Horsham Rural City Council urban rural balance

Our Reference: F20/A02/000003: GH:kn
Your Reference:
Contact Name: Graeme Harrison

28 February 2014

Mr Colin Morrison
Executive Officer
Victoria Grants Commission
GPO Box 2392V
MELBOURNE Vic 3001

Dear Colin

**Submission regarding the methodology used in allocating annual financial assistance grants Cost modifiers relating to road sub-grades**

Please find attached information from the Horsham Rural City Council with respect to your call for submissions on the Victorian Grants Commissions annual financial assistance grants.

The two documents attached have previously been submitted to the Grants Commission in August 2012. The first is a report by our Director of Technical Services, John Martin, and to support that is a copy of a report commissioned by council and completed by Mr Peter Moloney.

Whilst we appreciate that changes were made to the roads cost modifiers for the 2013-14 grant, these changes did not pick up on the issue that we have raised around poor sub-grades. The current calculation of the sub-grade factor does not pick up on an alternative measure of using degradation curves as developed by Mr Peter Moloney (see Page 12 of his report to our Council.)

Mr Moloney's calculations indicate that roads in our municipality, and others across the Wimmera, are experiencing a road life of only about 40 years. Across the state the average is closer to 80-100 years. The result of this shortened life is that Council spends in the order of $4.7 M per year on road renewals, which is about $2.3 M per year more than an equivalent Council which has average sub-grades.

It is also worth noting that Mr Moloney's report indicates that Horsham Rural City Council has been making a diligent effort to improve the overall condition of its road network, but that this effort has not been rewarded owing to the impact of the 2011 floods which damaged both the visible surfaces of road and the hidden sub-grades. This damage is anticipated to leave a further cost legacy to Council in the years ahead.

Thank you for the opportunity to submit this information for your further consideration.

Yours sincerely

Peter Brown
**Chief Executive**

Encl

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**Submission to Victorian Grants Commission**
**Local Roads Grants Formula**
**August 2012**

## Summary

A significant body of work on road conditions across Victoria has highlighted that road sub-grades play a critical factor in influencing the effective lives of roads.

The cost modifiers currently used in the Local Roads Grants formula already provide an allowance for variations in sub-grades, based on mapping of soil classifications. The indices for this cost modifier recognise that much of western Victoria and some other areas incur higher road costs as a result of these poor sub-grades.

This submission proposes that the magnitude of the effect of poor sub-grades is far greater than the range currently employed as a cost modifier in the grants formula. The current range is 0.95 to 1.10, i.e. an effective variation of 15%.

Empirical evidence indicates that the range in effective lives of roads could vary between 40 years and 180 years – an effective variation of 450%, having a proportionate impact on the cost of road maintenance and renewal. This range of asset life should be applied to the Local Roads Grants formula.

## Background

Horsham Rural City Council (HRCC) recently received its fifth report on the condition of its road and related assets. This series of reports now spans a period of 13 years, with each report involving the sampling of in excess of 2000 road segments in a road network of about 3300 km.

The condition assessments and reports were prepared by Peter Moloney of Moloney Asset Management Services. Mr Moloney provides similar services for 49 other LGAs across Victoria, hence can be considered to have a high level of expertise in both road asset conditions generally and their relative condition across the State.

Collectively, his work represents a robust dataset for analysis.

In his latest report to HRCC, Mr Moloney stated (on p5):

> *In undertaking this work for many councils over the last 17-years one fact has clearly emerged. Those councils within the state that are on poor subgrades really do have a severe disadvantage that needs to be addressed through the Government funding system.*

The condition assessments performed by Mr Moloney allow degradation curves to be developed for classes of road assets. These curves map the condition of roads between inspections, allowing projections of renewal costs to be developed, and importantly determination of the effective (serviceable) life of the assets.

Horsham Rural City Council, and other municipalities in the Wimmera Region incur higher costs as a result of these poor sub-grades. For Horsham Rural City Council, this additional expenditure is

estimated to be about $2.3 M per year on road renewals. This is based on the assumption that extending the useful life of roads from 40 to 80 years would halve the renewal cost, which is currently $4.7 M per year.

**Victoria-Wide Perspective**

The reports available to HRCC provide information about roads within the municipality. Mr Moloney has provided anonymous information (i.e. the individual Councils are not identified) that indicates the range of asset lives experienced across the state. As indicated earlier, there is a vast range in the life of road assets across the state, possibly between 40 and 180 years.

Information based on reports of actual asset conditions over a period of ten years or more represents a valuable supplement to the existing information on sub-grades based on soil maps.

The information provided by Mr Moloney for HRCC can also be developed for other municipalities that currently use his services. This set of data would provide a consistent basis of asset life information, which could be correlated against the soil map information to extrapolate to other areas.

**Recommendations**

1. The Victorian Grants Commission undertake a review of the impact of poor sub-grades on the effective life of road assets, and hence the relevant cost modifiers relating to road sub-grades.

2. The data collected by Mr Moloney of Moloney Asset Management Services be used to assist the Commission in its review.

John Martin
**Director Technical Services**

# Moloney Asset Management Systems

# MAMS

## Report Following the Survey of Road Assets for Horsham Rural City

Jan-2012

Report produced by Moloney Asset Management Systems
exclusively for Horsham Rural City



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# Section 1: Report Summary

*This report provides a summary of the major findings following the road asset condition survey, undertaken in Jan-12 for Horsham Rural City by Moloney Asset Management Systems MAMS.*

This summary aims to provide an overview of the important findings coming out of the survey as well as a snapshot of the overall asset condition and financial Modelling results, it is in three parts as detailed below.

1.1 Overall Report Findings

1.2 Summary of Asset Condition Findings

1.3 Summary of financial Modelling results

## 1.1 Overall Report Findings

The following are the major findings coming out of the condition survey and analysis of results within this report.

### 1.1.1 Major Report Findings

1. *The road assets within Horsham Rural City were generally found to be in fair overall condition and there had been a loss in overall condition of %-1.85 since the last survey in 2008.*
2. *It is estimated that the recent flood events have resulted in a measurable condition decline to the value of around $8,268,000 on the sealed road network. It is also suggested that without these events council would have held its overall asset condition static and not experienced the decline reported above.*
3. *Horsham Rural City has managed its road assets exceptionally well in recent years. It has some of the most difficult subgrades in the State, which is resulting in far earlier renewal demand on its sealed road network than the state average. Council has continued to raise its overall renewal expenditure as demand has increased, but unfortunately demand is predicted to continue to increase for at least the next 14-years.*
4. *The present renewal shortfall is estimated at $932,972 PA, and is predicted to peak at $2,359,972 PA in 2029.*
5. *The sealed road pavements were found to be in only fair overall condition but are being currently funded at an appropriate level.*
6. *The sealed surface assets (reseals) were found to be in good overall condition and had improved in overall condition a little since 2008. The present renewal expenditure of $1,024,798 PA does need to be lifted a little to address the small backlog in over intervention condition assets.*
7. *The unsealed road pavements were found to be in good overall condition when compared to other councils assessed. The design standard on these assets has been reclassified by council since the last survey resulting in what appears to be an asset condition decline. But they have actually improved in real terms and the current level of renewal expenditure is considered to be appropriate.*
8. *The kerb assets were found to be in poor overall condition, but there had been an improvement in condition since the last survey in 2008. Present renewal expenditure is considered to be at an appropriate level.*
9. *The Footpath and Bike Path assets were found to be in fair overall condition and there had been a measurable improvement in condition since the last survey in 2008. Present renewal expenditure is considered to be at an appropriate level.*
10. *Horsham Rural City has done an outstand job in managing its road assets over a long period of recent history. Renewal demand has grown sharply since the time of our first condition survey in 1999, mainly on the back of ageing pavements on very poor subgrades. Council may be a little behind in terms of the ideal renewal expenditure but it's actual achievements in meeting the rapidly escalating renewal demand since 1999 is something that needs to be acknowledged.*

11. *In undertaking this work for many councils over the last 17-years one fact has clearly emerged. Those councils within the state that are on poor subgrades really do have a severe disadvantage that needs to be addressed through the Government funding system. The way to achieve this could be to create a figure representing the ratio between present renewal expenditure and annual depreciation on the sealed road pavements. This would have the dual affect of accounting for both the council effort and the real disability factor. Horsham's ratio is currently 95% and some other councils are as low as 25%*

### 1.1.2 Other Important matters covered within the report

1. *Unique degradation curves have been produced (based on actual condition change between the 2 surveys) for the very important asset sets of sealed road pavements and sealed surfaces*
2. *Key performance indicators have been developed at a sub asset level that accurately quantify asset condition change since the 2012 and 2008 surveys*
3. *The same key performance indicators have been used to benchmark Horsham Rural City against the other 49 councils assessed by MAMS.*

## 1.2 Summary of Asset Condition Findings

| SUB ASSET DESCRIPTION | Overall Asset Cond. Indicator | Urgent Isolated Failures | Other Isolated Failures | Ext of Poor Cond. |
|---|---|---|---|---|
| **Sealed Pavements** | **Worse** | **Worse** | **Better** | **Worse** |
| **Sealed Surfaces** | **Better** | **N/A** | **N/A** | **Better** |
| **Unsealed Pavements** | **Worse** | **Worse** | **N/A** | **Worse** |
| **Kerbs** | **Better** | **Better** | **Worse** | **Better** |
| **Footpaths** | **Better** | **N/A** | **N/A** | **Better** |

**Fig 1.1 Summary of asset condition change between surveys**

The above table provide a very simple assessment of how certain key condition indicators have changed since the previous survey. The overall asset condition is a single condition factor representing the condition of the whole asset set. The urgent isolated failures are those that need to be addressed immediately. The other isolated failures represent all other failures that are not considered to be urgent. The extent of poor condition assets is the extent of the asset base at and above condition 6 - 8 depending upon the asset class. The Moloney Condition rating system is consistent across all asset types and commences at zero with a new asset and ends in the 8 to 10 range when there is no remaining life in the asset.

The table is a simplified version of a more detailed table that is provided within each of the sub asset sections below. The detailed table quantifies the actual condition change between the two surveys and also expresses that change in percentage terms.

## 1.3 Summary of Financial Modelling Results

The financial Modelling functions within the Moloney system have been used to predict the future renewal demand and to then compare this with the present renewal expenditure. Taking the proposed renewal expenditure from the predicted renewal demand delivers the renewal gap or funding shortfall.

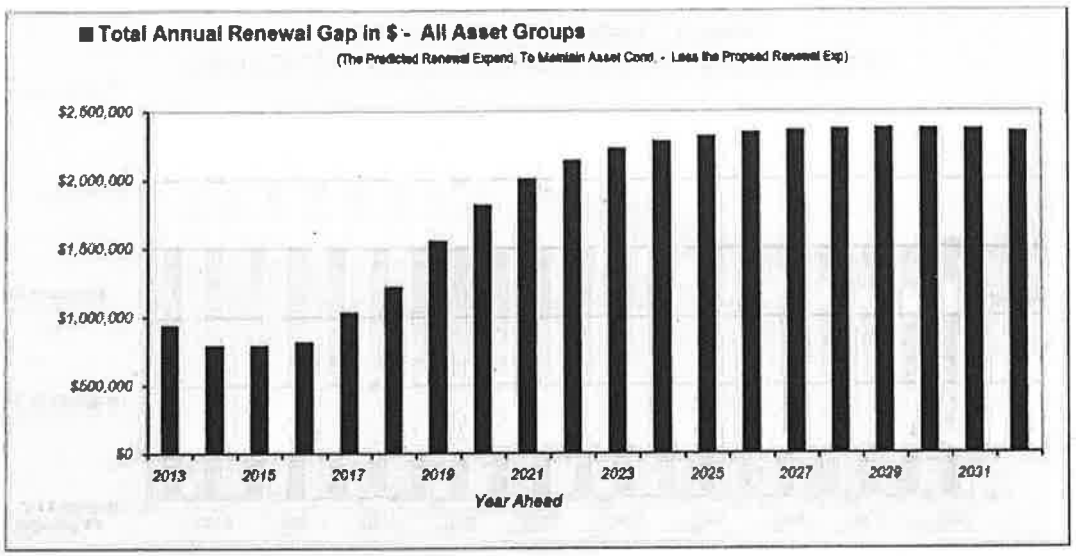



**Fig 1.2 Renewal Funding Shortfall all Road assets**

Figure 1.2 provides a 20-Year graph of the renewal shortfall or gap, between the predicted renewal requirement and the present renewal expenditure levels for all road assets surveyed. Bars below the zero line represent a funding surplus.

*For Horsham Rural City there is a predicted present renewal gap of $932,972 PA. However, demand is predicted to rise over the next 14-years and an examination of the cumulative affect would be useful.*

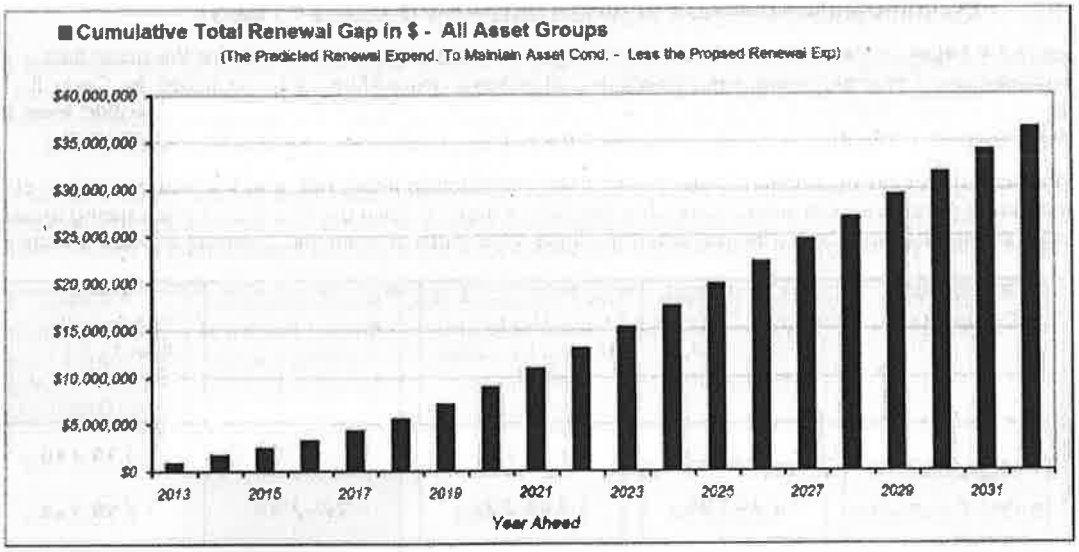



**Fig 1.2A – Cumulative predicted renewal gap for the roads group of Assets for next 20-years**

*Figure 1.2A is a cumulative version of the same graph in 1.2. Here it can be seen that the total present renewal expenditure will need to be lifted on an ongoing basis over the next 20-years.*

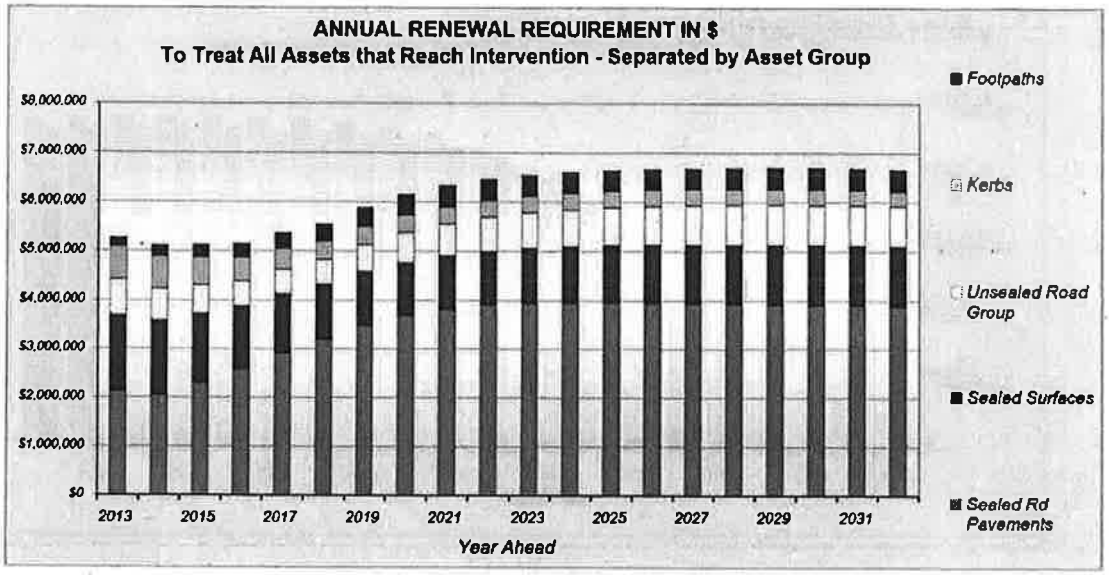



**Fig 1.3 Predicted renewal demand**

*Figure 1.3 above provides another approach to the situation. Here the projected renewal demand for each of the road sub asset classes is detailed. Note that there is a slight backlog in renewal demand associated with the sealed surfaces over the first 5-years and an ongoing rise in the sealed pavement renewal demand.*

## 1.5 Recommended Renewal Funding levels for the next 3 - Years

Figure 1.4 below contains 3 sets of figures relating to renewal expenditure levels for the asset sets under consideration. The first covers the present actual renewal expenditure as committed by Council. The second is the full-required expenditure to treat all assets that reach the selected intervention level (the ideal scenario). The third is the recommended funding level, which may be less than require level.

If the recommended expenditure level is less than the required level then this will result in some of the asset base remaining over intervention. It provides a means of taking into account the existing situation (some assets presently over intervention) and allows for a more gradual improvement is asset condition.

| Sub Asset Description | Present total Annual Capital Renewal Expenditure | Req Renewal Exp from Model to treal all assets Reaching Intervention | Recommended Annual Renewal Funding Levels for next 3-years | Annual Depreciation - Average Long Term Annual Ren. Demand |
|---|---|---|---|---|
| Sealed Pavements | **2,110,230** | **2,125,000** | **2,125,000** | **2,210,160** |
| Sealed Surfaces | **1,024,798** | **1,564,000** | **1,200,000** | **1,736,189** |
| Unsealed Pavements | **560,000** | **723,000** | **560,000** | **1,052,467** |
| Kerbs | **353,000** | **678,000** | **350,000** | **458,364** |
| Footpaths | **274,000** | **165,000** | **275,000** | **491,480** |
| Totals | 4,322,028 | **5,255,000** | **4,510,000** | **5,948,659** |

**Fig 1.4 Recommended Annual Renewal Expenditure levels**

*It is recommended that Horsham council lift it's current level of total renewal expenditure to $4,510,000 PA for the next 3-years. This represents a total increase of $187,972 PA mainly within the Sealed surface area.*

# Section 2: Introduction

## 2.1 The Condition Survey and what it has delivered

The Moloney Asset Management system "Roads Module" covers the road sub asset groups of:

- Sealed Road Pavements
- Unsealed Road Pavements
- Sealed Surfaces
- Kerbs
- Footpaths

*This survey has covered all of the above sub asset groups.*

The condition survey involves the measurement and quantifying of all of the above sub asset groups and the breaking down of the assets into a series of like performing segments that are then individually condition rated.

Once this data is placed within the MAMS System the software will deliver works programs in priority order, based upon both the condition of the assets and the hierarchy or relative importance of the road. If data for all of the designated condition and inventory fields is collected, then the software will deliver a costed priority works program for the following activities.

- Sealed Road Pavement Rehabilitation
- Sealed Road Pavement Major Patching or dig out repairs
- Reseal – Resurfacing program on sealed roads
- Unsealed Road Re-Sheeting program
- Unsealed road spot patching program
- Kerb Renewal program and a separate Isolated failure repair program
- Footpath Renewal program and a separate Isolated failure repair program
- A host of other major maintenance reports such as crack sealing report, edge break report etc.

The prime purpose of the condition assessment survey is to deliver the above works programs. But the information collected also serves further very important functions. Firstly it enables full and accurate asset valuations to be undertaken and secondly via the MAMS financial Modelling software the data can be used to predict the future pattern of asset renewal demand.

The data is also used to benchmark an individual councils performance between two condition surveys as well as providing industry wide benchmarking against all other councils assessed by MAMS (Currently around 45 councils)

In summary the one condition and inventory data set that has just been completed, delivers the following 4 very important outcomes.

- **Council's capital renewal works and major maintenance programs**
- **Road asset valuation figures**
- **Predictive Modelling of future renewal demand cost**
- **Internal and External benchmarking of asset condition and performance**

## 2.2 The Aim of this report

While the condition assessment survey delivers detailed condition ratings right down to individual segment level, this report is aimed at a higher level and tracks the performance of the roads at a network level.

This report will focus on the last 3 of the above 4 dot points. For access to the detailed works programs you are referred back to the reports within the MAMS software.

In more specific terms the aim of this report is to deliver the following.

- Benchmark asset condition both internally (compared to a previous condition survey) and externally (compared to all other councils assessed by MAMS)
- Deliver asset valuation figures including annual depreciation for the whole network
- Produce asset degradation curves based upon the statistical analysis of condition change between two condition surveys
- Deliver a 20-year predicted pattern of asset renewal demand using the MAMS financial Modelling software in conjunction with the survey results

## 2.3 The Moloney Financial Model

Predictive Modelling is undertaken within the Moloney financial Modelling software. This is a network-based model that commences with the present condition distribution of an asset set. It then degrades the assets in accordance with an adopted degradation curve to simulate the passage of time. From here the model predicts the required renewal expenditure pattern over a 20-year period to maintain the asset set within a selected intervention level or level of service.

For a detailed explanation of the model and how it works please refer to our web site at www.moloneys.com.au and from the "Get Information" tab download the PDF document titled "The Moloney Financial Modelling Methodology"

Modelling outcome is very much dependent upon the accuracy of the input data and how assets are grouped. The basic five input criteria required for the Modelling process are detailed below with their source identified. Council has supplied the rehabilitation unit rates and present expenditure levels. The survey of the assets has delivered the other variables.

*The degradation curves used in the Modelling process within this report have been specifically developed for Horsham Rural City via a statistical analysis of asset condition change over the last 13 years.*

| | | |
|---|---|---|
| Rehabilitation Cost | — | Supplied by Council |
| Present Expenditure Levels | — | Supplied by Council |
| Asset Quantity | — | Directly from this survey |
| Asset Condition | — | Directly from this survey |
| Degradation Curves | — | Unique Degradation curves developed by MAMS |

Modelling outcome is dependent upon all 5 of the above variables. If any one is of poor or questionable quality then the whole process can be flawed.

### 2.3.1 Asset Unit Renewal rates

The asset unit renewal rates used within the modelling sections of this report are all based upon the projected cost to renew or rehabilitate an existing asset. Section 3 of the report dealing with asset valuations, uses unit construction rates based upon (green fields construction) or construction for the first time where no asset previously existed. This is an accounting requirement for valuations, but if those same unit rates were to be used in the future financial modelling of the assets the projected renewal demand could be quite misleading.

## 2.4 Capital Rehabilitation - Renewal and Capital Expansion Works

The term **Capital Expenditure** has a broad meaning that can denote different things under certain circumstances. For the purpose of this report all **Capital Expenditure** relates to Renewal or **Capital Rehabilitation Expenditure**. That is, expenditure put towards the replacement or rehabilitation of existing assets.

This report is limited in its financial analysis to the costs associated with the ongoing cyclical rehabilitation of the existing road asset base. Costs associated with new or upgraded assets would need to be added to the total expenditure levels delivered within the report. The financial analyses undertaken within the

report can best be seen as an estimate of the ongoing financial demand to maintain the present asset base in perpetuity.

# Section 3: Valuations and Current Expenditure Levels

This section will examine the overall asset valuations and the current level of capital-renewal and maintenance expenditure.

## 3.1 Estimated Asset Valuations

Following the completion of the survey the data was placed into the Moloney asset management system and the table below represents a summary of the overall asset quantities and valuations. The Annual Depreciation figure of $5,948,659 is really an accounting figure and may vary from the actual annual renewal demand or what we term the Annual Renewal Liability. Annual Depreciation represents the first attempt to define the annual loss in capital value within the asset set. At its most basic level it represents the rate of annual capital consumption of the asset base.

| ASSET DESCRIPTION | Total Quantity | Units | Weighted Av. Asset Cond. | Replace. Value $ | Asset Life in Years | Written Down Value $ | Accumul. Deprec. $ | Annual Deprec. $ |
|---|---|---|---|---|---|---|---|---|
| Footpath | 171,272 | Lin. Met | 3.264 | 23,863,288 | 48.5 | 13,447,416 | 10,415,872 | 491,480 |
| Kerb | 228,369 | Lin. Met | 3.568 | 25,365,601 | 55.5 | 15,301,802 | 10,063,799 | 458,364 |
| Sealed Pavements | 970,548 | Lin. Met | 4.014 | 136,654,881 | 61.7 | 62,725,580 | 73,929,301 | 2,210,160 |
| Unsealed Pavement | 1,179,217 | Lin Met | 2.710 | 24,231,798 | 21.9 | 15,070,655 | 9,161,142 | 1,052,467 |
| Sealed Surface | 970,548 | Lin. Met | 3.021 | 20,512,994 | 12.8 | 11,838,004 | 8,674,990 | 1,736,189 |
| | | | | **230,628,562** | | **118,383,457** | **112,245,105** | **5,948,659** |

Fig 3.1 Table of asset valuations

**Important Note:**

The asset valuations detailed above are based upon the best available information at the time of preparing this report. Before they are adopted for accounting purposes council MUST check the inputs and assumptions to ensure that the results are consistent with their approach to the valuation of road assets.

## 3.2 Current Levels of Renewal Expenditure vs. Av Long-term Demand

| Sub Asset Description | Present total Annual Capital Renewal Expenditure | Annual Depreciation or Average Long term Annual Demand | % of Annual Depreciation Being Met |
|---|---|---|---|
| Sealed Pavements | **2,110,230** | **2,210,160** | 95 |
| Sealed Surface | **1,024,798** | **1,736,189** | 59 |
| Unsealed Pavement | **560,000** | **1,052,467** | 53 |
| Kerbs | **353,000** | **458,364** | 77 |
| Footpaths | **274,000** | **491,480** | 56 |
| Totals | **4,322,028** | **5,948,659** | 73 |

Fig 3.2 Details of Current Expenditure Levels and demand

Figure 3.2 provides some very important overall figures. It indicates that the average long-term annual renewal demand (depreciation) is $5,948,659 PA and that the present capital renewal expenditure is $4,322,028 PA.

*Council is funding only around 73% of the average long-term demand (Depreciation). Modelling in later sections of the report will determine if the current level of expenditure is meeting current renewal demand.*

# Section 4: Asset Degradation – Performance Curves

Asset degradation or performance curves, unique to the district, can be developed once two or more consistent condition surveys have been undertaken. This is done in the Moloney system by examining all assets within a given condition rating following the first survey and determining which have degraded by the time of the second survey.

The condition change between surveys is used to predict the annual statistical probability of an asset degrading from one asset condition to the next. In turn this equates to an expected average life within each condition rating. The degradation curves serve two very important functions. Firstly they are used within the financial Modelling section of the Moloney system to predict future asset condition movement and financial demand. Secondly they should form the basis of the justification for the selection of depreciation life cycles within the accounting system.

Within the asset degradation tables below the results are expressed as an expected life in years within each of the condition ratings 0 to 9. Little or no asset life is allocated above condition 8 as this is generally considered the upper condition limit for an asset to remain in service. The other important information within the table is the **% of total asset base within the start condition**. That is, the % of the total asset base that was within the commencing condition range at the time of the first survey, the higher the figure here, the more reliable the prediction.

Figures sometimes need to be manually adjusted to remove inconsistencies resulting from small sample size at the extreme ends of the condition range. In all cases the total expected life will be reduced because of the small sample size. In no situations will the total life be increased other than the rare case where there is no asset within a given condition or no asset within a condition range has degraded between the two surveys.

## 4.1 Degradation Curves as developed by MAMS

*Degradation curves were produced for Horsham Rural City by analysing the change in asset condition within 4 condition surveys over the last 13 years.*

| Asset Condition Range | All Sealed Rd Pavements 2005 - 2012 | Sealed Rural Roads 2005 - 2012 | Sealed Rural Access Roads | All Sealed Urban Pavements |
|---|---|---|---|---|
| 9 - 10 | 2.0 | 1.0 | 1.0 | 2.0 |
| 8 - 9 | 7.0 | 5.0 | 5.0 | 8.0 |
| 7 - 8 | 15.8 | 9.3 | 8.0 | 17.4 |
| 6 - 7 | 15.5 | 10.0 | 8.0 | 16.9 |
| 5 - 6 | 12.2 | 9.0 | 9.5 | 16.1 |
| 4 - 5 | 9.0 | 8.4 | 10.1 | 10.1 |
| 3 - 4 | 8.7 | 7.8 | 9.5 | 11.1 |
| 2 - 3 | 7.3 | 6.8 | 7.3 | 7.9 |
| 1 - 2 | 3.8 | 3.2 | 3.7 | 5.2 |
| 0 - 1 | 3.7 | 3.8 | 4.4 | 3.4 |
| | 85.0 | 64.2 | 66.5 | 98.1 |

Fig 4.1 Road Pavement Degradation Rates

*The sealed road pavement assets as a single total group were found to have a total life of around 85 years. Note that the urban life cycle is a little longer than that of the rural roads. The life cycles may appear high but they are consistent with the findings from other council districts. The life is the total life to condition 10 and if intervening at condition 7 – 8 the useful life would be shorter. For accounting and modelling purposes the life may not be extended out to the maximum, as it has been a relatively short total period of investigation.*

The total life illustrated in all of the tables within this section is the life to condition 10. In practice you will often intervene and rehabilitate before reaching condition 10. The total life is input into the financial model and the life to the selected intervention level will be less than that figure depending upon where you choose to intervene.

If you choose a low intervention level (High level of service) then your life to intervention can be very much lower than the total life to Condition 10. Think of the car tyre analogy down to the indicator lugs at, 40,000 km. fully worn through, 70,000 km.

| Asset Condition Range | All Sealed Surfaces 2008 - 2012 | All Asphalt Surfaces 2008 - 2012 | All Urban Sealed Surfaces 2008 - 2012 | All Rural Sealed Surfaces 2008 - 2012 |
|---|---|---|---|---|
| 9 - 10 | 1.0 | 1.0 | 1.0 | 1.0 |
| 8 - 9 | 2.0 | 2.0 | 2.0 | 2.0 |
| 7 - 8 | 3.0 | 3.0 | 3.0 | 3.0 |
| 6 - 7 | 4.0 | 4.0 | 5.0 | 5.0 |
| 5 - 6 | 4.0 | 4.0 | 4.6 | 5.0 |
| 4 - 5 | 4.4 | 5.2 | 3.2 | 4.0 |
| 3 - 4 | 3.2 | 5.6 | 3.0 | 3.3 |
| 2 - 3 | 2.5 | 4.1 | 2.5 | 2.5 |
| 1 - 2 | 2.1 | 5.5 | 2.0 | 2.1 |
| 0 - 1 | 1.9 | 4.4 | 1.9 | 1.9 |
| | 28.1 | 38.8 | 28.2 | 29.8 |

Fig 4.2 Sealed Surface Degradation Rates

*The sealed surface asset group covers the two most common surface types of, asphalt and spray seal. We have just used the last two surveys for the analysis of these degradation curves because of the relatively short life of the assets. Interesting to note the consistency between the 3 spray seal groups.*

| Asset Condition Range | All Unsealed Roads 2005 - 2012 | All Unsealed Roads 2008 - 2012 |
|---|---|---|
| 9 - 10 | 2.0 | 1.0 |
| 8 - 9 | 7.0 | 4.0 |
| 7 - 8 | 8.0 | 4.0 |
| 6 - 7 | 8.0 | 4.0 |
| 5 - 6 | 7.0 | 5.0 |
| 4 - 5 | 7.0 | 5.6 |
| 3 - 4 | 4.5 | 4.5 |
| 2 - 3 | 4.8 | 4.0 |
| 1 - 2 | 4.0 | 4.0 |
| 0 - 1 | 4.0 | 4.0 |
| | 56.3 | 40.0 |

Fig 4.3 Un sealed Pavement Degradation Rates

*The unsealed pavement degradation curves have been developed as a single group groups based on the three condition survey times. The results are reasonably consistent with the findings from other council districts with a 35 – 40 year average life.*

| Asset Condition Range | All Kerbs 2005 - 2012 | All Kerbs 2008 - 2012 |
|---|---|---|
| 9 - 10 | 1.0 | 2.0 |
| 8 - 9 | 10.0 | 15.0 |
| 7 - 8 | 30.0 | 30.0 |
| 6 - 7 | 30.0 | 30.0 |
| 5 - 6 | 30.0 | 30.0 |
| 4 - 5 | 30.0 | 30.0 |
| 3 - 4 | 31.3 | 20.0 |
| 2 - 3 | 16.2 | 17.4 |
| 1 - 2 | 16.2 | 9.6 |
| 0 - 1 | 10.5 | 12.4 |
| | 205.2 | 196.4 |

Fig 4.4 Kerb Degradation Curves

| Asset Condition Range | All Concrete Footpaths 2005 - 2012 | All Brick and Paver Footpaths 2008 - 2012 |
|---|---|---|
| 9 - 10 | 1.0 | 1.0 |
| 8 - 9 | 5.0 | 5.0 |
| 7 - 8 | 10.0 | 10.0 |
| 6 - 7 | 10.0 | 10.0 |
| 5 - 6 | 20.0 | 10.0 |
| 4 - 5 | 15.0 | 10.0 |
| 3 - 4 | 18.0 | 10.0 |
| 2 - 3 | 12.0 | 23.3 |
| 1 - 2 | 9.8 | 11.7 |
| 0 - 1 | 13.5 | 8.0 |
| | 114.3 | 99.0 |

Fig 4.5 Pathways Degradation Curves

*This is the third undertaken by MAMS for both the footpath and kerb assets and as such we are able to develop curves over the 2005 – 2011 period only.*

*At first glance it may appear that the total life developed for both kerbs and footpaths is very high. But when you take into account the way in which the assets are managed then the results are quite reasonable. Council tends to repair the isolated failures on both of these asset classes and so overall asset condition tends to be held static for very long periods.*

*Footpath and kerb isolated failures tend to be repaired as they occur and so an asset in say condition 4 may remain in that same condition for decades because of the constant repair work. The above results are broadly in line with the findings from other council districts.*

*When modelling these assets it is important to understand the impact of the isolated repair work on extending asset life and to take this into account when adopting asset life for modelling purposes.*

## 4.2 Benefit of Unique Degradation Curves

The unique degradation curves developed via an analysis of condition change between surveys takes all variables into account to deliver a condition performance profile based upon the actual council locality. It is then used within the Moloney model to predict future condition change with time and greatly enhances the overall financial Modelling outcome.

# Section 5: Sealed Road Pavement Asset Analysis

This section will deal with the Sealed Road Pavement assets. The first two figures below relate to asset condition and how condition has changed since the last survey while the third provides a condition comparison with other council districts surveyed by Moloney.

## 5.1 Condition and Performance Indicators for Sealed Road Pavements

MAMS have developed a series of 6 key condition indicators that can be applied to all road sub asset sets. They are used to measure condition movement between field surveys some years apart. They are also used to benchmark against other council districts assessed on the same basis.

The same key condition indicators are used for all road asset groups. However for some asset classes certain indicators are not applicable and as such are omitted. Detailed below is a brief explanation of the 6 key indicators. The explanation is also applicable to their use with other road sub asset sets other than the sealed road pavements.

### 5.1.1 Weighted Average Asset Condition

The weighted average asset condition is a single condition indicator that represents the whole condition distribution in one figure. It is derived by weighting the raw asset condition scale 0 - 10 for the extent of asset within each condition and so provides a basic single figure summary of the overall condition of the asset set and is very useful as a condition movement indicator.

### 5.1.2 Percentage of Urgent Failures

The percentage of urgent failures is a measure of the isolated failures identified in the survey as needing immediate repair. It is expressed as a percentage of the total asset group quantity.

### 5.1.3 Percentage of Other Failures

The percentage of other failures represents those isolated failures, which while present on the ground do not require urgent attention. The figure is again expressed as a percentage of the total asset quantity.

### 5.1.4 Average Roughness

Average roughness is only relevant to pavement assets and for sealed road pavements is a key capital condition indicator of longitudinal pavement shape, while for unsealed pavements is a key maintenance indicator. It is based on a 0 – 10 scale with 0 being perfect and 10 un-driveable.

### 5.1.5 Average Profile

Average pavement profile is similar to the roughness rating and can be seen as the pavement cross sectional shape indicator while roughness is the longitudinal pavement shape indicator. It is based on a 0 – 10 scale with 0 being perfect and 10 un-driveable.

### 5.1.6 Extent of Poor Condition Assets above a given Condition

The percentage of the asset base at and above a given condition rating is a very good way of expressing the extent of poor condition assets present. This figure is expressed as a percentage of the total asset base and is reported at several different condition levels from condition 5 to 8 depending upon the asset set in question. For example sealed road pavements at and above condition 7 would represent the extent of the asset base that would be likely to require rehabilitation over the next 3 – 5 years.

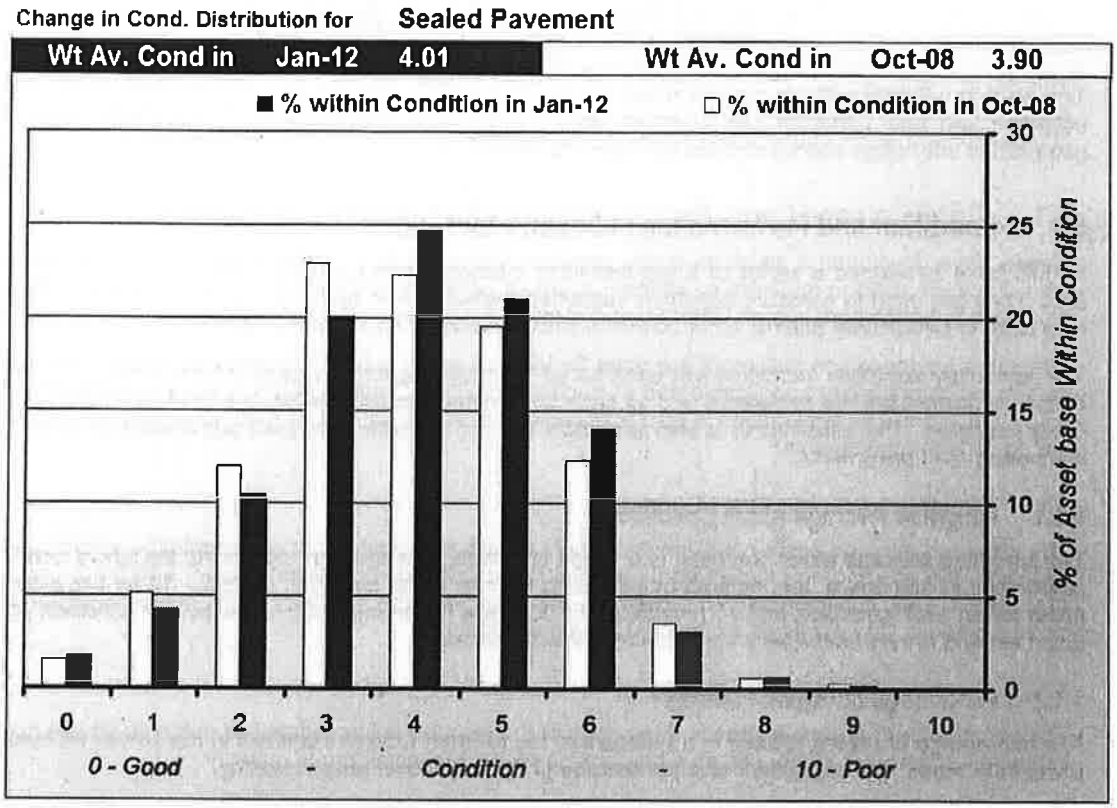



Fig. P1 Condition Distribution Comparison Graph – Between Surveys

| Key Cond. Indic. No. | Sealed Pavement Condition Indicator | Figures from Last Survey in Oct-08 | Figures from Current Survey in Jan-12 | Change between Surveys New Minus Old | % Change Between Surveys | Better or Worse Since last Survey |
|---|---|---|---|---|---|---|
| 1 | Weighted Average Asset Condition | **3.90** | **4.01** | -0.114 | -2.9 | **Worse** |
| 2 | % of Urgent Failures | **0.09** | **0.21** | -0.126 | -146.0 | **Worse** |
| 3 | % of Other Failures | **1.49** | **1.32** | **0.167** | **11.2** | **Better** |
| 4 | Average Pavement Roughness | **3.53** | **3.63** | -0.104 | -2.9 | **Worse** |
| 5 | Average Pavement Profile | **3.31** | **3.35** | -0.040 | -1.2 | **Worse** |
| 6 | % of Asset Base above Condition 6 | **16.62** | **17.95** | -1.326 | -8.0 | **Worse** |
| 7 | % of Asset Base above Condition 7 | **4.33** | **3.95** | **0.385** | **8.9** | **Better** |
| 8 | % of Asset Base above Condition 8 | **0.82** | **0.88** | -0.061 | -7.4 | **Worse** |

| Renewal Demand Being Met For: | % of Long Term Demand Being Met | % of Present Demand (From Model) Being Met |
|---|---|---|
| Sealed Rd Pavement Asset Group | 95.5 | 99.3 |

Fig. P2 Table of Key Condition Indicator Change since the last Survey

The above 2 figures provide details of how the sealed road pavement asset condition has changed since the last survey. Figure P1 details the condition distribution for each survey along with the first of the key indicators the "weighted average asset condition".

Figure P2 contains the eight key condition indicators and also shows how they have changed since the previous survey. At the bottom of the table are two very important figures. These indicate the percentage of the present renewal demand (from Modelling) and annual depreciation being met.

The % of the long-term average demand being met is simply the ratio of present renewal expenditure to your depreciation figure for the asset class. The % of the present renewal demand being met is the ratio of your present renewal expenditure to the present renewal demand predicted within the model later in this same section. If these percentages are low then a decline in overall asset condition would be expected.

*For Horsham Rural City the key performance indicators in Figure P2 demonstrate that asset condition has declined since the time of the last survey. This is a little unexpected with the present renewal expenditure at 95.5% of the estimated long-term average renewal demand (Depreciation).*

*It would be expected with this level of renewal expenditure that asset condition would have been held. However, the recent flooding and inundation of the area has clearly had an impact on the assets and is showing up in an unexpected condition decline. Section 10 below has identified an abnormal asset condition decline that has an estimated repair cost of around $8,268,000. The additional condition loss of 2.9% in figure P2 above equates to an asset valuation of around $4,000,000 which if standard unit rates of reconstruction were applied to the abnormal loss in section 10 would deliver a similar figure. So without the flood event council would have held its pavement condition steady.*

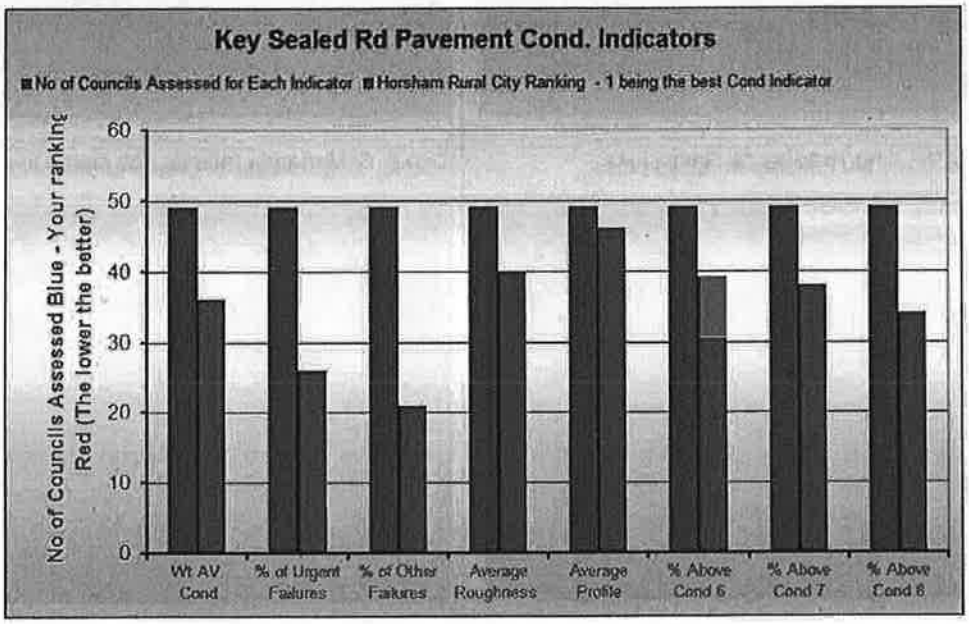



**Fig. P3 Key Condition Indicators as Compared with other Councils surveyed**

The same key condition indicators can be used to benchmark Council against all other council districts assessed by MAMS. The graph ranks the key condition indicators against those of all other councils assessed by MAMS. The lower the red bar the better the condition indicator. The blue bars represent the total number of councils assessed. The red bar at 1 equates to the best condition indicator encountered. The red bar level with the blue, represents the worst condition indicator.

*The sealed road pavements within Horsham Rural City are in fair overall condition when compared to the 49 councils assessed by MAMS (ref fig P3). For the very important indicator of "weighted Average Asset Condition" WACA Council is ranked at 36 out of the 49 councils assessed by MAMS. Council is sitting within the 35 to 40 out of 49 for most indicators with the exception being the extent of isolated failures. Here the ranking is a little better indicating very good maintenance practices.*

## 5.2 Sealed Road Pavement Financial Modelling Analysis

The Sealed road pavement assets will normally be modelled in three groups with the results aggregated here in one presentation. The table below contains a list of the basic Modelling parameters used. Note that the useable life is the life to intervention, an asset should not remain in service after that point.

### 5.2.1 Sealed Road Pavement – Selection of Retreatment Intervention Level

The point at which you choose to intervene to renew or replace an asset will have a big impact in the predicted future renewal demand. The intervention level can be seen as the level of service associated with the asset set. High intervention level equates to low level of service while low intervention level relates to a high level of service.

Detailed below are a series of photographs illustrating various sealed road pavement condition ratings. They do not cover the complete condition range but hopefully will provide some guidance to the selection of an acceptable retreatment intervention level.

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Cond. 0 – 1 No Failures no Shape loss</td><td>Cond. 6 Moderate failures and shape loss</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Cond. 7 Ext Shape loss and Failures</td><td>Cond. 8 – 9 Bad Shape loss and Ext Failures</td></tr>
</table>

It is very difficult to cover pavement condition in such a limited range of photographs but hopefully they will provide some idea of asset condition in the 7 – 9 condition range where most interventions will take place. Pavements can be within this condition range for a number of different reasons and the photos will cover only a limited range of these situations. They should be considered as a typical situation and not the only situation for that condition rating.

## 5.2.2 Sealed Road Pavement Financial Modelling

| Modelling Parameter | Sealed Rd Pavements | Urban Access and Minor | Rural Link and Collector | Rural Access and Minor | Rural Sealed Shoulder High Traffic | Rural Sealed Shoulder Low Traffic |
|---|---|---|---|---|---|---|
| Asset Quantity in sqm | 793,893 | 520,889 | 3,892,961 | 1,026,312 | 1,879,465 | 543,499 |
| Unit Renewal Rate | $42.00 | $39.00 | $18.00 | $16.00 | $8.00 | $7.00 |
| Total Asset Group Renewal Cost | $33,343,506 | $20,314,671 | $70,073,298 | $16,420,992 | $15,035,721 | $3,804,496 |
| Annual Renewal Exp. | $553,300 | $413,000 | $534,000 | $150,000 | $434,500 | $25,500 |
| Annual Maintenance Exp. | $145,140 | $5,900 | $180,264 | $26,936 | $176,715 | $26,955 |
| Retreat. Intervention Condition | 8.0 | 8.8 | 8.0 | 8.0 | 6.5 | 7.0 |
| Life to Condition 10 in Years | 75.0 | 90.0 | 50.0 | 60.0 | 25.0 | 40.0 |
| Life in years to Intervention | 71.3 | 88.4 | 47.5 | 57.0 | 20.1 | 34.4 |

Fig. P4A – Summary of Modelling Input Parameters for sealed pavement assets

*Sealed road pavement modelling has been undertaken within 6 categories based upon the rural urban split and the high low traffic divide. The categories are in line with the MAV Renewal Gap Modelling program.*

*Retreatment intervention levels and asset life cycles have been set at relatively optimistic levels, which will deliver renewal demand at the lower end of the expected range.*

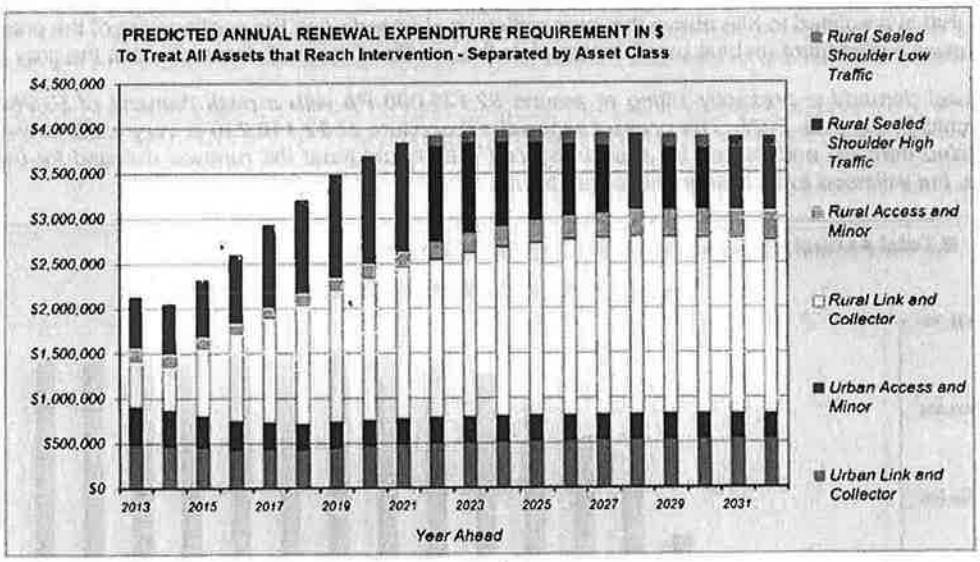



Fig. P4 Predicted Capital Requirement Model – Renewal Demand to treat all assets at Intervention

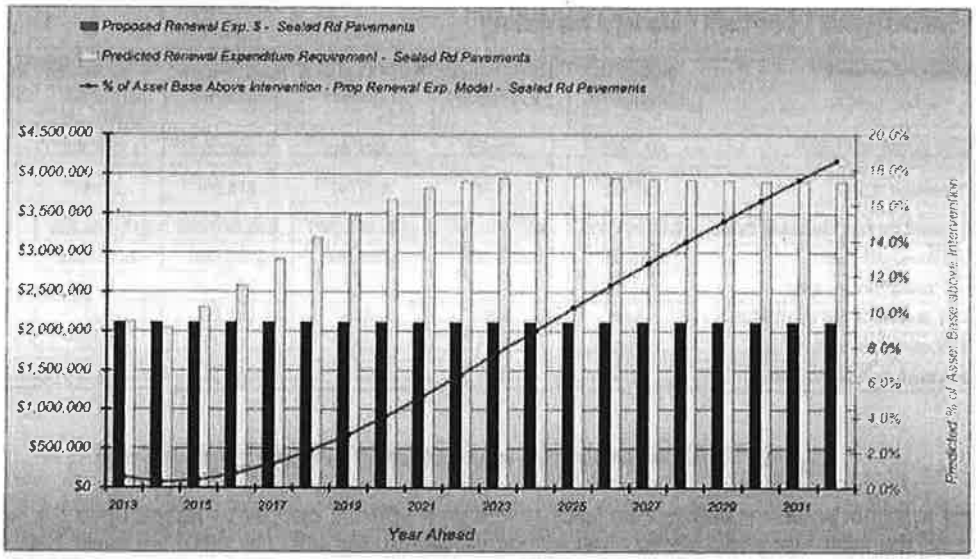



**Fig. P5 Future Condition Based on Proposed Renewal Expenditure**

Figures P4 provides a profile of the predicted renewal demand to treat all assets that reach the adopted retreatment intervention level through the degradation process. Figure P5 plots the extent of the asset base that is predicted to rise above the intervention level based upon the continuation of the present level of renewal expenditure (in blue bars). It also plots the predicted renewal demand within the grey bars.

*Renewal demand is presently sitting at around $2,125,000 PA with a peak demand of $3,964,000 PA predicted in the year 2025. The present renewal expenditure at $2,110,230 is very close to the present predicted demand and as can be seen in figure P5 it should meet the renewal demand for the next 3-yaers, but will need to be lifted in the longer term.*

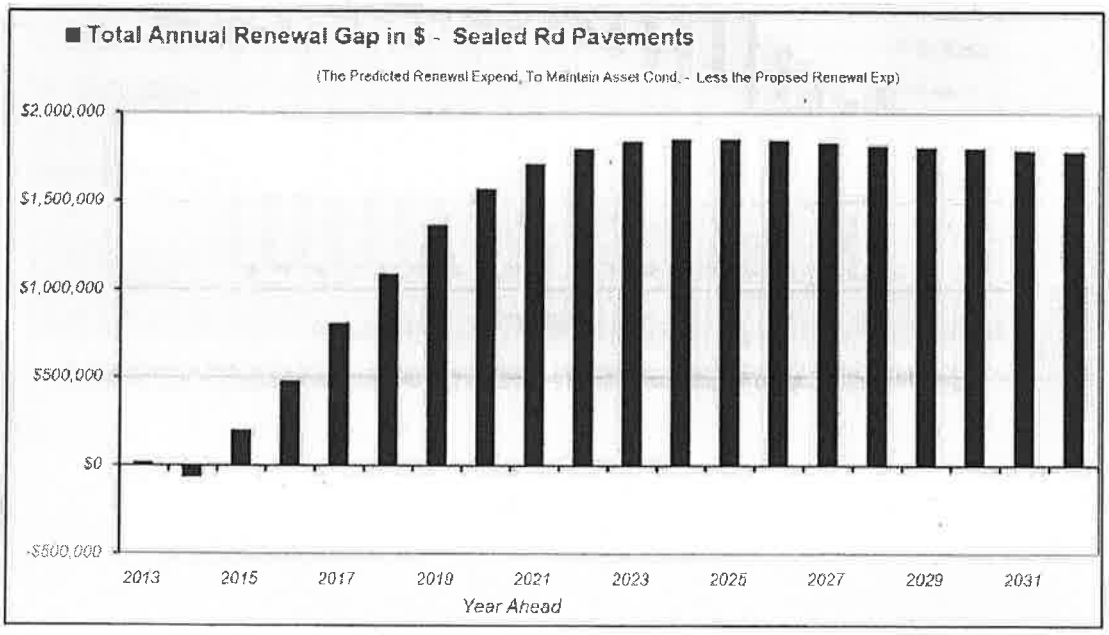



**Fig. P6 Annual funding gap for Sealed Rd Pavement assets**

Figure P6 provides a summary of the annual funding shortfall for the Sealed Road Pavement assets based upon the predicted renewal demand less the present renewal expenditure carried forward for 20 - years.

*At present council is fully funding the renewal demand coming out of the model. The intervention levels used in the modelling have tended to reflect what Council is currently achieving. That is we are not attempting to improve overall condition bur rather hold it static.*

## 5.3 Sealed Road Pavement Summary

*The sealed road pavement assets were found to be in fair overall condition and had sustained an overall decline since the time of the last survey in 2008. With the current renewal expenditure at 95% of the average long-term demand (depreciation) a condition decline is a little unexpected and can be put down to the major flooding events since 2008 rather than any lack of effort on Councils part.*

*Council has some of the most difficult subgrades in the state and as a consequence has shorter pavement lives than many other Victorian Councils. But Horsham Rural City is managing the assets exceptionally well, but must be aware that renewal demand is predicted to continue to rise. If allowance is made for the increased unit renewal rate, our predictions in both 2005 and 2008 for where we would be in 2012 has proved very accurate. Thus the predictions of continuing renewal demand rises over the next 10-years does have some credibility.*

*It is recommended that the current renewal funding level of $2,110,230 PA be maintained for the next 3-years before being reviewed again following the next condition assessment.*

# Section 6: Sealed Surface Asset Analysis

This section will deal with the Sealed Surface assets. The first two figures relate to asset condition and how condition has changed since the last survey while the third provides a condition comparison with other council districts surveyed by MAMS.

## 6.1 Condition and Performance Indicators for Sealed Surfaces

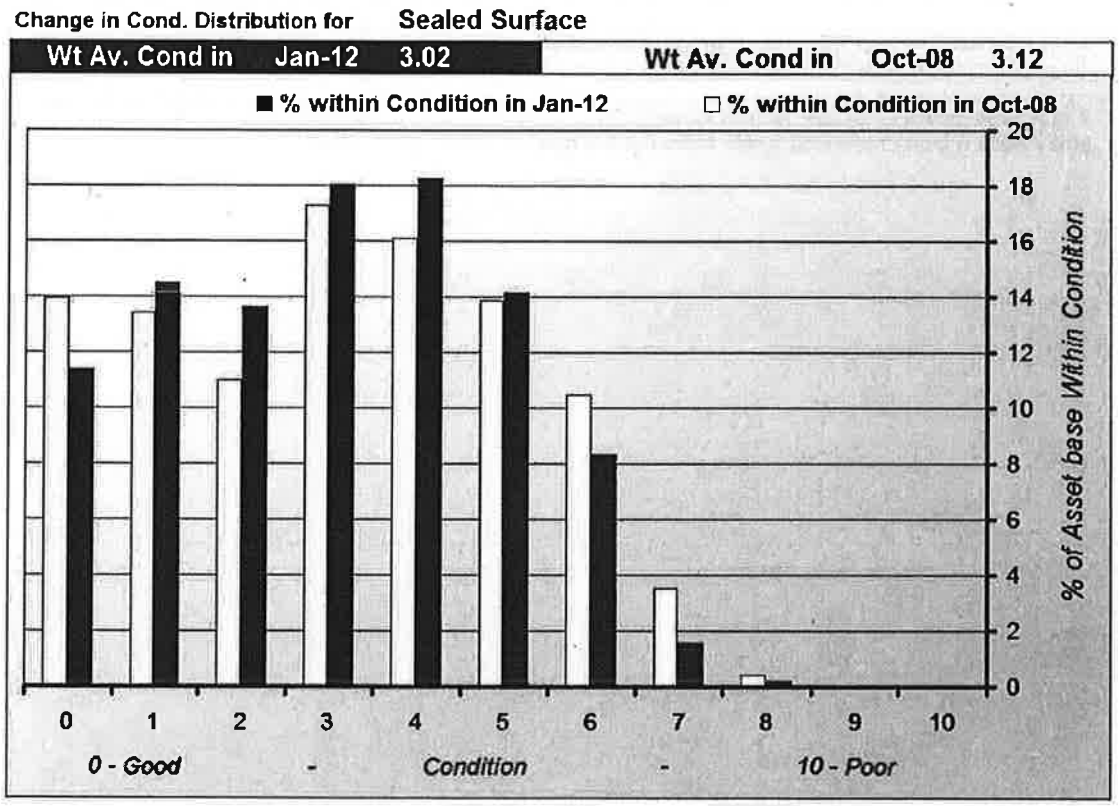



Fig. S1 Condition Distribution Comparison Graph – Between Surveys all Sealed Surfaces

| Key Cond. Indic. No. | Sealed Surface Condition Indicator | Figures from Last Survey in Oct-08 | Figures from Current Survey in Jan-12 | Change between Surveys New Minus Old | % Change Between Surveys | Better or Worse Since last Survey |
|---|---|---|---|---|---|---|
| 1 | Weighted Average Asset Condition | 3.117 | 3.021 | 0.095 | 3.1 | Better |
| 2 | % of Asset Base above Condition 5 | 28.272 | 24.247 | 4.025 | 14.2 | Better |
| 3 | % of Asset Base above Condition 6 | 14.394 | 10.094 | 4.299 | 29.9 | Better |
| 4 | % of Asset Base above Condition 7 | 3.914 | 1.762 | 2.152 | 55.0 | Better |
| 5 | % of Asset Base above Condition 8 | 0.370 | 0.194 | 0.177 | 47.7 | Better |

| Renewal Demand Being Met For: | % of Long Term Demand Being Met | % of Present Demand (From Model) Being Met |
|---|---|---|
| Sealed Surface Asset Group | 59 | 66 |

Fig. S2 Condition Change since last survey & Renewal demand being met

The above 2 figures provide details of how the sealed surface asset condition has changed since the last survey. Figure S1 details the condition distribution for each survey along with the first of the key indicators the "weighted average asset condition".

Figure S2 contains 5 of the eight key asset condition indicators that are relevant to this asset set. For a detailed explanation of the key condition indicators refer to section 5.1 above.

*Figure S2 indicates that all of the five-condition indicators have improved since the last survey in 2008. With current renewal expenditure running at only 59% of the consumption rate (Annual Depreciation) this is a little surprising but the adopted depreciation life cycle of 12.8 Years is quite low especially given the results found within the degradation curves in section 4 above.*

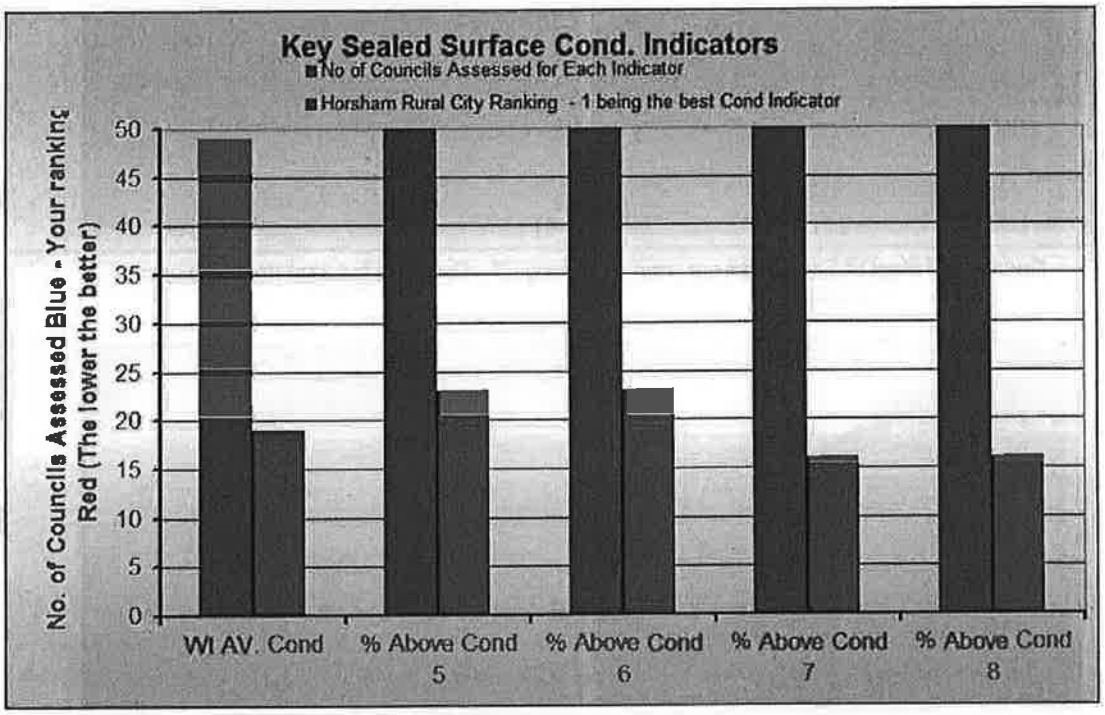



Fig. S3 Key Condition Indicators as Compared with other Councils surveyed

The five key condition indicators as detailed in figure S3 provide council with a comparison of where they sit in relation to other councils assessed by MAMS. The graph ranks the key condition indicators against those of all other councils assessed by MAMS. The lower the red bar the better the condition indicator. The blue bars represent the total number of councils assessed. The red bar at 1 equates to the best condition indicator encountered. The red bar level with the blue, represents the worst condition indicator.

*The sealed surfaces within Horsham Rural City are in good overall condition when compared with the 49 councils assessed by MAMS. Horsham is sitting within the better half of the councils assessed for all indicators and within the best one third for the very important extent of assets in condition 7 and 8.*

## 6.2 Sealed Surface Financial Modelling Analysis

The Sealed Surface assets will be modelled in two groups with the results aggregated here in one presentation. The table below contains a list of the key Modelling parameters used. Note that the useable life is the life to intervention, an asset should not remain in service after that point.

### 6.2.1 Sealed Surfaces – Selection of Retreatment Intervention Level

The point at which you choose to intervene to renew or replace an asset will have a big impact in the predicted future renewal demand. The intervention level can be seen as the level of service associated with the asset set. High intervention level equates to low level of service while low intervention level relates to a high level of service.

Detailed below are a series of photographs illustrating various sealed surface condition ratings. They do not cover the complete condition range but hopefully will provide some guidance to the selection of retreatment intervention level.

Cond. 0 – 1 Seal in Excellent near new condition

Cond. 5 Cracking but seal not too oxidized

Cond. 6.5 - 7 Oxidized and Stripping

Cond. 8 Fully Oxidized and falling apart

It is very difficult to cover sealed surface condition in such a limited range of photographs but hopefully they will provide some idea of asset condition in the 7 – 9 condition range where most interventions will take place. Sealed Surfaces can be within this condition range for a number of different reasons and the photos will cover only a limited range of situations. They should be considered as a typical situation and not the only situation for that condition rating.

### 6.2.2 Sealed Surfaces – Financial Modelling Results

| Modelling Parameter | All Asphalt Surfaces | Urban Link and Collector Seals | Urban Access and Minor Seals | Rural Link and Collector Seals | Rural Access and Minor Seals |
|---|---|---|---|---|---|
| Asset Quantity in sqm | 83,831 | 745,170 | 514,671 | 3,011,516 | 787,337 |
| Unit Renewal Rate | $25.0 | $4.8 | $4.3 | $3.83 | $3.41 |
| Total Asset Group Renewal Cost | $2,095,775 | $3,547,009 | $2,197,645 | $11,534,106 | $2,684,819 |
| Annual Renewal Exp. | $0 | $150,000 | $125,069 | $645,000 | $104,276 |
| Annual Maintenance Exp. | $0 | $106,790 | $23,895 | $283,272 | $42,328 |
| Retreat. Intervention Condition | 7.0 | 7.0 | 7.5 | 7.0 | 7.5 |
| Life to Condition 10 in Years | 35.0 | 19.0 | 19.0 | 19.0 | 19.0 |
| Life in years to Intervention | 32.2 | 17.9 | 18.1 | 17.9 | 18.1 |

Fig. S4A – Summary of Modelling Input Parameters for Sealed Surface Assets

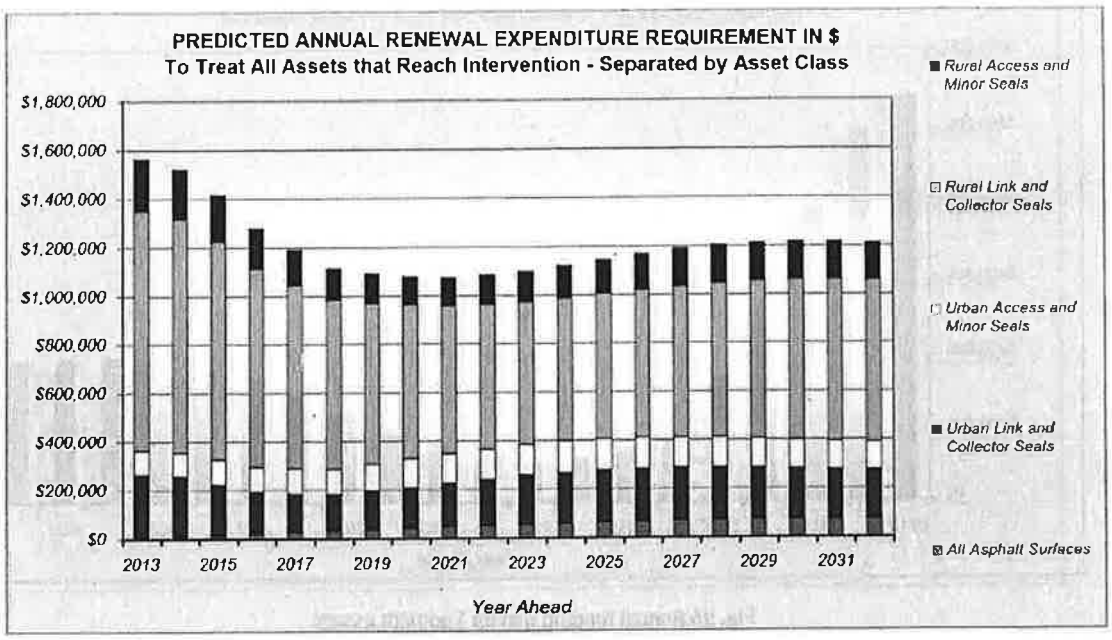



Fig. S4 Predicted Capital Requirement Model – Renewal Demand to treat all assets at Intervention

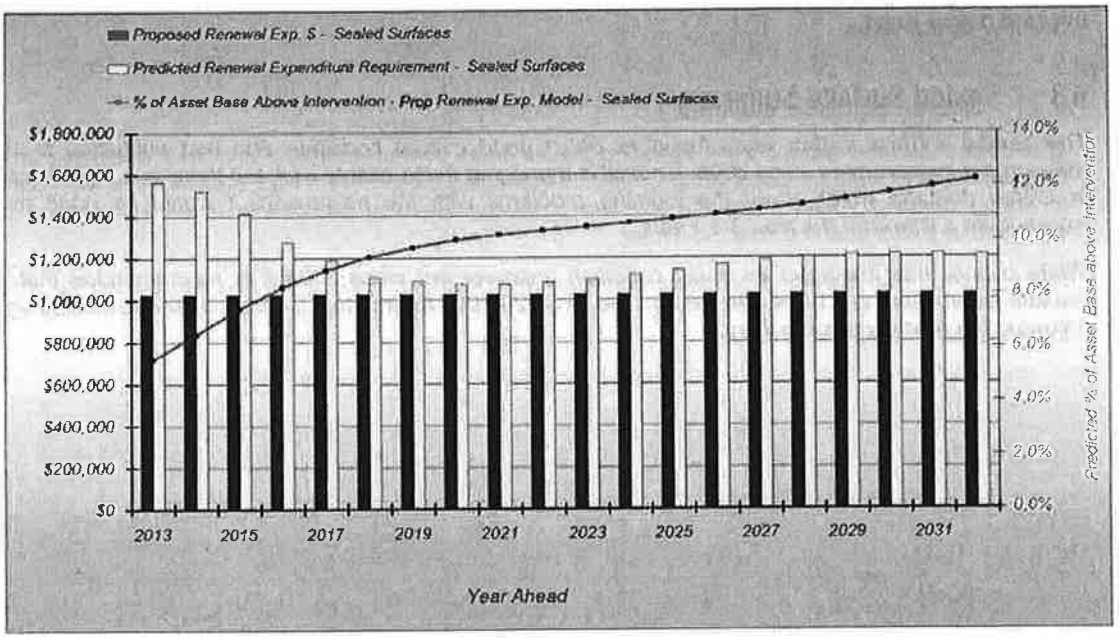



Fig. S5 Future Condition Based on Proposed Renewal Expenditure

Figures S4 provides a profile of the predicted renewal demand to treat all assets that reach the intervention level through the degradation process. Figure S5 plots the extent of the asset base that is predicted to rise above the intervention level based upon the continuation of the present level of renewal expenditure (in blue bars). It also plots the predicted renewal demand within the grey bars.

*Capital renewal demand is presently sitting at around $1,564,000 PA which also represents the peak demand over the next 20-years. The present renewal expenditure at $1,024,798 PA is well below this level but renewal demand is predicted to fall away over the next 5-years.*

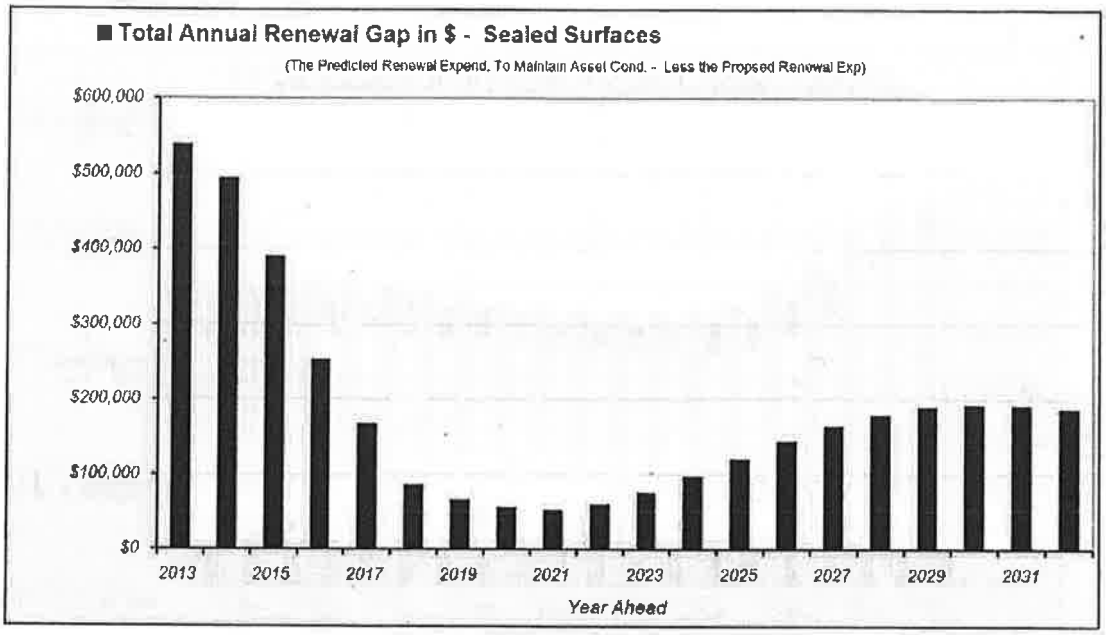



**Fig. S6 Annual funding gap for Footpath assets**

Figure S6 provides a summary of the annual funding shortfall for the Sealed Surface assets based upon the predicted renewal demand less the present renewal expenditure carried forward for 20 - years.

*In this case the model predicts a present shortfall of $539,202 PA. But demand is predicted to fall away over the next 5-years.*

## 6.3 Sealed Surface Summary

*The sealed surface assets were found to be in good overall condition and had sustained a quite measurable improvement since 2008. Council is managing these assets well, but there is a slight backlog in unmet demand which given the looming problems with the pavements it would be good to lift expenditure a little over the next 3-5 Years.*

*While council has managed an asset condition improvement since 2008 it is recommended that the present expenditure of $1,024,798 PA be lifted to $1,200,000 for the next 3- years before reviewing again following the next condition survey.*

# Section 7: Unsealed Pavement Assets

This section will deal with the Unsealed Road Pavement assets. The first two figures relate to asset condition and how condition has changed since the last survey while the third provides a condition comparison with other council districts surveyed by MAMS.

## 7.1 Condition and Performance Indicators for Unsealed Road Pavements

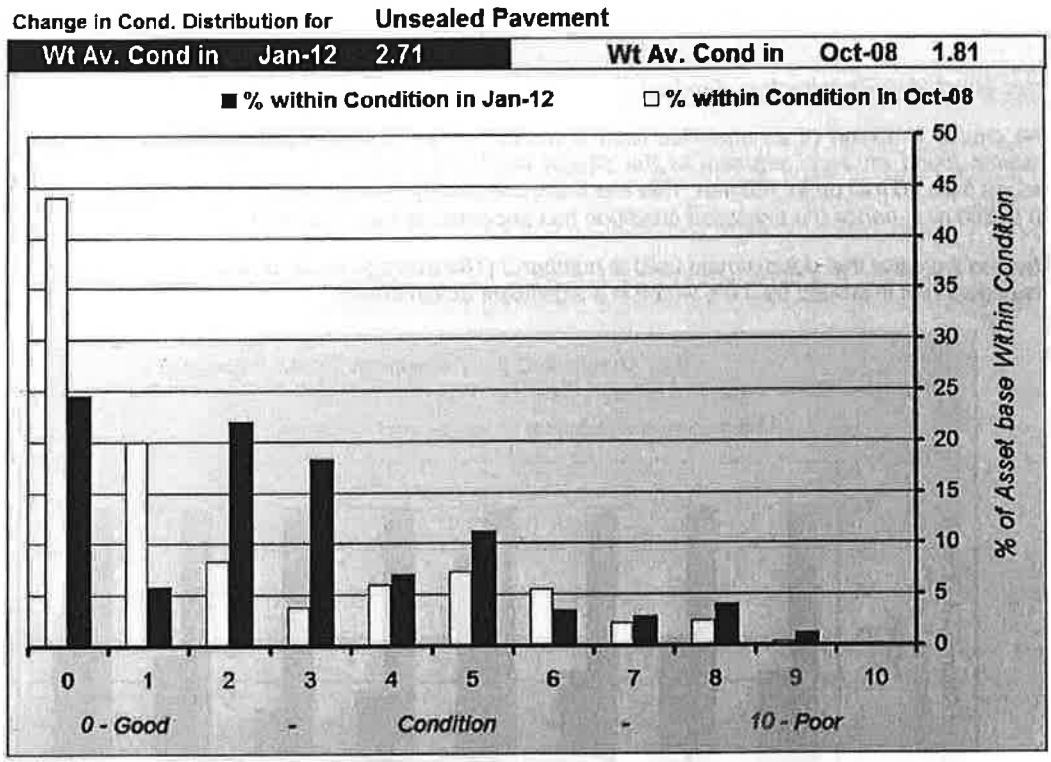



Fig. U1 Condition Distribution Comparison Graph – Between Surveys

| Key Cond. Indic. No. | Unsealed Pavement Condition Indicator | Figures from Last Survey in Oct-08 | Figures from Current Survey in Jan-12 | Change between Surveys New Minus Old | % Change Between Surveys | Better or Worse Since last Survey |
|---|---|---|---|---|---|---|
| 1 | Weighted Average Asset Condition | 1.81 | 2.71 | -0.905 | -50.1 | Worse |
| 2 | % of Pavement Failures | 2.71 | 2.94 | -0.230 | -8.5 | Worse |
| 3 | Average Pavement Roughness | 3.77 | 3.89 | -0.124 | -3.3 | Worse |
| 4 | Average Pavement Profile | 3.94 | 3.88 | 0.066 | 1.7 | Better |
| 5 | Average Pavement Depth in mm | 85 | 88 | 3.100 | 3.6 | Better |
| 6 | % of Asset Base above Condition 6 | 10.57 | 11.38 | -0.808 | -7.6 | Worse |
| 7 | % of Asset Base above Condition 7 | 5.08 | 7.97 | -2.892 | -57.0 | Worse |
| 8 | % of Asset Base above Condition 8 | 2.85 | 5.20 | -2.347 | -82.3 | Worse |

| Renewal Demand Being Met For: | % of Long Term Demand Being Met | % of Present Demand (From Model) Being Met |
|---|---|---|
| UnSealed Rd Pavement Asset Group | 53 | 77 |

Fig. U2 Condition Change since last survey & Renewal demand being met

The above 2 figures provide details of how unsealed pavement asset condition has changed since the last survey. Figure U1 details the condition distribution for each survey along with the first of the key indicators the "weighted average asset condition".

Figure U2 contains the eight key asset condition indicators that are relevant to this asset set. For a detailed explanation of the key condition indicators refer to section 5.1 above. There is one additional indicator for the unsealed road pavements that is unique to this asset set and as such was not included back in section 5.1. This is the average pavement depth, which is simply the average depth of imported pavement material found on the pavements when they were dug during the survey.

*Figures U1 and U2 above appear to indicate that asset condition has declined since the last survey in 2008. However, council had a very low construction standard on many of the unsealed pavements and this has been completely reviewed with many pavements now having been allocated a far higher and more appropriate construction standard.*

*The capital condition of an unsealed road is derived by comparing the amount of imported pavement material found on each segment to the design depth for a new pavement. In 2008 the design depth ranged from 50 mm up to 100 mm. This has been completely reviewed with the depth range now 100 mm up to 200 mm, hence the assessed condition has appeared to have declined.*

*The one indicator that does remain valid is number 5 (The average depth of imported pavement material). This figure has improved by 3.6% which is a significant achievement.*

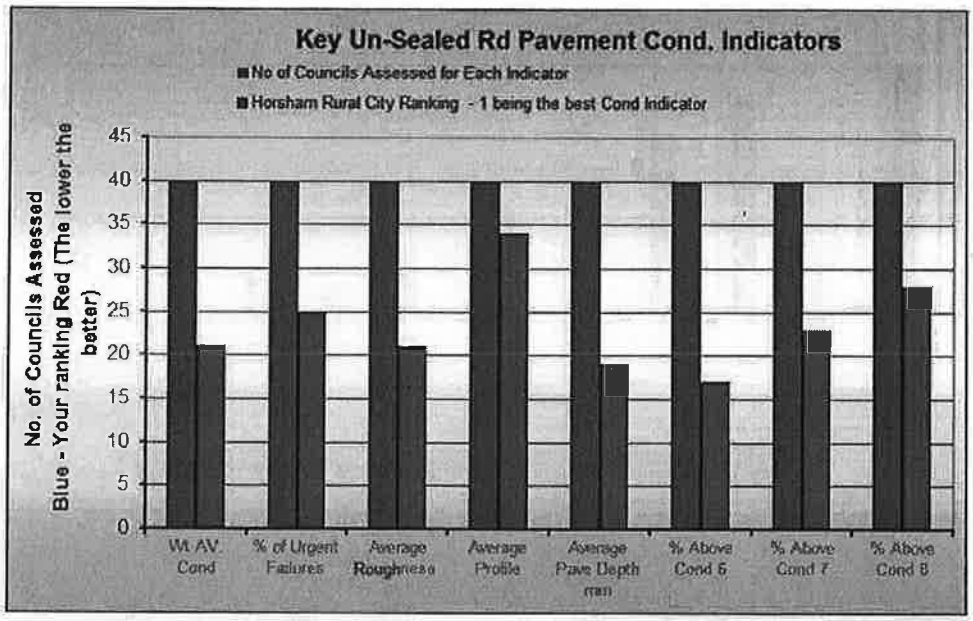



**Fig. U3 Key Condition Indicators as Compared with other Councils surveyed**

The eight key condition indicators as detailed in figure U3 provide council with a comparison of where they sit in relation to other councils assessed by MAMS. The graph ranks the key condition indicators against those of all other councils assessed by MAMS. The lower the red bar the better the condition indicator. The blue bars represent the total number of councils assessed. The red bar at 1 equates to the best condition indicator encountered. The red bar level with the blue, represents the worst condition indicator.

*The unsealed road pavement assets were found to be in good overall condition as illustrated in Figure U3 above. The important indicators of weighted average asset condition and average pavement depth are at or around the middle of the 40 councils assessed.*

## 7.2 Unsealed Road Pavement Financial Modelling Analysis

The Unsealed road pavement assets will normally be modelled in three groups with the results aggregated here in one presentation. The table below contains a list of the basic Modelling parameters used. Note that the useable life is the life to intervention, an asset should not remain in service after that point.

### 7.2.1 Unsealed Road Pavement – Selection of Retreatment Intervention Level

The point at which you choose to intervene to renew or replace an asset will have a big impact in the predicted future renewal demand. The intervention level can be seen as the level of service associated with the asset set. High intervention level equates to low level of service while low intervention level relates to a high level of service.

Detailed below are a series of photographs illustrating various unsealed road pavement condition ratings. They do not cover the complete condition range but hopefully will provide some guidance to the selection of retreatment intervention level.

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Cond. 0 – 1 Average Depth 150 mm</td><td>Cond. 7 – Average depth 20 – 30 mm only</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Cond. 8 Av Depth 20 mm & Ext Bare Patches</td><td>Cond. 9 Scattered patched of Pave Material only</td></tr>
</table>

It is very difficult to cover Unsealed Pavement condition in such a limited range of photographs but hopefully they will provide some idea of asset condition in the 7 – 9 condition range where most interventions will take place. Unsealed Pavements can be within this condition range for a number of different reasons and the photos will cover only a limited range of situations. They should be considered as a typical situation and not the only situation for that condition rating.

| Modelling Parameter | Unsealed Pavements Link and Collector | Unsealed Pavements Access Roads | Unsealed Roads Paved Under Maintenance |
|---|---|---|---|
| Asset Quantity in sqm | 424,694 | 2,468,405 | 1,113,693 |
| Unit Renewal Rate | $10.04 | $7.86 | $0.50 |
| Total Asset Group Renewal Cost | $4,264,341 | $19,410,610 | $556,847 |
| Annual Renewal Exp. | $123,500 | $436,500 | $2,000 |
| Annual Maintenance Exp. | $121,322 | $232,823 | $10,000 |
| Retreat. Intervention Condition | 7.0 | 8.0 | 9.0 |
| Life to Condition 10 in Years | 30.0 | 35.0 | 40.0 |
| Life in years to Intervention | 25.8 | 33.3 | 39.6 |

Fig. U4A – Summary of Modelling Input Parameters for Unsealed Rd Pavement Assets

*For Horsham Rural City we have split these assets into 3 groups relating to the road classification of access roads and all other higher priority unsealed roads. The third group covers just under one third of the unsealed roads but represent those roads, which will not be resheeted and will be generally maintained under the unsealed road maintenance budget. But a small allocation of $0.50 per sqm on a 40 year cycle has been allocated for the very occasional capital upgrade outside of the maintenance budget.*

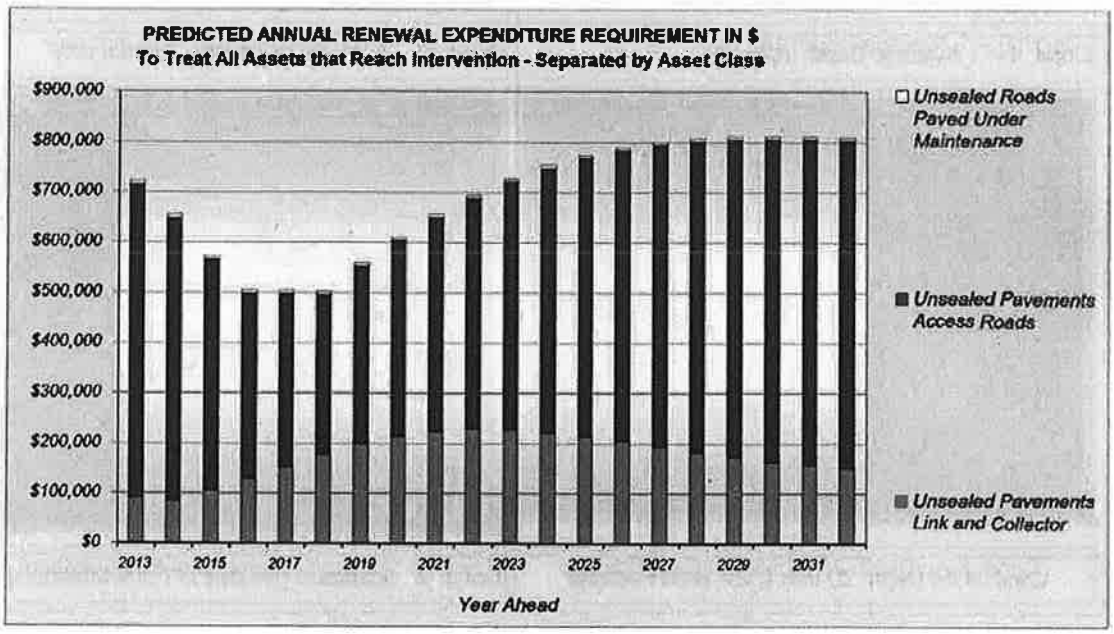



Fig. U4 Predicted Capital Requirement Model – Renewal Demand to treat all assets at Intervention

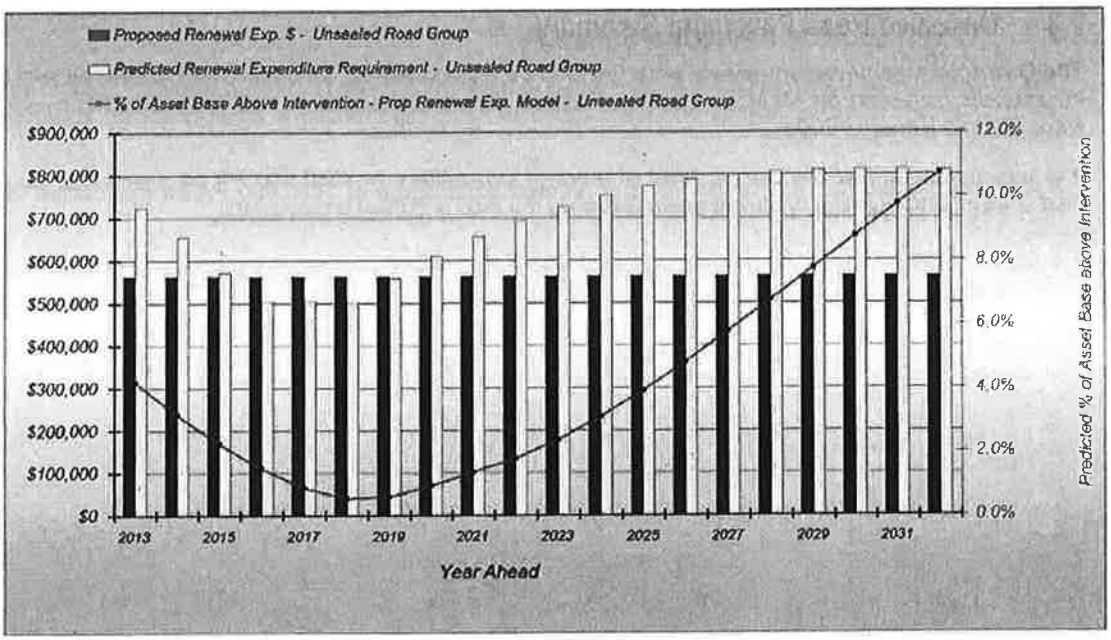



**Fig. U5 Future Condition Based on Proposed Renewal Expenditure**

Figures U4 provides a profile of the predicted renewal demand to treat all assets that reach the intervention level through the degradation process. Figure U5 plots the extent of the asset base that is predicted to rise above the intervention level based upon the continuation of the present level of renewal expenditure (in blue bars). It also plots the predicted renewal demand within the grey bars.

*Capital renewal demand is presently sitting at $723,000 PA and is predicted to peak at $812,000 in the year 2030. Present renewal expenditure at $560,000 PA is a little below the predicted present demand. However, demand is predicted to fall away over the next 5-years and the current level of renewal expenditure is considered appropriate for the next 3-years. Note also that the continuation of the current level of renewal expenditure will result in a lowering of the extent of the assets above intervention over the next 6-years.*

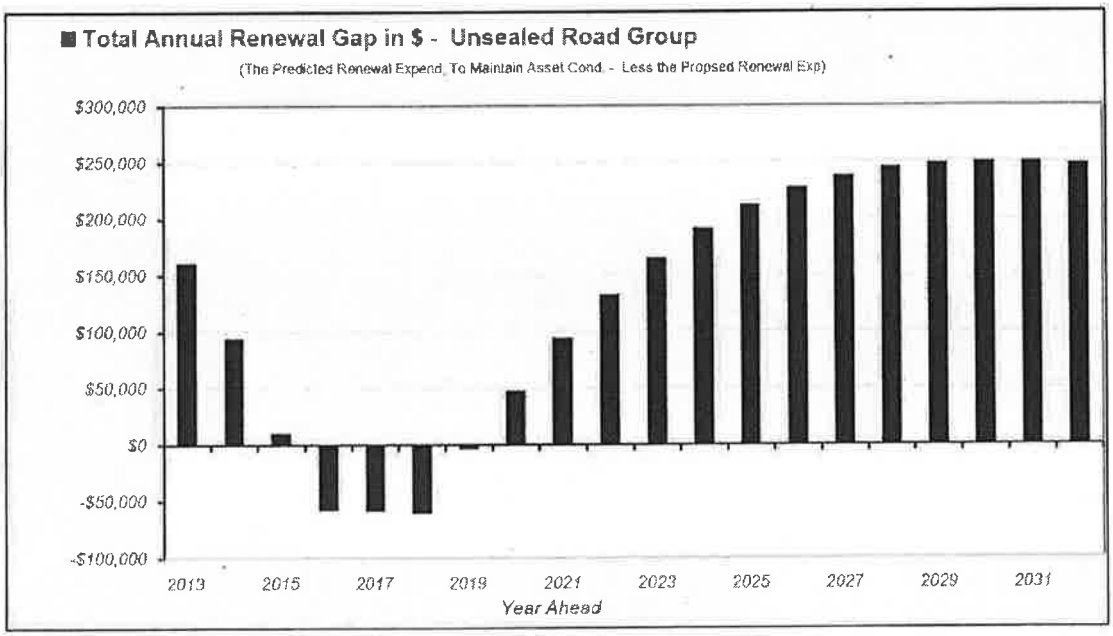



**Fig. U6 Annual funding gap for Sealed Rd Pavement assets**

Figure U6 provides a summary of the annual funding shortfall for the Unsealed Pavement assets based upon the predicted renewal demand less the present renewal expenditure carried forward for 20 - years.

## 7.3 Unsealed Road Pavement Summary

*The Unsealed road pavement assets were found to be in good overall condition when compared with the 40 councils assessed by MAMS and were found to have experienced a small condition improvement since the last survey in 2008.*

*It is recommended that the current level of renewal expenditure at $560,000 PA be maintained for the next 3-years before being reviewed again following the next condition assessment.*

# Section 8: Kerb Asset Analysis

This section will deal with the kerb assets. The first two figures relate to asset condition and how condition has changed since the last survey while the third provides a condition comparison with other council districts.

## 8.1 Condition and Performance Indicators for Kerb Assets

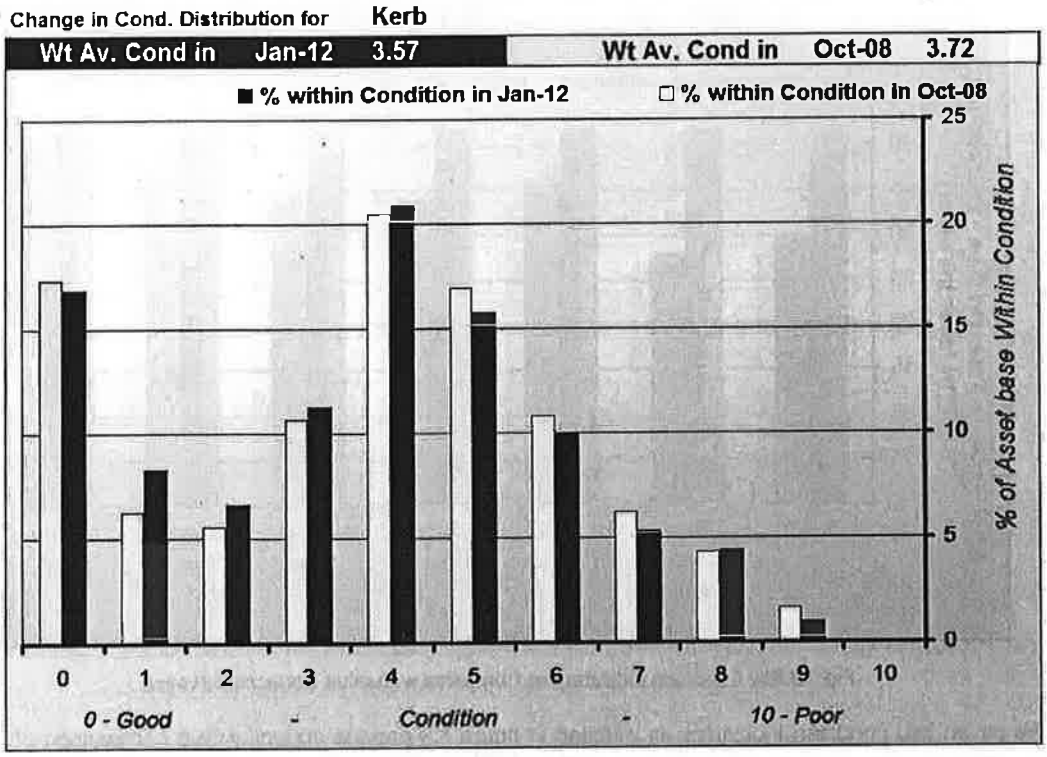



Fig. K1 Condition Distribution Comparison Graph – Between Surveys

| Key Cond. Indic. No. | Kerb Condition Indicator | Figures from Last Survey in Oct-08 | Figures from Current Survey in Jan-12 | Change between Surveys New Minus Old | % Change Between Surveys | Better or Worse Since last Survey |
|---|---|---|---|---|---|---|
| 1 | Weighted Average Asset Condition | 3.725 | 3.568 | 0.156 | 4.2 | Better |
| 2 | % of Urgent Failures | 7.359 | 6.398 | 0.961 | 13.1 | Better |
| 3 | % of Other Failures | 25.347 | 27.870 | -2.523 | -10.0 | Worse |
| 4 | % of Asset Base above Condition 5 | 39.810 | 36.229 | 3.580 | 9.0 | Better |
| 5 | % of Asset Base above Condition 6 | 22.881 | 20.528 | 2.353 | 10.3 | Better |
| 6 | % of Asset Base above Condition 7 | 12.093 | 10.561 | 1.532 | 12.7 | Better |
| 7 | % of Asset Base above Condition 8 | 5.894 | 5.266 | 0.627 | 10.6 | Better |

| Renewal Demand Being Met For: | % of Long Term Demand Being Met | % of Present Demand (From Model) Being Met |
|---|---|---|
| Kerb Asset Group | 77 | 52 |

Fig. K2 Condition Change since last survey & Renewal demand being met

The above 2 figures provide details of how the Kerb asset condition has changed since the last survey. Figure K1 details the condition distribution for each survey along with the first of the key indicators the "weighted average asset condition".

Figure K2 contains 7 of the eight key asset condition indicators that are relevant to this asset set. For a detailed explanation of the key condition indicators refer to section 5.1 above.

*The kerbs were found to be in fair to poor overall condition but had experienced a measurable overall improvement since the last survey in 2008.*

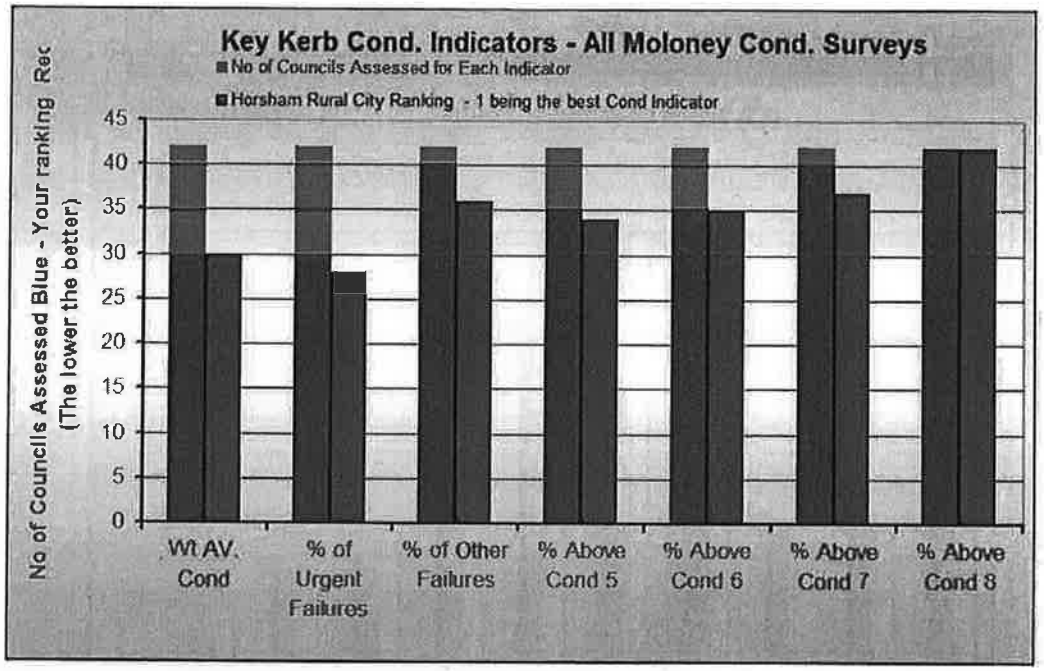



Fig. K3 Key Condition Indicators as Compared with other Councils surveyed

The seven key condition indicators as detailed in figure K3 provide council with a comparison of where they sit in relation to other councils assessed by MAMS. The graph ranks the key condition indicators against those of all other councils assessed by MAMS. The lower the red bar the better the condition indicator. The blue bars represent the total number of councils assessed. The red bar at 1 equates to the best condition indicator encountered. The red bar level with the blue, represents the worst condition indicator.

*The comparison with other council districts indicates a set of kerb assets in fair to poor condition. Horsham Rural City is sitting within the worst 25% of all councils assessed by MAMS for the important weighted average asset condition, but it has the highest extent of condition 8 kerbs ever encountered.*

## 8.2 Kerb Financial Modelling Analysis

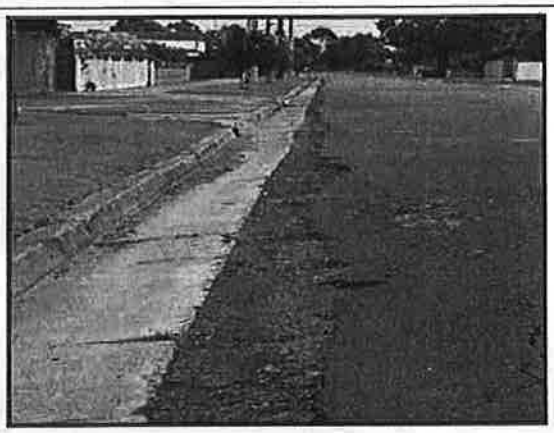
The Kerb assets will be modelled as a single asset group. The table below contains a list of the basic Modelling parameters used. Note that the useable life is the life to intervention, an asset should not remain in service after that point.

### 8.2.1 Kerb Assets – Selection of Retreatment Intervention Level

The point at which you choose to intervene to renew or replace an asset will have a big impact in the predicted future renewal demand. The intervention level can be seen as the level of service associated with the asset set. High intervention level equates to low level of service while low intervention level relates to a high level of service.

Detailed below are a series of photographs illustrating various kerb condition ratings. They do not cover the complete condition range but hopefully will provide some guidance to the selection of retreatment intervention level.

Cond. 3 Old But only Minor loss of shape & movement



Cond. 6 Movement and Concrete breakdown

Cond. 8 Large movement and holding of water

Cond. 9 Extreme movement and lack of Function

It is very difficult to cover kerb condition in such a limited range of photographs but hopefully they will provide some idea of asset condition in the 7 – 9 condition range where most interventions will take place. Kerbs can be within this condition range for a number of different reasons and the photos will cover only a limited range of situations. They should be considered as a typical situation and not the only situation for that condition rating.

### 8.2.2 Kerb Assets – Financial Modelling Results

| Modelling Parameter | Kerbs |
|---|---|
| Asset Quantity in lineal metres | 227,803 |
| Unit Renewal Rate | $127.00 |
| Total Asset Group Renewal Cost | $28,930,981 |
| Annual Renewal Exp. | $352,700 |
| Annual Maintenance Exp. | $84,000 |
| Retreat. Intervention Condition | 9.0 |
| Life to Condition 10 in Years | 100.0 |
| Life in years to Intervention | 99.0 |

Fig. K4A – Summary of Modelling Input Parameters for Kerb Assets

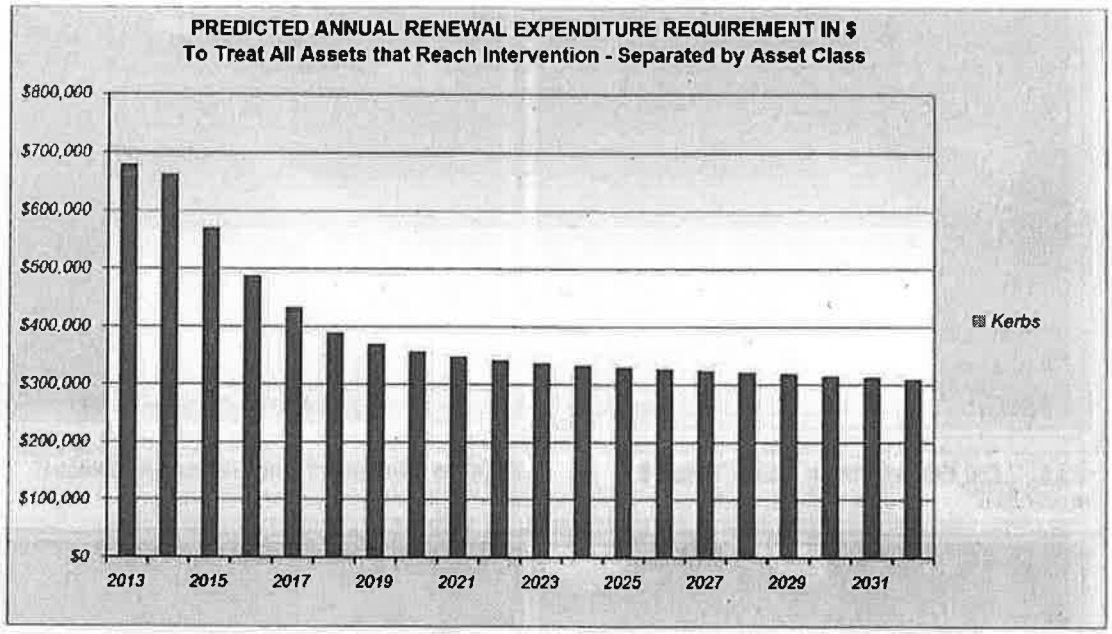



Fig. K4 Predicted Capital Requirement Model – Renewal Demand to treat all assets at Intervention

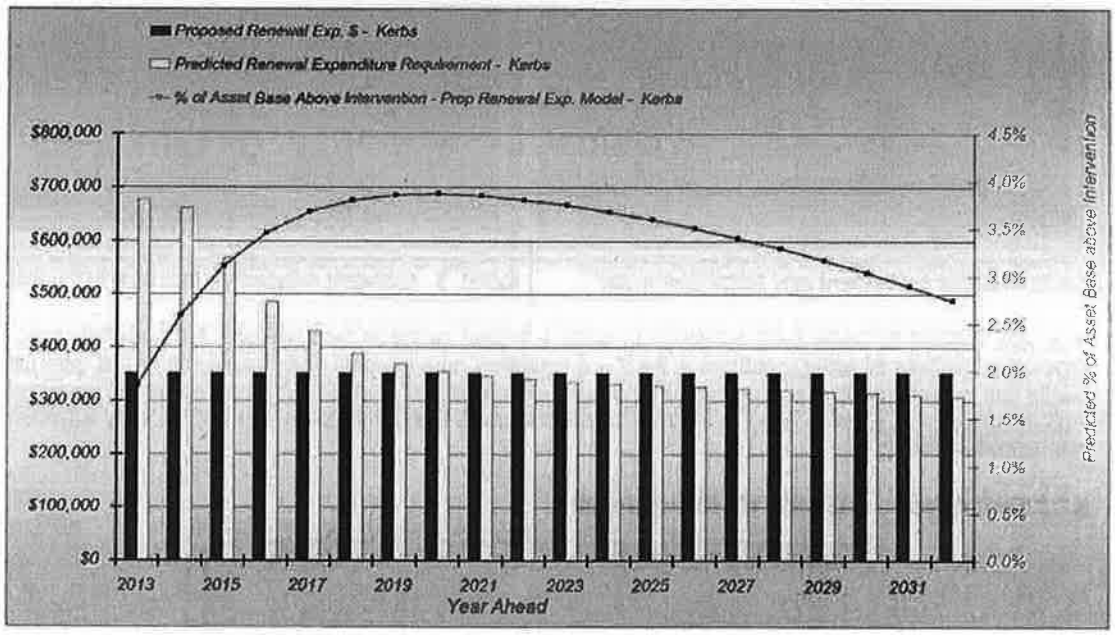



Fig. K5 Future Condition Based on Proposed Renewal Expenditure

Figures K4 provides a profile of the predicted renewal demand to treat all assets that reach the intervention level through the degradation process. Figure K5 plots the extent of the asset base that is predicted to rise above the intervention level based upon the continuation of the present level of renewal expenditure (in blue bars). It also plots the predicted renewal demand within the grey bars.

*Capital renewal demand is presently sitting at around $678,000 PA which is also the peak renewal demand figure over the next 20-years. The present renewal expenditure at $353,000 PA is below this figure and may need to be lifted in the longer term.*

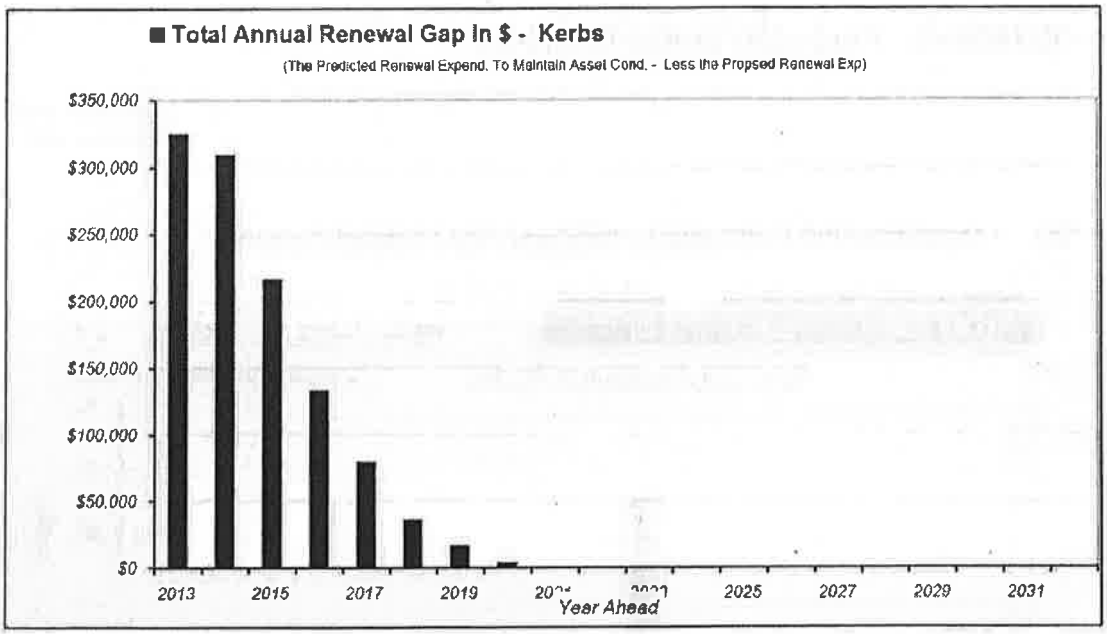



**Fig. K6 Annual funding gap for Kerb assets**

Figure K6 provides a summary of the annual funding shortfall for the Kerb assets based upon the predicted renewal demand less the present renewal expenditure carried forward for 20 - years.

## 8.3 Kerb Summary

*The Kerb assets were found to be in fair to poor overall condition when compare to the 42 councils assessed by MAMS but had improved a little in overall condition since the last survey in 2008.*

*With a retreatment intervention level of condition 9 the bar has been set relatively low. This has still resulted in a present renewal shortfall of $325,000. It is recommended that the present renewal expenditure of $353,000 PA be maintained for the next 3-years and reviewed again following the next condition assessment. It would be good to increase the expenditure but council does have other more urgent areas of demand within the roads area.*

# Section 9: Footpath Asset Analysis

This section will deal with the footpath assets. The first two figures relate to asset condition and how condition has changed since the last survey while the third provides a condition comparison with other council districts assessed by MAMS.

## 9.1 Condition and Performance Indicators for Footpath Assets

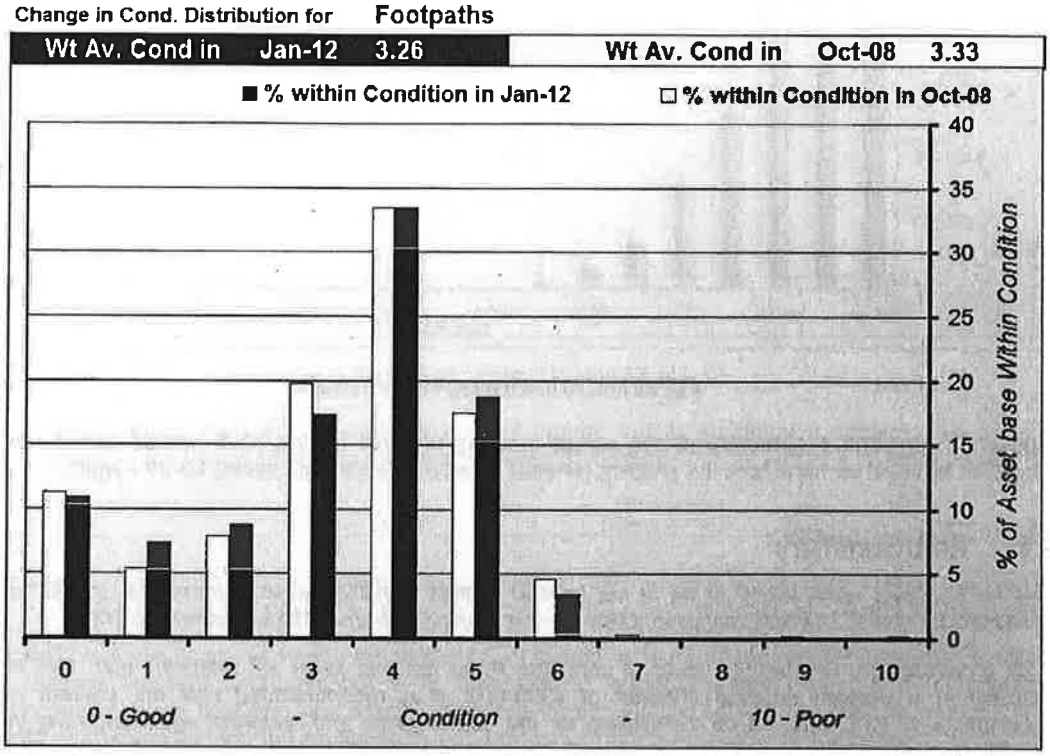



Fig. F1 Condition Distribution Comparison Graph – Between Surveys

| Key Cond. Indic. No. | Footpath Condition Indicator | Figures from Last Survey in Oct-08 | Figures from Current Survey in Jan-12 | Actual Change Negative is a Condition Decline | % Change Between Surveys | Better or Worse Since last Survey |
|---|---|---|---|---|---|---|
| 1 | Weighted Average Asset Condition | 3.33 | 3.26 | 0.06 | 1.8 | Better |
| 4 | % of Asset Base above Condition 5 | 22.49 | 22.29 | 0.19 | 0.9 | Better |
| 5 | % of Asset Base above Condition 6 | 5.10 | 3.63 | 1.47 | 28.9 | Better |
| 6 | % of Asset Base above Condition 7 | 0.59 | 0.22 | 0.36 | 62.0 | Better |
| 7 | % of Asset Base above Condition 8 | 0.29 | 0.22 | 0.07 | 24.6 | Better |

| Renewal Demand Being Met For: | % of Long Term Demand Being Met | % of Present Demand (From Model) Being Met |
|---|---|---|
| Footpath Asset Group | 56 | 166 |

Fig. F2 Condition Change since last survey & Renewal demand being met

The above 2 figures provide details of how Footpath asset condition has changed since the last survey. Figure F1 details the condition distribution for each survey along with the first of the key indicators the "weighted average asset condition".

Figure F2 contains 7 of the eight key asset condition indicators that are relevant to this asset set. For a detailed explanation of the key condition indicators refer to section 5.1 above.

*The footpath assets were found to be in fair overall condition and had improved a little since the last survey in 2008.*

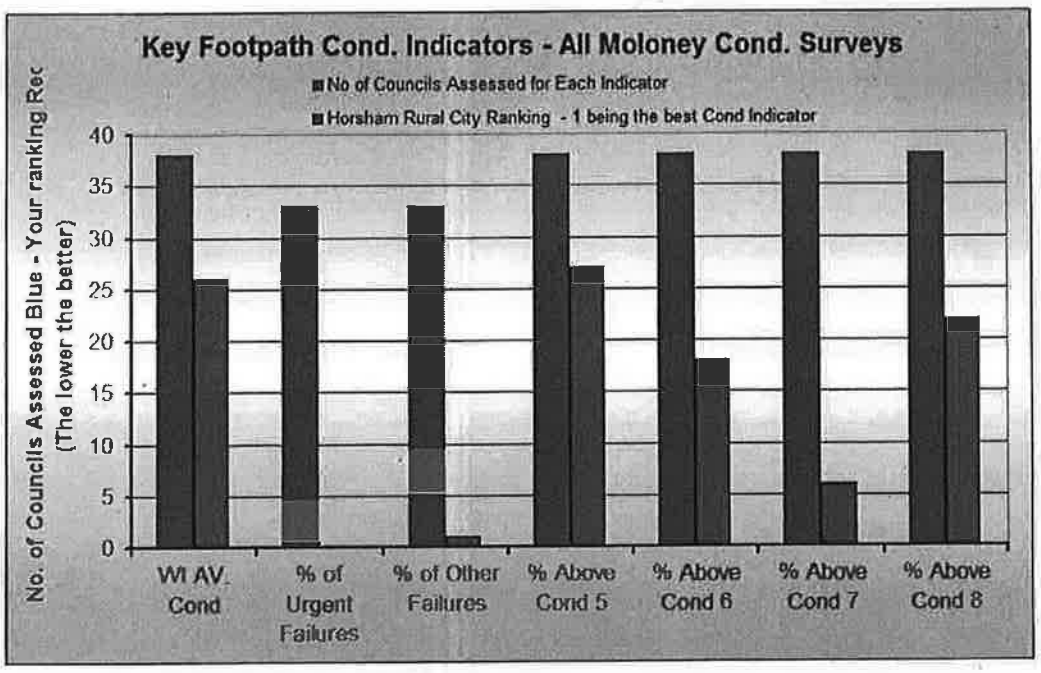



**Fig. F3 Key Condition Indicators as Compared with other Councils surveyed**

The seven key condition indicators as detailed in figure F3 provide council with a comparison of where they sit in relation to other councils assessed by MAMS. The graph ranks the key condition indicators against those of all other councils assessed by MAMS. The lower the red bar the better the condition indicator. The blue bars represent the total number of councils assessed. The red bar at 1 equates to the best condition indicator encountered. The red bar level with the blue, represents the worst condition indicator.

*The footpath assets were found to be in fair overall condition when compared to the 38 councils assessed by MAMS.*

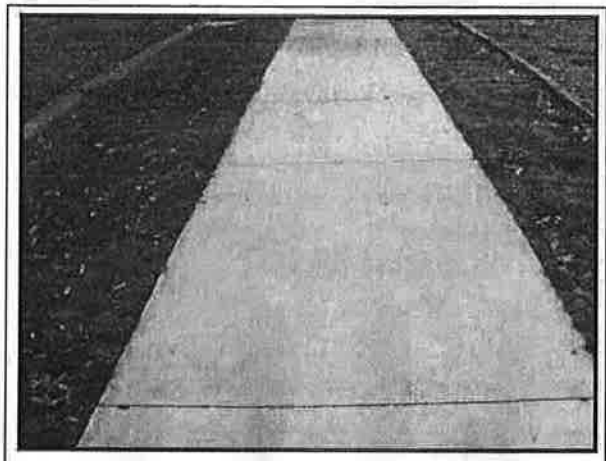
## 9.2 Footpath Financial Modelling Analysis

The Footpath assets will be modelled in two groups with the results aggregated here in one presentation. The table below contains a list of the basic Modelling parameters used. Note that the useable life is the life to intervention, an asset should not remain in service after that point.

### 9.2.1 Footpath Assets – Selection of Retreatment Intervention Level

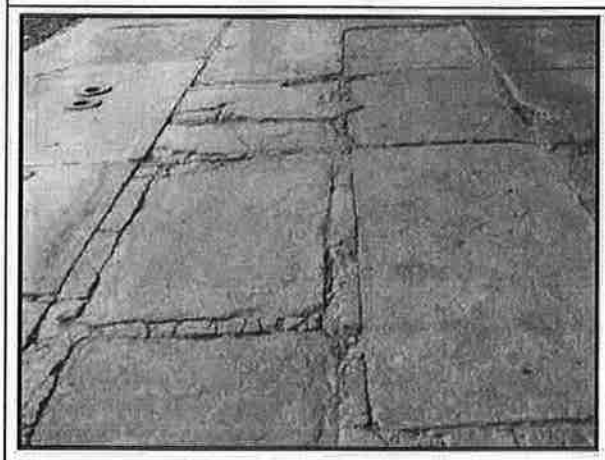
The point at which you choose to intervene to renew or replace an asset will have a big impact in the predicted future renewal demand. The intervention level can be seen as the level of service associated with the asset set. High intervention level equates to low level of service while low intervention level relates to a high level of service.

Detailed below are a series of photographs illustrating various sealed pathway condition ratings. They do not cover the complete condition range but hopefully will provide some guidance to the selection of retreatment intervention level.



Cond. 0 – 1 Excellent condition

Cond. 6 Extensive movement



Cond. 7 Extensive cracking and movement

Cond. 9 Very poor cond. – Cracking and breaking up

It is very difficult to cover footpath condition in such a limited range of photographs but hopefully they will provide some idea of asset condition in the 7 – 9 condition range where most interventions will take place. footpaths can be within this condition range for a number of different reasons and the photos will cover only a limited set of situations. They should be considered as a typical situation and not the only situation for that condition rating.

### 9.2.2 Footpath Assets – Financial Modelling Results

| Modelling Parameter | Concrete Footpaths | Brick & Pavers Footpaths | Sealed Footpaths | Crushed Rock Footpaths | Sealed Bike Paths | Gravel Bike Paths |
|---|---|---|---|---|---|---|
| Asset Quantity in sqm | 233,460 | 14,174 | 6,855 | 13,990 | 20,400 | 32,962 |
| Unit Renewal Rate | 95.0 | 100.0 | 16.0 | 11.0 | 16.0 | 11.0 |
| Total Asset Group Renewal Cost | $22,178,700 | $1,417,400 | $109,680 | $153,890 | $326,400 | $362,582 |
| Annual Renewal Exp. | $202,000 | $28,000 | $0 | $0 | $14,000 | $30,000 |
| Annual Maintenance Exp. | $133,000 | $7,000 | $0 | $0 | $29,360 | $7,340 |
| Retreat. Intervention Condition | 7 | 7 | 7 | 7 | 7 | 7 |
| Life to Condition 10 in Years | 80 | 60 | 30 | 15 | 16 | 11 |
| Life in years to Intervention | 75 | 56 | 28 | 14 | 15 | 10 |

Fig. F4A – Summary of Modelling Input Parameters for Footpath Assets

*Within the footpaths section are included the bike paths within the City. The sub asset set has been modelled in six categories. Four of them covering the different types of footpath assets and the last two covering the bike path assets.*

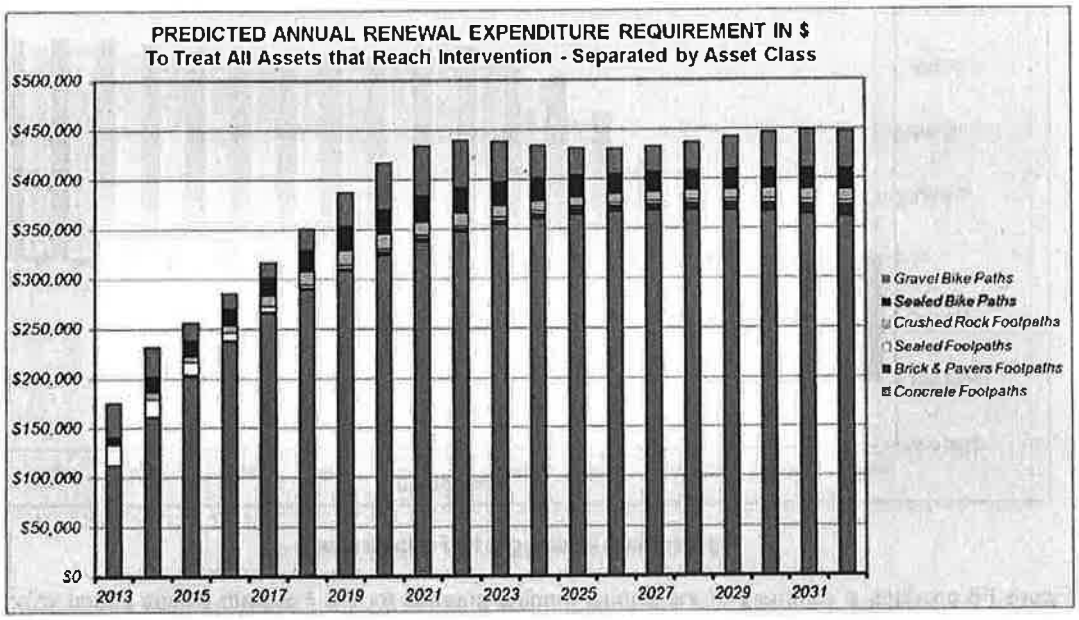



**Fig. F4 Predicted Capital Requirement Model – Renewal Demand to treat all assets at Intervention**

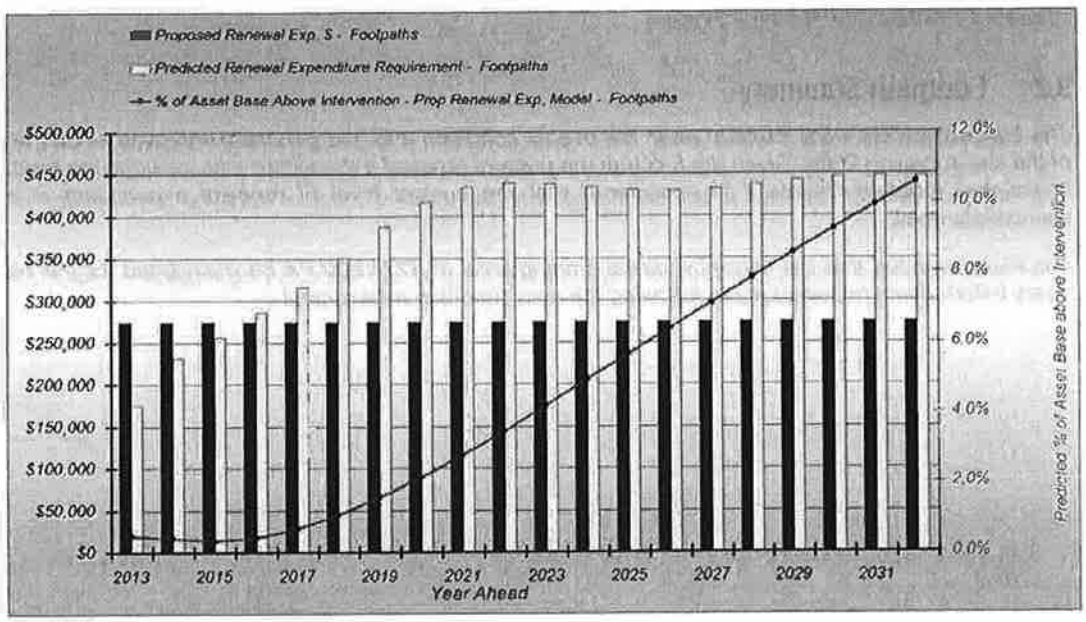



**Fig. F5 Future Condition Based on Proposed Renewal Expenditure**

Figure F4 provides a profile of the predicted renewal demand to treat all assets that reach the intervention level through the degradation process. Figure F5 plots the extent of the asset base that is predicted to rise above the intervention level based upon the continuation of the present level of renewal expenditure (in blue bars). It also plots the predicted renewal demand within the grey bars.

*Renewal demand is presently sitting at around $165,000 PA and is predicted to peak at $446,000 PA in the year of 2023. The present renewal expenditure at $274,000 is above the present renewal demand but it may well include the expenditure on the repair of isolated failures, which would be quite high given the nature of the underlying soils.*

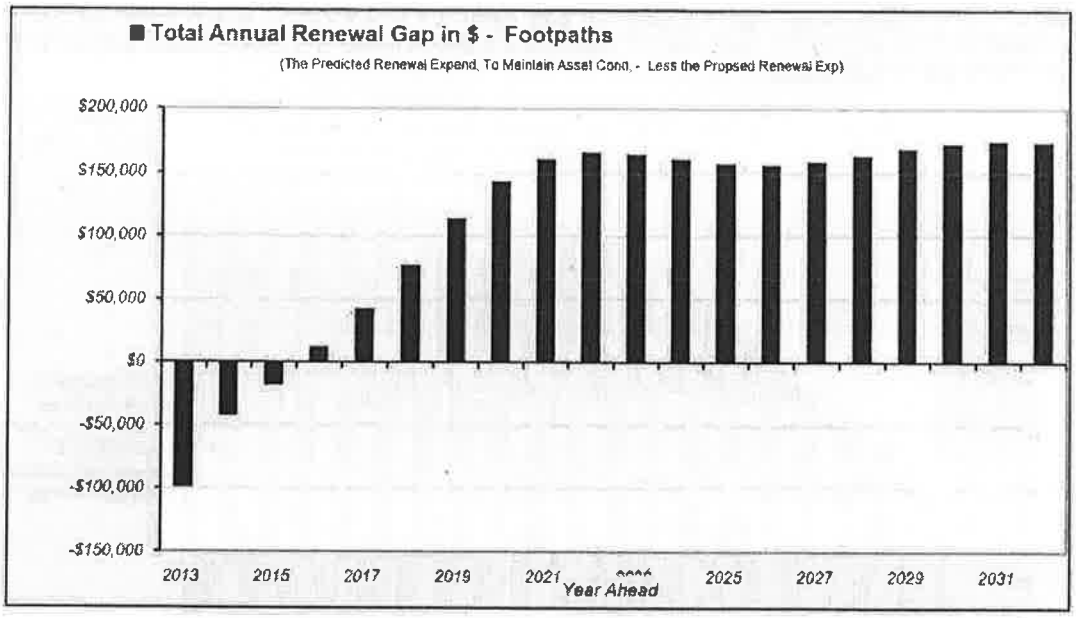



**Fig. F6 Annual funding gap for Footpath assets**

Figure F6 provides a summary of the annual funding shortfall for the Footpath assets based upon the predicted renewal demand less the present renewal expenditure carried forward for 20 - years.

*Modelling suggests that the present renewal expenditure on the footpath assets at $274,000 will meet the renewal demand over the next 5-years.*

## 9.3 Footpath Summary

*The footpath assets were found to be in fair overall condition and had generally improved since the time of the last survey in 2008. Given the fact that the present renewal expenditure also includes the treatment of isolated footpath failures it is considered that the current level of renewal expenditure is at an appropriate level.*

*It is recommended that the current renewal funding level of $274,000 PA be maintained for the next 3-years before being reviewed again following the next condition assessment.*

# Section 10: Estimated loss in pavement valuation due to Flooding

This section will deal with an analysis of the impact of the recent flooding and heavy inundation on the valuation of the sealed road pavement assets. The analysis will cover the sealed road pavements as well as the unsealed road pavements.

The damage that has been identified on the sealed road network is wholly related to the pavement sub asset class, but in an indirect way will also affect the sealed surface, as the treatment of the pavement problem will necessitate the renewal of the sealed surface as well.

## 10.1 Basis of the calculation of the loss

The calculations will be restricted to an estimate of the loss in service potential relating to the sealed road and unsealed road pavement assets only. The following basic methodology was adopted

- From two prior surveys of the council district undertaken in normal times in 2004 and 2008 degradation or performance curves were developed. (These curves are used to predict the future condition of the assets.)
- The degradation curve was applied to each individual road pavement segments commencing with the 2008 condition and then establishing an expected condition in 2012
- The 2012 condition data was compared with the 2008 data following the application of the degradation curve to that data set
- All segments that degraded by more that the expected average degradation since 2008 were identified
- Calculations were undertaken to ascertain the value in the loss of service life because of the additional abnormal degradation.

## 10.2 Summary of the findings – Sealed Road Pavements

Detailed below is a summary of the overall findings coming out of the above work.

- There were 2059 common sealed road pavement segments within the 2008 and 2012 data set.
- 104 Segments were found to have improved in condition due to capital or major maintenance works
- 1519 segments were found to have performed within the expected range as determined by the degradation curve
- 436 segments were found to have degraded to a greater extent than was predicted by the application of the degradation curve to the 2008 data set

### 10.2.1 Estimated loss in value of service potential – Sealed Roads

With the extent of the additional degradation beyond normal known, a value can be placed on the service potential loss. A considerable number of the pavement problems identified were small and isolated in nature and as such the unit cost of future repairs will be higher than the unit rate for full reconstruction of a whole pavement segment.

Thus the damaged pavements were split into two sub groups. The first contained all of the segments that would be expected to be repaired as part of a full normal pavement reconstruction program. All pavements with a present program condition of 7 or greater were considered to fall within this category and a $35.00 per square metre rate (sqm) was applied to their reconstruction.

The second group of pavements were those where the program condition was less than 7.0. Here the repairs will need to be undertaken at an isolated failure dig out rate of $80 per sqm. The rate in this second group will be much higher for two reasons. Firstly the scale of each project will be far smaller, somewhere between 5% and 10% of the average full-scale reconstruction project. Secondly there are set levels to work to at each end of the dig out section, which necessitates the full removal of the old pavement before the new one can be constructed. With full reconstruction segments this would only be necessary for small transition sections at the start and end of each segment.

Note that in both cases above, the calculated cost relates only to the portion of the total cost that is attributable to the additional abnormal degradation resulting from the flood event.

Of the 436 flood damaged segments 25 fell into the $35 per sqm category and would be treated as part of a full road reconstruction project. The estimated additional repair cost being $151,000. The remaining 411 would need to be treated at the higher $80 per sqm as isolated dig outs. The additional repair costs due to the flood event here is estimated at $8,117,000

Thus the total value of present and immediate future repairs to the sealed road network is estimated at $8,268,000. The unit renewal rates adopted above cover the cost of both pavement rehabilitation as well as the placement of a new sealed surface.

## 10.3 Summary of Valuation loss

There has been a clearly definable abnormal loss in the sealed pavement asset condition, which has been carefully quantified by the methodology as detailed above. The treatments to bring back the pavement condition to a pre flood event situation is estimated at $8,268,000 .

The full value of the repair works will not be reflected in the asset management system valuation when and if these works are undertaken. This is because of the higher than standard unit rate that will be encountered for most of the small isolated failure repairs.

It is interesting to note that the 2.9% condition decline in the sealed road pavement assets illustrated in Figure P2 within the sealed pavement section above equates to around $4,000,000 in asset valuation. If the repair work on the flood-damaged areas were to be undertaken at the standard pavement renewal rate than the loss would also be around $4,000,000. So, if there had been no flood event it is suspected that council would have held its sealed road pavement condition steady. Which would normally be the expectation when council is very close to fully funding the annual depreciation on these assets.

In addition to the works identified by observed condition change above, it is further suggested that additional abnormal degradation will occur over the next 2 – 3 years on the sealed road pavements. Sealed pavements suffer greatly from large changes in moisture content and the degradation of the inundated pavements will continue. They will also unfortunately continue to degrade as part of the future drying out period over the next 2-years or so. We are unable to calculate a figure for the future expected additional degradation but the final total would be expected to be around $16,000,000.

# Section 11: Aggregated Modelling Results for Road Network

Accurate network Modelling within the Moloney system depends upon ten independent Modelling variables. Council now has a good handle on most of these variables and the Modelling results are becoming quite meaningful. Modelling has been based upon the ongoing rehabilitation of the existing asset base only and does not allow for an expanding asset base. Any proposed expenditure on the upgrading of existing assets must be added to the figures delivered within this report.

The Moloney System allows for the Modelling of individual asset sets or sub sets and to then combine these results into a single aggregated report. This section will deal with the aggregated results of the individual sub asset Modelling operations undertaken in the sub asset sections above. It will deliver a single overall Modelling outcome for the whole roads group.

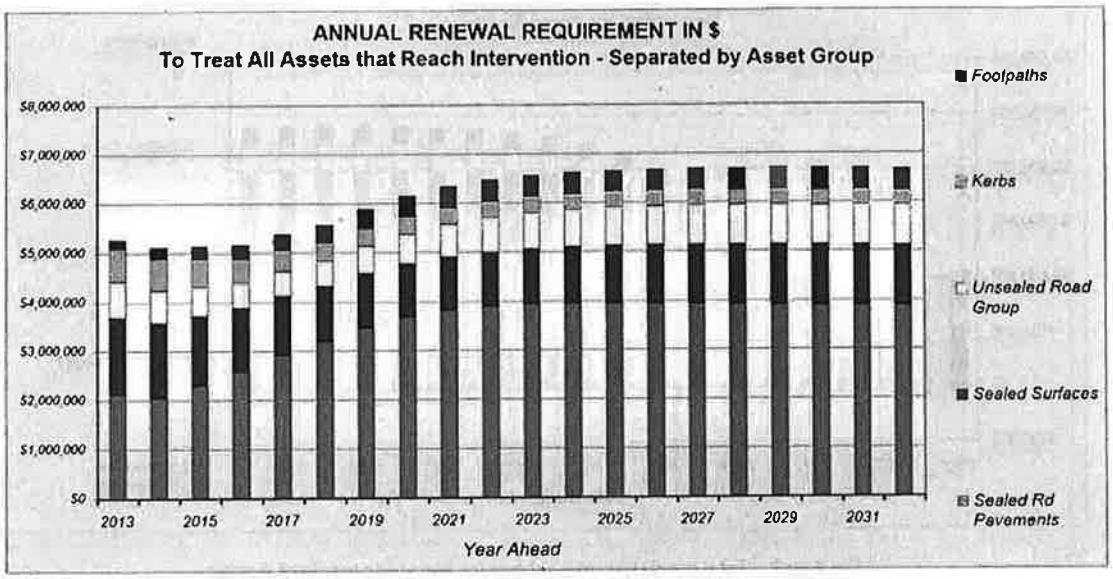



Fig Agg 1 - Predicted Aggregate Capital Expenditure Requirement all Road Sub Assets

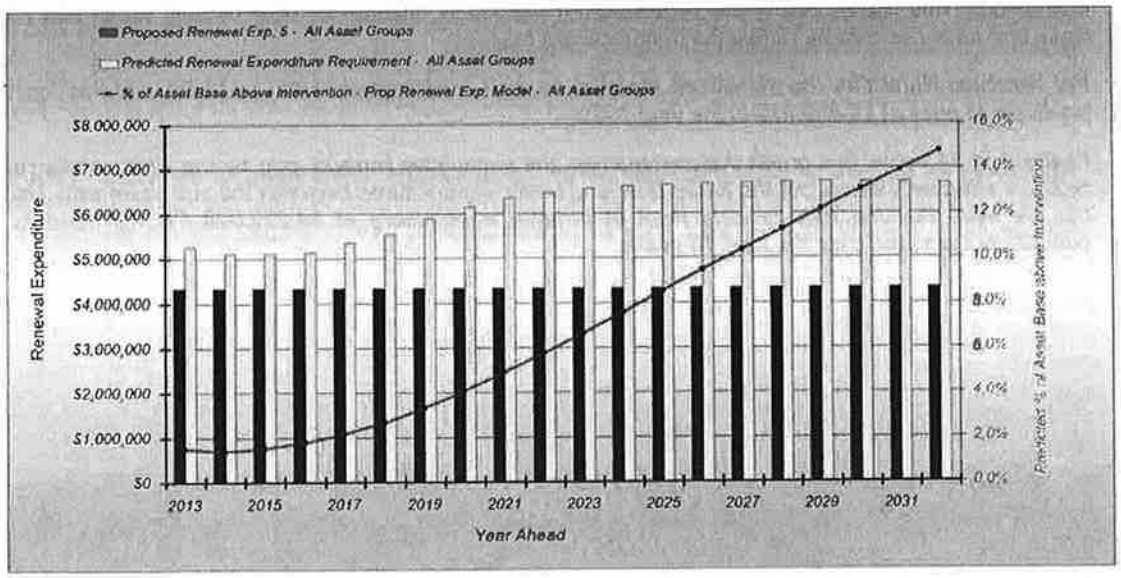



Fig Agg 2 – Predicted Overall Condition change based on continuation of present Funding Levels

Modelling predicts the present capital renewal demand at $5,255,000 PA with the peak over the next 20-years of $6,682,000 PA in the year 2029

Figures Agg 2 plots the extent of the asset base that is predicted to rise above the intervention level based upon the continuation of the present renewal expenditure profile within the blue bars. It also plots the predicted renewal demand within the grey bars for comparison purposes.

*Council has a present renewal gap estimated at $932,972 on the whole of the roads network, if all over intervention assets are to be treated. Council has done an admirable job in lifting its infrastructure renewal expenditure over recent years. But unfortunately the very difficult subgrades throughout the district will result in an ongoing increase in the renewal demand over the next 14-years.*

*For the total roads group, the generally accepted extent of the asset base above the intervention level is within the 1 – 3.0% range. Horsham Rural City is currently sitting on around 1.50% and has around 7 - years till this rises above 3%, based on the continuation of the present renewal expenditure pattern.*

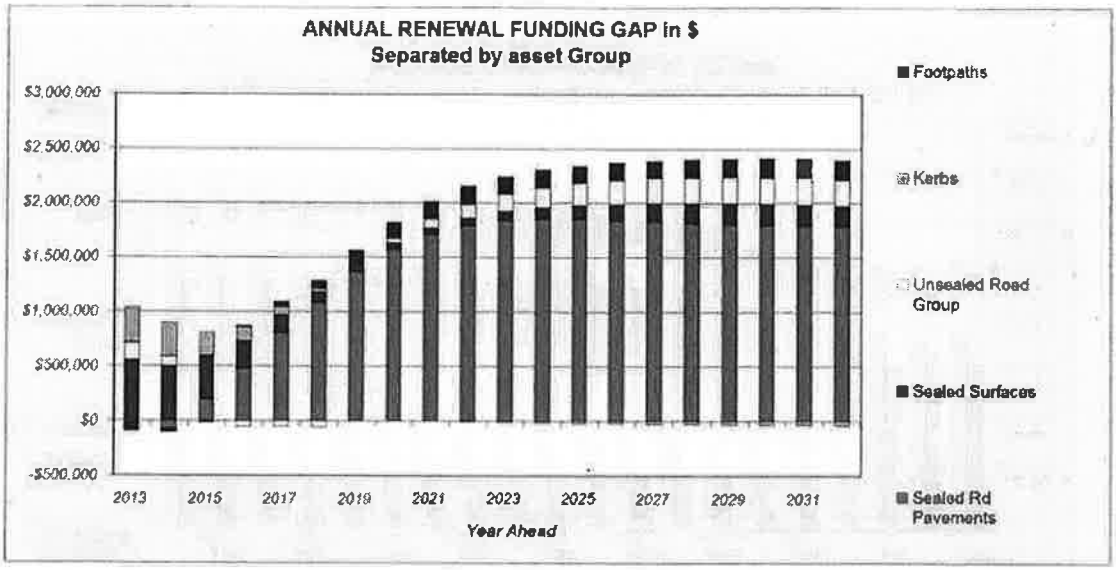



**Fig Agg 3 – Total predicted renewal gap for the roads group of Assets**

Figure Agg 3 provides a plot of the overall renewal gap shortfall in funding to treat all assets that reach intervention. Any figures below the zero mark on the X-axis indicate an over funding within that asset class and as such could be redirected to other asset classes

*For Horsham Rural City the immediate renewal shortfall is estimated at $932,972 PA and this figure is predicted to peak at $2,359,972 in the year 2029.*

*Figure Agg 3A below is a graph that summarises the cumulative renewal gap for the whole of the roads group. It effectively evens out the future over and under expenditures between the sub asset sets. Here it can be seen that the total present level of renewal expenditure at $4,322,028 PA will need to be continually increased over the next 15-years.*

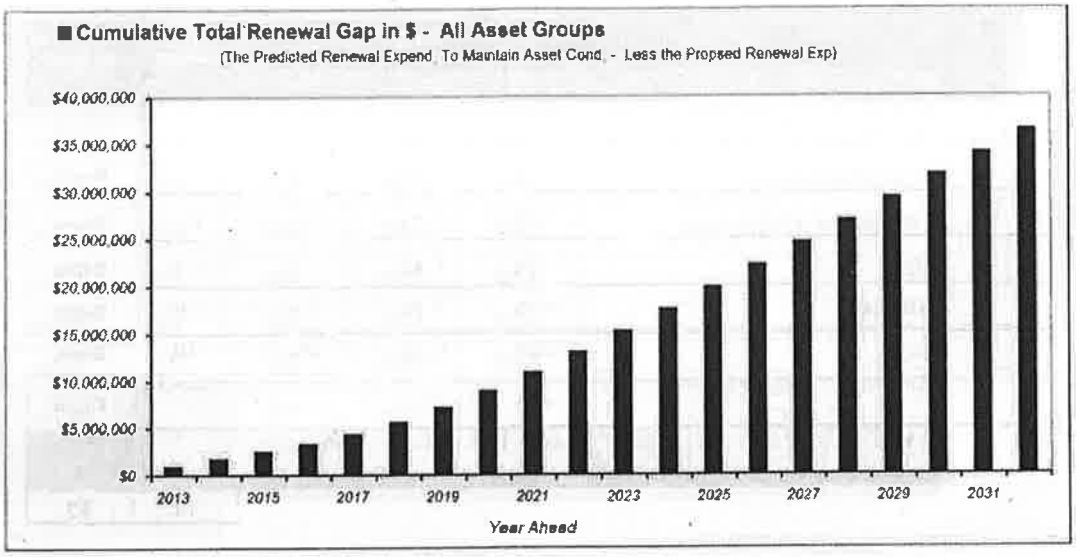



**Fig Agg 3A – Cumulative predicted renewal gap for the roads group of Assets for next 20-years**

| Sub Asset Description | Present total Annual Capital Renewal Expenditure | Annual Depreciation or Average Long term Annual Demand | Present Capital Renewal Demand From Modelling | Peak Capital Renewal Demand From Modelling | Predicted Year of Peak Demand | % of Present Renewal Demand (From Model) Being Met | % of Annual Depreciation Being Met |
|---|---|---|---|---|---|---|---|
| Sealed Pavements | 2,110,230 | 2,210,160 | 2,125,000 | 3,964,000 | 2025 | 99 | 95 |
| Sealed Surfaces | 1,024,798 | 1,736,189 | 1,564,000 | 1,564,000 | 2013 | 66 | 59 |
| Unsealed Pavements | 560,000 | 1,052,467 | 723,000 | 812,000 | 2030 | 77 | 53 |
| Kerbs | 353,000 | 458,364 | 678,000 | 678,000 | 2013 | 52 | 77 |
| Footpaths | 274,000 | 491,480 | 165,000 | 446,000 | 2023 | 166 | 56 |
| Totals | 4,322,028 | 5,948,659 | 5,255,000 | 6,682,000 | 2029 | 82 | 73 |

**Fig Agg 4 – Summary Table of Current & Required Renewal Expenditure Levels**

Figure Agg 4 provides an alternative way of comparing the renewal demand with the present renewal expenditure levels. The key figures within the table are located in the two far right columns and represent the percentage of the renewal demand that is being met.

*Horsham Rural City is currently funding around 82% of the immediate renewal demand as determined within the model and 73% of the long-term average renewal demand (depreciation). This represents a reasonably good position by industry standards.*

*However, Horsham does have some of the most difficult subgrades in the state and this leads to a relatively short pavement life particularly in the rural area. This in turn leads to the very steeply growing demand identified for sealed road pavement rehabilitation works.*

| No. | Sub Asset Group | Wt Average Asset Condition Oct-08 | Wt Average Asset Condition Jan-12 | Change between Surveys New Minus Old | % Change Between Surveys | Better or Worse Since last Survey |
|---|---|---|---|---|---|---|
| 1 | Sealed Road Pavements | 3.900 | 4.014 | -0.11 | -2.92 | Worse |
| 2 | Sealed Rd Surfaces | 3.117 | 3.021 | 0.10 | 3.06 | Better |
| 3 | Unsealed Road Pavements | 2.730 | 2.710 | 0.02 | 0.72 | Better |
| 4 | Kerbs | 3.725 | 3.568 | 0.16 | 4.20 | Better |
| 5 | Footpaths | 3.325 | 3.264 | 0.06 | 1.85 | Better |
| 6 | Bridges | 0.000 | 0.000 | N/A | N/A | Better |
| | **Whole Roads Group Weighted Asset Condition and Change** | 3.725 | 3.794 | -0.07 | -1.85 | Worse |
| | Renewal Demand Being Met For: | | | | % of Long Term Demand Being Met | % of Present Demand (From Model) |
| | | | | | 73 | 82 |

**Fig Agg 5 – Overall Roads Group Condition Change between surveys**

Table Agg 5 above provides a single snapshot of how the whole roads asset group has performed since the time of the last survey. It does this by further weighting the "Weighted average asset condition" for each sub asset group for the total value within each group. The "Weighted average asset condition" is the best single condition indicator available to represent the whole of an asset group.

The "whole roads group weighted average asset condition" in the table above provides a single indicator for the condition of the entire roads group of assets. It does not represent much in absolute terms but is a very strong measure of the whole asset group performance with time.

Below the two overall condition indicators, within the red shaded cell is the % change between the two surveys. Negative values indicate a condition decline and Positive values a condition improvement. In this case the change is a -1.85% decline in condition.

Below that level in the grey shaded cells is a record of the % of the present renewal demand and Long-term average demand being currently met. The table provides a very high level summation of overall performance between the two condition surveys.

*Horsham Rural City has managed its road assets very well in recent years and without the recent flood event it is felt that overall condition would have been held constant which is a great achievement. But the flood events have resulted in an overall condition decline estimated at -1.85%. This is considered to be a very good achievement under the circumstances.*

*Peter Moloney MIEAust*

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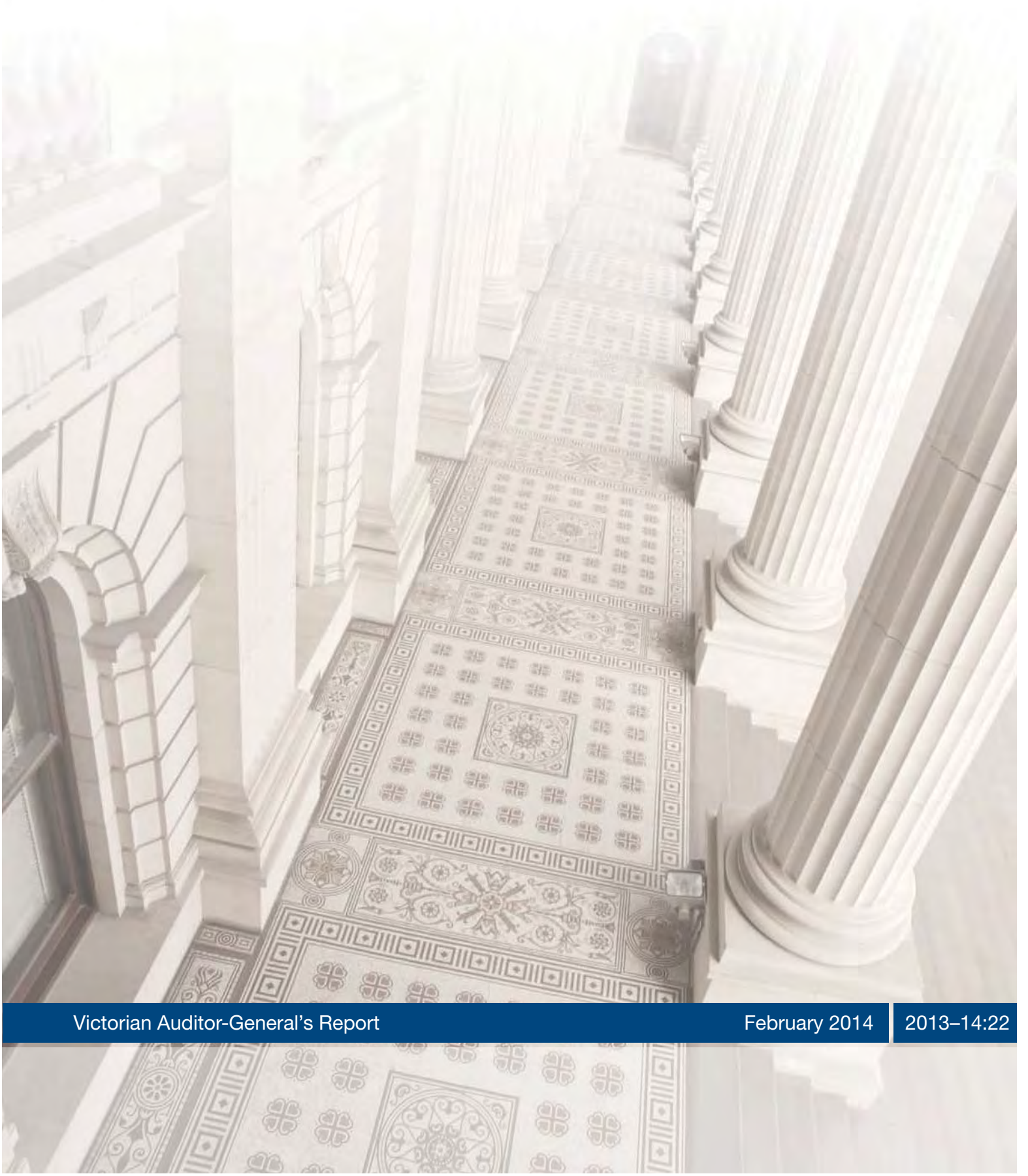
For a detailed Explanation of the Moloney Model its assumptions and operations please refer to the document "Model All Explanation". This document can be obtained from our web site without the need to log on as a user.

# Asset Management and Maintenance by Councils



Victorian Auditor-General's Report | February 2014 | 2013–14:22

VICTORIA

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Auditor-General

# Asset Management and Maintenance by Councils

Ordered to be printed

VICTORIAN
GOVERNMENT PRINTER
February 2014

PP No 298, Session 2010–14

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ISBN 978 1 922044 76 1

VAGO

Victorian Auditor-General's Office

*Auditing in the Public Interest*

The Hon. Bruce Atkinson MLC
President
Legislative Council
Parliament House
Melbourne

The Hon. Christine Fyffe MP
Speaker
Legislative Assembly
Parliament House
Melbourne

Dear Presiding Officers

Under the provisions of section 16AB of the *Audit Act 1994*, I transmit my report on the audit *Asset Management and Maintenance by Councils*.

The audit assessed whether local councils effectively manage their physical infrastructure assets. It examined whether they have developed and applied sound strategic frameworks for asset management, and implemented efficient and effective asset management practices. It also reviewed the guidance and support provided to councils in managing these assets.

The report identified significant deficiencies in asset renewal planning and practice, the quality of asset management plans, the linking of service levels to these plans, the development of asset management information systems, and in councils' monitoring, evaluation and reporting on asset management.

The continuing growth in councils' asset renewal gaps remains of considerable concern. Local Government Victoria should provide improved asset management guidance and support to councils, as outlined in the report, and work more closely with them on this, and other common issues identified.

Yours faithfully

John Doyle
*Auditor-General*

19 February 2014

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# Auditor-General's comments

John Doyle
*Auditor-General*

Victoria's 79 councils manage a significant number of infrastructure assets—including buildings, parks and gardens, roads, bridges, council land and drainage networks—which support the delivery of a wide range of important council services. These include home and community care, maternal and child health care, recreation and leisure facilities, waste and environment management, transport and economic development.

Asset management and maintenance is complex and impinges on many areas of council responsibilities and operations. Councils need to ensure that there is a close match between the assets they have and their operational condition on the one hand, and the service uses to which those assets are put, on the other. They also have legislative obligations to manage financial risks prudently and to ensure that their asset management decisions take into account economic circumstances and their financial effects on future generations. This is especially important in the current economic climate and in an environment where reliance on sources of revenue such as government grants cannot be assured.

A 1998 report to government warned that unless steps were taken to address councils' asset renewal gaps, the budget councils require for renewal would more than double by 2012. These predictions have materialised despite this warning, and the renewal gap has almost doubled as a proportion of total asset value over the past 16 years. A number of previous reports from my office have identified persistent issues with council asset management practices and recommended that councils improve their asset management frameworks and their related policies, strategies and plans. This should in turn improve asset management investment decisions and planning for capital expenditure. Although some improvements have been made, many of the previously identified deficiencies still exist.

This audit has found that in recent years councils have improved their asset management practices by applying available asset management guidance, self-assessing their asset management performance annually, and developing asset management systems, frameworks, strategies and plans. This provides a good foundation on which to build more advanced asset management practices. However, significant deficiencies remain in areas such as asset renewal planning and practice, the quality of asset management plans, linking of service levels to these plans, the development of asset management information systems, and in monitoring, evaluation and reporting on asset management.

## Audit team

Andrew Evans
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Michael Demetrious
*Team Leader*

Peter Rorke
*Analyst*

Kate Kuring
*Engagement Quality Control Reviewer*

There is a pressing need for councils to address growing asset renewal gaps. Councils are generally budgeting less than is required to renew their assets and consequently the funding needed for asset renewal continues to grow each year. Without appropriate and concerted corrective action, the provision of council services to communities is likely to be put at risk. While this may require some hard financial decisions and trade-offs, failure to address this problem now will only lead to more difficult decisions in the future.

I have made a set of recommendations for councils and Local Government Victoria. Adoption of these will significantly advance asset management practices within councils and help to address the key deficiencies and issues identified in this audit. I am pleased that the councils we audited have recognised the importance of the recommendations, have welcomed the report as raising the profile and significance of sound asset management within councils and the wider community, and are committed to improving their asset management practices.

I am therefore confident this report will contribute substantially to improvements in asset management and maintenance within Victorian councils, and councils' financial sustainability.

Lastly, I would like to acknowledge Local Government Victoria and the Ararat, Cardinia, Kingston, Port Phillip and Wodonga councils and their staff for their cooperation and invaluable assistance during this audit.

John Doyle
*Auditor-General*

February 2014

# Audit summary

*South Melbourne Town Hall, photograph courtesy of Port Phillip City Council.*

Local councils manage and maintain a substantial number of assets that underpin their many critical economic and community activities. In 2012–13, the physical infrastructure assets held by Victorian councils—buildings, parks and gardens, roads, bridges, land and drains—were valued at around $73 billion. Councils spend over $2 billion every year to maintain, renew or replace existing assets.

How councils manage assets has direct implications for their communities. The primary aim of council asset management is to maintain an asset portfolio that allows councils to effectively meet current and future demand for services. These services include home and community care, maternal and child health care, recreation and leisure facilities, waste and environment management, transport and economic development. Poor asset management can lead to deteriorating levels of service by councils, higher council rates and an increased financial burden on future generations.

This audit assessed whether local councils are effectively managing their physical infrastructure assets. The audit focused on five local councils: Kingston City Council (inner metropolitan), Port Phillip City Council (inner metropolitan), Cardinia Shire Council (outer metropolitan), Wodonga City Council (rural city), and Ararat Rural City Council (small rural). The audited councils collectively manage around $5.4 billion in physical infrastructure assets.

## Conclusions

In recent years councils have improved their asset management practices by applying available asset management guidance, self-assessing their asset management performance annually, and developing asset management systems, frameworks, strategies and plans. This has provided a foundation on which to build more advanced asset management practices, but there is still substantial room for improvement.

Progress towards better practice has been relatively slow. This is despite warnings as early as 1998 that Victoria's councils needed to improve their asset management practices and address growing asset renewal gaps. The asset ‘renewal gap’ refers to the difference between the funding that councils need to renew their existing assets and the money they actually allocate to this purpose. Since 1998, asset renewal gaps have almost doubled. The audited councils are generally budgeting less than is required to renew their assets and the funding needed for asset renewal continues to grow each year. This is likely to lead to council assets becoming more difficult and less affordable to manage in the years ahead. This will also likely make the council services supported by those assets less sustainable.

The effectiveness of asset management is undermined by weaknesses with councils' asset management planning, implementation and information systems. For councils to more efficiently and effectively manage their physical assets substantial improvements are required in a number of areas:

- better asset renewal planning and practice
- higher quality asset management plans, more effective implementation of these plans, and better linking of service levels and standards to these plans
- further developing asset management information systems that are integrated with other corporate information management systems
- recruiting and developing skilled and competent staff to manage assets
- improving the monitoring, evaluation and reporting on asset management.

There are numerous examples of successful collaboration between councils on asset management initiatives. Further collaboration, encouraged and supported by Local Government Victoria (LGV), would assist councils to address asset management challenges more quickly, including those related to skills, knowledge and information systems development.

# Findings

## Asset management frameworks

The audited councils have not yet fully developed and applied sound strategic asset management frameworks and have not yet met the better practice requirements of most framework elements.

While improvements have been made, councils need to enhance the quality of asset management plans and obtain council support for them. They also need to better link council service levels and standards to their plans, and use the plans to drive their asset management practices.

### Asset management governance

There is wide variation in the adequacy of council governance arrangements for asset management. The audited councils had often not effectively integrated asset management with other corporate functions, such as finance and service planning, which poses a risk to a council's ability to achieve its overall asset management objectives. All councils acknowledged that greater effort is required to involve all relevant departments to achieve better, whole-of-organisation asset management outcomes.

### Asset management strategies and plans

Asset management strategies were generally underdeveloped. However, it is positive that all five councils had developed improvement plans outlining the actions needed to improve their management of assets.

While all five councils had prepared various strategies for the services they deliver, none had well developed plans for their major services that linked to asset management plans or considered asset requirements. All audited councils acknowledged that establishing service standards, and linking service delivery to asset requirements, are priorities in developing 'second generation' asset management plans.

### Continuous improvement in asset management

In 2010, the Municipal Association of Victoria (MAV) set a target for councils to achieve a 'core' level of maturity in asset management by December 2012, as assessed using the National Asset Management Assessment Framework. Few Victorian councils achieved this, and none of the audited councils have achieved core maturity in all elements of the framework. Most of the audited councils are at a low to intermediate level of maturity in developing and applying these elements.

MAV delayed the original 2012 target to December 2013 when it was apparent that few councils would attain it. However, this new target for core asset maturity has not been met, with only 23 of 79 councils achieving core maturity. We also observed that small and regional councils are finding it more difficult than metropolitan ones to improve their asset management performance against the national framework, which may be partly due to resourcing issues.

Furthermore, there are weaknesses in the National Asset Management Assessment Framework and assessment process and it is timely that these be reviewed to support improved asset management practices and accountability.

Participation in MAV asset management initiatives demonstrates a commitment by councils to improve their asset management practices. However, delays in councils reaching core maturity in asset management heighten the risks associated with ineffective asset management. These risks include deteriorating and failing assets, the adverse financial implications of growing renewal gaps, and reducing the quality and number of council services available to the community.

*Carrum foreshore, photograph courtesy of Kingston City Council.*

## Asset management practices

### Capital works budgets and asset renewal requirements

Significant under expenditure of capital works budgets for several of the audited councils suggests there is scope to better integrate capital works programs with asset management and long-term financial planning to minimise such variations.

In most cases, spending on renewing or replacing existing assets is not keeping pace with their rate of deterioration. The audited councils are generally not able to meet existing asset renewal requirements, resulting in cumulative renewal gaps that grow each year. This situation adversely affects the condition of assets, community service levels, and councils' long-term financial sustainability.

Overall, council progress in addressing their renewal gaps has been relatively slow, despite the risks of not acting early being highlighted at least 15 years ago in a report to government *Facing the Renewal Challenge – Victorian Local Government Infrastructure Study*. While addressing the renewal gap may require some hard decisions, failure to make those decisions quickly will only lead to even harder decisions in the future, and will result in the continuing deterioration of assets and services.

There is a pressing need for councils to carefully balance asset renewal spending against a sustainable level of service delivery.

## Capacities and capabilities to support effective asset management

Effective asset management is also being compromised by underdeveloped asset management information systems and a lack of skilled resources, particularly in smaller and regional councils.

Councils continue to rely on poor asset data and information systems and they are still not confident that all their assets have been identified and recorded. This reduces the capacity of councils to effectively monitor, evaluate and report on asset performance or to properly plan for asset rehabilitation. The audited councils recognise the importance of this, and some are currently investing heavily to improve their asset data and information systems. The costs of doing this, however, can be considerable and smaller councils find this particularly challenging.

Four of the five audited councils had not yet fully assessed the skills and knowledge they needed to effectively manage infrastructure assets. None of the five councils had developed a structured professional development program for staff with asset management responsibilities. This is critical for sound asset management, and not addressing this promptly will undermine council performance.

All five audited councils acknowledged the potential benefits of collaboration in asset management. Collaboration can generate efficiencies and cost savings, and provide support to councils less advanced than others in their asset management practices, expertise and resources. There may be some scope for considering whether the shared development of asset data and information systems could contribute to efficiency and effectiveness in this area.

None of the audited councils had robust monitoring, evaluation and reporting practices on asset management. Without these, councils cannot know, or demonstrate to their communities, how well they are meeting their asset management needs and priorities.

There is substantial scope for improving reporting to the community on asset management against performance measures and long-term financial plans by providing more detailed explanations on budget variances in capital works programs. Councils also need to improve the asset information on their websites and provide a greater awareness of asset management challenges faced by councils, their approach to them, and how they are performing.

## Support and guidance by Local Government Victoria

There is an abundance of guidance available from LGV and other sources to assist councils, but councils are not making best use of this material. LGV provides limited targeted asset management support.

LGV guidance on asset management is also out of date. It does not address common challenges such as developing appropriate asset management information systems, developing a set of asset management performance indicators that will enable comparability between councils, and dealing with the growing renewal gap. This guidance should be reviewed and updated to focus more attention on these areas, and could be supplemented by other initiatives and types of support.

LGV is involved in council asset management practices in a number of other ways, including through annual surveys that measure council improvements in these practices. It should consider whether Victoria's legislative approach to asset management might be strengthened, as has been done in some other jurisdictions, to require minimum standards for certain asset management practices.

LGV should continue to work with the MAV in assisting councils. MAV's STEP program, which includes the use of the National Asset Management Assessment Framework tool, has been useful in helping councils improve their asset management frameworks and practices. However, there are limits to the program and the tool, and more could be done to support councils to improve their asset management and maintenance capabilities, as well as the reliability of their self-assessments.

# Recommendations

| Number | Recommendation | Page |
|---|---|---|
| Local councils should: | | |
| **1.** | accelerate efforts to review and update their asset management frameworks, policies and strategies to meet better practice standards | 22 |
| **2.** | make sure they have comprehensive asset management plans covering all major asset categories | 22 |
| **8.** | as a priority, develop a strategy for more effectively reducing their asset renewal gaps | 34 |
| **9.** | improve their asset management information systems and knowledge of their asset portfolios to ensure they have up-to-date information on all assets | 34 |
| **10** | identify and review the skills and resources required to effectively manage infrastructure assets, including developing a skills matrix and action plan to address identified skill and resource requirements and gaps | 34 |
| **11.** | improve the provision of information to, and engagement with, the community on asset management | 34 |
| **12.** | develop and implement comprehensive asset management monitoring, reporting and evaluation systems, and publicly report their progress and performance against plans and strategies, including against capital works budgets. | 34 |

# Recommendations – *continued*

| Number | Recommendation | Page |
|---|---|---|
| Local Government Victoria should: | | |
| **3.** | review and update its asset management guidance material for councils | 22 |
| **4.** | review the support it provides to councils and make sure it is targeted to address common issues | 22 |
| **5.** | consider, in conjunction with councils, developing a set of comprehensive asset management performance indicators that will enable comparability between councils on asset management performance | 22 |
| **6.** | in conjunction with councils and the Municipal Association of Victoria, review the use and application of the National Asset Management Assessment Framework and its appropriateness for driving improvement in asset management performance | 22 |
| **7.** | consider making aspects of asset management mandatory, such as the development of asset management policies, strategies and plans | 22 |
| **13.** | investigate options for supporting councils to develop and upgrade their asset management information systems, including by reviewing practices in other jurisdictions. | 34 |

# Submissions and comments received

In addition to progressive engagement during the course of the audit, in accordance with section 16(3) of the *Audit Act 1994,* a copy of this report was provided to Ararat Rural City Council, Cardinia Shire Council, Kingston City Council, Port Phillip City Council, Wodonga City Council and the Department of Transport Planning and Local Infrastructure with a request for submissions or comments.

Agency views have been considered in reaching our audit conclusions and are represented to the extent relevant and warranted in preparing this report. Their full section 16(3) submissions and comments are included in Appendix A.

# 1 Background

## 1.1 Assets managed by local councils

In 2012–13, Victorian local councils managed over $73 billion in physical assets within their municipalities. These assets represent investments that have been built up over a long period of time, and include buildings, parks and gardens, roads, bridges, council land and drainage networks. The mix of assets varies with different types of councils. For example, for inner metropolitan councils land makes up the largest proportion of assets in terms of their value, while roads and bridges make up the greatest proportion for outer metropolitan and regional councils. Across all councils in Victoria, land makes up around 40 per cent of the total value of assets, roads 30 per cent and buildings 10 per cent.

### 1.1.1 Purpose of asset management

The physical assets managed by councils support the delivery of core services, facilitate economic activity and strengthen the economy in the long term. These infrastructure assets also support community activities throughout Victoria.

The primary aim of council asset management is to maintain an asset portfolio that effectively meets current and future demand for services. These services include:

- roads and drainage
- traffic and parking
- health and food safety
- waste management and the environment
- leisure facilities and public space
- cultural heritage and libraries
- welfare and community services
- land use planning and enforcement
- business and economic development.


*Wodonga Aquatic Venue and Exercise Space, photograph courtesy of Wodonga City Council.*

The way councils plan, acquire, operate, maintain, renew and dispose of assets can have a significant impact on council service delivery and long-term financial sustainability. Councils should manage assets effectively and efficiently to achieve the best outcomes for the community.

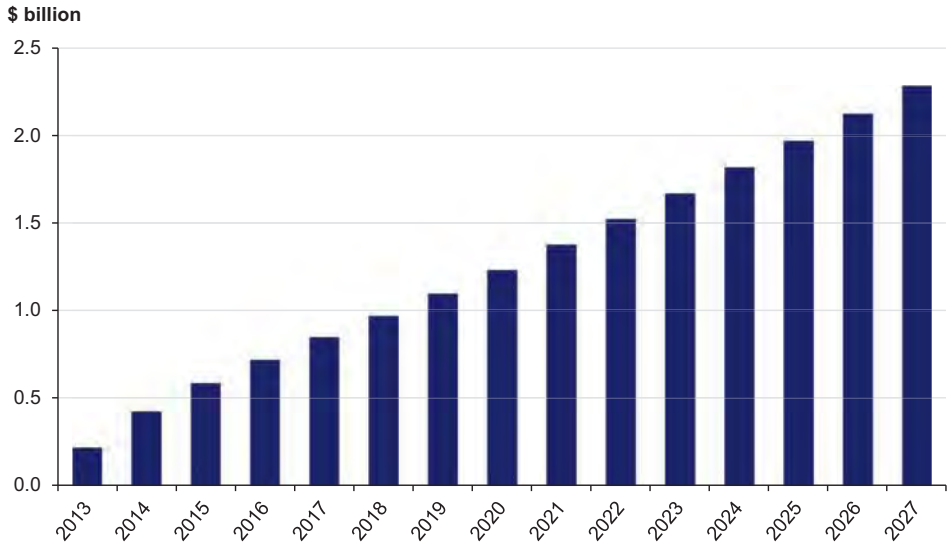
### 1.1.2 Asset maintenance and renewal

All councils face the problem of ageing assets. As the condition of assets deteriorates, the level of service supported by those assets diminishes. Councils must invest in maintaining and replacing those assets if they wish to maintain the same level of service.

The asset 'renewal gap' refers to the difference between the funding that councils need to renew their existing assets and the money they actually allocate to this purpose. What they need and are able or prepared to fund is determined by councils after weighing up available data and evidence, competing priorities, and differing viewpoints. The renewal gap for Victorian councils is estimated to be $225.3 million in 2012 with the cumulative asset renewal gap predicted to grow to almost $2.3 billion by 2026. The nature of the renewal gap, and which types of assets it applies to, varies from council to council. Some audited councils are struggling to renew assets such as buildings and swimming pools, while others are more challenged by renewing roads and drainage systems.

Figure 1A shows the predicted cumulative growth in the renewal gap across all Victorian councils.

**Figure 1A**
**Cumulative aggregate renewal gap**




*Source:* Municipal Association of Victoria's STEP program overview and results, 2012–13.

The consequences of not effectively managing the renewal gap are reduced levels of services, poorer quality of community life and lower economic activity. Of course, spending more money on assets requires raising revenue by increasing council rates, increasing debt via further borrowings, or spending less on other services, so there is a need to carefully balance renewal spending against a sustainable level of service delivery.

Other potential consequences of not addressing the renewal gap are:

- the accelerated deterioration of assets if timely maintenance is not undertaken
- more expensive rectification treatments and/or earlier than planned renewal costs for some assets that have deteriorated beyond their critical intervention levels
- risks to community service levels and potential safety risks to the public if assets deteriorate to the point of failure.

Councils' cumulative renewal gaps will be significantly affected by how well they determine their maintenance, renewal, upgrade, disposal and new asset requirements each year, and how much funding they allocate towards these various elements. This balance will also have an impact on councils' cumulative renewal gap, and their asset and service outcomes well into the future.

In some circumstances, councils may choose to reduce community service levels in exchange for savings from reduced investment in asset maintenance and renewal.

*Chelsea foreshore playground, photograph courtesy of City of Kingston.*

## 1.1.3 Key Victorian bodies

### Councils

Local government is recognised under the Victorian *Constitution Act 1975* as a distinct and essential tier of government consisting of democratically elected councils having the functions and powers necessary to ensure the peace, order and good government of each municipal district. Victoria has 79 local councils.

### Local Government Victoria

Local Government Victoria (LGV) is a division of the Department of Transport, Planning and Local Infrastructure that oversees the administration of the *Local Government Act 1989*. It works with the local government sector and other parts of government to strengthen business, governance and funding practices to ensure councils function effectively. LGV provides support and guidance to councils in a range of areas, including asset management. This involves developing and disseminating better practice guides, conducting annual asset management performance surveys, and other specific initiatives.

### Municipal Association of Victoria

The Municipal Association of Victoria (MAV) is the peak body for Victoria's 79 councils and is governed by the *Municipal Association Act 1907*. The role of MAV includes advocating local government interests, building the capacity of councils and providing guidance and support in a range of areas, including asset management. MAV has taken a long and strong interest in promoting better asset management within councils through various initiatives, including its STEP program. The STEP Asset Management Improvement Program commenced in 2002 with a self-assessment model based on the International Infrastructure Management Manual. This is a capacity building program developed to assist councils to improve their asset management capability and long term sustainability.

## 1.1.4 Key legislation and frameworks

### *Local Government Act 1989*

The *Local Government Act 1989* states that the primary objective of local councils is 'to endeavour to achieve the best outcomes for the local community having regard to the long-term and cumulative effects of decisions'.

Councils must seek to ensure that resources are used efficiently and effectively and that services are provided to best meet the needs of the local community.

Section 136 of the Act requires councils to implement principles of sound financial management, which include:

- managing financial risks faced by councils prudently having regard to economic circumstances—including the management and maintenance of assets
- ensuring that decisions are made and actions are taken having regard to their financial effects on future generations.

The Act specifies the functions of a council, which include planning for and providing services and facilities for the local community, and providing and maintaining community infrastructure within the municipality.

There are also other Acts that govern council actions in relation to asset management, for example the *Road Management Act 2004*.

## National Asset Management Assessment Framework

In 2006, in response to a series of reports highlighting issues with local councils' asset management practices, particularly in regard to the growing asset renewal gap, the federal government's Local Government and Planning Ministers' Council (LGPMC) agreed to develop a series of nationally consistent frameworks on financial sustainability for local government. One of these frameworks was for asset planning and management.

Following consultation with local governments and other relevant bodies, LGPMC endorsed the nationally consistent frameworks in March 2007.

The National Asset Management Assessment Framework (NAMAF) is a methodology for assessing the maturity of a council's asset management practices. It was developed jointly by the Australian Centre of Excellence for Local Government and the Institute of Public Works Engineering Australia. It is a self-assessment tool to assist local councils to identify their progress in implementing best practice asset management processes.

*Skate park, photograph courtesy of Port Phillip City Council.*

NAMAF includes a set of elements and sub-elements against which councils can judge how they are managing their asset portfolios. The key elements include:

- strategic long-term plan
- annual budget
- annual report
- asset management policy
- asset management strategy
- asset management plans
- governance and management
- levels of service
- data and systems
- skills and processes
- evaluation.

In 2009, LGPMC agreed to enhance the national asset and financial management framework and committed to an accelerated implementation. Since 2010, MAV's STEP program has also incorporated NAMAF. Councils in Victoria self-assess against the NAMAF each year and report their results to MAV following a review and feedback on their assessments, conducted by consultants engaged by MAV.

## 1.2 Previous audits

### *Local Government: Results of the 2011–12 Audits,* November 2012

This audit provided a detailed analysis of council financial and performance reporting, financial results and key internal controls. The audit analysed the trends of six key financial sustainability indicators, including capital replacement and renewal gap. Findings relevant to asset management were:

- capital budgeting should have a longer-term focus connected to councils' strategic objectives and plans
- the majority of councils—77 per cent—did not demonstrate links between their operational and capital budgets, and minimal consideration was given to asset depreciation or the ageing of existing assets in order to achieve an appropriate balance between maintaining older assets and investing in new assets
- 37 councils departed from their approved capital works budgets by 20 per cent and 45 by more than 10 per cent.

### *Business Planning for Major Capital Works and Recurrent Services in Local Government,* September 2011

This audit found that councils' long-term financial plans were not supported by equivalent strategic plans, or service and asset management plans. There was little evidence that councils regularly reviewed their services in accordance with best value principles to inform future spending decisions.

The audit made a number of recommendations including that councils review their asset management frameworks to assure their asset policies, strategies and plans were up to date, covered all major asset classes, and adequately informed future investment decisions. The audit also recommended that LGV provide better targeted support and assistance to councils to address identified weaknesses, and that LGV monitor the impact of these support initiatives to inform its future efforts.

### *Management of Road Bridges,* December 2011

This audit found that councils had not developed strategies for high-risk structures. Councils needed to define meaningful levels of service for road users, set targets that take account of community expectations, and publish information that measures past achievements and the expected implications of future levels of resourcing.

The audit recommended that councils define levels of service for their bridges that capture the outcomes that are important to road users, and incorporate associated targets and measures in their plans.

### *Results of Special Reviews and Other Investigations,* May 2005

This audit found that there was a lack of forward planning by local councils and their capital budgets were seldom based on detailed analysis of actual capital requirements. Councils were not managing their capital expenditure programs well, and had not implemented comprehensive asset management plans that allowed them to plan their capital expenditure.


*Moyston Hall, photograph courtesy of Ararat Rural City Council.*

## 1.3 Audit objectives and scope

The audit objective was to assess whether local councils effectively manage their physical infrastructure assets by examining whether councils have:

- developed and applied a sound strategic framework for asset management
- implemented efficient and effective asset management practices that are consistent with better practice
- been provided with appropriate guidance and support to manage assets.

The audit focused on LGV and five local councils, which collectively manage around $5.4 billion in physical infrastructure assets:

- Ararat Rural City Council
- Cardinia Shire Council
- Kingston City Council
- Port Phillip City Council
- Wodonga City Council.

## 1.4 Audit method and cost

The audit was conducted in accordance with section 15 of *the Audit Act 1994* and Australian Auditing and Assurance Standards. Pursuant to section 20(3) of the *Audit Act 1994*, any persons named in this report are not the subject of adverse comment or opinion.

The cost of the audit was $450 000.

## 1.5 Structure of the report

This report is set out as follows:

- Part 2 examines the asset management frameworks used by local councils and the guidance and support available.
- Part 3 examines the asset management practices used by local councils.

# 2 Councils' asset management frameworks

## At a glance

### Background

Better practice asset management requires councils to develop and apply a sound asset management framework that includes a policy, strategy, plans and governance arrangements for the effective management of all infrastructure assets.

### Conclusion

Councils have improved their asset management frameworks. However, they do not yet meet better practice standards. Progress has been made with the guidance and support available to the sector, but it has been relatively slow. Local Government Victoria guidance and support needs to be reviewed and updated.

### Findings

- There is wide variation in the level of competency achieved by councils in developing effective governance arrangements, strategies and plans for asset management.
- There are significant deficiencies in the asset management plans of most councils which inhibit their effective implementation. Many plans do not adequately link to councils' intended community service levels, and some are incomplete.

### Recommendations

Local councils should:

- accelerate efforts to review and update their asset management frameworks, policies and strategies to meet better practice standards
- make sure they have comprehensive asset management plans for all major asset categories.

Local Government Victoria should:

- update its asset management guidance material and review its support and guidance to ensure it targets common issues facing councils
- in conjunction with councils and the Municipal Association of Victoria, review the use and application of the National Asset Management Assessment Framework and its appropriateness for driving improvement in asset management performance.

## 2.1 Introduction

To be able to manage their assets effectively and efficiently, councils should have a sound asset management framework that includes appropriate governance arrangements and asset management policies, strategies and plans that are well developed and integrated.

## 2.2 Conclusion

While improvements have been made in recent years, the audited councils remain below the 'core' level of maturity in the development of their asset management frameworks, as measured by national benchmarks. This is in keeping with the performance of most Victorian councils, the vast majority of which are below core competency.

Some areas have improved, such as the quality of asset management plans and the effectiveness of their implementation. However, intended service levels and standards need to be more clearly and urgently linked to asset management plans.

Local Government Victoria (LGV) needs to review and update its asset management guidance material. More assistance from LGV to councils with their asset management challenges could see quicker progress towards councils achieving best practice. LGV could provide more targeted support for councils to address common challenges such as developing appropriate asset management information systems, developing a set of asset management performance indicators to compare council performance, and providing advice on dealing with the growing renewal gap.

## 2.3 Elements of a sound asset management framework

Key components of a sound asset management framework include:

- **governance arrangements** incorporating an accountability structure that identifies roles and responsibilities
- an agreed **policy** that establishes the principles and requirements for asset management
- a **strategy** that sets out the actions needed to implement the policy and links the asset portfolio to service delivery needs
- asset management **plans** that link to the policy, strategy, long-term financial plans and intended levels of service
- current and planned **levels of service** established in asset management plans, prepared in consultation with the community.

### 2.3.1 Governance arrangements

Better practice governance arrangements include:

- identifying asset management roles and responsibilities
- establishing mechanisms to provide high-level oversight by the council, chief executive officer and executive management
- encouraging all relevant organisational areas to become involved in asset management processes.

All the audited councils have documented their governance structures and have established formal mechanisms to facilitate high-level oversight by the council, chief executive officer and executive management team. Their governance structures incorporate a hierarchy of responsibilities, accountabilities and reporting, and these are described in policy and strategy documents.

All five councils have established an asset management steering group, or equivalent, with specific responsibilities for promoting and monitoring the implementation of the asset management strategy and plans.

However, there is wide variation in the level of competency achieved by councils in developing effective governance arrangements for asset management:

- Three councils have developed a policy that identifies the positions which have responsibilities for determining levels of service, and for managing assets to meet service delivery needs. The remaining councils have yet to define or develop asset management responsibilities.
- One council noted that 'whole-of-life' costs are not considered when making capital investment decisions and that a formal assessment of asset management skills is yet to be done.

*Rotunda, photograph courtesy of Cardinia Shire Council.*

Despite all councils having governance arrangements in place, each acknowledged it is a challenge to integrate asset management with other corporate functions. This requires, for example, more effective working relationships between the engineers responsible for asset performance, the staff responsible for service planning and delivery, and the finance staff. All councils advised that greater effort is required to involve all the relevant departments in asset management activities to achieve better outcomes.

Councils have traditionally located asset management functions within their technical or engineering areas, rather than within the broader corporate context. This inhibits the development of relationships between those who plan for future services, those who deliver the services, and those who maintain and develop infrastructure to support the delivery of those services. During this audit, Port Phillip adopted a new corporate structure that aims to address this organisational misalignment and promote better integration of asset management with financial management.

### 2.3.2 Asset management policies

A good asset management policy:

- establishes clear goals and objectives for asset management
- integrates asset management with other corporate and strategic planning processes
- requires an asset management strategy and plans to be adopted for each category of assets
- defines governance arrangements for asset management including roles and responsibilities, and communication and training, including monitoring the evaluation and reporting of asset performance
- outlines an asset performance reporting process, including internal and community reporting
- includes audit and review procedures.

All five councils had an asset management policy that is consistent with their Council Plan—a plan developed every four years outlining council's strategic objectives—and is formally approved by council. In most cases the policy provides clear directions for asset management and incorporates elements of best practice, including objectives for integration with other corporate and strategic planning processes. However, there were some exceptions:

- One council's policy does not contain sufficient detail to guide progress towards better practice asset management. Other than stating the council goals and objectives for asset management and a requirement to develop an asset management strategy and plan for each asset category, it contains no additional information, such as the importance of integrating asset management with other corporate and strategic planning, defining governance arrangements or identifying an asset performance reporting process.

- Another council's policy does not adequately demonstrate links with other corporate activities, for example, with the long-term financial plan and the annual planning processes. This makes it difficult for the council as a whole to work effectively towards achieving its objectives for asset management.

One council commented that its asset policy is due for review in early 2014 and believes the Department of Transport, Planning and Local Infrastructure (DTPLI) should provide guidance on a current, standardised approach to asset management policies for all councils.

### 2.3.3 Asset management strategies

Better practice asset management strategies:

- provide current details of infrastructure assets and their management, including current and future forecast needs and the adequacy of funding
- demonstrate how the asset portfolio can meet the service needs of the community in the short, medium and long term, with available resources
- are linked to the asset management policy and integrated into strategic long-term financial planning and the annual budget process
- incorporate actions required to implement the policy, including developing asset data information systems, identifying resource requirements and establishing time frames and performance measures for implementing the strategy.

All five councils had developed and formally adopted an asset management strategy. These vary in the quality and level of detail provided. One council provided only a brief overview of particular aspects of asset management, such as recognition of the renewal gap challenge, whereas other councils provided a more detailed analysis.

A good practice by all five councils is the inclusion of improvement plans documenting the actions needed to advance their management of assets. While these plans allocate responsibilities and set time frames to implement actions, it is too early to assess progress against them. Councils have indicated that the actions in these plans must compete with other council priorities for funding. Councils do not publicly report progress against their improvement plans.

*Carrum foreshore and Surf Life Saving Club, photograph courtesy of Kingston City Council.*

### 2.3.4 Asset management plans

Best practice asset management plans include a description of assets and services and the current condition of assets, set agreed levels and standards of service, and incorporate risk management strategies.

All five councils had developed asset management plans for their major asset categories. We reviewed a sample of 15 plans within the five councils, focusing on the asset categories listed below:

- **Kingston**—drainage, pavements, footpaths, community facilities, pavilions
- **Port Phillip**—parks and open spaces, stormwater drainage, facilities such as buildings and recreational facilities
- **Cardinia**—bridges, drainage
- **Wodonga**—bridges, buildings
- **Ararat**—buildings, drainage, parks and recreational facilities.

Figure 2A summarises the results of our assessment of councils' asset management plans against better practice criteria.

**Figure 2A**
**Assessment of asset management plans against key criteria**

| | VAGO assessment | | |
|---|---|---|---|
| **Better practice criteria** | **Met** | **Partially met** | **Not met** |
| Is consistent with government policy objectives | 15 | 0 | 0 |
| Is adopted by the council | 8 | 0 | 7 |
| Describes the assets and services to be delivered | 15 | 0 | 0 |
| Is clearly linked to the council's asset management policy, strategy, strategic long-term financial plans, and capital works and maintenance programs | 12 | 3 | 0 |
| Provides clear linkages with current and future community service needs | 2 | 2 | 11 |
| Sets agreed levels and standards of service for each asset class and significant asset | 4 | 4 | 7 |
| Describes the current condition of assets | 11 | 0 | 4 |
| Contains demand forecasts and long-term cash flow projections for various types of costs, such as maintenance and operational, renewal, upgrade, replacement, disposal, etc. | 9 | 1 | 5 |
| Incorporates risk management strategies | 11 | 0 | 4 |
| Explains how the performance of the plan will be monitored | 0 | 3 | 12 |
| Contains evidence of engagement and consultation with the local community | 5 | 10 | 0 |
| Provides for periodic reviews of the plan document | 12 | 0 | 3 |

*Source:* Victorian Auditor-General's Office.

The quality of the sample asset management plans was mixed. There were some good practices identified in our assessment of the plans, including:

- consistency with government policy
- clear descriptions of assets and services to be delivered
- initiatives in plans to determine the condition of assets.

However, there were also deficiencies in the quality of plans, which inhibit their implementation:

- Some plans were still incomplete after almost three years in development.
- None of the sample plans included a comprehensive process to monitor and evaluate the progress of implementing the plans.
- Eleven plans did not adequately connect current and future community service delivery needs to asset management plans.
- Seven of the sample plans had not been formally adopted by the council but are considered to be working documents.
- Seven plans did not adequately establish levels and standards of service for each asset class. Levels and standards of service were based primarily on historical experience and the results of general community surveys.

Among other things, these deficiencies indicate:

- different levels of commitment by councils to the importance of having approved asset management plans
- that the development of plans may not adequately support current and future council services
- a lack of monitoring and measurement mechanisms that can provide objective assurance that the plans are working.

The current asset management plans are considered by councils to be ‘first generation’ plans under the national framework. Our review identified significant scope for improving these plans, although Kingston's plans were closer to better practice.

*The Cube, photograph courtesy of the Wodonga City Council.*

In our review of asset management plans, we did not specifically assess the management of roads, although they account for a substantial portion of councils physical infrastructure assets. Previous VAGO audits such as *Management of Road Bridges* 2011, and *Maintaining the States Regional Arterial Road Network* 2008, focused on the road network and it was scoped out of the current audit.

It is worth noting that roads, bridges and paths form a substantial part of a council's asset management business. These assets are governed by the *Road Management Act 2004* and supporting regulations which prescribe the way councils must manage these assets under a Road Management Plan. Some councils have suggested that a more rigorous approach to other asset categories along these lines would improve council asset management generally.

### 2.3.5 Levels of service

The primary purpose of a council's asset portfolio is to effectively support its community's current and future service needs. Councils should prepare service delivery plans that establish both current and desired levels of service and that identify the optimal mix and capability of assets needed to support these services.

While all five councils had prepared various strategies for the services they deliver to the community, none has well-developed plans for their major services that link to asset management plans or asset requirements. One council was more advanced in developing service delivery plans, although their current and desired service levels and standards are not yet fully developed. Another council advised it has no service plans and that it believes most councils are struggling in this area.

All five councils had established and documented service levels for their drainage assets in compliance with the requirements of the *Road Management Act 2004*. However, councils acknowledged in their plans that more work is required to develop service level matrices which address service levels and standards, that link to asset requirements.

All five councils' asset management plans indicated that service levels and standards of service are determined largely on the basis of results from the annual community satisfaction survey undertaken by DTPLI. However, these surveys are generally conducted over the phone and do not constitute robust consultation or engagement on service levels and standards, and the information is of limited relevance to asset management. To illustrate, two councils' asset management plans—for bridges and drainage—indicated there is no specific area in the DTPLI survey that is designed solely for these asset categories and that standards are inferred from the results of more general survey questions. The surveys should not be used as a substitute for councils' own local engagement activities on service levels and standards.

All five councils consulted with their communities on specific asset initiatives, such as the use of playgrounds and the future of an outdoor swimming pool.

All audited councils identified that establishing service standards, and linking service delivery to asset requirements, are priorities in the development of ‘second generation’ asset management plans.

## 2.4 Measuring the adequacy of asset management frameworks

In 2010, councils were directed to achieve a ‘core’ level of maturity under the National Asset Management Assessment Framework (NAMAF) by December 2012. Few Victorian councils achieved this, and none of the audited councils had achieved 'core' maturity in all elements. Most of the audited councils are at 'low' to 'intermediate' levels of maturity in the development and application of key elements.

However, the audited councils have shown some improvement since 2010. The five councils’ improvement in their aggregate NAMAF scores over the period 2010 to 2012 ranged from 3 per cent to 37 per cent, averaging around 17 per cent. The average improvement of all Victorian councils over this period was around 30 per cent.

Because the majority of Victorian councils did not meet the original 2012 target—only 14 of 79 councils achieved ‘core’ maturity by December 2012—this target was extended to December 2013. Twenty-three councils had achieved this level by December 2013. In this context it is important to note that 'core' maturity is still not best practice. Under NAMAF, best practice is the highest level of competence, called 'advanced' maturity.

### 2.4.1 Issues with the National Asset Management Assessment Framework

NAMAF scores are based on councils’ annual self-assessments, with some moderation by external consultants appointed by the Municipal Association of Victoria (MAV) who review the scores.

We undertook our own assessment of each of the five councils by reviewing key documents related to asset management. Although VAGO's assessment criteria were similar to those for NAMAF, they were not identical. We focused on a smaller set of sub-elements within each NAMAF element that we considered to be the most important for councils to achieve. We did not set out to replicate each council's full self-assessment process or the MAV STEP Asset Management Improvement Program consultant's review process.

Overall, VAGO's assessment results for councils were similar to the scores councils gave themselves, however, we found there is a slight bias in councils towards overestimating maturity levels. One example is where a council gave itself a high rating for defining asset management roles, responsibilities and a reporting framework, yet there was no detail in its policy document regarding these.

The audited councils advised us that their assessments were fair and accurate using the NAMAF rules and validation process. We agree that the councils' own assessments are consistent with the current rules and process. However, our assessment suggests there are weaknesses in the framework itself and in the assessment process. These affect the reliability of NAMAF scores as indicators of asset maturity, and raises concerns about their consistency and comparability over time and across councils.

Our assessment and advice from councils identified several issues with NAMAF:

- Element and sub-element are often ambiguously defined. This increases the likelihood of subjectivity in self-assessments.
- Methods for converting NAMAF scores into conclusions about asset management competency are inconsistent. MAV suggests that 'core' maturity is achieved when a council reaches a score of 95–100 for each asset management element. However, MAV also considers that 'core' maturity overall is achieved when the aggregate score across all elements is above 1 000, which requires an average element score of only 91.
- Councils have pointed out the crudeness of the scoring system whereby councils with very close scores can end up in very different asset maturity groups.
- Councils also emphasised that while their self-assessment scores were previously externally audited, they no longer are.
- One council cautioned that a distinction should be made between 'strategic asset management' which has a corporate-centred approach and 'on-ground asset management', which has a traditional engineering department approach. Many councils are still in transition towards implementing a strategic approach to asset management which requires councils to apply more resources. However, high NAMAF scores do not register the difference and may not always indicate better 'on-ground asset management' practices.
- Another council advised that while it submits NAMAF self-assessment reports annually, it doesn't see itself as part of the MAV STEP process and is planning to align itself with the new ISO-55000 Asset Management standard. This reflects the council's view that there are deficiencies in NAMAF in its current form.

Having an unbiased and accurate assessment of asset management maturity is important because it will inform councils of what is required to address deficiencies. Overestimating competencies and relying solely on NAMAF to reflect councils' asset maturity creates the risk that significant problems are not adequately addressed.

This all points to a need to review NAMAF to improve how its elements are defined and measured, and how scores should be interpreted by councils and independent auditors. Validation processes for councils' self-assessments should also be reviewed to ensure reliable and consistent methods are used across all councils. Improving these areas would likely lead to greater council confidence in NAMAF benchmarking, and greater transparency and accountability about councils' asset management performance. The results should be made publicly available through councils' annual reports, as well as via a central website to allow easy comparison between councils.

While it is timely to review the use of NAMAF, councils and MAV acknowledge that it has helped to put asset management more firmly on councils' agendas, provided useful guidance and direction for self-assessment of asset performance, and encouraged councils to improve against shared benchmarks.

## 2.5 Guidance and support provided to councils

There is an abundance of guidance available to assist councils but they are not making best use of this material. Figure 2B summarises selected asset management better practice guidance material available to councils.

**Figure 2B**
**Better practice guidance material**

| Title | Description | Provided by |
|---|---|---|
| *Sustaining Local Assets* (2003) | Provides the overall policy framework to guide the strategic management of council infrastructure assets | LGV |
| *Asset Management Policy, Strategy and Plan* (2004) | Guidelines for developing an asset management policy, strategy and plan | LGV |
| National Asset Management Assessment Framework | A self-assessment tool to assist councils to identify progress in implementing best practice asset management | Institute of Public Works Engineering Australia (IPWEA)/Australian Centre of Excellence for Local Government (ACELG) |
| STEP asset management improvement program (since 2003) | A program for councils covering asset management and planning as essential for the effective delivery of services | MAV |
| *Local Government Asset Investment Guidelines* (2006) | Guidelines for planning and business case analysis through to asset investment and evaluation for significant capital investments | LGV |
| *International Infrastructure Management Manual* (2011) | Provides best practice guidance on asset and financial management practice for infrastructure assets | New Zealand National Asset Management Steering Group/ IPWEA |
| *Australian Infrastructure Financial Management Guidelines* (2012) | Provides guidance on developing best practice asset and financial management for infrastructure assets | IPWEA |
| *Long-term Financial Planning* (2012) | Developed to assist organisations that are involved in service delivery and long-term asset management in preparing a long-term financial plan | IPWEA/ACELG |

*Source:* Victorian Auditor-General's Office.

### 2.5.1 Local Government Victoria

LGV's role includes working in partnership with local councils to improve business and governance practices that maximise community value and accountability.

As part of this, LGV has developed and promoted asset management guidance materials. The guidelines, *Asset Management Policy, Strategy and Plan,* were developed around 10 years ago. Audited councils advised that many councils developed their asset management frameworks some time ago using these guidelines, and that updated guidance that provides a standardised approach for all councils would be helpful. LGV advised VAGO that its 2004 asset management guidelines will be reviewed and updated in 2014.

The audited councils advised that support from LGV, though appreciated, is limited, so they do not often seek guidance or assistance with developing their asset management frameworks and practices directly from LGV. Three councils advised they have used some of LGV's guidance material to develop sustainable asset management practices. There is scope for LGV to provide more targeted guidance and support to councils to address common problems, such as improving their asset management planning and practices, and dealing with the renewal gap challenge.

Councils advised that the State Library of Victoria previously provided open access to a website portal for sharing asset management information. This was extensively used and valued by councils and other organisations, but is no longer available. LGV, councils and MAV should collaborate to review the value of such a central asset management website. We understand MAV is already doing some work in this area.

LGV also coordinates annual surveys designed to identify improvements in asset management practices and assess progress by councils. Some councils have queried the usefulness of these surveys and suggested that LGV could engage councils on how the surveys could be of greater mutual benefit.

LGV is currently developing a Local Government Performance Reporting Framework to be applied by councils from July 2014. However, the asset management indicators proposed are not sufficiently detailed to support comprehensive monitoring and reporting of councils' asset management practices. LGV advises that the indicators proposed have been developed to provide a high level view of a council's asset management performance and strategies. In addition to these indicators, it would be desirable to consider further disaggregated or detailed indicators and information to support deeper analysis. Councils have also raised the issue of duplication of asset data requirements by LGV and MAV, and as part of this, the under-utilisation of Victorian Grants Commission data. LGV could work more closely with councils and MAV to discuss and resolve such data issues.

In Victoria, the *Local Government Act 1989* is silent on how councils should manage their assets. In other states, legislation has been put in place to promote better asset management planning. In 2005 South Australia legislated that councils prepare a long-term financial plan and an infrastructure and asset management plan, both covering a period of at least 10 years. In 2009, New South Wales introduced the same requirements.

LGV should review the relative merits of different legislative approaches with a view to strengthening Victorian legislation to help achieve best practice asset management. Legislation has recently been passed by Parliament to strengthen performance reporting and accountability across a wide range of areas within councils. LGV expects this to result in greater alignment between asset management and financial planning, and better council benchmarking on asset management.

### 2.5.2 Municipal Association of Victoria

The MAV STEP program, which commenced in 2003, was designed to assist councils improve their asset management capabilities. It is built on a continuous improvement model and setting 'stretch' targets. Since 2010, the STEP program has incorporated NAMAF to assist councils in a practical way to meet national framework standards for asset management.

MAV has also collected data around asset management practices from Victorian councils, and benchmarked this data to gain an understanding of councils' asset management maturity. MAV was also provided $1.4 million from the federal government's Local Government Reform Program in 2010 for the Regional Asset Management Program.

Under NAMAF, and with MAV and LGV support, councils have improved their asset management practices. However, two audited councils questioned the ongoing usefulness of the STEP program for asset management, especially in terms of value for money. Another suggested it was timely for MAV to review the relevance of its current asset management support programs via a survey.

*Bridge, photograph courtesy of Ararat Rural City Council.*

## Recommendations

Local councils should:

1. accelerate efforts to review and update their asset management frameworks, policies and strategies to meet better practice standards
2. make sure they have comprehensive asset management plans covering all major asset categories.

Local Government Victoria should:

3. review and update its asset management guidance material for councils
4. review the support it provides to councils and make sure it is targeted to address common issues
5. consider, in conjunction with councils, developing a set of comprehensive asset management performance indicators that will enable comparability between councils on asset management performance
6. in conjunction with councils and the Municipal Association of Victoria, review the use and application of the National Asset Management Assessment Framework and its appropriateness for driving improvement in asset management performance
7. consider making aspects of asset management mandatory, such as the development of asset management policies, strategies and plans.

# 3 Councils' asset management practices

## At a glance

### Background

Better asset management practice helps councils to manage their infrastructure planning and spending well. To achieve this they must implement, monitor and review their asset plans, and report on their progress to the council and their communities.

### Conclusion

While council asset management practices are improving in various areas, they do not yet meet better practice. Councils are not adequately addressing asset renewal. This affects the level of service councils can provide to their communities and, without timely and appropriate action, will likely affect council financial sustainability in the longer term.

Effective asset management is being inhibited by a combination of underdeveloped asset management information systems and a lack of skilled resources. This prevents councils from effectively monitoring, evaluating and reporting on their progress in implementing plans.

### Findings

- Spending on existing assets is not keeping pace with the consumption of these assets. Councils are not able to meet existing asset renewal requirements, resulting in renewal gaps growing and accumulating each year.
- None of the councils has adequate monitoring, evaluation and reporting processes in place for asset management.
- Community engagement around assets is poor.

### Recommendations

Local councils should:

- develop a strategy for reducing their asset renewal gaps
- improve their asset management information systems
- improve the provision of information to the community, and engagement with the community on asset management
- develop and implement monitoring, reporting and evaluation systems and publicly report on their asset management performance.

## 3.1 Introduction

Councils should operate within a sound and strategic asset management framework, but for this framework to be effective they must also follow through with robust asset management practices. This requires them to make many complex decisions and take appropriate action in asset operation, maintenance, renewal, upgrade and disposal, including new capital spending when needed to meet changing community demands and service levels.

If councils are making these decisions well, it will be evident in a number of areas including the state of their asset management plans, their capital works budgets, the management of their renewal gaps, and how they monitor, evaluate and report progress on asset management.

## 3.2 Conclusion

Council asset management practices have improved, but do not yet met best practice in a number of areas.

Audited councils have underdeveloped asset management information systems and a lack of skilled resources, particularly the smaller and regional councils. Councils also have poor systems for monitoring, evaluating and reporting on the progress of implementing plans. Community engagement around assets is generally poor.

Spending on existing assets is not keeping pace with the consumption of these assets. Audited councils are not able to meet existing asset renewal requirements, resulting in cumulative renewal gaps growing every year. This situation is likely to adversely impact the condition of assets, service levels and councils' long-term financial sustainability.

There are significant differences in expenditure against capital works budgets for the audited councils. Underspending by several councils suggests there is scope to better integrate capital works programs with asset management and long-term financial planning.

## 3.3 Asset management practices

In order to assess how well councils in our sample perform in their asset management practices, we focused on whether they had:

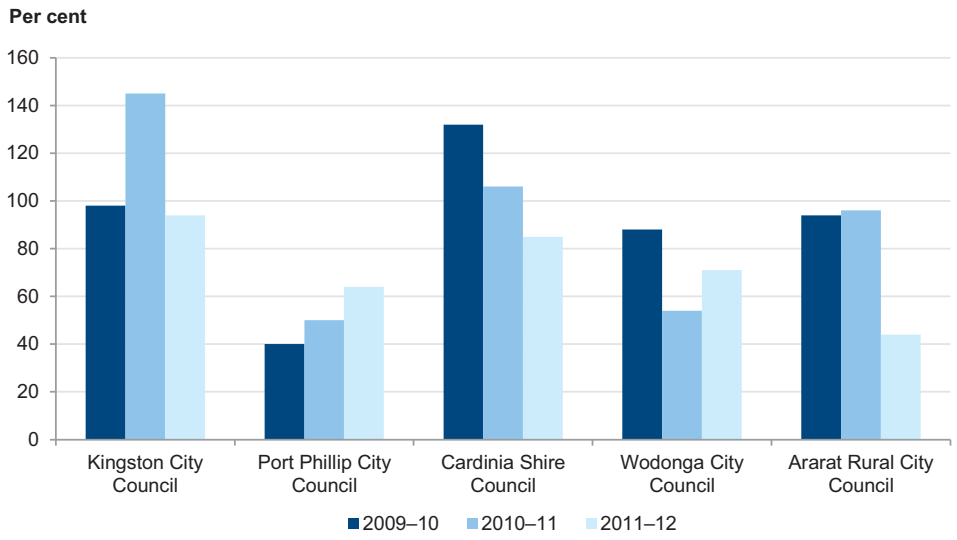
- implemented asset management plans as intended
- effectively managed their capital works budgets and the asset renewal gap
- made the best use of the available resources to effectively deliver the intended services to their local communities
- evaluated and reviewed the implementation of their asset management strategies and plans.

### 3.3.1 Delivery of the budgeted capital works program

Developing and adhering to a capital works budget is a key aspect of effective asset management. We analysed councils' capital works budgets against their actual capital spend from 2009–10 to 2011–12.

Figure 3A illustrates the wide fluctuations between audited councils, with several significantly underspending against their capital works budget targets over the three-year period. Adhering to capital works budgets is an indicator of sound financial planning and management and is consistent with good asset management practice, although variations from budget may occur for a range of reasons, some of which may be outside the control of councils. It is therefore important that there is transparent reporting on the reasons for budget variations.

**Figure 3A**
**Comparison of actual capital spend to capital budget**




*Source:* Victorian Auditor-General's Office.

Councils are required to provide explanations in their annual reports for major differences between budgeted and actual capital works expenditure. Common explanations are work delays, reprioritised and reallocated works, works carried over from the previous year, unplanned works, and capital works brought forward. However, these explanations were more descriptive than explanatory and often did not fully detail the reasons for such significant variations. For example, councils frequently reported that the project was delayed, but usually did not identify the underlying cause of the delay or the potential impacts. This provides limited transparency and accountability to ratepayers.

The large deviations from budgets points to a need for some councils to better integrate their capital works budgets and programs with asset management plans and long-term financial plans. They should also set realistic and achievable levels of capital expenditure that are determined by identified community service needs and standards. Several councils commented that when they rely significantly on federal or state grants, it is more difficult to match budgeted and actual capital spend.

## 3.3.2 Managing the renewal gap

A key challenge for councils is to ensure their municipalities' assets are adequate for supporting the services the council provides to its community. This requires councils to systematically plan for, and continually invest in, asset maintenance, renewal and replacement. Failure to invest in these in a timely way results in an asset renewal gap that grows and becomes worse over time, putting the quantity and quality of council services at risk.

The need for action to address the renewal gap is not new. A report prepared in 1998 for Local Government Victoria's (LGV) predecessor, *Facing the Renewal Challenge – Victorian Local Government Infrastructure Study*, warned that unless steps were taken to address the renewal gap, the amount required for renewal would more than double by 2012. In 1997, the five-year renewal cost for Victorian councils was around 4 per cent of total asset value, but by 2011–12, this figure had risen to 7.5 per cent. Overall, councils are not making sufficient progress in addressing their renewal gaps. While addressing the renewal gap may require some hard decisions, failure to make those decisions will only lead to harder decisions in the future, and will result in the continuing deterioration of assets and services.

### Renewal gap analysis in audited councils

Each year, councils determine their asset renewal requirements, which include the costs of renewing, restoring and replacing existing assets. Figure 3B shows the estimated funding needed to renew assets for the audited councils.

**Figure 3B**
**Infrastructure renewal, 2011–12 to 2015–16**

| | Kingston ($mil) | Port Phillip ($mil) | Cardinia ($mil) | Wodonga ($mil) | Ararat ($mil) | All audited councils ($mil) |
|---|---|---|---|---|---|---|
| Year 1 renewal cost (2011–12) | 22.4 | 17.7 | 24.7 | 5.4 | 3.6 | 73.8 |
| Year 1 council budgeted funding | 19.2 | 11.2 | 24.7 | 3.4 | 5.4 | 63.9 |
| Year 1 renewal gap variance | 3.2 | 6.5 | 0 | 2.0 | –1.8 | 9.9 |
| 5-year renewal cost (2011 to 2016) | 120.6 | 94.1 | 123.5 | 25.6 | 21.2 | 385.0 |
| 5-year council budgeted funding | 93.5 | 55.9 | 123.5 | 23.1 | 26.8 | 322.8 |
| 5-year renewal gap variance | 27.1 | 38.2 | 0 | 2.5 | –5.6 | 62.2 |
| 5-year average annual renewal gap | 5.4 | 7.6 | 0 | 0.5 | –1.1 | 12.4 |

*Note:* In Ararat's case, only 2010–11 data was available.

*Source:* Victorian Auditor-General's Office, using data from Municipal Association Victoria's benchmarking survey – reported in STEP Program Overview and Results 2012–13.

This analysis shows that for 2011–12, funding of $73.8 million was needed to renew assets in the five audited councils. However, councils collectively budgeted for around $63.9 million—14 per cent less than required.

The estimated required funding for the five-year period to 2015–16 is $385 million, but councils budgeted $322.8 million, a shortfall of 16 per cent. This suggests that some councils are unable or unwilling to fund their identified asset renewal requirements. As a result, their asset renewal gaps continue to grow annually. This will likely adversely impact the condition of asset portfolios and levels of service that councils can provide to their communities.

For councils individually, Figure 3B highlights that:

- Kingston planned to underspend in 2011–12 by $3.2 million, or 15 per cent, and planned to underspend over the five years to 2016 by $5.4 million per year, or 22 per cent
- Port Phillip and Wodonga both planned to underspend in 2011–12 by 37 per cent and Port Phillip by a proposed 41 per cent over the 5-year period
- Cardinia planned to fully meet its renewal requirements in the short and medium terms
- Ararat's budgeted renewal funding exceeded demand by an average of $1.1 million per year, or 27 per cent, over five years.

Figure 3B also shows that renewal expenditure estimates and the capacity to meet these varied considerably across the audited councils. Many factors account for these differences including:

- council size
- asset profiles
- the historical approach to asset management
- funding sources
- staff skills and capabilities
- the council's appetite for debt and borrowing.


*Market, photograph courtesy of Port Phillip City Council.*

One council commented that councils estimate their renewal budgets based on their own capacity to fund their asset requirements, and do not take into account future state or federal grants that may also be applied to renewal needs, or the possibility of using council reserves. These additional funding sources could significantly reduce a council's renewal gap.

## Councils' approach to managing renewal gaps

The audited councils have identified a number of key challenges in managing their renewal gaps, including:

- having a complete understanding of their physical assets, especially their true value and condition, and the associated costs of maintaining, renewing and replacing them—this requires improved asset information systems for collecting, processing and analysing large volumes of asset data
- developing more sophisticated asset data models—the data models currently used to forecast renewal funding requirements have significant limitations
- employing and retaining skilled staff to properly develop and effectively use asset management information systems
- managing various service level risks associated with timely asset intervention works, and the risk of community dissatisfaction, including through asset disposal decisions.

Most councils provided only limited information on how they manage their renewal gaps. While they generally demonstrated a good understanding of the challenges and risks they face in managing their renewal gaps, they were less able to provide clear evidence of having effective strategies to mitigate those risks, or plans outlining how they intend to manage their renewal gaps.

One council suggested that grants to councils from state and federal governments for new infrastructure should be tied to council asset renewal performance. It argued that whole-of-life costing of asset renewal requirements be undertaken at the time of grant applications and that future council costs be stated in terms of equivalent rate increases to ensure better investment decisions. The same council advised that it uses a benchmark of 3 per cent of assets past their intervention point as an indicator of a poorly performing council, and has kept its own close to 1 per cent.

The Municipal Association of Victoria found in 2011 that only 31 councils were fully funding their asset renewal needs, and the remaining 48 had a renewal funding gap. In 2012, the former Department of Planning and Community Development commissioned a review of the status of council asset management practices. It found that on three key asset management issues councils have not made significant progress since 1998 when the *Facing the Renewal Challenge* report was completed. Persistent issues included the continued expansion of the asset base and increased service levels, the need for good asset management information, and the need for asset management plans with targeted and affordable service levels.

Improving asset management practices would reduce the magnitude of forecast renewal gaps. This view is supported by LGV.

## Reporting requirements on renewal gaps

There are major differences between the use of 'greenfield' versus 'brownfield' asset valuation methods when assessing renewal requirements and reporting on asset renewal gaps. Greenfield valuations are based on the costs of the initial acquisition or construction of an asset at an undeveloped site. On the other hand, the cost to rebuild or replace an existing asset includes such costs as demolition, disposal and site restoration. When renewing assets, these costs form part of the real costs to the council and are referred to as brownfield unit rates. These two methods can produce widely varying estimates when calculating renewal requirements because:

- the greenfield method meets financial reporting requirements, but for councils' practical asset management purposes, may significantly underestimate the actual cost of renewing the infrastructure
- the brownfield method usually provides a more accurate picture of the funding required to meet present and future infrastructure requirements and is more likely to be used by councils for estimating their renewal requirements.

The impact of these different methods of determining the renewal gap can be illustrated by the very different unit rates or costs associated with each method. For instance, for footpaths and cycle paths the average brownfield renewal rate used by one council was $150 per square metre compared to its greenfield rate for new construction of $73 per square metre. Similarly, for kerb replacement, its greenfield rate was $63 per lineal metre compared to $180 per metre for its brownfield rate. Brownfield rates factor in additional costs that enable the asset to be constructed, including any demolition and removal of existing infrastructure, and site preparation.

*Amphibitheatre, Public Artworks by Heather B Swann, photograph courtesy of Cardinia Shire Council.*

The valuation of assets issue is further complicated by other factors, such as the age and condition of assets and different definitions of asset renewal. For instance, a council with a relatively young asset base indicated that when using accounting definitions of asset depreciation its 2012–13 annual depreciated asset value is about $8 million, while if using brownfield rates its estimated real renewal requirements are closer to $4 million.

The valuation of assets in council balance sheets is based on greenfield rates and calculates the assets' current replacement cost in accordance with Australian Accounting Standards.

Another important valuation and measurement issue is how councils determine the useful life of an asset. For instance, some councils will use 88 years as the average life of a road pavement and others 160 years. Such differences have a major impact on asset renewal estimates. Councils should be required to report the basis of their renewal estimates and to use consistent approaches.

### 3.3.3 Asset disposal practices

Asset disposal is one strategy councils can use to reduce their asset management liabilities when assets have reached the end of their useful life or are no longer needed. We came across many examples of assets that audited councils consider surplus to their needs, including council buildings and public swimming pools.

The appropriate disposal of assets is an integral part of the asset life cycle and is an essential part of the asset management strategy. Asset disposal decisions should consider what new assets will be acquired and how assets being disposed of will be replaced. An asset disposal plan should establish why and when assets may be disposed of and how this can be done most effectively.

None of the five councils was able to provide evidence of a documented asset disposal policy, and there was limited evidence provided by them of a systematic approach to asset disposal.

#### Managing 'gifted' and non-council assets

Some assets held by local councils are 'gifted' assets—assets that are built or purchased by other government authorities and then given to local councils to operate and maintain. Some councils indicated they would prefer not to have the responsibility for managing those assets, which commonly include buildings and parks and recreational facilities, because they are unable to dispose of them but are obliged to maintain them at a substantial cost.

### 3.3.4 Asset information systems and knowledge resources

Effective asset management requires complete, reliable and useful information about the assets. However, councils are struggling to achieve best practice in the information systems they use to manage assets.

Over many years, the effectiveness of asset management has been limited by poor asset data and information systems. Two audited councils advised that during the local government amalgamations that occurred in the mid-1990s, they inherited a myriad of asset data and information systems that were fragmented and lacked complete and reliable asset information, particularly about the condition of assets.

Councils are still not confident that all assets under their control have been identified and recorded. For example, one council's current road pavements asset management plan notes the council's historical records are incomplete. Similarly, another council advised that it is still finding drains that are not on the council records. This situation reduces the capacity of councils to effectively monitor, evaluate and report asset performance and properly plan for maintenance and renewal.

#### Condition assessment information

Without comprehensive, timely and reliable information about the age and condition of all council assets, sound strategic planning and management of those assets is compromised.

We found that all councils had undertaken periodic condition reviews of their major infrastructure assets. We mentioned the challenges councils had following the council amalgamations in producing a complete inventory of the assets within their municipalities. The current challenge for many councils is being able to collect, store and effectively use the large volumes of asset information they need to plan strategically to meet their asset maintenance and renewal requirements.

One council advised it regularly undertakes condition reviews of its infrastructure assets, but does not have up-to-date condition information on all of its assets. For example, it does not undertake condition surveys of its drainage assets because pipes are mostly inaccessible and unsafe to enter, and expensive to survey. Other councils have indicated they are hampered by poor asset management information systems and insufficient resources to address this problem.

*Karkarook Park, photograph courtesy of Kingston City Council.*

### Upgrading asset management information systems

Over the past few years councils have recognised the importance of obtaining a more thorough understanding of their asset portfolios in order to effectively manage assets. Consequently, there has been a push within councils to upgrade their asset management information systems or develop new systems that are compatible with their other corporate systems and activities.

These systems must be capable of performing multiple, complex functions. They need to have comprehensive asset data storage and retrieval capabilities and strong asset management and analysis capabilities. They also need to link to key financial and service data in related systems.

Kingston is the most advanced in implementing a comprehensive asset management information system that integrates with other corporate systems, although this is still under development. Other councils are endeavouring to implement similar integrated asset management information systems, but this is proving a major challenge for them in terms of time, skills and the resources required to make systems work effectively.

In Victoria, councils have assessed their own requirements and sourced a variety of systems. This is in contrast to Western Australia and Queensland where state governments have provided common asset information management systems. LGV should investigate the merits of this approach for Victoria.

## 3.3.5 Skills and resources for asset management activities

Better practice requires councils to determine what skills and knowledge they require to effectively undertake asset management functions, and to identify and facilitate training for staff. Councils should develop an asset management skills matrix, which identifies staff training needs and details scheduled training.

Only one audited council has developed a skills matrix, although it needs to review and update it to incorporate asset management and financial planning skills. Four councils had not yet assessed the skills and knowledge they need to effectively manage infrastructure assets, and had not developed a matrix. One council indicated this action is a priority for its next asset management strategy review.

None of the five councils had developed a structured professional development program for staff with asset management responsibilities. While larger councils believe they have a high level of skills and knowledge across their organisation in asset management, smaller and regional councils experience difficulties in attracting people with the relevant skills and knowledge.

Councils operate in an environment of limited resources and capacity constraints. Collaboration between councils can potentially generate efficiencies for them, including in asset management. Efficiencies may be derived through increased purchasing power, skills and knowledge sharing, or through agreements about the funding and management of common areas.

We noted a successful collaborative project between a regional group of five councils, including one in our audit sample. This involved a joint tender for road sealing works that generated substantial savings for each of the participating councils, estimated at $3 million, or 15 per cent of the total project cost. This project was supported by LGV's collaborative procurement program as part of the Local Government Reform Fund. Being a member of Procurement Australia is another successful collaborative venture. Procurement Australia source a range of goods and services contracts for councils, and assure their quality, including within the asset management area.

All five audited councils acknowledged the potential benefits of collaboration in asset management and have been actively involved in collaboration in some capacity.

Some councils noted that one difficulty of collaboration was in determining common aims, methods, costs or outcomes that might be achieved. Greater standardisation in asset management practices across local government may improve this.

### 3.3.6 Monitoring, evaluation and reporting

Sound asset management should include robust monitoring and evaluation processes and the preparation of timely, comprehensive reports that inform council decision-making and the community.

None of the audited councils had fully developed or documented monitoring, evaluation and reporting practices for assessing and reporting their asset performance against their strategies and plans. While councils' policy and strategy documents identify monitoring roles and responsibilities for asset management, they do not describe the processes to be followed in sufficient detail.

None of the councils had developed an asset performance evaluation methodology incorporating performance measures, targets and indicators that would enable an informed assessment of their progress in implementing asset management strategies and plans. This inhibits councils' ability to assess and report asset performance and to make sound and timely decisions.

Internal reporting includes quarterly performance reports that contain progress on the implementation of asset plans and capital works programs, and quarterly financial reports including explanations for any variance between budgeted and actual expenditure. A sample of these reports indicated a common lack of detailed and strategic reporting.

All five councils had established reporting requirements that incorporate asset management information. However, reporting practices do not sufficiently detail their progress in implementing strategies and plans, or report the outcomes achieved.

#### Reporting to the community

Councils are required to produce an annual report containing audited financial statements and standard performance statements. We found that these reports provide little information on asset management and outcomes.

Council websites are also generally at a very rudimentary level in terms of providing adequate and readily accessible information on councils' management of assets, or asset issues generally.

There is considerable scope to improve reporting to the community on asset management, by reporting against performance measures and long-term strategic plans and by including more detailed explanations on budget variances in capital works programs. Councils also need to address the lack of useful information on their websites, to provide a greater awareness to their communities of the asset management challenges they face, their approach to them, and how they are performing.

## Recommendations

Local councils should:

8. as a priority, develop a strategy for more effectively reducing their asset renewal gaps
9. improve their asset management information systems and knowledge of their asset portfolios to ensure they have up-to-date information on all assets
10. identify and review the skills and resources required to effectively manage infrastructure assets, including developing a skills matrix and action plan to address identified skill and resource requirements and gaps
11. improve the provision of information to, and engagement with, the community on asset management
12. develop and implement comprehensive asset management monitoring, reporting and evaluation systems, and publicly report their progress and performance against plans and strategies, including against capital works budgets.

Local Government Victoria should:

13. investigate options for supporting councils to develop and upgrade their asset management information systems, including by reviewing practices in other jurisdictions.

# Appendix A.

# *Audit Act 1994* section 16—submissions and comments

## Introduction

In accordance with section 16(3) of the *Audit Act 1994*, a copy of this report was provided to Ararat Rural City Council, Cardinia Shire Council, Kingston City Council, Port Phillip City Council, Wodonga City Council and the Department of Transport Planning and Local Infrastructure.

The submissions and comments provided are not subject to audit nor the evidentiary standards required to reach an audit conclusion. Responsibility for the accuracy, fairness and balance of those comments rests solely with the agency head.

Responses were received as follows:

Department of Transport Planning and Local Infrastructure ..... 36
Ararat Rural City Council ..... 38
Cardinia Shire Council ..... 40
Kingston City Council ..... 44
Port Phillip City Council ..... 47
Wodonga City Council ..... 50

***RESPONSE provided by the Secretary, Department of Transport Planning and Local Infrastructure***

**Department of Transport, Planning and Local Infrastructure**

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Mr John Doyle
Auditor-General
Victorian Auditor-General's Office
Level 24, 35 Collins Street
MELBOURNE VIC 3000

Dear Mr Doyle

**PROPOSED PERFORMANCE AUDIT REPORT *ASSET MANAGEMENT AND MAINTENANCE BY COUNCILS***

Thank you for your letter of 31 January 2014 and the opportunity to provide comment on the proposed report *Asset Management and Maintenance by Councils*. I am pleased to read you find Victorian councils have improved their asset management practices in recent years.

I acknowledge the findings of the report and note further improvements in asset management practices are necessary.

Your report highlights that councils manage physical infrastructure assets valued at around $73 billion and spend over $2 billion every year to maintain, renew or replace existing assets. In order for councils to meet the challenges of longer term financial sustainability it is therefore increasingly important for them to implement and embed sound asset management practices.

My Department supports your recommendations for Local Government Victoria and I can update you on the following work we are doing in relation to a number of your recommendations.

The review and update of existing asset management guidance material for councils has already commenced. In addition, as you note in the report, my Department is also currently implementing a Local Government Performance Reporting Framework which includes a range of asset management performance measures. In addition asset management data is currently collected from Victorian councils, via *The Local Government Victoria Asset Management Performance Measures Survey*. However on the basis of your findings, my Department will consider additional asset management performance indicators which might be incorporated into this survey.

Two significant reforms were made when the Local Government Amendment (Performance Reporting and Accountability) 2013 Act was given Royal Assent on 11 February 2014. Firstly, Strategic Resource Plans (SRPs) will now need to take account of the resources required in all other plans (including asset management plans) a council adopts.

Secondly the guidance accompanying the remaking of the Local Government (Finance and Reporting) Regulations in April this year will require much more systematic reporting in relation to non-current assets in the SRP and budget.

Department of Transport, Planning and Local Infrastructure
State Government Victoria

***RESPONSE provided by the Secretary, Department of Transport Planning and Local Infrastructure – continued***

These reforms will result in a requirement for councils to provide a greater level of detail and standardisation around planned capital expenditure by asset class and expenditure type which will in turn drive greater alignment between asset management and financial planning. These improvements will also enable benchmarking between councils and opportunities for councils to observe best practice due to the improved consistency of reported information.

My Department will shortly issue better practice guidance and data templates to support implementation of these reforms and is currently trialling the Strategic Resource Planning tools with the group of ten Melbourne interface councils.

Taken together these reforms will immediately drive greater alignment between capital and asset management and all other planning undertaken by councils. The merit of going further to require the production of a formal asset management plan will be considered in this context.

As noted in your report, the National Asset Management Assessment Framework (NAMAF) is a national framework and Victoria has worked in partnership with the Australian Centre for Excellence in Local Government (ACELG), other jurisdictions and peak associations in its development and implementation. All councils are currently able to self-assess their asset management progress against nationally agreed standards.

A review of the use and application of the framework and its appropriateness for driving improved asset management practices is supported and my Department will continue to work with the ACELG on this.

Yours sincerely

**Dean Yates**
Secretary

12 / 2 / 2014

***RESPONSE provided by the Chief Executive Officer, Ararat Rural City Council***


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Dear Mr Doyle

Thank you for your letter of 31 January, 2014 (File No: 29155/01) inviting comment on the report titled, *Asset Management and Maintenance by Councils.*

I confirm that I am satisfied that the report provides a fair and reasonable overview of Ararat Rural City Council's current position and capabilities regarding our Asset Management and Maintenance.

For several years now, the Ararat Council has struggled to attract and retain suitably qualified and skilled asset managers and this has resulted in below par ratings in the MAV STEP program.

However, during the six months leading up to the VAGO audit, our Senior Managers substantially increased their resolve to reinforce our asset management capabilities and they recently employed a number of very skilled people in this crucial area. We now have a new and highly skilled asset management leadership team who are rapidly rebuilding our capabilities and systems.

With reference to the recommendations in your report, I provide the following observations:

**Asset management frameworks, policies and strategies**
Ararat Council has recently determined to align our asset management processes with the new *ISO 55000 Asset Management Framework* and the *ISO 9000 Quality Management System*. These are best-practice frameworks that will drive and influence all of Council's policies, strategies, operating plans etc.

**Asset management plans**
Council has a comprehensive suite of asset management plans that cover all major asset categories, and over the coming period these will be reviewed and redeveloped to align with the above ISO standards.

**Asset renewal gap**
Council recognizes the importance of addressing our Asset Renewal Gap – and in this regard we are developing new systems to clearly define the "amenity" that each of our major assets provides to our Community so that we can direct our scarce resources towards those assets that provide the greatest amenity and, where possible, eliminate assets that bring limited amenity.

**Asset management information systems**
Our new Asset Management Team is currently reviewing our information systems for functionality and interconnectivity with our other business systems to ensure we have the right systems in place to provide Council with accurate and up to date information about our assets. This will be a whole of Council strategic approach that considers all aspects of asset management, financial management and operational requirements.

**Skills and resources**
As noted above, we have recently employed two (2) new Asset Managers who are now responsible for implementing our systems in accordance with the aforementioned ISO standards, including the requirement to document an appropriate skills matrix and action plans to address identified skill and resource requirements and gaps.

***RESPONSE provided by the Chief Executive Officer, Ararat Rural City Council – continued***

**Community Engagement**
Ararat Council has a long history of actively engaging with its community, including ongoing discussions about our assets. In many instances this is a difficult conversation, but one that our Council does not shy away from. For example, we have been discussing the disposition and ongoing costs of our Outdoor Pool with our community for more than 5 years now – and will actively continue this discussion until the matter is resolved.

**Asset management monitoring, reporting and evaluation systems**
Our Asset Management team is currently evaluating the best value system to support our asset management monitoring, reporting and evaluation needs, which should be capable of reporting our progress and performance against our asset management plans, strategies and capital works budgets.

In summary, I am pleased to report that the Ararat Rural City Council is making good progress towards rebuilding our asset management systems, and in designing the data and business processes needed to allow Council to control and hopefully close our Asset Renewal Gap. This will not be an easy journey, but I believe we have the right people in place to drive this outcome.

Yours sincerely,

17.02.2014

**ANDREW EVANS**
**CHIEF EXECUTIVE OFFICER**

***RESPONSE provided by the Chief Executive Officer, Cardinia Shire Council***

CARDINIA

Our ref: 70-75-30 / OUT144799


14 February 2014

John Doyle
Auditor-General
Victorian Auditor-General's Office
Level 24, 35 Collins Street
MELBOURNE VIC 3000

Dear John

**RE: Proposed Performance Audit Report – Asset Management and Maintenance by Councils**

Please find attached Council's Proposed Action Plan in response to the recommendations in the Proposed Performance Audit Report.

I would like to thank the Victorian Auditor-General's Office for giving Cardinia Shire Council the opportunity to be part of this audit and for taking into consideration information submitted by Council at each stage. I note the Proposed Performance Audit Report contains information provided directly and information on Cardinia Shire Council sourced from other agencies.

Cardinia Shire Council agrees with the need for local government to have comprehensive asset management practices in place and this is acknowledged by Council through increased expenditure in asset management and asset renewal.

Council supports the need for increased involvement and guidance by Local Government Victoria (LGV). The recent publishing of the International Standards for Asset Management will have an impact on asset management expectations across all levels of government once Standards Australia has also considered and in the likely situation adopted these standards later in the year.

Yours sincerely

**Garry McQuillan**
Chief Executive Officer

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INVESTORS IN PEOPLE | Bronze

***RESPONSE provided by the Chief Executive Officer, Cardinia Shire Council – continued***

**Cardinia Shire Council - Action Plan addressing recommendations of Performance Audit Report – *Asset Management and Maintenance by Councils***

| Number | Recommendation | Proposed Action | Completion Date |
|---|---|---|---|
| 1. | Accelerate efforts to review and update their asset management frameworks, policies and strategies to meet better practice standards | NAMAF to be reviewed with a plan developed to meet better practice standards | March 2014 |
| | | Improvement plan to be developed from NAMAF and included in the AM Strategy | August 2014 |
| | | Asset Management Policy and Strategy to be reviewed and present to Council for adoption. | August 2014 |
| 2. | Make sure they have comprehensive asset management plans covering all major asset categories | ***Roads**: The Council adopted AMP is currently being reviewed. | 30 July 2014 |
| | | ***Bridges**: The Council adopted AMP to be reviewed. | 30 September 2014 |
| | | ***Pathways**: The Council adopted AMP to be reviewed on completion of condition assessments currently underway. | 31 December 2014 |
| | | ***Drainage**: To improve this AMP a review of the condition of underground assets is required along with completion of mapping Council's open drain network.<br>• Condition inspections of a reasonable sample of underground assets from across the municipality to be undertaken. | 31 December 2015 |
| | | • Complete the mapping of Council open drains. | 30 September 2016 |
| | | ***Buildings:** Draft Plan being reviewed for inclusion of modelling of renewal | 31 December 2014 |

***RESPONSE provided by the Chief Executive Officer, Cardinia Shire Council – continued***

| Number | Recommendation | Proposed Action | Completion Date |
|---|---|---|---|
| | | components. Present to Council for Adoption.<br><br>**Open Space:** AMP is in first stage of development with inventory audit currently underway. Council to adopt core Open Space AMP.<br><br>*All Council adopted AMPs will need to be reviewed in light of Audit findings and amended where required. This includes the addition of a section on monitoring & reporting performance of plans and linking to service standards. | 30 June 2015 |
| 8. | As a priority, develop a strategy for more effectively reducing their asset renewal gaps | Ensure that the Asset Management Policy includes the objective to fund the required asset renewal.<br><br>Review the current strategy to ensure that the appropriate levels of renewal funding continue to be provided. | Annual review<br><br>Annual review |
| 9. | Improve their asset management information systems and knowledge of their asset portfolios to ensure they have up to date information on all assets | **Open Space**: inventory & condition assessment project, currently in progress, to be completed.<br><br>**Public Lighting**: All public lighting that Council is responsible for maintaining to be identified and entered into Asset Management Information System<br><br>**Signage**: All road and open space signage to be collected<br><br>**Open Drains**: Inventory collection to be completed. | 31 December 2014<br><br>Progressing implementation as funding is available<br><br>Progressing implementation as funding is available<br><br>30 June 2016 |
| 10. | Identify and review the skills and resources required to effectively manage infrastructure assets, including | Complete development of a Service and Asset Management Roles & Responsibilities Matrix. | 15 August 2014<br><br>31 December 2014 |

***RESPONSE provided by the Chief Executive Officer, Cardinia Shire Council – continued***

| Number | Recommendation | Proposed Action | Completion Date |
|---|---|---|---|
| | developing a skills matrix and action plan to address identified skill and resource requirements and gaps | Develop a skills matrix based on the above document.<br><br>Creation of an action plan to address any gaps identified and implement as part of staff annual Position Description reviews including identification of training needs. | 31 August 2015 |
| 11. | Improve the provision of information to, and engagement with, the community on asset management | Establish representative focus groups for major categories of asset/service provision:<br>• Roads and Drainage<br>• Open Space<br>• Community Buildings & Facilities<br><br>Review of content on website in relation to asset management with a view to creating a consolidated asset management page that brings together asset management related information<br><br>Developing a regular series of articles in Council's magazine provided to residents about how Asset Management is implemented by Council. | 31 October 2014<br><br>30 June 2015<br><br>30 June 2015 |
| 12. | Develop and implement comprehensive asset management monitoring, reporting and evaluation systems and publicly report their progress and performance against plans and strategies, including against capital works budgets | The Asset Management Steering Committee will develop a report to monitor and evaluate systems and report on a quarterly basis to Senior Management Team on progress and performance.<br><br>Senior Management Team to include above report as a dedicated section pertaining to asset management in the Council Quarterly Report. | 30 June 2015<br><br>30 June 2015 |

***RESPONSE provided by the Acting Chief Executive Officer, Kingston City Council***

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City of
KINGSTON

13 February 2014


Mr John Doyle
Victorian Auditor-General
Level 24
35 Collins Street
MELBOURNE VIC 3000

Dear Mr Doyle

**Re: Response to Performance Audit: Asset Management and Maintenance by Councils**

Thank you for the opportunity to provide comment on the Proposed Performance Audit Report on Asset Management and Maintenance in Councils.

Kingston City Council recognises the importance of the sound asset management policies and practices and is committed to delivering sustainable asset management for the benefit of our community. We agree with the major findings of the report.

I note the recommendations for improvements to governance, performance monitoring and management practices and would like to confirm that Kingston City Council accepts all the recommendations relating to Local Government.

Council has already commenced addressing some of these recommendations and a proposed action plan addressing all the recommendations is attached at Attachment 1.

Yours sincerely

Paul Franklin
**ACTING CHIEF EXECUTIVE OFFICER**

cc: Mr Michael Demetrious

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14/16791

***RESPONSE provided by the Acting Chief Executive Officer, Kingston City Council – continued***

**Attachment 1: Proposed Action Plan - Asset Management and Maintenance for Kingston City Council**

| Recommendation | Council Response | Completion |
|---|---|---|
| (1): Local Councils should accelerate efforts to review and update their asset management frameworks, policies and strategies to meet better practice standards. | The Asset Management Policy and Strategy was revised and confirmed by Council in November 2013. This was post the documentation discovery exercise by VAGO mid-2013. The Asset Management Strategy identifies an improvement plan for Kingston to achieve NAMAF Core Maturity and better practise standards by the end of this calendar year. | Part of NAMAF Core Maturity. **December 2014** |
| (2): Local Councils should make sure they have comprehensive asset management plans covering all major asset categories | Kingston has existing asset management plans for all its major asset classes. These are considered first generation plans as they are primarily focused on assessing long term asset renewal requirements. Second generation asset management plans are to be developed during 2014/2015 that link asset performance to community levels of service. | To complete second generation update of all major asset groups by **Mid 2015** |
| (8): Local Councils should as a priority, develop a strategy for more effectively reducing their asset renewal gaps | Kingston has a robust Long Term Financial Strategy with a ten year outlook. Our asset renewal modelling is aligned to these financial provisions and gives consideration to required renewal expenditure out to 20 years. Our renewal modelling is conservatively based upon Council's financial capacity to self-fund its renewal obligations. We make no forward assumptions of grant incomes or use of Council reserves unless they have been specifically approved. This historically can provide several $million per annum toward works on existing assets. This conservative model predicts Kingston to eliminate any renewal backlog works by 2032; however with additional funding such as grants or debt financing realised this could be reduced by 5 years.<br>Kingston will continue the annual review of its Long Term Financial Strategy. | Strategy is in place. **Annual reviews** |
| (9): Local Councils should improve their asset management information systems and knowledge of their asset portfolios to ensure they have up to date information on all assets | Kingston invested in the purchase of corporate asset management software (AMS) in Feb 2011 which can be fully integrated with other core financial and customer services applications. The AMS is nearing completion of is development phase, which included establishing asset registers for our major asset classes and building of system integrations. The next phase, to commence in 2014, is the implementation phase, which will roll out the functional aspects of the AMS for works management, inspections and compliance to the organisation. | Kingston has invested in a corporate AMS and has an implementation plan to realise the organisational benefits. **Ongoing program** |
| (10): Local Councils should identify and review the skills and resources required to effectively manage infrastructure assets, including developing a skills matrix and action plan to address identified skill and resource requirements and gaps | Kingston has a stable base of long serving, dedicated and very experience asset managers. As part of our program toward NAMAF Core maturity we will be undertaking the skills analysis during 2014. Working toward building organisational capacity and flexibility that will address potential losses of intellectual knowledge and facilitate succession planning. | Part of NAMAF Core Maturity. **December 2014** |

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14/16791

***RESPONSE provided by the Acting Chief Executive Officer, Kingston City Council – continued***

| | | |
|---|---|---|
| (11): Local Councils should improve the provision of information to, and engagement with, the community on asset management | Kingston has undertaken an extensive community engagement and communication program to develop its recently adopted "One Vision" Community Plan. Over 15,000 comments were received and contributed to the formation of capital work forward plan priorities. As individual service plans and asset management plans are updated, key stakeholders will be engaged to confirm the alignment of asset management to service requirements. | Part of NAMAF Core Maturity. Process established by **December 2014** |
| (12): Local Councils should develop and implement comprehensive asset management monitoring, reporting and evaluation systems, and publicly report their progress and performance against plans and strategies, including against capital works budgets | Kingston has been industry recognised for the quality and content of its published annual report. The current annual report contains a detailed section on Asset Management as well as progress and performance of individual plans and strategies.<br>As part of NAMAF Core Maturity, Kingston will explore opportunities to improve performance measures and reporting on asset management issues. | Part of NAMAF Core Maturity. **December 2014** |

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14/16791

***RESPONSE provided by the Chief Executive Officer, Port Phillip City Council***

CITY OF
**PORT PHILLIP**
ABN 21 762 977 945

Enquiries: John Williams
Telephone: (03) 9209 6550
File Ref: 38/03/07-02


11 February 2014

John Doyle
Auditor-General
Victorian Auditor-General's Office
Level 24
35 Collins Street
MELBOURNE VIC 3000

Dear Mr Doyle

**Performance Audit - Asset Management and Maintenance by Councils**

Thank you for the opportunity to provide comment on the Proposed Performance Audit Report on *Asset Management and Maintenance by Councils*.

The City of Port Phillip is pleased to be one of the five Victorian Councils to be audited on this matter. We recognise the importance of best practice asset management in enabling our organisation to deliver on the Council Plan and meet its current and future service delivery objectives efficiently and effectively.

I am pleased that the audit has found an improvement in asset management practices in recent years. I note that the audit found progress towards better practice has been relatively slow and there is still substantial room for improvement.

Opportunities for improvement identified in the audit include updating asset management frameworks, policies, strategies and plans; reducing the renewal gap; improved asset management information systems; review skills and develop better monitoring, reporting and evaluation systems that will inform the community on asset management progress and performance.

The recommendations contain seven improvement opportunities for Council and six for Local Government Victoria. I would like to confirm that the City of Port Phillip accepts all thirteen of the report's recommendations.

The City of Port Phillip has already commenced addressing a number of the audit recommendations as a result of the development and implementation of our organisational "Community First" Strategy which aims to strengthen our delivery on the Council Plan.

To build our capability, the Community First Strategy has five key priorities:

1. Enterprise Program Management
2. Great Places & Precincts
3. Continuous Service & Business Process Improvement
4. Aligned Organisation Culture & Capability
5. Good Governance

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***RESPONSE provided by the Chief Executive Officer, Port Phillip City Council – continued***



The Strategy identified a need to re-align the organisation structure to improve capability and generate efficiencies in service delivery. In doing this, a new Division with a focus on Organisational Performance was created. This new Division brings together five Departments:

- Finance – annual budget and long term financial plan
- Enterprise Portfolio Management Office – co-ordinated project planning and reporting
- Service and Business Improvement – co-ordinated service planning and reporting
- Business Technology – information systems
- Asset Planning – policy, strategy and plans across all asset classes.

This new arrangement will promote better integration of asset management, financial management and service planning as noted in the audit report.[1] The establishment of the Enterprise Portfolio Management Office will address another issue identified in the audit report - the inadequate planning, delivery and reporting on Capital Works projects.[2]

I am confident that the Community First Strategy and the proposed actions set out in Attachment 1 will lead to best practice asset management and sustainable service delivery at the City of Port Phillip.

Once again, I thank you for the opportunity to comment on the proposed report.

Yours sincerely

**TRACEY SLATTER**
**Chief Executive Officer**

Encl. Attachment 1 – Proposed Action Plan

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[1] See p 11 Audit Report - 2.3.1 Governance arrangements.
[2] See p 25 Audit Report - 3.3.1 Delivery of the budgeted capital works program

***RESPONSE provided by the Chief Executive Officer, Port Phillip City Council – continued***

**Attachment 1 – Proposed Action Plan – Asset Management and Maintenance by Councils**

| No. | VAGO Recommendation | Proposed Action | Completion Date |
|---|---|---|---|
| | *Local Councils:* | | |
| 1 | Accelerate efforts to review and update their asset management frameworks, policies and strategies to meet better practice standards. | Council will review and update its asset management frameworks, policies and strategies to meet ISO 55000 Asset Management Standards. | 31/12/2015 |
| 2 | Make sure they have comprehensive asset management plans covering all major asset categories | Council will adopt "first cut" asset management plans for roads, drains, buildings and parks assets to IPWEA/NAMS Standards, including an improvement plan and a review timeline. | 30/06/2014 |
| 8 | As a priority, develop a strategy for more effectively reducing their asset renewal gaps | Council will develop its Strategic Resource Plan to address the asset renewal gap identified in the Asset Management Plan and incorporate this into the Long Term Financial Plan. | 31/12/2014 |
| 9 | Improve their asset management information systems and knowledge of their asset portfolios to ensure they have up to date information on all assets | • Council will upgrade/replace its existing asset management information system (Hansen 7) through a public procurement process.<br>• Council will implement the upgrade/replacement asset information system for all major asset classes (roads, drains, parks and buildings).<br>• Council will undertake asset condition audits every three years on each major asset class to ensure current data is available | • 30/6/2014<br>• 30/06/2015<br>• Ongoing |
| 10 | Identify and review the skills and resources required to effectively manage infrastructure assets, including developing a skills matrix and action plan to address identified skill and resource requirements and gaps | Council will identify and review the skills and resources required to effectively manage infrastructure assets by developing a skills matrix and action plan to address skill and resource gaps (in conjunction with an organisation wide review of skills and resources required to deliver services efficiently and effectively). | 31/12/2015 |
| 11 | Improve the provision of information to, and engagement with, the community on asset management | Council will utilise a range of communication platforms, including the internet and printed media, to provide information to, and engagement with, the community on asset management. | Ongoing |
| 12 | Develop and implement comprehensive asset management monitoring, reporting and evaluation systems and publicly report their progress and performance against plans and strategies, including against capital works budgets. | Council will develop and implement asset management monitoring, reporting and evaluation systems to report progress and performance against plans and strategies, including capital works budgets. | 31/12/2015 |

***RESPONSE provided by the Chief Executive Officer, Wodonga City Council***

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CITY OF WODONGA VIC

14th February 2014

**Enquiries:** Charles Mitchell
**Reference:** OUT14/3D1EE0F6


Mr John Doyle
Auditor-General
Victorian Auditor General's Office
Level 24, 35 Collins Street
MELBOURNE VIC 3000

Dear Mr Doyle

**Re: Performance audit –**
**Asset management and maintenance by councils**

Wodonga City Council as a participating council has appreciated the opportunity to contribute to the performance audit report and acknowledges the range of potential improvements for Victorian councils.

The review undertaken is supported by Wodonga City council as it identifies areas of enhancement in community services through improvements in infrastructure management and maintenance that underpin these services.

Wodonga regularly evaluates its asset infrastructure renewal requirements based on quality data to manage its infrastructure. Accurate information allows specifically targeted works to be undertaken to renew community assets in a timely manner and allows council to regularly benchmark its performance. Asset management indicators that are administrative expedient, such as depreciation and other variants provided in annual financial reports can at times be too simplistic and inaccurate.

Council is fully committed to continually improving its knowledge and the condition of its assets to deliver quality services for the community that are sustainable in the long-term. Annually council considers its renewal and capital expenditure for existing services and also the needs associated with a growing city. The annual council plan and budget with proposed capital expenditure projects is distributed and advertised to the public, with submissions invited from the community.

***RESPONSE provided by the Chief Executive Officer, Wodonga City Council – continued***

Long-term financial strategies, as detailed in the annual Strategic Resource Plan with specific chapters on asset management and capital works identifies Council's commitment and priorities to the community.

Improvements in financial reporting and transparency to the public are always welcomed. Council takes into account future apportionment commitments for developer projects. At times this prudent financial approach may lead to annual capital under-expenditure when economic and business factors impact of developers proceeding with capital works. The financial approach taken by Wodonga City Council is both prudent and financially responsible.

Yours faithfully

**Patience Harrington**
**Chief Executive Officer**
**Wodonga City Council**

# Auditor-General's reports

## Reports tabled during 2013–14

| Report title | Date tabled |
|---|---|
| Operating Water Infrastructure Using Public Private Partnerships (2013–14:1) | August 2013 |
| Developing Transport Infrastructure and Services for Population Growth Areas (2013–14:2) | August 2013 |
| Asset Confiscation Scheme (2013–14:3) | September 2013 |
| Managing Telecommunications Usage and Expenditure (2013–14:4) | September 2013 |
| Performance Reporting Systems in Education (2013–14:5) | September 2013 |
| Prevention and Management of Drugs in Prisons (2013–14:6) | October 2013 |
| Implementation of the Strengthening Community Organisations Action Plan (2013–14:7) | October 2013 |
| Clinical ICT Systems in the Victorian Public Health Sector (2013–14:8) | October 2013 |
| Implementation of the Government Risk Management Framework (2013–14:9) | October 2013 |
| Auditor-General's Report on the Annual Financial Report of the State of Victoria, 2012–13 (2013–14:10) | November 2013 |
| Portfolio Departments and Associated Entities: Results of the 2012–13 Audits (2013–14:11) | November 2013 |
| WoVG Information Security Management Framework (2013–14:12) | November 2013 |
| Public Hospitals: Results of the 2012–13 Audits (2013–14:13) | November 2013 |
| Occupational Health and Safety Risk in Public Hospitals (2013–14:14) | November 2013 |
| Racing Industry: Grants Management (2013–14:15) | November 2013 |
| Local Government: Results of the 2012–13 Audits (2013–14:16) | December 2013 |
| Managing Victoria's Native Forest Timber Resources (2013–14:17) | December 2013 |
| Water Entities: Results of the 2012–13 Audits (2013–14:18) | December 2013 |
| Tourism Strategies (2013–14:19) | December 2013 |
| Oversight and Accountability of Committees of Management (2013–14:20) | February 2014 |
| Managing Emergency Services Volunteers (2013–14:21) | February 2014 |

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VAGO

Victorian Auditor-General's Office

*Auditing in the Public Interest*

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- Victorian Auditor-General's Office
  Level 24, 35 Collins Street
  Melbourne Vic. 3000
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  Email: comments@audit.vic.gov.au
  Website: www.audit.vic.gov.au

**MINUTES of the Special Council Meeting of the Horsham Rural City Council held in the Municipal Chambers, Civic Centre, Roberts Avenue Horsham on Tuesday 29 March, 2016 at 5.30pm.**

PRESENT: Cr Heather Phillips, Mayor; Cr Sue Exell, Cr Pam Clarke, Cr Robin Barber, Cr Tony Phelan, Cr David Grimble, Cr Mark Radford

ALSO IN ATTENDANCE: Peter Brown, Chief Executive; Graeme Harrison, Director Corporate Services; Angela Murphy, Director Planning & Economic; Kevin O'Brien, Director Community Services; John Martin, Director Technical Services; Fiona Kelly, Executive Assistant.

## 1. Reading of prayer and the acknowledgement of country statement

The Prayer and Wotjobaluk Statement were read by the Chairman, Cr H Phillips.

## 2. Welcome to distinguished guests or persons in the public gallery

Chairman, Cr Phillips welcomed those in attendance to the Council Meeting.

Heather Proctor

## 3. Apologies and request for Leave of Absence

NIL

## 4. Disclosure of Conflict of Interest Sec 79, Local Government Act, 1989 (As Amended)

NIL

# 5. PRESENTATION OF REPORTS

## 5.1 DIRECTOR OF CORPORATE SERVICES

### 5.1 ESSENTIAL SERVICES COMMISSION – APPLICATION FOR A RATE CAP VARIATION

**Graeme Harrison** **File Ref: F27/A03/000001**

**Purpose**

For Council to approve the draft Rate Cap Variation application to the Essential Services Commission (ESC) for a 1% additional rate increase above the 2.5% Rate Cap.

**Background**

Under the State Government's "Fair Go Rates System" the Minister for Local Government sets a cap each year on the percentage increase that can be applied to a Council's rates in a given year. This percentage was advised by the Minister for Local Government, Natalie Hutchins on 22 December 2015 as 2.5% for the 2016-17 year.

The system is being overseen by the ESC and applications for variations must be submitted by 31 March 2016. The ESC will then have two months to respond to the request. Council indicated it desire to apply for a variation at its Council meeting on the 1 February 2016.

Following on from that decision a detailed budget has been developed and discussion held between officers and Council, and the application documentation has been completed.

This application is essentially in two parts:

1. **A Budget Baseline Information Template** which is a series of detailed MS Excel work sheets (17 in total):
   - 4 Detailing baseline information around services, expenditure, revenue and assets
   - 5 Detailing information around services, outputs, revenue, expenditure and assets for a budget "without" a variation to the cap
   - 5 Detailing information around services, outputs, revenue, expenditure and assets for a budget "with" a variation to the cap
   - 3 summary analysis sheets incorporating a CEO sign-off sheet

2. **A written application** that addresses the following 6 criteria from the Local Government Act 1989, Section 185E (3):

I. A proposed higher cap for each specified financial year (For 2016-17 a variation can only be requested for one year. From 2017-18 variations may be requested for up to four years)
II. The reasons for which the Council seeks the higher cap
III. How the views of ratepayers and the community have been taken into account in proposing the higher cap
IV. How the cap is an efficient use of Council resources and represents value for money
V. Whether consideration has been given to reprioritising proposed expenditure and alternative funding options and why those options are not adequate
VI. That the assumptions and proposals in the application are consistent with the Council's long term strategy and financial management policies set out in the Council's planning documents and annual budget

The application must include supporting evidence that substantiates the content and to this end there are 25 documents included with the application. These documents have not been provided as attachments to this report but many are publicly available and all have been before Council in some form. The application is provided as **Appendix "5.1A".**

**Issues**

Council has for many years recognised the challenge of maintaining a large public asset base and the responsibility to manage those assets effectively both now and for the long term future of the entire community. As a result Council has actively been providing additional capital funds tagged from rate revenue since 2008-09 with the express purpose of addressing the growing infrastructure renewal gap. This is a specific strategic objective that Council has articulated strongly in its Council Plan, Asset Management Policy, Strategic Resource Plan and prior year's budgets. It is something that is needed to continue for a number of years to address the declining condition of Council's assets generally.

The detailed justification and background are contained in the application to the ESC.

**Consultation/Communication**

Broad community consultation has been occurring on the Council budget and the rate variation application through a range of activities including public meetings, radio and print media, talks with community groups, on-line survey and through information on Council's website.

**Financial**

Council's Strategic Resource Plan from 2015-16 specified rate rises of 4.5% for the next 4 years comprising of a 2.5% rate rise for operations and a 2% allocation for Infrastructure Renewal, in-line with the 2% goal as articulated in the Asset Management Policy. However, a 1% rate rise is all that has been budgeted for over the last four years since 2011-12 and this is seen as a more acceptable figure to apply for a variation in 2016-17.

The application for a rate variation of 1% will result in additional revenue of $210,000 which will be allocated to asset renewal projects.

Should the application be unsuccessful then one or more asset renewal projects will need to be cut from Council's 2016-17 budget. The impact for future years budgets will then need to be explored as this loss of income will have a cumulative effect on the asset renewal program.

Council would need to consider whether it wishes to accept a growing asset renewal gap or whether other measures can be undertaken to meet this need such as increased borrowings, or cuts to services. Council will also need to consider its responsibility to its role as a growing regional city and ensure that our budget continues to allow for regional services and regional leadership.

**Links To Council Plans, Strategies, Policies**

Goal 3 – Asset Management
Goal 4 – Governance and Business Excellence

**Recommendation**

That Council:

1. Approve the application for a 1% Variation to the Rate Cap as per the draft application and related Baseline Information

2. Approve the Chief Executive to lodge the documents and related attachments with the Essential Services Commission prior to 5pm on 31 March 2016

3. Acknowledges that the documentation provided is a draft document that may undergo some alterations up to lodgement on 31 March 2016. However, any such alterations will be approved by the Chief Executive and will not impact on the overall spirit and intent.

**Moved Cr Phelan, Seconded Cr Radford that the recommendation be adopted.**

**CARRIED**

**Cr Grimble called for a Division of Council.**

For the Motion

Cr Grimble, Cr Radford, Cr Phelan, Cr Clarke, Cr Barber, Cr Exell

Against the Motion

Cr Phillips

The meeting closed at 5.45pm.

_____

The Mayor, Cr H Phillips
Chairperson

# HRCC Infrastructure Levy Projects since 2008/09

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|
| **Bridges** | | | | | | | | | | |
| DRUNG JUNG .80 CONCRETE REPAIRS | | | | | | | | | 20,000 | 20,000 |
| HORSHAM WAL-WAL RD / WIMMERA (HP0039) REPLACE BEACHING @ WEST ABUT. | | | | | | 10,000 | | | | 10,000 |
| LONGERENONG RD / YARRIAMBIACK CRK (HP0180) REPLACE BC | | | | | | 100,000 | | | | 100,000 |
| MCKENZIE CRK RES RD / MCKENZIE CRK (HP0147) REPLACE BEACH. @ WST ABUT. | | | | | | 10,000 | | | | 10,000 |
| MITRE NURCONG GUARDRAIL | | | | | | | | | 15,000 | 15,000 |
| POLKEMMET RD 16.18KM REPLACE STRUCTURE | | | | | | | | | 15,000 | 15,000 |
| POLKEMMET RD 16.39KM CONCRETE REPAIRS | | | | | | | | | 25,000 | 25,000 |
| POLKEMMET RD 16.39KM GEOFABRIC & BEACHING | | | | | | | | | 15,000 | 15,000 |
| RIVERSIDE RD GEOFABRIC & BEACHING | | | | | | | | | 15,000 | 15,000 |
| TELANGATUK EAST-ROCKLANDS RD MT TALBOT CRK (HP0190) REPLACE BC | | | | | | 40,000 | | | | 40,000 |
| THREE BRIDGES RD / MCKENZIE CRK (HP0074) REPLACE BEACHING @ BOTH ABUT. | | | | | | 20,000 | | | | 20,000 |
| WONWONDAH TOOLONDO RD AT NORTON CREEK | | | | | | | | 100,000 | | 100,000 |
| **Bridges Total** | | | | | | 180,000 | | 100,000 | 105,000 | 385,000 |
| **Buildings** | | | | | | | | | | |
| AERODROME TOILET TERMITE DAMAGE | | | | | | | | | 15,000 | 15,000 |
| ANGLING CLUB FLOORS, SWITCHBOARD, FASCIAS | | | | | | | | | 15,000 | 15,000 |
| AQUATIC CENTRE OLD CEILING REPAIRS | | | | | 6,500 | | | | | 6,500 |
| AQUATIC CENTRE OUTDOOR POOL PLANT ROOM FLOOR | | | | | | 5,000 | | | | 5,000 |
| AQUATIC CENTRE REPLACE VINYL IN ENTRANCE CORRIDORS | | | | | | | | | 45,000 | 45,000 |
| AQUATIC CENTRE TIMBER FRAMES | | | | | 8,450 | | | | | 8,450 |
| BASKETBALL STADIUM ROOF ABOVE CANTEEN | | | | | 10,000 | | | | | 10,000 |
| BASKETBALL STADIUM SIDE STORAGE ROOM | | | | | | | 40,000 | | | 40,000 |
| BRASS BAND HALL SWITCHBOARD JOINERY CRACKS | | | | | | | | | 20,000 | 20,000 |
| CARPET LIBRARY HEADQUARTERS AREA | | | | | | | | 10,000 | | 10,000 |
| CITY OVAL CANTEEN MAJOR REFURB | | | | | | | | | 20,000 | 20,000 |
| CITY OVAL GRANDSTAND FOOTING REPLACEMENT | | | | | | | | | 20,000 | 20,000 |
| CITY OVAL MAIN PAVILION CHANGE ROOM | | | | | | | | | 10,000 | 10,000 |
| CITY OVAL SCORE BOARD FLOOR REPLACEMENT | | | | | | | | | 5,000 | 5,000 |
| CITY OVAL SCORE BOARD REPLACEMENT | | | | | 20,000 | | | | | 20,000 |
| CITY OVAL TICKET BOX EAST BENCHES REPLACEMENT | | | | | | | | | 5,000 | 5,000 |
| CITY OVAL TICKET BOX WEST BENCHES REPLACEMENT | | | | | | | | | 2,000 | 2,000 |
| CIVIC CENTRE WEST WING AIR COND TWO CONDENSER UNITS | | | | | | | | 80,000 | | 80,000 |
| DUDLEY CORNELL FIT OUT AND REPAIRS | | | | | 10,000 | | | | | 10,000 |
| HAVEN HALL SEPTIC TANK REPLACEMENT | | | | | | | | | 15,000 | 15,000 |
| JUBILEE HALL REPLASTERING SUBJECT TO USE | | | | | | | | | 10,000 | 10,000 |
| JUBILEE HALL ROOF CLADDING | | | | | | 40,000 | | | | 40,000 |
| JUNG HALL SWITCHBOARD AND INTERNAL JOINERY | | | | | | | | | 15,000 | 15,000 |
| LAC REPAIR CORROSION AND PAINT DUCTS FOR AIR CONDIT | | | | | | | | 15,000 | | 15,000 |
| LIBRARY AIR CONDITIONER REFURBISHMENT | | | | | | | | 100,000 | | 100,000 |
| LIBRARY WORKROOM SPLIT SYSTEM AIRCONDITIONER | | | | | | | 3,000 | | | 3,000 |

# HRCC Infrastructure Levy Projects since 2008/09

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|
| MECHANICS INSTITUTE - GENEOLOGY FLOOR COVERINGS | | | | | | | | | 10,000 | 10,000 |
| MIBUS MEMORIAL CENTRE AIR CONDITIONING | | | | | 100,000 | | | | | 100,000 |
| MIBUS MEMORIAL CENTRE AIR CONDITIONING | | | | | | 70,000 | | | | 70,000 |
| MITRE HALL INTERNAL REPAIRS & DOORS | | | | | | | | | 10,000 | 10,000 |
| NEXUS PAINTING EXTERIOR AND INTERIOR - COND 8 PEELING | | | | | | | | 20,000 | | 20,000 |
| NEXUS ROOF & GUTTERS REPLACEMENT | | | | | | | | | 20,000 | 20,000 |
| OLD POLICE STATION WINDOWS & EXTERNAL PAINT | | | | | | | | 30,000 | | 30,000 |
| ROBERTS TOILETS AVE REPLACE FASCIAS AND REPLACE INT FIXTURES | | | | | | | | | 20,000 | 20,000 |
| ROBIN ST KINDERGARTEN FOUNDATIONS | | | | | | 30,000 | | | | 30,000 |
| ROBIN ST KINDERGARTEN INTERNAL REPAIRS | | | | | 30,000 | | | | | 30,000 |
| ROWING CLUB FLOORS, SWITCHBOARD, FASCIAS | | | | | | | | | 30,000 | 30,000 |
| SCOUT HALL WC JOINERY INTERNAL REFURB | | | | | | | | | 30,000 | 30,000 |
| SUNNYSIDE CHANGEROOMS STRUCTURAL/PLUMBING | | | | | | | | | 50,000 | 50,000 |
| TELANGUTUK EAST HALL EXT REPAIRS INC - PAINT/REPAIR WEATHERBOARDS AND ROOF | | | | | | | | | 20,000 | 20,000 |
| TOWN HALL COMPONENT AIR CONDITIONING/HEATING | | | | | | | | 150,000 | | 150,000 |
| TOWN HALL REDEVELOPMENT (condition 8 Heritage items) | | | | | | | | | 101,000 | 101,000 |
| UNALLOCATED BUILDING WORKS FROM INFRA RESERVE | | | | | | | | 20,000 | 22,600 | 42,600 |
| VISITOR INFO CENTRE SPLIT AIRCONDITIONING | | | | | | 6,000 | | | | 6,000 |
| VISITOR INFORMATION CENTRE SWITCHBOARD REPLACEMENT | | | | | | | | | 10,000 | 10,000 |
| WBC REPLACEMENT OF AIR CONDITIONER | | | | | | | | 40,000 | | 40,000 |
| WIMMERA BUSINESS CENTRE ROOF | | | | | | 40,000 | | | | 40,000 |
| **Buildings Total** | | | | | 184,950 | 191,000 | 43,000 | 465,000 | 520,600 | 1,404,550 |
| **Recreational, leisure and community facilities** | | | | | | | | | | |
| AQUATIC CENTRE OUTDOOR POOL REFURBISH | | | | | | 50,000 | | | | 50,000 |
| AQUATIC CENTRE OUTDOOR POOL REFURBISHMENT | | | | | | | 363,000 | | | 363,000 |
| BOTANIC GARDEN SPRINKLER RENEWAL | | | | | | | | | 20,000 | 20,000 |
| CONSTRUCT NEW WET DECK ON LONG SIDES OUTDOOR POOL | | | | | | | | | 40,000 | 40,000 |
| PLAYGROUND EQUIPMENT REPLACEMENT OHS UPGRADE | | | | | | | | | 30,000 | 30,000 |
| RESEAL CITY OVAL VIEWING RAMP FROM CLUBROOMS TO GRANDSTAND | | | | | 15,000 | | | | | 15,000 |
| **Recreational, leisure and community facilities Total** | | | | | 15,000 | 50,000 | 363,000 | | 90,000 | 518,000 |
| **Roads** | | | | | | | | | | |
| ALL KERBS | | | 75,000 | | | | | | | 75,000 |
| BARRS ROAD CULVERT LOWER NORTON | | | | | | | 56,000 | | | 56,000 |
| BROWNS RD RIVERSIDE EAST RD TO END | | | | | | | | 155,600 | 210,000 | 365,600 |
| COLIN ST HIGH ST NRTH TO MURRAY ST | | | | | | | | 69,000 | | 69,000 |
| CREEK CRES, FORSYTH AVE TO END | | | | | | | 20,000 | | | 20,000 |
| CRUMP ST, BLEAKLEY TO ALBERT | | | | | | | 230,000 | | | 230,000 |
| DERIMAL ST HILLARY TO KOOYONG | | | | | | | | | 177,400 | 177,400 |
| ELIZABETH ST. | | | | | 100,600 | | | | | 100,600 |
| FOOTBRIDGE OVER CREEK IN JORY ST NATIMUK | | | | | 25,000 | | | | | 25,000 |
| GRAVEL RESHEETS | 50,000 | 56,000 | | | | | | | | 106,000 |

# HRCC Infrastructure Levy Projects since 2008/09

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|
| GRAVEL SHOULDERS | | | 210,000 | 260,000 | | | | | | 470,000 |
| Hsm Lubeck Rd | | | | | | | | 48,000 | | 48,000 |
| Jallumba-Douglas Rd | | | | | | | | 58,800 | | 58,800 |
| JONES ST BLEAKLEY TO ALBERT | | | | | | | | 128,000 | | 128,000 |
| JUNG NORTH RD | | | | | | 130,000 | 196,000 | | | 326,000 |
| JUNG REC RES RD REPLACE HEADWALLS | | | | | 32,000 | | | | | 32,000 |
| KOOYONG ST, NATI RD TO DERIMAL ST | | | | | | | 30,000 | | | 30,000 |
| LANDY ST IRIS TO ROSE | | | | | | | | | 80,000 | 80,000 |
| LANDY ST, JACKSON TO IRIS | | | | | | | 20,000 | | | 20,000 |
| LAUREL ST JACKSON TO IRIS | | | | | | | | | 70,000 | 70,000 |
| LAUREL ST, ROSE TO GARDENIA | | | | | | | 136,000 | | | 136,000 |
| LAUREL ST. | | | | | 109,000 | | | | | 109,000 |
| LONGERENONG RD DRUNG JUNG RD TO DELAHUNTY | | | | | | | | 122,900 | | 122,900 |
| Norad Tooan East | | | | | | | | 54,000 | | 54,000 |
| O'CALLAGHANS PDE, INTERSECT WITH URQUHART ST | | | | | | | 71,000 | 56,000 | | 127,000 |
| PAVEMENT SEALED RURAL LINK ROADS | | | | 248,000 | | | | | | 248,000 |
| PAVEMENT SEALED URBAN | | | | 226,000 | | | | | | 226,000 |
| PHILIP ST CHURCHILL TO BEND | | | | | | 170,000 | | | | 170,000 |
| QTONG CEMETERY RD HWY TO RUDOLPHS RD | | | | | | | | | 150,000 | 150,000 |
| ROBERTS AVE URQUHART ROUNDABOUT | | | | | | | | | 70,000 | 70,000 |
| Rules East Rd | | | | | | | | 97,500 | | 97,500 |
| RURAL RDS SHOULDER RESHEETING INFRA GAP | | | | | | | | 10,200 | 270,000 | 280,200 |
| RURAL SEALED RDS SHOULDER RESHEET | | | | | 310,000 | | | | | 310,000 |
| SHOULDER RESHEETING | | | | | | 246,000 | 253,000 | | | 499,000 |
| SPRAY SEALS | | 170,000 | 185,600 | | | | | | | 355,600 |
| STEWART ST EDWARD TO WAVELL ST | | | | | | | | 180,000 | | 180,000 |
| VALENTINE AVE. | | | | | 160,000 | 160,000 | | | | 320,000 |
| WAIL KALKEE RD | | | | | 89,450 | | | | | 89,450 |
| **Roads Total** | 50,000 | 226,000 | 470,600 | 734,000 | 826,050 | 706,000 | 1,012,000 | 980,000 | 1,027,400 | 6,032,050 |
| **Grand Total** | 50,000 | 226,000 | 470,600 | 734,000 | 1,026,000 | 1,127,000 | 1,418,000 | 1,545,000 | 1,743,000 | 8,339,600 |

# Moloney Asset Management Systems

# MAMS

# Report Following the Survey of Road Assets for Horsham Rural City

Jul-2014

Report produced by Moloney Asset Management Systems
exclusively for Horsham Rural City



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# Section 1: Report Summary

*This report provides a summary of the major findings following the road asset condition survey, undertaken in Jul-2014 for Horsham Rural City by Moloney Asset Management Systems MAMS.*

This summary aims to provide an overview of the important findings coming out of the survey as well as a snapshot of the overall asset condition and financial Modelling results, it is in three parts as detailed below.

1.1 Overall Report Findings

1.2 Summary of Asset Condition Findings

1.3 Summary of financial Modelling results

## 1.1 Overall Report Findings

The following are the major findings coming out of the condition survey and analysis of results within this report.

### 1.1.1 Major Report Findings

1. *Horsham Rural City has managed its road assets well since the last condition survey in* 2012*.*
2. *The total present renewal shortfall or backlog in over intervention assets for the whole roads group is estimated at $6,524,768 representing 2.41% of the total road asset valuation. This is considered to be reasonable but it should not be allowed to grow.*
3. *Renewal demand is predicted to rise steadily over the next 20-years as the assets age and it was found that at a whole of roads group level council needs to raise its total renewal expenditure by around 3.0% compounding for the next 10-years in addition to a small upfront increase of $100,000 in order to halt the growth in over intervention assets.*
4. *The sealed road pavements were found to be in fair overall condition, with condition having being held steady since the last survey in 2012. Strong improvements were recorded in both the extent of poor condition assets as well as the extent of urgent pavement failures indicating very sound management practices. It is recommended that funding be lifted a little on these assets.*
5. *The sealed surface assets (re-seals) were found to be in fair to poor overall condition and had experienced a quite measurable condition decline since 2012. Funding needs to be lifted urgently on this asset class.*
6. *The Unsealed road pavement assets were found to be in good overall condition with the average depth of imported pavement material having risen for the third consecutive time over the last four surveys. However the design standard of the pavements is not considered to be high and it is recommended that renewal funding be set at $600,000 pa next year with a 3% compounding increase for the next 10-years.*
7. *The Kerb assets were found to be in poor overall condition but with the present high renewal expenditure level overall condition has been held relatively steady but the extent of over intervention assets has grown. It is recommended that the renewal expenditure level be set at $150,000 pa next year with a 3% compounding increase for the next 10-years.*
8. *The footpath assets were found to be in fair overall condition with a solid reduction in the extent of poor condition assets since 2012. Renewal funding is currently at an appropriate level but it will need to be lifted in future years*
9. *The road assets within Horsham Rural City are in fair to poor overall condition but have been well managed since 2012. The current total renewal expenditure is very close to what is considered an appropriate level but demand is predicted to rise steadily over the next 20-years and total renewal expenditure will need to be lifted.*
10. *The recommended total funding level for the road network over the next 10-years commences at $4,672,000 pa and then rise by 3.0% compounding for the next 10-years.*

### 1.1.2 Other Important matters covered within the report

1. *Unique degradation curves have been produced based on actual condition change between the 4 surveys since 2005*
2. *Key performance indicators have been developed at a sub asset level that accurately quantify asset condition change since the* 2012 *survey*
3. *The same key performance indicators have been used to benchmark Horsham Rural City against the other 52 councils assessed by MAMS.*

## 1.2 Summary of Asset Condition Findings

| SUB ASSET DESCRIPTION | Overall Asset Cond. Indicator | Urgent Isolated Failures | Other Isolated Failures | Ext of Poor Cond. Assets |
|---|---|---|---|---|
| **Sealed Pavements** | **Worse** | **Better** | **Worse** | **Better** |
| **Sealed Surfaces** | **Worse** | **N/A** | **N/A** | **Worse** |
| **Unsealed Pavements** | **Worse** | **Better** | **N/A** | **Better** |
| **Kerbs** | **Better** | **Worse** | **Better** | **Better** |
| **Footpaths** | **Worse** | **N/A** | **N/A** | **Worse** |

Fig 1.1 Summary of asset condition change between surveys

The above table provide a very simple assessment of how certain key condition indicators have changed since the previous survey. The overall asset condition is a single condition factor representing the condition of the whole asset set. The urgent isolated failures are those that need to be addressed immediately. The other isolated failures represent all other failures that are not considered to be urgent. The extent of poor condition assets is the extent of the asset base at and above condition 6 - 8 depending upon the asset class. The Moloney Condition rating system is consistent across all asset types and commences at zero with a new asset and ends in the 8 to 10 range when there is no remaining life in the asset.

The table is a simplified version of a more detailed table that is provided within each of the sub asset sections below. The detailed table quantifies the actual condition change between the two surveys and also expresses that change in percentage terms.

*Figure 1.1 can sometimes be a little misleading as it has the capacity to only report on "Better or Worse". With the sealed pavement assets The extent of urgent pavement failures has seen a dramatic improvement as has the extent of poor condition assets and as such this asset class has actually experienced a strong overall improvement but the table does not really indicate that. Full details of the movement in the condition indicators is available within the series 2 figures for each of the sub asset sections below.*

## 1.3 Summary of financial modelling results at whole of roads group level

The Moloney financial modelling tool has two distinct modelling paths. One predicts future renewal demand based on a desired condition outcome, the other predicts future asset condition based on a proposed renewal spend.

Reporting within this section and more broadly within this report will deliver the following outcomes.

- Fig 1.1 Prediction of renewal expenditure demand to maintain all assets strictly within a desired condition range (Ideal funding pattern if there is no limit on funding)
- Fig 1.2 Prediction of future asset condition based on the continuation of the current levels of renewal expenditure (Where you will be, if you maintain the current funding levels)
- Fig 1.3 Prediction of future asset condition based upon a recommended renewal funding pattern (gets to the desired condition over a longer period and costs less up front)

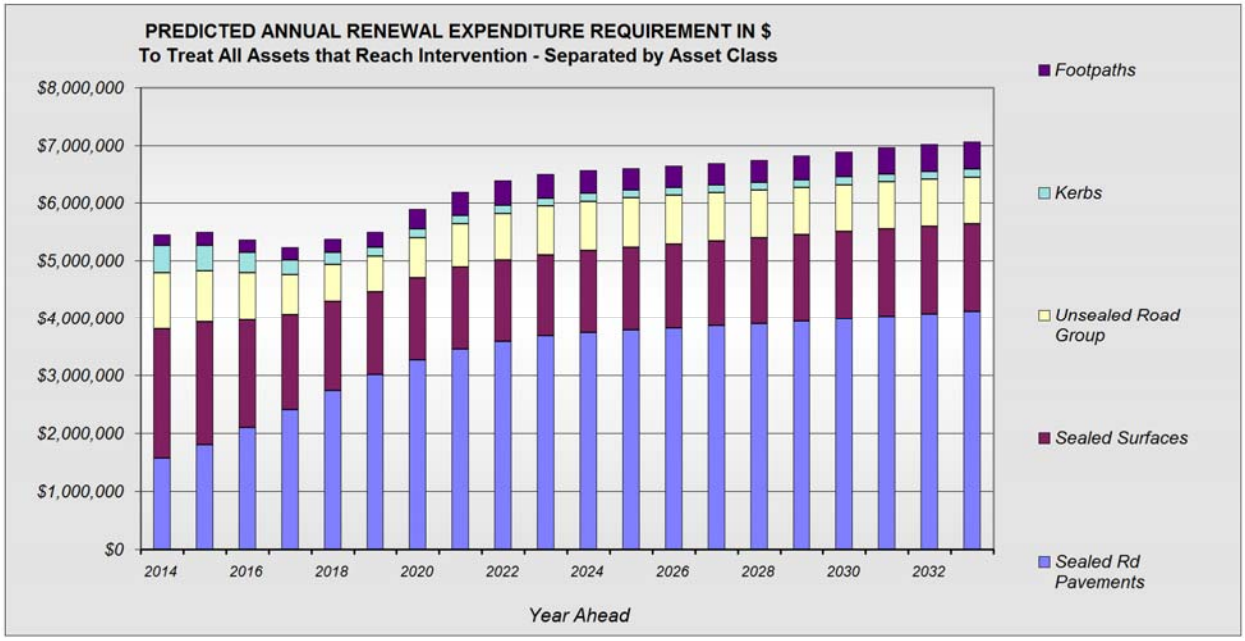


Fig 1.1 Predicted Renewal Demand to treat all assets that reach the Intervention level in future years

Figure 1.1 Represents the cost to treat all over intervention assets within 5-years with the bulk of them treated within the first 2 years. This scenario can results in very high early renewal demand if there is an existing backlog of poor condition assets and is frequently a demand pattern that simply could not be funded.

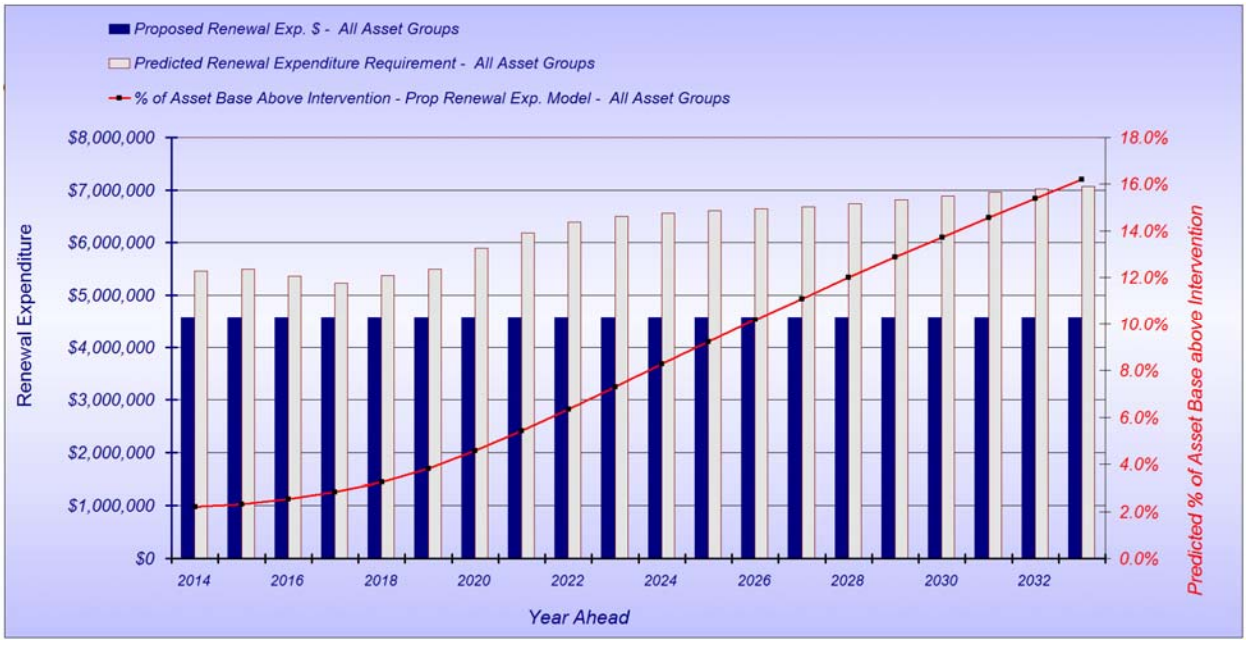


Fig 1.2 Future Predicted Condition Based on Continuation of Present Renewal Expenditure

Add Ren Gap

Figure 1.2 presents the predicted future asset condition (red line expressed as the predicted % of the asset base above the selected intervention level) based on the continuation of the current level of renewal expenditure (Blue Bars). The grey bars represent the required expenditure profile to treat all assets that reach intervention (same total figures as Fig 1.1).

*The present extent of over intervention assets (backlog) on the whole roads group is estimated at $6,524,768, which represents 2.41% of the network. This is approaching the upper limit of what is considered to be a reasonable extent of over intervention assets.*

*Figure 1.2 indicates that if the current total level of renewal expenditure is maintained over the next 20-years, a steady rise in the total extent of over intervention assets will occur to dangerous and unacceptable levels. The upper limit of total over intervention assets on the road network is considered to be around 3.0% - 3.5%. The model predicts that council has 5-years at the current total funding level before the extent rises above 3.5%.*

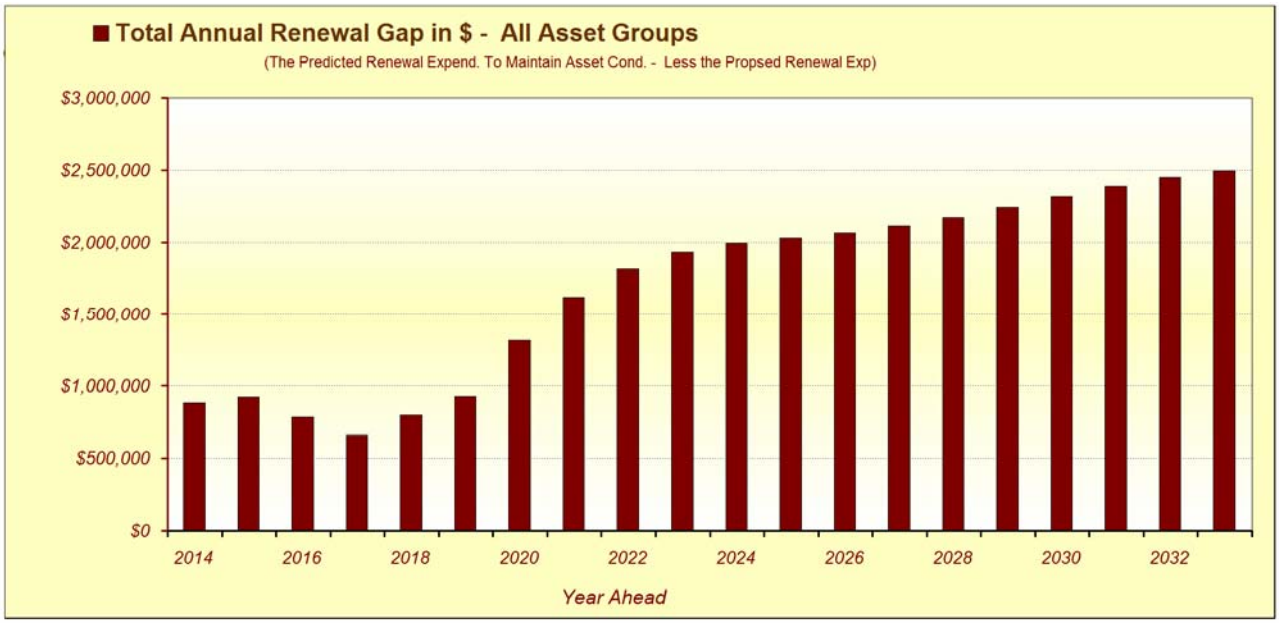


Fig 1.2A Future Predicted Renewal Gap

*Figure 1.2A provides a view of the annual renewal Gap. Renewal Gap is simply the difference between the required expenditure to treat all over intervention assets (Grey bars in Figure 1.2) and the planned renewal expenditure (Blue bars in Figure 1.2). To some extent it is superseded by the work within Figure 1.3 below. The problem with the renewal gap is that ALL over intervention assets are treated and none allowed to carry over. Hence it does often deliver a very high demand.*

*Figure 1.3 enables the carrying forward of an acceptable extent of over intervention assets (in this case 2.41% and results in a more acceptable and achievable outcome.*

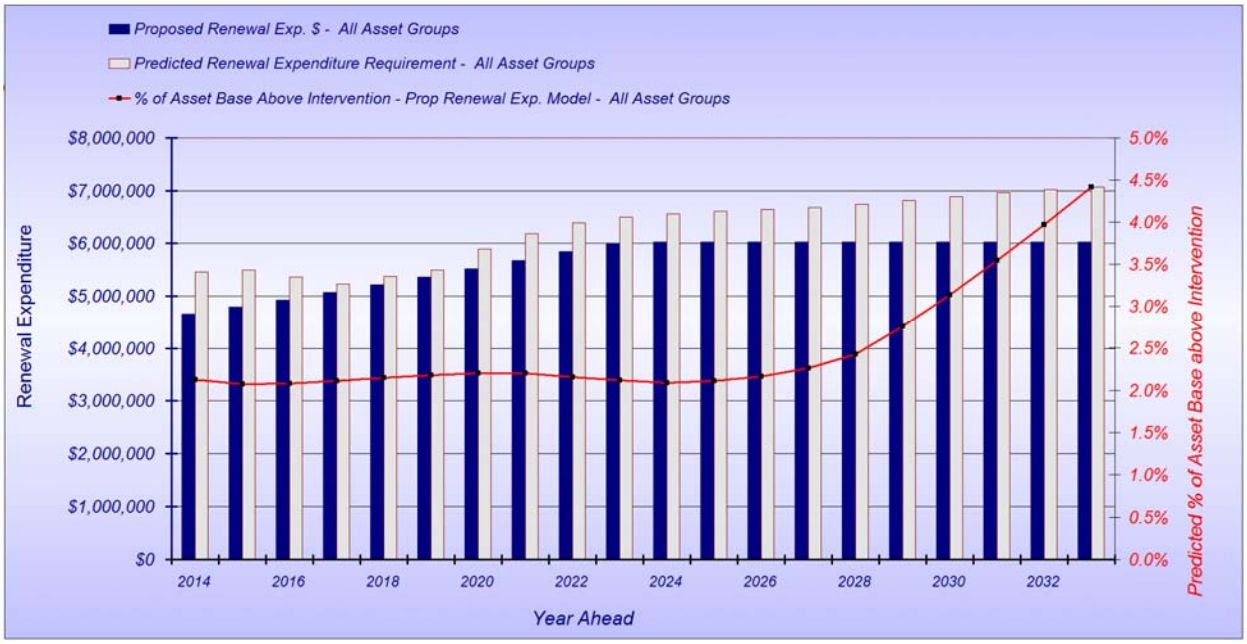


Fig 1.3 Recommended future funding profile with future predicted extent of over intervention assets

Fig 1.3 comes from the same modelling process as Fig 1.2. Accept that here a recommended total renewal expenditure profile has been developed that will achieve a desired condition outcome within a designated period of time.

The Moloney financial modelling software has the capacity to develop a recommended renewal funding profile that will deliver a nominated extent of the asset base to be over the selected intervention level within a selected time frame. A global outcome can be set for the whole roads group. In this way the model is used to allocate funding based on need rather than the historic expenditure level. There are 3 variables that are input and in most cases the same 3 variables are used for all of the road sub assets; however this can be varies between sub asset sets if required.

We normally attempt to commence the year one expenditure with council's present expenditure level (at a whole of roads group level). In this way we can deliver an achievable outcome. If additional funding is required then it will come as an annual percentage increase. If total funding is sufficient then there may be some reallocation between asset classes based on need.

*The three Variables used for the roads group were all the same and as detailed below:*

- *Desired extent of over intervention assets* *- Same as present level - 2.41%*
- *Time to achieve this* *- 10 - Years*
- *Adopted annual percentage increase in renewal expenditure* *- 3.00%*

Figure 1.3 represents the minimum annual renewal expenditure to achieve the desired condition outcome within a nominated time frame. This modelling approach is designed to deliver an achievable outcome that accepts a small percentage of over intervention assets as remaining and hence often delivers far lower expenditure profiles than Figure 1.1 where all over intervention assets have to be treated.

*Figure 1.3 was developed within the Moloney model to deliver a recommended 10-year funding strategy that would keep the total level of over intervention assets at its present level. The recommended funding profile for the unsealed road pavements was modifies a little to more evenly spread the expenditure over the first 10-year period.*

*With ageing assets and some of the most difficult subgrades in the state the rising renewal demand should come as no real surprise.*

## 1.5 Recommended Renewal Funding levels for the next 3 - Years

Figure 1.4 below contains 3 sets of figures relating to renewal expenditure levels for the asset sets under consideration. The first covers the present actual renewal expenditure as committed by Council for the current financial year. The second is the full-required expenditure to treat all assets that are at the selected intervention level in year 1 (the ideal scenario). The third is the recommended funding level coming out of the year 2 value within figure 1.3 above (without the actual boost in renewal expenditure that has already occurred).

The recommended expenditure profile in Figure 1.3 may not treat all present over intervention assets within the first 2 – 5 years as is the case with Figure 1.1. But what it will do is allow you to reach a desired extent of the asset base to be above intervention within a selected time frame. In this way it can ease in and ramp up expenditure into the future, to achieve the desired goal within a reasonable time frame.

*Total present funding level was found to be close to an appropriate level. But an incremental annual compounding increase of 3.0% pa was necessary to maintain an acceptable condition outcome.*

| Sub Asset Description | Present total Annual Capital Renewal Expenditure | Recommended year 1 renewal funding with 3.0% annual increase for 10-Years | Annual Depreciation or Average Long term Annual Demand | Peak Capital Renewal Demand From Modelling | Predicted Year of Peak Demand | % of Annual Depreciation (consumption Rate) Being Met |
|---|---|---|---|---|---|---|
| Sealed Pavements | **$2,342,000** | **$2,420,000** | **$2,447,337** | $4,115,000 | 2033 | **96%** |
| Sealed Surfaces | **$933,600** | **$1,242,000** | **$2,149,768** | $2,243,000 | 2015 | **43%** |
| Unsealed Pavements | **$670,000** | **$600,000** | **$848,566** | $974,000 | 2015 | **79%** |
| Kerbs | **$353,000** | **$150,000** | **$431,511** | $475,000 | 2015 | **82%** |
| Footpaths | **$274,000** | **$260,000** | **$474,623** | $480,000 | 2033 | **58%** |
| Totals | **$4,572,600** | **$4,672,000** | **$6,351,806** | $7,066,000 | 2033 | **72%** |

Fig 1.4 Recommended Annual Renewal Expenditure levels

*Renewal demand is predicted to rise after year 10 as the assets continue to age and modelling indicates that council will need to raise its total renewal expenditure level by 3.0% compounding for the next 10-years if it wishes to limit the rise in the extent of over intervention assets.*

*It is interesting to note that council is currently spending at 96% of the estimated consumption rate on the sealed road pavements and only 43% for the sealed surfaces. The ratio of renewal expenditure to consumption rate for the sealed road pavements would be one of the highest in the state and is a direct result of the relatively short pavement lives.*

*Within figure 1.3 the model has been run such that the total extent of over intervention assets after 10-years is the same as the present level. If the model were to be run on a 20-year basis then it would have delivered higher early renewal demand as the predicted growth in over intervention assets is set to rise more steeply in years 10 - 20 and hence expenditure would need to be higher in early years to deal with the predicted increased demand after year 10.*

*A 10-year horizon is considered to be appropriate. But council must be aware that further and larger increases in renewal expenditure are likely in years 10 - 20 ahead.*

# Section 2: Introduction

## 2.1 The Condition Survey and what it has delivered

The Moloney Asset Management system "Roads Module" covers the road sub asset groups of:

- Sealed Surfaces
- Sealed Road Pavements
- Kerbs
- Unsealed Road Pavements
- Footpaths

The sealed surface is the thin spray sealed or asphalt surfacing that seales off the underlying pavement from the intrusion of water. This component has a shorter life that the underlying pavement and typically would need to be renewed on a 12 to 20 years cycle.

The sealed road pavement is made up of a granular material (crushed rock, gravel or the like) that is used to dissipate the impose vehicle load to the underlying soil so that there is little or no deformation or movement. Pavements do break down and move with time and typically their service life would be in the 50 to 150 year range.

Kerbs in urban areas are used to drain water away from the pavement and tend to have a life similar to the sealed pavement.

The unsealed road pavement performs the same role as the sealed pavement. Accept that it does not have the additional protection of a sealed surface. Its renewal life is shorter than the sealed pavement and typically would have a cycle of 15 to 30 years.

Footpath assets are not really related to the road pavement and can be seen as pavements for foot traffic. Their life will vary greatly and can be quite extensive if localised failures are repaired as they occur.

As can be seen from the above very brief descriptions, the adopted road sub asset components all have different lives and performance requirements, this is why they are examined and modelled separately.

*This survey has covered all of the above road sub asset groups.*

The condition survey involves the measurement and quantifying of all of the above sub asset groups and the breaking down of the assets into a series of like performing segments that are then individually condition rated.

Once this data is placed within the MAMS System the software will deliver works programs in priority order, based upon both the condition of the assets and the hierarchy or relative importance of the road. If data for all of the designated condition and inventory fields is collected, then the software will deliver a costed priority works program for the following activities.

- Reseal – Resurfacing program on sealed roads.
- Sealed Road Pavement Rehabilitation program
- Sealed Road Pavement Major Patching or dig out repair program
- Unsealed Road Re-Sheeting program.
- Unsealed road spot patching program.
- Kerb Renewal program and a separate Isolated failure repair program.
- Footpath Renewal program and a separate Isolated failure repair program.
- A host of other major maintenance reports such as crack sealing report, edge break report etc.

The prime purpose of the condition assessment survey is to deliver the above works programs. But the information collected also serves further very important functions. Firstly it enables full and accurate asset valuations to be undertaken and secondly via the MAMS financial modelling software the data can be used to predict the future pattern of asset renewal demand.

The data is also used to benchmark an individual councils performance between two condition surveys as well as providing industry wide benchmarking against all other councils assessed by MAMS *(Currently around 52 councils).*

In summary the one condition and inventory data set that has just been completed, delivers the following 4 very important outcomes.

- **Council's capital renewal works and major maintenance programs.**
- **Road asset valuation figures.**
- **Predictive modelling of future renewal demand cost.**
- **Internal and External benchmarking of asset condition and performance.**

## 2.2 The Aim of this report

While the condition assessment survey delivers detailed condition ratings right down to individual segment level, this report is aimed at a higher level and tracks the performance of the roads on a network basis.

This report will focus on the last 3 of the above 4 dot points. For access to the detailed works programs you are referred back to the reports within the MAMS software itself.

In more specific terms the aim of this report is to deliver the following.

- Benchmark asset condition both internally (compared to a previous condition survey) and externally (compared to all other councils assessed by MAMS).
- Deliver asset valuation figures including annual depreciation for the whole network.
- Produce asset degradation curves based upon the statistical analysis of condition change between two condition surveys.
- Deliver a 20-year predicted pattern of asset renewal demand and recommended funding levels using the MAMS financial modelling software in conjunction with the survey results.

## 2.3 The Moloney Financial Model

Predictive modelling is undertaken within the Moloney financial modelling software in the following way

- It is a whole of asset set model that predicts overall performance of the asset set
- The model commences with the present condition of the assets and then degrades them to simulate the passage of time based on a unique degradation curve developed for each council
- From this point there are two distinct modelling paths
- A retreatment intervention condition is nominated (level of service) within the first path and all assets that rise above the intervention level through the degradation process are returned as a capital renewal requirement. The primary output being a 20-year capital renewal profile.
- In the second path proposed 20-year capital renewal expenditure profile is input and the model predicts the resulting asset condition over the same period.

For a detailed explanation of the model and how it works please refer to our web site at www.moloneys.com.au and from the "Get Information" tab download the PDF document titled "The Moloney Financial Modelling Methodology".

Modelling outcome is very much dependent upon the accuracy of the input data and how assets are grouped. The basic five input criteria required for the modelling process are detailed below with their source identified. Council has supplied the rehabilitation unit rates and present expenditure levels. The survey of the assets has delivered the other variables.

*The degradation curves used in the Modelling process within this report have been specifically developed for Horsham Rural City via a statistical analysis of asset condition change in 4 condition surveys over the last 13 years.*

| | | |
|---|---|---|
| Rehabilitation Cost | — | Supplied by Council |
| Present Expenditure Levels | — | Supplied by Council |

| | | |
|---|---|---|
| Asset Quantity | — | Directly from this survey |
| Asset Condition | — | Directly from this survey |
| Degradation Curves | — | Unique Degradation curves developed by MAMS |

Modelling outcome is dependent upon all 5 of the above variables. If any one is of poor or questionable quality then the whole process can be flawed.

### 2.3.1 Asset Unit Renewal rates

The asset unit renewal rates used within the modelling sections of this report are all based upon the projected cost to renew or rehabilitate an existing asset. Section 3 of the report dealing with asset valuations, uses unit construction rates based upon (green fields construction) or construction for the first time where no asset previously existed. This is an accounting requirement for valuations, but if those same unit rates were to be used in the future financial modelling of the assets the projected renewal demand could be quite misleading.

## 2.4 Capital Rehabilitation - Renewal and Capital Expansion Works

The term **Capital Expenditure** has a broad meaning that can denote different things under certain circumstances. For the purpose of this report all **Capital Expenditure** relates to Renewal or **Capital Rehabilitation Expenditure**. That is, expenditure put towards the replacement or rehabilitation of existing assets.

This report is limited in its financial analysis to the costs associated with the ongoing cyclical rehabilitation of the existing road asset base. Costs associated with new or upgraded assets would need to be added to the total expenditure levels delivered within the report. The financial analyses undertaken within the report can best be seen as an estimate of the ongoing financial demand to maintain the present asset base in perpetuity.

# Section 3: Valuations and Current Expenditure Levels

This section will examine the overall asset valuations and the current level of capital-renewal and maintenance expenditure.

## 3.1 Estimated Asset Valuations

Following the completion of the survey the data was placed into the Moloney asset management system and the table below represents a summary of the overall asset quantities and valuations. The Annual Depreciation figure of $$6,351,805.90 is really an accounting figure and may vary from the actual annual renewal demand or what we term the Annual Renewal Liability. Annual Depreciation represents the first attempt to define the annual loss in capital value within the asset set. At its most basic level it represents the rate of annual capital consumption of the asset base.

| ASSET DESCRIPTION | Total Quantity | Units | Weighted Av. Asset Cond. | Replace. Value $ | Asset Life in Years | Written Down Value $ | Accumul. Deprec. $ | Annual Deprec. $ |
|---|---|---|---|---|---|---|---|---|
| Footpath | 168,218 | Lin. Met | 3.325 | $23,141,683 | 48.7 | $12,167,398 | $10,974,285 | $474,623 |
| Kerb | 235,094 | Lin. Met | 3.584 | $24,341,426.75 | 55.48 | $14,648,872.38 | $9,692,554.37 | $431,511.24 |
| Sealed Pavements | 992,898 | Lin. Met | 4.067 | $163,130,209.14 | 71.73 | $80,250,010.91 | $82,880,198.23 | $2,447,337.42 |
| Unsealed Pavement | 1,209,262 | Lin Met | 1.898 | $21,613,422.76 | 21.82 | $15,165,192.74 | $6,448,230.02 | $848,566.20 |
| Sealed Surface | 992,898 | Lin. Met | 3.786 | $27,077,388.97 | 13.44 | $12,502,998.90 | $14,574,390.07 | $2,149,767.74 |
| | | | | **$259,304,130.80** | | **$134,734,473.35** | **$124,569,657.45** | **$6,351,805.90** |

Fig 3.1 Table of asset valuations

**Important Note:**

The asset valuations detailed above are based upon the best available information at the time of preparing this report. Before they are adopted for accounting purposes council MUST check the inputs and assumptions to ensure that the results are consistent with their approach to the valuation of road assets.

## 3.2 Current Levels of Renewal Expenditure vs. Av Long-term Demand

| Sub Asset Description | Total Asset Group Valuation | Present total Annual Capital Renewal Expenditure | Annual Depreciation or Average Long term Annual Demand | % of Annual Depreciation Being Met |
|---|---|---|---|---|
| Sealed Pavements | **163,130,209** | **2,342,000** | **2,447,337** | 96 |
| Sealed Surface | **27,077,389** | **933,600** | **2,149,768** | 43 |
| Unsealed Pavement | **21,613,423** | **670,000** | **848,566** | 79 |
| Kerbs | **24,341,427** | **353,000** | **431,511** | 82 |
| Footpaths | **23,141,683** | **274,000** | **474,623** | 58 |
| Totals | **259,304,131** | **4,572,600** | **6,351,806** | 72 |

Fig 3.2 Details of Current Expenditure Levels and demand

Figure 3.2 provides some very important overall figures. It indicates that the average long-term annual renewal demand (depreciation) is $6,351,805.90 pa and that the present capital renewal expenditure is $4,572,600 pa.

*Council is funding around 72% of the average long-term demand (Depreciation) or consumption rate. Modelling in later sections of the report will determine if the current level of expenditure is meeting present renewal demand. But it must be said that meeting 72% of the consumption rate cannot be sustained indefinitely and it will need to rise in future years.*

# Section 4: Asset Degradation – Performance Curves

Asset degradation or performance curves, unique to the district, can be developed once two or more consistent condition surveys have been undertaken. This is done in the Moloney system by examining all assets within a given condition rating following the first survey and determining which have degraded by the time of the second survey.

The condition change between surveys is used to predict the annual statistical probability of an asset degrading from one asset condition to the next. In turn this equates to an expected average life within each condition rating. Figure 4.1 below plots the expected life from a new condition 0 through to condition 10 for a set of your sealed road pavements. In this case the total life is 99.8 years. The shape of the curve is also important in that it dictates how long on average an asset will remain within each condition rating and thus enables the model to predict future condition change.

In effect the Moloney model uses past historic performance to predict future condition change.

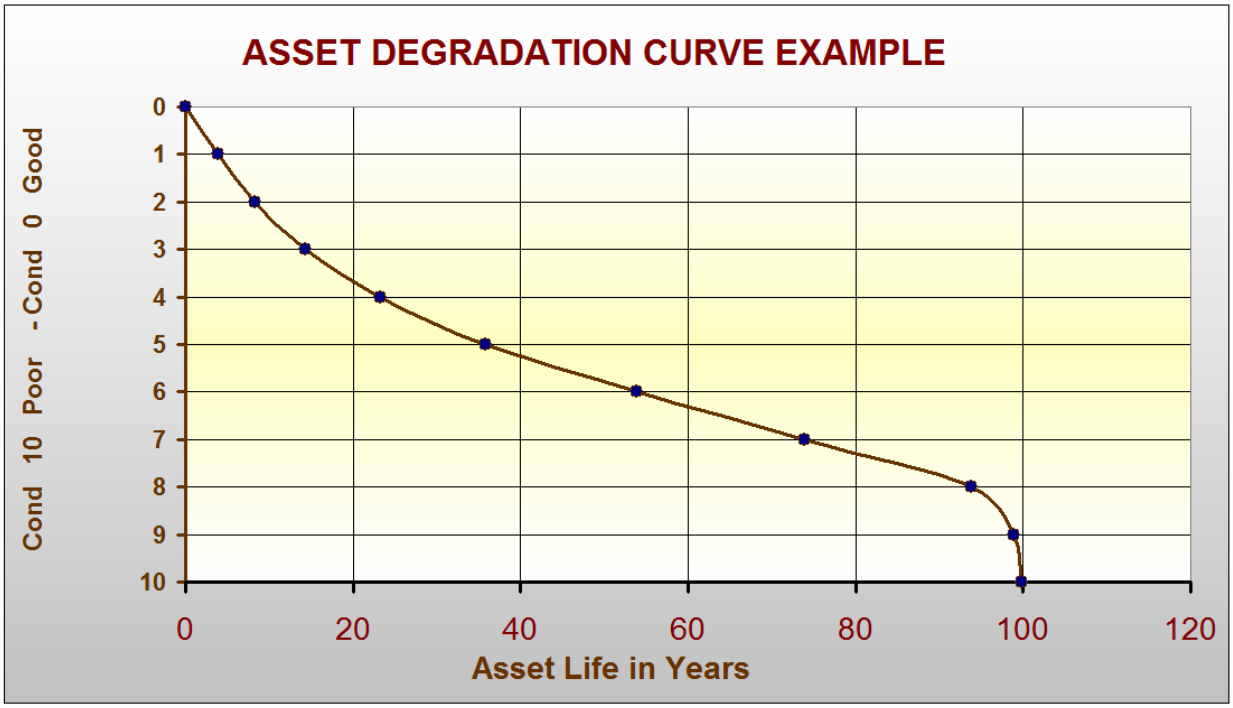


Fig 4.1 Road Pavement Degradation Rates

The degradation curves serve two very important functions. Firstly they are used within the financial Modelling section of the Moloney system to predict future asset condition movement and financial demand. Secondly they should form the basis of the justification for the selection of depreciation life cycles within the accounting system.

Within the asset degradation tables below the results are expressed as an expected life in years within each of the condition ratings 0 to 9. Little or no asset life is allocated above condition 8 as this is generally considered the upper condition limit for an asset to remain in service.

Figures sometimes need to be manually adjusted to remove inconsistencies resulting from very small sample size at the extreme ends of the condition range. In all cases the total expected life will be reduced because of the small sample size. In no situations will the total life be increased other than the rare case where there is no asset within a given condition or no asset within a given condition range has degraded between the two surveys.

## 4.1 Degradation Curves as developed by MAMS

The term "Degradation curve" comes from the shape of the projected condition change with

*Degradation curves were produced for Horsham Rural City by analysing the change in asset condition within the 4 condition surveys over the last 9 years.*

## 4.2 Degradation Curves as developed by MAMS

| Asset Condition Range | Sealed Urban Pavements 2008 - 2014 | Sealed Urban Pavements 2005 - 2014 | Sealed Rural Roads 2005 - 2012 | Sealed Rural Pavements 2005 - 2014 |
|---|---|---|---|---|
| 9 - 10 | 1.0 | 1.0 | 1.0 | 1.0 |
| 8 - 9 | 5.0 | 5.0 | 2.0 | 3.0 |
| 7 - 8 | 20.0 | 18.0 | 9.3 | 8.0 |
| 6 - 7 | 20.0 | 20.0 | 10.0 | 9.0 |
| 5 - 6 | 18.0 | 18.0 | 9.0 | 9.0 |
| 4 - 5 | 12.5 | 12.4 | 8.4 | 9.5 |
| 3 - 4 | 9.1 | 11.2 | 7.8 | 8.8 |
| 2 - 3 | 6.0 | 7.3 | 6.8 | 7.4 |
| 1 - 2 | 4.4 | 5.8 | 3.2 | 3.6 |
| 0 - 1 | 3.9 | 4.3 | 3.8 | 4.0 |
| | 99.8 | 102.9 | 61.2 | 63.3 |

Fig 4.1 Road Pavement Degradation Rates – Expected life within each condition rating in Years

*The sealed road pavement assets were found to have a total life of around 100 years in the township areas and 61 years in the rural areas. But this is to condition 10. The useable condition range up to the intervention level will deliver service lives closer to 90-years for urban and 50-year for the rural area.*

The total life illustrated in all of the tables within this section is the life to condition 10. In practice you will often intervene and rehabilitate before reaching condition 10. The total life is input into the financial model and the life to the selected intervention level will be less than that figure depending upon where you choose to intervene.

If you choose a low intervention level (High level of service) then your life to intervention can be very much lower than the total life to Condition 10. Think of the car tyre analogy down to the indicator lugs at, 40,000 km. fully worn through, 70,000 km.

| Asset Condition Range | All Asphalt Surfaces 2012 - 2014 | All Asphalt Surfaces 2008 - 2014 | All Sealed Surfaces 2012 - 2014 |
|---|---|---|---|
| 9 - 10 | 1.0 | 1.0 | 1.0 |
| 8 - 9 | 2.0 | 2.0 | 2.0 |
| 7 - 8 | 5.0 | 3.0 | 3.8 |
| 6 - 7 | 5.0 | 3.0 | 3.4 |
| 5 - 6 | 4.4 | 3.0 | 2.9 |
| 4 - 5 | 3.0 | 2.5 | 2.3 |
| 3 - 4 | 3.9 | 2.5 | 2.1 |
| 2 - 3 | 2.6 | 2.5 | 1.7 |
| 1 - 2 | 2.0 | 2.0 | 1.6 |
| 0 - 1 | 1.7 | 1.5 | 1.5 |
| | 30.6 | 23.0 | 22.2 |

Fig 4.2 Sealed Surface Degradation Rates – Expected life within each condition rating in Years

*The sealed surface asset group covers the two most common surface types of, asphalt and spray seal. Results here are a little higher than some other districts we have analysed, but they are close to the findings for other districts and when pavement life is long as it is here they do tend to be extended. The ideal retreatment intervention level for a spray seal is around 6.2 so useful life will be much less than the full life to condition 10.*

| Asset Condition Range | All 150 Design Depth Pavements 2008 - 2014 | All 150 Design Depth Pavements 2012 - 2014 | All 100 Design Depth Pavements 2012 - 2014 |
|---|---|---|---|
| 9 - 10 | 1.0 | 1.0 | 1.0 |
| 8 - 9 | 2.0 | 3.0 | 2.0 |
| 7 - 8 | 3.0 | 4.0 | 2.0 |
| 6 - 7 | 5.0 | 5.0 | 4.8 |
| 5 - 6 | 4.0 | 2.3 | 4.9 |
| 4 - 5 | 3.3 | 2.0 | 3.1 |
| 3 - 4 | 3.7 | 2.0 | 1.5 |
| 2 - 3 | 4.1 | 2.0 | 2.9 |
| 1 - 2 | 4.0 | 2.0 | 2.0 |
| 0 - 1 | 4.0 | 2.8 | 3.0 |
| | 34.1 | 26.1 | 27.1 |

Fig 4.3 Un sealed Pavement Degradation Rates – Expected life within each condition rating in Years

*The unsealed pavement degradation curves have been developed in 2 groups based on the 2 different design depths used within the council district. The results are reasonably consistent with other council outcomes.*

| Asset Condition Range | All Kerbs 2012 - 2014 | All Kerbs 2008 - 2014 |
|---|---|---|
| 9 - 10 | 1.0 | 1.0 |
| 8 - 9 | 4.0 | 4.0 |
| 7 - 8 | 10.0 | 10.0 |
| 6 - 7 | 13.6 | 22.3 |
| 5 - 6 | 20.0 | 20.0 |
| 4 - 5 | 20.0 | 20.0 |
| 3 - 4 | 10.4 | 17.4 |
| 2 - 3 | 8.3 | 8.0 |
| 1 - 2 | 5.2 | 6.0 |
| 0 - 1 | 3.8 | 5.9 |
| | 96.4 | 114.6 |

Fig 4.4 Kerb Degradation Curves – Expected life within each condition rating in Years

| Asset Condition Range | All Concrete Footpaths 2012 - 2014 | All Concrete Footpaths 2008 - 2014 | Sealed Footpaths 2012 - 2014 |
|---|---|---|---|
| 9 - 10 | 1.0 | 1.0 | 0.0 |
| 8 - 9 | 4.0 | 5.0 | 1.0 |
| 7 - 8 | 8.0 | 6.0 | 2.5 |
| 6 - 7 | 20.0 | 15.0 | 3.0 |
| 5 - 6 | 25.0 | 25.0 | 4.5 |
| 4 - 5 | 12.0 | 19.3 | 3.2 |
| 3 - 4 | 7.4 | 9.0 | 2.0 |
| 2 - 3 | 5.8 | 10.0 | 2.0 |
| 1 - 2 | 5.0 | 5.8 | 1.3 |
| 0 - 1 | 4.6 | 5.8 | 2.5 |
| | 92.8 | 101.8 | 22.0 |

Fig 4.5 Pathways Degradation Curves – Expected life within each condition rating in Years

*This is the third survey undertaken by MAMS for the kerb and footpath assets.*

*At first glance it may appear that the total life developed is high. But when you take into account the way in which the assets are managed then the results are quite reasonable. Council tends to repair the isolated failures on both of these asset classes and so overall asset condition tends to be held static in the mid range of the scale for long periods.*

*Footpath and kerb isolated failures tend to be repaired as they occur and so an asset in say condition 5 may remain in that same condition for decades because of the constant repair work. The above results are broadly in line with the findings from other council districts.*

*When modelling these assets it is important to understand the impact of the isolated repair work on extending asset life and to take this into account when adopting asset life for modelling purposes. In this case we have converted all of the isolated failures to small pieces of very poor condition asset and hence they will be accounted for within the modelling predictions for renewal demand.*

## 4.3 Benefit of Unique Degradation Curves

The unique degradation curves developed via an analysis of condition change between surveys takes all variables into account to deliver a condition performance profile based upon the actual council locality. It is then used within the Moloney model to predict future condition change with time and greatly enhances the overall financial Modelling outcome.

# Section 5: Sealed Road Pavement Asset Analysis

This section will deal with the Sealed Road Pavement assets. The first two figures below relate to asset condition and how condition has changed since the last survey while the third provides a condition comparison with other council districts surveyed by Moloney.

## 5.1 Condition and Performance Indicators for Sealed Road Pavements

MAMS have developed a series of 6 key condition indicators that can be applied to all road sub asset sets. They are used to measure condition movement between field surveys some years apart. They are also used to benchmark against other council districts assessed on the same basis.

The same key condition indicators are used for all road asset groups. However for some asset classes certain indicators are not applicable and as such are omitted. Detailed below is a brief explanation of the 6 key indicators. The explanation is also applicable to their use with other road sub asset sets other than the sealed road pavements.

### 5.1.1 Weighted Average Asset Condition

The weighted average asset condition is a single condition indicator that represents the whole condition distribution in one figure. It is derived by weighting the raw asset condition scale 0 - 10 for the extent of asset within each condition and so provides a basic single figure summary of the overall condition of the asset set and is very useful as a condition movement indicator.

### 5.1.2 Percentage of Urgent Failures

The percentage of urgent failures is a measure of the isolated failures identified in the survey as needing immediate repair. It is expressed as a percentage of the total asset group quantity.

### 5.1.3 Percentage of Other Failures

The percentage of other failures represents those isolated failures, which while present on the ground do not require urgent attention. The figure is again expressed as a percentage of the total asset quantity.

### 5.1.4 Average Roughness

Average roughness is only relevant to pavement assets and for sealed road pavements is a key capital condition indicator of longitudinal pavement shape, while for unsealed pavements is a key maintenance indicator. It is based on a 0 – 10 scale with 0 being perfect and 10 un-driveable.

### 5.1.5 Average Profile

Average pavement profile is similar to the roughness rating and can be seen as the pavement cross sectional shape indicator while roughness is the longitudinal pavement shape indicator. It is based on a 0 – 10 scale with 0 being perfect and 10 un-driveable.

### 5.1.6 Extent of Poor Condition Assets above a given Condition

The percentage of the asset base at and above a given condition rating is a very good way of expressing the extent of poor condition assets present. This figure is expressed as a percentage of the total asset base and is reported at several different condition levels from condition 5 to 8 depending upon the asset set in question. For example sealed road pavements at and above condition 7 would represent the extent of the asset base that would be likely to require rehabilitation over the next 3 – 5 years.

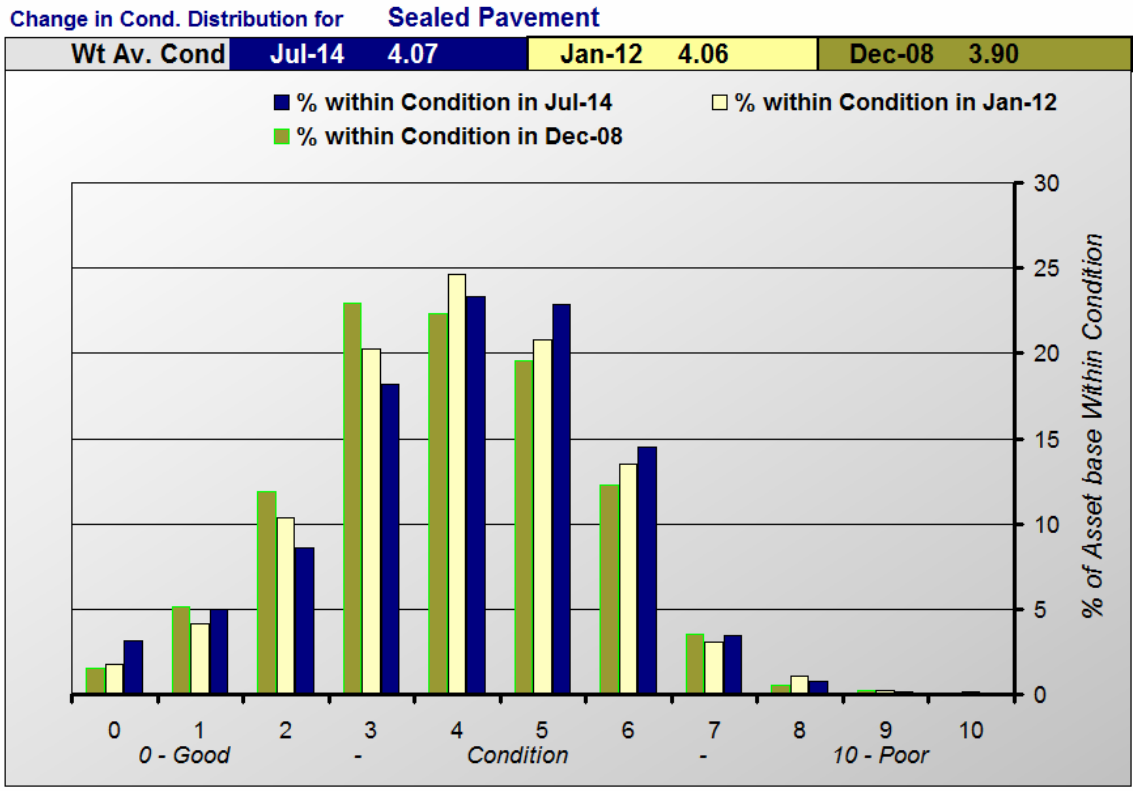


Fig. P1 Condition Distribution Comparison Graph – Between Surveys

*Figure P1 presents some very interesting results for the sealed pavements over the last 6 years. The extent of very poor condition assets (at and above 8) have risen slightly, condition 7 assets have been held and the extent of new condition 0 assets has increased. However, the area of real concern is the steady growth in the extent of assets within condition 5 and 6.*

*This tends to indicate that council has been able to manage the extent of very poor condition assets quite well but that the extent of assets approaching very poor condition is growing steadily and will result in an increasing renewal demand in future years as indicated within the modelling work undertaken in figure P4 below.*

*We normally show just the last survey alongside the present one in figure P1. But council specifically asked to see the last 3 surveys lined up and it does provide another way of looking at the looming problem that council is facing.*

| Key Cond. Indic. No. | Sealed Pavement Condition Indicator | Figures from Last Survey in Jan-12 | Figures from Current Survey in Jul-14 | Change between Surveys New Minus Old | % Change Between Surveys | Better or Worse Since last Survey |
|---|---|---|---|---|---|---|
| 1 | Weighted Average Asset Condition | 4.057 | 4.072 | -0.014 | -0.4 | Worse |
| 2 | % of Urgent Failures | 0.210 | 0.167 | 0.043 | 20.6 | Better |
| 3 | % of Other Failures | 1.319 | 1.431 | -0.112 | -8.5 | Worse |
| 4 | Average Pavement Roughness | 3.633 | 3.572 | 0.061 | 1.7 | Better |
| 5 | Average Pavement Profile | 3.352 | 3.262 | 0.089 | 2.7 | Better |
| 6 | % of Asset Base above Condition 6 | 18.007 | 18.874 | -0.867 | -4.8 | Worse |
| 7 | % of Asset Base above Condition 7 | 4.487 | 4.355 | 0.133 | 3.0 | Better |
| 8 | % of Asset Base above Condition 8 | 1.406 | 0.908 | 0.499 | 35.5 | Better |

| Renewal Demand Being Met For: | % of Long Term Demand Being Met |
|---|---|
| Sealed Rd Pavement Asset Group | 95.7 |

Fig. P2 Table of Key Condition Indicator Change since the last Survey

The above 2 figures provide details of how the sealed road pavement asset condition has changed since the last survey. Figure P1 details the condition distribution for each survey along with the first of the key indicators the “weighted average asset condition”.

Figure P2 contains the eight key condition indicators and also shows how they have changed since the previous survey. At the bottom of the table are two very important figures. These indicate the percentage of the present renewal demand (from Modelling) and annual depreciation being met.

The % of the long-term average demand being met is simply the ratio of present renewal expenditure to your depreciation figure for the asset class. The % of the present renewal demand being met is the ratio of your present renewal expenditure to the present renewal demand predicted within the model later in this same section. If these percentages are low then a decline in overall asset condition would be expected.

*For Horsham Rural City the key performance indicators in Figure P2 are a little mixed. The weighted average asset condition has declined very slightly. But, the two most important indicators, the extent of urgent pavement failures and the extent of very poor condition assets (at and above 8.0) have both improved quite measurably. So in summary asset condition has tended to be held constant which is consistent with the level of renewal expenditure being at 95.7% of the consumption rate.*

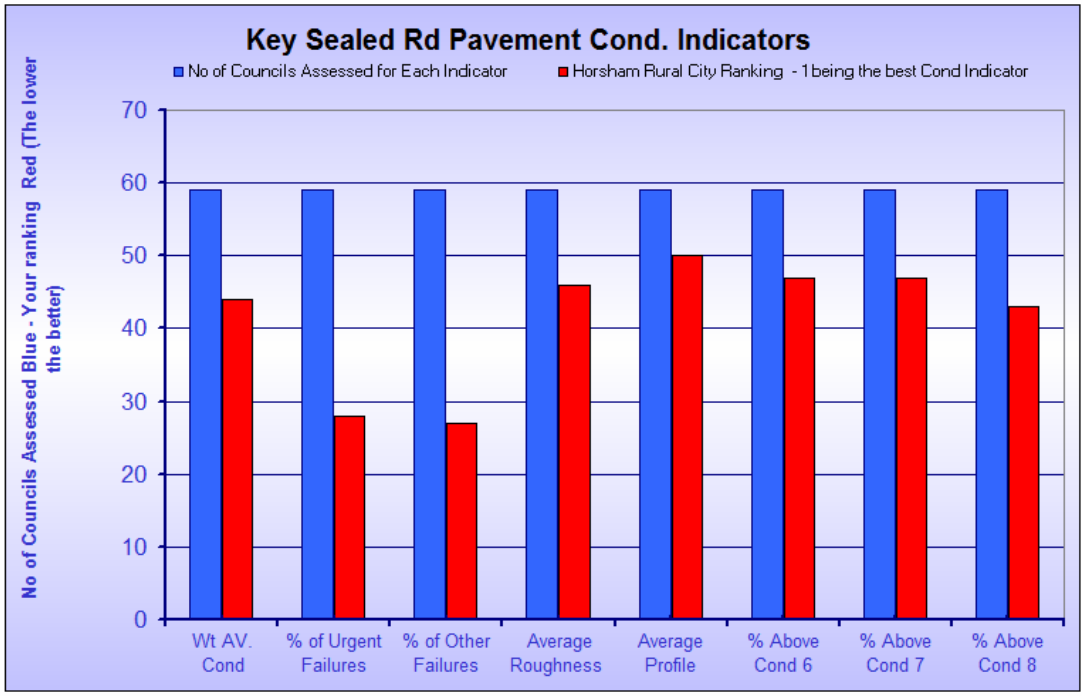


Fig. P3 Key Condition Indicators as Compared with other Councils surveyed

The same key condition indicators can be used to benchmark Council against all other council districts assessed by MAMS. The graph ranks the key condition indicators against those of all other councils assessed by MAMS. The lower the red bar the better the condition indicator. The blue bars represent the total number of councils assessed. The red bar at 1 equates to the best condition indicator encountered. The red bar level with the blue, represents the worst condition indicator.

*The comparison with other councils in figure P3 indicates that council is sitting within the worst one third of the councils assessed. But the level of isolated pavement failures is relatively low which is a great testament to the accurate targeting and high priority given to the major patching program.*

*The sealed road pavements within Horsham Rural City are in only fair overall condition when compared to the 59 councils assessed by MAMS. But, given the very difficult subgrades and correspondingly short pavement lives, this is considered to be a good outcome.*

## 5.2 Sealed Road Pavement Financial Modelling Analysis

The Sealed road pavement assets will normally be modelled in three groups with the results aggregated here in one presentation. The table below contains a list of the basic Modelling parameters used. Note that the useable life is the life to intervention, an asset should not remain in service after that point.

### 5.2.1 Sealed Road Pavement – Selection of Re-treatment Intervention Level

The point at which you choose to intervene to renew or replace an asset will have a big impact in the predicted future renewal demand. The intervention level can be seen as the level of service associated with the asset set. High intervention level equates to low level of service while low intervention level relates to a high level of service.

Detailed below are a series of photographs illustrating various sealed road pavement condition ratings. They do not cover the complete condition range but hopefully will provide some guidance to the selection of an acceptable re-treatment intervention level.

| | |
|---|---|
|  |  |
| Cond. 0 – 1 No Failures no Shape loss | Cond. 6 Moderate failures and shape loss |
|  |  |
| Cond. 7 Ext Shape loss and Failures | Cond. 8 – 9 Bad Shape loss and Ext Failures |

It is very difficult to cover pavement condition in such a limited range of photographs but hopefully they will provide some idea of asset condition in the 7 – 9 condition range where most interventions will take place. Pavements can be within this condition range for a number of different reasons and the photos will cover only a limited range of these situations. They should be considered as a typical situation and not the only situation for that condition rating.

## 5.2.2 Sealed Road Pavement Financial Modeling

| Modelling Parameter | Urban Link and Collector | Urban Access and Minor | Rural Link and Collector | Rural Access and Minor | Rural Sealed Shoulder High Traffic | Rural Sealed Shoulder Low Traffic |
|---|---|---|---|---|---|---|
| Asset Quantity in sqm | 797,581 | 576,112 | 3,846,021 | 1,188,842 | 1,879,465 | 543,499 |
| Unit Renewal Rate | $37.00 | $37.00 | $22.50 | $21.00 | $8.50 | $8.00 |
| Total Asset Group Renewal Cost | $29,510,497 | $21,316,144 | $86,535,473 | $24,965,682 | $15,975,453 | $4,347,992 |
| Annual Renewal Exp. | $690,000 | $306,000 | $835,000 | $65,000 | $446,000 | $0 |
| Retreat. Intervention Condition | 8.0 | 8.8 | 8.0 | 8.0 | 6.5 | 7.0 |
| Life to Condition 10 in Years | 75.0 | 90.0 | 50.0 | 60.0 | 25.0 | 40.0 |
| Life in years to Intervention | 70.8 | 88.3 | 47.0 | 56.4 | 20.1 | 34.4 |

Fig. P4A – Summary of Modelling Input Parameters for sealed pavement assets

*Sealed road pavement modelling has been undertaken within 6 categories as detailed in P4A above. This is in line with the MAV renewal gap modelling analysis.*

*Retreatment intervention levels have been set to reflect the current level of service and life cycles have been set at what are considered to be reasonable, but not optimistic lives.*

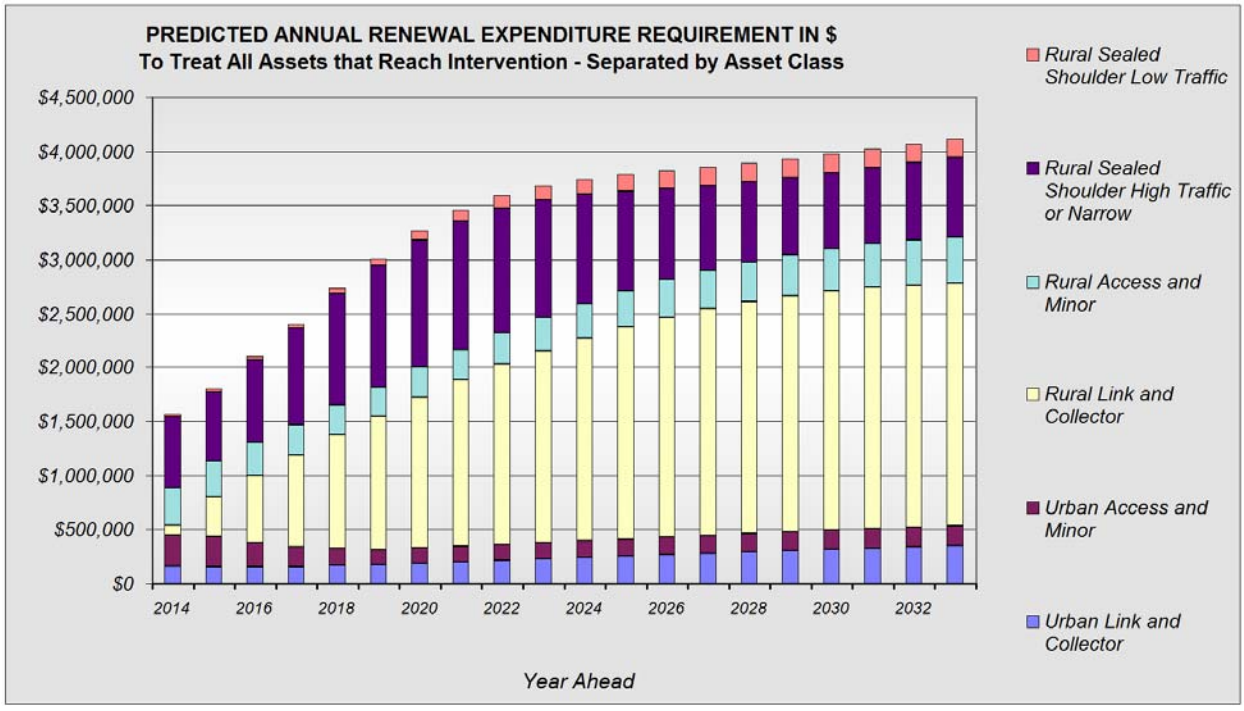


Fig. P4 Predicted Renewal Demand to treat all assets that reach the Intervention level in future years

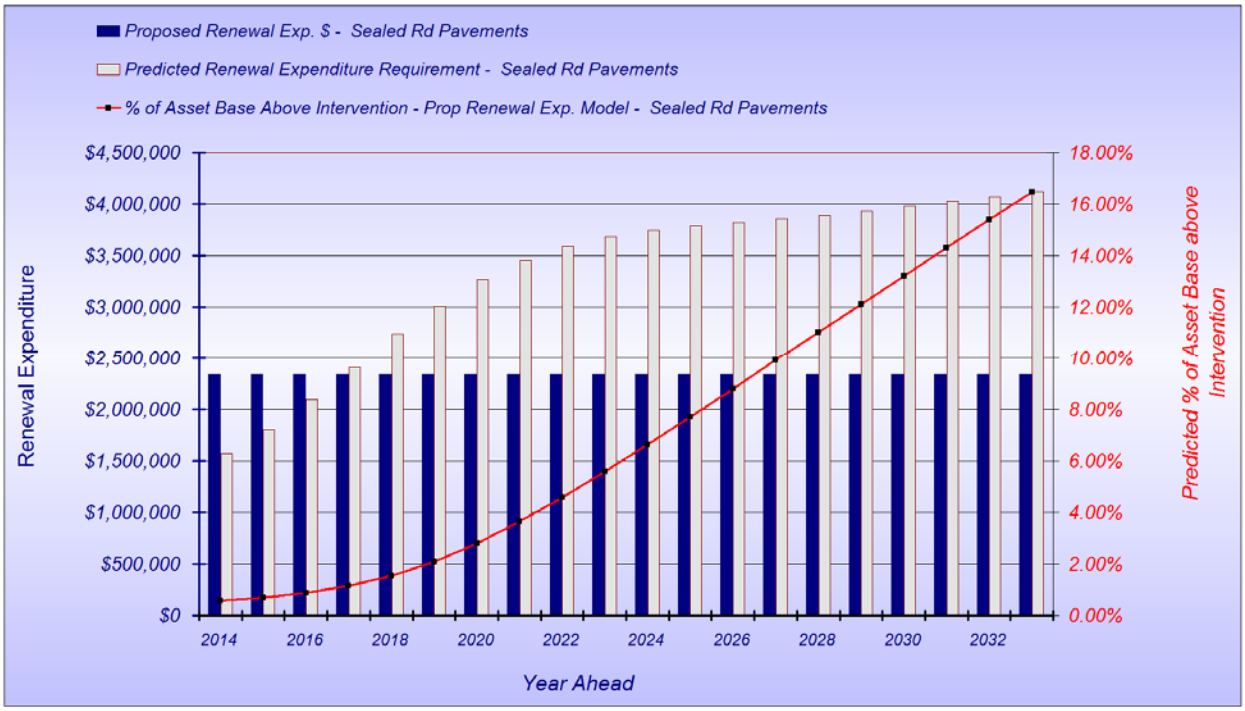


Fig. P5 Future Predicted Condition Based on Continuation of Present Renewal Expenditure

Figures P4 provides a profile of the predicted renewal demand to treat all assets that reach the adopted retreatment intervention level through the degradation process. Figure P5 plots the extent of the asset base that is predicted to rise above the intervention level based upon the continuation of the present level of renewal expenditure (in blue bars). It also plots the predicted renewal demand within the grey bars.

*Renewal demand is presently sitting at around $1,568,000 pa with the peak demand over the next 20-years predicted at $4,115,000 pa in the year 2033. Council is currently fully funding the present renewal demand. But as can be seen within figure P5 and P4 demand is predicted to rise steadily over the next 20-years particularly within the rural link and collector categories.*

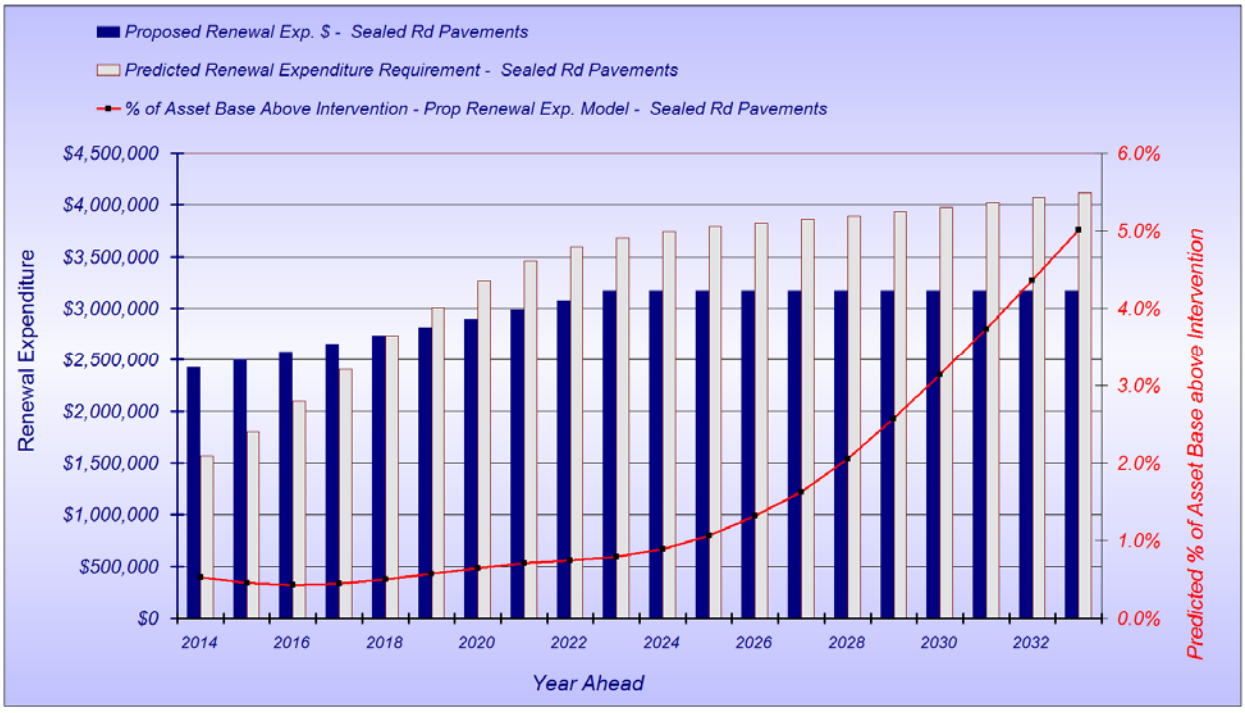


Fig. P6 Recommended Renewal funding profile to achieve outcome as detailed below

The Moloney financial modelling software has the capacity to develop a recommended renewal funding profile that will deliver a nominated extent of the asset base to be over the selected intervention level within a selected time frame. A global outcome can be set for the whole roads group. In this way the model is used to allocate funding based on need rather than the historic expenditure level. There are 3

variables that are input and in most cases the same 3 variables are used for all of the road sub assets, however this can be varies between sub asset sets if required.

This is the first road sub asset set to be considered and the aim in using this model is to deliver a recommended funding profile across the whole of the roads group that will deliver an acceptable condition outcome for all sub asset sets. We normally attempt to commence the year one expenditure with council's present expenditure level (this is at a whole of roads group level). In this way we can deliver an achievable outcome. If additional funding is required then it will come as an annual percentage increase. If total funding is sufficient then there may be some reallocation between asset classes based on need.

*The three Variables used for the sealed pavement asset modelling are as detailed below:*

- *Desired extent of over intervention assets - Same as present level. 0.76%*
- *Time to achieve this - 10 - Years*
- *Adopted annual percentage increase in renewal expenditure - 3.00%*

*The present total level of over intervention assets at 2.2% is considered high but acceptable and as such has been set as the desired outcome after 10-years. The recommended funding profile coming out of the model commences at $2,420,000 pa which is a little above the present funding level of $2,342,000 and then it rises by 3.0% compounding for the next 10-years.*

## 5.3 Sealed Road Pavement Summary

*The sealed road pavement assets were found to be in fair overall condition with somewhat of a mixed condition performance since 2012. Overall condition appears to have been held steady, but there has been strong improvements in the extent of urgent isolated pavement failures and as well as a strong reduction in the extent of poor condition assets, all indicating that renewal funding has been well targeted since 2012.*

*It is recommended that the renewal funding level be set at $2,420,000 pa next year and then raised by 3.0% compounding for the next 10-years*

# Section 6: Sealed Surface Asset Analysis

This section will deal with the Sealed Surface assets. The first two figures relate to asset condition and how condition has changed since the last survey while the third provides a condition comparison with other council districts surveyed by MAMS.

## 6.1 Condition and Performance Indicators for Sealed Surfaces

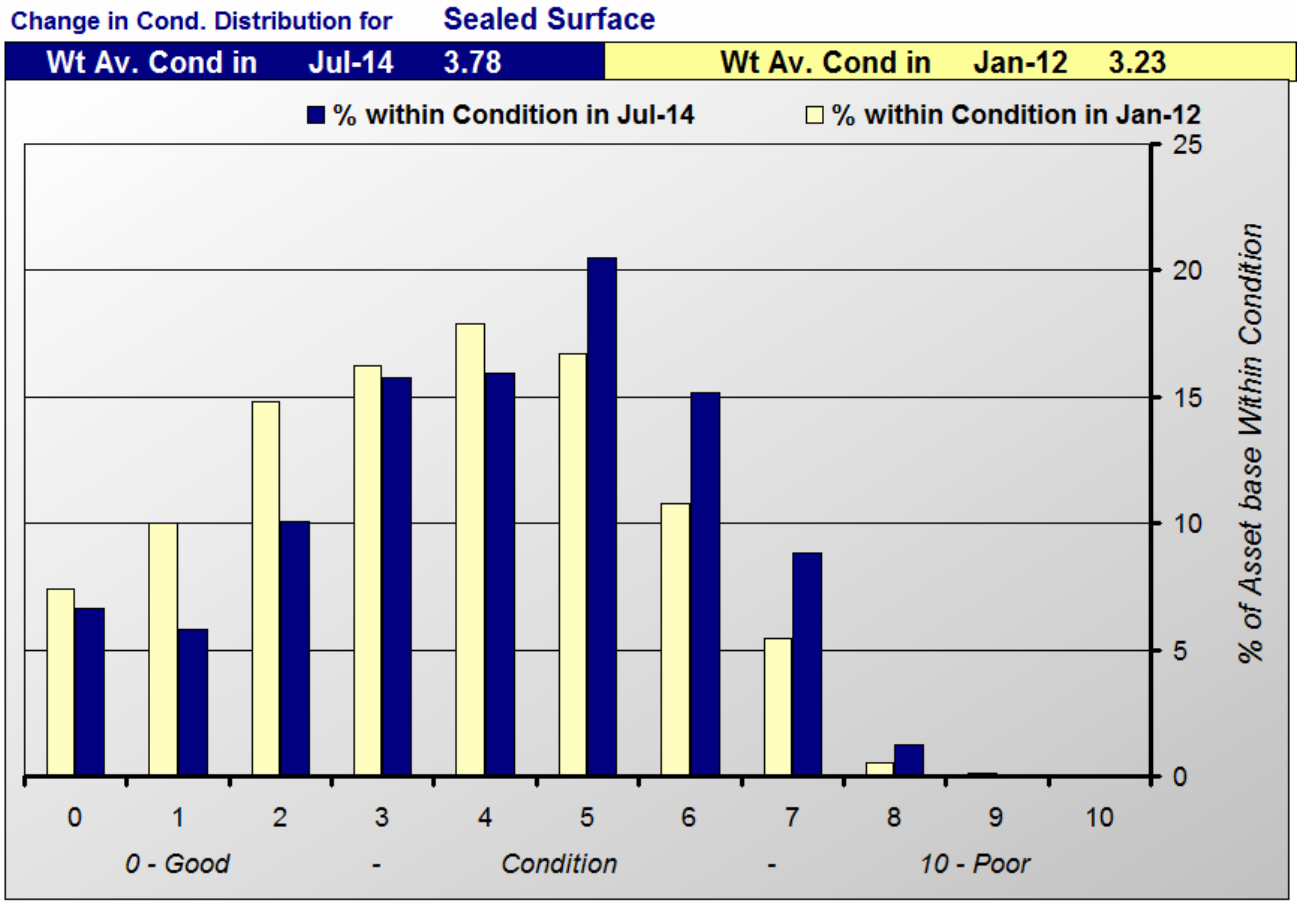


Fig. S1 Condition Distribution Comparison Graph – Between Surveys all Sealed Surfaces

| Key Cond. Indic. No. | Sealed Surface Condition Indicator | Figures from Last Survey in Jan-12 | Figures from Current Survey in Jul-14 | Change between Surveys New Minus Old | % Change Between Surveys | Better or Worse Since last Survey |
|---|---|---|---|---|---|---|
| 1 | Weighted Average Asset Condition | 3.230 | 3.784 | -0.554 | -17.1 | Worse |
| 2 | % of Asset Base above Condition 6 | 16.891 | 25.247 | -8.356 | -49.5 | Worse |
| 3 | % of Asset Base above Condition 7 | 6.122 | 10.091 | -3.969 | -64.8 | Worse |
| 4 | % of Asset Base above Condition 8 | 0.689 | 1.261 | -0.572 | -83.0 | Worse |
| 5 | % of Asset Base above Condition 9 | 0.127 | 0.031 | 0.095 | 75.2 | Better |

| Renewal Demand Being Met For: | % of Long Term Demand Being Met |
|---|---|
| Sealed Surface Asset Group | 43 |

Fig. S2 Condition Change since last survey & Renewal demand being met

The above 2 figures provide details of how the sealed surface asset condition has changed since the last survey. Figure S1 details the condition distribution for each survey along with the first of the key indicators the “weighted average asset condition”.

Figure S2 contains 5 of the eight key asset condition indicators that are relevant to this asset set. For a detailed explanation of the key condition indicators refer to section 5.1 above.

*Figure S2 indicates that 4 of the 5 performance indicators have declined quite measurable since the time of the last survey in 2012. The present renewal expenditure level is at only 43% of the annual depreciation level (consumption rate) so it should be no surprise that the weighted average asset condition has declined by -17.1 %*

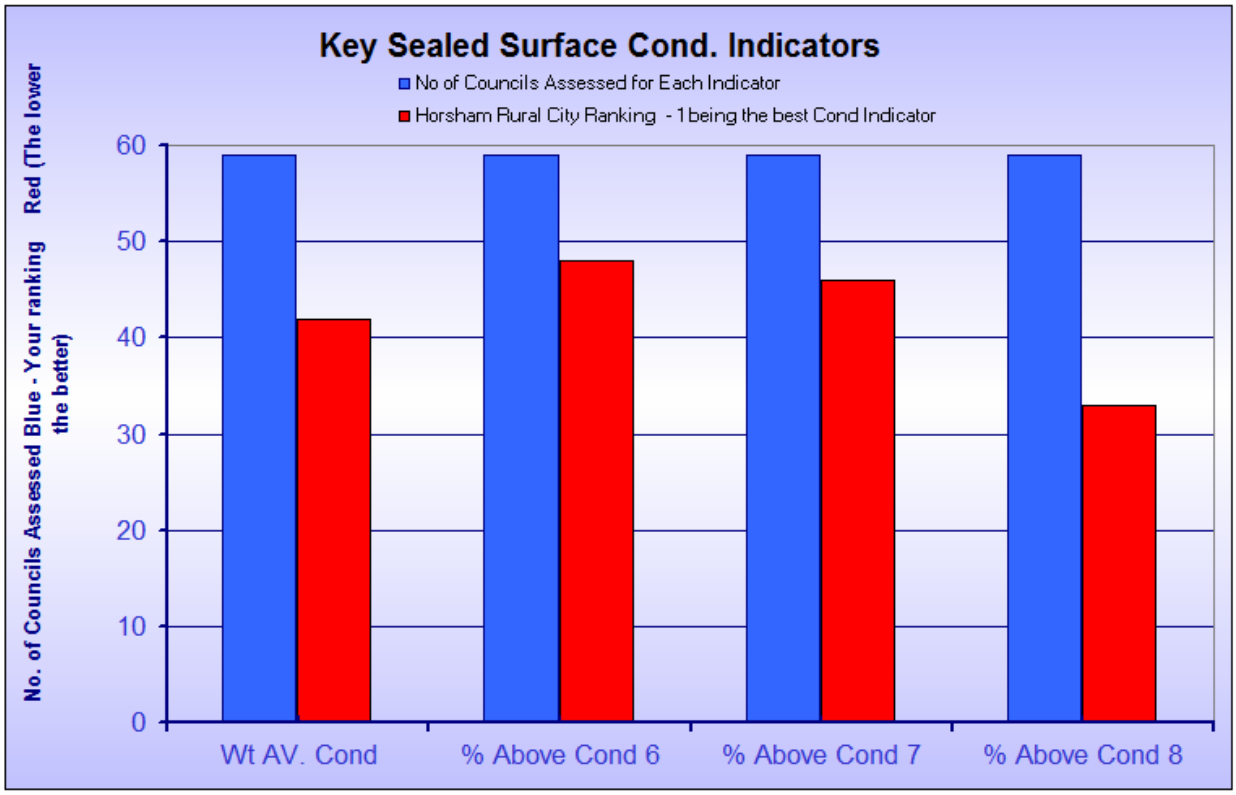


Fig. S3 Key Condition Indicators as Compared with other Councils surveyed

The five key condition indicators as detailed in figure S3 provide council with a comparison of where they sit in relation to other councils assessed by MAMS. The graph ranks the key condition indicators against those of all other councils assessed by MAMS. The lower the red bar the better the condition indicator. The blue bars represent the total number of councils assessed. The red bar at 1 equates to the best condition indicator encountered. The red bar level with the blue, represents the worst condition indicator.

*The sealed surfaces within Horsham Rural City are in fair to poor overall condition when compared with the 59 councils assessed by MAMS. Weighted average asset condition is sitting at 42nd out of the 59 Councils assessed. Given the predicted growth in the sealed pavement renewal demand these assets should be fully funded in order to maximise the more expensive pavement life.*

## 6.2 Sealed Surface Financial Modelling Analysis

The Sealed Surface assets will be modelled in two groups with the results aggregated here in one presentation. The table below contains a list of the key Modelling parameters used. Note that the useable life is the life to intervention, an asset should not remain in service after that point.

### 6.2.1 Sealed Surfaces – Selection of Re-treatment Intervention Level

The point at which you choose to intervene to renew or replace an asset will have a big impact in the predicted future renewal demand. The intervention level can be seen as the level of service associated with the asset set. High intervention level equates to low level of service while low intervention level relates to a high level of service.

Detailed below are a series of photographs illustrating various sealed surface condition ratings. They do not cover the complete condition range but hopefully will provide some guidance to the selection of re-treatment intervention level.

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Cond. 0 – 1 Seal in Excellent near new condition</td><td>Cond. 5 Cracking but seal not too oxidized</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Cond. 6.5 - 7 Oxidized and Stripping</td><td>Cond. 8 Fully Oxidized and falling apart</td></tr>
</table>

It is very difficult to cover sealed surface condition in such a limited range of photographs but hopefully they will provide some idea of asset condition in the 7 – 9 condition range where most interventions will take place. Sealed Surfaces can be within this condition range for a number of different reasons and the photos will cover only a limited range of situations. They should be considered as a typical situation and not the only situation for that condition rating.

### 6.2.2 Sealed Surfaces – Financial Modeling Results

| Modelling Parameter | All Asphalt Surfaces | Urban Link and Collector Seals | Urban Access and Minor Seals | Rural Link and Collector Seals | Rural Access and Minor Seals |
|---|---|---|---|---|---|
| Asset Quantity in sqm | 92,511 | 686,428 | 520,181 | 2,979,359 | 919,084 |
| Unit Renewal Rate | $27.0 | $5.2 | $4.6 | $4.9 | $4.9 |
| Total Asset Group Renewal Cost | $2,500,000 | $3,569,426 | $2,392,833 | $14,598,859 | $4,503,512 |
| Annual Renewal Exp. | $0 | $165,000 | $166,000 | $513,100 | $89,500 |
| Retreat. Intervention Condition | 7.0 | 7.0 | 7.5 | 7.0 | 7.5 |
| Life to Condition 10 in Years | 35.0 | 22.0 | 22.0 | 22.0 | 22.0 |
| Life in years to Intervention | 32.2 | 17.6 | 18.7 | 17.6 | 18.7 |

Fig. S4A – Summary of Modelling Input Parameters for Sealed Surface Assets

*The sealed surfaces will be modelled within 5 groups as detailed within Fig S4A above. This is in line with the MAV renewal gap modelling analysis. Intervention levels have been set at what are considered to be*

*the mid to high end of the range and life cycles have been set at the upper end of their expected range, thus the modelling parameters are considered to be a little optimistic, but not excessively so.*

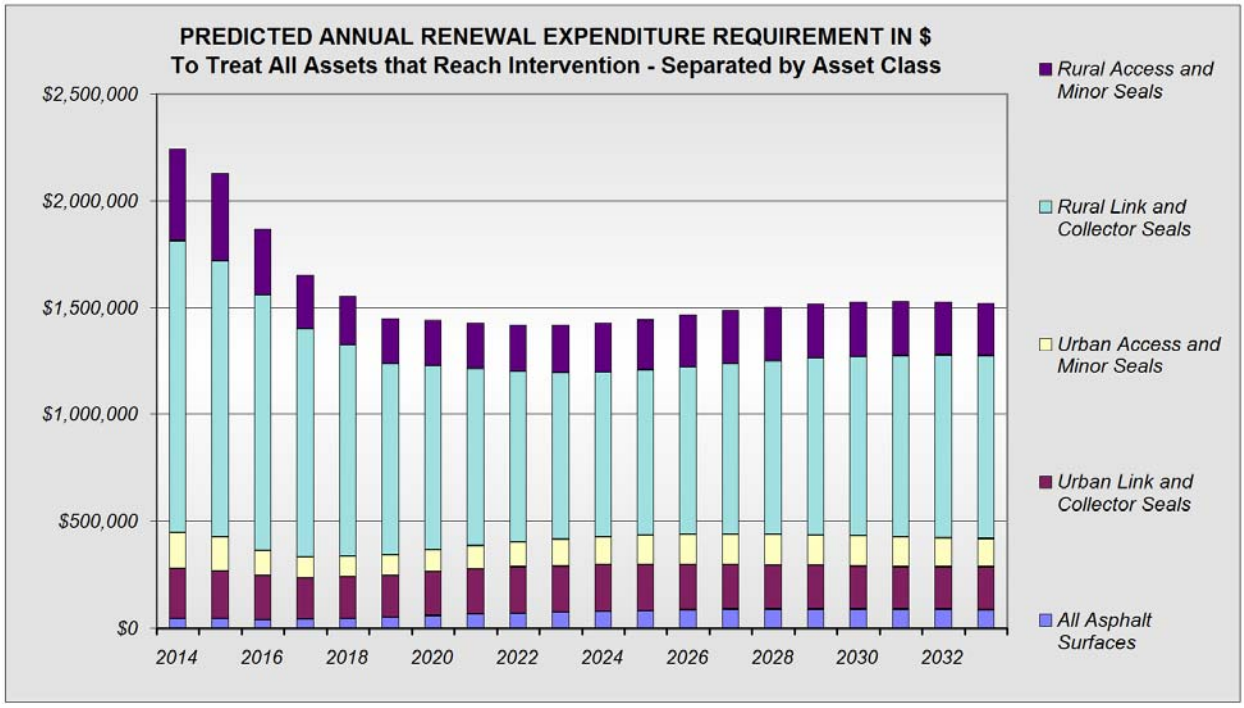


Fig. S4 Predicted Renewal Demand to treat all assets that reach the Intervention level in future years

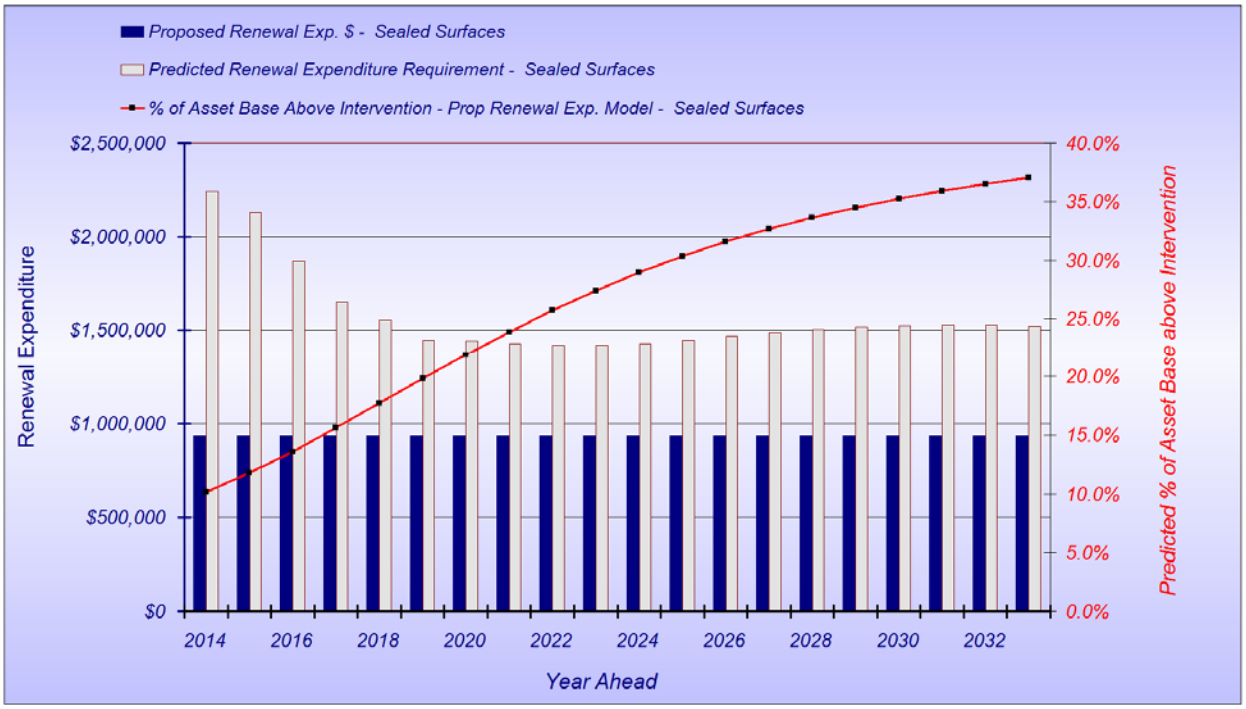


Fig. S5 Future Predicted Condition Based on Continuation of Present Renewal Expenditure

Figures S4 provides a profile of the predicted renewal demand to treat all assets that reach the intervention level through the degradation process. Figure S5 plots the extent of the asset base that is predicted to rise above the intervention level based upon the continuation of the present level of renewal expenditure (in blue bars). It also plots the predicted renewal demand within the grey bars.

*Capital renewal demand to treat all assets at and above the selected intervention level is presently sitting at around $2,243,000 pa which also represents the peak demand over the next 20-years. The planned renewal expenditure profile as detailed within figure S5 is predicted to result in a strongly growing rise in the extent of over intervention assets and renewal expenditure does need to be lifted.*

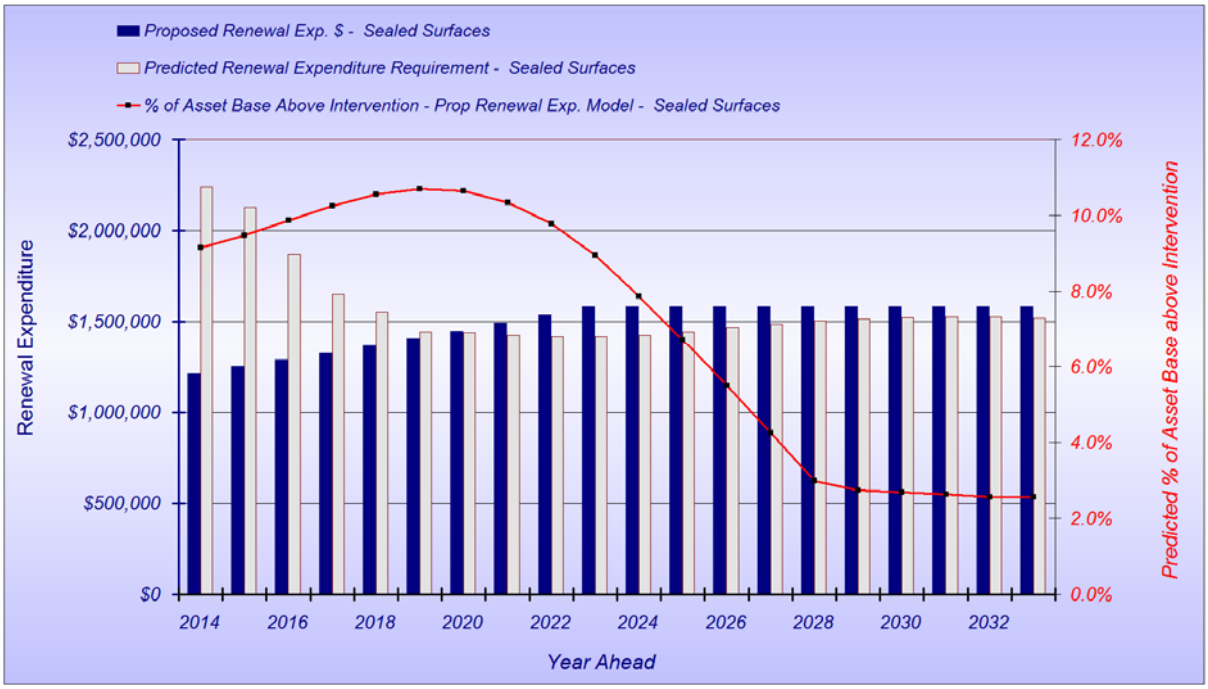


Fig. S6 Recommended Renewal funding profile to achieve outcome as detailed below

The Moloney financial modelling software has the capacity to develop a recommended renewal funding profile that will deliver a nominated extent of the asset base to be over the selected intervention level within a selected time frame. A global outcome can be set for the whole roads group. In this way the model is used to allocate funding based on need rather than the historic spend. See the notes below Figure P6 above for more detail. There are 3 variables that are input and in most cases the same 3 variables are used for all of the road sub assets, however this can be varies if required.

*In the funding scenario delivered within S6 above the following criteria were set:*

- *Desired extent of over intervention assets - Same as present level. 8.96%*
- *Time to achieve this - 10 - Years*
- *Adopted annual percentage increase in renewal expenditure - 3.00%*

Figure S6 represents the minimum annual renewal expenditure to achieve a desired condition outcome within a nominated time frame. This modelling approach is designed to deliver an achievable outcome that accepts a small percentage of over intervention assets as remaining and hence often delivers lower expenditure profiles than the S4 graph where all over intervention assets have to be treated.

*The model indicates within figure S6 that a commencing annual expenditure of $1,242,000 pa subject to an annual increase of 3.0% compounding for the next 10-years will result in the same level of over intervention assets after 10-years as presently exists. This is considered to be the absolute minimum expenditure level that should be considered for the assets.*

## 6.3 Sealed Surface Summary

*The sealed surface assets were found to be in fair to poor overall condition with a quite measurable decline in overall asset condition since the last survey in 2012.*

*It is recommended that renewal expenditure on the sealed surfaces be set at $1,242,000 pa next year and then raised by 3.0% compounding for the next 10-years*

# Section 7: Unsealed Pavement Assets

This section will deal with the Unsealed Road Pavement assets. The first two figures relate to asset condition and how condition has changed since the last survey while the third provides a condition comparison with other council districts surveyed by MAMS.

## 7.1 Condition and Performance Indicators for Unsealed Road Pavements

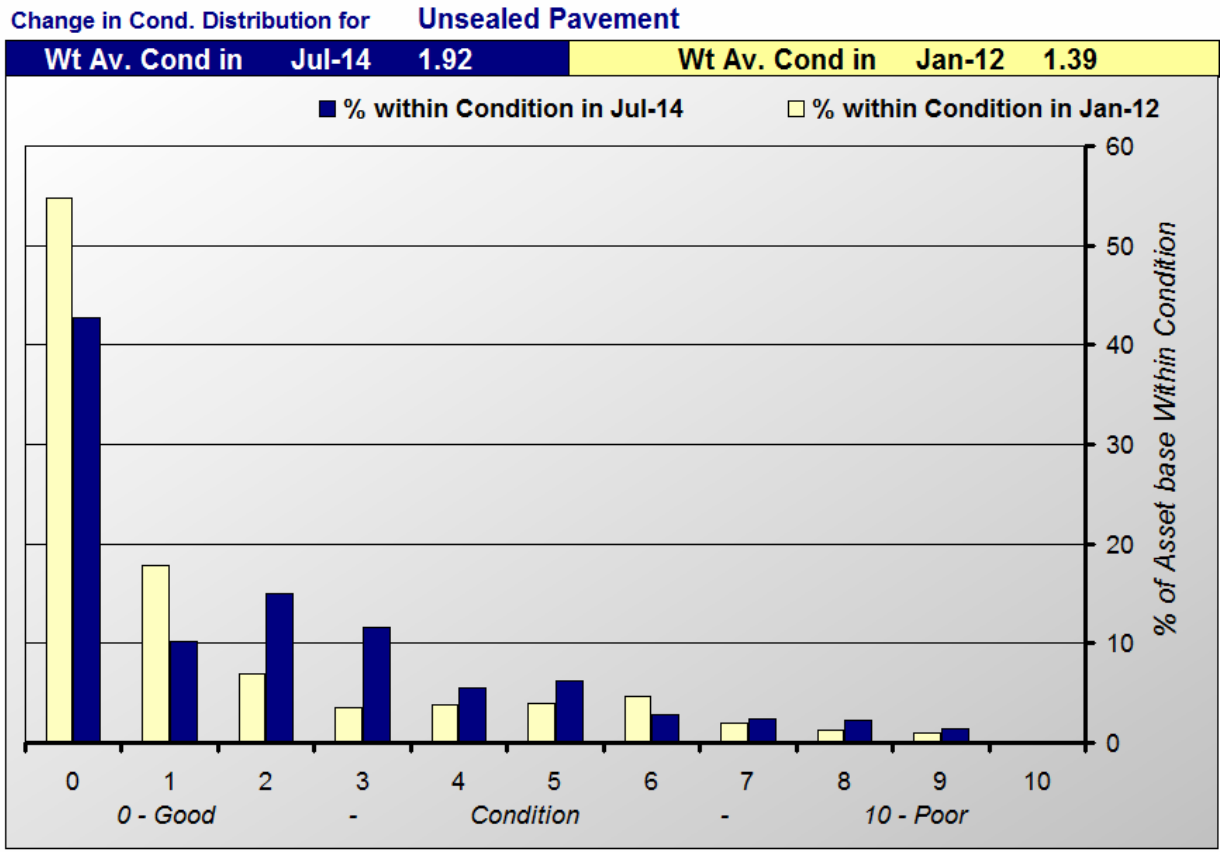


Fig. U1 Condition Distribution Comparison Graph – Between Surveys

| Key Cond. Indic. No. | Unsealed Pavement Condition Indicator | Figures from Last Survey in Jan-12 | Figures from Current Survey in Jul-14 | Change between Surveys New Minus Old | % Change Between Surveys | Better or Worse Since last Survey |
|---|---|---|---|---|---|---|
| 1 | Weighted Average Asset Condition | 1.392 | 1.916 | -0.525 | -37.7 | Worse |
| 2 | % of Pavement Failures | 2.859 | 2.732 | 0.127 | 4.4 | Better |
| 3 | Average Pavement Roughness | 3.898 | 3.894 | 0.004 | 0.1 | Better |
| 4 | Average Pavement Profile | 3.900 | 3.829 | 0.071 | 1.8 | Better |
| 5 | Average Pavement Depth in mm | 92 | 102 | 10.000 | 10.9 | Better |
| 6 | % of Asset Base above Condition 6 | 8.910 | 8.754 | 0.156 | 1.7 | Better |
| 7 | % of Asset Base above Condition 7 | 4.291 | 5.937 | -1.645 | -38.3 | Worse |
| 8 | % of Asset Base above Condition 8 | 2.265 | 3.579 | -1.314 | -58.0 | Worse |

| Renewal Demand Being Met For: | % of Long Term Demand Being Met |
|---|---|
| UnSealed Rd Pavement Asset Group | 79 |

Fig. U2 Condition Change since last survey & Renewal demand being met

The above 2 figures provide details of how unsealed pavement asset condition has changed since the last survey. Figure U1 details the condition distribution for each survey along with the first of the key indicators the “weighted average asset condition”.

Figure U2 contains the eight key asset condition indicators that are relevant to this asset set. For a detailed explanation of the key condition indicators refer to section 5.1 above. There is one additional indicator for the unsealed road pavements that is unique to this asset set and as such was not included back in section 5.1. This is the average pavement depth, which is simply the average depth of imported pavement material found on the pavements when they were dug during the survey.

*Figures U1 and U2 above are really a little misleading in that the design depth of the unsealed pavements has been increased since 2012. Hence the condition indicators comparison is not really valid. Council went from a design depth of 100 for the high traffic roads to 150 mm and from 50 to 100 mm on other paved roads. Thus condition appears to have declined but with the heavy rise in design standard the condition indicators really should be ignored.*

*The one indicator that does remain valid is the average depth of imported pavement material. Here Council went from 92 mm in 2012 to 102 in 2014. This represents a very strong improvement, but the question still remains. Is the 150 and 100 mm design depth deep enough, given the expansive clay subgrades within much of the district? It is suspected that this still remains a relatively low standard.*

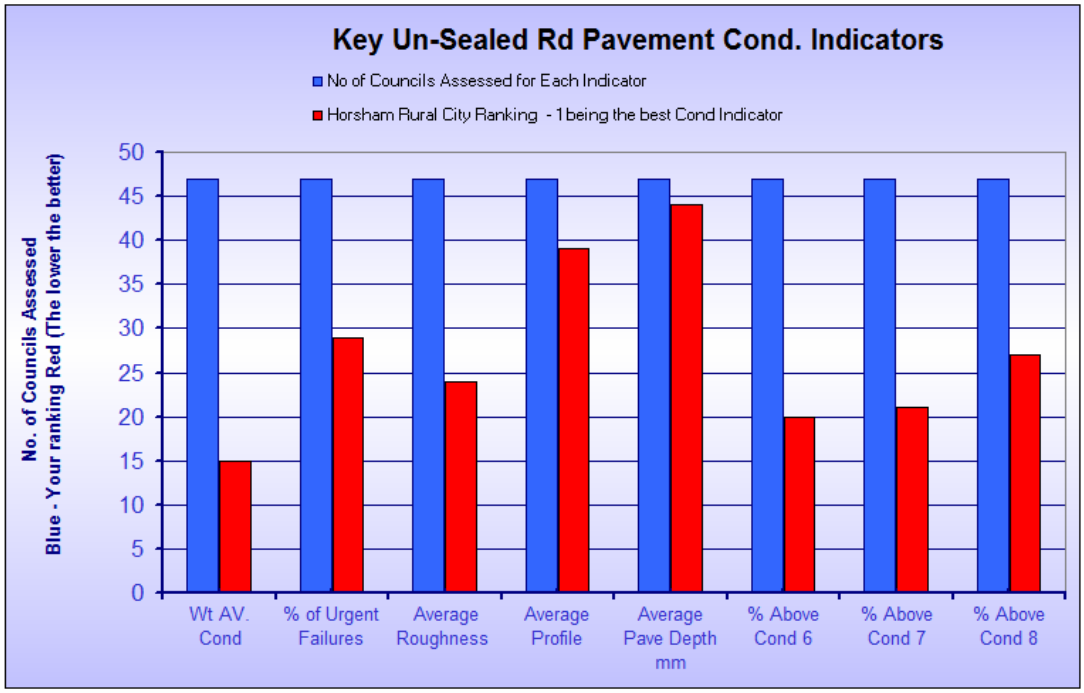


Fig. U3 Key Condition Indicators as Compared with other Councils surveyed

The eight key condition indicators as detailed in figure U3 provide council with a comparison of where they sit in relation to other councils assessed by MAMS. The graph ranks the key condition indicators against those of all other councils assessed by MAMS. The lower the red bar the better the condition indicator. The blue bars represent the total number of councils assessed. The red bar at 1 equates to the best condition indicator encountered. The red bar level with the blue, represents the worst condition indicator.

*The unsealed road pavement assets were found to be in very good overall condition and while figure U2 appears to indicate that asset condition has declined this is more a case of a reclassification of the assets to a higher design standard than it is of an actual condition decline.*

*Clearly pavement material is being placed onto the roads at a faster rate than it is wearing away. This is the best indicator we have that overall condition is improving. The table below clearly illustrates that average pavement depth has continued to increase since the first measurement in 2005. But the question remains. What is an appropriate design depth of pavement material.*

*Figure U3 tends to suggest that Horsham's design depth is low as the ranking on the weighted average asset condition is good at 11th out of 43. However, the average depth of pavement material is 44th out of 47 indicating that most councils have a higher design standard. Given the very difficult subgrades it could be expected that Horsham would adopt a higher than average design standard. This may need to be*

*reviewed in the future but it is felt that on the black clay pavement depth should not be permitted to get below 100 - 120 mm in depth before resheeting suggesting a 200 mm design depth.*

| ***Year of Survey*** | ***Average depth of imported pavement Material - mm*** | ***% Increase*** |
|---|---|---|
| *2005* | *77* | *N/A* |
| *2008* | *87* | *13.0%* |
| *2012* | *92* | *5.7%* |
| *2014* | *102* | *10.9 %* |

Fig. U3A Average unsealed pavement depth over time.

## 7.2 Unsealed Road Pavement Financial Modelling Analysis

The Unsealed road pavement assets will normally be modelled in three groups with the results aggregated here in one presentation. The table below contains a list of the basic Modelling parameters used. Note that the useable life is the life to intervention, an asset should not remain in service after that point.

### 7.2.1 Unsealed Road Pavement – Selection of Re-treatment Intervention Level

The point at which you choose to intervene to renew or replace an asset will have a big impact in the predicted future renewal demand. The intervention level can be seen as the level of service associated with the asset set. High intervention level equates to low level of service while low intervention level relates to a high level of service.

Detailed below are a series of photographs illustrating various unsealed road pavement condition ratings. They do not cover the complete condition range but hopefully will provide some guidance to the selection of re-treatment intervention level.

| | |
|---|---|
|  |  |
| Cond. 0 – 1 Average Depth 150 mm | Cond. 7 – Average depth 20 – 30 mm only |

| | |
|---|---|
|  |  |
| Cond. 8 Av Depth 20 mm & Ext Bare Patches | Cond. 9 Scattered patched of Pave Material only |

It is very difficult to cover Unsealed Pavement condition in such a limited range of photographs but hopefully they will provide some idea of asset condition in the 7 – 9 condition range where most interventions will take place. Unsealed Pavements can be within this condition range for a number of different reasons and the photos will cover only a limited range of situations. They should be considered as a typical situation and not the only situation for that condition rating.

| Modelling Parameter | Unsealed Pavements 150 design Depth | Unsealed Pavements 100 design Depth |
|---|---|---|
| Asset Quantity in sqm | 2,088,074 | 651,633 |
| Unit Renewal Rate | $3.90 | $3.90 |
| Total Asset Group Renewal Cost | $8,143,489 | $2,541,369 |
| Annual Renewal Exp. | $197,000 | $473,000 |
| Retreat. Intervention Condition | 5.0 | 5.0 |
| Life to Condition 10 in Years | 30.0 | 35.0 |
| Life in years to Intervention | 12.5 | 15.9 |

Fig. U4A – Summary of Modelling Input Parameters for Unsealed Rd Pavement Assets

*For Horsham Rural City we have modelled these assets within 2 groups in line with the MAV renewal gap program. The intervention level at condition 5 may appear low but it has been set there to reflect how council manages the assets.*

*The design depth of the P150 unsealed pavements is 150 mm but when they get to 75 mm a 75 mm re sheet is undertaken to re-establish the full design depth of 150 mm. Once pavement depth gets below around 80 - 100 mm it can present real problems for heavy vehicles in wet conditions with the underlying black clay being forced up through the imported gravel and so contaminating it and causing severe loss of pavement condition.*

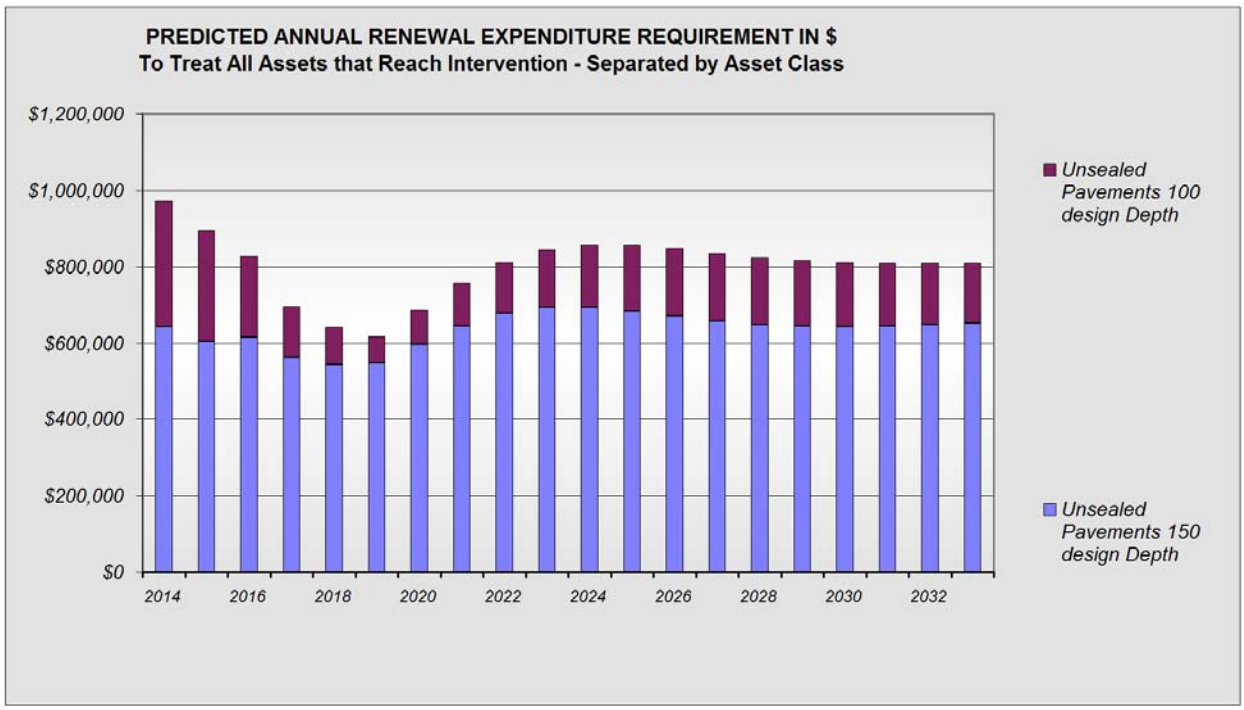


Fig. U4 Predicted Renewal Demand to treat all assets that reach the Intervention level in future years

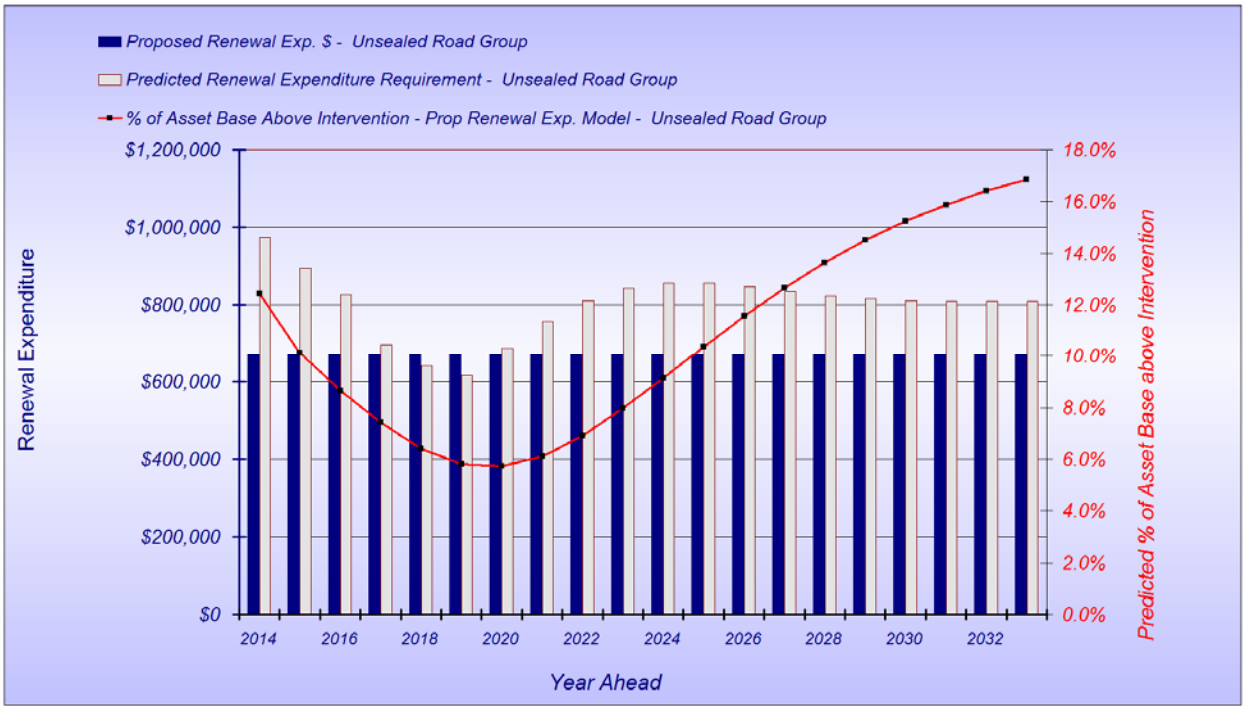


Fig. U5 Future Predicted Condition Based on Continuation of Present Renewal Expenditure

Figures U4 provides a profile of the predicted renewal demand to treat all assets that reach the intervention level through the degradation process. Figure U5 plots the extent of the asset base that is predicted to rise above the intervention level based upon the continuation of the present level of renewal expenditure (in blue bars). It also plots the predicted renewal demand within the grey bars.

*Capital renewal demand is presently sitting at $974,000 pa which also represents the predicted peak demand over the next 20-years. Present renewal expenditure at and average level of $670,000 pa is below this level but as can be seen from figure U5 renewal demand is predicted to fall away steeply over the next 7-years and if the planned expenditure were to be maintained the extent of over intervention is predicted to fall for the next 7-years.*

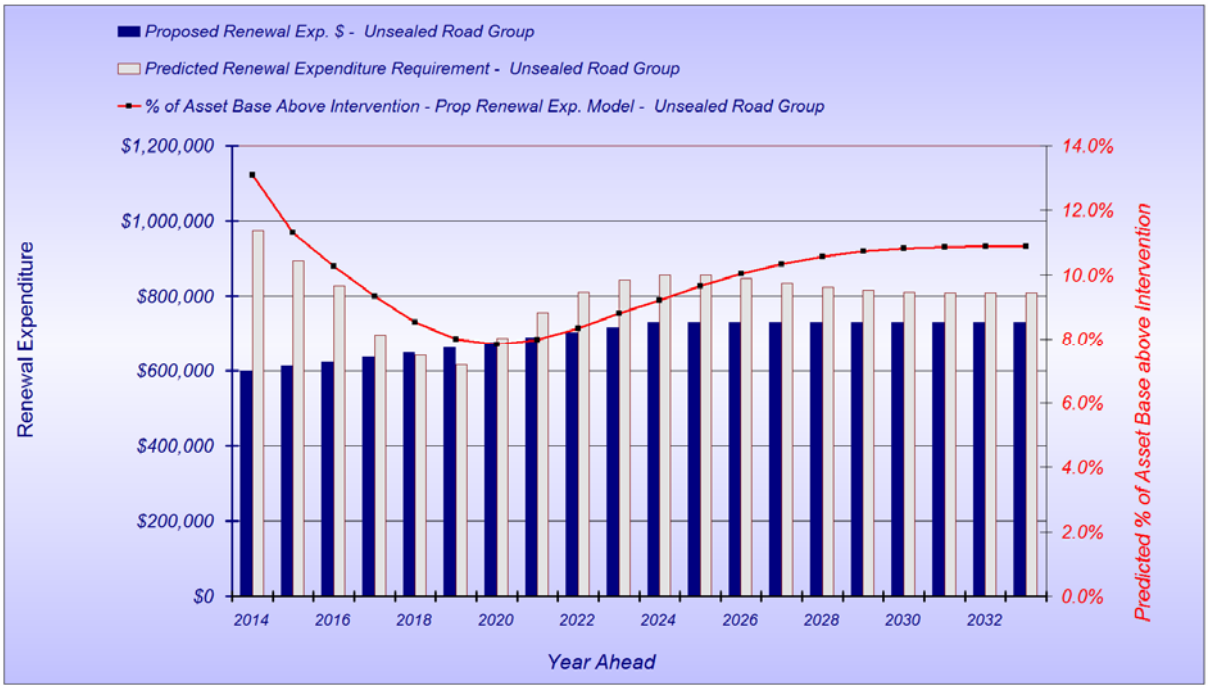


Fig. U6 Required Funding profile to deliver same extent of over intervention assets after 10-years

The Moloney financial modelling software has the capacity to develop a recommended renewal funding profile that will deliver a nominated extent of the asset base to be over the selected intervention level within a selected time frame. A global outcome can be set for the whole roads group. In this way the model is used to allocate funding based on need rather than the historic spend. See the notes below Figure P6 above for more detail. There are 3 variables that are input and in most cases the same 3 variables are used for all of the road sub assets, however this can be varies if required.

*In the funding scenario delivered within U6 above the following criteria were set:*

- *Desired extent of over intervention assets* *-Same as present level. 16.73%*
- *Time to achieve this* *- 20 - Years*
- *Adopted annual percentage increase in renewal expenditure* *- 3.0%*

Figure U6 represents the minimum annual renewal expenditure to achieve a desired condition outcome within a nominated time frame. This modelling approach is designed to deliver an achievable outcome that accepts a small percentage of over intervention assets as remaining and hence often delivers far lower expenditure profiles than the U4 graph where all over intervention assets have to be treated.

*The unsealed pavement assets are in good overall condition with around 43% of the assets in condition zero (having the required depth of imported pavement material). There does remain a question concerning what the design depth of imported pavement material should be, but clearly average pavement depth has increased for each of the 4 surveys since 2005. Thus pavement material is being placed at a higher rate than it is being lost (see Figure U3A).*

*Modelling suggests that funding could be lowered on this asset class but there remains some concern that the design depth should be lifted and it is considered that renewal funding levels should not be set below $600,000 pa.*

## 7.3 Unsealed Road Pavement Summary

*The Unsealed road pavement assets were found to be in good condition with a measured increase in the depth of imported pavement material since 2012. But average pavement depth at 102 mm for the high trafficked roads is not considered to be at a high standard given the expansive clay subgrades. Average pavement depth has been continually increasing since the first survey in 2005, but it is suspected that design depth needs to be increased, which in turn would result in a deterioration of the recorded pavement condition.*

*It is recommended that renewal expenditure on the unsealed pavements be set at $600,000 pa next year and then raised by 3.0% compounding for the next 10-years*

# Section 8: Kerb Asset Analysis

This section will deal with the kerb assets. The first two figures relate to asset condition and how condition has changed since the last survey while the third provides a condition comparison with other council districts.

## 8.1 Condition and Performance Indicators for Kerb Assets

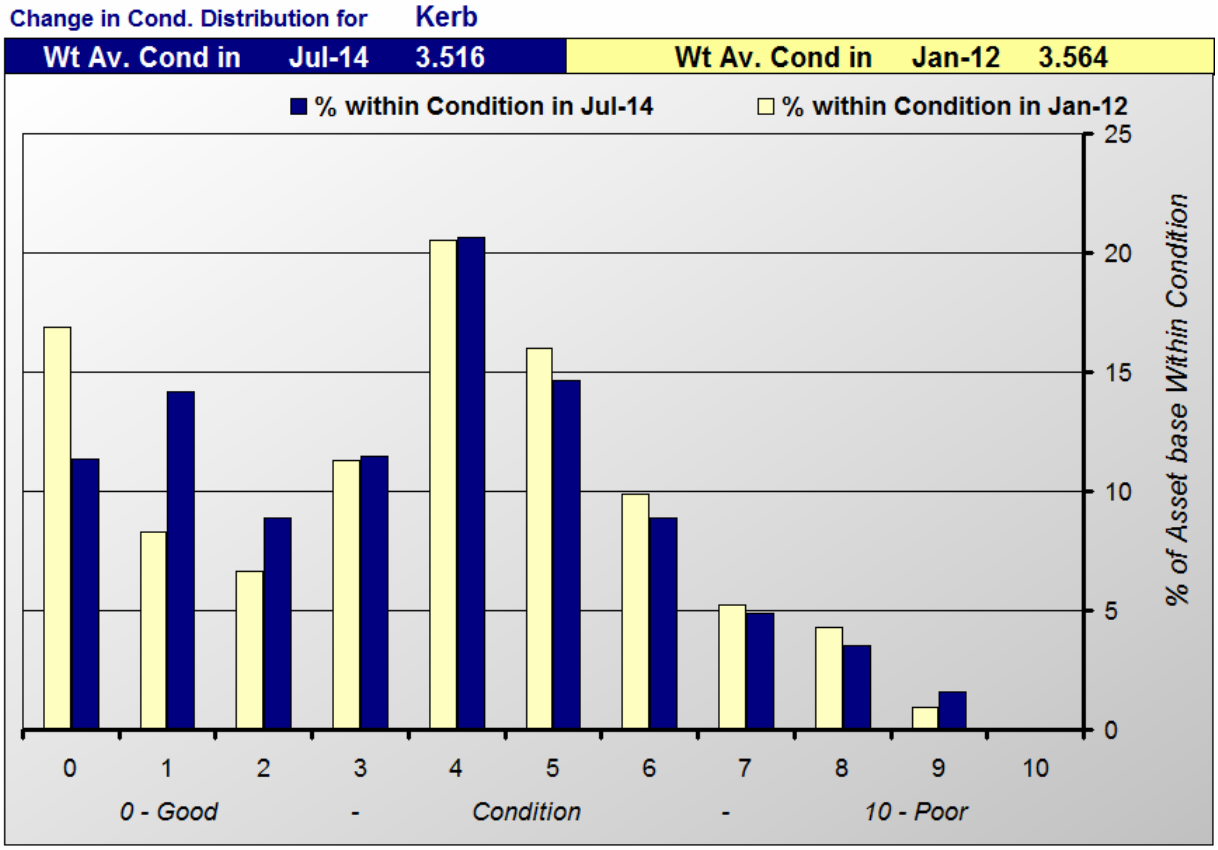


Fig. K1 Condition Distribution Comparison Graph – Between Surveys

| Key Cond. Indic. No. | Kerb Condition Indicator | Figures from Last Survey in Jan-12 | Figures from Current Survey in Jul-14 | Change between Surveys New Minus Old | % Change Between Surveys | Better or Worse Since last Survey |
|---|---|---|---|---|---|---|
| 1 | Weighted Average Asset Condition | 3.564 | 3.516 | 0.048 | 1.3 | Better |
| 2 | % of Urgent Failures | 6.402 | 7.414 | -1.012 | -15.8 | Worse |
| 3 | % of Other Failures | 27.884 | 23.433 | 4.450 | 16.0 | Better |
| 4 | % of Asset Base above Condition 6 | 20.391 | 18.825 | 1.566 | 7.7 | Better |
| 5 | % of Asset Base above Condition 7 | 10.483 | 9.934 | 0.549 | 5.2 | Better |
| 6 | % of Asset Base above Condition 8 | 5.227 | 5.073 | 0.155 | 3.0 | Better |
| 7 | % of Asset Base above Condition 9 | 0.935 | 1.565 | -0.630 | -67.4 | Worse |

| Renewal Demand Being Met For: | % of Long Term Demand Being Met |
|---|---|
| Kerb Asset Group | 82 |

Fig. K2 Condition Change since last survey & Renewal demand being met

The above 2 figures provide details of how the Kerb asset condition has changed since the last survey. Figure K1 details the condition distribution for each survey along with the first of the key indicators the "weighted average asset condition".

Figure K2 contains 7 of the eight key asset condition indicators that are relevant to this asset set. For a detailed explanation of the key condition indicators refer to section 5.1 above.

*The kerbs were found to be in poor overall condition with condition change since 2012 presenting somewhat of a mixed picture. Weighted average asset condition had improved but the extent of poor condition assets at and above condition 9 had increased by 67% and the extent of urgent isolated failures by 15.8%. So in aggregate asset condition had probably declined.*

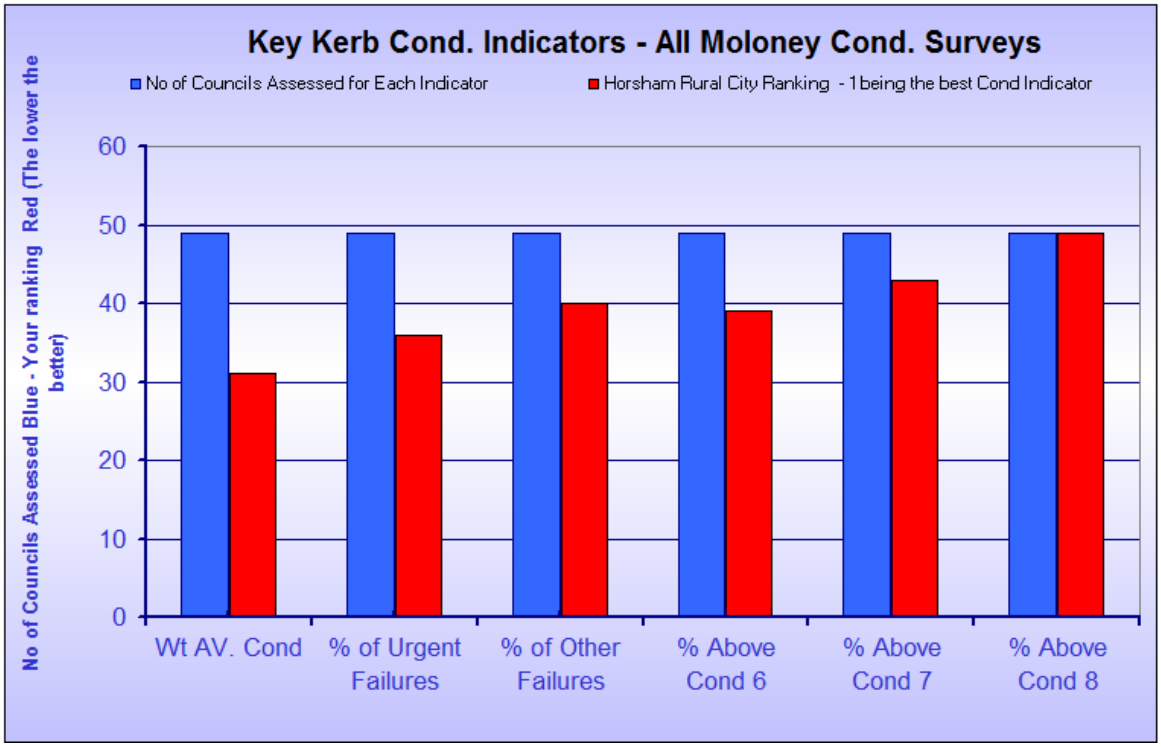


Fig. K3 Key Condition Indicators as Compared with other Councils surveyed

The seven key condition indicators as detailed in figure K3 provide council with a comparison of where they sit in relation to other councils assessed by MAMS. The graph ranks the key condition indicators against those of all other councils assessed by MAMS. The lower the red bar the better the condition indicator. The blue bars represent the total number of councils assessed. The red bar at 1 equates to the best condition indicator encountered. The red bar level with the blue, represents the worst condition indicator.

*The comparison with other council districts indicates that Horsham has relatively very poor condition kerbs with the highest extent of poor condition assets at and above condition 8 ever encountered. This should not be taken as a criticism but is rather a reflection of the affect of the expansive clay subgrades on the assets.*

## 8.2 Kerb Financial Modelling Analysis

The Kerb assets will be modelled as a single asset group. The table below contains a list of the basic Modelling parameters used. Note that the useable life is the life to intervention, an asset should not remain in service after that point.

### 8.2.1 Kerb Assets – Selection of Re-treatment Intervention Level

The point at which you choose to intervene to renew or replace an asset will have a big impact in the predicted future renewal demand. The intervention level can be seen as the level of service associated with the asset set. High intervention level equates to low level of service while low intervention level relates to a high level of service.

Detailed below are a series of photographs illustrating various kerb condition ratings. They do not cover the complete condition range but hopefully will provide some guidance to the selection of re-treatment intervention level.

| | |
|---|---|
|  |  |
| Cond. 3 Old But only Minor loss of shape & movement | Cond. 6 Movement and Concrete breakdown |
|  |  |
| Cond. 8 Large movement and holding of water | Cond. 9 Extreme movement and lack of Function |

It is very difficult to cover kerb condition in such a limited range of photographs but hopefully they will provide some idea of asset condition in the 7 – 9 condition range where most interventions will take place. Kerbs can be within this condition range for a number of different reasons and the photos will cover only a limited range of situations. They should be considered as a typical situation and not the only situation for that condition rating.

### 8.2.2 Kerb Assets – Financial Modeling Results

| Modelling Parameter | All Kerbs |
|---|---|
| **Asset Quantity in lineal metres** | 218,204 |
| **Unit Renewal Rate** | $112.00 |
| **Total Asset Group Renewal Cost** | $24,438,848 |
| **Annual Renewal Exp.** | $352,700 |
| **Retreat. Intervention Condition** | 9.0 |
| **Life to Condition 10 in Years** | 100.0 |
| **Life in years to Intervention** | 99.3 |

Fig. K4A – Summary of Modelling Input Parameters for Kerb Assets

*Kerbs have been modelled as a single asset set as detailed in Fig K4A above.*

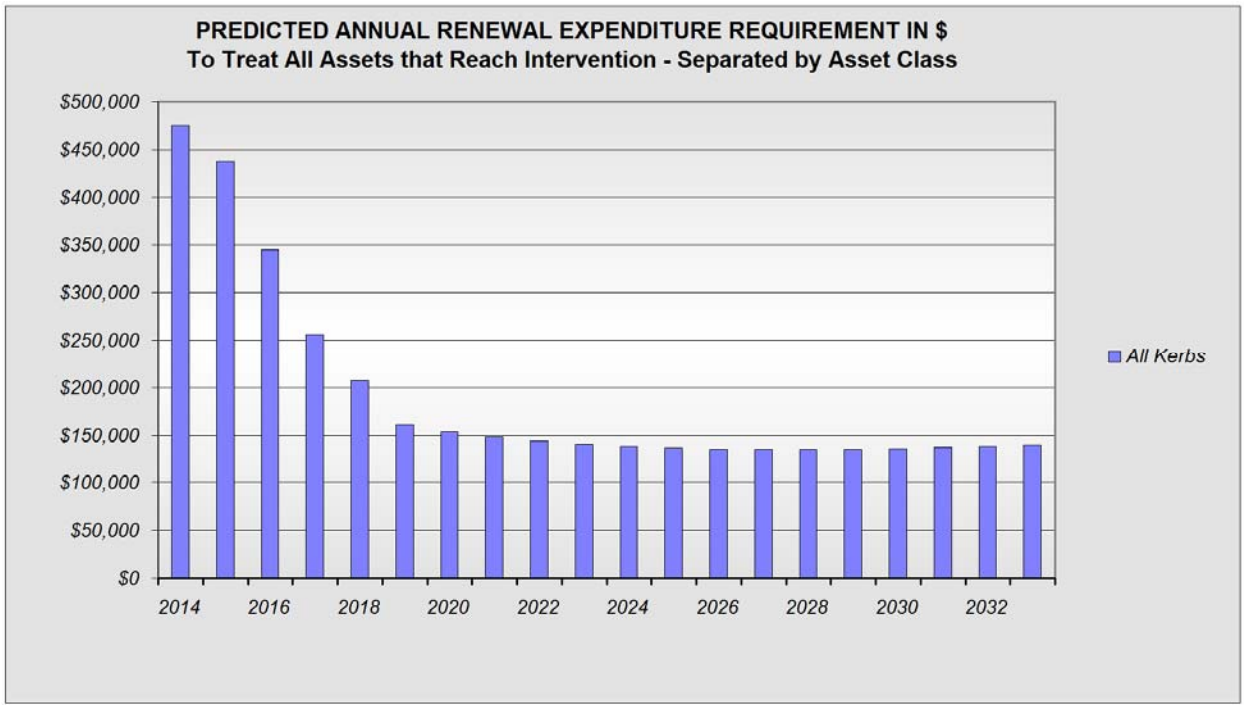


Fig. K4 Predicted Renewal Demand to treat all assets that reach the Intervention level in future years

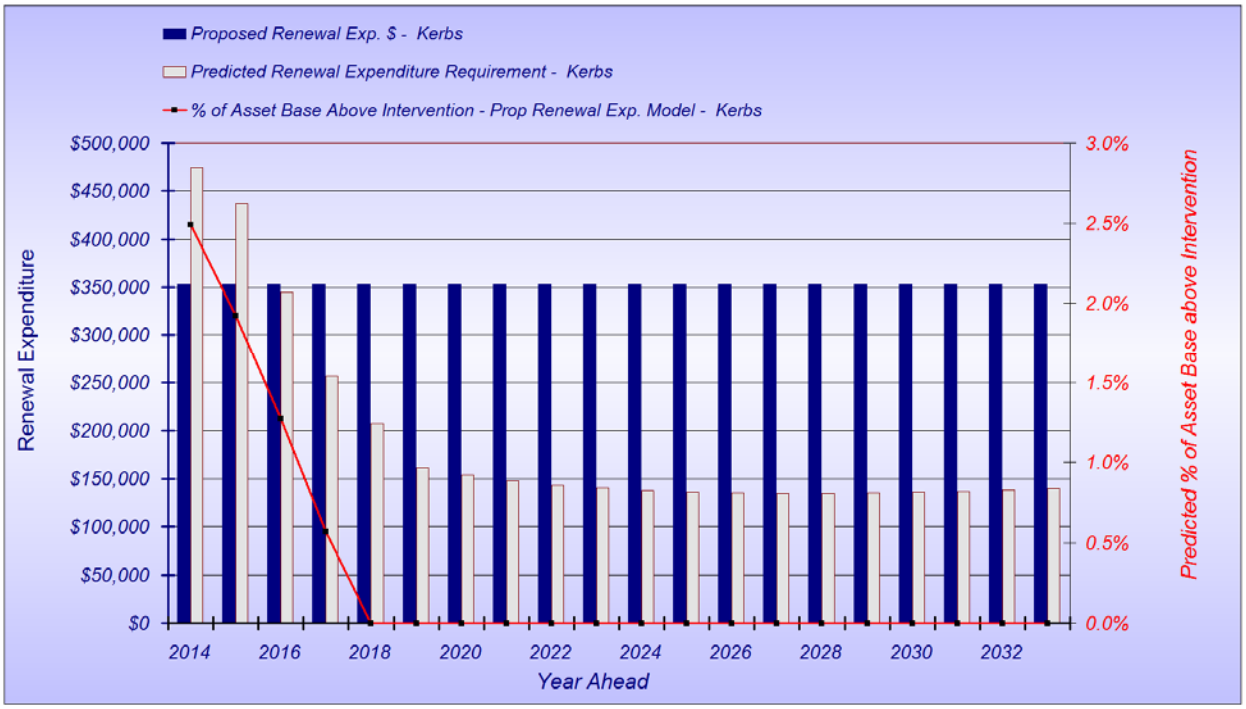


Fig. K5 Future Predicted Condition Based on Continuation of Present Renewal Expenditure

Figures K4 provides a profile of the predicted renewal demand to treat all assets that reach the intervention level through the degradation process. Figure K5 plots the extent of the asset base that is predicted to rise above the intervention level based upon the continuation of the present level of renewal expenditure (in blue bars). It also plots the predicted renewal demand to treat all over intervention assets within the grey bars.

*Capital renewal demand is presently sitting at around $475,000 pa with this also representing the peak demand over the next 20-years. The present renewal expenditure at $353,000 pa is below this level, but overall demand is predicted to fall away over the next 10-years and if the present level of funding is maintained the model predicts that all over intervention assets will be eliminated within 5-years.*

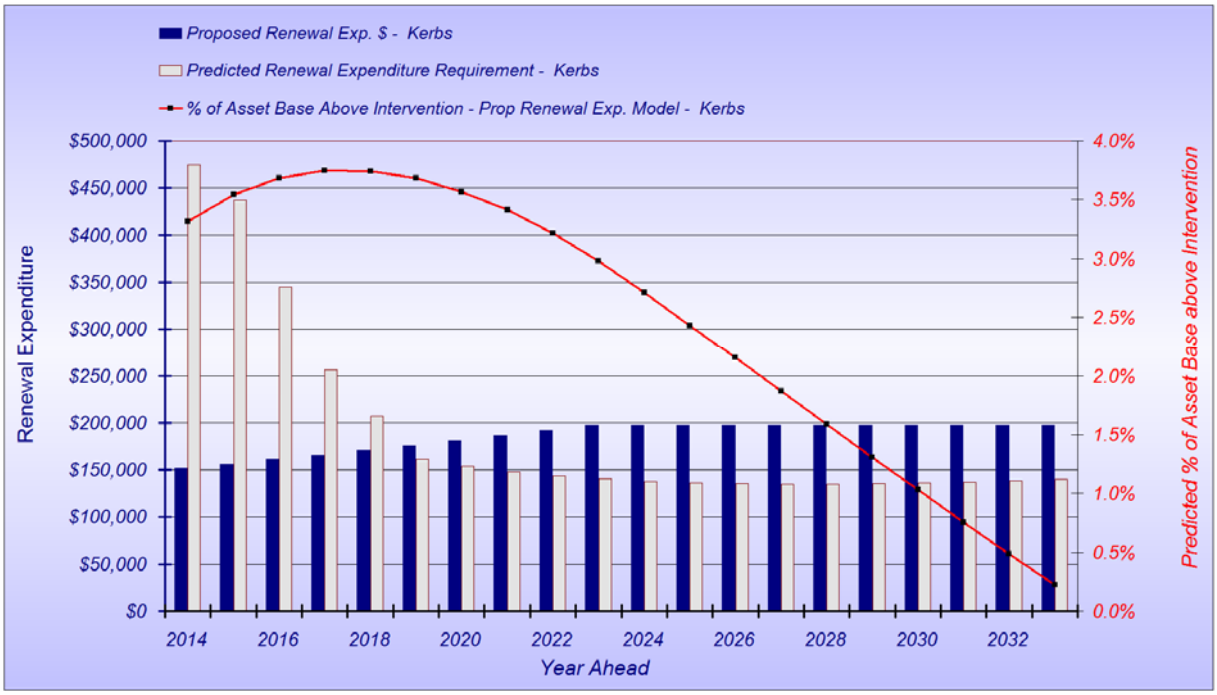


Fig. K6 Renewal funding profile to achieve 0 over intervention within 20 years

The Moloney financial modelling software has the capacity to develop a recommended renewal funding profile that will deliver a nominated extent of the asset base to be over the selected intervention level within a selected time frame. A global outcome can be set for the whole roads group. In this way the model is used to allocate funding based on need rather than the historic spend. See the notes below Figure P6 above for more detail. There are 3 variables that are input and in most cases the same 3 variables are used for all of the road sub assets, however this can be varies if required.

*In the funding scenario delivered within K6 above the following criteria were set:*

- *Desired extent of over intervention assets* *- Same as present level. 2.98%*
- *Time to achieve this* *- 10 - Years*
- *Adopted annual percentage increase in renewal expenditure* *- 3.0%*

Figure K6 represents the minimum annual renewal expenditure to achieve a desired condition outcome within a nominated time frame. This modelling approach is designed to deliver an achievable outcome that accepts a small percentage of over intervention assets as remaining and hence often delivers far lower expenditure profiles than the K4 graph where all over intervention assets have to be treated.

*Figure K6 indicates that a commencing renewal expenditure of $150,000 pa combined with an annual increase of 3.0% pa for 10-years will deliver the same level of over intervention assets as presently exists after 10-years. But it must be said that 2.98% at and above condition 9 is a very high by industry standards.*

*Figure K6 also indicates, within the grey bars, that there is a heavy backlog of over intervention assets. But once that is dealt with the ongoing demand flattens out to around $150,000 pa. It really all comes down to how quickly the present backlog needs to be dealt with. Figure K5 indicates that if the planned expenditure level of $350,000 pa in implemented then the backlog will be eliminated within 5-years.*

*Our recommended funding profile was developed to optimise overall funding and it was set to deliver the same extent of over intervention assets for each asset class after 10-years. Hence the kerb backlog was not addressed and the recommended funding profile was far lower. Council may well choose to eliminate the backlog and spend at $350,000 pa for the next 5-year. There is no issue with this strategy it all comes down to priorities and planned works programs as kerbs will tend to be replaces in conjunction with street reconstruction work.*

## 8.3 Kerb Summary

*The Kerb assets were found to be in poor overall condition when compare to the 45 councils assessed by MAMS and has generally declined in condition since 2012.*

*It is recommended that the minimum renewal expenditure on the kerb assets be set at $150,000 pa next year and then raised by 3.0% compounding for the next 10-years. However, it could well be that a higher level of renewal expenditure is justified based upon matching this work to pavement reconstruction or to simply improve the aesthetic of the city.*

# Section 9: Footpath and bike path Asset Analysis

This section will deal with the footpath and bike path assets. The first two figures relate to asset condition and how condition has changed since the last survey while the third provides a condition comparison with other council districts assessed by MAMS.

## 9.1 Condition and Performance Indicators for Footpath Assets

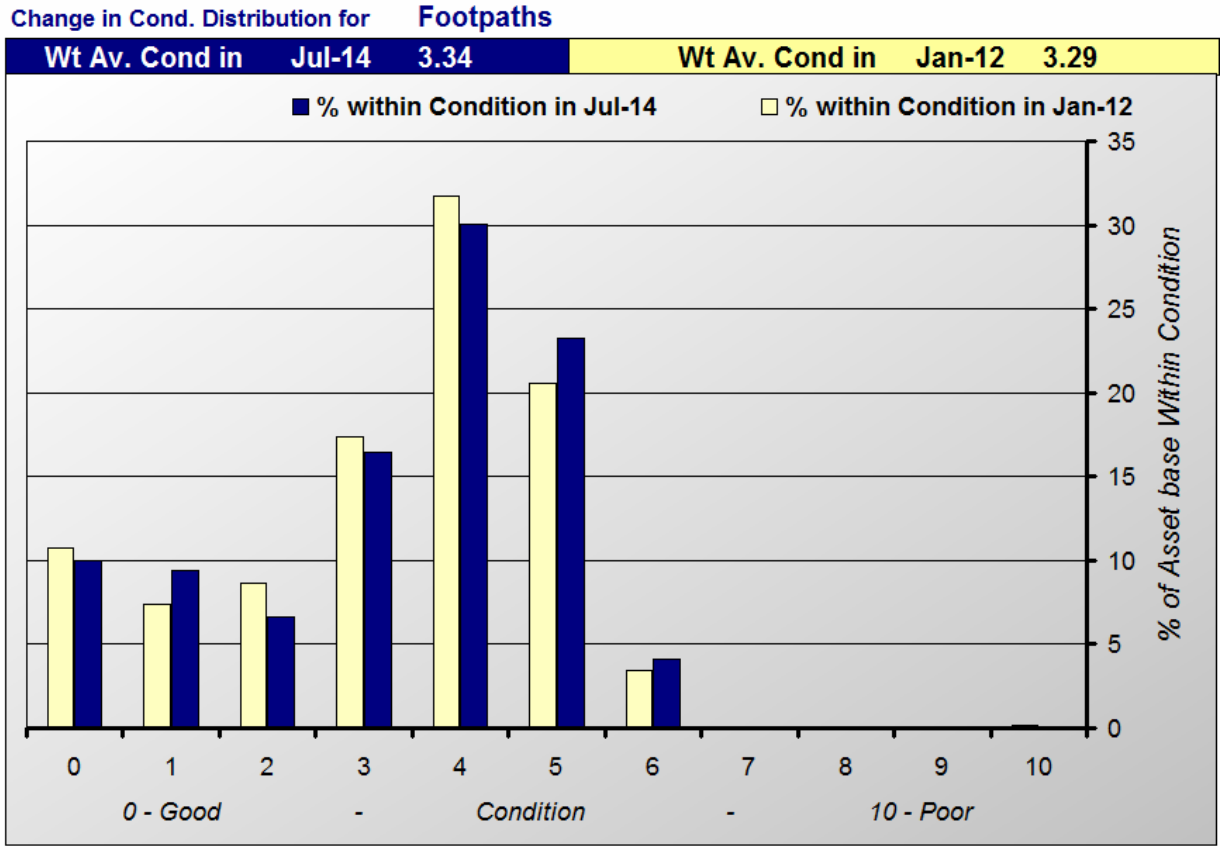


Fig. F1 Condition Distribution Comparison Graph – Between Surveys

| Key Cond. Indic. No. | Footpath Condition Indicator | Figures from Last Survey in Jan-12 | Figures from Current Survey in Jul-14 | Actual Change Negative is a Condition Decline | % Change Between Surveys | Better or Worse Since last Survey |
|---|---|---|---|---|---|---|
| 1 | Weighted Average Asset Condition | 3.287 | 3.345 | -0.06 | -1.8 | Worse |
| 2 | % of Urgent Failures - Not Assessed | 0.000 | 0.000 | N/A | N/A | Same |
| 3 | % of Other Failures - Not Assessed | 0.000 | 0.000 | N/A | N/A | Same |
| 2 | % of Asset Base above Condition 6 | 3.657 | 4.276 | -0.62 | -16.9 | Worse |
| 3 | % of Asset Base above Condition 7 | 0.246 | 0.167 | 0.08 | 31.9 | Better |
| 4 | % of Asset Base above Condition 8 | 0.241 | 0.167 | 0.07 | 30.6 | Better |
| 5 | % of Asset Base above Condition 9 | 0.241 | 0.163 | 0.08 | 32.3 | Better |

| Renewal Demand Being Met For: | % of Long Term Demand Being Met |
|---|---|
| Footpath Asset Group | 58 |

Fig. F2 Condition Change since last survey & Renewal demand being met

The above 2 figures provide details of how Footpath asset condition has changed since the last survey. Figure F1 details the condition distribution for each survey along with the first of the key indicators the "weighted average asset condition".

Figure F2 contains 7 of the eight key asset condition indicators that are relevant to this asset set. For a detailed explanation of the key condition indicators refer to section 5.1 above.

*The footpath assets were found to be in fair overall condition and had experienced an improvement in the extent of poor condition assets at and above condition 7 but a small decline in the weighted average asset condition. Isolated footpath failures were not assessed as part of this condition survey.*

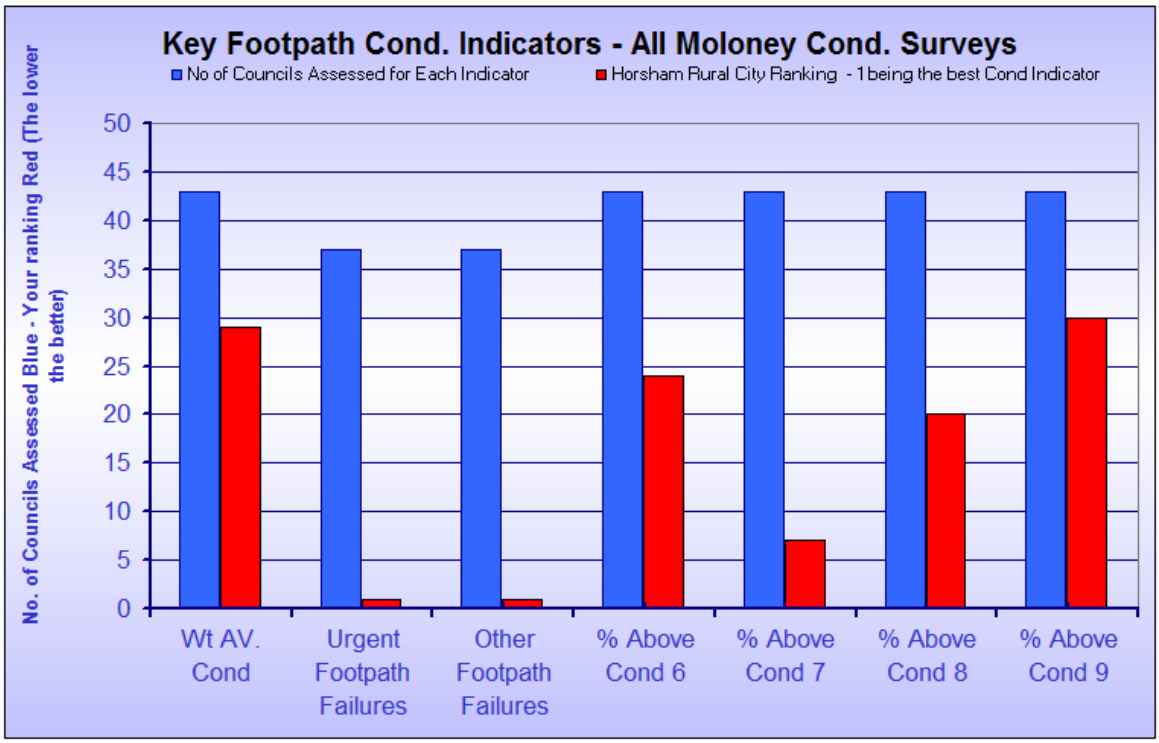


Fig. F3 Key Condition Indicators as Compared with other Councils surveyed

The seven key condition indicators as detailed in figure F3 provide council with a comparison of where they sit in relation to other councils assessed by MAMS. The graph ranks the key condition indicators against those of all other councils assessed by MAMS. The lower the red bar the better the condition indicator. The blue bars represent the total number of councils assessed. The red bar at 1 equates to the best condition indicator encountered. The red bar level with the blue, represents the worst condition indicator.

*The footpath assets were found to be in only fair overall condition but given the nature of the expansive clay subgrades this is considered to be a reasonable outcome.*

## 9.2 Footpath Financial Modelling Analysis

The Footpath assets will be modelled in two groups with the results aggregated here in one presentation. The table below contains a list of the basic Modelling parameters used. Note that the useable life is the life to intervention, an asset should not remain in service after that point.

### 9.2.1 Footpath Assets – Selection of Re-treatment Intervention Level

The point at which you choose to intervene to renew or replace an asset will have a big impact in the predicted future renewal demand. The intervention level can be seen as the level of service associated with the asset set. High intervention level equates to low level of service while low intervention level relates to a high level of service.

Detailed below are a series of photographs illustrating various sealed pathway condition ratings. They do not cover the complete condition range but hopefully will provide some guidance to the selection of re-treatment intervention level.

Cond. 0 – 1 Excellent condition

Cond. 6 Extensive movement

Cond. 7 Extensive cracking and movement

Cond. 9 Very poor cond. – Cracking and breaking up

It is very difficult to cover footpath condition in such a limited range of photographs but hopefully they will provide some idea of asset condition in the 7 – 9 condition range where most interventions will take place. Footpaths can be within this condition range for a number of different reasons and the photos will cover only a limited set of situations. They should be considered as a typical situation and not the only situation for that condition rating.

### 9.2.2 Footpath Assets – Financial Modeling Results

| Modelling Parameter | Concrete Footpaths | Brick & Pavers Footpaths | Sealed Footpaths | Crushed Rock Footpaths | Sealed Bike Paths | Gravel Bike Paths |
|---|---|---|---|---|---|---|
| Asset Quantity in sqm | 234,395 | 15,999 | 4,846 | 5,637 | 49,646 | 106,075 |
| Unit Renewal Rate | 90.0 | 111.3 | 17.0 | 12.0 | 17.0 | 12.0 |
| Total Asset Group Renewal Cost | $21,100,000 | $1,780,000 | $82,382 | $67,644 | $843,982 | $1,272,900 |
| Annual Renewal Exp. | $202,000 | $28,000 | $0 | $0 | $14,000 | $30,000 |
| Retreat. Intervention Condition | 7 | 7 | 7 | 7 | 7 | 7 |
| Life to Condition 10 in Years | 85 | 63 | 33 | 15 | 16 | 11 |
| Life in years to Intervention | 75 | 56 | 28 | 14 | 15 | 10 |

Fig. F4A – Summary of Modelling Input Parameters for Footpath Assets

*The footpath - bike path sub asset set has been modelled in 6 categories as detailed in figure F4A above.*

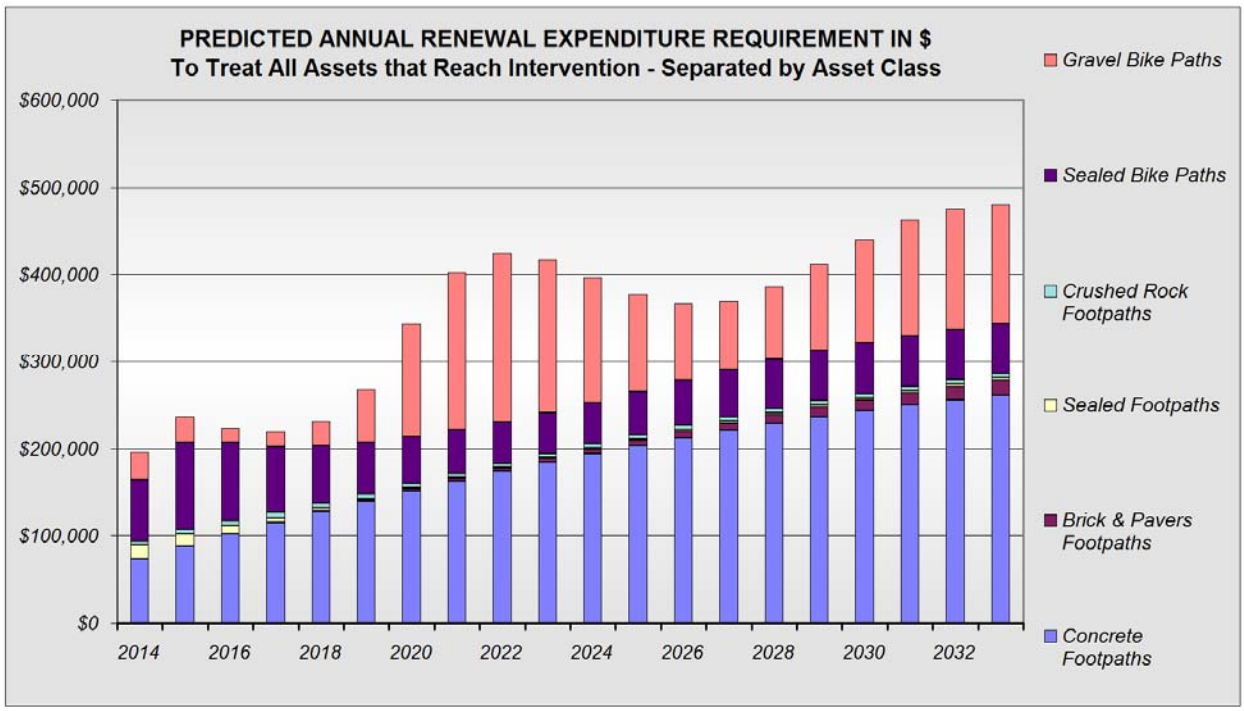


Fig. F4 Predicted Renewal Demand to treat all assets that reach the Intervention level in future years

Figures F4 provides a profile of the predicted renewal demand to treat all assets that reach the adopted retreatment intervention level through the degradation process over the next 10-years. It splits the results up into each separately modelled data set if more than one data set has been modelled to produce the overall results. It represents the ideal funding scenario if funding is not limited.

*Total predicted renewal demand is sitting at $196,000 pa with the peak demand over the next 20-years estimated at $480,000 pa in the year 2033.*

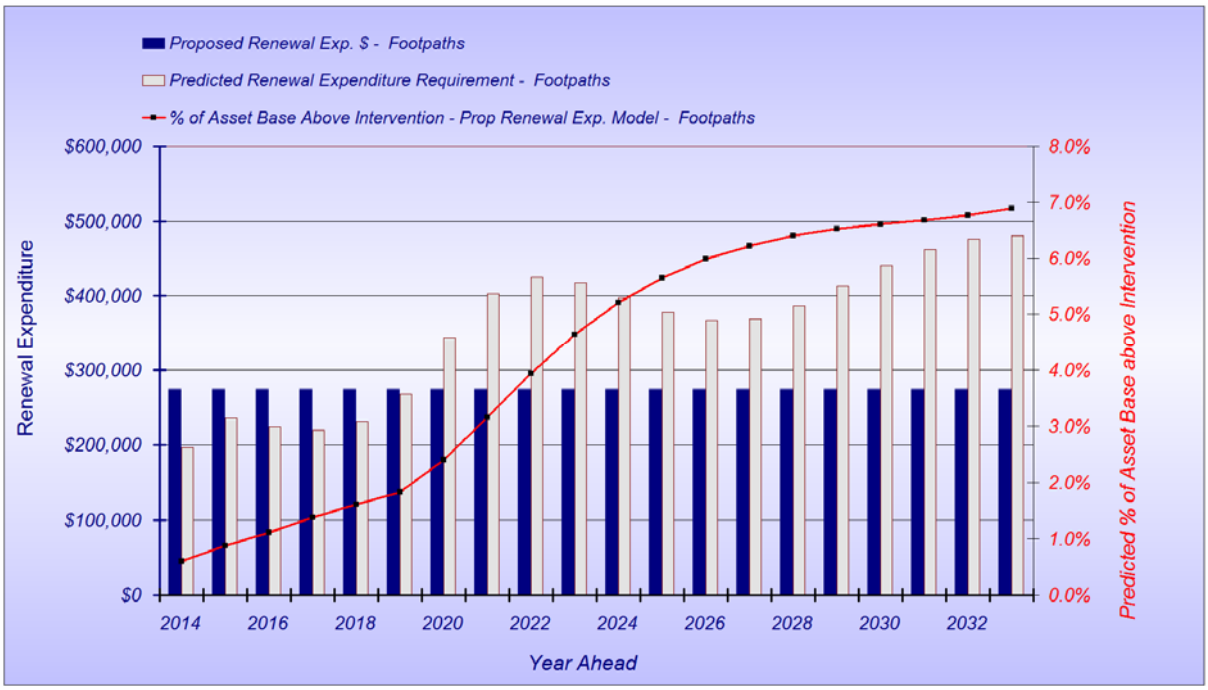


Fig. F5 Future Predicted Condition Based on Continuation of Present Renewal Expenditure

Figure F5 plots the extent of the asset base that is predicted to rise above the intervention level (red line), based upon the continuation of the present level of renewal expenditure (blue bars) or the planned level over the next 10-years. It also plots the total predicted renewal demand (grey bars), which is the same total annual figure as detailed within F4 above.

*The present renewal expenditure level of $274,000 pa is higher than the predicted present renewal demand. However, renewal demand is predicted to rise steadily over the next 10-years and renewal expenditure will need to be lifted to match this.*

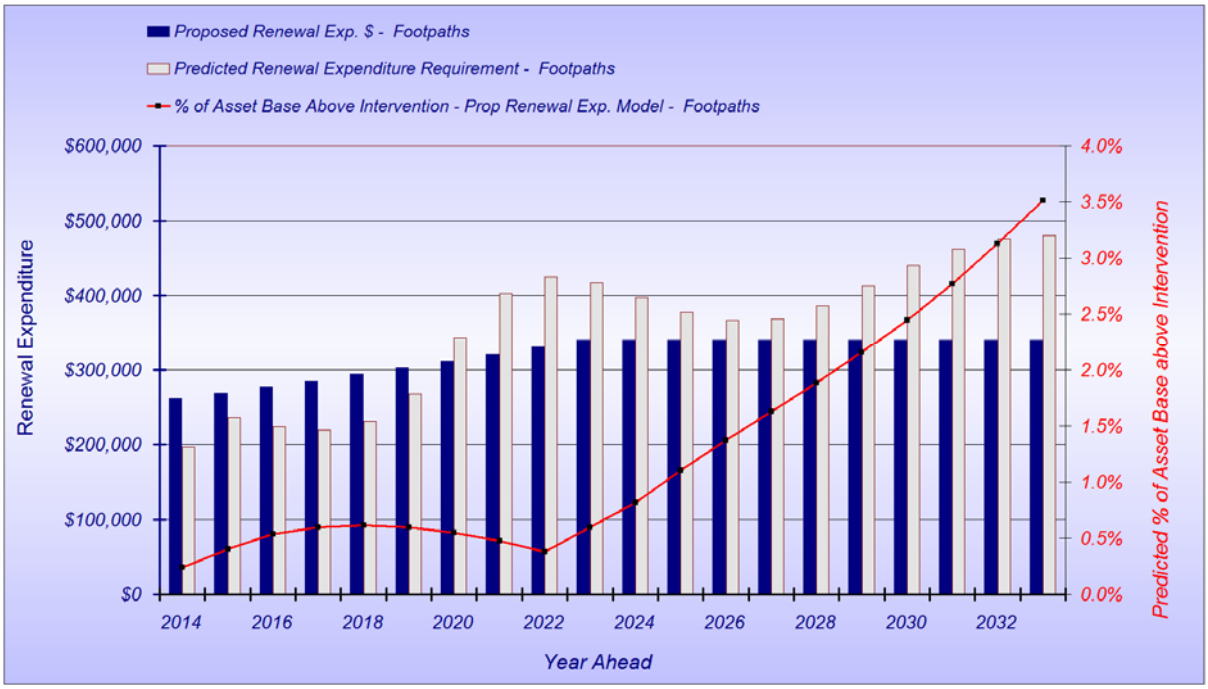


Fig. F6 Recommended renewal funding profile for next 10 - 20 years

The Moloney financial modelling software has the capacity to develop a recommended renewal funding profile that will deliver a nominated extent of the asset base to be over the selected intervention level within a selected time frame. A global outcome can be set for the whole roads group. In this way the model is used to allocate funding based on need rather than the historic spend. See the notes below Figure P6 above for more detail. There are 3 variables that are input and in most cases the same 3 variables are used for all of the road sub assets, however this can be varies if required.

*In the funding scenario delivered within F6 above the following criteria were set:*

- *Desired extent of over intervention assets - Same as present level. 0.57%*
- *Time to achieve this - 10 - Years*
- *Adopted annual percentage increase in renewal expenditure - 3.0%*

Figure F6 represents the minimum annual renewal expenditure to achieve a desired condition outcome within a nominated time frame. This modelling approach is designed to deliver an achievable outcome that accepts a small percentage of over intervention assets as remaining and hence often delivers far lower expenditure profiles than the F4 graph where all over intervention assets have to be treated.

*Modelling has delivered a recommended commencing renewal expenditure level of $260,000 pa with an annual 3.0% increase for the next 10-years.*

## 9.3 Footpath Summary

*The footpath assets were found to be in fair overall condition with the extent of poor condition assets having dropped quite measurably since the last survey*

*It is recommended that the renewal expenditure on the footpath assets be set at $260,000 pa next year and then raised by 3.0% compounding for the next 10-years*

# Section 10: Aggregated Modelling Results for Road Network

Accurate network modelling within the Moloney system depends upon ten independent Modelling variables. Council now has a good handle on most of these variables and the Modelling results are becoming quite meaningful. Modelling has been based upon the ongoing rehabilitation of the existing asset base only and does not allow for an expanding asset base. Any proposed expenditure on the upgrading of existing assets must be added to the figures delivered within this report.

The Moloney System allows for the Modelling of individual asset sets or sub sets and to then combine these results into a single aggregated report. This section will deal with the aggregated results of the individual sub asset Modelling operations undertaken in the sub asset sections above. It will deliver a single overall Modelling outcome for the whole roads group.

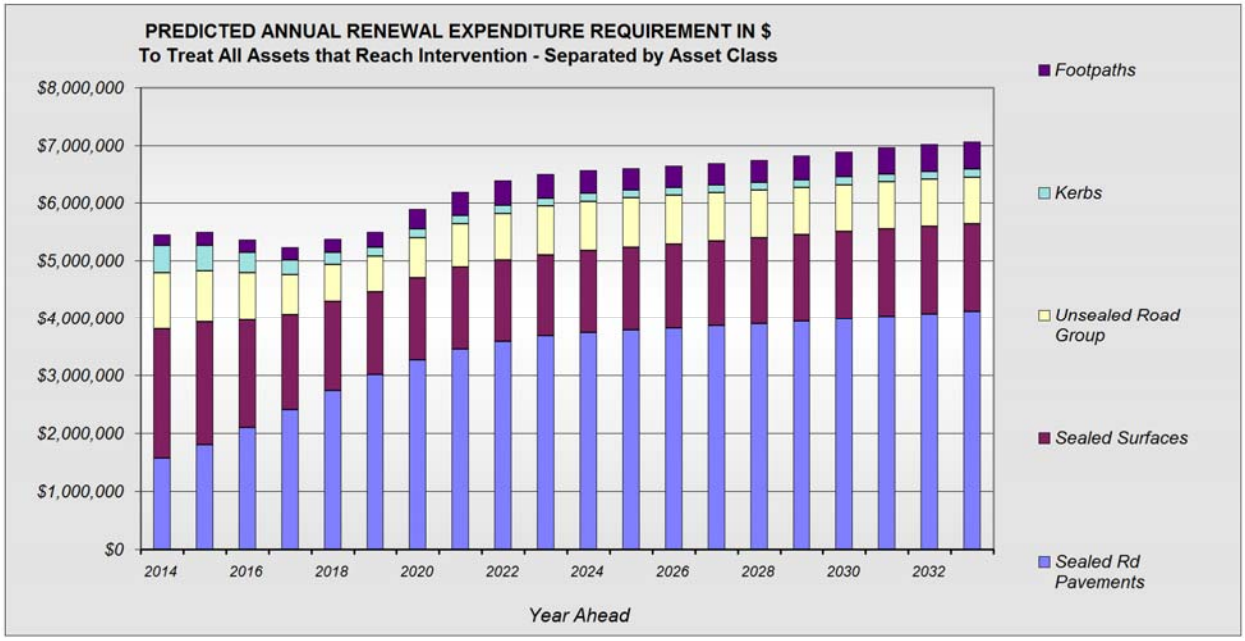


Fig Agg 1 Predicted Renewal Demand to treat all assets that reach the Intervention level in future years

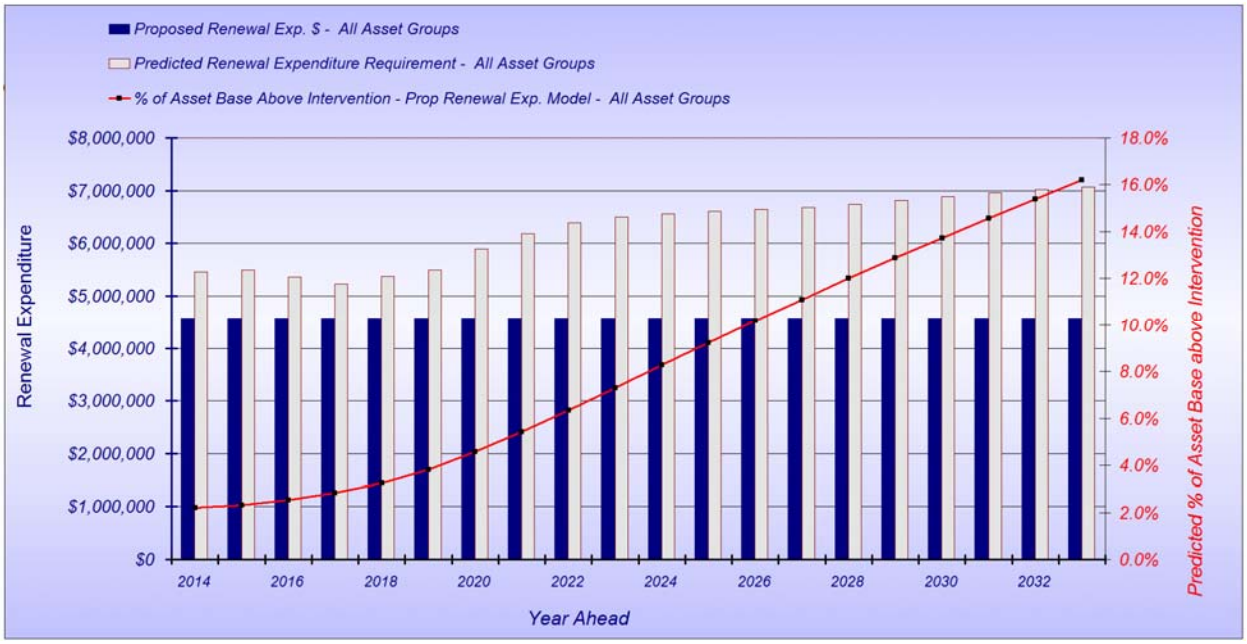


Fig Agg 2 – Future Predicted Condition Based on Continuation of Present Renewal Expenditure

Modelling predicts the present capital renewal demand to treat all over intervention assets at $5,456,000 pa with the peak over the modelling period of $7,066,000 pa in the year 2033

Figures Agg 2 plots the extent of the asset base that is predicted to rise above the intervention level based upon the continuation of the present renewal expenditure profile within the blue bars. It also plots the predicted renewal demand within the grey bars for comparison purposes.

*The present extent of over intervention assets (backlog) on the whole roads group is estimated at $6,524,768, which represents 2.41% of the network. This is an acceptable figure by industry standards, but is heading towards the generally accepted upper limit of 3.0% - 3.5% and as such should not be permitted to rise much further.*

*Figure Agg 2 indicates that with the continuation of the present total level of renewal expenditure the extent of over intervention assets will rise to 8.2% within 10-years and 16.2% within 20-years. Total renewal funding levels simply must be lifted in the longer term.*

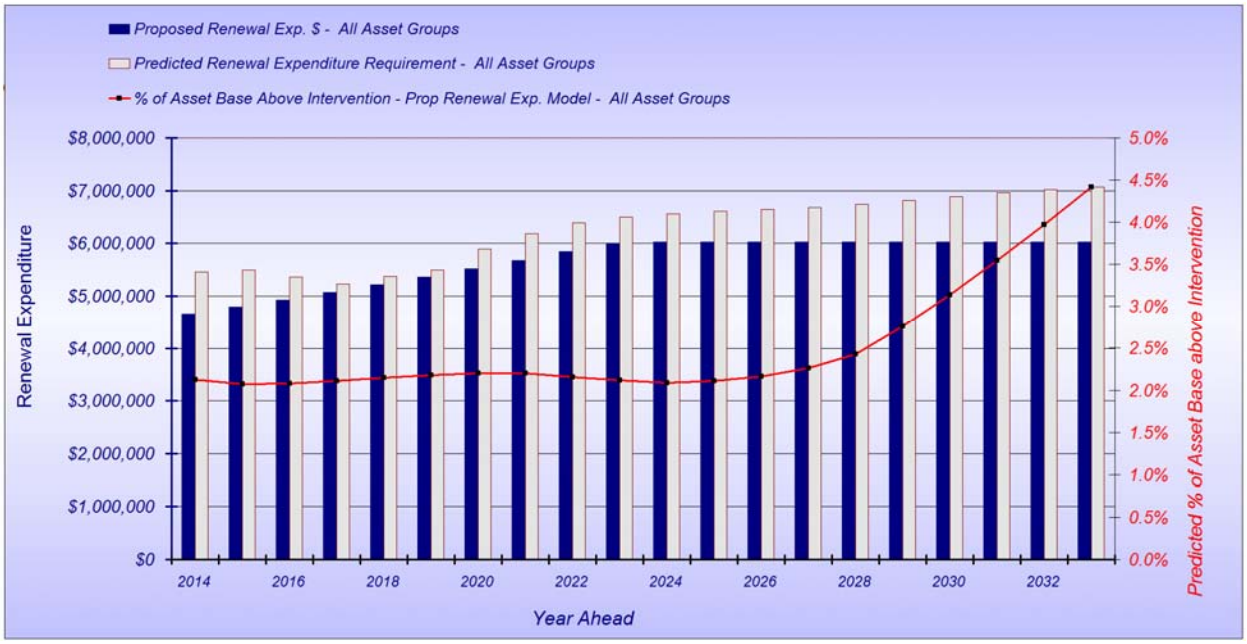


Fig Agg 3 – Recommended future funding profile with future predicted extent of over intervention assets

Fig Agg 3 comes from the same modelling process as Agg 2. Accept that here a recommended total renewal expenditure profile has been developed that will achieve a desired condition outcome within a designated time frame

The Moloney financial modelling software has the capacity to develop a recommended renewal funding profile that will deliver a nominated extent of the asset base to be over the selected intervention level within a selected time frame. A global outcome can be set for the whole roads group. In this way the model is used to allocate funding across all road sub assets based on need rather than historic expenditure. There are 3 variables that are input and in most cases the same 3 variables are used for all of the road sub assets, however this can be varies if required.

We normally attempt to commence the year one expenditure with council's present expenditure level (at a whole of roads group level). In this way we can deliver an achievable outcome. If additional funding is required then it will come as an annual percentage increase. If total funding is sufficient then there may be some reallocation between asset classes based on need.

*The three Variables used were the same for the whole roads group and are as detailed below:*

- *Desired extent of over intervention assets - Same as present level. 2.41%*
- *Time to achieve this - 10 - Years*
- *Adopted annual percentage increase in renewal expenditure - 3.0%*

*Figure Agg 3 has been developed through the Moloney model so that the extent of over intervention assets after 10-years is the same as the present level. This is considered to be a reasonable and realistic outcome.*

*The creation of the recommended future renewal funding levels is an iterative process through the model and it has been automated so that it can be run across all individual asset sets to deliver a single outcome for the whole roads group. In this case we were able to commence with a figure that was*

*$100,000 above the present renewal expenditure level and then lift it by 3.0% compounding for 10-years to deliver the same extent of over intervention assets as currently exists. To lower the extent of over intervention assets would cost more and conversely to accept a higher level would cost less. Scenarios with different inputs and outputs can be run and this is just one such scenario.*

Other scenarios can be run to achieve different outcomes on different time frames. The modelling function employed here is extremely versatile and it is strongly recommended that council spend the time to understand it and use it, as it will be a most valuable tool in the development of the 10-Year financial plan, not just for road assets but for all infrastructure assets.

| Sub Asset Description | Present total Annual Capital Renewal Expenditure | Recommended year 1 renewal funding with 3.0% annual increase for 10-Years | Annual Depreciation or Average Long term Annual Demand | Peak Capital Renewal Demand From Modelling | Predicted Year of Peak Demand | % of Annual Depreciation (consumption Rate) Being Met |
|---|---|---|---|---|---|---|
| Sealed Pavements | **$2,342,000** | **$2,420,000** | **$2,447,337** | $4,115,000 | 2033 | **96%** |
| Sealed Surfaces | **$933,600** | **$1,242,000** | **$2,149,768** | $2,243,000 | 2015 | **43%** |
| Unsealed Pavements | **$670,000** | **$600,000** | **$848,566** | $974,000 | 2015 | **79%** |
| Kerbs | **$353,000** | **$150,000** | **$431,511** | $475,000 | 2015 | **82%** |
| Footpaths | **$274,000** | **$260,000** | **$474,623** | $480,000 | 2033 | **58%** |
| Totals | **$4,572,600** | **$4,672,000** | **$6,351,806** | $7,066,000 | 2033 | **72%** |

Fig Agg 4 – Summary Table of Current & Required Renewal Expenditure Levels

Figure Agg 4 provides an alternative way of comparing the renewal demand with the present renewal expenditure levels. The key figures within the table are located in the two far right columns and represent the percentage of the renewal demand that is being met.

*Horsham Rural City is currently funding 72% of the long-term average renewal demand (depreciation). The green shaded cells contain the recommended average funding level for the next 10-years and come from the modelling work in Agg 3 above.*

*Peter Moloney MIEAust*

Moloney Asset Management Systems

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For a detailed Explanation of the Moloney Model its assumptions and operations please refer to the document “Model All Explanation”. This document can be obtained from our web site without the need to log on as a user.

Horsham Rural City Council urban rural balance

# ASSET MANAGEMENT PLAN

# PART B - ROADS

## Document Control

| Rev | Version | Date | Details | Author | Approved |
|---|---|---|---|---|---|
| 1 | Draft V0.0 | Nov 2012 | Preliminary Draft | Assets Management Coordinator | |
| 2 | V0.1 | Oct 2015 | | RU | |
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# 1 EXECUTIVE SUMMARY

**Table 1 Summary of road asset quantities**

| Asset Category | Area (m2) | Length(m) | Av. Condition |
|---|---|---|---|
| Urban sealed pavement | 1,272,227 | 143,158 | 3.80 |
| Urban sealed surface | 1,187,817 | 143,158 | 3.47 |
| Kerb and channel | | 235,152 | 3.15 |
| Urban road formation | 1,385,649 | 143,158 | NA |
| Rural sealed pavement | 5,007,859 | 814,785 | 3.79 |
| Rural sealed surface | 3,884,386 | 814,785 | 4.15 |
| Rural shoulders | 2,128,875 | 804,213 | 4.62 |
| Rural road formation | 6,749,146 | 814,785 | NA |
| Rural unsealed pavement | 3,963,359 | 956,982 | 2.10 |
| Carpark pavement | 76,829 | | 3.57 |
| Carpark sealed surface | 72,433 | | 4.60 |
| Carpark formation | 4,380 | | |
| | | | |

# 2 INTRODUCTION

## 2.1 Background

### 2.1.1 Plan Format

This plan is part of Council's overall asset management plan (AMP) as described below:

- Part A - General Information: Background or information common to all assets.
- **Part B - Roads (this document)**
- Part C – Bridges and Major Culverts
- Part D – Buildings and Structures
- Part E – Footpaths and Pathways
- Part F – Stormwater Drainage
- Part G – Recreation and Open Spaces

### 2.1.2 Purpose of Plan

This plan provides the framework for the sustainable management of Council's road assets, in support of the Council Plan, Council's Asset Management Policy and Strategy, Council's Long Term Financial Plan, Strategic Resource Plan, and regulatory requirements. This plan has been primarily formulated to document:

- The road asset that HRCC owns.
- Funding requirement to maintain the road network at the current level of service.
- Future demand for renewal and improvement of road networks, and how to manage the demand in the long term.

### 2.1.3 Relationship with Other Planning Documents

Apart from those documents listed under Part 'A' of this AMP, the following additional documents have a direct relationship with this plan:

- Council's Road Management Plan;
- Public Road Register;
- Road Hierarchy;
- Boundary Roads Agreements;
- Assets Management Policy;
- Assets Management Improvement Strategy;
- Roadside Vegetation Management Plan, Nov. 2008;
- Environment Sustainability Strategy – Action Plan 2010;

### 2.1.4 Asset Classification and Assets Included in this Plan

Assets included in this plan are (this table is directly extracted from Part 'A' – General Information) are detailed in table 2 below.

**Table 2 Assets Included in this Plan**

| Asset Category | Asset Component | Assets Included |
|---|---|---|
| Urban Sealed Roads | Urban Road Formation | Traffic control devices, signs, roundabouts, guideposts and delineators. |
| | Urban Sealed Pavement | Utilities, on-road bike paths, on-road car parking |

| | | |
|---|---|---|
| | Urban Sealed Surface | Line and pavement markings, raised pavement markers |
| | Kerb & Channel | Crossovers |
| Rural Sealed Roads | Rural Road Formation | Traffic control devices, signs, guideposts and delineators, guard railing (or equivalent safety devices), rail crossings, open drains and drainage structures |
| | Rural Sealed Pavement | Minor culverts (Smaller than 375 mm diameter pipe or box culvert of equivalent cross sectional area including head/end walls), |
| | Rural Sealed Surface | Line and pavement markings, raised pavement markers |
| | Shoulders | |
| Unsealed Roads | Unsealed Rd Formation | Signs, guideposts and delineators, guardrailing (or equivalent safety devices), , open drains and drainage structures |
| | Unsealed Rd Pavement | Minor culverts (Smaller than 375 mm diameter pipe or box culvert of equivalent cross sectional area including head/end walls) |
| Car Parks (Off-Road) | Car Park Pavement | |
| | Car Park Seal | Line & pavement markings |

Other assets such as

- Internal access roads within recreation reserves, gardens
- Aerodrome access roads, taxi-ways and runways
- Pavement and seals at Horsham Regional Livestock Exchange
- Pavement and seals at Wimmera Intermodal Freight Terminal

are included in this plan but are also governed by other relevant AMP's.

### 2.1.5 Assets Not Included in this Plan

Assets not included in this plan are:

- Boundary roads allocated to the adjoining municipality. However in some instances the agreements allow for cost sharing of specified capital works on the roads. Such works will only be carried out after prior agreement of the two municipalities concerned. Refer to individual council shared road agreements for details;
- Arterial roads (VicRoads);
- Unused road reserve (Department of Environment, Land, Water and Planning (DELWP) and Parks Victoria);
- Utility services (Powercor, Gas and GWMWater);
- Private vehicle crossings/driveways, incl. kerbing layback and drainage culverts;
- Private overhanging vegetation;
- Certain rear access laneways;
- Privately owned carparks; and
- Nature strips.

### 2.1.6 Key Stakeholders in the Plan

Stakeholders in this AMP and their role as either a customer or other interested party are detailed in table 3 below.

**Table 3 Key Stakeholders in this plan**

| Stakeholder | Role in this Plan |
|---|---|
| Private car drivers, cyclists, pedestrians, motorised buggies, etc. | Customer |
| Industrial and commercial operators and other transport services | Customer |
| Public Transport services | Customer |
| School Bus services | Customer |
| Bicycle user groups | Customer |
| Road authorities (VicRoads, DELWP, adjoining municipalities) | Other interested party |
| Land Developers | Other interested party |
| Military (special use in times of conflict and emergency) | Other interested party |
| Road Safety organisations | Other interested party |

### 2.1.7 Organisation Structure

#### 2.1.7.1 Organisational Chart

Refer to the Appendices in Part 'A' of this AMP.

#### 2.1.7.2 Asset Responsibility

In relation to the assets included in this plan responsible council officers are detailed in the table 4 below.

**Table 4 Road asset responsibility**

| Responsibility | Council Officer |
|---|---|
| Undertake maintenance | Operations Manager |
| Coordinate the maintenance budget | Operations Manager |
| Undertake inspections | Operations Manager |
| Undertake condition survey | Asset Engineer |
| Draft Capital Renewal Program preparation | Asset Engineer |
| New and Upgrade Capital Program coordination | Manager Infrastructure/Asset Engineer |
| Maintain asset register | Asset Engineer |
| Asset valuation | Asset Engineer |

**Table 5 Services utilising road assets**

| Services Delivered by Assets in this Plan | Responsibility for Service Planning |
|---|---|
| Roads (Transport) | Director Technical Services |
| Car Parking | Director Technical Services |
| Aerodrome | Director Technical Services |
| Livestock Exchange | Director Technical Services |

| | |
|---|---|
| Wimmera Intermodal Freight Terminal | Director Technical Services |

**Table 6 Services impacted by this AMP**

| Services Impacted by the Assets in this Plan | Responsibility for Service Planning |
|---|---|
| Drainage | Director Technical Services |
| Footpaths | Director Technical Services |

#### 2.1.7.3 Works on Roads by other Parties

- Road Openings - Public Utilities

Council manages the road reserve areas but utility owners have legal rights of access to open the road to install and maintain their assets. In conjunction with various utilities Council will work to the "Road Management Act 2004 – Code of Practice – Management of Road and Utility Infrastructure in Road Reserves" that has been developed to control these works.

- Road Openings – Private Companies or Individuals

From time to time private companies or individuals need to excavate in or bore under a road reserve. Council requires the issue of a permit for such work. Permits when issued incorporate a list of conditions which allow Council to control how the work is carried out and to ensure the quality of restoration.

## 2.2 Goals & Objectives of Asset Ownership

### 2.2.1 Reasons and Justification for Asset Ownership

The *Local Government Act 1989* prescribes the objectives and functions of a municipal council. Section 3C (1) of the Act states:

*"The primary objective of a Council is to endeavour to achieve the best outcomes for the local community having regard to the long term and cumulative effects of decisions."*

Section 3C (2) of the Act then adds more substance to the primary objective by specifying a number of facilitating objectives such as:

a. To promote the social, economic and environmental viability and sustainability of the municipal district;
b. To ensure that resources are used efficiently and effectively and services are provided in accordance with the best value principles to meet the needs of the community;
c. To improve the overall quality of life of people in the community;
d. To ensure that services and facilities provided by Council are accessible and equitable.

Section 3E (1) of the Act prescribes a number of council functions, the ones particularly relevant to asset management being:

a. Planning for and providing services and facilities for the local community; and
b. Providing and maintaining community infrastructure in the municipal district.

The objectives and functions set out in the *Local Government Act 1989* also closely accord with the overall goals and principles of asset management. This plan will therefore seek to

establish a balance between meeting the level of service required by the community with the level of funding available to operate and maintain the infrastructure.

### 2.2.2 Links to Organisation Vision, Mission, Goals and Objectives

Apart from those documents listed under Part 'A' of this AMP, additional Council strategies listed in the Council Plan 2014–18 that may influence this plan are listed in table 7 below.

**Table 7 Road asset management goals and strategies**

| Document | Section | Strategy/goal |
|---|---|---|
| **Council Plan 2014-18** | **Goal 3 – Asset Management** *(Meet community and service needs through provision and maintenance of infrastructure)* | **Key Directions 3.1:** Determine infrastructure needs and expectations through consultation with developers and the community. |
| | | **3.1.3** Undertake a long term transport movement strategy for the City of Horsham. |
| | | **3.1.5** Pursue upgrade of Wilson Street in consultation with VicRoads. |
| | | **Key Directions 3.2:** Ensure projected financial and physical programs reflect infrastructure needs. |
| | | **Key Directions 3.4:** Deliver works to develop and maintain Council's physical assets for long term sustainability, amenity and safety. |
| | | **3.4.1** Review Council's approach to private streets. |

# 3 LEVELS OF SERVICE

This section defines the level of service or performance criteria that are required and the basis of the decision behind their adoption. The levels of service support Council's strategic goals and are based on:

- Community engagement and expectations;
- Information gathered from customers on expected quality and cost of services;
- Strategic and corporate goals;
- Legislation, regulations, environmental standards and industry and Australian Standards that impact on the way assets are managed;
- Design standards and codes of practice;
- An indication of customer satisfaction can be obtained from customer requests recorded in Council's 'Merit' system.

Level of service is the defined service standard for a particular activity or service area against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental acceptability and cost.

An important objective of the AMP is to match the level of service provided by Council's road assets with the expectations of the community given financial, technical and legislative constraints.

Asset Management planning requires a clear understanding of the community's needs and preferences. The levels of service standards defined by the AMP are used:

- To inform the community of the proposed level of service to be delivered,
- As a focus for the asset management strategies developed to deliver the agreed level of service,
- As a measure of the effectiveness of this asset management plan,
- To identify costs and benefits of the services offered, and
- To enable the community to assess the suitability, affordability and equity of the level of service offered

## 3.1 Community Engagement and Expectations

Council will engage with the community in regard to service delivery.

In the first instance community engagement shall be undertaken as part of the development of a service strategy. Additional community engagement may also focus on the development of asset based service levels. This AMP documents (Table 8) the audience and techniques to be used to undertake community engagement. These outcomes shall be referred back to service delivery to ensure they are compatible

**Improvement Action: 1 Consult with community for development of agreed level of service.**

### 3.1.1 Community Engagement Methodology

Council has adopted a Community Engagement Framework. The methodology to be used in this AMP is described below in table 8 and accords with the framework.

**Table 8 Community engagement methodology**

| Stage | Description | Key outcomes | Target audience | Level of Engagement | Responsibility |
|---|---|---|---|---|---|
| 1 | Customer Expectations | Determine the key expectations of the customer to use as service level criteria | Customers | Involve | Service Provider |
| 2 | Levels of Service (LOS) | Agreed negotiated level of service targets | Customers | Collaborate | Service Provider / Asset Provider |
| 3 | Community Reporting | Report on Council's service performance against agreed LOS | Community | Inform | CEO |

### 3.1.2 Background and Customer Engagement Undertaken

Council participates in the Victorian Local Government Customer Satisfaction survey. This telephone survey polls a sample of residents on their level of satisfaction with Council's services. Recent customer satisfaction survey results in the area of 'Local Roads and Footpaths' are outlined in table 9 below

**Table 9 Customer satisfaction scores**

| Performance Measures | HRCC Satisfaction Score | | | | Average score for Large Rural | State average for Victoria |
|---|---|---|---|---|---|---|
| | 2015 | 2014 | 2013 | 2012 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Condition of local roads and footpath | NA | 58 | NA | NA | 58 | 58 |
| Parking facilities | NA | 52 | NA | NA | 52 | 57 |
| Condition of sealed local road | 48 | 54 | NA | NA | 45 | 55 |
| Maintenance of unsealed road | NA | 49 | NA | NA | 51 | 45 |
| Overall HRCC performance | 62 | 65 | 61 | 62 | 56 | 60 |

An indication of customer satisfaction can also be obtained from customer requests recorded in Council's Merit system. A record of the number of requests raised in last two years is outlined in the table 10 below.

**Table 10 Customer request summary**

| Year | Number of Merit requests for road defects received | Number of Merit requests for road defects completed |
|---|---|---|
| 2013 | 200 | 194 |
| 2014 | 145 | 144 |
| 2015 (As of 18/09/2015) | 86 | 77 |

### 3.1.3 Details of How Engagement Translates into Levels of Service

From the engagement process the key customer expectations relating to the road assets included in this plan are:

- A need to feel safe when driving along the roads;
- There are no potholes, bumps or ruts;
- Good road surface that provides a smooth ride;
- Good quality shoulders, with no excessive drop-offs from the seal, no excessive cross-fall, and not slippery or boggy when wet;
- Many roads are too narrow and need widening, to accommodate larger vehicles such as farm implements and B-Double trucks;
- Crowns on gravel roads are not too high so that wide implements with minimal clearance can travel on the roads.
- Better grading of roads – surface needs to last longer between grades;
- All weather access to residences;
- Seal gravel roads;
- Able to drive on gravel roads in a standard sedan car without a high risk of tyre puncture/damage.

Any additional customer expectations have been developed internally from officer experience and discussed at regional AM meetings. These provide a starting point to initiate discussion with the community as part of the engagement process and may be amended as a result of that process.

## 3.2 Legislative Requirements

Statutory requirements set the framework for minimum levels of service that roads are required to meet. The Road Management Act (2004) is key legislation that Council is

required to comply with, in relation to roads. Under this Act Council must prepare a Road Register and are encouraged to prepare and implement a Road Management Plan.

An outline of applicable legislation and the main legislative requirements is provided in Table 11. Council endeavours to maintain its road network in accordance with legislative requirements, with these endeavours balanced against available budget provisions.

**Table 11 Legislative requirements:**

| Legislation | Details |
|---|---|
| Local Government Act 1989 | Sets out role, purpose, responsibilities and powers of local governments, including:<br>• providing equitable and appropriate services for the community and ensuring efficient and effective management of services/ facilities<br>• To manage, improve and develop the resources of its district efficiently and effectively.<br>PART 9 Division 2, Sections 203 through to 208, of the Act details the provisions relating to a Powers of Councils over Roads.<br>Section 208 requires Council to follow the Road Safety Act 1986 and Road Management Act 2004.<br>The Local Government Act 1989 also sets out requirements for local government to prepare a long term financial plan, incorporating considerations of funding the management of the road network. |
| Road Management Act 2004 | Council is the Responsible Authority for local roads, as defined in the Road Management Act 2004. The act specifies the roads that Council is responsible for under Section 37. Specific duties are also highlighted.<br>The Act outlines that the relevant co-ordinating road authority for a public road must register the public road on its register of public roads. |
| Transport Integration Act 2010 | Integrates the legislation contained within:<br>Transport (Compliance and Miscellaneous) Act 1983,<br>Road Management Act 2004 and;<br>Road Safety Act 1986<br>Includes references to the provision and maintenance of community transport infrastructure in the municipal district. |
| Road Safety Act 1986 | Sets out the general obligations of road users in relation to responsible road use, to provide for safe, efficient and equitable road use, and to ensure the equitable distribution within the community of the costs of road use. |
| Planning and Environment Act 1987 | Establishes a framework for planning the use, development and protection of land in Victoria in the present and long term interests of all Victorians |

| | |
|---|---|
| Disability Discrimination Act 1992 | To ensure that persons with disabilities have the same rights as the rest of the community |
| All other State and Federal Acts and Regulations | For example Roads to Recovery Act 2000, Subdivisions Act 1988, Financial Management Act 1994. |

## 3.3 Current and Desired 'Target' Levels of Service

### 3.3.1 Asset Functional Hierarchy

Road assets covered by this asset management plan are classified in accordance with the Horsham Rural City Council Road Management Plan:

- **Link** – primarily provide a direct link between significant population or activity centres, and connect into arterial roads or other link roads;
- **Collector** – primarily provide a route through significant population or activity centres, and connect into arterial roads, link roads, or other collector roads;
- **Access** – primarily provide direct access to abutting residential, industrial / commercial properties, and connect into arterial roads, link roads, collector roads or other access roads.
- **Minor** – primarily provide limited access use to rural properties and includes many dry-weather-only roads.

When establishing the hierarchy, intervention levels and inspection frequencies, in addition to community input the following matters were taken into consideration.

- Traffic volume
- Safety and risk of road users
- Funds and resources available
- Heavy vehicle traffic
- School bus routes
- The number of houses and properties served
- Strategic purpose of the road/footpath
- Adjoining land use
- Road land tenure
- All weather access to newly constructed dwellings in rural area.

Any rural unsealed access road with residential properties vacant for more than 2 years can be considered as minor access for maintenance purpose following consultation process defined in the Table 12.

**Table 12 Process for reducing the service in the road adjacent to vacant rural residential property**

| Step | Description | Responsibility | Timeframe |
|---|---|---|---|
| 1 | Identify the vacant rural residential properties during routine road inspection. | Asset Inspector | Ongoing |
| 2 | Formal letter to be sent to the property owner stating HRCC's intention to reduce the service in the road. | Asset Engineer, Manager Infrastructure and Director Technical Services | Ongoing |
| 3 | If no response received or response | Director Technical | Ongoing |

| | | | |
|---|---|---|---|
| | acknowledging property will remain vacant is received, proposal to reduce the service shall be taken to Director. | Services | |
| 4 | Following the approval, road register to be updated with downgraded hierarchy. | Asset Engineer | Ongoing |

Functional hierarchies applicable to assets included in this plan are:

**By Importance:**

**Table 13 Road asset hierarchy by importance**

| Asset Category | Hierarchy Description | | |
|---|---|---|---|
| Urban Sealed Road | Link: Higher traffic volumes and generally those roads within CBD | Collector: Medium traffic volumes and generally main collector roads from outer areas into CBD | Access: Low traffic volumes. Local urban streets |
| Rural Sealed Road | Link: Higher traffic volumes and generally those roads linking outer towns or districts to Horsham | Collector: Medium traffic volumes and generally those roads linking outer local areas to Link roads | Access: Low traffic volumes. Local rural roads |
| Unsealed Roads | NA – Link = Sealed | Collector: Medium traffic volumes and generally those roads linking outer local areas to sealed Link roads | Access: Low traffic volumes. Local rural roads |
| | | | Minor: Very low traffic volumes. Local rural un-gravelled roads and tracks |
| Carparks (Off-Road) | High: High usage. High traffic volumes and generally those within CBD | Medium: Medium usage. Medium traffic volumes and generally those around CBD and near outer shops, schools, kindergartens, etc. | Low: Low usage. Low traffic volumes and generally those along river frontage, sports facilities, halls, etc. |

**By Type:**

**Table 14 Road asset hierarchy by type**

| Classification | Description |
|---|---|
| Urban Road | Roads within the Horsham and Natimuk built-up areas. Refer to the map of Horsham and Natimuk township included in the Appendices (sections 11.2 and 11.3). |
| Rural Road | Roads outside the Horsham and Natimuk town boundaries and includes the roads within other rural towns and districts. |

This classification is used for renewal forecasting.

**By Function:**

**Table 15 Road asset hierarchy by function**

| Classification | Description |
|---|---|
| High Traffic Urban Road | Link and Collector local roads – generally traffic volumes ≥ 200 vpd |
| Low Traffic Urban Road | Access local roads – generally traffic volumes < 200 vpd |
| High Traffic Rural Road | Link and Collector local roads – generally traffic volumes |

| | |
|---|---|
| | > 70 vpd |
| Low Traffic Rural Road | Access and Minor local roads – generally traffic volumes ≤ 70 vpd |
| High Traffic Carpark | Generally traffic volumes ≥ 81 vpd |
| Low Traffic Carpark | Generally traffic volumes < 80 vpd |

### 3.3.2 Community and Technical Levels of Service and Performance Measures

Target service levels are defined in the following sections:

#### 3.3.2.1 Urban & Rural Sealed Roads, Unsealed Roads and Kerbing

**Table 16 Community and technical levels of service for road and kerb**

| Community Levels of Service (Key Customer Expectations) | Technical Levels of Service | |
|---|---|---|
| | **Technical Performance Measure** | **Technical Target** |
| Urban access to the residence and property | Road formation and surface types | Sealed and kerbed (on the side of residence) with underground drainage network. |
| Rural access to the residential property | Road formation and surface type | **Link**: Formed, drained and sealed **Collector/Access**: Formed, drained and all weather. |
| Rural access to the rural non-residential property | Road formation and surface type | **Service level varies depending on location of properties.** |
| Gravel road upgrades | Paved to seal upgrade program | **Rural Collector and Access:** Business, tourism and key freight routes. Dependent upon funding availability. |
| Provide safe road network | Regular defect inspection and correction of identified defects outside the intervention level within the response time identified in RMP | Compliance with RMP |
| | Renewal of assets with condition over intervention level | **Rural pavement**: >cond. 8<br>**Rural seal** >Cond. 7<br>**Urban link/coll. pave.** >cond. 8<br>**Urban link/coll. seal** >cond. 7<br>**Urban access pave.** >cond. 8<br>**Urban access seal.** >cond. 7.5<br>**All K&C** >cond. 8 |
| Wider seal widths | Seal width | **Rural Link/strategic freight routes**: 6.2m wide with 2m wide shoulders both sides |
| Rough gravel roads | Road maintenance - gravel road grading frequency<br><br>Quality of gravel – user should be able to drive a normal sedan vehicle without a high risk of tyre puncture/damage. | Compliance with RMP. |

Banyena Road (Blue Ribbon to Seal Start 8.3 km), Cooack Road (Council Boundary to Seal Start 2.8 km) and Grahams Bridge Road (North East Wonwondah Road to Seal Start 16.2km) are the link unsealed roads that do not currently meet the technical targets listed in the table.

**Improvement Action: 2 Consider reclassifying unsealed link roads to collector roads during hierarchy review.**

#### 3.3.2.2 Car Parking

**Table 17 Community and technical levels of service for carparks**

| Community Levels of Service (Key Customer Expectations) | Technical Levels of Service | |
|---|---|---|
| | Technical Performance Measure | Technical Target |
| Available parking spaces | % occupied | Target to be developed in conjunction with Parking Advisory Committee |
| Carpark distance from destination | 400m (10 minute walk)* | Target to be developed in conjunction with Parking Advisory Committee |
| Availability of disabled parking | Compliance with Australian Standards | 100% compliance by 2020 |
| Width of the parking bays | 2.6 m wide parking bays in HRCC carparks | 100% compliance by 2025 |
| Hitting obstacles with car overhanging the kerb | Compliance with Design Standards. | 100% compliance by 2025 |

* Walking time is calculated based on the assumption that 2m is travelled in every 3 steps and 1 step per second during the travel. Distance of 400 m (1/4 mile) is assumed from 'rule of thumb' used by transport planner to determine the stop spacing and land use planner for urban design to achieve walkable cities.

**Improvement Action: 3 Develop parking availability target in conjunction with Parking Advisory Committee.**

**Improvement Action: 4 Investigate on availability of disabled parking.**

### 3.3.3 Levels of Service Monitoring and Performance Reporting

Council reports on its performance against the established Levels of Service targets. The process is described below:

AMP Process 3: Levels of Service (LOS) Monitoring and Reporting

| Step | Description | Responsibility | Timeframe |
|---|---|---|---|
| 1a | Determine current performance against the adopted **Technical LOS targets**. | Asset Provider (relevant to asset group) | Annually |
| 1b | Determine current performance against the adopted **Community LOS targets.** | Service Provider (relevant to asset class) | Annually |
| 2 | Align and analyse the performance associated with each community and technical LOS against the relevant LOS criteria and develop improvement actions / amendments to the community or technical LOS targets and report to the AWG. | Asset Provider, Service Provider and Asset Engineer | Annually |
| 3 | Proposed Improvement Actions and amendments considered and reported to CEO/Executive Management Group | Assets Working Group | Annually |
| 4 | Improvement Actions and amendments endorsed | CEO and Executive Management Group | Annually |
| 5 | Improvement Actions and amendments implemented | Relevant Asset Provider and Service Provider | Annually |

| Step | Description | Responsibility | Timeframe |
|---|---|---|---|
| 6 | Report to Council if required (e.g. changes to levels of service targets) | Relevant Director | As Required |

### 3.3.4 Desired 'Target' Levels of Service

Changes from current levels of service to desired 'target' levels of service will be instigated by the development of a Service Strategy or Plan and the community engagement process or an annual service review.

HRCC has yet to fully quantify desired 'target' levels of service for any of its road assets. This AMP seeks to establish current and target service levels, and the costs associated with maintaining current service levels in order that the true cost of service delivery may be understood by the community. This understanding will allow informed decision making by the community in balancing the levels and types of service delivery desired with sustainable financial management of Council's road assets.

At present, indications of desired levels of service are obtained from various sources including community satisfaction surveys, community feedback to Councillors and Staff, service requests, and correspondence.

# 4 FUTURE DEMAND

## 4.1 Demand Forecast

Horsham Rural City Council is situated in western Victoria, approximately 300 km north-west of Melbourne. The municipality has a population of 19,279* and covers an area of 4,249 square kilometres. Almost three quarters of its residents live in the urban areas of Horsham and Natimuk.

Horsham is the major provider of farming, retail, community and government services in the Wimmera, with the main employment sectors being agriculture, retail, health care and social assistance. The economy relies largely on its rural and tourism base and its regional association with the surrounding natural assets, including recreational lakes, wetlands, the Wimmera River, Mount Arapiles, the Grampians National Park, the Little Desert National Park, and the Wartook Valley.

Population growth in HRCC is approximately 0.5% per annum as per data provided by the Australian Bureau of Statistics for the year to June 2011

Recent data reveals that there is an average growth of approximately 0.1% per annum of the sealed road network in response to residential and industrial subdivision development. This rate of growth of the road network is significantly less than projected population growth and indicates that the existing road network services the majority of new residences. Road network growth associated with subdivisional development is shown in table 18 below.

**Table 18 Road network growth**

| Surface Type | Development Growth in | 11/12 | 12/13 | 13/14 | 14/15 |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Sealed | Length | 332m | 1443m | 591m | 1938m |
| | % | 0.03% | 0.15% | 0.06% | 0.20% |
| Unsealed | Length | 0 | 0 | 0 | 0 |
| | % | 0% | 0% | 0% | 0% |

### 4.1.1 Municipal Population Forecast

Current Population (Horsham Rural City Council): 19,279 persons*
Current Population Growth: 0.5% per annum*
Population in 2021 is predicted to be: 20,543 persons

### 4.1.2 Municipal Demographic Changes

Current Demographic (Age: Persons over age 65): 17.9%*
Percentage of Persons over age 65 in 2021 predicted to be: 19.2%

** Australian Bureau of Statistics (as @ 30 June 2011. Period 2001 – 2011)*

### 4.1.3 Factors Influencing Demand

Factors influencing growth or decline of road asset demand are detailed in table 19.

**Table 19 Factors influencing demand**

| Asset Category | Factor Influencing Demand | Impact on Service Delivery, Cost & Timing | Demand Management Plan: Actions |
|---|---|---|---|
| Urban Roads | Residential development | • Expected increase in traffic volumes and demand on Council's road assets.<br>• Expected increase in maintenance.<br>• Expected increase in demand for improved traffic control. | Develop a transport strategy that predicts future growth patterns and identifies strategic options to manage this growth |
| | Industrial / Commercial development | • Expected increase in heavier through-traffic and demand on Council's road assets.<br>• Expected increase in maintenance.<br>• Increased rate of deterioration of road surfaces and pavements if road not upgraded / designed to accommodate heavier vehicles. | Develop a transport strategy that predicts future growth patterns and identifies strategic options to manage this growth |
| | Construction of Horsham By-pass | • Decrease in through-traffic demand.<br>• Possible noise reduction in town | Monitor |
| | Trend to increasing mass limits for trucks and heavy vehicles | • Increased turning radius required at intersections and entry to adjoining driveways.<br>• Increase in required road surface and pavement widths.<br>• Increased rate of deterioration of road surfaces and pavements if road not upgraded / designed to accommodate heavier vehicles.<br>• Load limit restrictions may be required on road network bridges and culverts (see Bridge & MC AMP) | • Monitor.<br>• Recognised upgrades to cater for higher mass limits be prioritised and programmed in accord with available funding.<br>• Seek for funding under Heavy Vehicle Safety and Productivity Program and Bridge Renewal Program<br>• Identify preferred routes for larger vehicles |
| | Increased dimensions of agricultural | • Increase in required road formation widths.<br>• Increased demand for vegetation | • Monitor<br>• Lobby agricultural suppliers regarding road damage, and |

| | | | |
|---|---|---|---|
| | equipment | clearing and roadside slashing – wider clearance envelopes.<br>• Damage to signs, guideposts and railing on roadsides and bridges. | about practical widths of farm machinery<br>• Consider widening the culverts during replacement. |
| | Trend to using higher trucks | • Increased demand for vegetation clearing – higher clearance envelopes. | Identify preferred routes for high / large vehicles |
| | Gravel Availability | • Declining supply of gravels will result in increased construction cost and eventually reduce the quantity of road renewal works | Review construction methodology<br>Source new quarries, with a focus on quantity and quality of material |
| | Decreased rural house occupancy | • Decrease in rural road traffic volumes and dwelling all weather access requirements | Monitor occupancy rates / traffic volumes and match with levels of service. |
| | Growth in 'hobby' farms | • Increased traffic volumes and changing traffic patterns. | Monitor traffic counts. |
| | Operation of Freight Hub at Dooen. (Wimmera Intermodal Freight Terminal) | • Increased traffic volumes and changing traffic patterns.<br>• Increase in required road surface and pavement widths.<br>• Increased rate of deterioration of road surfaces and pavements if road not upgraded / designed to accommodate heavier vehicles. | Monitor<br>Liaise with operator in relation to preferred freight routes |
| | Mineral sands mining. | • Increased traffic volumes and changing traffic patterns.<br>• Increase in required road surface and pavement widths.<br>• Increased rate of deterioration of road surfaces and pavements if road not upgraded / designed to accommodate heavier vehicles. | • Develop road use agreements with major users which incorporate funding of upgrade and ongoing maintenance costs. |
| | Condition of arterial road within the Council boundary | • Reduction of customer satisfaction on sealed local road.<br>• Perceived reduction of service<br>• Increased traffic volume to avoid rough road. | Lobby Vicroads for improvement of road quality.<br>Customer awareness to differentiate between local road and arterial road. |
| Carparks | Industrial / Commercial development<br><br>(eg. New Target Development) | • Expected increase in through-traffic, traffic volumes and demand on Council's carpark assets.<br>• Expected increase in maintenance.<br>• Expected increase in demand for improved traffic control, such as turning lanes, signage, line marking, etc. | Monitor occupancy rates / traffic volumes and match with levels of service. |

## 4.2 Demand Management Plan

Demand management may be defined as the active intervention in the market to influence demand for services and assets with forecast consequences, usually to avoid capital expenditure. Demand management is based on the notion that as needs are satisfied expectations rise automatically and almost every action taken to satisfy demand will stimulate further demand.

Demand Management actions may include:

- Maintain existing services and assets;
- Carry-out upgrade or new works;
- Asset rationalisation;

- Non-asset based solutions.

Demand management components include:

- Operation – modification of access to an asset,
- Regulation – restriction on type of use of use of an asset,
- Incentives – Influence the use of an asset, and
- Education – promotion of alternatives.

HRCC benefits from the connectivity provided by arterial roads throughout the municipality which are owned and maintained by VicRoads. These arterial roads deal with the large majority of commuter, visitor/ tourism related, industry related, and through traffic within the municipality.

It is planned that demand for new services from HRCC's road assets will be managed through a combination of:

- Maintaining existing road network services;
- Prioritised upgrading of segments of the road network to meet increased demand with upgrades programmed in accord with funding constraints;
- Construction of extensions to road network as new developments occur, with new assets funded by proponents of the development in accord with required road standards.

Demand management is not intended to reduce the scope or standard of services provided by an asset, but rather, it is concerned with aligning demand or expectation of service provided by an asset with the available resources to ensure that genuine needs are met and community benefit is maximised

Identified actions requiring new and upgrade works are referred to the section 6.8 of this document, New and Upgrade Plan.

# 5 RISK MANAGEMENT

## 5.1 Introduction

Managing risk is considered as part of the Asset Management process. This involves considering the likelihood and consequence of various occurrences.

The purpose of this section is to describe the basis of Council's strategic risk and investment policies and the manner in which it will manage risk associated with its buildings and community facilities.

It essential to note that it is not possible for Council to eliminate all risks, rather, Council's model provides a basis for identifying and managing risks within the resources available to the community through clear priority setting.

## 5.2 Risk Assessment Process

Some of the more common contributing factors to risk for road infrastructure are listed below.

- Design limitations
- Low design standard of construction compared to road demand
- Poor construction materials
- Bad or inadequate signage
- Poor condition surface
- Isolated segment of lower standard road than adjacent segments
- Lack of or inadequate maintenance practices.
- Bad management of on-road works activities
- Higher than expected traffic volume

Identified risks will be rectified as per the response codes defined in table B4 of **HRCC Road Management Plan.**

### 5.2.1 Risk Identification

The identified risks associated with the road assets included in this plan, and the possible controls are listed below:

#### 5.2.1.1 Urban and Rural Sealed Roads and Unsealed Roads

**Table 20 Possible hazards in urban and rural sealed roads and unsealed roads:**

| Hazard | Cause | Main Area of Impact | Controls |
|---|---|---|---|
| Intersection accident | • Poor sight distance/injury<br>• Ineffective/missing signs/devices<br>• Inappropriate speed, priority or control (give way, stop)<br>• Driver behaviour (speed, fatigue, drugs, alcohol, lack of experience) | Public health & safety | • Risk assessment of street lighting<br>• Speed limits in compliance with standards<br>• Intersection control in compliance with standards, including vegetation management<br>• Participation in road safety programs (Roads Safety Plan, Road Safety Council) |
| Road closure and delays/diversions | • Flooding or water across the road<br>• Fallen limb<br>• Road works<br>• land slippage<br>• Wash outs<br>• Traffic accidents | Financial | • Maintenance programs for drainage maintained<br>• Customer request process<br>• Maintenance inspections and works programming |
| Emergency vehicle getting lost | • Ineffective, confusing, duplicated names, missing signs<br>• Signs illegible | Public health & safety | • Maintenance inspections and works programming<br>• Introduce sign proliferation program<br>• Introduce road safety audit/review program |
| Rural rail crossings accident | • Inadequate crossing control<br>• Sight distance | Public health & safety | • ALCAM inspections<br>• Road Management Plan compliance<br>• Maintenance inspections and works programming<br>• Define responsibilities through interface agreement,<br>• Seek funding upgrades |
| Vehicle damage | • Potholes,<br>• Corrugated or rough surface<br>• Edges,<br>• Debris | Financial | • Maintenance inspections and works programming.<br>• Customer request process<br>• Compliance with design |

| | | | |
|---|---|---|---|
| | • Vegetation on road<br>• Driveway entries<br>• Endwalls<br>• Speed humps | | standards. |
| Off road accident (consider urban and rural level of risk separately) | • Shoulder drop-off<br>• Road roughness/corrugations<br>• Road design<br>• Slippery material<br>• Large stones/debris<br>• Embankment<br>• Ineffective/missing signs/devices<br>• Slippery surface<br>• Potholes<br>• Road flooding, water across road | Public health & safety | • Risk assessment road side barrier program undertaken<br>• Maintenance inspections and works programming.<br>• Participation in road safety programs (Roads Safety Plan, Road Safety Council) |
| Traffic delays | • Slow oversize vehicles<br>• Inadequate traffic control | Service delivery | • Network planning for truck routes.<br>• Overtaking lanes.<br>• Network planning to improve traffic control |
| Single on road vehicle damage or accident (consider urban and rural level of risk separately) | • Falling limbs<br>• Straying stock<br>• Water across road<br>• Driver behaviour | Public health & safety | • Participation in road safety programs (Roads Safety Plan, Road Safety Council)<br>• Customer request process |
| Repairs required to bleeding sections of seal | • Reseal practices<br>• Unexpected hot weather<br>• Inaccurate traffic counts<br>• Poor materials for reseals | Financial | • Accurate, recent traffic counts program<br>• Contract specifications includes timing of work in warmer months |
| Hazard from roadside dams | • Dam location<br>• Road alignment<br>• Dam depth | Public health & safety | • Planning controls.<br>• Risk assessment roadside barrier program. |
| Pedestrian crossing accident | • Unauthorised crossing<br>• School crossing supervision<br>• Ineffective/missing signs/devices | Public health & safety | • Compliance with current design standards.<br>• Risk assessment with crossing upgrade undertaken.<br>• Sign maintenance inspections and works programming. |

### 5.2.2 Kerb and Channel

**Table 21 Possible hazards in kerb and channel network**

| Hazard | Cause | Main Area of Impact | Controls |
|---|---|---|---|
| Road damage from water not dissipating | • Water on road | Service Delivery | • Design standards, pit spacing, design flow calculations. |
| Bicycle hazard | • Edge drop off from asphalt surfacing<br>• Movement of kerb and channel<br>• Steep grades into pit entrances | Public health & safety | • Asphalt overlay procedure<br>• Design standards, pit design |
| Vehicle damage due to scraping at vehicle cross-over | • Low vehicles<br>• Non-conforming vehicle crossing design (too steep) | Service delivery | • Procedure for correction of driveway.<br>• Design standards, vehicle crossing & road cross-fall match-up |
| Bicycle or pedestrian hazard | • Displacement of channel sections | Public health & safety | • Maintenance inspections and works programming.<br>• Condition survey and renewal program. |
| Property water | • Lack of capacity of channel and/or | Financial | • Design standards, pit spacing, |

| | | | |
|---|---|---|---|
| damage | pits.<br>• Misalignment from trees, garbage trucks<br>• Property lower than road level | | design flow calculations.<br>• Pre-inspection of building works and follow up.<br>• Street tree selection options appropriate for location. |

### 5.2.3 Car Parking

**Table 22 Possible hazards in car parks**

| Hazard | Cause | Main Area of Impact | Controls |
|---|---|---|---|
| Vehicle collision | • Sight distance<br>• Lack of space | Financial | • Design standards – lane and bay widths – adopt 2.6 m wide bays where possible, space location and layouts, mirrors, vehicle priority |
| Pedestrian fall | • Parking stops | Public health and safety | • Delineate paths, hazards |
| Single vehicle damage | • Surface condition<br>• Poor design (car doors)<br>• Overhanging trees | Financial | • Maintenance inspections and works programming<br>• Customer request process<br>• Design standards – lane and bay widths |
| Accident at entry/exit points | • Poor sight distance<br>• High traffic volumes | Public health and safety | • Design standards<br>• Car park location<br>• Network planning to improve traffic control |
| Pedestrian vehicle accident from shared space | • Lack of space | Public health and safety | • Design standards – provision of pathways and crossings, signage, sight distances |
| Non-compliance with DDA legislation | • Lack of pedestrian access,<br>• Inadequate disabled car spaces | Service delivery Legislative | • Design standards - Disabled car spaces |
| Damage to meters | • Vandalism | Financial | • Location of meters<br>• Security measures |
| No space available | • Insufficient available spaces<br>• Time restrictions | Service delivery | • Customer request process<br>• Review any existing Carparking frameworks or strategies<br>• Community engagement – public survey, discussions with carparking committee. |

Risks associated with the degradation from use of the road are managed by periodic inspections (proactive) or through response to customer service requests (Merit system) under the requirements and response times outlined in Council's Road Management Plan. Remedial works are programmed according to the type and severity of the road defect. In addition, an accredited engineer undertakes a comprehensive inspection and assessment of the condition of the road network on a 3 yearly basis. Operational risks and treatment plans are summarised in the following Table

**Table 23 Operational risks and treatment plans**

| Risk Description | What Can Happen | Risk Treatment Plan |
|---|---|---|
| Failure of segments of the road network | Loss of network connectivity<br>Greater travel time<br>Loss of emergency access | Condition inspections on 3 year basis. Update Roads register, review funding required for future years. |
| Road pavement / | Hazards to vehicular traffic | Roads designed and constructed to VicRoads and IDM |

| | | |
|---|---|---|
| surface failure | | Standards.<br>Network inspected and maintained in accordance with Road Management Plan. |
| Road delineation / sight distances | Hazards to vehicular traffic | Network inspected and maintained in accordance with Road Management Plan. |
| Obstructions | Hazards to vehicular traffic | Network inspected and maintained in accordance with Road Management Plan. |

## 5.3 Risk Register

Council's Risk Register resides with, and is maintained by, the Organisational Risk Officer.

## 5.4 Asset Criticality

Asset criticality addresses assets that have high consequences (Major or Catastrophic) of failure.

### 5.4.1 Critical Risk Road Assets

**Table 24 Critical risk road assets:**

| Description | Area of Impact | Actions to Address |
|---|---|---|
| A road that is the only access to a dwelling or business for emergency services that is impassable for extended periods | Public health & safety | Higher priority in capital works programs |
| Crest and bends | Road safety | Program for crest and bend widening |
| Roads in hospital and school precincts | Public health & safety | Higher priority in capital works programs |
| CBD roads | Appearance and public safety | Higher inspection frequency, quicker response time and higher priority for capital works program |

#### 5.4.1.1 List of Critical Risk Road Assets:

- Western Highway (not HRCC's Asset): Only access to town and hospital for the residents living south side of the river. Consider creating another vehicle crossing.
- Lake Avenue Bridge over Little Natimuk Creek: Only access for the residents on the North side of the creek to hospital and shops.

**Improvement Action: 5 Investigate and list critical risk road assets**

## 5.5 Communication, Monitoring, Reviewing and Reporting

Council shall ensure that there is ongoing review of its risk management system to ensure its continued suitability and effectiveness.

### 5.5.1 Review

In relation to infrastructure risks Council shall review the:

- Current risks status
- Identification of new risks

- Identification of any new treatments
- Level of risk status

The process for the conduct of the review is as follows:

AMP Process 4: Risk Review

| Step | Description | Responsibility | Timeframe |
|---|---|---|---|
| 1 | Conduct review as detailed | Risk Officer<br>Asset Engineer | Annually |
| 2 | Amend risk register as required | Asset Engineer | Annually if required |
| 3 | Report amendments to AWG | AWG | Annually if required |

Records of such reviews shall be maintained.

### 5.5.2 Monitoring

Council shall ensure that there is ongoing compliance with the actions identified in Risk Register through the conduct of an annual audit and report on the status of:

- Implementation of the current controls
- Implementation of any identified treatments
- Compliance with the risk process

The outcomes shall be reported in the Risk Register Attachment.

AMP Process 5: Risk Assessment

| Step | Description | Responsibility | Timeframe |
|---|---|---|---|
| 1 | Conduct assessment as detailed | Risk Officer | Annually |
| 2 | Report non-compliances to AWG | Risk Officer | As they arise |
| 3 | Review non-compliance report and identify corrective actions | AWG | As they arise |
| 4 | The AWG shall report the outcomes to the EMG | EMG | As they arise |

# 6 LIFECYCLE MANAGEMENT PLANS

## 6.1 Physical Parameters

### 6.1.1 Current Issues and Associated Actions

**Table 25 Current issues influencing road assets are:**

| Issue | Comment | Action |
|---|---|---|
| Expansive clay sub-grades | Creates excessive movement and shortens the lives of roads, kerb & channels and carparks. | Investigate methods to minimise the effects from excessive sub-grade movements.<br>Lobby for lifting up the disability factor for Grants Commission funding calculation purpose. |

| | | |
|---|---|---|
| Increasing fuel & oil costs | Impacts on the cost of bitumen, maintenance materials, freight, etc. | Lobby Governments for additional funding |
| Government Rate Capping | Might impact the rate rise for Infrastructure Gap Funding. | Investigate the efficient construction technology.<br>'Renew' before 'New' and 'Upgrade'<br>Renew the 'patches' instead of reconstructing the whole segment. |
| Lack of funding | Road pavements are deteriorating faster than the funding can keep up. Many of Council's roads were constructed in the boom years of the 60's and 70's. These roads are more than half-way through their useful life and will be starting to deteriorate at a quicker rate. Government funding is not increasing. | Continue to lobby Governments for increased funding<br>Update the traffic count data to secure more funding through Grants Commission |
| Lack of good road-making material | Sources of road-making materials, such as sandstone, gravels & crushed rock are beginning to be exhausted. In most cases the real good material has been consumed. | Monitor.<br>Need to look at other alternatives and methods of recycling and stabilising existing pavements.<br>Investigate new material sources.<br>Consider recycling material as much as possible. |
| Use of heavier and larger transport vehicles | Major impact on existing road pavement and bridge capacities. (See Bridge AMP) | Lobby Governments and Transport Groups |

### 6.1.2 Asset Quantities and Replacement Values

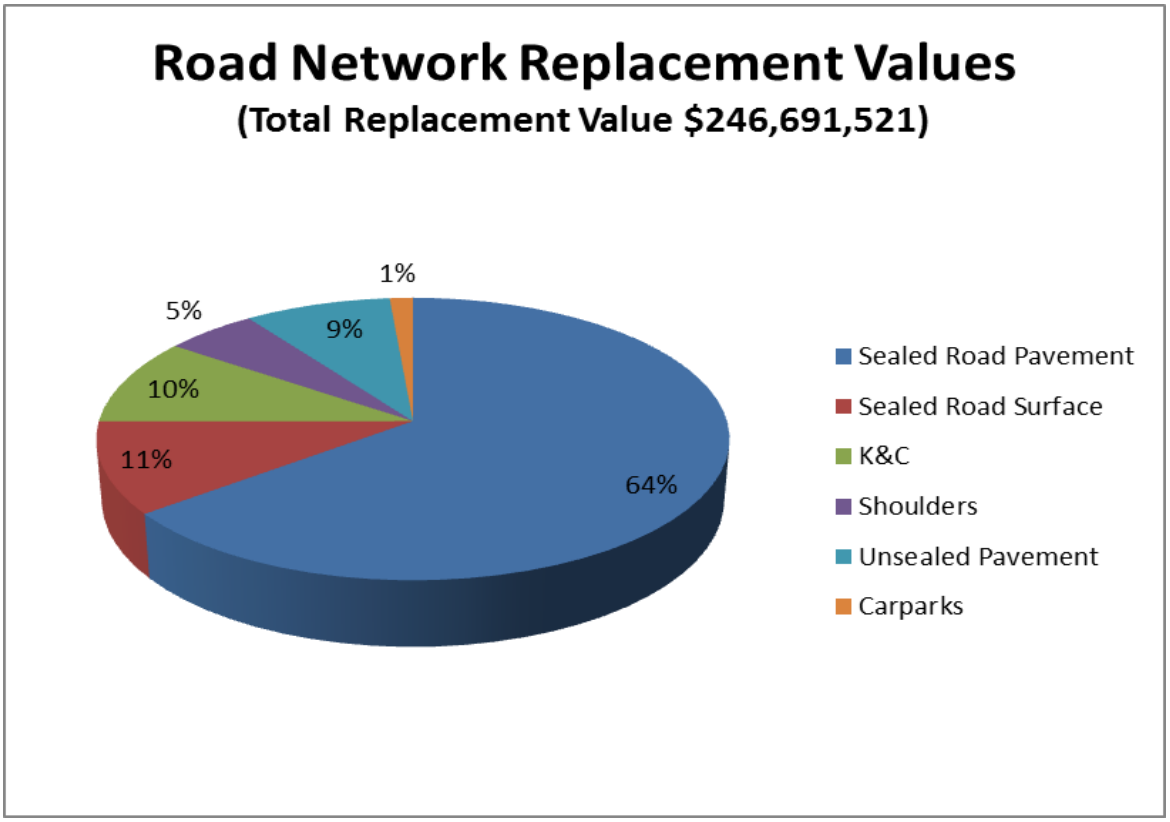
The current quantities of road assets and associated replacement values, included in this AMP, are summarised in the table 26 below.

**Table 26 Asset Quantities**

| Asset Class / Asset Category / Asset Component | Length (m) | Area (m2) | Replacement Value ($) | Ave. Cond. | Ave. Asset Life (yrs) |
|---|---|---|---|---|---|
| **Urban Sealed Roads** | | | | | |
| Formation | 143,158 | 1,385,649 | | | |
| Pavement | 143,158 | 1,272,227 | $47,881,770 | 3.80 | 80 |
| Sealed Surface | 143,158 | 1,187,817 | $8,869,283 | 3.47 | 17 |
| Kerb & Channel | 235,152 | | $24,347,952 | 3.15 | 100 |
| **Sub Total** | | | **$81,099,005** | | |
| **Rural Sealed Roads (including Aerodrome pavement and seal)** | | | | | |
| Formation | 814,785 | 6,749,146 | | | |
| Pavement | 814,785 | 5,007,859 | $111,087,299 | 3.79 | 50 |
| Sealed Surface | 814,785 | 3,884,386 | $17,133,261 | 4.15 | 17 |
| Shoulders | 804,213 | 2,128,875 | $13,208,198 | 4.62 | 20 |

| | | | | | |
|---|---|---|---|---|---|
| **Sub Total** | | | **$141,428,758** | | |
| **Unsealed Roads** | | | | | |
| Formation | 956,982 | 5,704,311 | | | |
| Pavement | 956,982 | 3,963,359 | $20,864,129 | 2.10 | 14 |
| **Sub Total** | | | **$20,864,129** | | |
| **Off Road Car-Parks** | | | | | |
| Formation | | 64,380 | | | |
| Pavement | | 76,829 | $2,847,320 | 3.57 | 80 |
| Sealed Surface | | 72,433 | $452,309 | 4.60 | 17 |
| **Sub Total** | | | **$3,299,629** | | |
| **Grand Total** | | | **$246,691,521** | | |

While the Moloney's degradation curves suggest that the typical life of an urban road is about 80 years in practice they tend to last only 40 to 50 years due to movement of subgrade. The roughness of the road is increased by the movement of subgrade resulting in water pooling and seal cracking which induces water into the pavement. It is recommended to reduce the planned pavement life to 40 years and at the end of its life, the pavement shall be stabilised, relevelled, compacted and sealed back again at much lesser cost compared to reconstruction cost. This exercise will significantly impact the asset valuation but the impact can be reduced by keeping the residual value of 30 to 40% at the end of its useful life.




Road pavements and seals make up almost 75% of Council's total road network value.

Note: The quantities listed are correct only at the time of the development of this plan. Up to date information is obtained from the road and bridge registers.

## 6.2 Asset Capacity/Performance

### 6.2.1 Road Assets Under-Capacity

Road assets which are not achieving the current level of service are listed in the table 27 below.

**Table 27 Road assets under capacity**

| Level of Service Measure *(import directly from Levels of Service)* | Level of Service Target *(import directly from Levels of Service)* | Current Assets Under-Capacity |
|---|---|---|
| **Urban**<br>Road formation and surface types | Sealed and kerbed on residence side of the road with underground drainage network. | NA |
| **Rural**<br>Road formation and surface type | **Link**: Formed, drained and sealed<br>**Collector/Access**: Formed, drained and sealed or gravelled.<br>**Minor**: Formed and drained to provide dry weather access as minimum | Banyena Road, Cooack Road and Grahams Bridge Road (Link Unsealed roads) |
| Paved to seal upgrade program | **Rural Collector and Access** | NA<br>Upgrade program on priority basis subject to budget availability. |
| Renewal of assets with condition over intervention level | **Rural pavement**: >cond. 8<br>**Rural seal** >Cond. 7<br>**Urban link/coll. pave.** >cond. 8<br>**Urban link/coll. seal** >cond. 7<br>**Urban access pave.** >cond. 8.8<br>**Urban access seal.** >cond. 7.5<br>**All K&C** >cond. 8<br>**Rural Unsealed >5** | Driver of renewal program. Stored in MAMS. |
| Seal width | **Rural Link/strategic freight routes**: 6.2m wide with 2m wide shoulders both sides | Attached in Appendix |

This list of under-capacity roads as per the definition provided by the table above is included in Appendix.

## 6.3 Asset Condition

### 6.3.1 Current Asset Condition

The current road network was predominantly constructed during the 1950's -1970's.

The following table and chart shows the current condition of Council's road assets/components. Most of the road network is in good condition. A backlog of works has been identified within these categories with a rating of poor, indicating renewal/replacement is required.

**Table 28 Current road asset condition distribution**

| ASSET CATEGORY | CONDITION RATING | | | | |
|---|---|---|---|---|---|
| | Excellent | Very Good | Reasonable | Fair | Poor |
| Sealed Road Pavements | 8.04% | 26.89% | 47.13% | 17.12% | 0.82% |
| Road Seals | 13.39% | 25.62% | 36.35% | 23.39% | 1.25% |

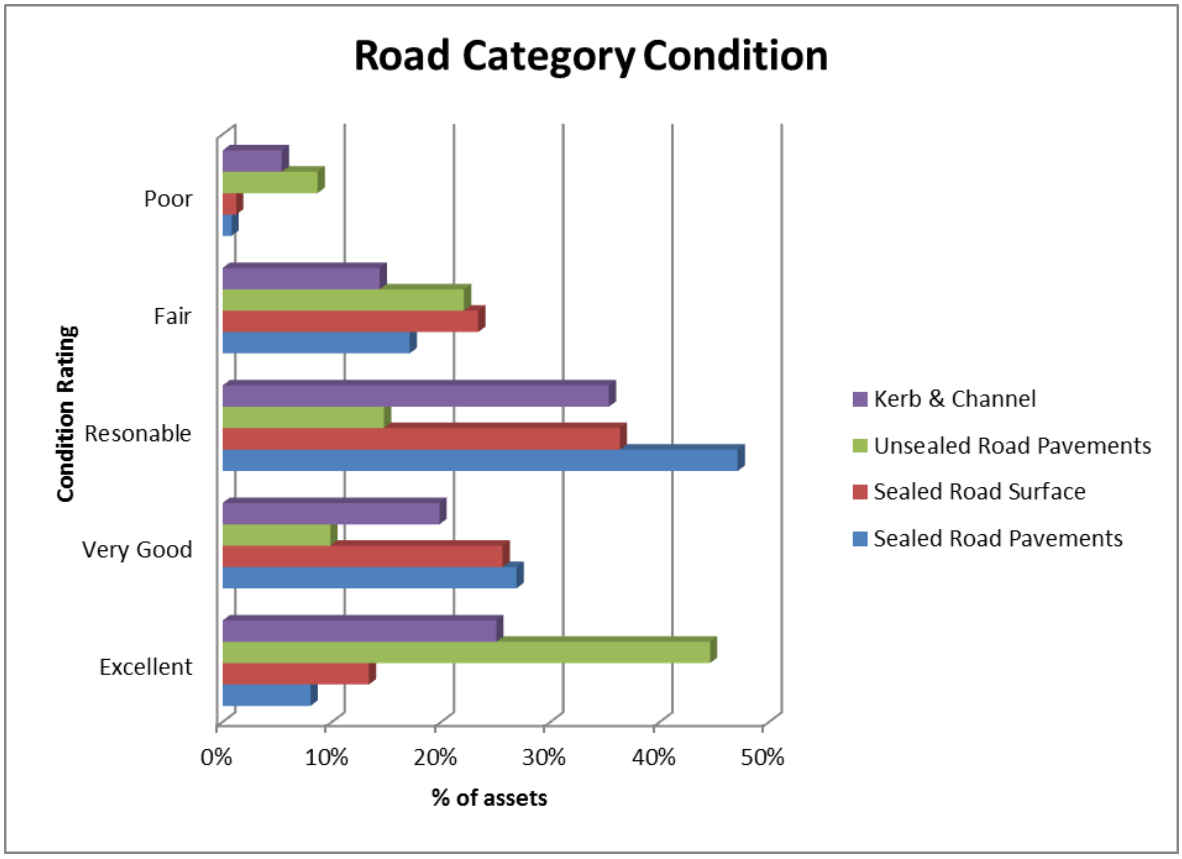
| | | | | | |
|---|---|---|---|---|---|
| Unsealed Road Pavements | 44.60% | 9.86% | 14.76% | 22.08% | 8.69% |
| Kerb & Channel | 25.04% | 19.84% | 35.34% | 14.37% | 5.41% |

The above condition ratings, in accordance with the standard condition rating system, are defined as:

- **Excellent:** Condition rates 0 – 1 — Brand new to showing no signs of deterioration. Condition 0 for unsealed road.
- **Very Good:** Condition rates 2 – 3 — Early stages of deterioration. No serviceability issues. Condition 1 for unsealed road
- **Reasonable:** Condition rates 4 – 5 — Obvious signs of deterioration. Some serviceability issues. Condition 2 for unsealed road
- **Fair:** Condition rates 6 – 7 — Moderate to high degree of deterioration. Serviceability affected and rising maintenance costs. Condition 3 - 5 for unsealed road
- **Poor:** Condition rates 8 – 10 — Deteriorating quite rapidly. Serviceability heavily impacted. Very high maintenance costs. Needs rehabilitation. Condition 6 - 10 for unsealed road

The condition definition for unsealed pavement is different to other road assets because of our low design pavement depth. HRCC has currently adopted the designed depth of 150 mm for high traffic unsealed roads and 100 mm for low traffic unsealed roads. With the increasing use of heavy vehicles for farming and carting, the pavement needs to be renewed when there is about 50 mm to 75 mm of gravel remaining to maintain them in a serviceable condition. For this reason, Council has now adopted the intervention at condition 5 for unsealed pavements.

**Improvement Action: 6 Investigate implications of having 50% residual value of unsealed road pavement at the end of its useful life.**




Further information on Council's road asset condition can be found in the Moloney AM Systems Road Report June 2014 and the latest Moloney AM Systems modelling results for road assets and components.

Note: The conditions listed are correct only at the time of the development of this plan. Up to date information is obtained from the latest Moloney AM Systems modelling report.

### 6.3.2 Condition Monitoring - Asset Condition Survey Frequency & Responsibility

**Table 29 Condition Surveys**

| Survey Name | Frequency | Responsibility | Dates Previously Completed | Next Scheduled Survey |
|---|---|---|---|---|
| Road Formation | 3 years, Not Modelled. | Asset Management Coordinator | Oct. 1999 (MAMS)<br>Oct. 2002 (MAMS)<br>Nov. 2004 (MAMS)<br>Dec. 2008 (MAMS)<br>Jan. 2012 (MAMS)<br>July 2014 (MAMS) | July. 2017 (MAMS) |
| Urban Sealed Pavement | 3 years | | | |
| Urban Sealed Surface | | | | |
| Rural Sealed Pavement | | | | |
| Rural Sealed Surface | | | | |
| Unsealed Road Pavement | | | | |
| Kerb & Channel | | | | |
| Shoulders | 3 years | | Jan. 2012 (MAMS)<br>July 2014 (MAMS) | |
| Carpark Pavement | 3 years, Not Modelled. | | Jan. 2012 (MAMS)<br>July 2014 (MAMS) | |
| Carpark Surface | | | Jan. 2012 (MAMS)<br>July 2014 (MAMS) | |

### 6.3.3 Condition Rating

**Table 30 Condition rating methodology**

| Rating | Description | |
|---|---|---|
| **0** | New | New or an asset recently rehabilitated back to new condition. |
| **1** | Near New | Condition generally based upon the age or time since rehabilitation rather than any observed condition decline. |
| **2** | Excellent | No visible signs of deterioration. Obviously no longer in new condition. |
| **3** | Very good | Early stages of deterioration (minor). No serviceability problems. |
| **4** | Good | Starting to show some signs of deterioration. Slightly impaired serviceability. |
| **5** | Average | Obvious deterioration. Some serviceability loss. 15 to 20% of localised failures. Reasonably rough surface. |
| **6** | Fair | Quite obvious deterioration. Serviceability would be affected and rising maintenance costs. 30 to 40% of localised pavement failure. The surface starts becoming noticeably rough but not to the point of becoming uncomfortable in a standard sedan car. |
| **7** | Poor | Severe deterioration. Serviceability limited. High Maintenance costs. Start listing in 5 – 10 year rehabilitation program. 40 to 50% of localised failure. Severe roughness on the pavement surface that might impact the speed limit. |
| **8** | Very poor | Serviceability heavily impacted. Very high maintenance costs. Needs to be rehabilitated. More than 50% of localised failure in the pavement. Extreme roughness and questionable drivability of road. |
| **9** | Extremely poor | Severe serviceability problems requiring immediate rehabilitation. Could also be a major risk if it remains in service. |
| **10** | Failed | No longer serviceable and should not remain in service. Extreme risk |

### 6.3.4 Deterioration (or Degradation) Curves

Road asset deterioration (or degradation) curves, unique to the area, can be developed once two or more consistent condition surveys have been undertaken. This is done in the Moloney AM System Modelling software by examining all road assets within a given condition rating following the first survey and determining which have degraded by the time of the second survey.

The condition change between surveys is used to predict the annual statistical probability of an asset degrading from one asset condition to the next. In turn this equates to an expected average life within each condition rating. The degradation curves serve two very important functions. Firstly they are used within the financial Modelling section of the Moloney AM System to predict future asset condition movement and financial demand. Secondly they should form the basis of the justification for the selection of depreciation life cycles within the accounting system.

**Table 31 Deterioration/degradation curves**

| Asset Component | | | Adopted Deterioration Curve |
|---|---|---|---|
| Urban Sealed Pavement | 1 | High traffic (Link/Collector) | Custom |
| | 2 | Low Traffic (Access) | Custom |
| Urban Sealed Surface | 3 | Asphalt High traffic (Link/Collector) | Custom |
| | 4 | Asphalt Low Traffic (Access) | Custom |
| | 5 | Spray Seal High traffic (Link/Collector) | Custom |
| | 6 | Spray seal Low Traffic (Access) | Custom |
| Kerb & Channel | 7 | | Custom |
| Rural Sealed Pavement | 8 | High traffic (Link/Collector) | Custom |
| | 9 | Low Traffic (Access) | Custom |
| Rural Sealed surface | 10 | Spray Seal High traffic (Link/Collector) | Custom |
| | 11 | Spray seal Low Traffic (Access) | Custom |
| Shoulders | 12 | High traffic (Link/Collector) | Custom |
| | 13 | Low Traffic (Access) | Custom |
| Unsealed Road Pavement | 14 | High traffic (Link/Collector) | Custom |
| | 15 | Low Traffic (Access) | Custom |
| Road Formation | 16 | Not Modelled | NA |
| Carpark Pavement | 17 | Modelled as a part of 2 | Custom |
| Carpark Seal | 18 | Modelled as a part of 6 | Custom |

Note: 'Custom' deterioration curves are derived from historical asset condition data.

### 6.3.5 Asset Useful Lives and Renewal Intervention Levels

The adopted renewal intervention levels and useful life of the asset components are stated in the table below, including the basis by which each was adopted.

**Table 32 Useful lives and renewal intervention levels**

| Asset Component | | Adopted Renewal Intervention Levels | Physical Life (years) | Useful Life (years) | Basis for Adopted Intervention Levels & Useful Life |
|---|---|---|---|---|---|
| Urban Sealed Pavement | High traffic (Link/Collector) | 8 | 75 | 70.8 | • Moloney report based on condition survey results<br>• Adopted Renewal Intervention Levels match current levels of service |
| | Low Traffic (Access) | 8 | 90 | 88.3 | |
| Urban Sealed surface | Asphalt High traffic (Link/Collector) | 7 | 35 | 32.2 | |
| | Asphalt Low Traffic (Access) | 7 | 35 | 32.2 | |
| | Spray Seal High traffic | 7 | 22 | 17.6 | |
| | Spray seal Low Traffic | 7.5 | 22 | 18.7 | |
| Kerb & channel | | 9 | 100 | 99.3 | |
| Rural Sealed Pavement | High traffic | 8 | 50 | 47 | |
| | Low Traffic | 8 | 60 | 56.4 | |
| Rural Sealed surface | High traffic | 7 | 22 | 17.6 | |
| | Low Traffic | 7.5 | 22 | 18.7 | |
| Shoulders | High traffic | 6.5 | 25 | 20.1 | |
| | Low Traffic | 7 | 40 | 34.4 | |
| Unsealed Road Pavement | High traffic | 5 | 30 | 12.5 | |
| | Low Traffic | 5 | 35 | 15.9 | |
| Road Formation | Not Modelled. | **Not modelled** | | | |
| Carpark pavement | | | | | |

| | |
|---|---|
| Car park seal | |

### 6.3.6 Historical Asset Condition

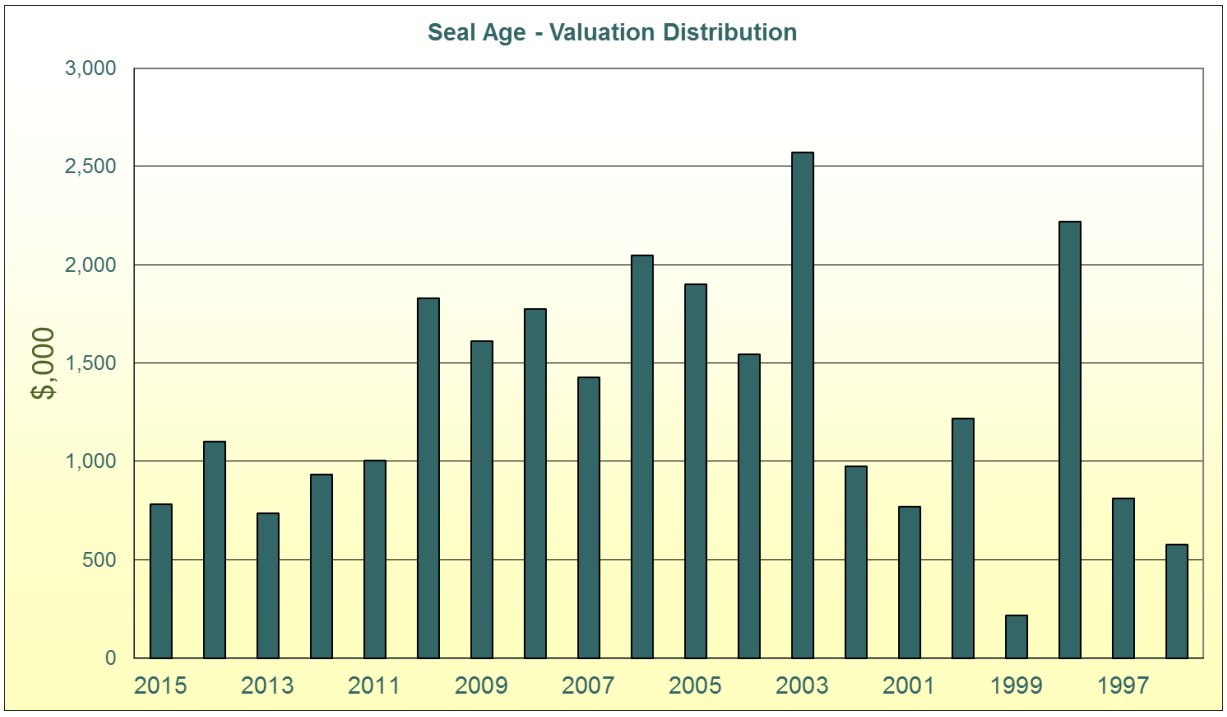
**Table 33 Historical road asset condition**

| Asset Category / Component | Weighted Average Asset Condition | | | | |
|---|---|---|---|---|---|
| | Nov. 2004 Survey Result | Dec. 2008 Survey Result | Jan. 2012 Survey Result | June 2014 Survey Results | Comments/Trend |
| Sealed Road Pavements | 3.52 | 3.90 | 4.01 | **4.07** | **Worse since last survey** |
| Sealed Road Surfaces | 3.23 | 3.12 | 3.02 | **3.78** | **Worse since last survey** |
| Kerb & Channel | 4.28 | 3.73 | 3.57 | **3.52** | **Better since last survey** |
| Unsealed Road Pavements | 2.95 | 1.81 | 2.71 | **1.92** | **Better since last survey** |

### 6.3.7 Age Profile

**Seal Age Profile**

The graph below shows the value of seals created/renewed in particular year.




Seal age distribution indicates that there has been significant decline in sealing budget in last 10 years.

**Pavement Age Profile**

**Improvement Action: 7 further research on age profiles for pavements and kerbs**

## 6.4 Asset Valuations

### 6.4.1 Valuation Summary

**Table 34 Valuation Summary**

| Asset Component | Brownfield rate $/unit | Fair Value Rate $ | Brownfield Differs Fair value? | Basis for difference | Total Valuation | |
|---|---|---|---|---|---|---|
| | | | | | Brownfield $ | Fair Value $ |
| Urban sealed pavement | Refer section 6.7.5 | Refer to AMP Attachment #2 - Valuations & Rates | | | $47,881,770 | Refer to AMP Attachment #2 - Valuations & Rates |
| Urban sealed surface | | | | | $8,869,283 | |
| Kerb & channel | | | | | $24,347,952 | |
| Road formation | | | | | - | |
| Rural Sealed Pavement | | | | | $111,087,299 | |
| Rural Sealed Road Shoulders | | | | | $13,208,198 | |
| Rural Road formation | | | | | - | |
| Rural sealed surface | | | | | $17,133,261 | |
| Unsealed road pavement | | | | | $20,864,129 | |
| Off Road Carparks Pavement | | | | | $2,847,320 | |
| Off Road Carparks Surface | | | | | $452,309 | |
| | | | | | **$246,691,521.00** | |

The brownfield unit rates for valuation purpose are determined by using the contractor rates for various contracts during the year. If any rates are not available, the rates are then calculated based on in-house construction unit rates or previous year's unit rates increased by relevant indexation. Developer rates can be used for greenfield unit rate calculation.

## 6.5 Historical Data

Important or relevant historical data applicable to the road assets included in this plan are:

| Asset Category/Component | Available Historical Data | Location |
|---|---|---|
| Sealed Road Pavement | Condition Assessment | Moloney Asset Management System |
| Sealed Surface | Condition Assessment | Moloney Asset Management System |
| Shoulder Pavement | Condition Assessment | Moloney Asset Management System |
| Kerb & Channel | Condition Assessment | Moloney Asset Management System |
| Unsealed Pavement | Condition Assessment | Moloney Asset Management System |

## 6.6 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.

### 6.6.1 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, and often impacts on service and

safety. Examples include the repair of isolated damage to surface seals, such as potholes.

- **Planned maintenance** includes items that are found through routine inspections and general operation, and have high priority or impact, but pose no immediate threat to service or safety. Examples include the grading of gravel roads.
- **Cyclic maintenance** is the service/ replacement of an asset's less significant components and inspections that are undertaken on a regular cycle. Examples include the replacement of missing guide posts.

Council is responsible for funding maintenance on its owned road network. Routine road inspections and proactive condition assessments performed in accordance with the Road Management Plan identify isolated failures and recommend actions and remedial works. Council's maintenance plan is shown in table below

| Road Maintenance Process/ Item | Maintenance Plan/ Strategy |
|---|---|
| Post-fire and flooding inspections | Inspect roads in flooded/fire effected areas, issue work orders as required, document damage to lodge claims as required. |
| Reactive Maintenance Requests (logged on to Merit system) | Request allocated to Operations unit for inspection/ issue of work order– all work order actions to be monitored and completed in a timely manner. |
| Planned Maintenance (value <$5,000) | Planned maintenance identified by periodic inspections with works prioritisation by Operations Unit within available operational budget. |
| Planned Maintenance (value >$5,000) | Planned maintenance identified by periodic condition assessments with works prioritisation by Operations Unit within capital works budget and in accordance with the Capital Works Evaluation Process. |
| Cyclic Maintenance (including inspections) | Cyclic maintenance is programmed by HRCC Operations Department and costed within available operational budget |

Maintenance activities included in the Road Management Plan include:

- Removal of materials fallen from vehicles, dead animals, wet clay and other slippery substances and hazardous materials
- Removal of accumulation of dirt or granular materials on the traffic lane of sealed roads
- Rectification of ponding of water greater than 300 mm deep, fallen trees, oil spills, stray livestock
- Potholes repair
- Pavement deformation repair
- Seal edge breaks repair
- Rectification of damaged or missing drainage pit lids, surrounds, grates, in pedestrian areas or traffic lanes
- Tree and shrub obstruction pruning
- Envelope clearance for traffic and pedestrian/bicycle paths.
- Replacement of missing/damaged/illegible signs

- Replacement of missing guide post at critical locations
- Replacement/correction of missing/damaged safety barriers and fences
- Rectification of missing/illegible/confusing line markings at critical locations
- Repair of bridges and major culvert damage affecting the structural performance
- Repair/replacement of inoperable/confusing traffic signals

### 6.6.2 Maintenance Decision Making Process (Planned and Unplanned)

The maintenance decision making process applicable to all assets is summarised below:

AMP Process 7: Maintenance Planning

| Step | Description | Responsibility | Timeframe |
|---|---|---|---|
| 1 | Potential maintenance tasks are identified from:<br>• Scheduled Defect Inspections,<br>• One-off inspections instigated by customer requests,<br>• Condition surveys.<br>Only defects exceeding any nominated Works Intervention Level are recorded | Maintenance Provider | Ongoing |
| 2 | Recorded defects are assessed against an intervention criteria, as either:<br>• Emergency work;<br>• Exceeding any Hazard Intervention Level;<br>• Not exceeding any Hazard Intervention Level; or<br>• An excessive scale or cost | Maintenance Provider | Ongoing |
| 3 | The following actions are undertaken for defects:<br>• **Emergency Work** → Immediate action undertaken;<br>• **Exceeding any Hazard Intervention Level** → Interim Action undertaken. Works Order immediately issued;<br>• **Not exceeding any Hazard Intervention Level** (or no hazard intervention level set) → Actions prioritized according to established ranking criteria. Works Orders issued depending on budget;<br>• **Of excessive scale or cost** → Referred to the capital works program | Maintenance Provider or Asset Provider | Ongoing |
| 4 | Following the completion of works, in accordance with the Asset Handover process, details of any change in asset profile or condition is reported to the Asset Engineer for amending/updating the Asset Register. | Project Officer or Maintenance Provider | As required |

Where:

**Emergency Works**: Any event or occurrence where the likelihood of an accident or loss is almost certain and the consequences are considered major or catastrophic;

**Hazard Intervention Level:** When the condition of a defect deteriorates to the hazard intervention level that represents a high risk to the user then the defect (a "hazard defect") is corrected as a matter of priority;

**Interim Action:** Where a defect condition exceeds the hazard intervention level, interim action shall be undertaken to make the site safe for the period until the hazard is rectified.

### 6.6.3 Defect Inspections

**Defect Inspection**: A programmed inspection of the asset to identify the number and extent of defects. Defect Inspections are a critical part of the planned, pro-active maintenance process.

Roads are inspected for defects on a scheduled frequency, based on the asset type, asset hierarchy and the risk associated with the defect. Inspection frequency is detailed in the table below:

| Road Classification | Day time Inspection frequency | Night time inspection frequency |
|---|---|---|
| Link | Six monthly | Two yearly |
| Collector | Twelve monthly | N/A |
| Access | Two yearly | N/A |
| Minor | Three yearly | N/A |

In some instances certain assets, associated with minimal or no risk, may not be inspected and will be subject to unplanned maintenance only.

### 6.6.4 Prioritisation of Maintenance Works

Defect works exceeding the minimum Works Intervention Level are prioritised in accordance with established criteria as established in this AMP and Road Management Plan.

The criteria take into account the defect:

- Works Intervention Level;
- Severity (condition);
- Relative risk or importance of the defect compared to other defects;
- Asset hierarchy or location; and
- Location of the defect within the asset.

### 6.6.5 Defect Response Times

Defect response times are applicable to the following defects:

- Refer to Council's Road Management Plan

### 6.6.6 Maintenance Standards and Specifications

The standards for road maintenance, as described by the Hazard Intervention Level, are described in Council's Road Management Plan

Maintenance standards that not included in Road Management Plan are listed in the table 35 below. These standards will be applied subject to need and budget availability.

**Table 35 Maintenance standards not included in Road Management Plan**

| Asset | Category | Intervention Level | Response Time |
|---|---|---|---|
| **Sealed Road** | | | |
| Crack sealing: Filling of cracks and joints | Link/Collector | Program and seal cracks 3 mm and wider | Within 12 weeks of detection* |
| | Access | | Within 16 weeks if detection* |
| Digouts/Stabilisation: Treatment of isolated failed | All | Repair when failed area is > 2 sqm. | To provide appropriate warning within 24 hours, maintain in a |

| | | | |
|---|---|---|---|
| pavement. | | | safe condition and rectify within 6 months* |
| Regulation of wheel ruts and depression | Link /Collector | Regulate if rut holds water or exceeds 50 mm in depth under a 1.2 m straight edge traverse or a 5m straight edge longitudinal. | 20 days* |
| | Access | | 30 days* |
| Spot filling, grading and reshaping of unsealed shoulder to correct;<br>- drop off from edge of seal to shoulder<br>- roughness, scouring or potholes<br>- holding of water | | | Grade once per year* |
| **Kerb and Channel** | | | |
| Kerb and channel maintenance | | - Vertical displacement more than 20 mm<br>- Cracks and missing pieces wider than 10 mm and longer than 50 mm<br>- Tree roots causing a total rise of 50 mm above vertical alignment of the path<br>- Moving and broken pieces with movement of more than 20 mm<br>- Hole at end or side with a depth greater than 25 mm and presenting a hazard to users | To provide appropriate warning within 2 days. Where major works required then to be placed on programmed works* |

*where it is not possible to rectify the defect within the specified response time due to workload or the level of resources required, appropriate warning signs are to be provided until the repair is completed.

### 6.6.7 Future Maintenance Costs

Future maintenance costs are extracted directly from the model Asset Graph results and are summarised in the AMP Attachment #3 Financial Summary.

## 6.7 Renewal/Replacement Plan

### 6.7.1 Renewal/Replacement Planning Process

Council's process for identifying and undertaking renewal/replacement works is shown below:

AMP Process 8: Renewal Planning

| Step | Description | Responsibility | Timeframe |
|---|---|---|---|
| 1 | Potential renewal projects identified from the:<br>• Outcome of condition surveys based on condition rating and remaining life.<br>• As required condition inspections | Asset Engineer | Ongoing |
| 2 | Projects are inspected to verify the current condition rating. | Asset Engineer | Ongoing |

| | | | |
|---|---|---|---|
| 3 | Projects are prioritised into a draft Long Term Renewal Program according to the established weighting system detailed in this AMP. | Asset Engineer | Ongoing |
| 4 | The Long Term Renewal Program is referred to the Long Term Financial Plan for inclusion as projected cash-flow expenditure. | Finance Manager and Asset Engineer | Annually |
| 5 | The actual program is confirmed against the actual funding provided in the LTFP based on the renewal modelling outcomes. | Finance Manager | Annually |
| 6 | As part of the Annual Budget process the Long Term Renewal Works Program is rationalized to match the available budget expenditure. This Annual Renewal Works Program may be further modified to provide greater efficiency by allow for factors including economies of scale and project location. | Asset Engineer and Finance Manager | Annually |
| 7 | Following the completion of works in accordance with the Asset Handover process details of the change in assets is reported to the Asset Engineer for inclusion/updating the Asset Register. | Project Officer or Asset Provider | As required |

### 6.7.2 Renewal/Replacement Priority Ranking

The Asset Management team, as part of their management process may take into account the following key factors:

- Cost rehabilitation versus replacement versus augmentation.
- Possible increases in life of the various treatments.
- Benefits to the customers.
- Amount and timing of capital investment required.
- Annual periodic maintenance and operating costs.

**Table 36 Renewal priority ranking**

| Renewal program | Priority ranking basis |
|---|---|
| Rural Sealed Pavement Rehabilitation<br>Urban Sealed Pavement (with K&C) Rehabilitation | • Condition above intervention<br>• Hierarchy<br>• Strategic Route |
| Bituminous Reseals | • Condition rating above intervention<br>• Hierarchy<br>• Seal age |
| Final Seals | • Final seals are undertaken typically one complete cycle of summer and winter following completion of a primer seal on a pavement rehabilitation project. This can be extended to two years subject to budget constraints and traffic volume. |
| Sealed Shoulder Resheet | • Condition above intervention<br>• Hierarchy<br>• Strategic Route (Traffic Volume)<br>• Seal Width |
| Gravel Resheet Program | • Condition (depth of gravel)<br>• Hierarchy<br>• Safety considerations (location, alignment) |
| K&C Rehabilitation | • Condition |
| Car park Renewal | • Condition |

10% extra weightage for link and 5% extra weightage for collector road condition to be allowed

### 6.7.3 Renewal/Replacement Capital Works Program

Current renewal capital works programs listed in the general ledger are:

- URBAN - 1
- Urban Road Construction - 2
- Urban Road Kerb Rehabilitation - 3
- Urban Road Final Seals - 6
- Urban Carpark Final Seals - 7
- Urban Road Re-seals - 8
- Urban Carpark Re-seals - 9
- Aerodrome Reseals - 10
- Livestock Reseals - 11
- Other Re-seals / Re-Asphalts - 12
- Rural - 13
- Rural Road Construction - 14
- Rural Sealed Rds Shoulder Re-Sheets - 15
- Rural Final Seals - 16
- Rural Road Re-seals - 17
- Rural Gravel Rds Re-sheets - 18

The draft Renewal Capital Works Programs, developed from the ranking methodology, are included in AMP Attachment #4 – Capital Works Programs.

### 6.7.4 Treatment Options

**Table 37 Treatment options**

| Asset Component | Treatment Option | Comments (why used, not used) |
|---|---|---|
| Sealed Pavement | Reconstruction: Strengthen road sub-base and/or base course | Replacement of the existing base courses and/or subgrade and replace with new material |
| | Rehabilitation: Strengthen road sub-base and/or base course | Used where only parts of the pavement are exhibiting distress and it is more cost effective to repair these areas only? In rural areas rehabilitation involves removing the existing seal and constructing an overlay. That is, providing an additional pavement layer on the existing pavement construction |
| | Major patching repair of isolated pavement failures | Removal of the failed section of pavement (and possibly subgrade) material and replace with new materials, including surfacing. Usually involves areas great than 10 m2. |
| | In-situ pavement stabilisation strengthen road sub-base and/or base course | Increase the strength of existing base course/ sub-base materials by adding a stabiliser (hydrated lime or cement) and re-compacting. |
| | New developments/subdivisions – full depth pavement construction | Due to the expansive nature of Horsham subgrade, full depth (400 mm) pavement construction shall be preferred. The main reason behind this is if the road becomes uneven and rough in 20 – 30 years' time due to subgrade movement, the pavement can be stabilised and sealed at |

| Asset Component | Treatment Option | Comments (why used, not used) |
|---|---|---|
| | | the cheaper rate. Generally, the roughness in HRCC's urban roads is created by subgrade movement rather than pavement failure. |
| Sealed surfaces | Aggregate sizes | The current reseal strategy uses either 7 mm or 10 mm aggregate in urban areas to minimise noise factors, and 10 mm and 14 mm aggregate in rural areas to maximise skid resistance. 7 mm aggregate may still be used in rural applications if a need for this is specifically identified. |
| Kerbs and Channel | Reconstruction | Replace with Kerb & Channel |
| | Isolated kerb replacement | Removal of the failed section and replace it with brand new Kerb & Channel generally more than 10m. Smaller than 10m is generally done under maintenance. |
| | Installation of pit | At some location, due to the subgrade failure, a section of road might subside. At this situation Kerb & Channel doesn't generally works properly resulting in water ponding. This situation can be overcome by installation of pit at the lowest point created by localised subsidence. Similar treatment was undertaken in Creek Crescent in 2013/14. |

### 6.7.5 Future Renewal Costs

#### 6.7.5.1 Renewal Modelling - Renewal Rates

The Moloney Asset Sets used in renewal modelling are detailed below. The renewal rates, and the basis and assumptions by which these rates have been adopted are also listed in table 38.

**Table 38 Renewal modelling unit rates**

| Asset Component | | Corresponding Standard Moloney Set | Renewal Rate/unit $ | Greenfield or Brownfield | Basis for Renewal Rate |
|---|---|---|---|---|---|
| Urban Sealed Pavement | High traffic | Urban Roads Group Sealed Pavement (High Traffic - Link/Coll.) | 37/m2 | Brownfield | Refer to AMP Attachment #2 Valuation |
| | Low Traffic | Urban Roads Group Sealed Pavement (Low Traffic - Access/Minor) | 37/m2 | Brownfield | |
| Urban Sealed surface | Asphalt High traffic | Urban Roads Group Asphalt Seal (High Traffic - Link/Coll.) | 27/m2 | Brownfield | |
| | Asphalt Low Traffic | Urban Roads Group Asphalt Seal (Low Traffic - Access/Minor) | 27/m2 | Brownfield | |
| | Spray Seal High traffic | Urban Roads Group Spray Seal (High Traffic - Link/Coll.) | 5.20/m2 | Brownfield | |
| | Spray seal Low Traffic | Urban Roads Group Spray Seal (Low Traffic - Access/Minor) | 4.60/m2 | Brownfield | |
| Kerb & channel | | Urban Roads Group All Kerbs | 112/m | Brownfield | |
| Road Formation | | Not Modelled | | | |

| | | | | | |
|---|---|---|---|---|---|
| Rural Sealed Pavement | High traffic | Rural Roads Group Sealed Pavement (High Traffic - Link/Coll.) | 22.5/m2 | Brownfield | |
| | Low Traffic | Rural Roads Group Sealed Pavement (Low Traffic - Access/Minor) | 21/m2 | Brownfield | |
| Rural Sealed surface | High traffic | Rural Roads Group Spray Seal (High Traffic - Link/Coll.) | 4.9/m2 | Greenfield | |
| | Low Traffic | Rural Roads Group Spray Seal (Low Traffic - Access/Minor) | 4.9/m2 | Greenfield | |
| Shoulders | High traffic | Rural Roads Group Should. Pavement (High Traffic - Link/Coll.) | 8.5/m2 | Brownfield | |
| | Low Traffic | Rural Roads Group Should. Pavement (Low Traffic - Access/Minor) | 8/m2 | Brownfield | |
| Unsealed Road Pavement | High traffic | Unseal Road Group Unseal Pavement (High Traffic - Link/Coll.) | 3.9/m2 | Brownfield | |
| | Low Traffic | Unseal Road Group Unseal Pavement (Low Traffic - Access/Minor) | 3.9/m2 | Brownfield | |
| Car park pavement | | Not Modelled | | | |
| Car park seal | | Not Modelled | | | |

#### 6.7.5.2 Renewal Demand and Renewal Gap

The current renewal demand and renewal gap is detailed in the AMP Attachment #3 - Financial Projections.

#### 6.7.5.3 Proposed Renewal Funding Solution

Based on the advice of the available funding the renewal funding solution is detailed in the AMP Attachment #3 -Financial Projections.

## 6.8 New and Upgrade Plan

### 6.8.1 New and Upgrade Planning Process

Potential new and upgrade works may be identified from a number of sources, including:

- From the Service Strategy / Plan,
- Community engagement – discussions re: current issues and future needs,
- Under-capacity analysis,
- Assessment of future demand, and
- Risk assessment.

AMP Process 9 New and Upgrade Planning

| Step | Description | Responsibility | Timeframe |
|---|---|---|---|
| 1 | Identify new and upgrade projects from above mentioned sources | Service Provider and Asset Provider | Ongoing |
| 2 | Projects are evaluated against the Capital Evaluation Framework | Evaluation Committee | Annually |
| 3 | Projects are prioritised into single Long Term New and Upgrade activities according to the established assessment system in the Capital | Evaluation Committee | Annually |

| | | | |
|---|---|---|---|
| | Evaluation Framework. | | |
| 4 | The New and Upgrade Works Program is referred to the Long Term Financial Plan for inclusion as projected cash-flow expenditure. | Evaluation Committee<br>Finance Manager | Annually |
| 5 | As part of the Annual Budget process the Long Term New and Upgrade Works Program is rationalized to match the available budget expenditure and new priorities. | Evaluation Committee<br>Finance Manager | Annually |
| 6 | Following the completion of works in accordance with the Asset Handover process details of the change in assets is reported to the Asset Engineer for inclusion in the Asset Register. | Project Officer<br>Asset Provider | As required |

As stated in Step 2 above, all new and upgrade projects are prioritised and programmed using Council's Capital Evaluation Framework as part of the annual capital works budgeting process. Capital works selection criteria would typically include issues such as:

- Fit with Council strategies -
- Service level
- Social impact on community
- Capital finance source
- Operational/maintenance cost
- Environmental impacts aspects
- Consequences/likelihood of risk
- Capital classification – renew/new/upgrade

### 6.8.2 Future New and Upgrade Costs and Programs Identified in this Plan

Due to the increasing demand of higher mass vehicles on our local roads there is a need for consideration of the upgrading of these roads. Consideration should be given to the following upgrades.

- Link sealed roads need to be increased in width from 3.7 m to 6.2 m.
- Sealed road construction versus unsealed paved road
- Greater pavement depth for higher traffic unsealed paved roads

New and Upgrade programs and costs are identified from:

- Service Strategies/Plans relevant to road assets,
- Community engagement – discussions re: current issues and future needs,
- Under-capacity analysis,
- Assessment of future demand, and
- Risk assessment.

**Road Upgrading Guidelines**

**Guiding Principles**

The following principles are to be used as a guide when compiling the maintenance and capital works budget for consideration by council or considering any request for works on public roads within the municipality.

**Gravel Roads**

- A road may be sheeted with gravel to a 4.0 m width for that length of road from the entrance of a property with a dwelling, back to the nearest sealed/gravel road.
- Extensions of gravel pavements on roads that have traffic counts greater than 20 vpd, and service properties without a dwelling, i.e. general farm paddocks, are to be approved by Council and included for consideration in the next Council budget.
- In both cases such roads will be prioritised and only upgraded as and when finances permit.
- In the past, some minor access roads have been resheeted with some gravel to improve the accessibility. Such roads are classified as P/M (Paved under maintenance) and have very low unit rates for valuation purpose and not generally considered for renewal.
- Consideration is to be given to upgrading a gravel road where this is the primary place of a rural business, and where the property owner does not have a separate primary access for a house. At present there is not sufficient funding to resource this, however, this may change over time, and depending on the priority placed on this concept.

**Sealed Roads**

Urban Areas

- Special charge schemes are to be used to upgrade unsealed roads in urban areas where the street is a private street or street needs upgrade.
- Improved urban design which better takes into account alternative transport modes, in particular walking, cycling and mobility vehicles, and managing the speeds of vehicles
- Where an improved construction results in maintenance costs.

Rural Areas

- A road or portion of road may be sealed where Council considers it to be unsafe and hazardous if left unsealed.
- A road may be sealed with a 3.7 m seal width when traffic volume reaches 100 vpd.
- A road may be sealed with a 3.7 m seal width when the traffic volume exceeds 70 vpd of which 20% or more are heavy vehicles.
- The 3.7 m seal width may be increased to 6.2 m for crest or bend sections for safety reasons.
- The 3.7 m seals may be increased to 6.2 m seal for roads with 150 vpd where the number of heavy vehicles is 20% or more of the traffic volume.
- The 3.7 m seals may be increased to 6.2 m seal width when traffic volumes are greater than 250 vpd.
- Progressive upgrade of freight routes, both those internal to the municipality that link key locations, and those that are significant links with adjoining municipalities and arterial roads
- A road may be considered for sealing by Council if it can be shown that a sealed road is essential to the success of a business and that the business could not have been established on an existing sealed road.
- In all cases such roads will be prioritised and only upgraded as and when finances permit.

- The road to community facilities with moderate/high traffic levels.
- Supporting other economic activities, in particular tourism, including the planned Grampians Ring Road, and roads to other key tourism facilities

Requests for upgrading of roads to a higher standard that does not meet the minimum traffic volume or specified heavy vehicle counts as listed above may also be considered in the following circumstances:

a) Where a person/party contributes 50% of the cost to upgrade the road - Where cost of the upgrade work is more than $20,000 the work is to be approved by Council and provided in the following budget. Where the total cost of the upgrade work is $20,000 or less, the Director Technical Services can approve the works provided that Council's proportion can be accommodated in the road maintenance budget. Such works are to be reported to Council. Council will maintain any work completed in either of the previous two circumstances without further contribution by any party.
b) Where a person contributes 100% of the cost to upgrade/improve a road, works will be undertaken as and when it can be included in the normal works program.
c) The contributing party's contribution for any works, may at the discretion of Council, include in kind support e.g. supply and cartage of gravel. In any case, the payment shall be made prior to commencement of any work.

The Director Technical Services shall present a list of roads meeting the above guidelines for consideration by Council in February each year prior to setting of the draft budgets. Council shall also review the above guidelines each year at this time as to its operation and effectiveness.

**Table 39 Potential projects for upgrade**

| Asset | Project/Program Identified/source | Timing | Cost |
|---|---|---|---|
| Urban Roads | Upgrade of Jenkinson Avenue | 14/15 – 17/18 | |
| | Golf Course Road Widening | | |
| | Kenny Road widening | | |
| Rural Roads | Widening of Longerenong Road to 6.2m (0 to 1.2km) | 15/16 | |
| | Widening of Lower Norton Nurrabiel Road to 6.2m | 15/16 | |
| | Widening of Wonwondah Dadswells Bridge Road 1km each year | 14/15 – 19/20 | |
| | Widening of North East Wonwondah Road to 6.2m wide. 1 km each year. | 20/21 to 25/26 | |
| | Dimboola Miniyip Road widening. Cost sharing with Yarriambiack Shire Council. | ?? | |
| | Drung Jung Road widening | | WIM 150 Contribution |
| | Longerenong Road Widening | | WIM 150 Contribution |
| | Horsham Wal Wal Road, Fishers Road and Horsham Lubeck Road upgrade | | WIM 150 Contribution |

| | | | |
|---|---|---|---|
| | Wonwondah Toolondo Road widening | Subject to Budget availability | |
| | Winfields Road Sealing | Subject to Budget availability | |

Potential gravel road upgrade projects are to be assessed by the Director Technical Services in consultation with the Assets Working Group, and presented to Council for consideration.

The assets listed under asset under capacity (based on seal widths) are to be prioritised for upgrade.

Future development in this regard includes a review of the basis of the road hierarchy, and whether provision of improved, all-weather access should be consider for primary production bases on farms, in addition to residences

## 6.9 Operations Plan

### 6.9.1 Operations Planning Process

AMP Process 10: Operations Planning

| Step | Description | Responsibility | Timeframe |
|---|---|---|---|
| 1 | Identify potential changes in operating costs. | Service Provider | Annually |
| 2 | The long term asset operational costs are referred to the Long Term Financial Plan, for inclusion as a financial projection. | Service Provider Finance Manager | Annually |

### 6.9.2 Current and Future Operations Programs and Costs

Current Operations activities listed in the general ledger are:

| Current Operations Activities | Annual Cost |
|---|---|
| Street sweeping | |
| Grass mowing/slashing (Council) | |
| Strategic fire breaks | |
| Vegetation and weed control | |
| Street lighting | |

## 6.10 Rationalisation/Disposal Plan

### 6.10.1 Rationalisation/Disposal Planning Process

AMP Process 11: Disposal Planning

| Step | Description | Responsibility | Timeframe |
|---|---|---|---|
| 1 | Potential asset rationalisation/disposal identified from the Service Strategy/Plan, from an assessment of future demand in this AMP. | Service Provider, Asset Provider | Ongoing |
| 2 | Assets identified for possible disposal are tested | Service Provider, | Ongoing |

| | | | |
|---|---|---|---|
| | against the adopted criteria and placed in a Long Term Rationalisation/Disposal Program. | Asset Engineer | |
| 3 | Potential asset disposal projects are reported to Council for consideration. | Service Provider, Asset Engineer | Ongoing |
| 4 | The Long Term Rationalisation/Disposal Program is referred to the Long Term Financial Plan for inclusion as projected cash-flow expenditure. | Service Provider, Asset Engineer Finance Manager | Annually |
| 5 | As part of the Annual Budget process the Long Term Rationalisation/Disposal Program is rationalised to match the available budget expenditure and new priorities. | Asset Engineer, Finance Manager | Annually |
| 6 | Following the completion of works, in accordance with the Asset Handover process, details of the change in assets is reported to the Asset Engineer for amending/updating of the Asset Register. | Project Officer, Asset Provider | As required |

### 6.10.2 Justification for Rationalisation/Disposal

Assets may become surplus to requirements for any of the following reasons:

- No longer required;
- Under-utilisation;
- Obsolescence;
- Operationally inefficient;
- Provision exceeds required level of service;
- Uneconomic or not viable to upgrade or operate;
- Policy change;
- Service provided by other means;

### 6.10.3 Future Asset Rationalisation/Disposal Programs and Costs

Potential rationalisation/disposals identified are:

| Asset | Source/Justification for Disposal | Timing | Cost to Dispose | Changes in operation, renewal, maintenance costs |
|---|---|---|---|---|
| Nil | | | | |

# 7 FINANCIAL PLAN

## 7.1 Financial Statements and Projections

Financial projections are summarised in this section for:

- Maintenance
- Renewal
- New and upgrade
- Operations, and
- Disposal

The predicted projections are summarised in the AMP Attachment #3 - Financial Projections.

New and upgrade projects listed in 6.8.2 are referred to Capital Evaluation.

## 7.2 Funding Strategy

Expenditure has historically been funded from the following programs:

- General rates;
- Renewal reserve rates fund;
- Grants;
- Developer contributions; and
- Special charge schemes

## 7.3 Key Assumptions Made in the Financial Forecast

The following assumptions have been made in developing the financial forecast:

- Degradation curve for renewal forecasting has been generated from past experience.
- Unit rates used for the valuation purpose are generated from annual construction activities (In – house and contract jobs).
- All sealed roads are assumed to have 2 metre wide unsealed shoulders both sides.
- Link and collectors roads are classified as high traffic roads.
- The condition of unsealed road is solely based on remaining pavement depth.

### 7.3.1 Actions for Improving Future Financial Forecasts

Future financial forecast may be improved by the following improvement actions:

- Monitor degradation rate during future condition assessments and adjust degradation curves if needed.
- Develop a separate shoulder classifications i.e. road with no shoulder or varying shoulder width shall be considered separately during analysis.
- Continuously seek for improvement in condition rating methodology for unsealed road. Ensure that the methodology is repeatable.

# 8 ASSET MANAGEMENT PRACTICES

## 8.1 Information Systems

### 8.1.1 Asset Data

Key information relating to Council's road assets, such as location, dimensions, materials, surface treatment, classification or hierarchy, condition, construction date, etc. is held within the Moloney AM Systems roads spreadsheet, Council's road register and asset management system.

#### 8.1.1.1 Data Quality

Road asset data is updated regularly (at least annually) following advice received from inspections, condition surveys and changes to road asset profiles.

### 8.1.2 Accounting/Financial Systems

The accounting and financial systems used at Horsham Rural City Council are:

- Civica Authority;
- Moloney AM Systems Modelling software

Responsibility for the outputs from the financial accounting system and compliance with the Australian Accounting Standards, regulations and guidelines resides with the Manager Finance.

The Moloney modelling is used in the formulation of asset management plans, required annual modelling for state-wide MAV benchmarking, and inputs into the MAV sustainability program. Inputs into the modelling software are the responsibility of the Assets Management Coordinator.

### 8.1.3 Asset Management Systems

Details on Asset Management Systems, used by Horsham Rural City Council for road assets, are summarised below:

**Table 40 Asset management systems**

| Asset Category | Software/Asset Management System | Data Collection/Review |
|---|---|---|
| Roads, K&C, Footpaths | Moloney AM Systems Roads Module | Updated annually with new development work, and renewals, upgrades and new works. |
| Roads & Footpaths | AssetAssyst (Pitt & Sherry) Road and Footpath Maintenance Management System | Constantly updated following inspections and completed maintenance works |
| All Road Assets | MyData (Assetic) purchased and in process of implementation | At time of condition survey or when otherwise notified. |

The asset systems have the following link to the financial/accounting system:

- Valuation data from Moloney AMS is uploaded into financial system (Civica) manually.

## 8.2 Information Flow Requirements and Processes

The following information flow is necessary to ensure that Council maintains accurate data:

- As constructed plans and information relating to actual location, dimensions, materials used, design standards adopted, and any other relevant details;
- Actual costs of works completed;
- Projects / works completion reports.

## 8.3 Standards & Guidelines

Technical standards, guidelines and drawings applicable to the road assets included in this plan are:

- VicRoads Road Design manual;
- VicRoads Standard Drawings;
- VicRoads Road Construction and Maintenance Specifications;
- Road Management Act Guidelines;
- HRCC Road Management Plan;
- HRCC road construction and maintenance specifications;

- HRCC Standard Drawings;
- Infrastructure Design Manual
- Austroads

# 9 PLAN IMPROVEMENTS AND MONITORING

## 9.1 Improvement Programme

Improvement actions identified during the development of this plan are summarised in the Appendices:

Improvement Action: 1 Consult with community for development of agreed level of service. ..... 13
Improvement Action: 2 Consider reclassifying unsealed link roads to collector roads during hierarchy review. ..... 18
Improvement Action: 3 Develop parking availability target in conjunction with Parking Advisory Committee. ..... 19
Improvement Action: 4 Investigate on availability of disabled parking. ..... 19
Improvement Action: 5 Investigate and list critical risk road assets ..... 27
Improvement Action: 6 Investigate implications of having 50% residual value of unsealed road pavement at the end of its useful life. ..... 32
Improvement Action: 7 further research on age profiles for pavements and kerbs ..... 36

# 10 REFERENCES

1. VicRoads Road Design manual
2. VicRoads Standard Drawings
3. VicRoads Road Construction and Maintenance Specifications
4. Road Management Act Guidelines
5. HRCC Road Management Plan
6. HRCC Road Construction and Maintenance Specifications
7. HRCC Standard Drawings
8. HRCC Area Identification Maintenance System
9. Moloney Asset Management Systems Roads Report – Jan. 2014
10. Moloney Asset Management Systems Roads Module & Modelling Manuals
11. HRCC Renewal Funding Gap Report Nov. 2015
12. HRCC Annual Budget 2014/15
13. HRCC Annual Report 2013/14
14. Indigo Shire Council Road Asset Management Plan

# 11 APPENDICES

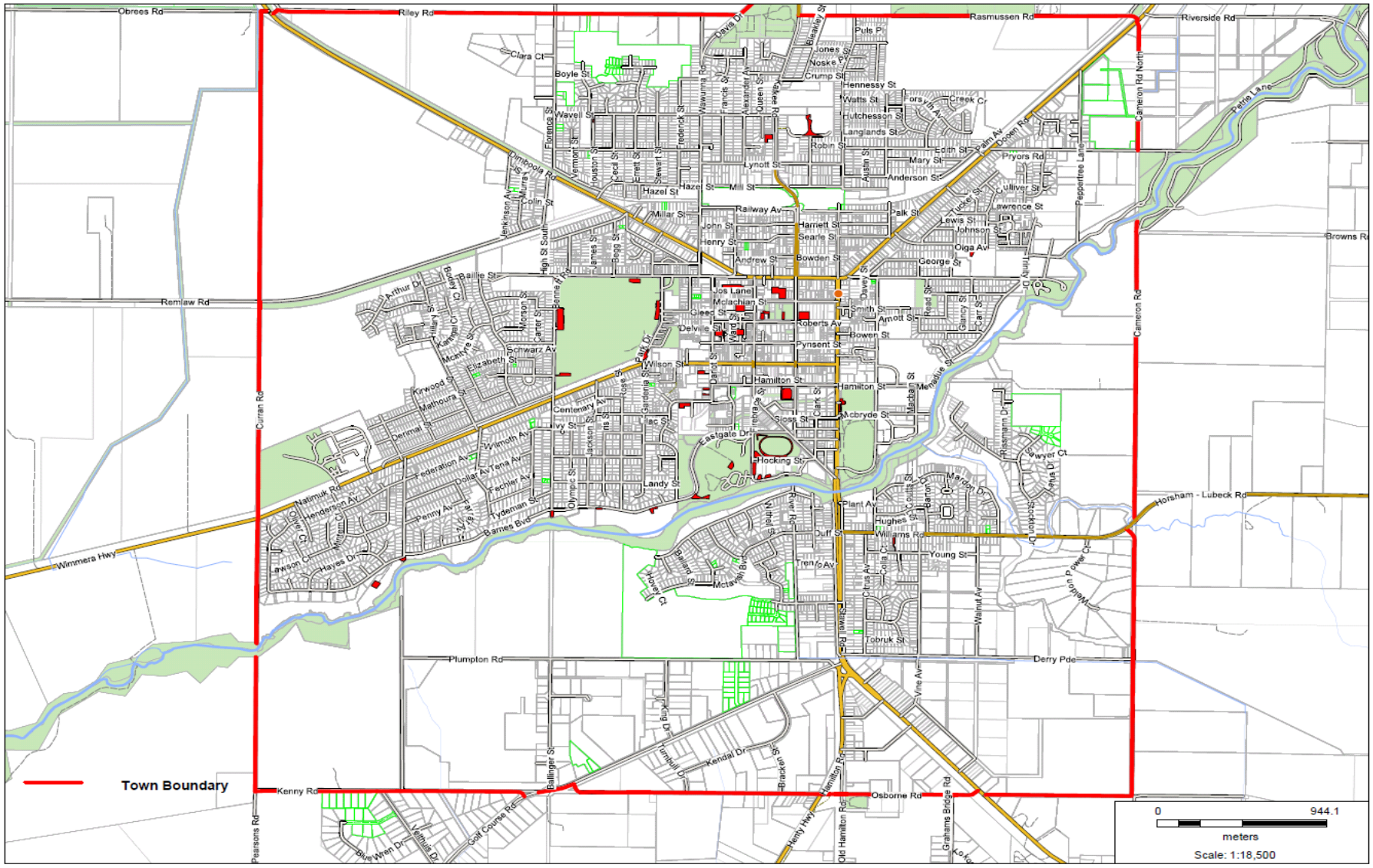
## 11.1 Assets under Capacity

Rural Road Assets based upon seal width:

| Road Name | Link Roads <6.2 m wide seal (m) | VPD | % heavy vehicle | Date of traffic count |
|---|---|---|---|---|
| Arapiles-Grass Flat Rd | 12,795 | 40 | 4 | E |
| Banyena Rd | 8,032 | 50 | 10 | E |
| Clear Lake-Sherwoods Dam Rd | 17,530 | 40 | 2 | E |
| Cooack Rd | 6,560 | 40 | 2 | E |
| Dimboola-Minyip Rd (Boundary Road) | 9,810 | 110 | 29 | Sep 2000 |
| Drung-Jung Rd | 5,060 | 137 | 58 | Aug 2011 |
| Geodetic Rd | 1,685 | 188 | 37 | Apr 2008 |
| Grahams Bridge Rd | 1,665 | 482 | 11 | Nov 2007 |
| Harrow-Clear Lake Rd | 13,360 | | | |
| Horsham-Lubeck Rd | 14,248 | | | |
| Horsham-Wal Wal Rd | 12,850 | | | |
| Jallumba-Clear Lake Rd | 287 | 46 | 27 | Aug 2000 |
| Jallumba-Douglas Rd | 7,600 | 65 | 30 | Aug 2000 |
| Jallumba-Mockinya Rd | 19,095 | 32 | 18 | July 2000 |
| Jung North Rd | 13,602 | 135 | 27 | Mar 2008 |
| Laharum Rd | 19,699 | 198 | 9 | Oct 2006 |
| Lake Rd | 2,612 | | | |
| Longerenong Rd | 63 | 418 | 58 | Aug 2011 |
| Lower Norton-Nurrabiel Rd | 3,985 | 127 | 11 | Jul 2006 |
| Mitre-Nurcoung Rd | 7,810 | | | |
| Mt Talbot Rd (Clear Lake) | 8,370 | | | |
| Noradjuha-Tooan East Rd | 9,750 | 35 | 11 | Aug 2006 |
| North East Wonwondah Rd | 8,510 | 260 | 8 | May 2008 |
| Polkemmet Rd | 20,520 | 118 | 10 | Jul 2005 |
| Riverside Rd | 820 | 398 | 4 | Jun 2006 |
| Rocklands Rd | 900 | 31 | 26 | Apr 2008 |
| Rogersons Rd | 985 | 122 | 4 | Nov 2005 |
| Roses Gap Rd | 1,175 | 36 | 5 | Mar 2008 |
| Rules East Rd | 3,250 | 8 | 25 | Aug 2006 |
| Rules West Rd | 3,864 | 15 | 7 | Aug 2006 |
| School Rd | 6,265 | 21 | 47 | Aug 2006 |
| Telangatuk East-Rocklands Rd | 24,260 | 121 | 7 | Aug 2006 |
| Tooan-Mitre Rd | 7,730 | | | |
| Wonwondah-Dadswells Bridge Rd | 6,040 | 87 | 12 | Apr 2006 |
| Wonwondah-Toolondo Rd | 5,965 | 202 | 10 | Mar 2002 |
| **TOTAL** | **286,752** | | | |

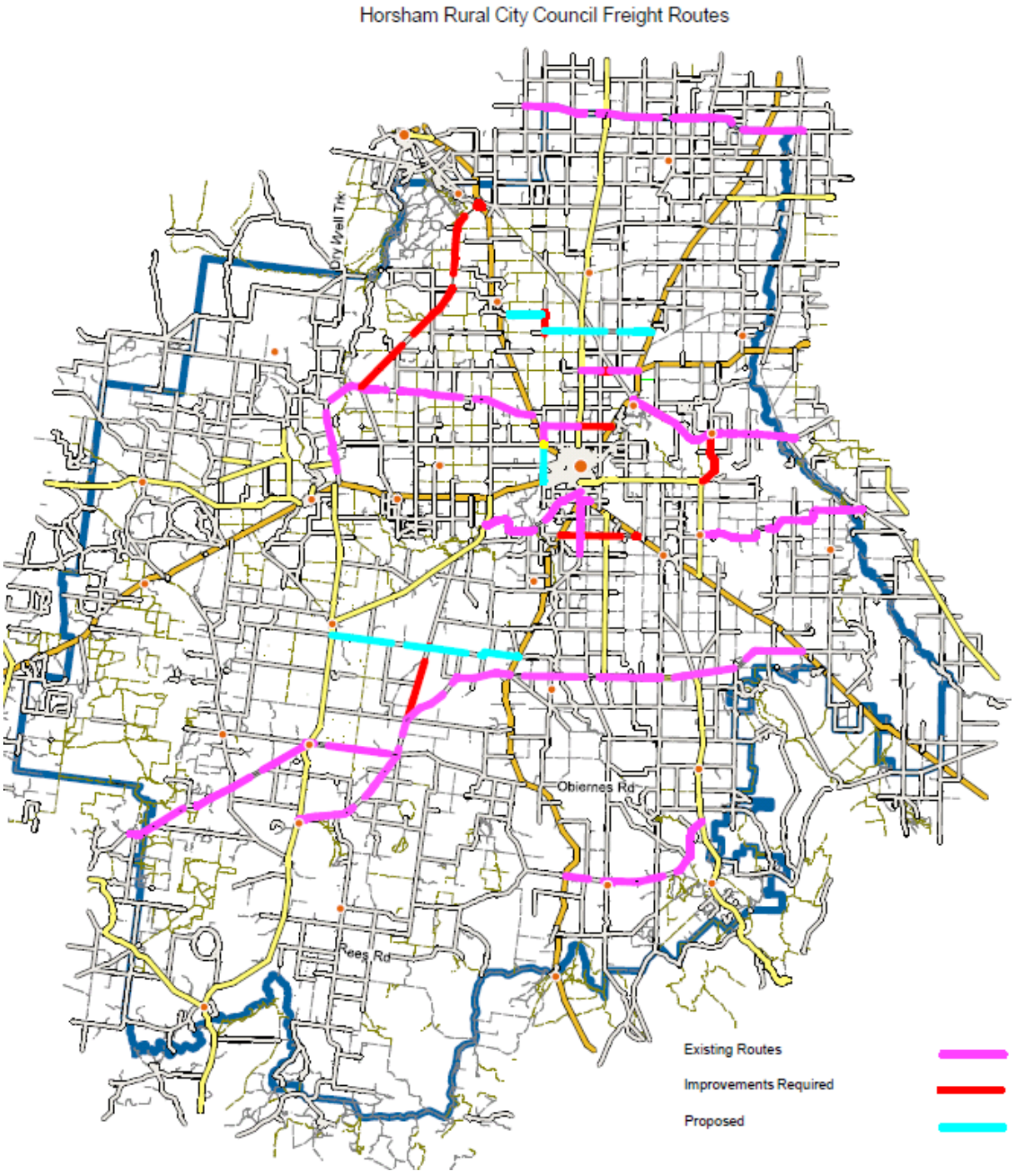
The roads marked yellow are identified as Council's high priority strategic route for upgrades.

## 11.2 Horsham Township:



## 11.3 Natimuk Township

## 11.4 Strategic Freight Route



Horsham Rural City Council urban rural balance

# ASSET MANAGEMENT PLAN - ATTACHMENT #3
# INFRASTRUCTURE FINANCIAL PROJECTIONS

## 2015-16

## 1 Introduction

This report provides the annual result for infrastructure asset renewal forecasts in accordance with the principles stated in clause 6.7.5 of the Asset Management Plan Part A General Information.

Assets are reported at asset component level, utilising the following information provided in Parts B – G Asset Management Plans:

| Input Data | Source |
|---|---|
| Intervention level | AMP section 6.5 |
| Useful life | AMP section 6.5 |
| Condition rating distribution | Asset Register |
| Annual renewal expenditure | Annual budget |
| Annual maintenance expenditure | Annual budget |
| Asset quantity | Asset register |
| Renewal rates | AMP section 6.7 |
| Deterioration graph profile | AMP section 6.3 |

## 2 Renewal Demand and Renewal Gap Forecast

### 2.1 Results

The following results are extracted from the modelling done July 2014 during 3 yearly road revaluation process. Please note, only road infrastructure is used in this model as it forms about 80% of total of Council's assets. Other asset data will be entered into the model upon the availability of condition data.

| | |
|---|---|
| Total Renewal Value Road Assets $* | **$270,486,502** |
| Total Present Renewal Exp $ | **$4,572,300** |
| Av Annual rate of Asset Consumption to Cond.10 | **$5,775,982** |
| Av Annual rate of Asset Consumption to Intervention Cond. | **$6,902,792** |
| % of Long Term Av Consumption being met | **66.24%** |

The Av Annual rate of Asset Consumption to Intervention Condition of $6.9M represents the funding target must be able to achieve.

*Total renewal value used for modelling purpose doesn't include the renewal value of formation and includes the value of shoulders.

## 2.2 Graphical Results

For the next 20 year period following reports are attached:

### 2.2.1 Predicted annual renewal expenditure requirement

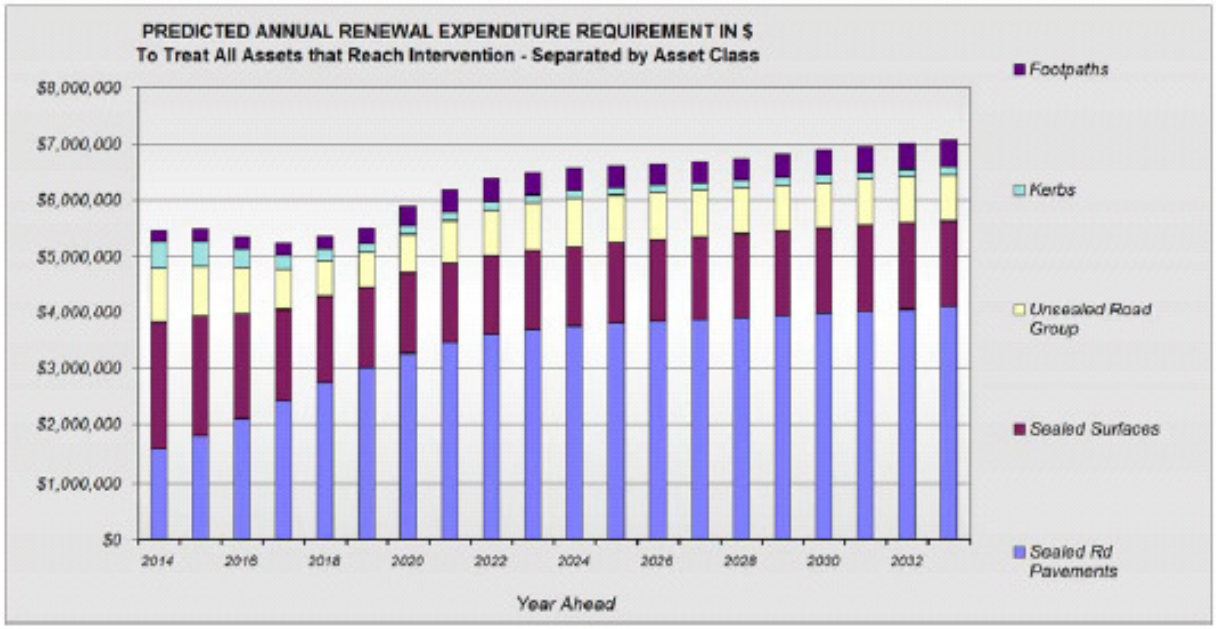



Fig Predicted Renewal Demand to treat all assets that reach the Intervention level in future years

### 2.2.2 Total annual renewal gap

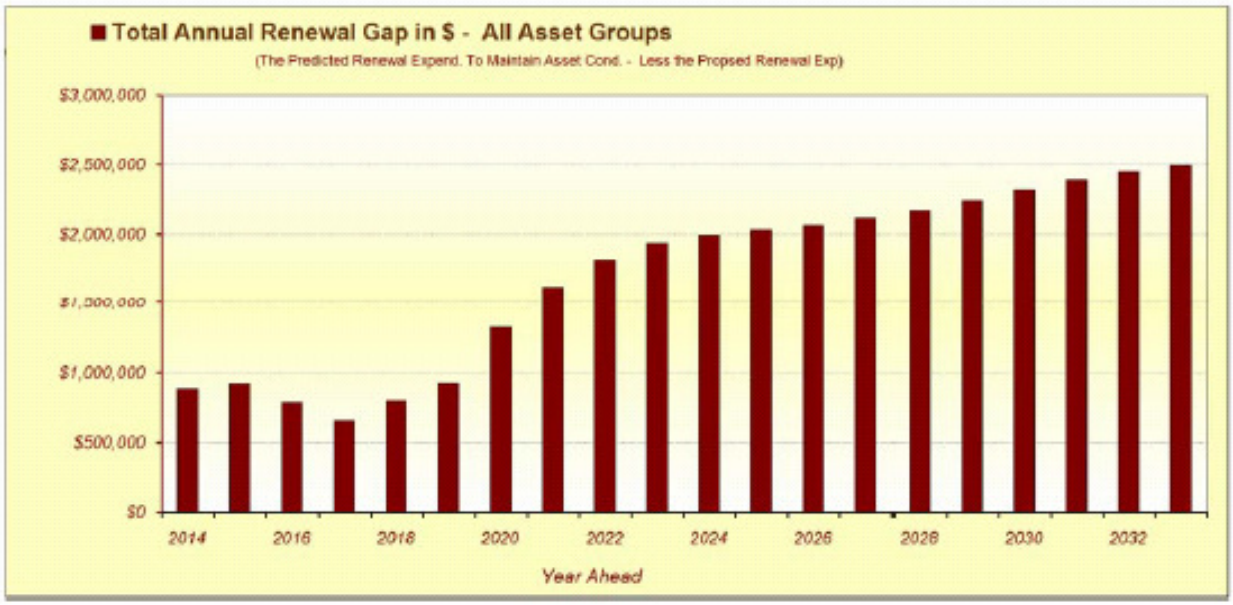



Fig Future Predicted Renewal Gap

### 2.2.3 Future predicted condition based on continuation of present renewal expenditure

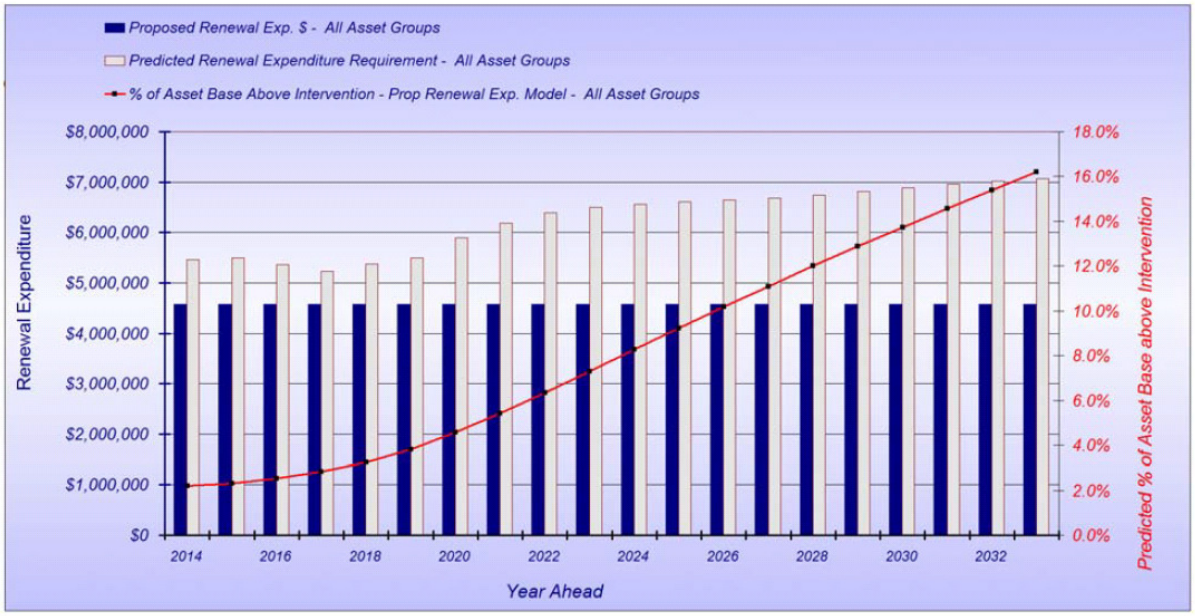



Fig Future Predicted Condition Based on Continuation of Present Renewal Expenditure

Comments:

- Red line is expressed as predicted % of asset base above selected intervention level.
- Present extent of over intervention assets (backlog) on the whole of road asset group is estimated at $6.5M, which represents 2.41% of the entire network.
- This is approaching the upper limit of what is considered to be a reasonable extent of over intervention assets in industry standards.
- If the current level of renewal expenditure is maintained over next 20 years, a steady rise in the total extent of over intervention asset assets will increase to dangerous and unacceptable levels (around 16% i.e. 1 in 6 roads will be due for renewal).
- The upper limit for total over intervention assets on the road network is considered to be about 3% to 3.5%.

### 2.2.4 Recommended expenditure profile:

Comments:

- New funding profile is developed to achieve the same % of over intervention assets (2.41%) in 10 years' time.
- 3% compounding increase in annual allocation for renewal funding for next 10 years is recommended to achieve this.
- This recommended funding profile may not treat all present over intervention assets within first 2 to 5 years but it will allow HRCC to reach a desired extent of the asset base to be above the intervention level within the desired time frame.
- The fact that there might be further more increase in renewal funding level from year 10 to 20 shall also be considered.

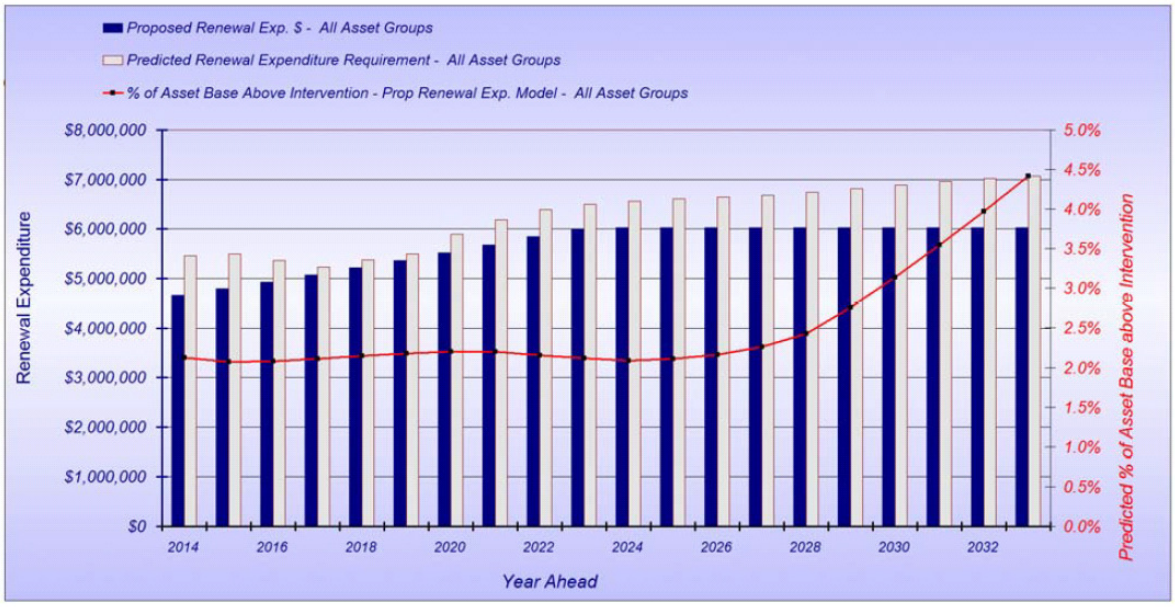



Fig Recommended future funding profile with future predicted extent of over intervention assets

## 2.3 Level of Confidence

- Medium to High.
- Analysis was done following the recent condition assessment of entire road network.
- Analysis was done by an independent consultant.
- With aging and one of the most difficult subgrade in the state, the raising renewal demand should come as no surprise.

# 3 Funding Strategy

Based on the graph attached in section 2.2.3, it is evident that the current level of renewal expenditure will lead to a dangerous, unacceptable and unsustainable situation. The table below shows the recommended renewal funding strategy for road asset for year 1.

| Sub Asset Description | Present total Annual Capital Renewal Expenditure | Recommended year 1 renewal funding with 3.0% annual increase for 10-Years | Annual Depreciation or Average Long term Annual Demand | Peak Capital Renewal Demand From Modelling | Predicted Year of Peak Demand | % of Annual Depreciation (consumption Rate) Being Met |
|---|---|---|---|---|---|---|
| Sealed Pavements | **$2,342,000** | **$2,420,000** | **$2,447,337** | $4,115,000 | 2033 | **96%** |
| Sealed Surfaces | **$933,600** | **$1,242,000** | **$2,149,768** | $2,243,000 | 2015 | **43%** |
| Unsealed Pavements | **$670,000** | **$600,000** | **$848,566** | $974,000 | 2015 | **79%** |
| Kerbs | **$353,000** | **$150,000** | **$431,511** | $475,000 | 2015 | **82%** |
| Footpaths | **$274,000** | **$260,000** | **$474,623** | $480,000 | 2033 | **58%** |
| Totals | **$4,572,600** | **$4,672,000** | **$6,351,806** | $7,066,000 | 2033 | **72%** |

Fig Recommended Annual Renewal Expenditure levels

It is recommended to increase the renewal funding level by 3% compounding for next 10 years.

Sealed Surface:

- Only 42% of seal surface renewal demand has been met.
- Significant movement of condition since last survey. Weighted average condition moved from 3.23 in 2012 to 3.78 in 2014 as shown in the graph and table below.
- Seal age profile in section 6.3.7 of Road AMP indicates that there has been significant reduction in sealing effort in last 5 years.
- Recommendation: Increase the annual sealing expenditure to $1.242M

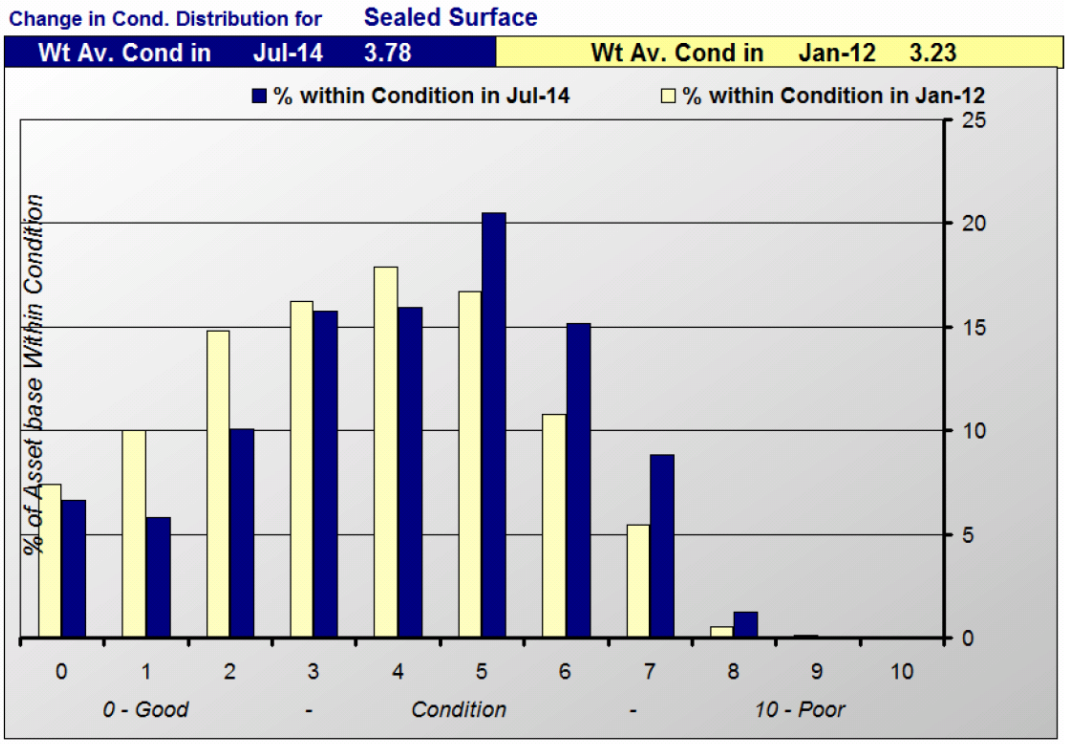



Fig. Condition Distribution Comparison Graph – Between Surveys all Sealed Surfaces

| Key Cond. Indic. No. | Sealed Surface Condition Indicator | Figures from Last Survey in Jan-12 | Figures from Current Survey in Jul-14 | Change between Surveys New Minus Old | % Change Between Surveys | Better or Worse Since last Survey |
|---|---|---|---|---|---|---|
| 1 | Weighted Average Asset Condition | 3.230 | 3.784 | -0.554 | -17.1 | Worse |
| 2 | % of Asset Base above Condition 6 | 16.891 | 25.247 | -8.356 | -49.5 | Worse |
| 3 | % of Asset Base above Condition 7 | 6.122 | 10.091 | -3.969 | -64.8 | Worse |
| 4 | % of Asset Base above Condition 8 | 0.689 | 1.261 | -0.572 | -83.0 | Worse |
| 5 | % of Asset Base above Condition 9 | 0.127 | 0.031 | 0.095 | 75.2 | Better |

| Renewal Demand Being Met For: | % of Long Term Demand Being Met |
|---|---|
| Sealed Surface Asset Group | 43 |

Fig. Condition Change since last survey & Renewal demand being met

# 4 Maintenance Cost Projection

The assumption is held that the current maintenance costs are adequate to maintain the assets and current levels of service.

Changes in maintenance costs may be identified from:

| Potential Change | Source | Responsibility |
|---|---|---|
| Forecasts in the change in maintenance costs based on asset condition | Moloney Renewal Forecast Model | Asset Engineer |
| Additional maintenance costs that will result from increases in the asset stock | New and upgrade capital works programs whole of life analysis | Asset Engineer |
| A decrease in the asset stock | Disposal programs | |
| Change in customer needs | Community engagement<br>Levels of service review | Service planning |
| Programs to extend asset life | Asset Management Plans | Asset Engineer |
| Programs to address risk issues | Asset Management Plans | |
| Programs to address specific maintenance issues | Current works practices | Maintenance provider |

The following potential changes in maintenance funding have been identified:

- Change in consequential maintenance is identified via renewal forecast model is listed in section 6.

### 4.1.1 Forecast Maintenance Demand

The forecast maintenance costs are summarised in section 6 below.

Assumptions:

- The current maintenance expenditure is sufficient to maintain the current level of service.
- Changes in maintenance costs result from changes in the condition of the assets.

# 5 Improvement Actions

Future financial forecast may be improved by the following Improvement Actions:

- Generate appropriate asset data for other asset category along with the condition rating.
- Include other assets into the modelling.
- Seek appropriate accounting treatment for shoulders. Moloney model considers its value separately but accounting valuation does not.

# 6 Summary of cost forecast:

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Yr 0 Actual | Yr 1 Budget | Year 2 Plan | Year 3 Plan | Year 4 Plan | Year 5 Plan | Year 6 Plan | Year 7 Plan | Year 8 Plan | Year 9 Plan | Yr 10 Plan |
| | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ |
| **Maintenance expenditure required in accordance with the AMP to maintain existing assets:** | | | | | | | | | | | |
| Sealed Pavement | | 491,544 | 499,514 | 507,129 | 514,128 | 520,296 | 525,484 | 529,614 | 532,668 | 534,760 | 536,736 |
| Sealed Surfaces | | 415,367 | 416,306 | 416,681 | 416,328 | 415,061 | 412,703 | 409,115 | 404,218 | 398,353 | 392,535 |
| Unsealed Pavement | | 320,975 | 313,827 | 309,582 | 308,879 | 308,694 | 308,900 | 309,297 | 311,260 | 313,335 | 314,889 |
| Kerb and Channel | | 85,696 | 86,316 | 86,866 | 87,348 | 87,768 | 88,128 | 88,431 | 88,678 | 88,873 | 89,065 |
| Footpath | | 183,953 | 187,348 | 190,474 | 192,391 | 193,406 | 193,673 | 193,402 | 192,573 | 191,940 | 191,551 |
| **Total** | | **1,497,535** | **1,503,311** | **1,510,732** | **1,519,074** | **1,525,225** | **1,528,888** | **1,529,859** | **1,529,397** | **1,527,261** | **1,524,776** |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Capital expenditure projected as required in the AMP on Renewal or Replacement of Existing Assets:** | | | | | | | | | | | |
| Sealed Pavement | | 2,501,862 | 2,576,918 | 2,654,225 | 2,733,852 | 2,815,867 | 2,900,344 | 2,987,354 | 3,076,974 | 3,169,284 | 3,169,284 |
| Sealed Surface | | 1,250,535 | 1,288,051 | 1,326,693 | 1,366,493 | 1,407,488 | 1,449,713 | 1,493,204 | 1,538,000 | 1,584,140 | 1,584,140 |
| Unsealed Pavement | | 612,000 | 624,240 | 636,725 | 649,459 | 662,448 | 675,697 | 689,211 | 702,996 | 717,056 | 731,397 |
| Kerb and Channel | | 156,183 | 160,868 | 165,694 | 170,665 | 175,785 | 181,059 | 186,490 | 192,085 | 197,848 | 197,848 |
| Footpath | | 268,791 | 276,855 | 285,160 | 293,715 | 302,527 | 311,602 | 320,950 | 330,579 | 340,496 | 340,496 |
| **Total** | | **4,789,371** | **4,926,932** | **5,068,497** | **5,214,184** | **5,364,115** | **5,518,415** | **5,677,209** | **5,840,634** | **6,008,824** | **6,023,165** |
| % of asset over intervention level with proposed funding | | 2.07% | 2.08% | 2.11% | 2.15% | 2.18% | 2.20% | 2.20% | 2.16% | 2.12% | 2.09% |