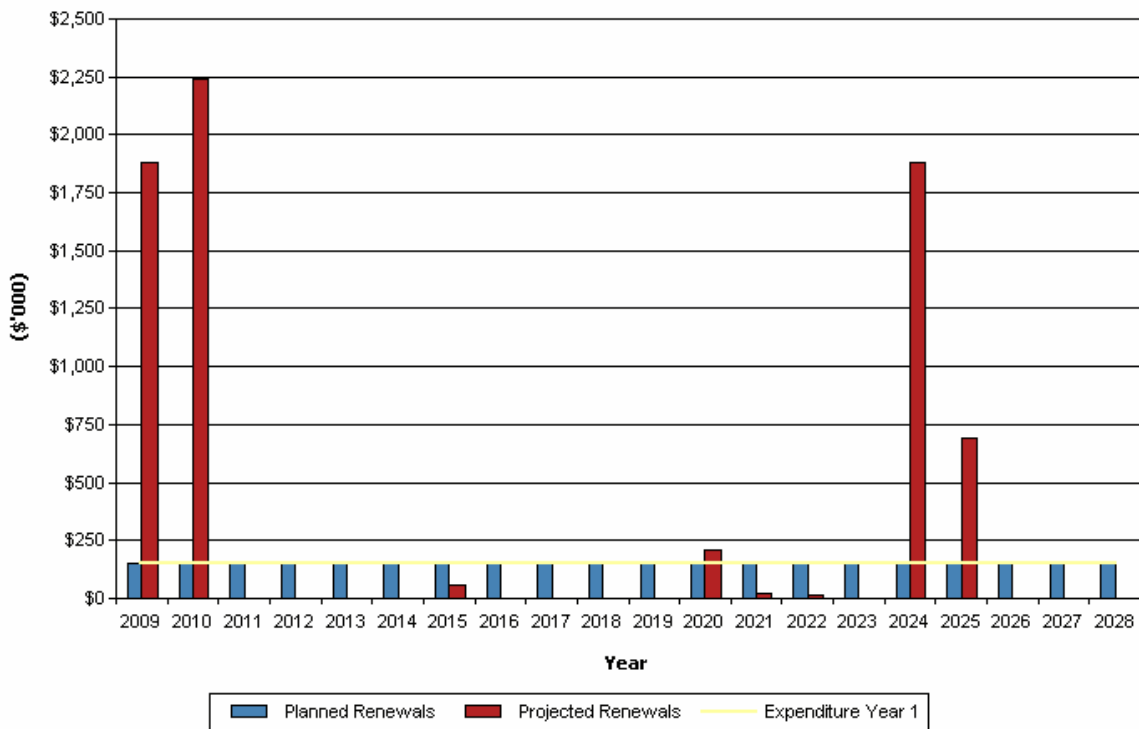
Adelaide Hills Council - Planned Capital Upgrade/New Expenditure (Transport Footpaths)



Adelaide Hills Council - Planned Operating and Capital Expenditure (Transport Footpaths)

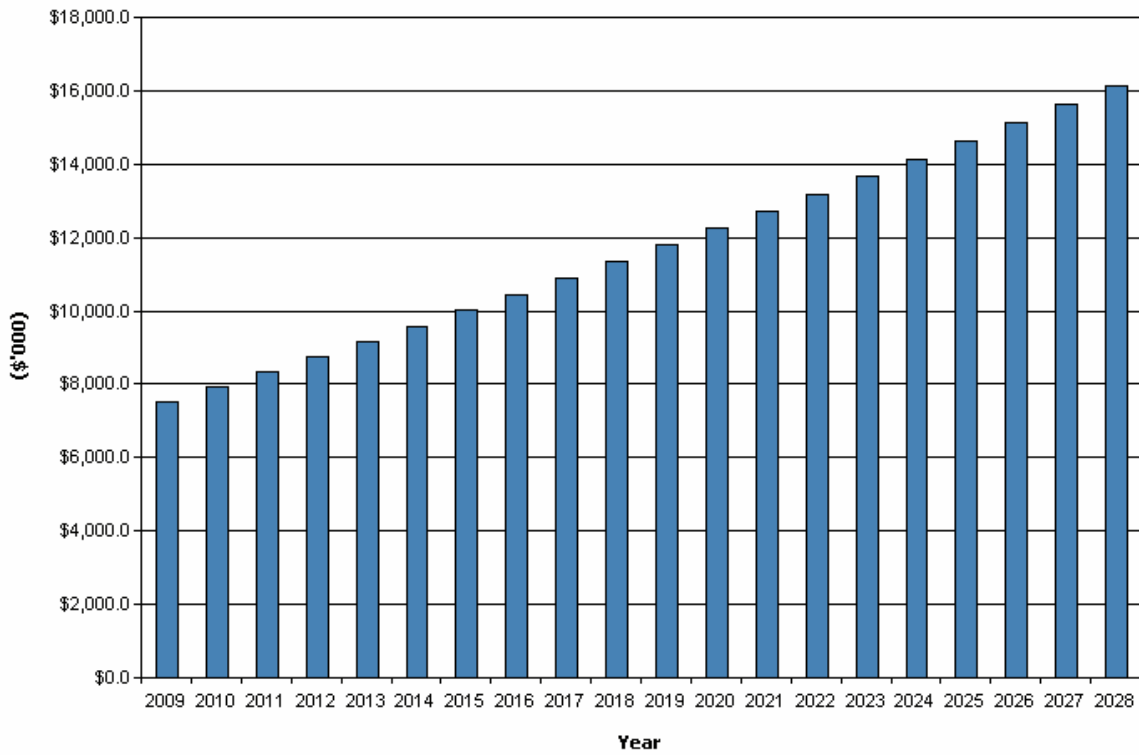


Adelaide Hills Council - Projected & Planned Renewals and Current Renewal Expenditure (Transport Footpaths)

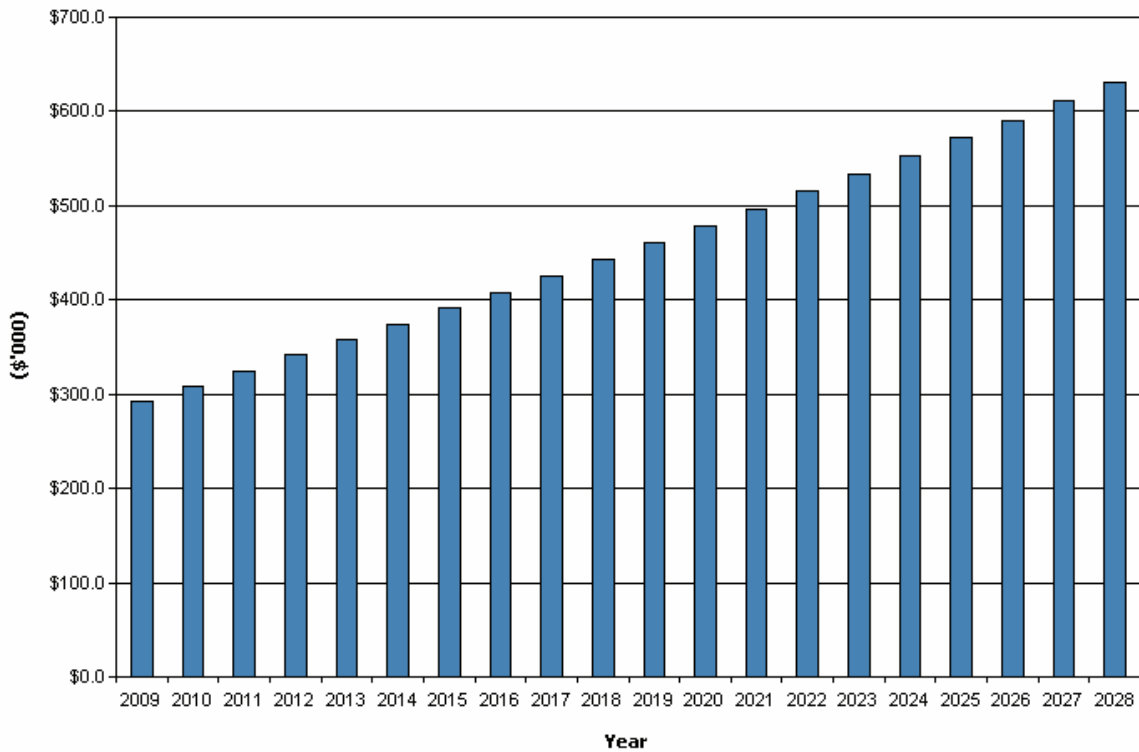


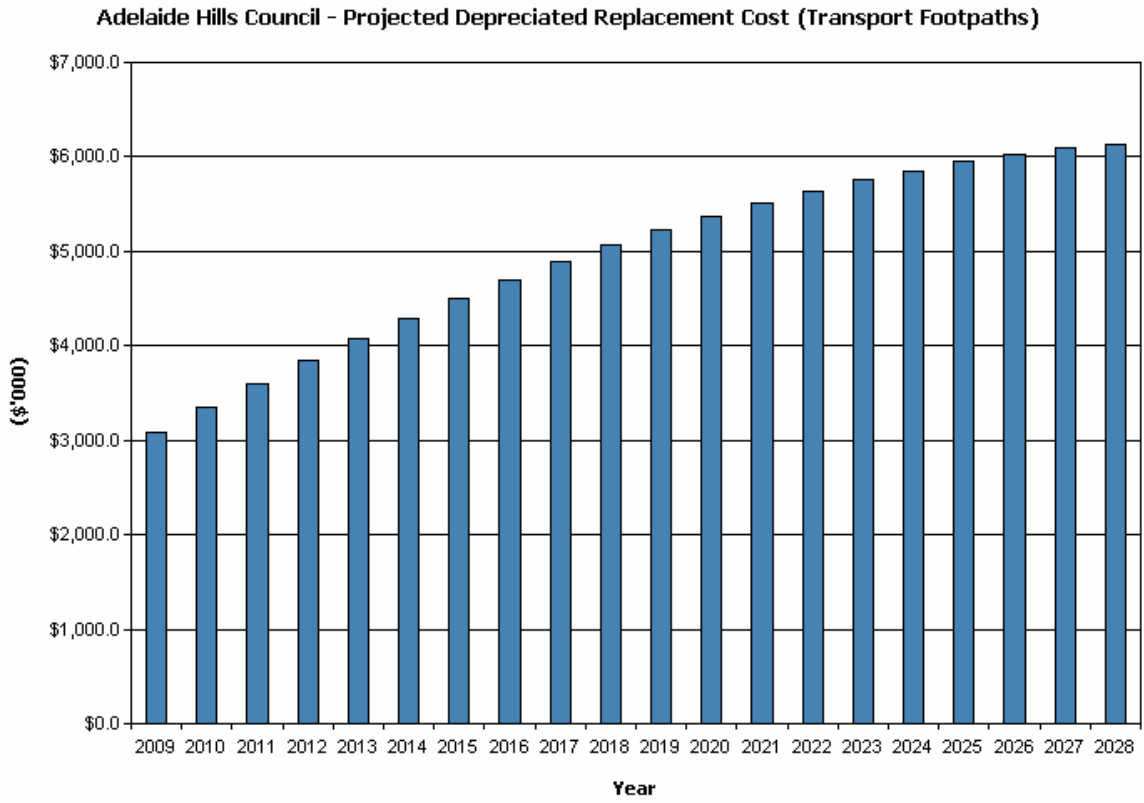


**Adelaide Hills Council - Projected Asset Values (Transport Footpaths)**



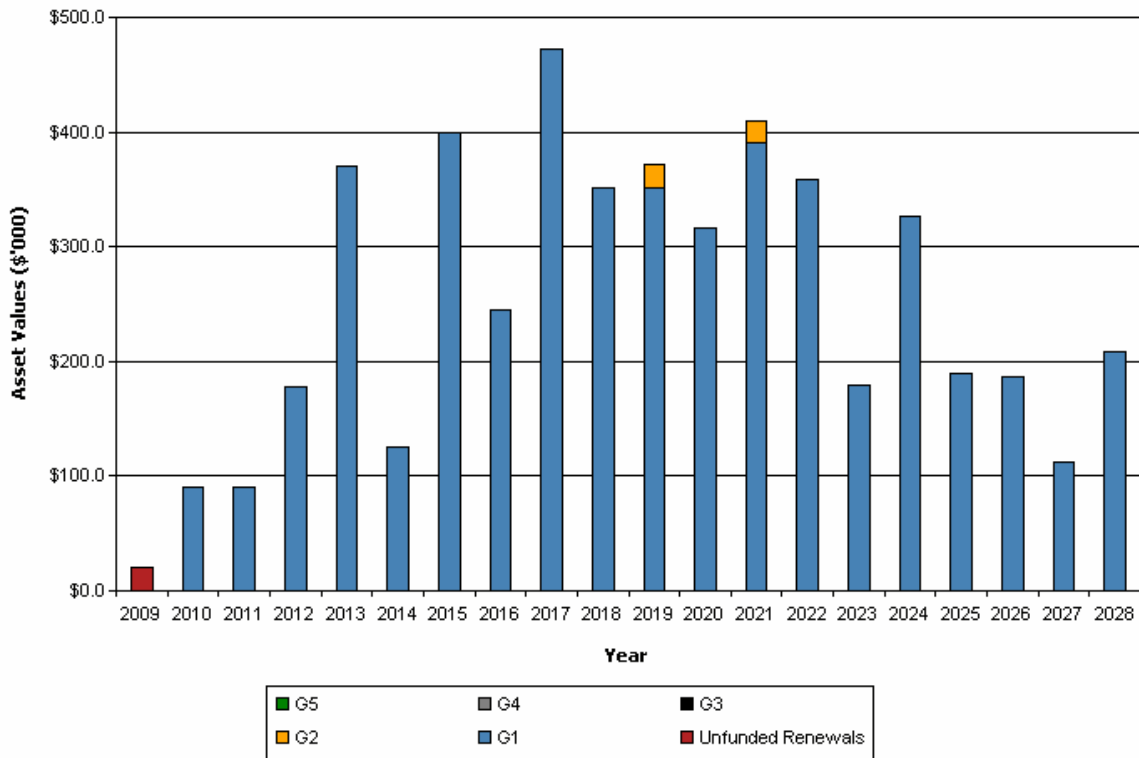
**Adelaide Hills Council - Projected Depreciation Expense (Transport Footpaths)**



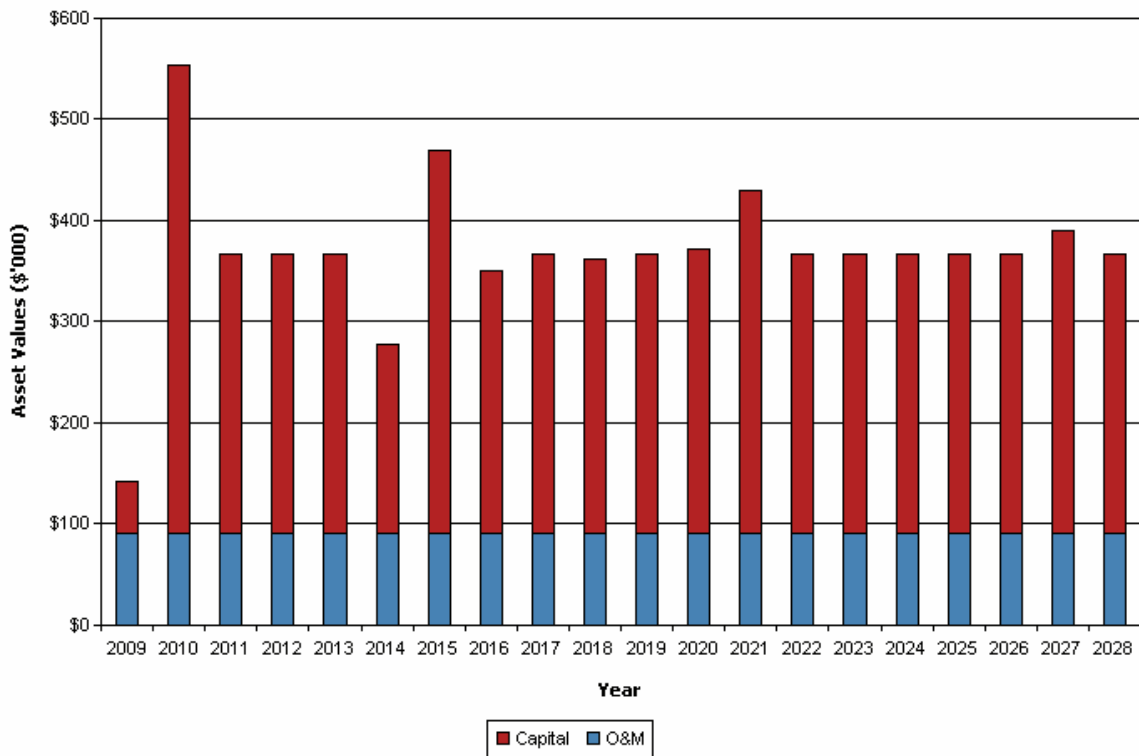


### BRIDGES (All Types)

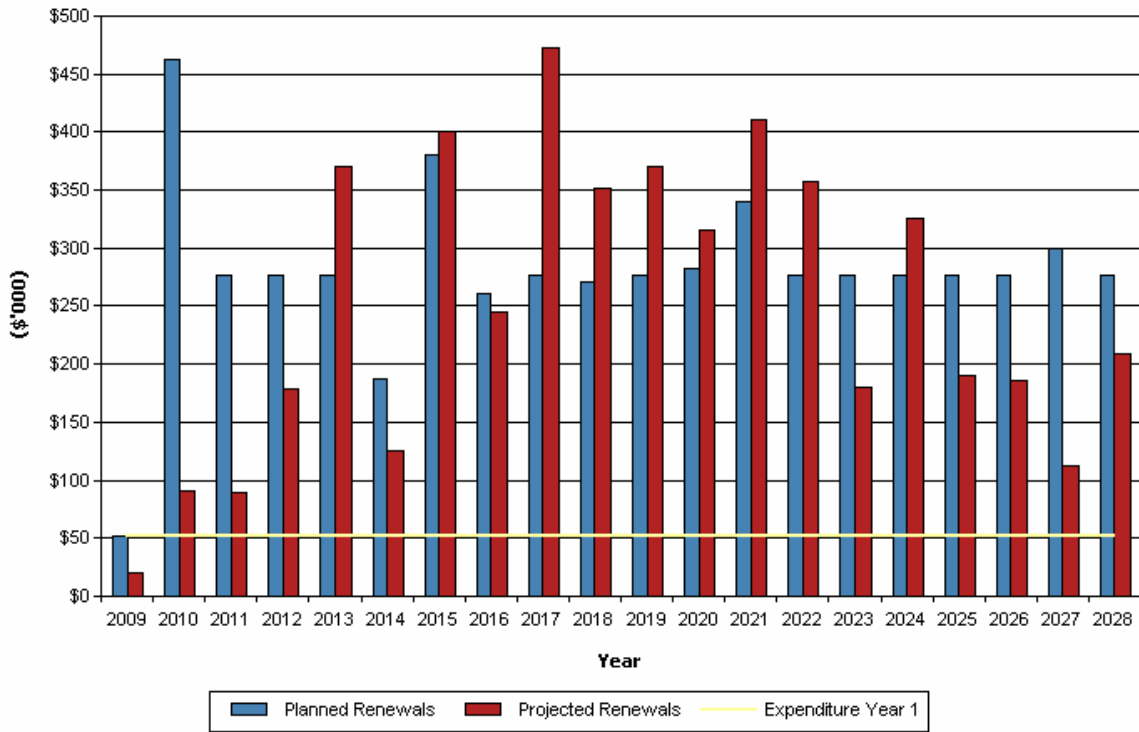
Adelaide Hills Council - Projected Capital Renewal Expenditure (Transport Bridges)



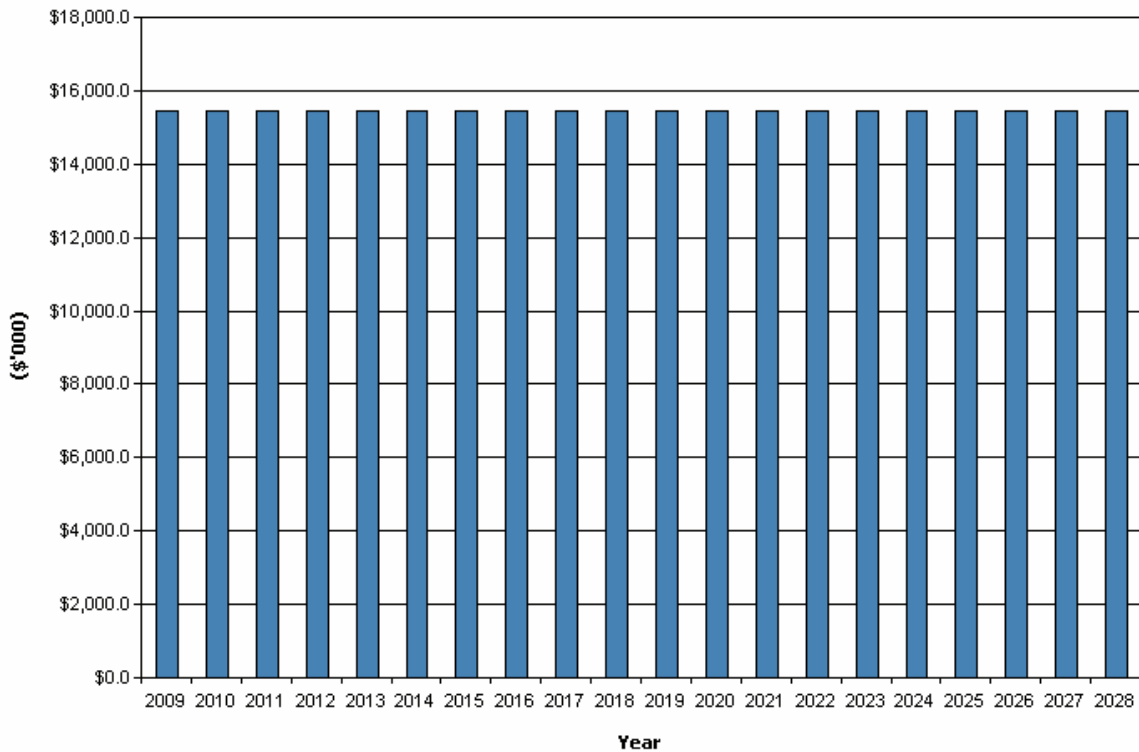
Adelaide Hills Council - Planned Operating and Capital Expenditure (Transport Bridges)



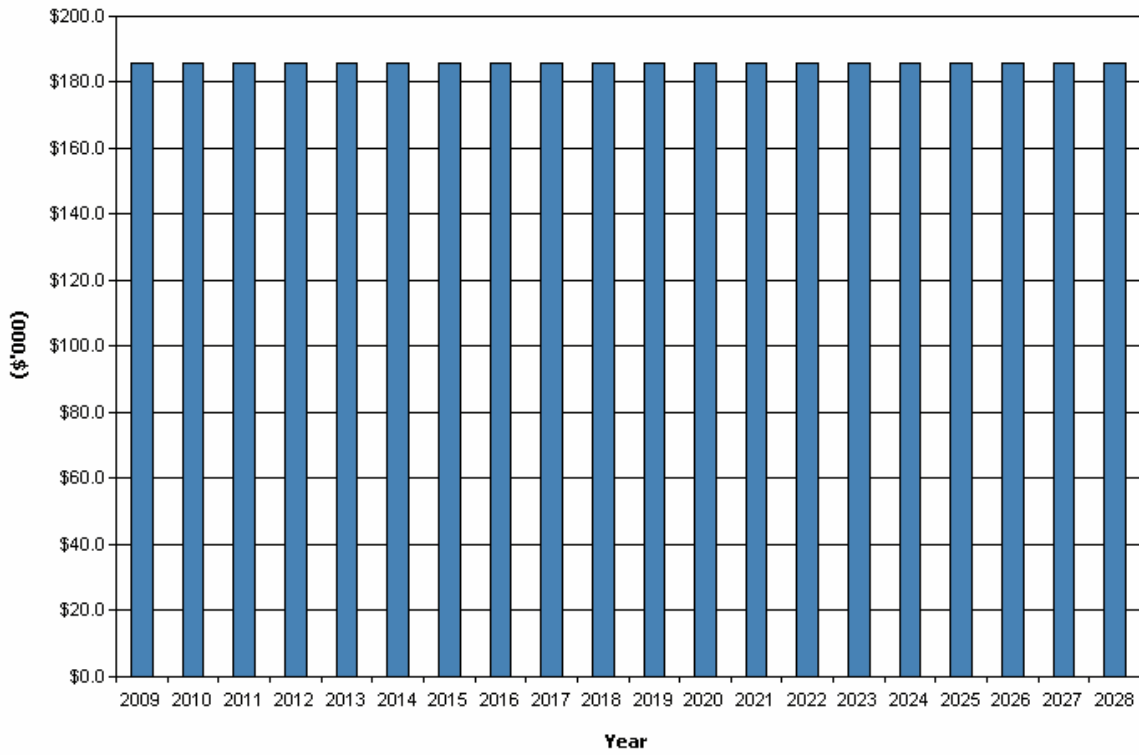
**Adelaide Hills Council - Projected & Planned Renewals and Current Renewal Expenditure (Transport Bridges)**



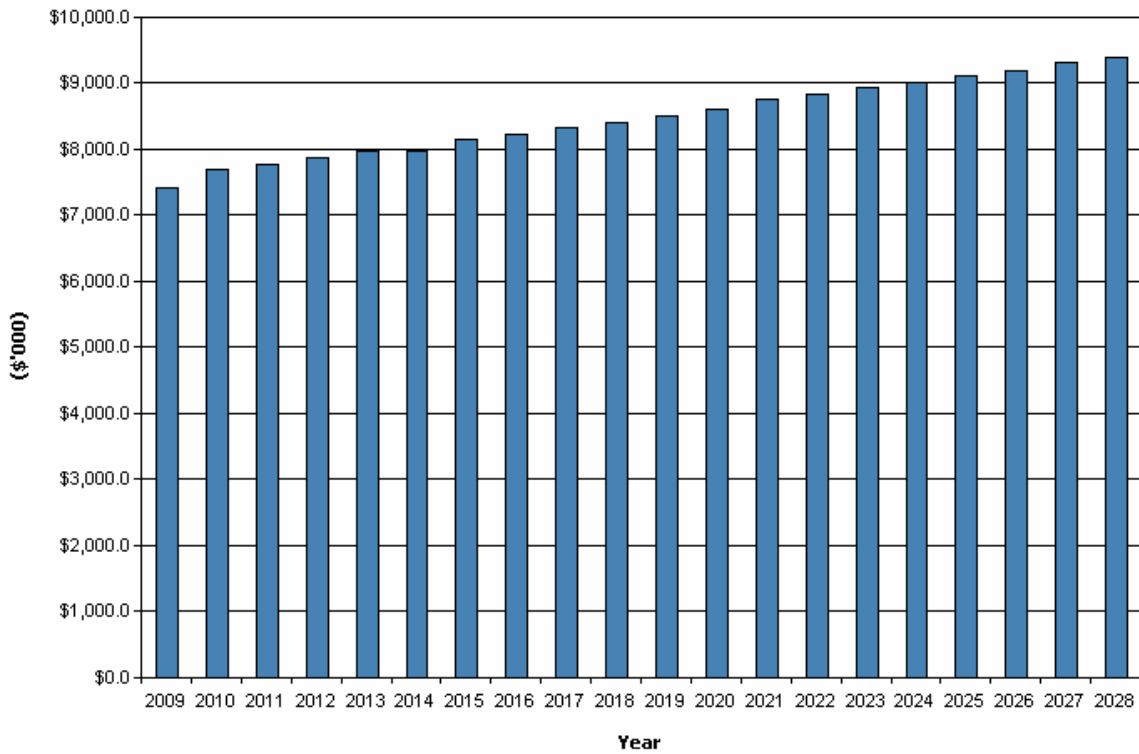
**Adelaide Hills Council - Projected Asset Values (Transport Bridges)**



Adelaide Hills Council - Projected Depreciation Expense (Transport Bridges)

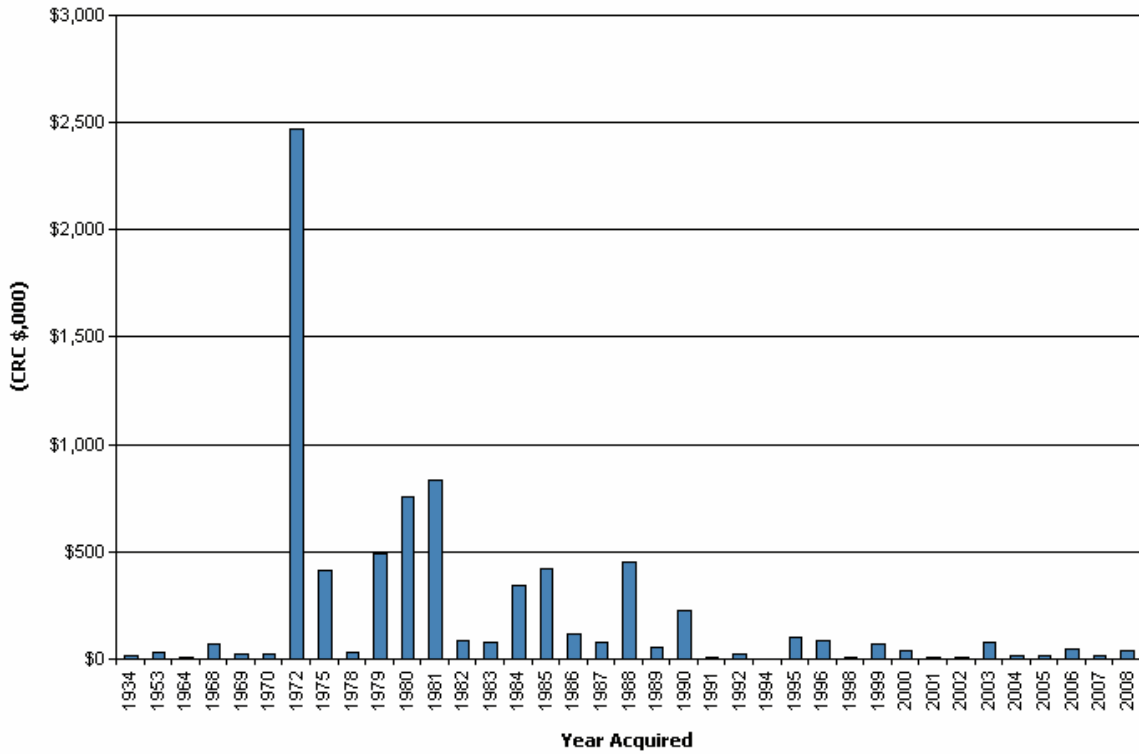


Adelaide Hills Council - Projected Depreciated Replacement Cost (Transport Bridges)

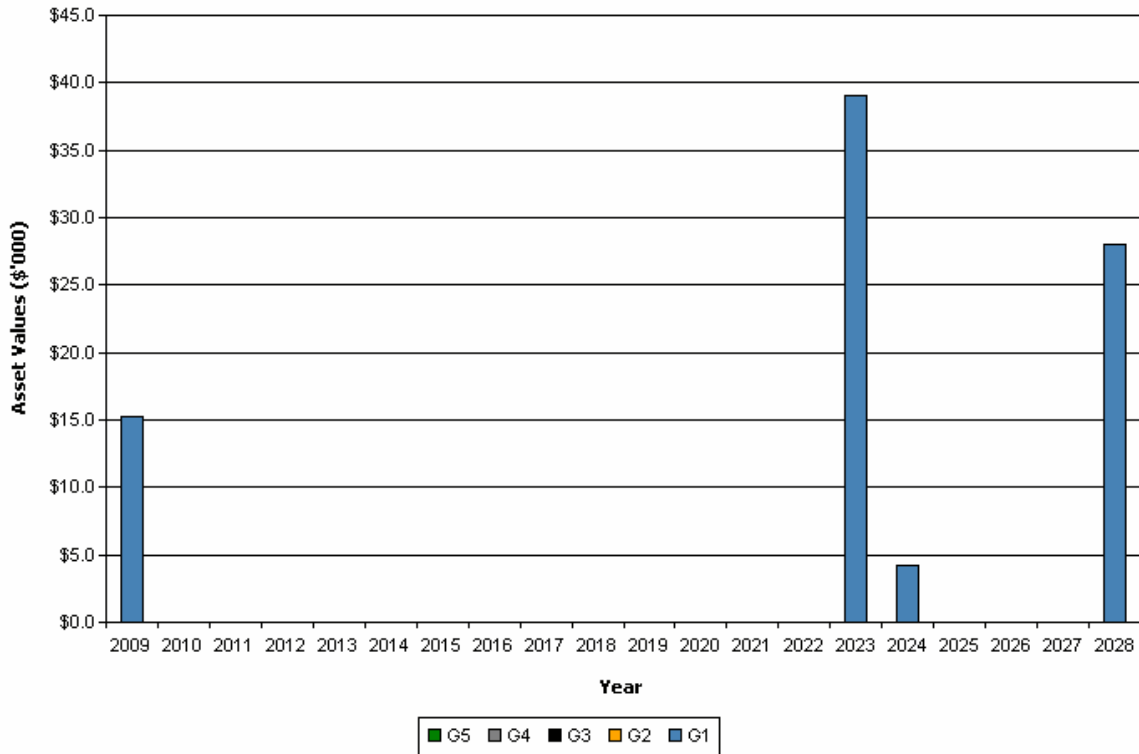


### KERBING (All Types)

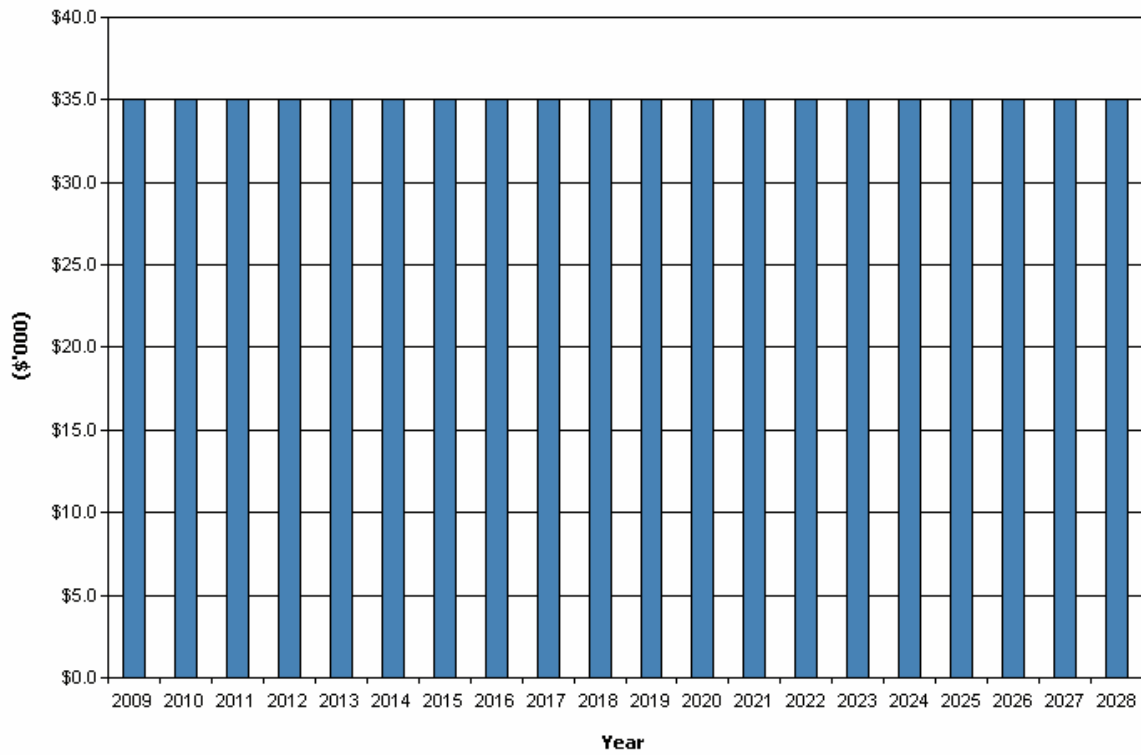
Adelaide Hills Council - Age Profile (Transport Kerbs)



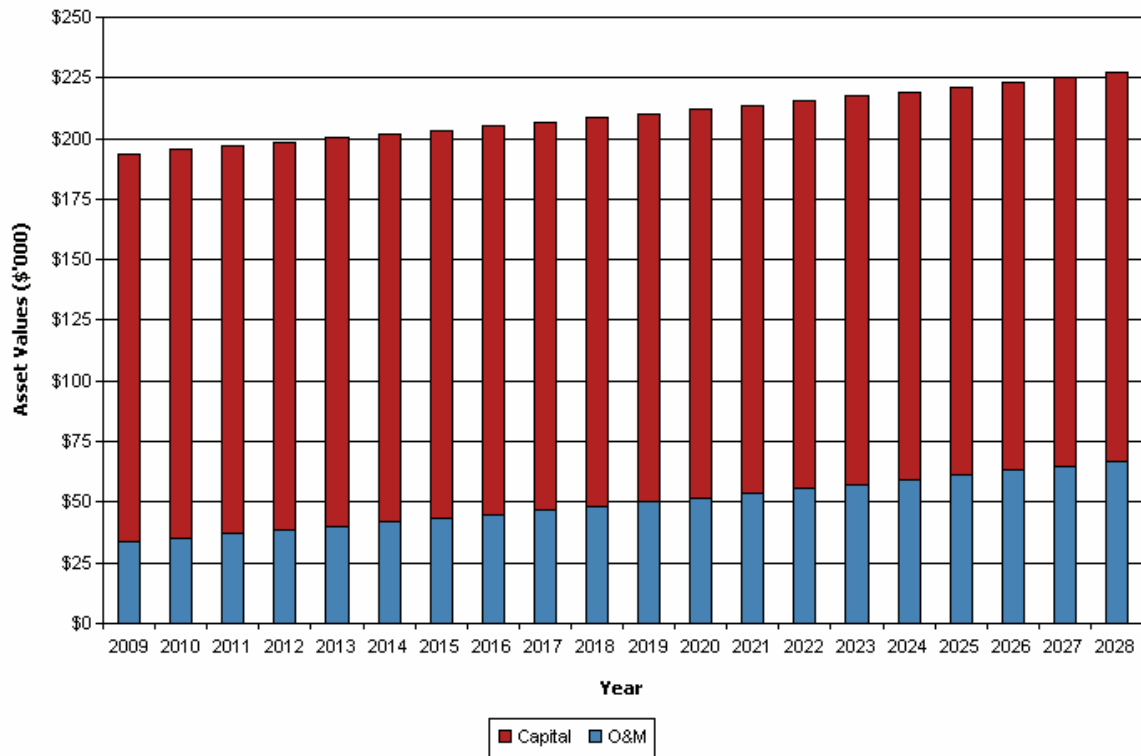
Adelaide Hills Council - Projected Capital Renewal Expenditure (Transport Kerbs)



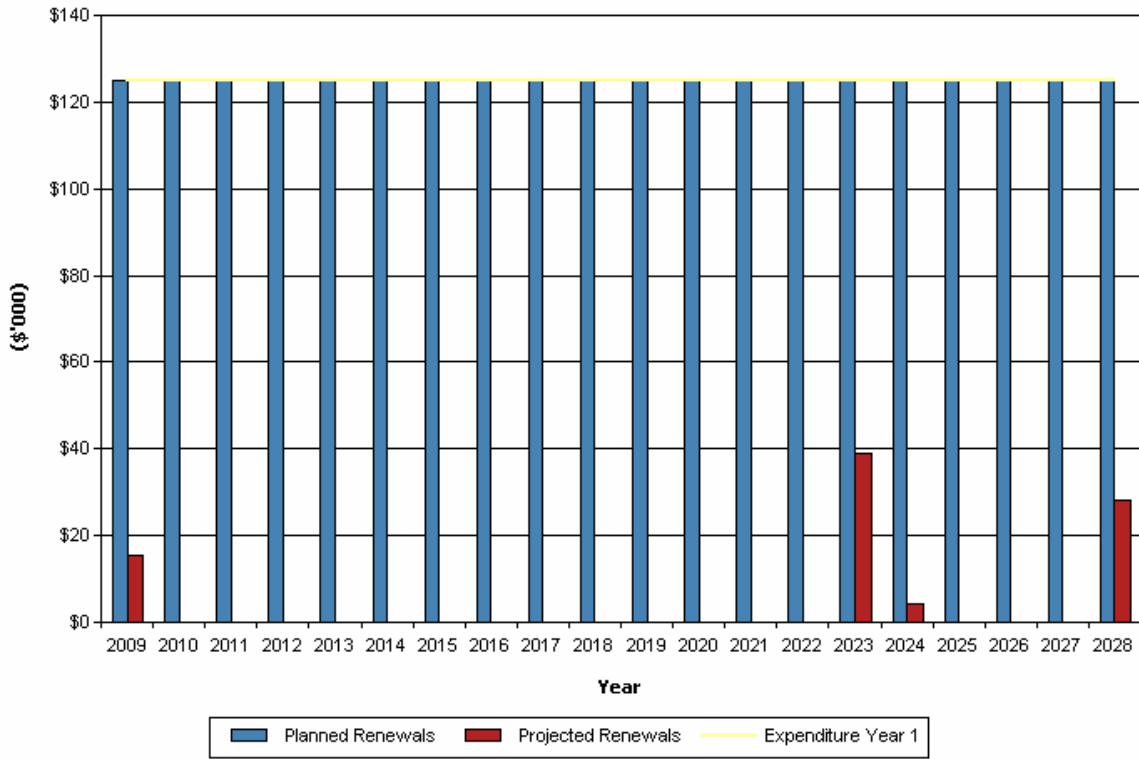
**Adelaide Hills Council - Planned Capital Upgrade/New Expenditure (Transport Kerbs)**



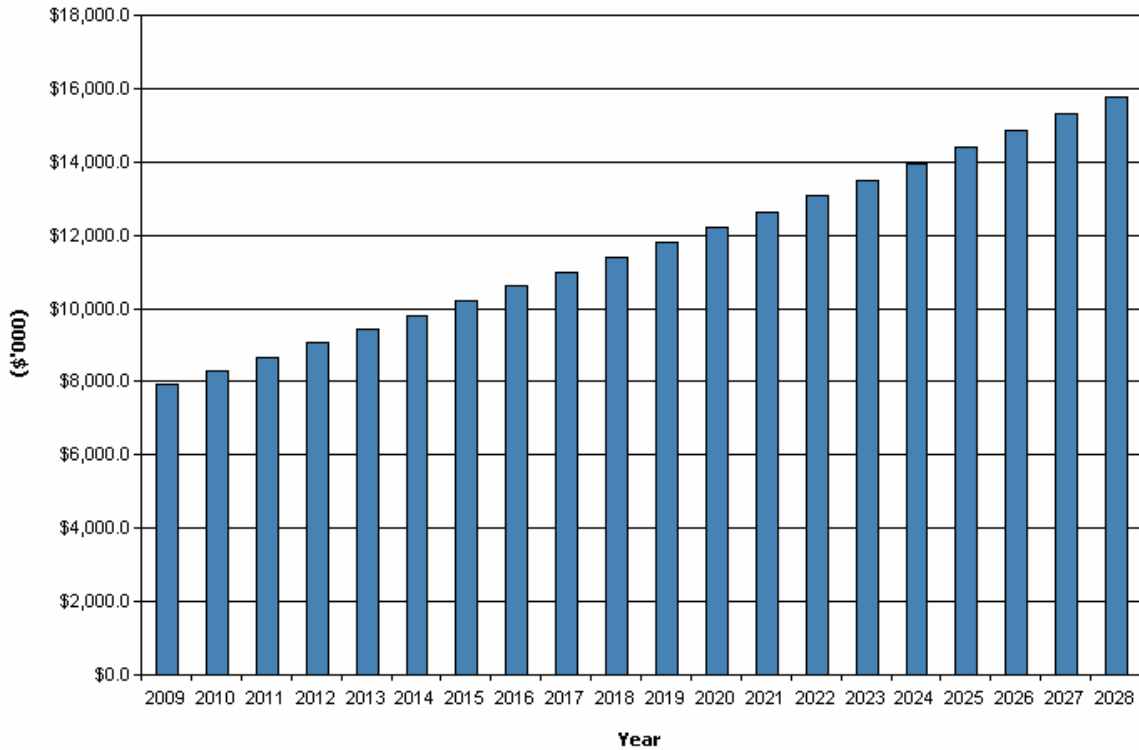
**Adelaide Hills Council - Planned Operating and Capital Expenditure (Transport Kerbs)**



**Adelaide Hills Council - Projected & Planned Renewals and Current Renewal Expenditure (Transport Kerbs)**

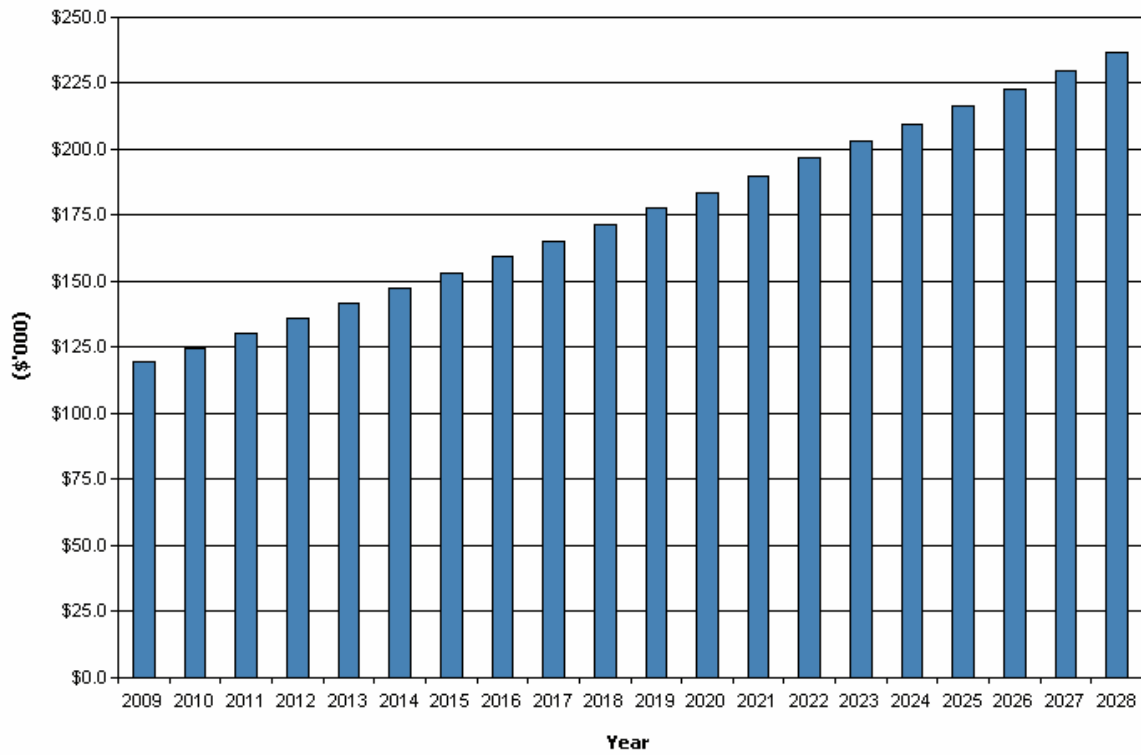


**Adelaide Hills Council - Projected Asset Values (Transport Kerbs)**

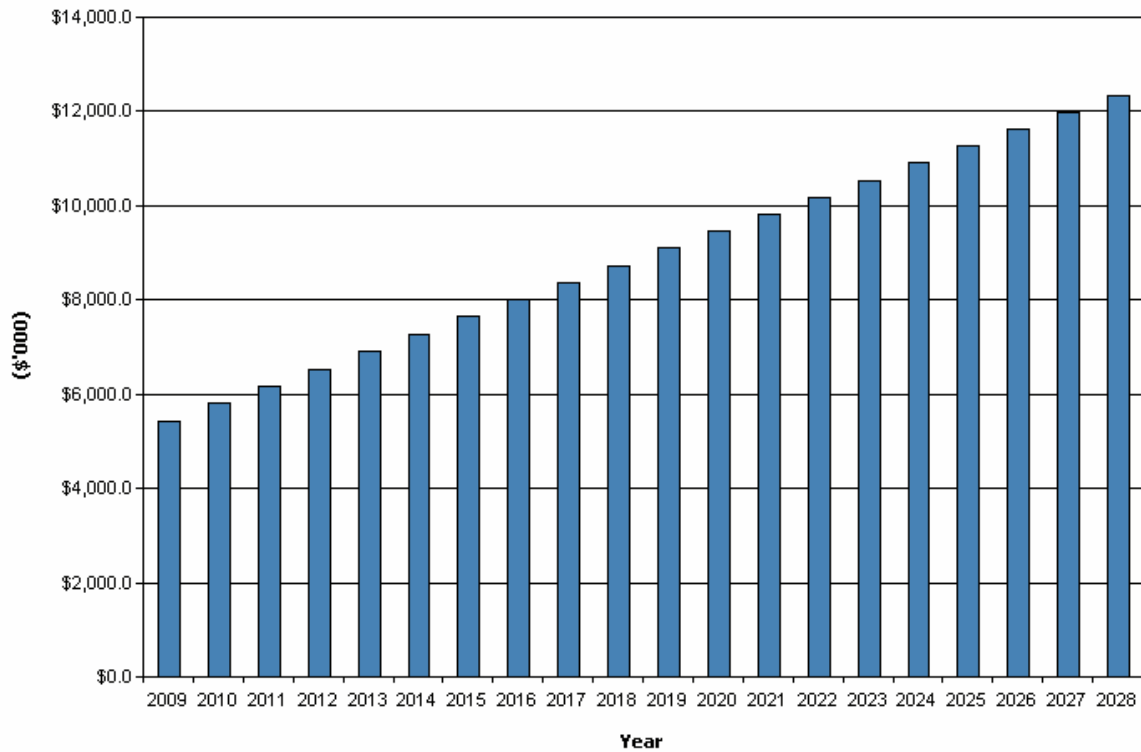




**Adelaide Hills Council - Projected Depreciation Expense (Transport Kerbs)**

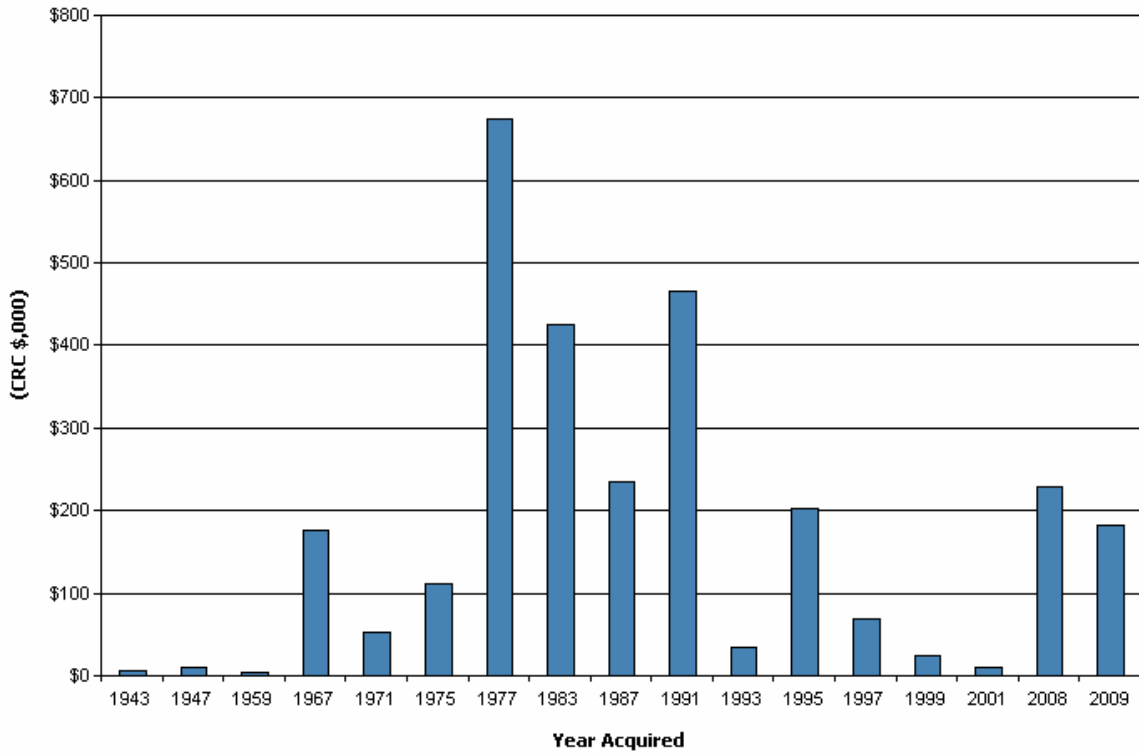


**Adelaide Hills Council - Projected Depreciated Replacement Cost (Transport Kerbs)**

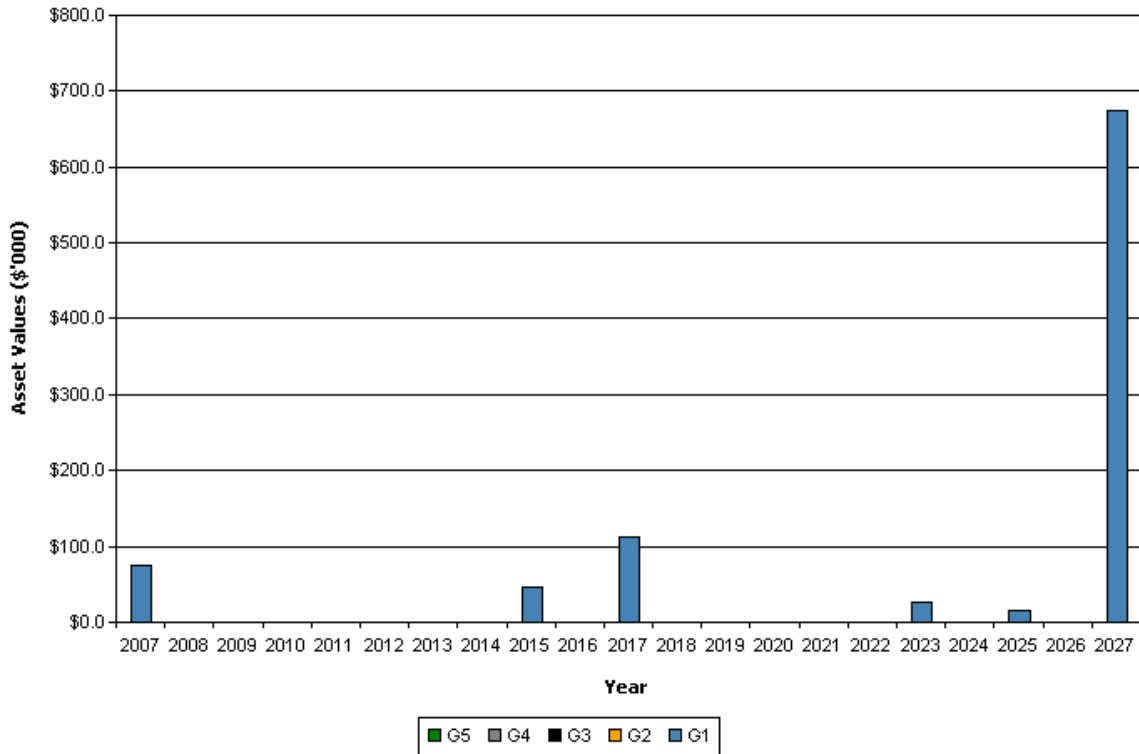


## RETAINING WALLS (All Types)

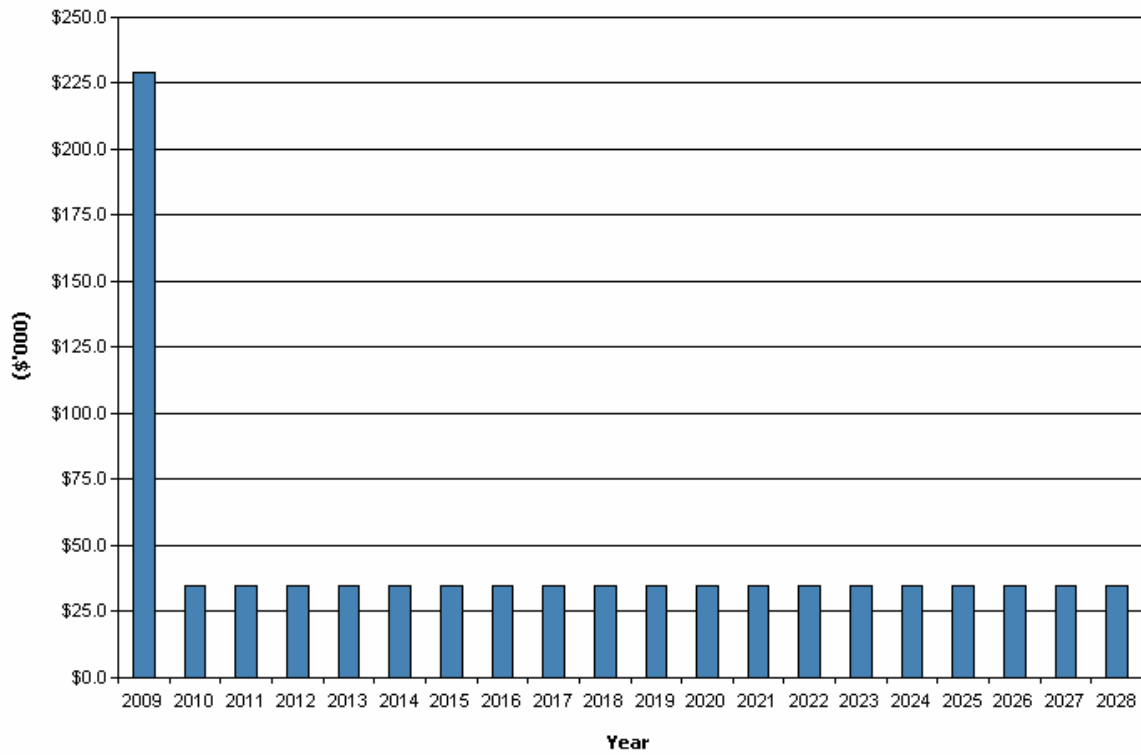
**Adelaide Hills Council - Age Profile (Transport Retaining Walls)**



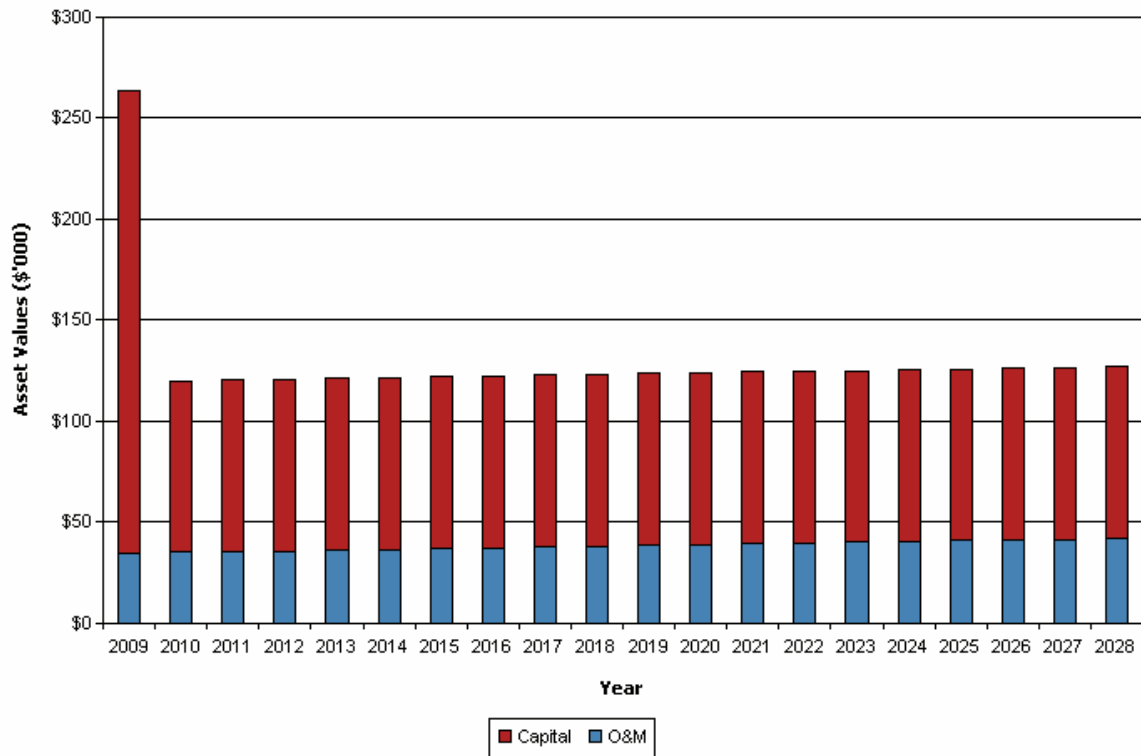
**Adelaide Hills Council - Projected Capital Renewal Expenditure (Transport Retaining Walls)**



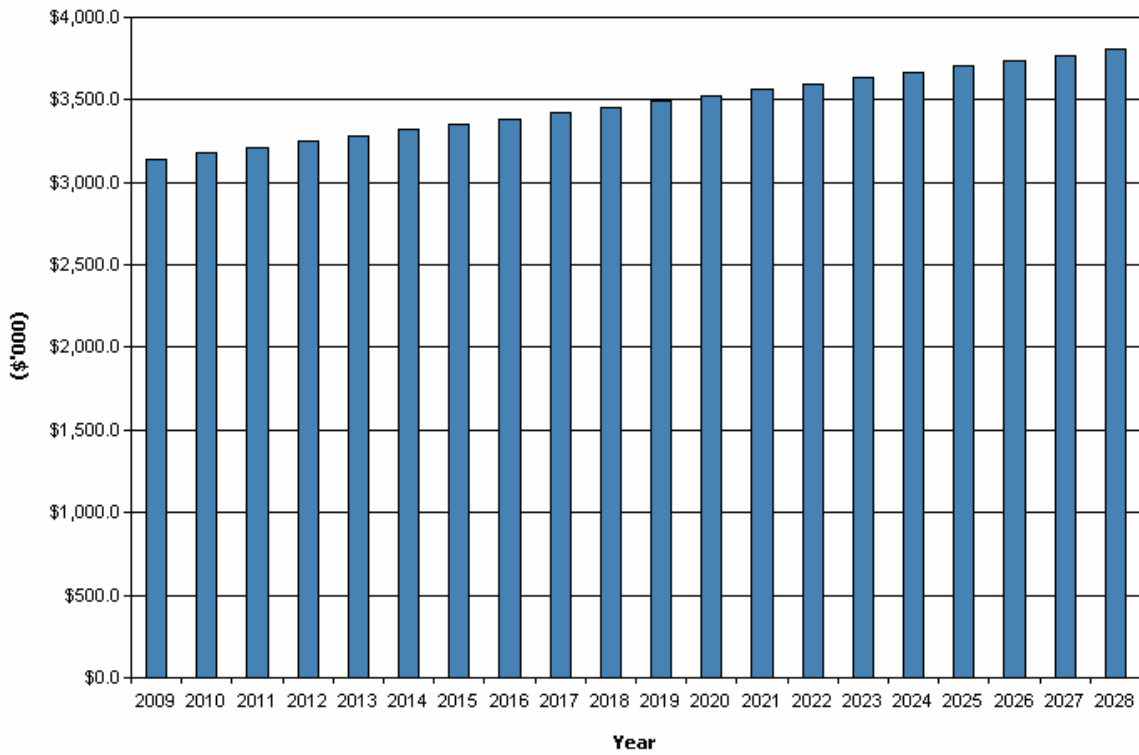
**Adelaide Hills Council - Planned Capital Upgrade/New Expenditure (Transport Retaining Walls)**



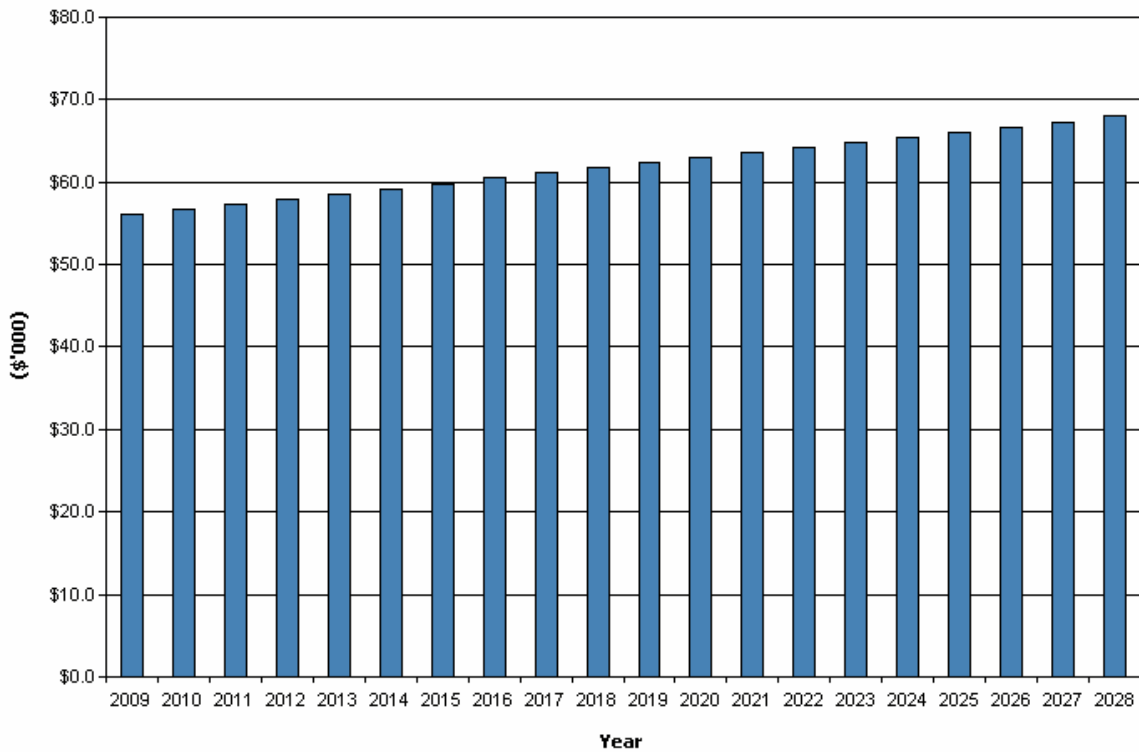
**Adelaide Hills Council - Planned Operating and Capital Expenditure (Transport Retaining Walls)**

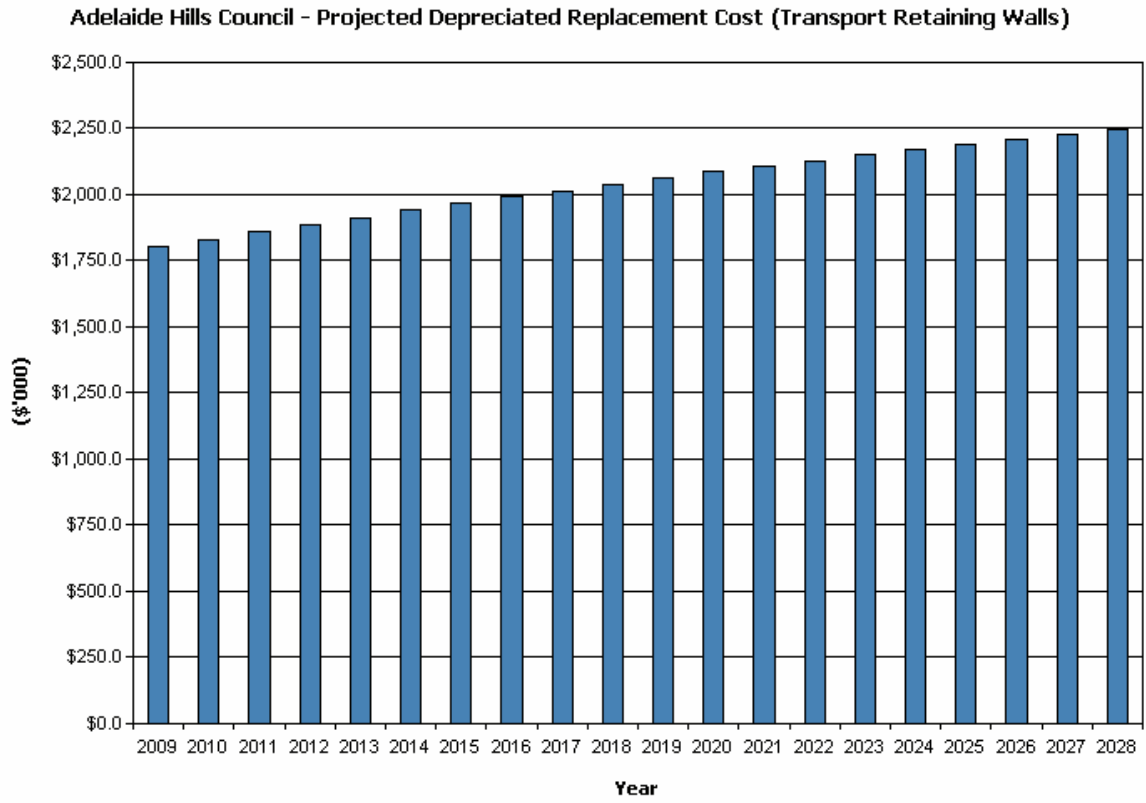


Adelaide Hills Council - Projected Asset Values (Transport Retaining Walls)



Adelaide Hills Council - Projected Depreciation Expense (Transport Retaining Walls)





**Appendix B Maintenance Response Levels of Service**

<b>INSPECTIONS – ROADS (Sealed &amp; Unsealed)</b>				
Activity	Level of Service	Inspection Regimes	Inspection Schedule	
<p><b>Inspections</b></p> <p>The undertaking by suitably experienced staff of regular inspections of the road asset to determine condition, compliance with maintenance standards and risk.</p>	<p>Programmed and systematic inspection regime for the road network</p>	<p>a. Condition Assessment inspections are undertaken to determine the condition of an asset, its relative life and, where relevant, any asset renewal requirements.</p> <p>b. Condition and Risk inspections are undertaken to identify defects against standards set out in the Plan. Defects are rectified in accordance with the Defect Table document. Significant maintenance issues are also identified as part of this inspection process.</p> <p>c. Routine Maintenance inspections are undertaken in conjunction with routine maintenance patrols to determine compliance with maintenance target intervention standards set out in this Road Maintenance Plan. Maintenance works are programmed in accordance with the Maintenance Table.</p> <p>d. Responsive inspections are undertaken in response to customer reports, officer reports or maintenance staff reports. Identified defect works are rectified in accordance with the Defect Table. Identified maintenance works are programmed in accordance with the Maintenance Table.</p>	<p>Distributor (Traffic: 2000 +)</p>	<p>a. 5 years b. 4 months c. as per maintenance program d. as appropriate</p>
			<p>Collector (Traffic: 700 – 2000)</p>	<p>a. 5 years b. 4 months c. as per maintenance program d. as appropriate</p>
			<p>Urban Municipal Local (Traffic: 150 – 700)</p>	<p>a. 5 years b. 24 months c. as per maintenance program d. as appropriate</p>
			<p>Rural Municipal Local (Traffic: 150 – 700)</p>	<p>a. 5 years b. 24 months c. as per maintenance program d. as appropriate</p>
			<p>Limited Access</p>	<p>a. N/A b. (i) 12 months (ii) Fire Tracks, annually prior to declared fire season c. N/A d. As appropriate</p>

**SEALED ROADS – Level of Service**

**RD = Road Defect      RM = Road Maintenance**

ACTIVITY / DEFECT	LEVEL OF SERVICE	RISK ASSESSMENT	TIMELINES OF REPAIRS	
		Intervention Levels		
<p><b>Potholes</b></p> <p>These are defined as small breaks and depressions in the sealed surface where loss of pavement wearing surface has occurred.</p> <p><b>RD001</b> Repair pothole</p>	<p>Reasonably smooth sealed driving surface with no dangerous deformations.</p>	<p><b>RM001</b> When potholes &gt;75mm in depth and &lt;300mm in width or rapid deterioration is likely.</p>	Distributor	4 days
			Collector	6 days
			Urban Local	Municipal 3 weeks
			Rural Local	Municipal 3 weeks
<p><b>Surface Defects</b></p> <p>Defined as rough surface caused by rutting, depressions or failed areas of pavement.</p> <p><b>RD002</b> Rectify rutting and depressions</p> <p><b>RD003</b> Rectify broken out pavement</p> <p><b>RD004</b> Sweep loose stones</p>	<p>Reasonably smooth sealed driving surface with no dangerous deformations.</p> <p>Sealed surface shall provide reasonable friction level for vehicles</p>	<p>Rectify when the failed area reaches the following intervention levels</p> <p>a. <b>RM002</b> Rutting and depression &gt;5 m<sup>2</sup></p> <p>b. <b>RM003</b> Broken out pavement &gt; 5 m<sup>2</sup></p> <p>c. <b>RM004</b> Loose stones (&gt;10mm stone) &gt;10 m<sup>2</sup> at intersections</p>	Distributor	a. 2 weeks b. 2 weeks c. 5 days (sweep)
			Collector	a. 3 weeks b. 3 weeks c. 5 days (sweep)
			Urban Local	Municipal a. 6 weeks b. 6 weeks c. 5 days (sweep)
			Rural Local	Municipal a. 6 weeks b. 6 weeks c. 5 days (sweep)
<p><b>Water Over Road</b></p> <p>Defined as areas where isolated localised flooding makes roads impassable or may obscure hazards.</p>	<p>Provision of warning to road users of hazard or potential hazards.</p>	<p>a. <b>RM005</b> Localised flooding where road is still trafficable.</p>	Distributor	a. Warning sign within 24 hours

<b>SEALED ROADS – Level of Service</b>				
<b>RD = Road Defect      RM = Road Maintenance</b>				
ACTIVITY / DEFECT	LEVEL OF SERVICE	RISK ASSESSMENT  Intervention Levels	TIMELINES OF REPAIRS	
Provide warning signs  <b>RD005</b> Localised flooding where road is still trafficable.  <b>RD006</b> Localised flooding where road is not trafficable.  <b>Note:</b>  Does not include water over road from storm/flood events (which results in water over road for 2 hours or less)		b. <b>RM006</b> Localised flooding where road is not trafficable.	Collector  Urban Municipal Local  Rural Municipal Local	b. Close road within 24 hours
<b>Edge Breaks</b>  These are defined as fretting along the seal edge resulting in reduced seal width. Usually associated with eroded or weak shoulders in the vicinity of the bitumen edge.  <b>RD007</b> Repair edge break	Consistent nominal sealed width with no dangerous deformations.	<b>RM007</b> When edge break exceeds 150mm laterally, for a 20m length.	Distributor	2 week
			Collector	3 weeks
			Urban Municipal Local	8 weeks
			Rural Municipal Local	4 weeks
<b>Shoulder Drop-off</b>  These are defined as the result of erosion of the unsealed road shoulder adjacent to the seal edge resulting a drop-off at the seal edge.	Relatively consistent surface level between seal and the edge of the adjacent road shoulder.	<b>RM008</b> When the drop-off from pavement exceeds 100mm (vert) for a 20m length.	Distributor	2 weeks
			Collector	3 weeks
			Urban Municipal Local	4 weeks



<b>SEALED ROADS – Level of Service</b>				
<b>RD = Road Defect      RM = Road Maintenance</b>				
ACTIVITY / DEFECT	LEVEL OF SERVICE	RISK ASSESSMENT	TIMELINES OF REPAIRS	
		Intervention Levels		
<b>RD008</b> Repair drop-off			Rural Local	Municipal 4 weeks
<b>Road Shoulder Maintenance</b>  Defined as the regular maintenance of unsealed shoulders adjacent to sealed roads in accordance with the appropriate intervention levels, including:  1. Reworking existing materials to maintain shape and cross-fall  2. Spot gravelling to large bare patches.  <b>RM009</b> Grade shoulder	Relatively consistent cross-fall and shape of the road shoulder.	<b>RM009</b> Where road shoulder is > 75mm higher than edge of sealed road.	Distributor	3 months
			Collector	6 months
			Urban Municipal Local	1 year
			Rural Municipal Local	2 years
<b>Signs</b> (not regulatory)  Covers the replacement of damaged or missing signs, guideposts, marker posts and delineators.  <b>RD010</b> -Replace sign	Signs to be visible and legible.	<b>RM010</b> Missing, broken or illegible signs.	All Roads Classifications	10 days
<b>Regulatory Signs</b>  Covers the replacement of damaged or missing regulatory signs.  <b>RD011</b> Replace sign	Regulatory signs to be visible and legible.	<b>RM011</b> Missing, broken or illegible regulatory signs.	Distributor	5 days
			Collector	5 days
			Urban Municipal Local	10 days

<b>SEALED ROADS – Level of Service</b>				
<b>RD = Road Defect      RM = Road Maintenance</b>				
<b>ACTIVITY / DEFECT</b>	<b>LEVEL OF SERVICE</b>	<b>RISK ASSESSMENT</b>	<b>TIMELINES OF REPAIRS</b>	
		<b>Intervention Levels</b>		
			Rural Local	Municipal 10 days
<b>Line marking / Road marking devices</b>  Covers the regular painting of all pavement markings, including line marking.  <b>RD012</b> Re line marking	Delineation as necessary to enhance safety. All lines and control devices shall be visible.	<b>RM012</b> Missing or illegible line marking or broken or missing traffic control devices.	Distributor	5 days
			Collector	5 days
			Urban Local	Municipal 10 days
			Rural Local	Municipal 10 days
<b>Roadside Vegetation</b>  The cyclic maintenance of trees and shrubs within the road reserves (outside of urban areas) to maintain vehicle clearance limits as per Council’s “Road Reserve Management Plan” P46 and sight distances at intersections and curves. Reduce risk of fire by slashing verge grass.  <b>RD013</b> Prune trees  <b>RD014</b> Grass Slashing	Provide safe clearance for large vehicles. Refer Adelaide Hills Council’s “Road Reserve Management Plan” page 46 for clearance corridor.  Provide sufficient unobstructed view to ensure vision and safe entry to intersections.  Provide unobstructed view of regulatory and cautionary signs.  Reduce fire risk by lowering combustible material near road verge	a. <b>RM013</b> Vegetation encroaching into clearance corridor and obstruction sight vision for motorists.  b. <b>RM014</b> Mow road verge to 0.1m on selected roads at completion of growing season. Note: Selected roads to be determined in conjunction with Council’s fire safety officer.	Distributor	a. 5 days b. as selected
			Collector	a. 10 days b. as selected
			Urban Local	Municipal a. 20 days b. as selected
			Rural Local	Municipal a. 20 days b. as selected

<b>SEALED ROADS – Level of Service</b>					
<b>RD = Road Defect      RM = Road Maintenance</b>					
<b>ACTIVITY / DEFECT</b>	<b>LEVEL OF SERVICE</b>	<b>RISK ASSESSMENT</b>	<b>TIMELINES OF REPAIRS</b>		
		<b>Intervention Levels</b>			
<p><b>Guardrail</b></p> <p>The routine inspection of existing roadside guardrail to ensure any damaged sections are replaced to Australian Standard.</p> <p><b>RDO18</b> Replace damaged guardrail.</p>	<p>Ensure all guardrails within the Council area are to Australian standard and that all repairs to damaged guardrail are found promptly and necessary repairs carried out.</p>	<p>a. <b>RM018</b> Any damaged guardrail is repaired.</p>	Distributor	<p>a. 5 days</p> <p>b. as selected</p>	
			Collector	<p>a. 10 days</p> <p>b. as selected</p>	
			Urban Local	Municipal	<p>a. 20 days</p> <p>b. as selected</p>
			Rural Local	Municipal	<p>a. 20 days</p> <p>b. as selected</p>
<p><b>Retaining Walls</b></p> <p>The routine inspections of existing roadside retaining walls to ensure any damaged sections are replaced to maintain the stability of roadways.</p> <p><b>RDO19</b> Replace damaged retaining walls.</p>	<p>Ensure all retaining walls within the Council area are inspected for stability on a routine basis and any repairs undertaken.</p>	<p>a. <b>RM019</b> Any damage to retaining walls is repaired</p>	Distributor	<p>a. 5 days</p> <p>b. as selected</p>	
			Collector	<p>a. 10 days</p> <p>b. as selected</p>	
			Urban Local	Municipal	<p>a. 20 days</p> <p>b. as selected</p>

<b>SEALED ROADS – Level of Service</b>															
<b>RD = Road Defect      RM = Road Maintenance</b>															
<b>ACTIVITY / DEFECT</b>	<b>LEVEL OF SERVICE</b>	<b>RISK ASSESSMENT</b>  Intervention Levels	<b>TIMELINES OF REPAIRS</b>												
			<table border="0" style="width: 100%;"> <tr> <td style="width: 20%;"></td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> <td style="width: 40%;">a. 20 days</td> </tr> <tr> <td>Rural</td> <td>Municipal</td> <td></td> <td>b. as selected</td> </tr> <tr> <td>Local</td> <td></td> <td></td> <td></td> </tr> </table>				a. 20 days	Rural	Municipal		b. as selected	Local			
			a. 20 days												
Rural	Municipal		b. as selected												
Local															

<b>UNSEALED ROADS – Level of Service</b>				
<b>RD = Road Defect    RM = Road Maintenance</b>				
ACTIVITY / DEFECT	LEVEL OF SERVICE	RISK ASSESSMENT  Intervention Levels	TIMELINES OF REPAIRS	
<p><b>Grading and Patrol Works</b></p> <p>The regular maintenance grading and reshaping of unsurfaced roads in accordance with appropriate intervention standards to remove corrugations, rutting and potholes and provide for proper drainage of the unsealed surface.</p> <p><b>RD015</b> Maintenance grading</p>	<p>Provide a smooth riding surface with good drainage.</p>	<p><b>RM015</b> Road surface scoured, potholed, rutted, corrugated to a depth of 100mm in excess of 20m length.</p>	<p>All Road Classifications</p>	<p><a href="#">Refer Council Operations Section Unsealed roads grading program. (control click for hyperlink)</a></p>
<p><b>Water Over Road</b></p> <p>Defined as areas where isolated localised flooding makes roads impassable or may obscure hazards.</p> <p>Provide warning signs</p> <p><b>RD016</b> Localised flooding where road is still trafficable.</p> <p><b>RD017</b> Localised flooding where road is not trafficable.</p> <p><b>Note:</b> Does not include water over road from storm/flood events.</p>	<p>Provision of warning to road users of hazard or potential hazards.</p>	<p>a. <b>RM016</b> Localised flooding where road is still trafficable.</p> <p>b. <b>RM017</b> Localised flooding where road is not trafficable.</p>	<p>All Road Classifications</p>	<p>a. Warning sign within 24 hours</p> <p>b. Close road within 24 hours</p>
<p><b>Signs</b> (not regulatory)</p> <p>Covers the replacement of damaged or missing signs,</p>	<p>Signs to be visible and legible.</p>	<p><b>RM010</b> Missing, broken or illegible signs.</p>	<p>All Roads Classifications</p>	<p>10 days</p>

<b>UNSEALED ROADS – Level of Service</b>				
<b>RD = Road Defect    RM = Road Maintenance</b>				
<b>ACTIVITY / DEFECT</b>	<b>LEVEL OF SERVICE</b>	<b>RISK ASSESSMENT</b>	<b>TIMELINES OF REPAIRS</b>	
		<b>Intervention Levels</b>		
guideposts, marker posts and delineators.  <b>RD010</b> -Replace sign				
<b>Regulatory Signs</b>  Covers the replacement of damaged or missing regulatory signs.  <b>RD011</b> Replace sign	Regulatory signs to be visible and legible.	<b>RM011</b> Missing, broken or illegible regulatory signs.	All Roads Classifications	5 days
<b>Roadside Vegetation</b>  The cyclic maintenance of trees and shrubs within the road reserves (outside of urban areas) to maintain vehicle clearance limits as per Council's "Road Reserve Management Plan" P46 and sight distances at intersections and curves. Reduce risk of fire by slashing verge grass.  Environmentally sensitive clearance of vegetation for provision of road drainage as per Council's Road Reserve Management Plan".  <b>RD013</b> Prune trees <b>RD014</b> Grass Slashing <b>RD018</b> Cutting of drainage channels	Provide safe clearance for large vehicles. Refer Adelaide Hills Council's "Road Reserve Management Plan" page 46 for clearance corridor.  Provide sufficient unobstructed view to ensure vision and safe entry to intersections.  Provide unobstructed view of regulatory and cautionary signs.  Reduce fire risk by lowering combustible material near road verge	b. <b>RM013</b> Vegetation encroaching into clearance corridor and obstruction sight vision for motorists.  b. <b>RM014</b> Mow road verge to 0.1m on selected roads at completion of growing season. Note: Selected roads to be determined in conjunction with Council's fire safety officer.  c. <b>RM018</b> When water runs off not exiting along drainage channel / scouring of road edge.	All Roads Classifications	a. 5 days  b. as selected  c. as selected

<b>INSPECTIONS – FOOTPATHS</b>				
<b>Activity</b>	<b>Level of Service</b>	<b>Inspection Regimes</b>	<b>Inspection Schedule</b>	
<p><b>Inspections</b></p> <p>To be undertaken by suitably experienced staff. Regular inspections of the asset shall be undertaken to determine condition, compliance with maintenance standards and risk.</p> <p><b>Definitions:</b></p> <p><b>Class 1:</b> High usage, high strategic important, high commercial activity areas. These footpaths provide links between and adjacent to significant pedestrian generating areas where a high service level would be expected due to either the frequency of use or the vulnerability of the potential user (aged &amp; mobility impaired etc).</p> <p>Pedestrian generators would include but not be limited to:</p> <ul style="list-style-type: none"> <li>• major shopping precincts,</li> <li>• aged care &amp; accommodation facilities,</li> <li>• schools,</li> <li>• hospitals,</li> <li>• transport hubs and large community facilities.</li> </ul> <p>Shared Use paths may be included in this category.</p> <p><b>Class 2:</b> Medium usage, “collector” paths sometimes connecting lower class paths with Class 1 paths.</p> <p>These paths typically provide links between lesser pedestrian generators (e.g. lower class paths, post boxes, post offices, bus shelters, small schools) and/or significant pedestrian generators as outlined above.</p> <p>A Class 2 path may act as a “backbone” through built-up areas to which lower class paths and trails in back streets may connect.</p> <p><b>Class 3:</b> Low usage, feeder paths connecting to Class 2 or 3 paths.</p> <p>In township areas, these paths would typically be found in back streets and likely exist where use of the side of the road has been deemed unacceptable from a road safety standpoint.</p> <p>Class 3 paths would typically deliver users to either a Class 2 or 3 path from low density</p>	<p>Programmed and systematic inspection regime.</p>	<p>a. Condition Assessment inspections are undertaken to determine the condition of an asset, its relative life and where relevant, any asset renewal requirements.</p> <p>b. Condition and Risk inspections are undertaken to identify defects against standards set out in this Plan. Defects are rectified in accordance with the Defect Table in this document. Significant maintenance issues are also identified as part of this inspection process.</p> <p>c. Responsive inspections are undertaken in response to Customer Action Requests (CAR’s), officer reports or maintenance staff reports. Identified defect works are rectified in accordance with the Defect Table. Identified maintenance works are programmed.</p>	Class 1 Footpaths	<p>a. 4 years</p> <p>b. 12 months</p> <p>c. as appropriate</p>
			Class 2 Footpaths	<p>a. 4 years</p> <p>b. 24 months</p> <p>c. as appropriate</p>
			Class 3 & Class 4 Footpaths	<p>a. 4 years</p> <p>b. 36 months</p> <p>c. as appropriate</p>

INSPECTIONS – FOOTPATHS			
Activity	Level of Service	Inspection Regimes	Inspection Schedule
residential areas.  <b>Class 4:</b> Low usage unmade paths and tracks that are known to have very low usage and are considered fit for purpose.			

FOOTPATHS – DEFECTS			
<b>FD = Footpath Defect    FM = Footpath Maintenance</b>			
ACTIVITY / DEFECT	LEVEL OF SERVICE	RISK ASSESSMENT Intervention Levels	TIMELINES OF REPAIRS
<b>Footpaths</b> Covers the repairs or replacement of sections of footpath that may be a trip hazard  <b>Definitions:</b>  <b>Class 1:</b> High usage, high strategic important, high commercial activity areas. These footpaths provide links between and adjacent to significant pedestrian generating areas where a high service level would be expected due to either the frequency of use or the vulnerability of the potential user (aged & mobility impaired etc).  Pedestrian generators would include but not be limited to: <ul style="list-style-type: none"> <li>• major shopping precincts</li> <li>• aged care &amp; accommodation facilities</li> <li>• schools</li> <li>• hospitals</li> <li>• transport hubs and large community facilities</li> </ul> Shared Use paths may be included in this category.	Provision of a reasonably smooth footpath network with minimal trip hazards.	Vertical Displacement  a. <b>FM001</b> 15mm-25mm  b. <b>FM002</b> >25mm  c. <b>FM003</b> Holes >100mm diameter and 50mm in depth.	Class 1 a. Grind or ramp with Premix within 20 days or temporary ramp and add to replacement program.  b. Grind or ramp with premix within 10 days and add to replacement program.  c. Treat within 2 days.
			Class 2 a. Grind or ramp with premix within 20 days or temporary ramp and add to replacement program.  b. Grind or ramp with Premix within 15 days and add to replacement program.



<b>FOOTPATHS – DEFECTS</b>				
<b>FD = Footpath Defect    FM = Footpath Maintenance</b>				
ACTIVITY / DEFECT	LEVEL OF SERVICE	RISK ASSESSMENT  Intervention Levels	TIMELINES OF REPAIRS	
<p><b>Class 2:</b> Medium usage, “collector” paths sometimes connecting lower class paths with Class 1 paths.</p> <p>These paths typically provide links between lesser pedestrian generators (eg lower class paths, post boxes, post offices, bus shelters, small schools) and/or significant pedestrian generators as outlined above.</p> <p>A Class 2 path may act as a “backbone” through built-up areas to which lower class paths and trails in back streets may connect.</p> <p><b>Class 3:</b> Low usage, feeder paths connecting to Class 2 or 3 paths.</p> <p>In township areas, these paths would typically be found in back streets and likely exist where use of the side of the road has been deemed unacceptable from a road safety standpoint.</p> <p>Class 3 paths would typically deliver users to either a Class 2 or 3 path from low density residential areas.</p> <p><b>Class 4:</b> Low usage unmade paths and tracks that are known to have very low usage and are considered fit for purpose.</p> <p><b>FD001</b> Repair footpath trip hazards</p>			c. Treat within 2 days.	
			Class 3 & Class 4	a. Add to prioritised program b. Grind or ramp with Premix within 20 days and add to replacement program. c. Treat with 2 days
		Horizontal Displacement (wide cracks)	<b>Safety marking</b>	<b>Next day</b>
			Class 1	a. Crack fill within 20 days
			Class 2	a. Crack fill within 20 days
			Class 3 & Class 4	a. Crack fill within 1 month b. Crack fill within 1 month and add to replacement program.
a. <b>FM004</b> 10-25mm		b. Crack fill within 10 days		
b. <b>FM005</b> >25mm		a. Crack fill within 20 days b. Crack fill within 10 days		

ACTIVITY / DEFECT	LEVEL OF SERVICE	RISK ASSESSMENT	TIMELINES OF REPAIRS	
		Intervention Levels		
<p><b>Footpath/Cycle path Signs</b> (not regulatory)</p> <p>Covers the replacement of damaged or missing signs, guideposts, marker posts and delineators.</p> <p><b>FD002</b>-Replace sign</p>	Signs to be visible and legible.	<b>FM006</b> Missing, broken or illegible signs.	All paths / cycle ways	10 days
<p><b>Vegetation</b></p> <p>The cyclic maintenance of trees and shrubs within overhanging footpaths and cycle paths.</p> <p>Encroachment onto paths from adjoining property.</p> <p><b>FD003</b> Prune trees</p> <p><b>FD004</b> Prune Vegetation</p>	Provide safe corridor for pedestrians and cyclists.	<p>a. <b>FM007</b> Vegetation encroaching into footpaths and cycle paths to be pruned.</p> <p>b. <b>FM008</b> Remove vegetation from adjoining property after liaison with land owner and/or issuing of a removal order as defined within the Local Govt. Act</p>	All paths/ Cycle ways	As selected
<p><b>Disability Access</b></p> <p>The provision of ramps, tactiles etc. In Class 1 footpaths only to aid pedestrians with disabilities.</p> <p><b>FD005</b></p>	Provide safe walk ways for pedestrians with disabilities and conform to required legislation.	<b>FM005</b> Provide correct infrastructure as detailed in the Disability Discrimination Act.	Class 1 Paths only	As selected

**INSPECTIONS – Bridges**

Activity	Level of Service	Inspection Regimes	Inspection Schedule

<b>Inspections</b>  The undertaking by suitably experienced staff of regular inspections of the bridge assets to determine condition, compliance with maintenance standards and risk.	Programmed and systematic inspection regime.	a. Condition Assessment inspections are undertaken to determine the condition of an asset, its relative life and, where relevant, any asset renewal requirements. This inspection is undertaken by specialists in Bridge Structures.  b. Condition and Risk inspections are undertaken to identify defects against standards set out in the operations form "Bridge & Major Culvert Routine Maintenance & Inspection Report". Significant maintenance issues are also identified as part of this inspection process.  c. Responsive inspections are undertaken in response to customer reports, officer reports or maintenance staff reports. Identified defect works are rectified in accordance with the Defect Table. Identified maintenance works are programmed.	Bridges on Class 1 Roads	a. 4 years b. 6 months c. as appropriate
			Bridges on Class 2 Roads	4 years a. 9 months as appropriate
			Bridges on Class 3 Roads	a. 4 years b. 12 months c. as appropriate

<b>BRIDGES – DEFECTS</b>			
<b>BD = Bridge Defect    BM = Bridge Maintenance</b>			
ACTIVITY / DEFECT	LEVEL OF SERVICE	RISK ASSESSMENT  Intervention Levels	TIMELINES OF REPAIRS
<b>Bridge Deck Cleaning</b>  Covers the cleaning of all bridge scuppers, vegetation removal, dirt build up etc  <b>BD001</b> Bridge cleaning	Provide clean deck structures to enable the uninterrupted water flow from the bridge.	Bridge Cleaning  <b>BM001</b> Clean Bridge  <a href="#">Refer link to Bridge inspection report form:(control click for hyper link)</a>	Bridges on Class 1 Roads      1 months
			Bridges on Class 2 Roads      1 months
			Bridges on Class 3 Roads      1 months

<b>BRIDGES – DEFECTS</b>				
<b>BD = Bridge Defect    BM = Bridge Maintenance</b>				
ACTIVITY / DEFECT	LEVEL OF SERVICE	RISK ASSESSMENT  Intervention Levels	TIMELINES OF REPAIRS	
<b>Bridge Wearing surfaces</b>  Replacement of any worn planking or surfaces  <b>BD002</b> Inspect Bridge wearing Surfaces	Ensure all running surfaces are sound and in a safe trafficable condition.	Visual Inspection  <b>BM002</b> Replace obvious defects	Bridges on Class 1 Roads	2 weeks
			Bridges on Class 2 Roads	2 weeks
			Bridges on Class 3 Roads	1 month
<b>Bridge Furniture</b>  Inspection of all bridge signage and markings to ensure legibility.  <b>BD003</b> Inspect Bridge signs and road markings	Ensure all bridge signage and markings are suitably legible to direct traffic and pedestrians.	Visual check for fading signs and markings.  <b>BM003</b> Replace signs and repaint markings.	Bridges on Class 1 Roads	1 week
			Bridges on Class 2 Roads	1 week
			Bridges on Class 3 Roads	1 week
<b>Inspection of Bridge members</b>  Inspection of bridge members, abutments, wing walls, bearings etc.  <b>BD004</b> Inspection of Bridge members	Ensure all bridge members and wing walls are sound and a general inspection of bridge components.	Visual inspection of bridge members. Replace as required and report any major structural issues to Council's Engineering department.  <b>BM004</b> Visual inspection of bridge members	Bridges on Class 1 Roads	1 month
			Bridges on Class 2 Roads	1 month
			Bridges on Class 3 Roads	2 months

