Moloney Asset Management Systems

MAMS

Report Following the Survey of
Road Assets
for Southern Midlands Council

Undertaken in Feb-2022

Report produced by Moloney Asset Management Systems
exclusively for Southern Midlands Council

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1.0 Report Summary - Major Findings

This report provides a summary of the major findings coming out of the condition survey of Southern Midlands Council's road assets undertaken by Moloney Asset Management Systems (MAMS) in Feb-2022

1.1 Major Findings

1. *The road assets within Southern Midlands Council were found to be in "Excellent" overall condition when benchmarked against all 72 councils assessed by Moloney Asset Management Systems (MAMS). This condition rating being based upon the extent of Over Intervention Assets (OIA's) present (the extent of poor condition Assets).*

2. *The sealed road pavements are in excellent overall condition but the extent of isolated pavement failures and very poor condition assets is a little high.*

3. *The sealed surfaces were found to be in good overall condition but there was relatively high level of very poor condition assets.*

4. *The unsealed road pavements were found to be in very good overall condition*

5. *The kerb assets were found to be in good overall condition with very low levels of both poor condition assets and isolated failures.*

6. *The Footpath assets were found to be in excellent overall condition but there was a slightly elevated extent of poor condition assets*

7. *The total present renewal shortfall or backlog of over intervention assets (OIA's) for the whole roads group is estimated at $1,391,529 representing 2.22% of the total road asset valuation. This equates to 52% of one full year's annual liability for the renewal of the assets and as such is considered to be within the "Excellent" Condition range (see Appendix D - Figure D 1 for details).*

8. *The current planned future renewal funding level of $1,811,000 pa for the road assets is considered to be at an appropriate total level for the next 10 years subject to normal CPI increases.*

9. *We developed a recommended funding strategy using our funding scenario finder that delivered a total annual renewal demand of $1,810,000 pa. This figure includes an additional $11,000 pa to be allocated to the repair of footpath isolated failures which were not included within our model.*

10. *The recommended funding level should be considered as an average figure over the next 10 years. It may vary year to year depending on project size and council priorities. It may also vary between the sub asset classes year to year.*

11. *Council has done a good job with the management of their road assets in recent years. But there are a few areas that do need some particular attention, all of which can be manages within the planned renewal budget.*

12. *The recommended funding strategy is just one available option. With all data now within the Moloney model, different funding scenarios can be examined quite easily. Council is encouraged to use the model to deliver a funding strategy that best meets their needs.*

13. *All financial reporting within this document is based in today's values with no allowance for any CPI movement. The Moloney software has the capacity to adjust all outputs for an adopted annual CPI increase at the touch of a button. But it is felt that reporting with CPI included can present some difficult to interpret results.*

1.1.2 Other Important findings

1. *Key performance indicators have been developed at a sub asset level that accurately benchmark asset condition change since the last survey*

2. *The same key performance indicators have been used to benchmark Southern Midlands Council externally against all 72 councils assessed by MAMS.*

2.0 Report Summary - Condition Findings

2.1 Overall condition at Sub Asset level

This section provides a summary of the condition findings at road sub asset level for each of the sub assets that were inspected.

2.1.2 Condition Findings for road sub assets

Sub Asset Description	Indicator 1 - Overall Condition	Ind. 2 - Ext of poor Cond Assets	Indicator 3 - Ext of Isolated Failures
	Based on The weighted Average Asset Condition	Based on your Extent of Poor condition Assets as compared to the 71 other Councils assessed	Based on your Extent of Isolated Failures as compared to the 71 other Councils assessed
Sealed Rd Pavements	Excellent	Higher level than average	Higher level than average
Sealed Surfaces	Better than Average	Higher level than average	N/A
Unsealed Rd Pavements	Excellent	Quite low Levels	Very Low Level
Kerbs	A Little better than Average	Extremely Low	Extremely Low
Footpaths	Excellent	Higher levels than average	Not Assessed

Figure 2.1 Summary of sub asset condition findings

Figure 2.1 provides a summary of the overall condition findings for each of the sub asset classes that were inspected. There are three indicators that are reported upon. Each has a descriptor that ranks you against the other 72 councils that we have assessed on exactly the same basis.

1. **Overall Condition** - Derived by benchmarking your weighted average asset condition against that of all 72 councils inspected by MAMS.
2. **Extent of poor condition Assets** - This is the extent of the asset base, near or above the recommended industry intervention level and again is derived by measuring your performance against all 72 councils assessed.
3. **Extent of Isolated Failures** - For all sub assets other than sealed surfaces and in some cases footpaths, we record the extent of any isolated asset failures. These can occur within otherwise good condition asset and your base ranking is delivered by comparing your results to those of the full 72 councils assessed.

The assets were found to be in excellent overall condition. But there were some areas where the extent of poor condition assets and localised failures were a little higher than the average of the 72 councils assessed.

2.2 Standardised Full Road Network Condition Findings

This section will look at the condition and performance of the whole road network. It can be difficult to report on the performance of the whole network when dealing with sub assets that have quite different life cycles, unit renewal rates and intervention levels between different councils. We have developed a single reporting indicator that is independent of asset life, the adopted intervention level and unit renewal rates.

The total level of the Over Intervention Assets (OIA's) within a road network provides a very strong indicator of overall condition performance. The best measure of the level of OIA's is considered to be the extent of the OIA's expressed as the number of years value of the average annual liability (similar to annual depreciation in accounting terms). See Appendix D for a detailed explanation. But in brief the backlog of OIA's expressed in this way provides a really solid condition benchmark that is independent of asset service life, asset quantity and unit renewal rates.

There is one other variable that needs to be standardised and that is the intervention level. If Council "A" has a high level of service (low intervention level) and Council "B" has a low level of service (High

intervention level). Then for the same absolute extent of poor condition assets, Council B will report a lower level of OIA's than Council A. To avoid these problems we have adopted a standardised set of typical industry standard intervention levels that we apply to all councils when reporting within Figure 2.2 below.

Southern Midlands Council has a slightly lower intervention level (higher level of service) for some asset classes and hence the results within figure 2.2 below will be a little better than those based on your own intervention levels as used later in the report. Refer to Figure D 2 within appendix D for more details.

Standardised Levels of Over Intervention Assets

Present extent of OIA's expressed in three ways			Your overall road asset condition based in the extent of OIA's	
Current % of OIA's expresses in years worth of average annual liability	Your present value of OIA's in $	Your OIA's as a % of your total asset base valuation	Moloney standardised condition description	Additional comments on sandardised condition descriptor
47%	$1,140,000	1.81%	Exceptionally good	Extremely low levels of over intervention assets

Figure 2.2 Standardised levels of Over Intervention Assets

Figure 2.2 summarises the present level of OIA's for the full road network in terms of the number of year's worth of annual liability that it represents. The present figure of 47% of one full year's annual liability equates to a Moloney standardised condition description of "Exceptionally good". See Appendix D, Figure D 1 for details of the standardised descriptors.

The standardised intervention levels have delivered a slightly better overall condition outcome for Southern Midlands. This is because your adopted level of service (intervention level) is a little better than the standardised industry values.

3.0 Report Summary - Financial Findings

The Moloney financial modelling software was used to deliver the following three reports for each of the sub asset sets and to then combine the results into a whole of roads group single report.

1. Prediction of renewal demand to treat all over intervention assets - Column E within Figure 3.1 (and series 5 graphs in sub asset sections). Note that the figure in column E has been averaged over the first 5 years to better reflect how the model is structured.

2. Prediction of future asset condition based on the continuation of the planned renewal expenditure level (series 6 graphs in sub asset sections)

3. Delivery of a recommended funding profile - Column G (series 7 graphs in sub asset sections). Note that within Column G the recommended funding strategy can include in some cases a recommended annual compounding increase in funding (see column heading).

The individual modelling results for the above three reports can be found within each of the sub asset sections 4 - 8 below. Figure 3.1 provides an overall financial summary in a table rather than graphical form.

	A	B	C	D	E	F	G	H	I
Sub Asset Description	Average renewal expenditure since the time of last survey	Average Planned renewal expenditure for the next 5 Years	Average Annual Liability (Based upon modelling lives and valuations) (AL)	Annual Depreciation based on Accounting valuations and lives (AD)	Average Capital Renewal Demand for next 5-years to eliminate all over intervention assets	Year of Condition Inspection	Recommended Year 1 funding level with no annual compounding increase	Planned renewal expenditure (Column B) as a % of the Annual Liability	Recommended Funding level (Column G) as a % of the Annual Liability Rate
Sealed Pavements	**$380,000**	**$500,000**	**$364,174**	**$308,867**	**$334,822**	2021	$346,000	**137%**	**95%**
Sealed Surfaces	**$488,000**	**$450,000**	**$548,233**	**$574,401**	**$772,342**	2021	$686,000	**82%**	**125%**
Unsealed Pavements	**$538,000**	**$800,000**	**$1,104,293**	**$1,075,513**	**$360,000**	2021	$700,000	**72%**	**63%**
Kerbs	**$150,000**	**$25,000**	**$30,427**	**$30,305**	**$23,000**	2021	$28,000	**82%**	**92%**
Footpaths	**$180,000**	**$36,000**	**$49,907**	**$50,695**	**$33,000**	2021	$50,000	**72%**	**100%**
Totals	**$1,736,000**	**$1,811,000**	**$2,097,034**	$2,039,781	$1,490,164		**$1,810,000**	**86%**	**86%**
C - B Estimated Annual Consumption Rate		**$286,034**							

Figure 3.1 Recommended and other funding profiles

Figure 3.1 contains a lot of information but it is a very important table that summarises the financial position relating to the road assets in a number of different ways.

A - This is the average renewal expenditure since the time of the last condition survey

B - The planned average renewal expenditure over the next 5 years. Note also that Column H provides your planned expenditure expressed as a percentage of the annual liability rate in Column C.

C - "Average annual liability" is the average annual renewal expenditure needed over the long term in order to maintain your asset base. The figure is similar to the accounting term "Annual Depreciation", but is calculated in a different way by directly linking it to the unit renewal rates and life cycles as used within the financial model. It can differ quite markedly from "Annual depreciation" because of the requirement for annual depreciation to comply with Australian and international accounting standards, which promote the delivery a tax deductible figure for "Annual depreciation", often with little regard to what your actual future annual liability is.

D - "Annual Depreciation" - This is similar to C above, but is designed to deliver a figure that a business can claim as a tax deduction rather than providing an estimate of your ongoing liability to maintain the capital value of your assets.

E - "Average capital renewal demand over the first 5 years". This figure comes from the Moloney "Predicted Capital Requirement" model. It is the estimated renewal expenditure necessary to eliminate all over intervention assets within five years. The average figure over the first 5 years is used because in some cases where early renew demand is high the model eases in the demand over a 5 year period. In all cases if this average figure was allocated then the model predicts that all over intervention assets would be eliminated after 5 years.

F - This is a record of the year that the condition data was collected. It may vary between the asset sets if not all inspected at the same time.

G - The year one recommended commencing funding level. This comes from the Moloney funding scenario finder and mostly aims at a total commencing expenditure that is the same or close to your current expenditure in column B. Note that within the title row there may be an annual compounding future percentage increase that is used to bring down the year one expenditure to more closely match your current total expenditure.

If the current renewal funding level is very low there may be a recommendation to lift the year one spend to a level above the planned total spend in column B. This would be done to avoid excessively high annual compounding percentage increases.

H + I - Two useful comparisons figures relating to the percentage of the annual liability rate being met by the planned renewal expenditure in Column B and the recommended in column G.

3.1 Recommended future funding strategy

For Southern Midlands the Moloney funding scenario finder was used and it was found that the total planned renewal expenditure of $1,810,000 pa was at an appropriate total level for the next 10 years. We do also recommend a further expenditure of $11,000 pa on the repair of isolated footpath failures. This brings the recommended total renewal expenditure up to the same value as the planned renewal expenditure of $1,810,000 pa.

Figure 3.2 contains the three input criteria for each of the five possible road sub assets that are the subject of this report. The Moloney "Funding Scenario Finder" was used to deliver the recommended funding strategy as contained within Column G of Figure 3.1 above. A detailed explanation of the "Funding Scenario Finder can be found within Appendix D below.

		Criteria 1. Extent of OIA's		Criteria 2.	Criteria 3		
Road Sub Asset Set Description	Value of the Desired level of over int. assets	Desired extent of Over intervention assets (OIA's) as a % of one Years Annual Liability	Desired Extent of OIA's as a % of total Sub Asset base valuation	Years to achieve Desired Condition outcome	Annual % of Compounding funding increase (if required)	Amount in $ of the Annual % Increase	Moloney Standardised Descriptor for the Desired Condition Outcome
Sealed Rd Pavements	$182,087	50%	0.69%	10	0.00%	$0	Excellent
Sealed Surfaces	$274,117	50%	2.49%	10	0.00%	$0	Excellent
Unsealed Rd Pavements	$552,146	50%	2.48%	10	0.00%	$0	Excellent
Kerbs	$15,214	50%	0.72%	10	0.00%	$0	Excellent
Footpaths	$24,954	50%	1.11%	10	0.00%	$0	Excellent
All Assets	$1,048,517	50%	1.64%	10	0.00%	$0	Excellent

Figure 3.2 Funding scenario finder modelling criteria for road sub assets

Figure 3.2 contains the details of the three input criteria for the Moloney funding scenario finder which was used to deliver the recommended funding strategy as reported within column G of Figure 3.1 above.

The extent of over intervention assets (OIA's) was set at 50% of the level of one year's annual liability after 10 years for all assets. Your current level being 52% so we are virtually asking for the same overall condition over the next 10 years. The result will maintain council within the "Excellent" Condition category (see Appendix D Figure D1 for more details).

The recommended funding strategy is to set the total renewal expenditure level at a flat $1,810,000 pa for the next 10 years subject to CPI increases as appropriate.

Scenario Finder Results

Desired extent of OIA's expressed in 3 ways			Commencing year one renewal expenditure requirement (from scenario finder)	Moloney Descriptor for the - Desired Condition outcome of the road network	
As a % of one years average annual liability	As its replacement value in $	As a % of the total asset base valuation		Standardised Moloney condition description	Additional Comments on condition descriptor
50%	$1,048,517	1.64%	$1,810,000	Excellent	Very low level of over intervention assets

Figure 3.3 Projected condition outcome from recommended funding strategy

Figure 3.3 provides a summary of the Moloney funding scenario finder results for the whole roads group. The individual sub asset inputs are as detailed within Figure 3.2 while Figure 3.3 shows the overall results for the whole roads group.

The overall desired condition outcome for the whole roads group as set within the scenario finder is to deliver 50% of one years total annual liability as the extent of over intervention assets after 10 years (See Appendix D Figure D 1 for details of the Moloney standardised descriptors as well as further details relating to the scenario finder operation).

3.1.1 Summary of recommended future funding strategy

The Moloney financial modelling "Funding Scenario finder" was used to deliver the following results:

- *All assets will be delivered within "Excellent"' Overall condition after 10 years*
- *The recommended commencing annual renewal expenditure requirement is $1,810,000 pa*
- *No annual compounding increase was found to be required*
- *All figures are in today's values but can be adjusted for CPI within the model if required.*

3.2 Planned Renewal Spend as a Percentage of Annual Liability

A strong financial performance indicator is the ratio of your present total renewal expenditure expressed as a percentage of the average annual liability. Annual liability is similar to annual depreciation but is free of the constraints of the accounting standards. It is aimed at delivering a figure that represents the average annualized cost of asset renewal over the long term.

Our experience is that not many councils need to spend at the full level of annual liability yet in order to meet their renewal demand. But Annual Liability does represent the average annual renewal demand over the long term and as the assets age your renewal demand will grow and eventually be greater than the annual liability.

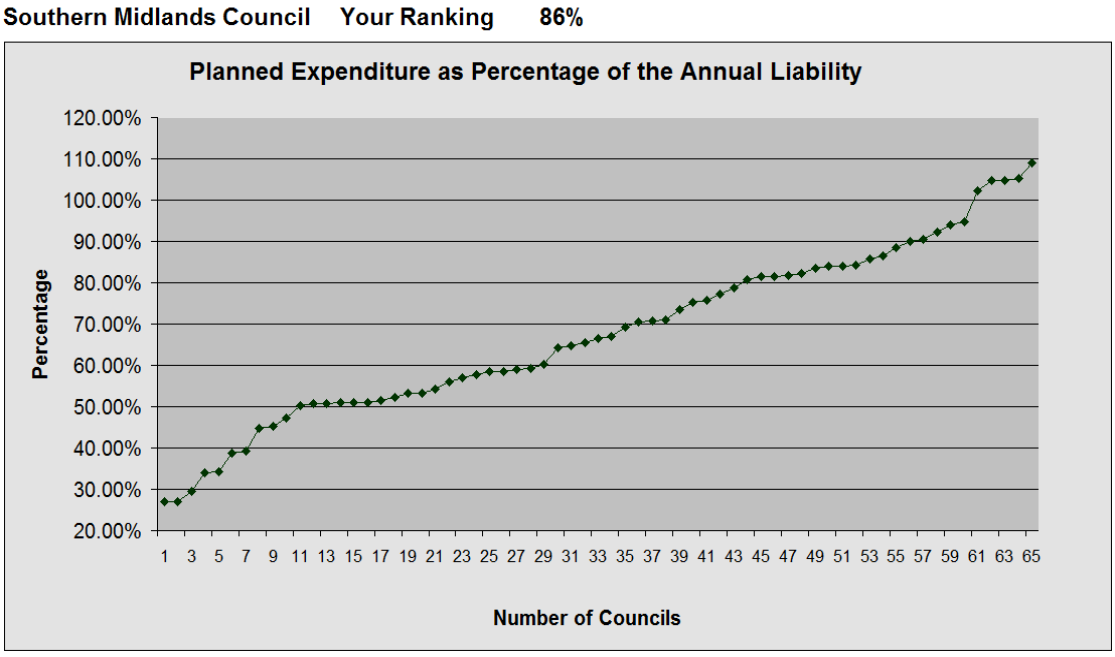


Figure 3.4 Planned Expenditure as a percentage of Annual Liability

Figure 3.4 indicates that your planned renewal expenditure is at 86% of the estimated annual liability or consumption rate associated with the road assets. It is sitting within the best 16% of the 65 councils that we have figures for.

This is considered to be a very strong position to be in and probably needs to be read in conjunction with the figure 3.5 below.

3.3 Estimated percentage of the asset base Consumed

The estimated percentage of the asset base that has been consumed comes from the ratio of your total replacement value to your present written down value. Where possible we adopt valuation figures within Figure 3.5 below that are based upon our best estimate of replacement and WDV. It all gets back to the problems we have with the restrictions relating to the accounting standards.

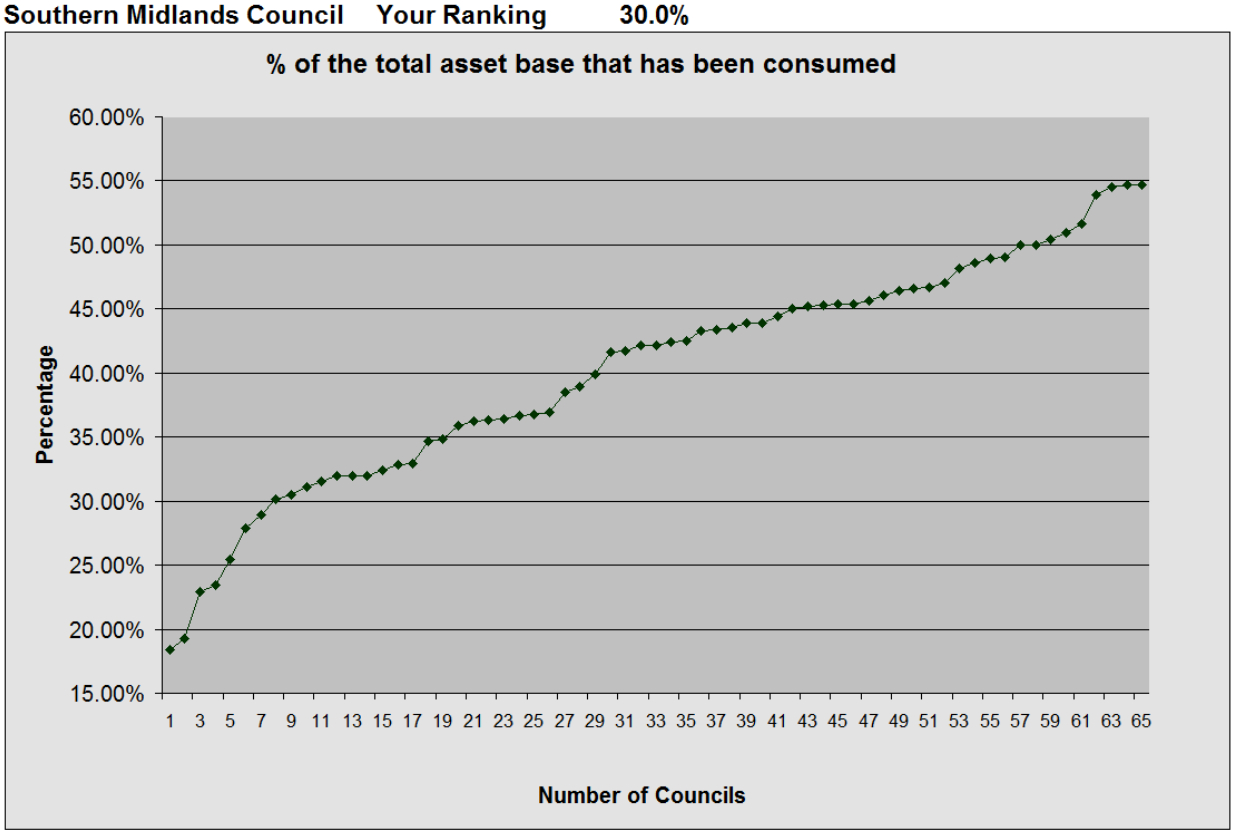


Figure 3.5 Estimate of the percentage of your assets consumed

Figure 3.5 presents some very interesting comparisons with figures ranking from 18.4% up to 54.7%. The figure of 18.4% relates to an outer Melbourne metro council that has very strong development and has around 50% of it's road network having been constructed within the last 10 - 15 years (hence low consumption).

At the other end of the scale are councils with road assets having a very high average age. Your position at 30.0% consumed is quite a good position for a rural based council and is the prime reason why your planned renewal expenditure at 86% of the estimated level of the full annual liability remains at an appropriate level.

The above two graphs are designed to illustrate any problems with a council that is seriously under funding the renewals on their road network. To qualify as a problem council you would need to be within the highest 10% - 15% of one or both of the above figures. Clearly you are not within the problem area on either figure and in fact rank quite strongly.

While your renewal expenditure ratio at 86% within Figure 3.4 may at first appear low, this must be viewed in light of your ratio of total asset consumption which at 30.0% is also quite low and hence has resulted in a relatively low present renewal demand.

Section 4: Sealed Road Pavement Sub Assets

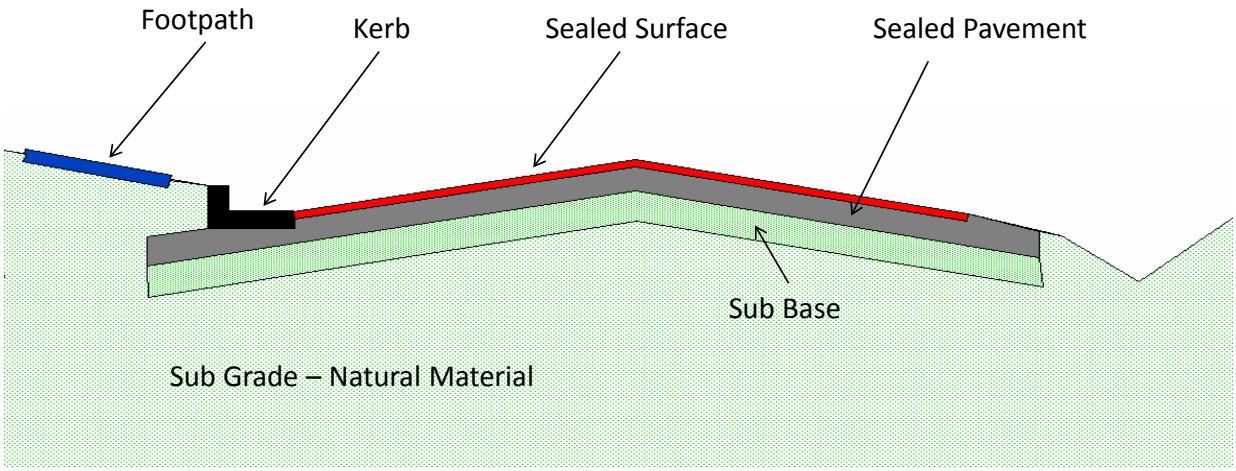
This section deals with the Sealed Road Pavement Sub asset set which is the first of the five possible road sub asset classes that we can inspect. It will look at both internal and external benchmarking of asset condition as well as providing financial forecasting of future renewal demand and projected asset condition.

Section 4.0 below provides an explanation of each of the five possible road sub asset classes.

4.0 The Five Road Sub Assets

4.0.1 The Road Sub Asset components

The infrastructure assets within council's road reservations consist broadly of the following five sub assets.



1 Sealed Surface - Red

2 Sealed Rd Pavement - Grey

3 Kerb - Black

4 Unsealed Pavement- Grey
Same as Sealed Pavement without the seal on top

5 Footpath - Blue

Sub Grade is the natural material that the road is built upon

Sub Base is a second pavement layer that may or may not be present

Figure E.1 Road cross section showing the five possible road sub asset sets to be examined

The total road asset is broken down into five like performing sub asset sets as detailed above. The main reason for separating the road assets is to group them into like performing assets with the same service life. For example the sealed surface on the top of a sealed road pavement may have a service life of 10 - 20 years while the underlying pavement may be in the 50 - 150 year range. Hence they cannot be examined or modelled as a single asset set.

4.0.2 The Sealed Surface Sub Asset Set - Red

The sealed surface is the thin sprayed bitumen seal or asphalt surfacing that seals off the underlying pavement from the intrusion of water. Its primary purpose is to waterproof the underlying pavement as well as maintain a more constant moisture content within the pavement layer. It also provides a smooth wearing surface. Typical service life 15 - 30 years

4.0.3 The Sealed Road Pavement Sub Asset Set - Grey

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

4.0.4 The Kerb Sub Asset Set - Black

Kerbs in urban areas are normally constructed of concrete and are used to drain water away from the pavement. They tend to have a life similar to the sealed road pavement. They also assist in retaining the pavement edge in place.

4.0.5 The Unsealed Road Pavement Sub Asset Set - Grey

The unsealed road pavement performs the same role as the sealed pavement except that it does not have the additional protection of a sealed surface over it. Its service life is generally shorter than the sealed pavement and typically would have a life of 15 - 45 years.

4.0.6 The Footpath sub asset set

Footpath assets are not really related to the road itself and can be seen as pavements for foot traffic. Their life may vary greatly and can be quite extensive if localised failures are repaired as they occur. Typical service life for concrete Unsealed Pavements is 40 - 80 years.

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 assets other than the footpath assets.

4.0.7 The Sub Base

Some councils value a second component or layer of the pavement known as the "Sub Base" that sits under the base layer. It is imposable to condition rate a sub base via a visual inspection so we do not include it as an inspected road sub asset component. It relates more to the accounting treatment of the road for asset valuation purposes.

4.1 Condition and Performance of Sealed Road Pavements - Internal Benchmarking

MAMS have developed a series of eight key condition indicators that can be applied to all road sub asset sets. They are used to measure condition movement between the two most recent field surveys as well as providing external benchmarking against other council districts assessed by MAMS on the same basis.

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

4.1.1 Weighted Average Asset Condition - "WAAC"

The weighted average asset condition is a single condition indicator that represents the condition of the whole asset set in one single figure. It is derived by multiplying the raw asset condition (0 - 10 scale) for each individual asset component by the asset quantity. These figures are then summed and divided by the total asset set quantity. This then delivers a single condition figure for the whole asset class that summarises its overall condition in a single figure. It is very useful for tracking overall condition movement with time as well as providing strong external benchmarking.

4.1.2 Percentage of Urgent Failures

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

4.1.3 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 expressed as a percentage of the total asset group quantity.

4.1.4 Average Roughness

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

4.1.5 Average Profile

Average pavement profile is similar to the roughness rating and can be seen as the pavement cross sectional shape indicator. Profile is all about the efficient shedding of water from the road pavement. Profile 0 would have enough slope to shed water easily, while profile 10 would retain vast amounts of water within the road pavement.

4.1.6 Extent of Poor Condition Assets above a given Condition

The percentage of the asset base at and above a given condition rating is an excellent 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 1 – 10 years.

Note that it is not the extent of the asset base within a given condition rating, but rather the extent at and above that condition rating.

4.1.7 The Present Condition Distribution

Figure P1 provides a percentage condition distribution for the sub asset class commencing at zero when the asset is new and ending at 10 when there is no remaining value

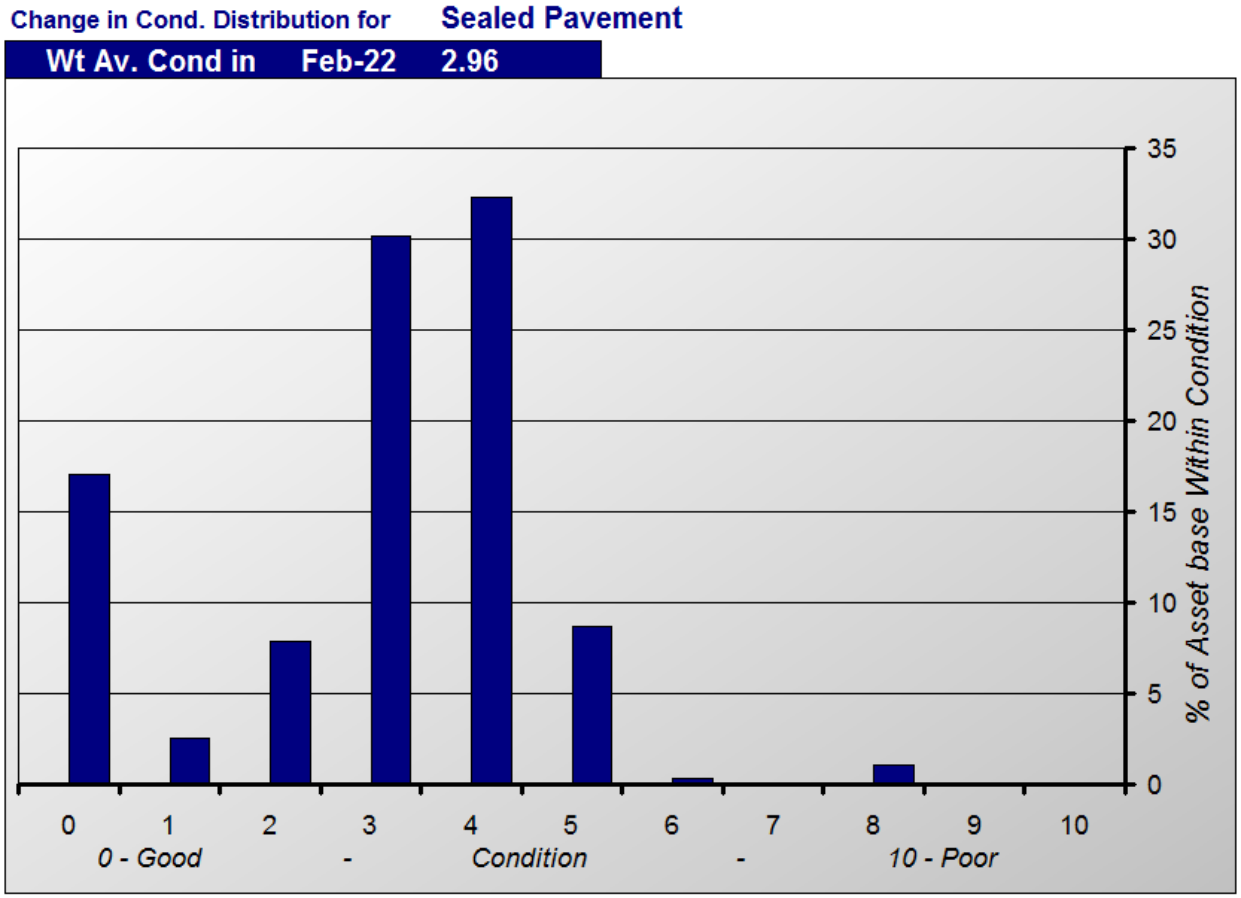


Figure P1 Condition Distribution Graph

Figure P1 is a plot of the condition distribution for this sub asset set. Typically assets will be renewed at around the 7 - 9 condition range.

Figure P1 indicates that council is keeping up with the renewal of the sealed road pavement assets, with only very low percentages within condition 8 and 9 range and a relatively high percentage within Condition zero.

4.1.8 External condition Benchmarking

The two figures below provide external benchmarking in 2 different formats. The first tracks the 8 key performance indicators against the average of all councils assessed by MAMS. The second provides a graphical representation of how you rank against all councils we have assessed.

Key Cond. Indic. No.	Sealed Pavement Condition Indicator	Mean Indicator for all Councils assessed by MAMS	Figures from Current Survey in Feb-22	Change between Surveys New Minus Old	% Difference from the average figure of all councils	Better or Worse Than the Average of all councils
1	Weighted Average Asset Condition	3.67	2.96	0.71	8.83%	Better
2	% of Urgent Failures	0.29	0.31	-0.03	-9.6%	Worse
3	% of Other Failures	1.78	1.32	0.47	26.2%	Better
4	Average Pavement Roughness	3.14	2.74	0.40	12.8%	Better
5	Average Pavement Profile	2.61	1.76	0.85	32.5%	Better
6	% of Asset Base above Condition 6	11.73	1.45	10.28	87.6%	Better
7	% of Asset Base above Condition 7	3.03	1.10	1.93	63.7%	Better
8	% of Asset Base above Condition 8	0.77	1.10	-0.33	-42.4%	Worse

Renewal Demand Being Met For:	% of Annual Liability expenditure Planned in Future years
Sealed Rd Pavement Asset Group	137%

Figure P2 Table of Key Condition Indicator Change since the last Survey

Figure P2 details the key performance indicators that are tracked by MAMS. It also provides a comparison with the average figures for all 72 councils we have assessed. (See section 4.1 for a detailed explanation of all indicators). At the bottom of the table is recorded the percentage of the consumption rate (annual depreciation) currently being met. This provides a further valuable performance indicator.

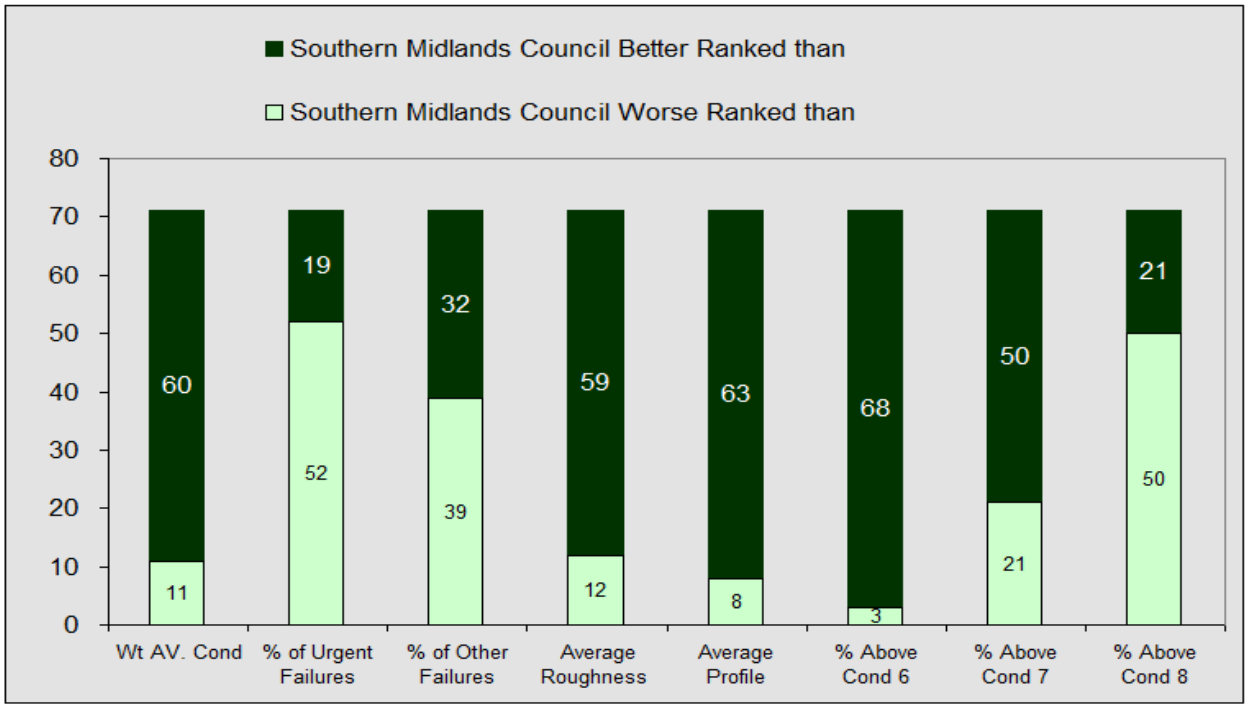


Figure P3 Key Condition Indicators as Compared with other Councils surveyed

Figure P3 provides external benchmarking based on the same key performance indicators as used internally in figure P2. The total number of councils assessed by MAMS on exactly the same basis is 72 for this sub asset class. The graph then displays the number of councils ranked better and worse than Southern Midlands Council for each of the eight performance indicators. The dark green bars represent the number of councils that Southern Midlands Council is ranked better than, while the light green is the number that Southern Midlands is ranked worse than. In simple terms the large the dark green bars the better

Southern Midlands compares quite well with the 72 other councils we have assesses. You are a little behind the average performance for urgent pavement failures and the extent of very poor condition assets but your weighted average asset condition is excellent.

In summary the external benchmarking indicates that the sealed road pavements assets are in very good to excellent overall condition but there is a need to attend to a slightly elevated extent of poor condition assets as well as some localised pavement failures.

4.2 Sealed Road Pavement Financial Modelling Analysis

The Sealed road pavement assets will be modelled in like performing data sets with the results aggregated into one presentation for the whole sub asset group

4.2.1 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 on 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 a 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.

Condition 0 – 1 No Failures no shape loss

Condition 6 Moderate failures and shape loss

Condition 7 Ext shape loss and failures

Condition 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 6 – 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 seen as one possible condition situation and not the only situation for that condition rating.

4.2.2 Sealed Road Pavement Financial Modeling

Modelling Parameter	All Urban Pavements	All Rural Pavements	Totals
Asset Quantity in sqm	254,692	984,893	1,239,585
Unit Renewal Rate	$26.00	$20.00	
Total Asset Group Renewal Cost	$6,621,992	$19,697,860	$26,319,852
Annual Renewal Exp.	$50,000	$450,000	$500,000
Retreat. Intervention Condition	7.0	6.0	
Life to Condition 10 in Years	80.0	70.0	
Life in years to Intervention	69.6	51.8	

Figure P4 – Summary of Modelling Input Parameters for sealed road pavement assets

Sealed road pavement modelling has been undertaken within two categories as detailed in P4 above. Retreatment intervention levels have been set at levels that are a little below the general industry

standard of condition 8.0 (higher level of service). But this is the standard that council is currently achieving and to raise them would mean accepting a lower level of service.

Life cycles have been set based on council advice and are considered to be reasonable.

The total sub asset group has been broken down into several individual data sets in order to refine the modelling result based on the most appropriate intervention levels and life cycles for each.

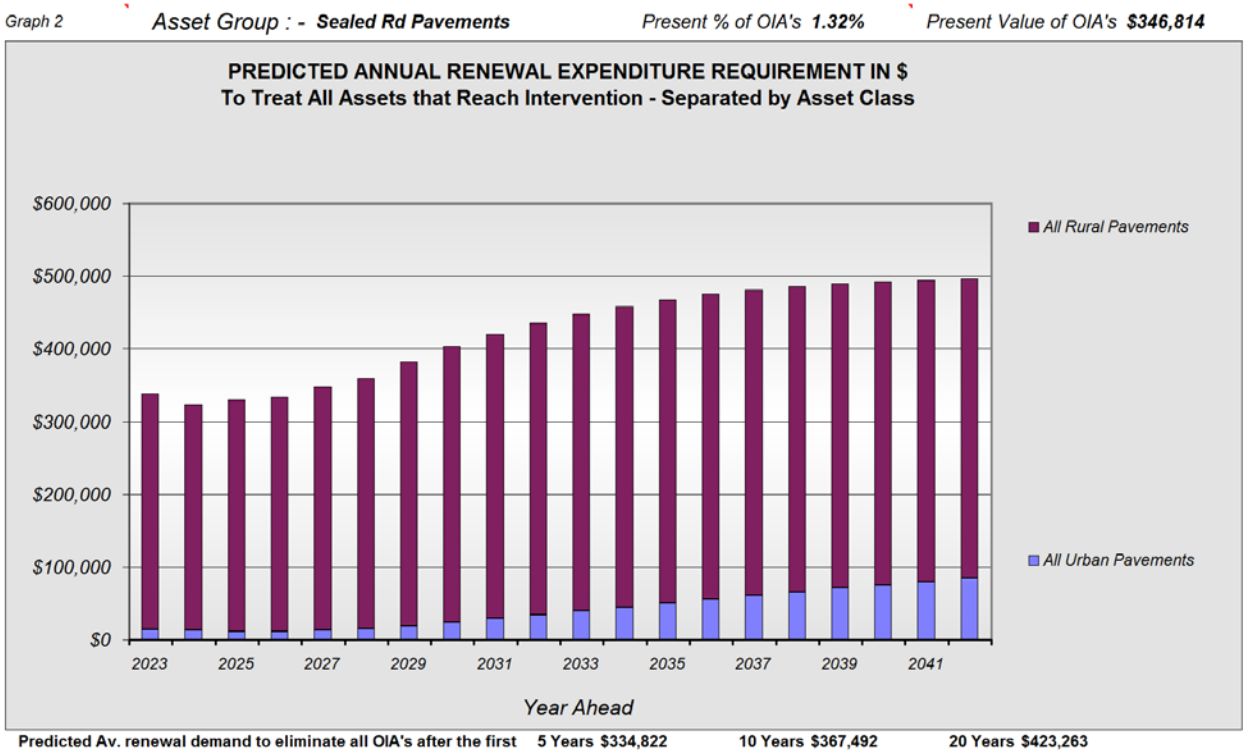


Figure P5 Predicted Renewal Demand to treat all assets that reach the Intervention level in future years

Figure P5 plots the annual funding profile required to eliminate all over intervention assets. If there is a large backlog of over intervention assets such that the raw year one demand is 30% or greater than the year two demand then the Moloney model eases the difference in over the first five years (this will show up as a reducing demand over the first five years). For this reason we prefer to quote the present renewal demand as the average figure for the first 5 years. In this case the first 5 year average renewal demand is estimated at $334,822 pa. If this expenditure is maintained all OIA's will be eliminated within 5 years.

Figure P5 indicates that the capital renewal demand pattern to treat all assets that are predicted to reach the retreatment intervention level has an average demand figure of $334,822 pa over the first 5-years. With a peak demand of $496,000 over the next 20 years in 2042.

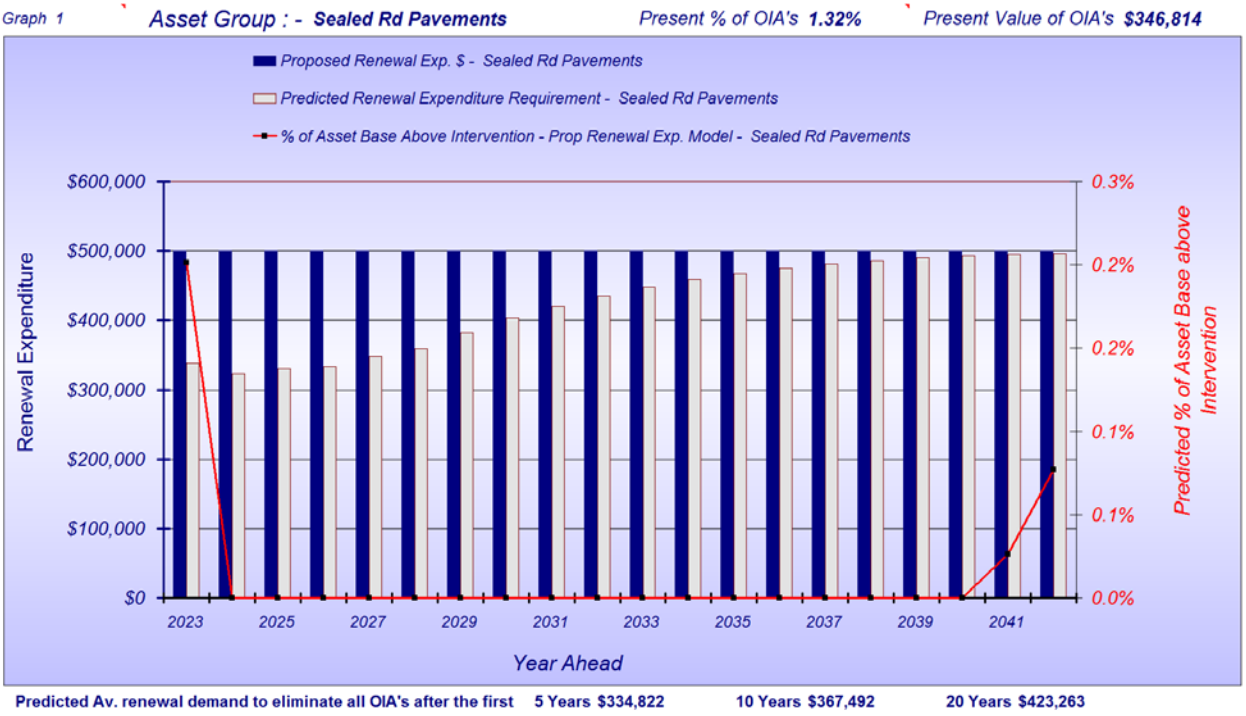


Figure P6 Future Predicted Condition Based on adoption of planned expenditure profile

Figure P6 plots the extent of the asset base that is predicted to rise above the intervention level (red line) based upon the continuation of the planned level of renewal expenditure (in blue bars). It also plots the predicted renewal demand to treat all over intervention assets within the grey bars (Same aggregate figures as within Figure P5 but not split into the individual modelling sets).

Figure P6 indicates that the planned renewal expenditure of $500,000 pa if maintained will result in a zero level of OIA's within 2 years.

The Moloney financial modelling software has the capacity to develop a recommended renewal funding profile that will deliver a nominated extent of over intervention assets within a selected time frame. A global outcome can be set for the whole roads group. In this way the model can also be used to allocate funding between the sub asset classes on a needs basis, to deliver the best overall condition outcome for the whole road network.

Please refer to Appendix D which explains why and how we set the desired extent of over intervention assets in terms of the number of year's worth of annual liability that it represents. Appendix D4 also provides an explanation of the Moloney funding scenario finder along with its three basic input criteria requirements. The three input criteria adopted for the sealed road pavement assets are as detailed within figure P7 below with the results of the funding scenario finder operation contained within figure P8.

	Criteria 1. Extent of OIA's				
Road Sub Asset Set Description	Expressed as the % of One Years Annual Liability	Expressed as a % of The Total Asset Set Replacement Valuation	**Criteria 2.** Years to achieve Desired Condition outcome	**Criteria 3** Annual % of Compounding funding increase (if required)	Moloney Standardised Descriptor for the Desired Condition Outcome
Sealed Rd Pavements	50.0%	0.69%	10	0.00%	**Excellent**

Figure P7 Modelling scenario finder inputs - Sealed Pavement Assets

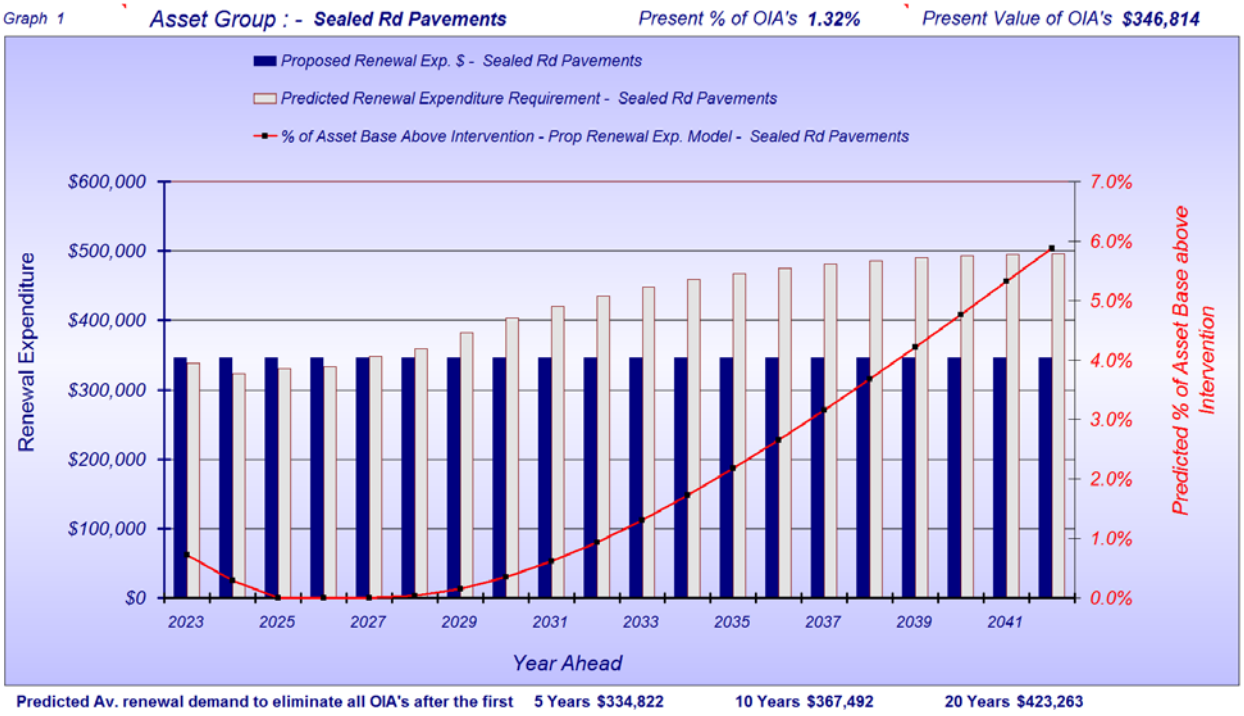


Figure P8 Recommended Renewal funding Strategy

For the Sealed Road Pavements we have set the level of over intervention assets (OIA's) at 50% of the level of one year's annual liability after 10 years. This equates to 0.69% of the total network valuation, the current level being 1.32% so we are asking for a modest condition improvement. We have set the desired extent of OIA's in the top of the "Excellent" condition Range (See Appendix D for details).

The recommended renewal expenditure level over the next 5 - 10 years is a flat $346,000 pa subject to no annual compounding increase but will involve any CPI increases that are applicable. This is predicted to deliver the desired condition outcome as detailed within Figure P7.

The level of OIA's is predicted to be at 0.94% of the total asset base valuation after 10 years. This remains within the standard condition descriptor of "Excellent" (See Appendix D for more details).

4.3 Sealed Road Pavement Summary

The sealed road pavement assets were found to be in very good to excellent overall condition when just the weighted average asset condition is compared to the 72 councils assessed by MAMS. But the extent of very poor condition assets and isolated pavement failures is a little higher than the average of all councils assessed. This problem should be addressed over the next 2 years with the recommended funding strategy.

The recommended renewal expenditure level over the next 5 years is $346,000 pa with allowance for any CPI increases as appropriate. The funding situation should be reviewed again following the next condition survey.

Section 5: Sealed Surface Sub Assets

This section will deal with the Sealed Surface Sub assets. It will look at both internal and external benchmarking of asset condition as well as providing financial forecasting of future renewal demand and projected asset condition.

5.1 Condition and Performance of Sealed Surfaces

The same eight common key performance indicators are used for all road sub assets. An explanation for each is available within sections 4.1 to 4.1.6 above rather than duplicating those details here. Five of the eight condition indicators that were appropriate to the sealed surface assets are detailed here.

5.1.1 The Condition Distribution

Figure S1 provides a percentage condition distribution for the sub asset class commencing at zero when the asset is new and ending at 10 when there is no remaining value

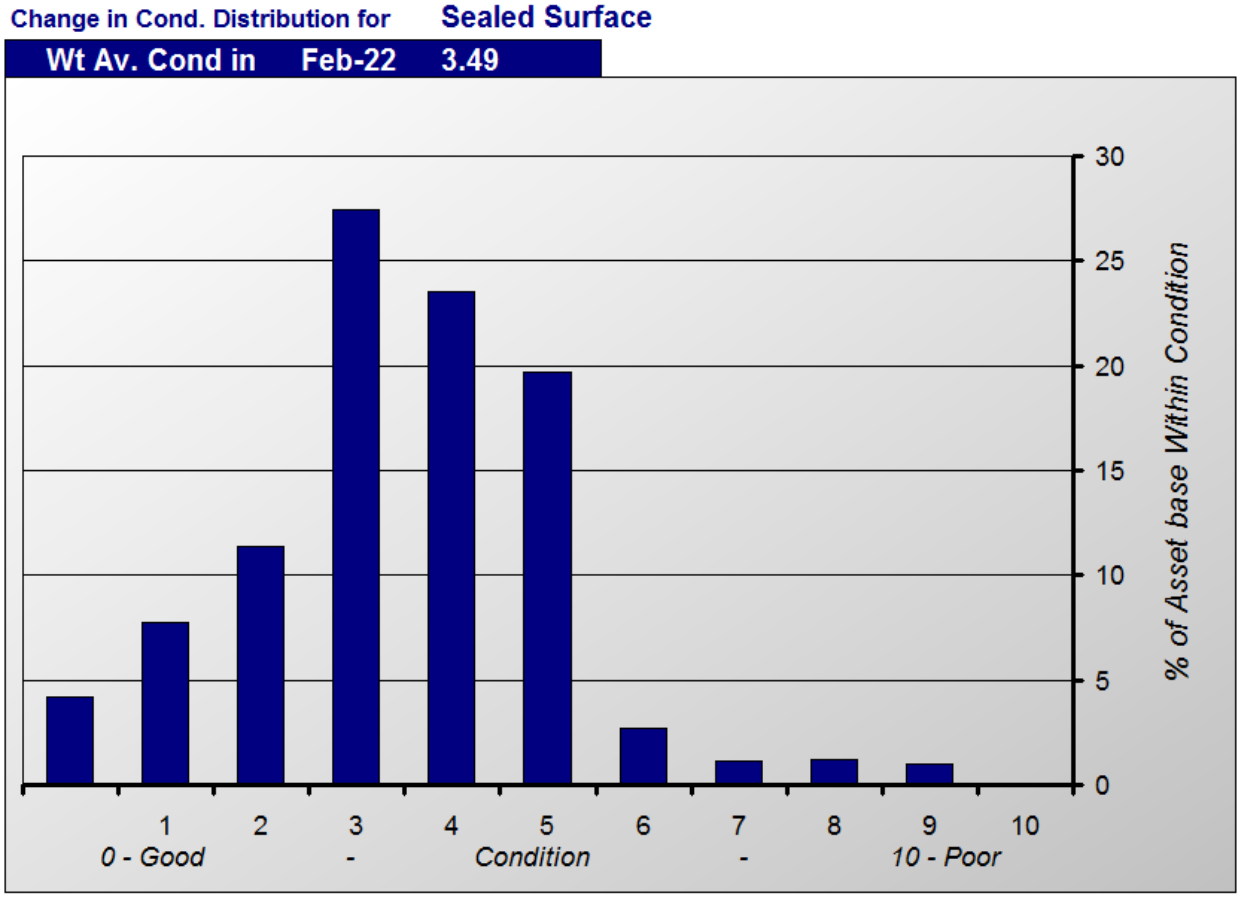


Figure S1 Condition Distribution Comparison Graph – Between Surveys all Sealed Surfaces

Figure S1 is a plot of the condition distribution for this sub asset set. Typically assets will be renewed at around the 6.5 - 7.5 condition range.

5.1.2 External condition Benchmarking

The two figures below provide external benchmarking in 2 different formats. The first tracks 5 of the 8 key performance indicators against the average of all councils assessed by MAMS. The second provides a graphical representation of how you rank against all councils we have assessed.

Key Cond. Indic. No.	Sealed Surface Condition Indicator	Mean Indicator for all Councils assessed by MAMS	Figures from Current Survey in Feb-22	Change between Surveys New Minus Old	% Difference from the average figure of all councils	Better or Worse Than the Average of all councils
1	Weighted Average Asset Condition	3.392	3.489	-0.097	-2.9	Worse
2	% of Asset Base above Condition 5	31.975	25.766	6.209	19.4	Better
3	% of Asset Base above Condition 6	17.034	6.057	10.976	64.4	Better
4	% of Asset Base above Condition 7	6.681	3.360	3.321	49.7	Better
5	% of Asset Base above Condition 8	1.360	2.216	-0.856	-62.9	Worse

Renewal Demand Being Met For:	% of Annual Liability expenditure Planned in Future years
Sealed Surface Asset Group	82%

Figure S2 Condition Change since last survey & Renewal demand being met

Figure S2 details 5 of the 8 key performance indicators that are followed by MAMS. It also provides a comparison with the average figures for all 72 councils we have assessed. (See section 5.1 for a detailed explanation of all indicators). At the bottom of the table is recorded the percentage of the consumption rate (annual depreciation) currently being met. This provides a further valuable performance indicator.

Figure S2 indicates that the important weighted average asset condition is -2.9 % worse than the average of all councils assessed. There is also a build up of poor condition assets at and above condition 8.

While the percentages at and above condition 8 may appear high it must be remembered that these are relatively short term assets with around 7% being resurfaced each year and with a planned renewal expenditure rate of $450,000 this problem should be dealt with over the next year or two.

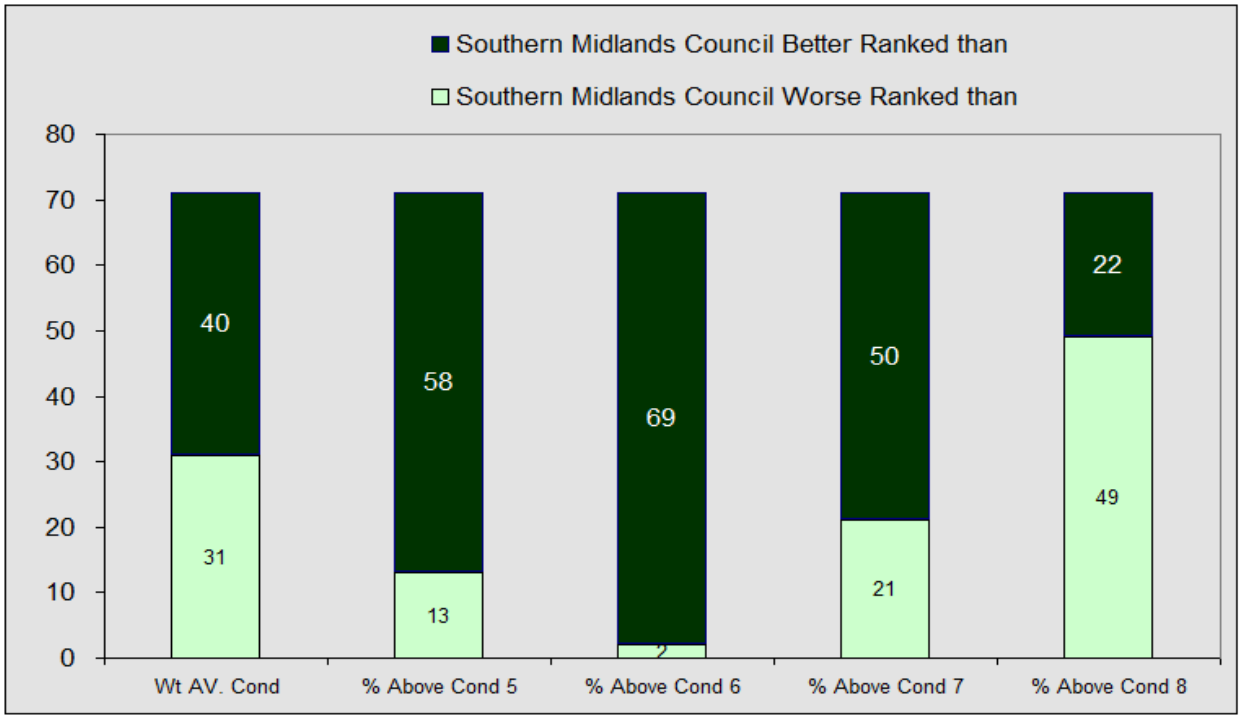


Figure S3 Key Condition Indicators as Compared with other Councils surveyed

Figure S3 provides external benchmarking based on the same key performance indicators as used internally in figure S2. The total number of councils assessed by MAMS on exactly the same basis is 72 for this sub asset class. The graph then displays the number of councils ranked better and worse than Southern Midlands Council for each of the five performance indicators. The dark green bars represent the

number of councils that Southern Midlands Council is ranked better than, while the light green is the number that Southern Midlands is ranked worse that.

Figure S3 indicates that for Southern Midlands the weighted average asset condition is within the best 55% of the 72 councils assessed. The extent of poor condition assets at and above conditions 8 is lagging a bit behind and does need to be addressed.

5.2 Sealed Surface Financial Modelling Analysis

The Sealed surface assets will be modelled in like performing data sets with the results aggregated into one presentation for the whole sub asset group

5.2.1 Sealed Surface – Selection of Retreatment Intervention Level

The point at which you choose to intervene to renew or replace an asset will have a big impact on the predicted future renewal demand. The intervention level can be seen as the level of service for 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 an acceptable retreatment intervention level.

	
Condition 0 – 1 Seal in excellent near new condition	Condition 5 Cracking but seal not too oxidized
	
Condition 6.5 - 7 Oxidized and stripping	Condition 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 6 – 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 these situations. They should be seen as one possible condition situation and not the only situation for that condition rating.

5.2.2 Sealed Surfaces – Financial Modeling Results

Modelling Parameter	All Asphalt Surfaces	All Town Spray Seals	All Rural Spray Seals	Totals
Asset Quantity in sqm	44,922	213,968	992,604	1,251,496
Unit Renewal Rate	$8.00	$8.00	$8.00	
Total Asset Group Renewal Cost	$359,374	$1,711,746	$7,940,829	$10,011,951
Annual Renewal Exp.	$10,000	$90,000	$350,000	$450,000
Retreat. Intervention Condition	6.5	6.5	6.5	
Life to Condition 10 in Years	30.0	18.0	18.0	
Life in years to Intervention	26.4	16.0	16.0	

Figure S6 – Summary of Modelling Input Parameters for Sealed Surface Assets

The sealed surfaces will be modelled within three like performing data sets as detailed within Figure S6 above. Retreatment intervention levels have been set at condition 6.5 - a little better than the industry standard value of condition 7.0.

Service lives have been set at what are considered to be appropriate levels.

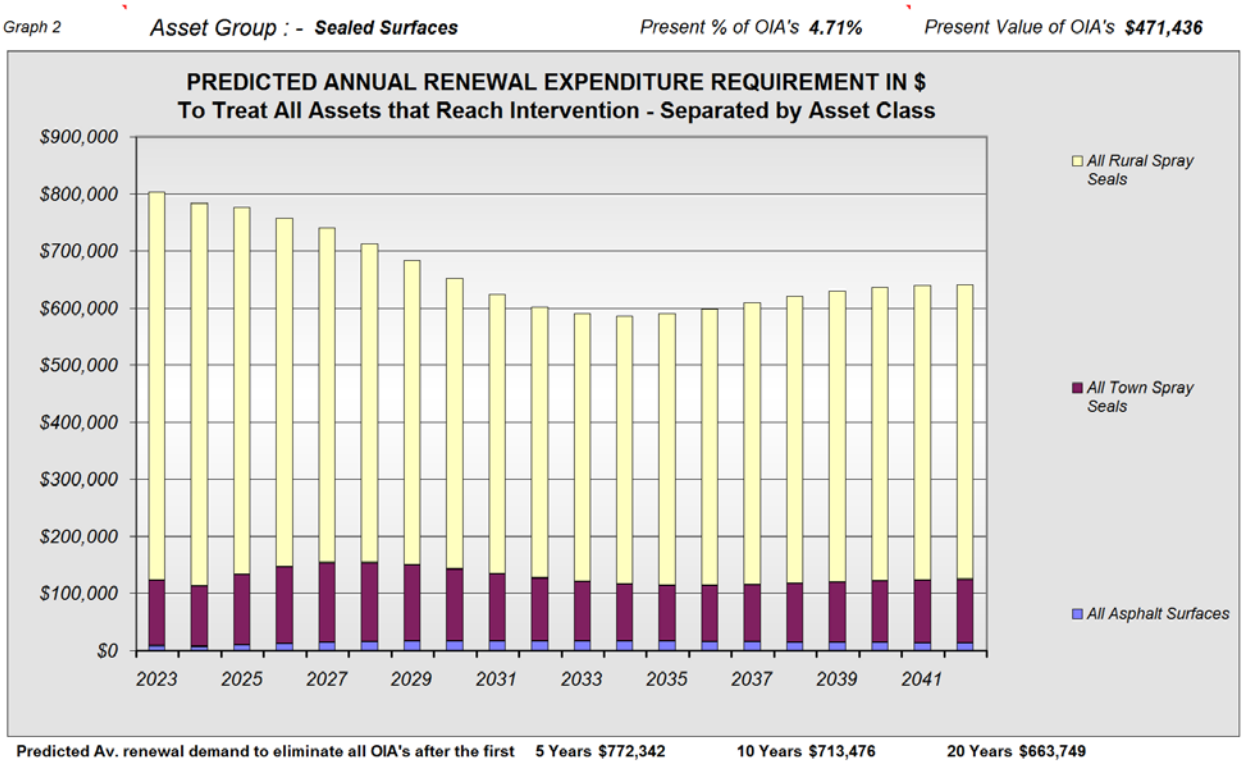


Figure S7 Predicted Renewal Demand to treat all assets that reach the Intervention level in future years

Figure S7 plots the annual funding profile required to eliminate all over intervention assets. If there is a large backlog of over intervention assets such that the raw year one demand is 30% or greater than the year two demand then the Moloney model eases the difference in over the first five years (this will show up as a reducing demand over the first five years). For this reason we prefer to quote the present renewal demand as the average figure for the first 5 years. In this case the first 5 year average renewal demand is estimated at $772,342 pa. If this expenditure is maintained all OIA's will be eliminated within 5 years.

Figure S7 indicates that the capital renewal demand to treat all assets that are predicted to reach the retreatment intervention level over the next 20 years has an average figure for the first 5 years of $772,342 pa; this also represents the peak demand over the next 20 years.

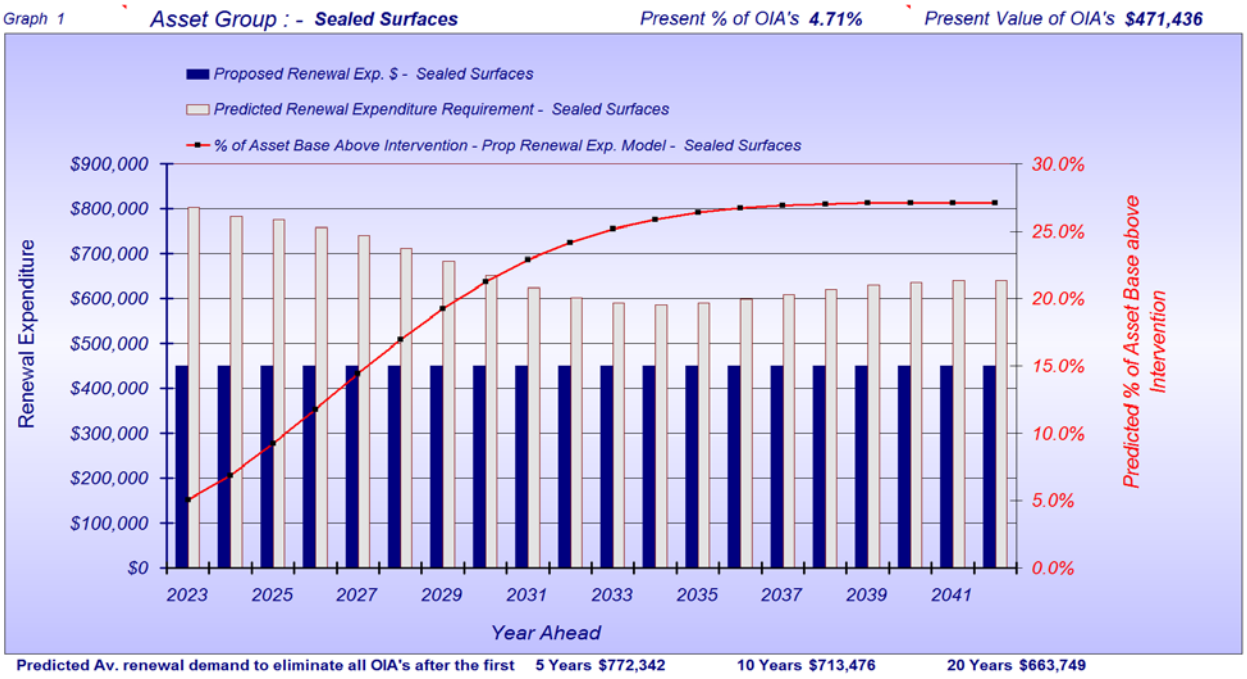


Figure S8 Future Predicted Condition Based on planned expenditure profile

Figure S8 plots the extent of the asset base that is predicted to rise above the intervention level (red line) based upon the continuation of the planned level of renewal expenditure (in blue bars). It also plots the predicted renewal demand to treat all over intervention assets within the grey bars (Same aggregate figures as within Figure S7 but not split into the individual modelling sets).

The planned renewal expenditure profile in figure S8 is a flat $450,000 pa. The extent of over intervention assets (OIA's) is currently at 4.71% which equates to around 0.75 year of one years annual liability and as such is within the "Very Good" condition range as per Appendix D. The planned expenditure profile is predicted to result in a rise to 24.17% of OIA's after 10 years which would be an unacceptable position.

The Moloney financial modelling software has the capacity to develop a recommended renewal funding profile that will deliver a nominated extent of over intervention assets within a selected time frame. A global outcome can be set for the whole roads group. In this way the model can also be used to allocate funding between the sub asset groups to deliver the best overall condition outcome for all road assets.

Please refer to Appendix D which explains why and how we set the desired extent of over intervention assets in terms of the number of year's worth of annual liability that it represents. Appendix D4 also provides an explanation of the Moloney funding scenario finder along with its three basic input criteria requirements. The three input criteria adopted for the sealed surface assets are as detailed within figure S9 below with the results of the funding scenario finder operation contained within figure S10.

	Criteria 1. Extent of OIA's				
Road Sub Asset Set Description	Expressed as the % of One Years Annual Liability	Expressed as a % of The Total Asset Set Replacement Valuation	**Criteria 2.** Years to achieve Desired Condition outcome	**Criteria 3** Annual % of Compounding funding increase (if required)	Moloney Standardised Descriptor for the Desired Condition Outcome
Sealed Surfaces	50.0%	2.49%	10	0.00%	**Excellent**

Figure S9 Modelling scenario finder inputs - Sealed Surface Assets

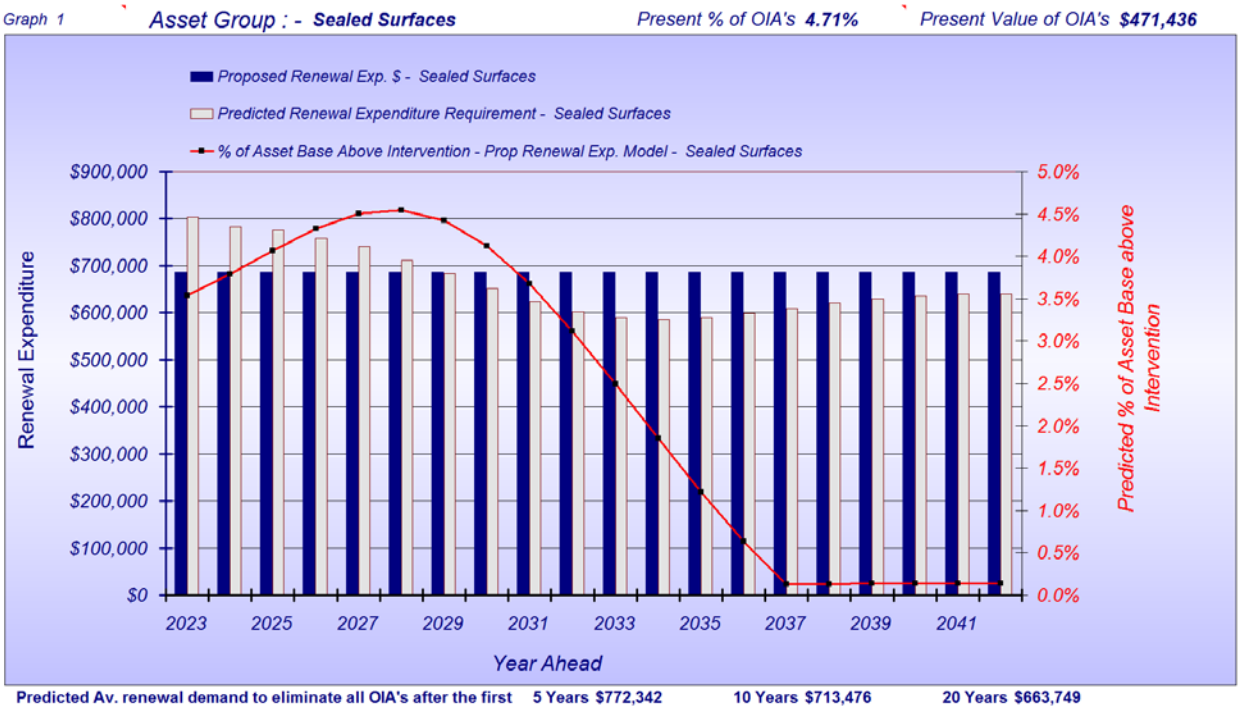


Figure S10 Recommended Renewal funding Strategy

For the sealed surfaces we have set the level of over intervention assets at 50% of the level of one year's annual liability, which equates to 2.49% of the network after 10 years. The current level being 4.71%. We have set the desired extent of OIA's in the top of the "Excellent" condition range (See Appendix D Figure D 1 for details relating to this classification range).

The model predicts that a flat expenditure of $686,000 pa combined with CPI increases as appropriate, will deliver the desired condition outcome as outlined within figure S9.

5.3 Sealed Surface Summary

The sealed surface assets were found to be in "Good" overall condition but there is a relatively high extent of very poor condition assets present that does need to be addressed.

It is recommended that the average annual renewal expenditure be set at $686,000 pa for the next 5 years and also be subject to any additional CPI Increases as appropriate. The situation should be reviewed again following the next condition survey and it is suspected that funding will be able to be progressively lowered over the next 10 years.

Section 6: Unsealed Road Pavement Sub - Assets

This section will deal with the unsealed road Pavement Sub assets. It will look at both internal and external benchmarking of asset condition as well as providing financial forecasting of future renewal demand and projected asset condition.

6.1 Condition and Performance of Sealed Surfaces

The same eight common key performance indicators are used for all road sub assets. An explanation for each is available within sections 4.1 to 4.1.6 above rather than duplicating those details here. Five of the eight condition indicators that were appropriate to the sealed surface assets are detailed here.

6.1.1 The Condition Distribution

Figure U1 provides a percentage condition distribution for the sub asset class commencing at zero when the asset is new and ending at 10 when there is no remaining value

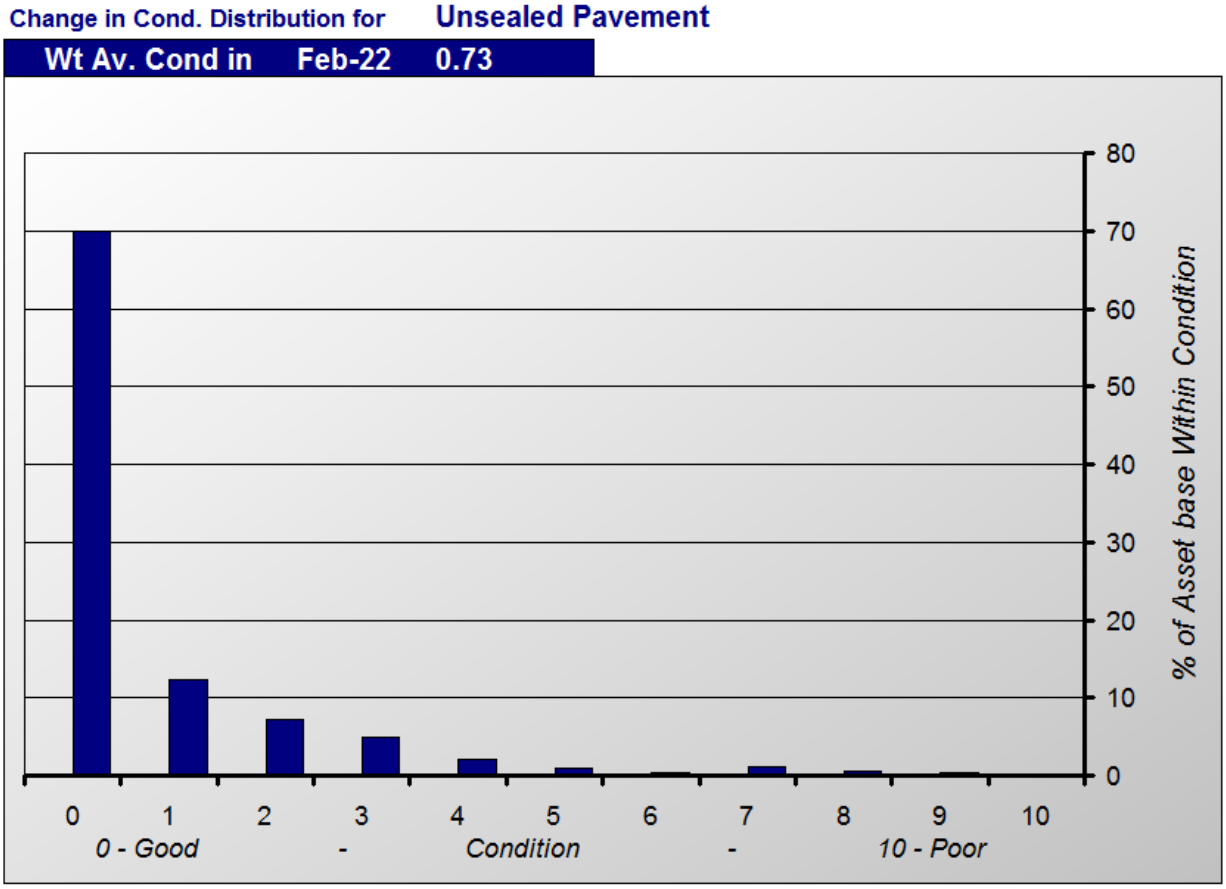


Figure U1 Condition Distribution Comparison Graph – Between Surveys all Unsealed Pavements

Figure U1 is a plot of the condition distribution for this sub asset set. Typically assets will be renewed at around the 6 - 8 condition range.

6.1.2 External condition Benchmarking

The two figures below provide external benchmarking in 2 different formats. The first tracks the 8 key performance indicators against the average of all councils assessed by MAMS. The second provides a graphical representation of how you rank against all councils we have assessed.

Key Cond. Indic. No.	Unsealed Pavement Condition Indicator	Mean Indicator for all Councils assessed by MAMS	Figures from Current Survey in Feb-22	Change between Surveys New Minus Old	% Difference from the average figure of all councils	Better or Worse Than the Average of all councils
1	Weighted Average Asset Condition	2.53	0.73	1.802	25.7%	Better
2	% of Pavement Failures	2.93	0.64	2.289	78.0%	Better
3	Average Pavement Roughness	3.71	3.78	-0.078	-2.1%	Worse
4	Average Pavement Profile	3.23	2.33	0.904	27.9%	Better
5	Average Pavement Depth in mm	93.7	111	16.89	18.0%	Better
6	% of Asset Base above Condition 6	13.03	2.42	10.611	81.4%	Better
7	% of Asset Base above Condition 7	8.27	1.99	6.275	75.9%	Better
8	% of Asset Base above Condition 8	3.68	0.95	2.726	74.2%	Better

Renewal Demand Being Met For:	% of Annual Liability expenditure Planned in Future years
UnSealed Rd Pavement Asset Group	72.4%

Figure U2 Condition Change since last survey & Renewal demand being met

Figure U2 details the key performance indicators that are followed by MAMS. It also provides a comparison with the average figures for all 58 councils we have assessed. (See section 5.1 for a detailed explanation of all indicators). At the bottom of the table is recorded the percentage of the consumption rate (annual depreciation) currently being met. This provides a further valuable performance indicator.

Figure U2 indicates that overall condition (weighted average asset condition) is 25.7% better than the average figure for all councils assessed. The extent of very poor condition assets at and above conditions 6 - 8 also ranks exceptionally well.

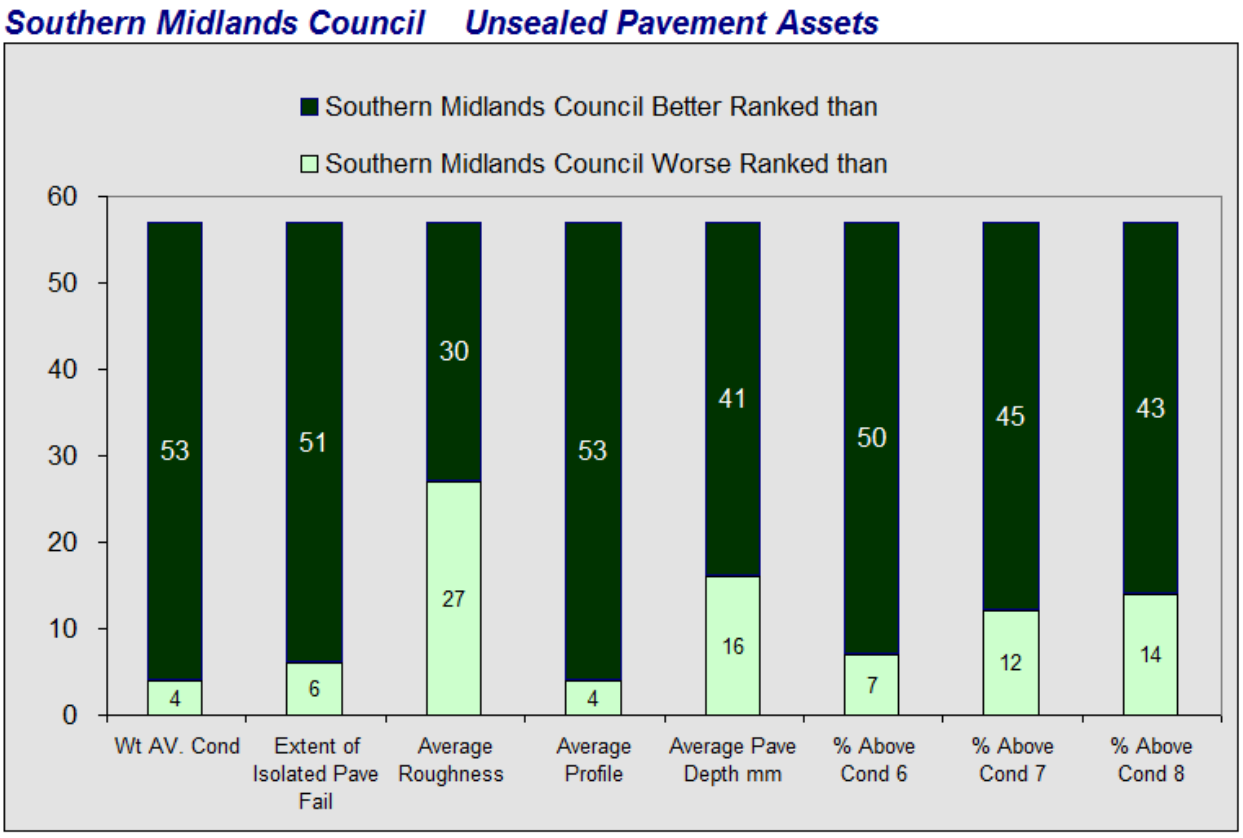


Figure U3 Key Condition Indicators as Compared with other Councils surveyed

Figure U3 demonstrates that the unsealed pavements within Southern Midlands rank exceptionally well when compared to the 58 councils assessed by MAMS.

The strongest and most reliable measure of unsealed pavement condition performance is considered to be the measured average depth of imported pavement material. Here your average depth of 111 mm is 18.0% better than the average of all councils assessed at 93.7 mm.

6.2 Unsealed Pavement Financial Modelling Analysis

The Unsealed Pavement assets will be modelled in like performing data sets with the results aggregated into one presentation for the whole sub asset group

6.2.1 Unsealed 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 on the predicted future renewal demand. The intervention level can be seen as the level of service for 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 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.

Condition 0 – 1 Average Depth 150 mm

Condition 7 – Average depth 20 – 30 mm only

Condition 8 – Av depth 10 – 20 mm only

Condition 9 – Average depth 0 – 10 mm 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 6 – 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 these situations. They should be seen as one possible condition situation and not the only situation for that condition rating.

6.2.2 Unsealed Pavements – Financial Modeling Results

Modelling Parameter	Unsealed Urban Pavements	Unsealed Rural Pavements	Totals
Asset Quantity in sqm	48,065	2,160,520	2,208,585
Unit Renewal Rate	$10.00	$10.00	
Total Asset Group Renewal Cost	$480,650	$21,605,200	$22,085,850
Annual Renewal Exp.	$50,000	$750,000	$800,000
Retreat. Intervention Condition	6.0	6.0	
Life to Condition 10 in Years	20.0	20.0	
Life in years to Intervention	15.0	15.0	

Figure U6 – Summary of Modelling Input Parameters for Unsealed Pavement Assets

The Unsealed Pavements will be modelled within two like performing asset sets as detailed within Figure U6 above. Intervention levels have been set a little below the industry standard levels (higher level of service), but this represents the standard that council is currently achieving. Asset service lives to condition 10 have been set at 20 years which may be a little conservative but this was based on council advice.

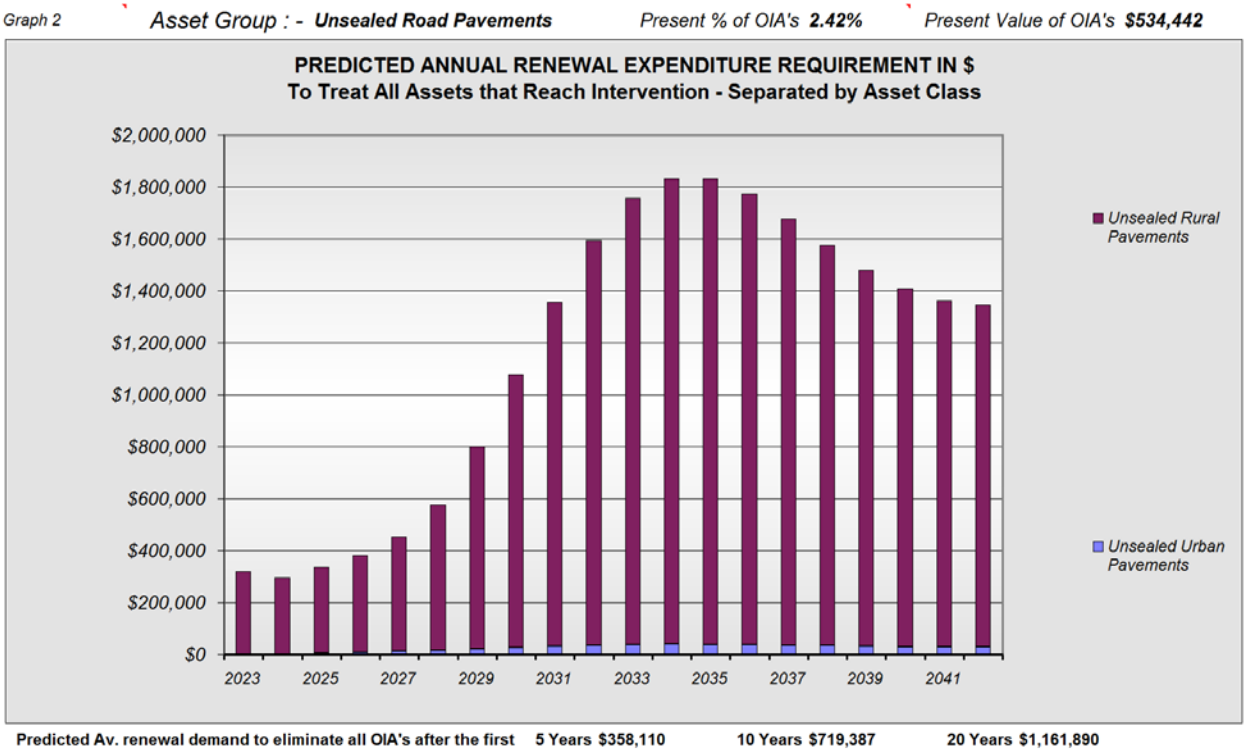


Figure U7 Predicted Renewal Demand to treat all assets that reach the Intervention level in future years

Figure U7 plots the annual funding profile required to eliminate all over intervention assets. If there is a large backlog of over intervention assets such that the raw year one demand is 30% or greater than the year two demand then the Moloney model eases the difference in over the first five years (this will show up as a reducing demand over the first five years). For this reason we prefer to quote the present renewal demand as the average figure for the first 5 years. In this case the first 5 year average renewal demand is estimated at $358,110 pa. If this expenditure is maintained all OIA's will be eliminated within 5 years.

Figure U7 indicates that the capital renewal demand to treat all assets that are predicted to reach the retreatment intervention level over the next 20 years has an average figure for the first 5 - years of $358,110 pa. With the peak demand over the next 20 years estimated at $1,833,000 pa in the year 2034.

But it is suspected that the asset life to condition 10 will be a little higher than the adopted figures of 20 years within the model. Thus the peak renewal demand of $1,833,000 pa in 2034 may be overstated.

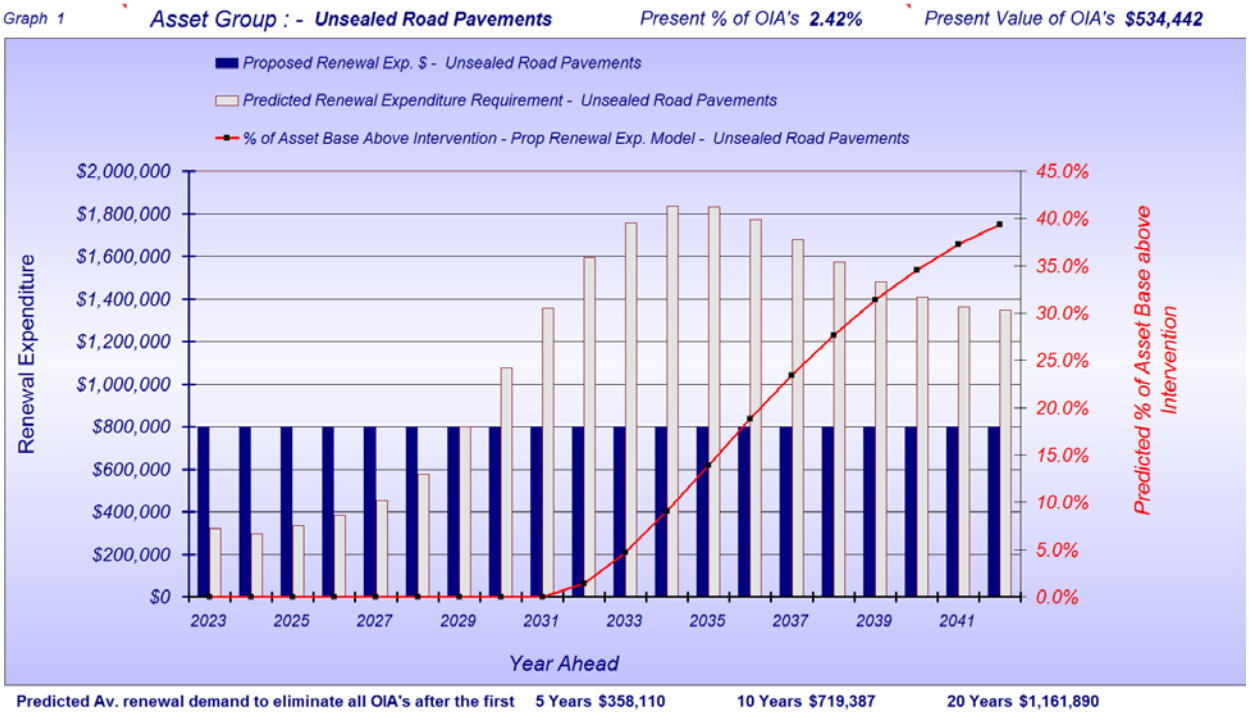


Figure U8 Future Predicted Condition Based on planned expenditure profile

Figure S8 plots the extent of the asset base that is predicted to rise above the intervention level (red line) based upon the continuation of the planned level of renewal expenditure (in blue bars). It also plots the predicted renewal demand to treat all over intervention assets within the grey bars (Same aggregate figures as within Figure S7 but not split into the individual modelling sets).

The planned renewal expenditure profile in figure S8 is a flat $800,000 pa. The extent of over intervention assets is currently at 2.42% and is predicted to drop to 1.40% after 10 years based upon the planned spend.

The Moloney financial modelling software has the capacity to develop a recommended renewal funding profile that will deliver a nominated extent of over intervention assets within a selected time frame. A global outcome can be set for the whole roads group. In this way the model can also be used to allocate funding between the sub asset groups to deliver the best overall condition outcome for all road assets.

Please refer to Appendix D which explains why and how we set the desired extent of over intervention assets in terms of the number of year's worth of annual liability that it represents. Appendix D4 also provides an explanation of the Moloney funding scenario finder along with its three basic input criteria requirements. The three input criteria adopted for the Unsealed Pavement assets are as detailed within figure S7 below with the results of the funding scenario finder operation contained within figure S8.

	Criteria 1. Extent of OIA's				
Road Sub Asset Set Description	Expressed as the % of One Years Annual Liability	Expressed as a % of The Total Asset Set Replacement Valuation	**Criteria 2.** Years to achieve Desired Condition outcome	**Criteria 3** Annual % of Compounding funding increase (if required)	Moloney Standardised Descriptor for the Desired Condition Outcome
Unsealed Rd Pavements	50.0%	2.48%	10	0.00%	**Excellent**

Figure U9 Modelling scenario finder inputs - Unsealed Pavement Assets

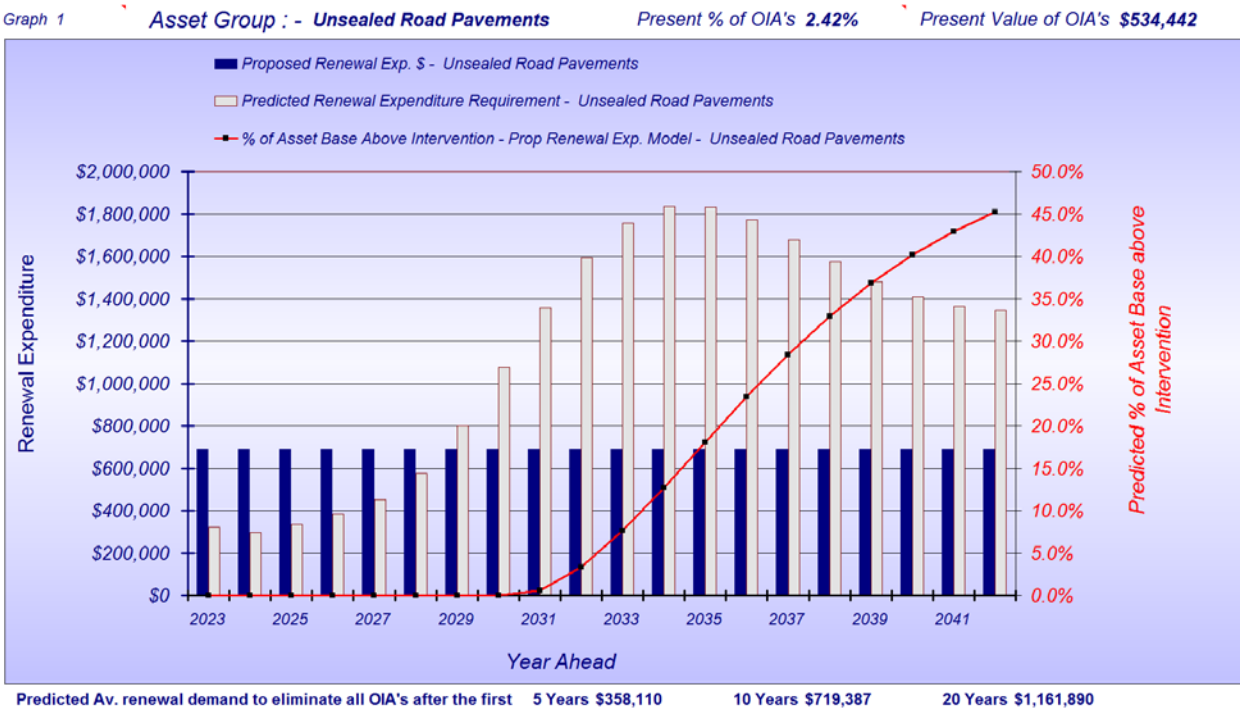


Figure U10 Recommended Renewal funding Strategy

For the unsealed pavements we have set the level of over intervention assets at 50.0% of one year's level of annual liability after 10 years, which equates to 2.48% of the network the current level being 2.42%. We have set the desired extent of over intervention assets at the top of the "Excellent" condition Range. (See Appendix D Figure D 1 for details relating to this classification range).

The model predicts that a commencing expenditure of $700,000 pa plus any annual CPI increases as appropriate will deliver the required condition outcome as detailed within figure U9 above.

5.3 Unsealed Pavement Summary

The Unsealed Pavement assets were found to be in excellent overall condition and ranked very favourably against the average condition indicator figures for all 58 councils assessed.

It is recommended that the average renewal funding be set at $700,000 pa next year and then be subject to any additional CPI increases as appropriate. Funding should be reviewed again following the next condition inspection.

Section 7: Kerb Sub Assets

This section will deal with the Kerb Sub assets. It will look at both internal and external benchmarking of asset condition as well as providing financial forecasting of future renewal demand and projected asset condition.

7.1.1 The Condition Distribution

Figure K1 provides a percentage condition distribution for the sub asset class commencing at zero when the asset is new and ending at 10 when there is no remaining value

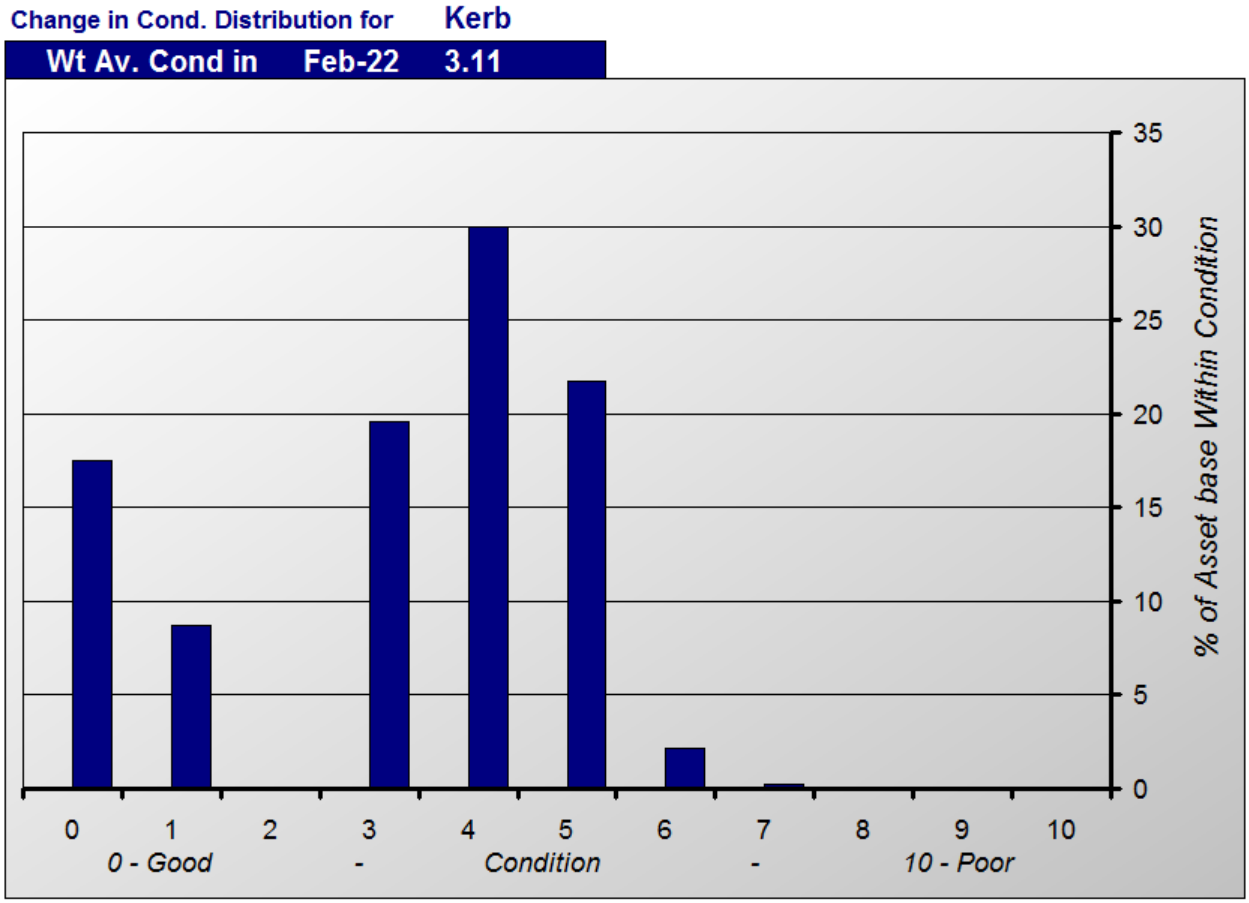


Figure K1 Condition Distribution Comparison Graph – Between Surveys

Figure K1 is a plot of the condition distribution for this sub asset set. Typically assets will be renewed at around the 7 - 9 condition range.

7.1.2 External condition Benchmarking

The two figures below provide external benchmarking in 2 different formats. The first tracks 7 of the 8 key performance indicators against the average of all councils assessed by MAMS. The second provides a graphical representation of how you rank against all councils we have assessed.

Key Cond. Indic. No.	Kerb Condition Indicator	Mean Indicator for all Councils assessed by MAMS	Figures from Current Survey in Feb-22	Change between Surveys New Minus Old	% Difference from the average figure of all councils	Better or Worse Than the Average of all councils
1	Weighted Average Asset Condition	3.192	3.110	0.08	2.6	Better
2	% of Urgent Failures	5.799	0.000	5.80	100.0	Better
3	% of Other Failures	16.852	7.689	9.16	54.4	Better
4	% of Asset Base above Condition 5	23.325	24.187	-0.86	-3.7	Worse
5	% of Asset Base above Condition 6	10.055	2.418	7.64	75.9	Better
6	% of Asset Base above Condition 7	4.039	0.246	3.79	93.9	Better
7	% of Asset Base above Condition 8	0.957	0.000	0.96	100.0	Better

Renewal Demand Being Met For:	% of Annual Liability expenditure Planned in Future years
Kerb Asset Group	82%

Figure K2 Condition Change since last survey & Renewal demand being met

Figure K2 details the key performance indicators that are followed by MAMS. It also provides a comparison with the average figures for all 58 councils we have assessed. (See section 5.1 for a detailed explanation of all indicators). At the bottom of the table is recorded the percentage of the consumption rate (annual depreciation) currently being met. This provides a further valuable performance indicator.

The kerbs were found to be in good overall condition. Weighted average asset condition was a little better than average and the extent of poor condition assets was found to be very low as was the extent of isolated kerb failures.

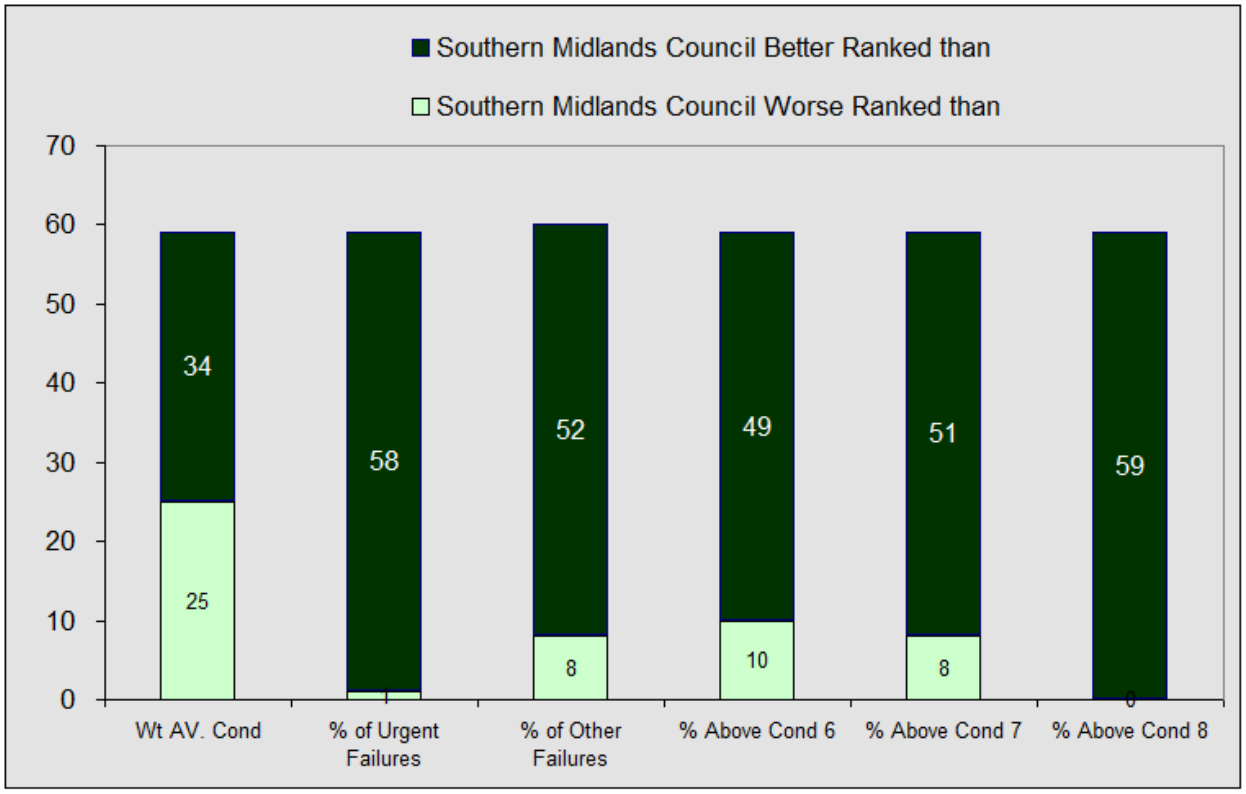


Figure K3 Key Condition Indicators as Compared with other Councils surveyed

Figure K3 provides external benchmarking based on the same key performance indicators as used in figure K2. The total number of councils assessed by MAMS on exactly the same basis is 60 for this sub

asset class. The graph displays the number of councils ranked better and worse than Southern Midlands Council for each of the six performance indicators. The dark green bars represent the number of councils that Southern Midlands Council is ranked better than, while the light green is the number that Southern Midlands is ranked worse that.

The comparison with all 60 councils assessed by MAMS within Figure K3 indicates a set of assets that are being very well managed. While Southern Midlands is a little better than the middle of the pack for it's weighted average asset condition, the extent of isolates failures and poor condition assets are right up with the best ranked councils.

7.2 Kerb Financial Modelling Analysis

Most kerb assets are modelled within a single data set as their performance is generally quite uniform across all assets. We do sometimes separate them when significant stone kerbs are present as these tend to have longer service lives and higher unit renewal rates than concrete kerbs. We sometimes treat the state assets that by default become a council responsibility as a separate asset set.

7.2.1 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 the retreatment intervention level.

Condition 3 Old but only minor loss of shape & movement

Condition 6 Movement and concrete breakdown

Condition 8 Large movement and holding of water	Condition 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 6 – 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 these situations. They should be seen as one possible condition situation and not the only situation for that condition rating.

7.2.2 Kerb Assets – Financial Modeling Results

Kerb - Modelling Parameters

Modelling Parameter	All Kerbs
Asset Quantity in lineal metres	22,330
Unit Renewal Rate	$95.38
Total Asset Group Renewal Cost	$2,129,900
Annual Renewal Exp.	$25,000
Retreat. Intervention Condition	7.0
Life to Condition 10 in Years	70.0
Life in years to Intervention	65.8

Figure K4 – Summary of Modelling Input Parameters for Kerb Assets

Kerbs have been modelled within a single asset set as detailed in Figure K4 above.

The intervention level has been set at condition 7.0 which is a little better than condition 8.0 (considered to be the industry standard). However, this is what council is currently achieving and to raise it to condition 8 would be accepting a lower level of service than you are currently providing.

The ongoing repair of isolated kerb failures does extend the asset lives coming out of our degradation curve analysis as the assets tend to sit within the 4 - 6 condition range far longer than they would without the regular repairs. Thus it can be difficult to pin down a firm service life within the model. But the adopted life to condition 10 of 70 years is as advised by council and does appear reasonable.

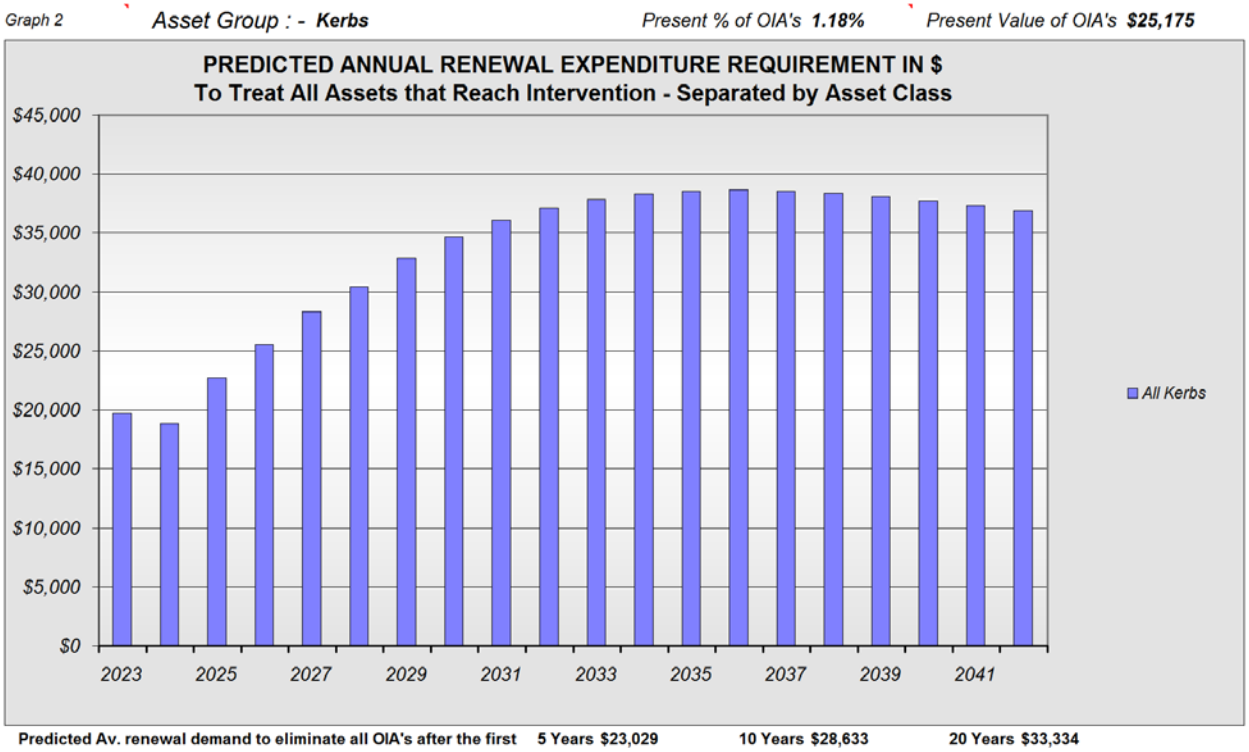


Figure K5 Predicted Renewal Demand to treat all assets that reach the Intervention level through normal decay

Figure K5 plots the annual funding profile required to eliminate all over intervention assets. If there is a large backlog of over intervention assets such that the raw year one demand is 30% or greater than the year two demand then the Moloney model eases the difference in over the first five years (this will show up as a reducing demand over the first five years). For this reason we prefer to quote the present renewal demand as the average figure for the first 5 years. In this case the first 5 year average renewal demand is estimated at $23,000 pa. If this expenditure is maintained all OIA's will be eliminated after 5 years.

All of the isolated kerb failures that were identified during the survey were converted into small pieces of poor condition asset and then included within the model to be repaired at a higher than normal unit rate because of their short lengths. In this way the model is covering all of the full length poor condition assets as well as the isolated kerb failures within its calculations.

Figure K5 indicates that the capital renewal demand pattern to treat all assets that are predicted to reach the retreatment intervention level over the next 20 years has an average annual renewal demand of $23,000 pa for the first 5-years with the peak demand over the next 20 years predicted at $39,000 pa in 2036.

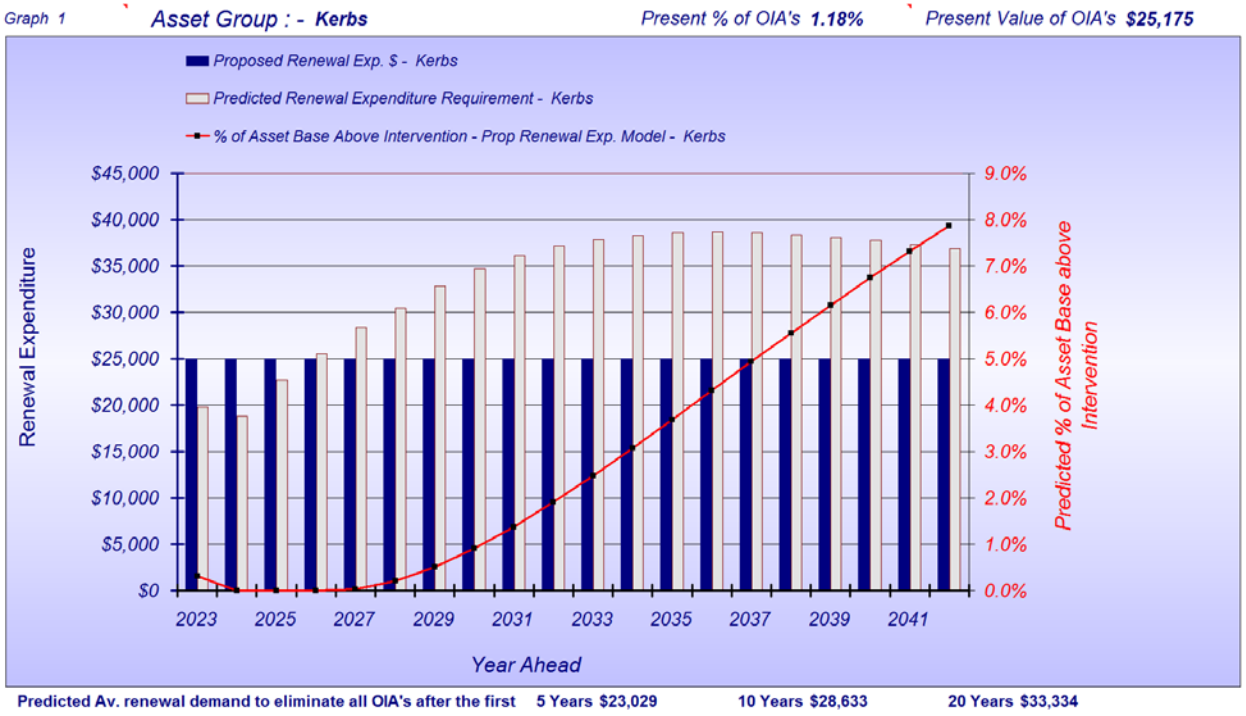


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Figure K6 Future Predicted Condition Based on planned expenditure profile

Figure K6 plots the extent of the asset base that is predicted to rise above the intervention level (red line) based upon the continuation of the planned level of renewal expenditure (in blue bars). It also plots the predicted renewal demand to treat all over intervention assets within the grey bars (Same aggregate figures as within Figure K5 but not split into the individual modelling sets).

Figure K6 indicates that the planned renewal expenditure at $25,000 pa, if maintained, will result in a small rise in the extent of OIA's from the present level of 1.18% up to 1.91% 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 over intervention assets within a selected time frame. A global outcome can be set for the whole roads group. In this way the model can also be used to allocate funding between the sub asset groups to deliver the best overall condition outcome for all road assets.

Please refer to Appendix D which explains why and how we set the desired extent of over intervention assets in terms of the number of year's worth of annual liability that it represents. Appendix D4 also provides an explanation of the Moloney funding scenario finder along with its three basic input criteria requirements. The three input criteria adopted for the kerb assets are as detailed within figure K7 below with the results of the funding scenario finder operation contained within figure K8.

For the kerbs we have set the level of over intervention assets at 50% of the level of one year's annual liability which equates to 0.72% of the value of the asset base, to be delivered after 10 years. The current level being 1.18%. We have set the desired extent of over intervention assets around the top of the "excellent" Range (Refer to Appendix D Figure D 1 for details).

The aim with the funding scenario finder is to deliver a consistent extent of over intervention assets across all road sub asset classes based on the number of years of annual liability that the OIA's represent. In this way the model also distributes the total renewal funding across all sub asset classes based on the actual renewal demand.

	Criteria 1. Extent of OIA's				
Road Sub Asset Set Description	Expressed as the % of One Years Annual Liability	Expressed as a % of The Total Asset Set Replacement Valuation	**Criteria 2.** Years to achieve Desired Condition outcome	**Criteria 3** Annual % of Compounding funding increase (if required)	Moloney Standardised Descriptor for the Desired Condition Outcome
Kerbs	50.0%	0.72%	10	0.00%	**Excellent**

Figure K7 Modelling scenario finder inputs - Kerb Assets

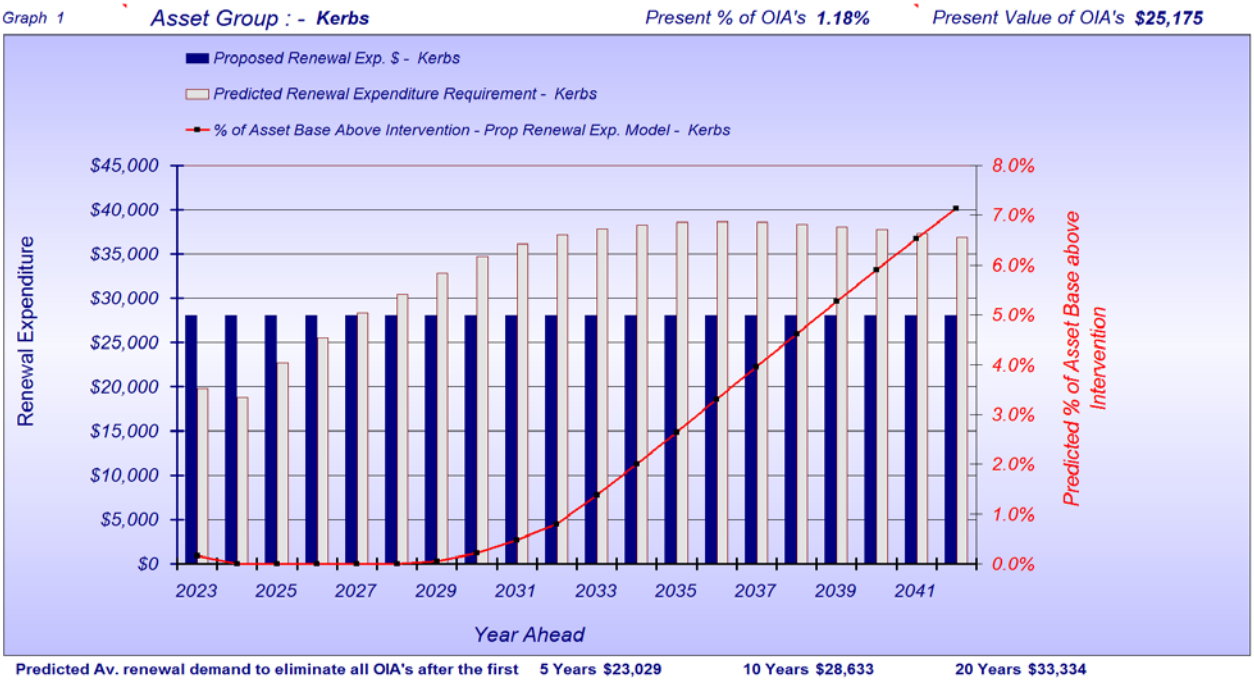

Figure K8 Recommended future Renewal funding strategy

The recommended funding level over the next 10 years commences at $28,000 pa next year and is to be subject to any additional CPI increases as appropriate. This is predicted to deliver on the condition outcome as detailed within Figure K7 above (0.79% OIA's after 10 years)

7.3 Kerb Summary

The kerb assets were found to be in very good overall condition and there were exceptionally low levels of both poor condition assets and isolated kerb failures.

It is recommended that the average renewal funding level over the next 10 years be set at $28,000 pa next year and be subject to any CPI increases as appropriate.

Section 8: Footpath Sub Assets

This section will deal with the Footpath Sub assets. It will look at both internal and external benchmarking of asset condition as well as providing financial forecasting of future renewal demand and projected asset condition.

8.1.1 The Condition Distribution

Figure P1 provides a percentage condition distribution for the sub asset class commencing at zero when the asset is new and ending at 10 when there is no remaining value

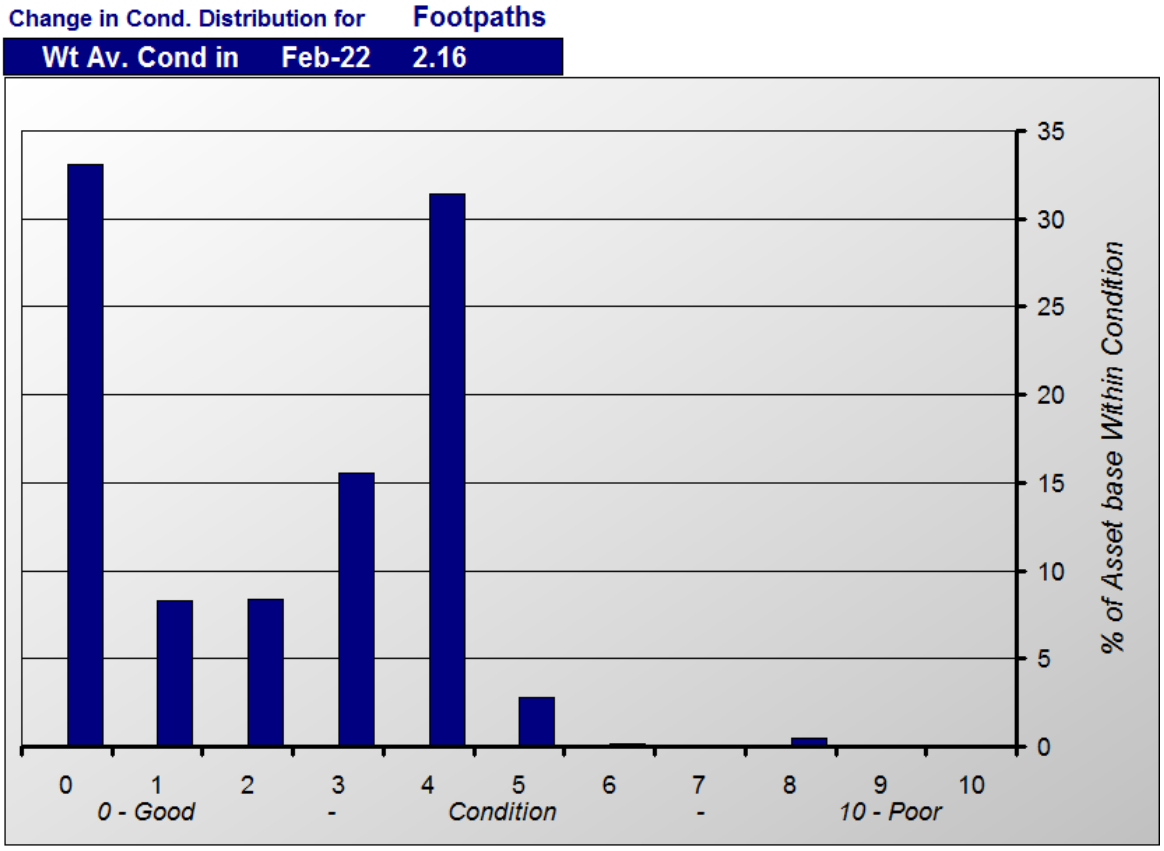

Figure F1 Condition Distribution Comparison Graph – Between Surveys

Figure P1 is a plot of the condition distribution for this sub asset set. Typically assets will be renewed at around the 7 - 9 condition range.

8.1.2 External condition Benchmarking

The two figures below provide external benchmarking in 2 different formats. The first tracks 5 of the 8 key performance indicators against the average of all councils assessed by MAMS. The second provides a graphical representation of how you rank against all councils we have assessed.

Key Cond. Indic. No.	Footpath Condition Indicator	Mean Indicator for all Councils assessed by MAMS	Figures from Current Survey in Feb-22	Actual Change Negative is a Condition Decline	% Difference from the average figure of all councils	Better or Worse Than the Average of all councils
1	Weighted Average Asset Condition	2.94	2.16	0.79	26.7	Better
4	% of Asset Base above Condition 5	19.13	3.43	15.70	82.1	Better
5	% of Asset Base above Condition 6	6.24	0.60	5.64	90.3	Better
6	% of Asset Base above Condition 7	2.01	0.440	1.57	78.1	Better
7	% of Asset Base above Condition 8	0.73	0.440	0.29	39.6	Better

Renewal Demand Being Met For:	% of Annual Liability expenditure Planned in Future years
Footpath Asset Group	72%

Figure F2 Condition Change since last survey & Renewal demand being met

Figure F2 details the key performance indicators that are followed by MAMS. It also provides a comparison with the average figures for all 51 councils we have assessed. (See section 5.1 for a detailed explanation of all indicators). At the bottom of the table is recorded the percentage of the consumption rate (annual depreciation) currently being met. This provides a further valuable performance indicator.

The footpaths were found to be in excellent overall condition. Weighted average asset condition was within the best 12% of the councils assessed but there was a slightly elevated extent of poor condition assets at and above condition 8.

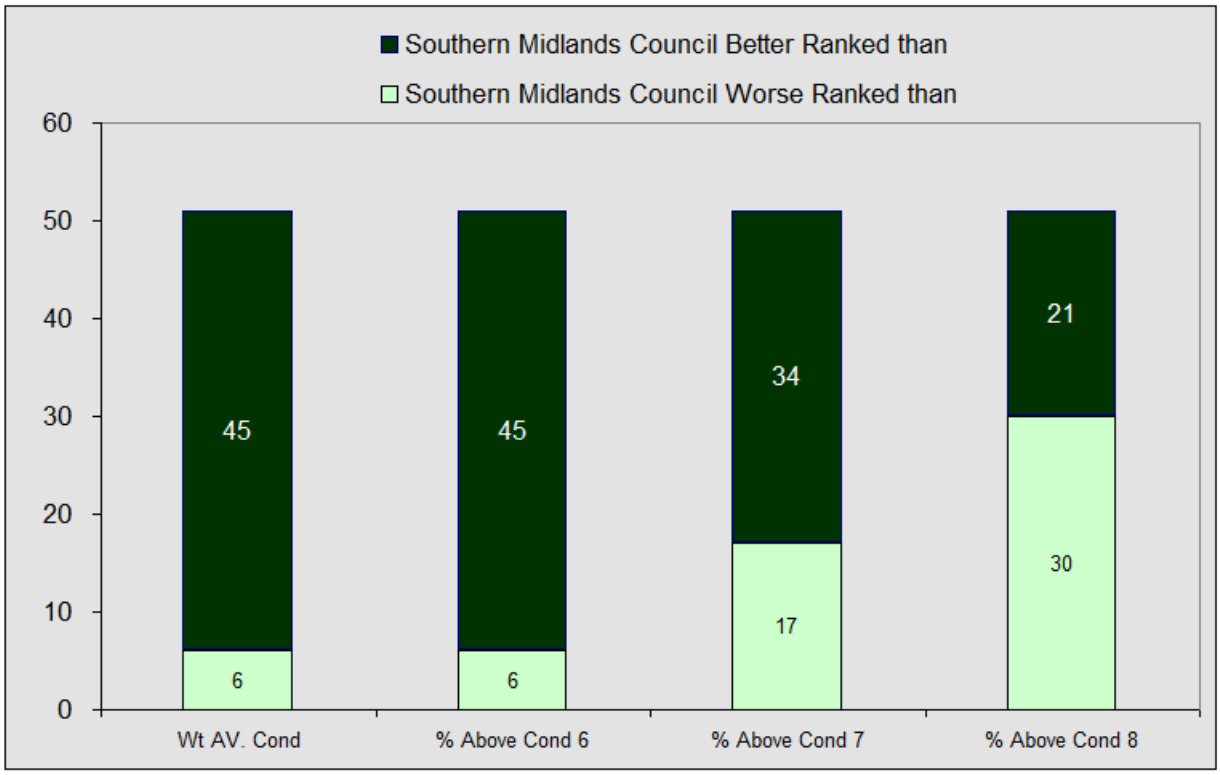

Figure F3 Key Condition Indicators as Compared with other Councils surveyed

Figure F3 provides external benchmarking based on the same key performance indicators as used for all other assets. It compares your values to those of the other 51 councils that we have inspected and rated on exactly the same basis. The graph shows you as better than the number of dark green shaded councils and worse than the light green shaded number.

Your weighted average asset condition is excellent because of the large extent of relatively new assets but there is a build up in poor condition assets at and above condition 8 that does need to be addressed.

8.2 Footpath Financial Modelling Analysis

Footpaths tend to be modelled within their general separate types such as concrete, asphalt, gravel etc. Sometimes because of the small extent of certain types of footpath we do need to merge more than one type. For example there may be a very small number of sprat sealed footpaths and these might then be modelled with the asphalt paths.

8.2.1 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 Footpath condition ratings. They do not cover the complete condition range but hopefully will provide some guidance to the selection of re-treatment intervention level.

	
Condition 0 – 1 Excellent condition	Condition 6 Extensive movement
	
Condition 7 Extensive cracking and movement	Condition 9 Very poor Condition – 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.

8.2.2 Footpath Assets – Financial Modeling Results

Footpath - Modelling Parameters

Modelling Parameter	Spray seal and Asphalt Footpaths	Concrete Footpaths	Gravel Footpaths	Totals
Asset Quantity in sqm	5,380	16,543	5,305	27,228
Unit Renewal Rate	$70.00	$107.13	$20.00	
Total Asset Group Renewal Cost	$376,600	$1,772,309	$106,094	$2,255,003
Annual Renewal Exp.	$3,500	$18,000	$3,500	$25,000
Retreat. Intervention Condition	6.0	6.0	6.0	
Life to Condition 10 in Years	25.0	60.0	20.0	
Life in years to Intervention	21.3	51.0	17.0	

Figure F4 – Summary of Modelling Input Parameters for Footpath Assets

Footpaths have been modelled within three asset sets as detailed in Figure F4 above.

The intervention level has been set at condition 6.0 which is a little better than the industry standard of condition 7.0. But again this is the condition that council is achieving and to accept a lower standard would be accepting a lower level of service.

The ongoing repair of isolated footpath failures does extend the asset lives coming out of our degradation curve analysis as the assets tend to sit within the 4 - 6 condition range far longer than they would without the regular repairs. Thus it can be difficult to pin down a firm service life within the model.

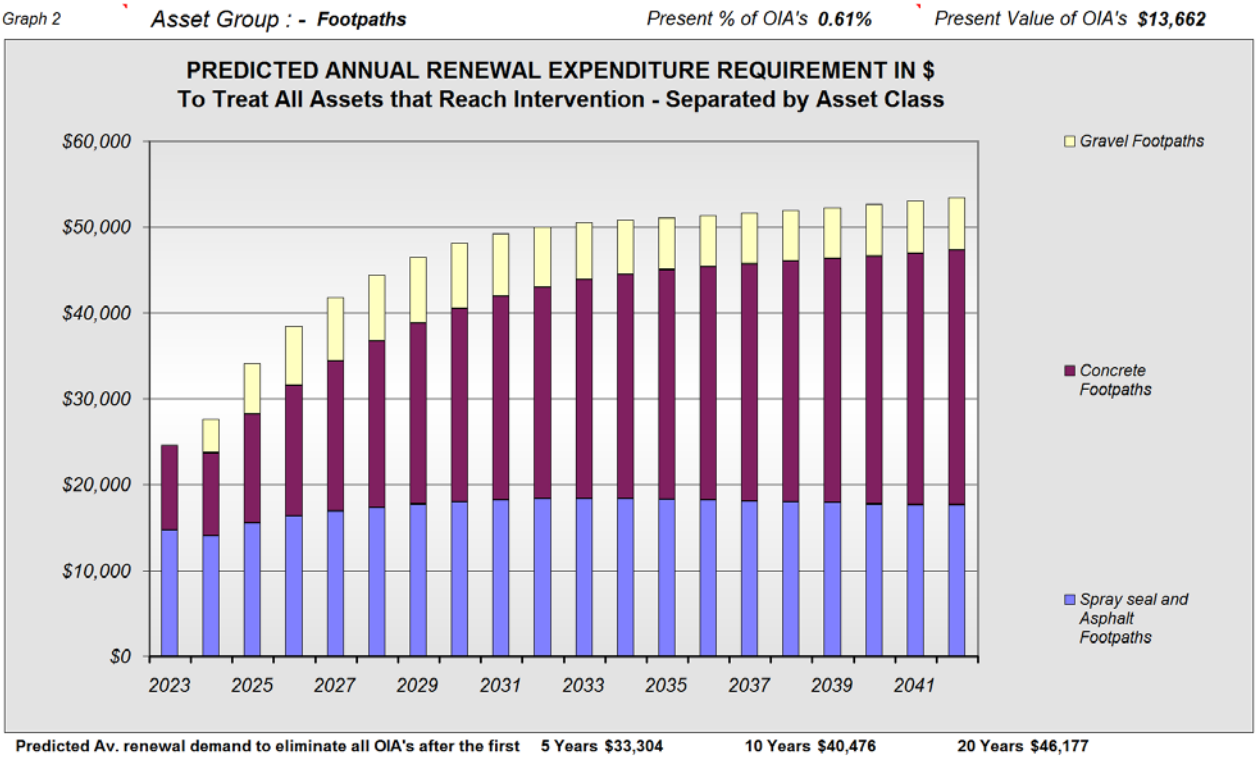

Figure F5 Predicted Renewal Demand to treat all assets that reach the intervention level

Figures F5 provides a profile of the predicted renewal demand to treat all assets that reach the adopted retreatment intervention level through the degradation process. It also splits the results up based upon the individual sub sets of the data that were modelled separately.

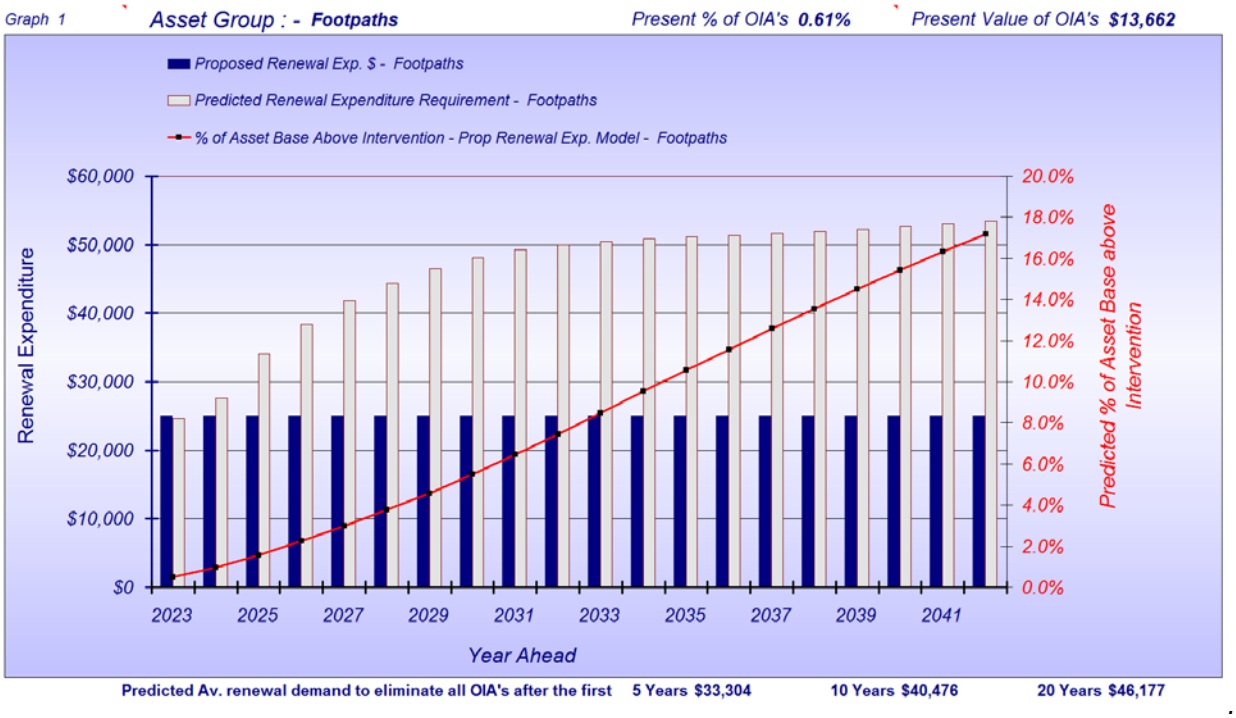

Figure F6 Future Predicted Condition Based on planned expenditure profile

Figure F6 plots the extent of the asset base that is predicted to rise above the intervention level (red line) based upon the continuation of the planned level of renewal expenditure (in blue bars). It also plots the predicted renewal demand to treat all over intervention assets within the grey bars (Same aggregate figures as within Figure K5 but not split into the individual modelling sets).

Figure F6 indicates that the planned renewal expenditure at $25,000 pa, if maintained, will result in a raising of the present level of OIA's of 0.61% up to 7.46% 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 over intervention assets within a selected time frame. A global outcome can be set for the whole roads group. In this way the model can also be used to allocate funding between the sub asset groups to deliver the best overall condition outcome for all road assets.

Please refer to Appendix D which explains why and how we set the desired extent of over intervention assets in terms of the number of year's worth of annual liability that it represents. Appendix D4 also provides an explanation of the Moloney funding scenario finder along with its three basic input criteria requirements. The three input criteria adopted for the footpath assets are as detailed within figure F7 below with the results of the funding scenario finder operation contained within figure F8.

	Criteria 1. Extent of OIA's				
Road Sub Asset Set Description	Expressed as the % of One Years Annual Liability	Expressed as a % of The Total Asset Set Replacement Valuation	**Criteria 2.** Years to achieve Desired Condition outcome	**Criteria 3** Annual % of Compounding funding increase (if required)	Moloney Standardised Descriptor for the Desired Condition Outcome
Footpaths	50.0%	1.11%	10	0.00%	**Excellent**

Figure F7 Modelling scenario finder inputs - Footpath Assets

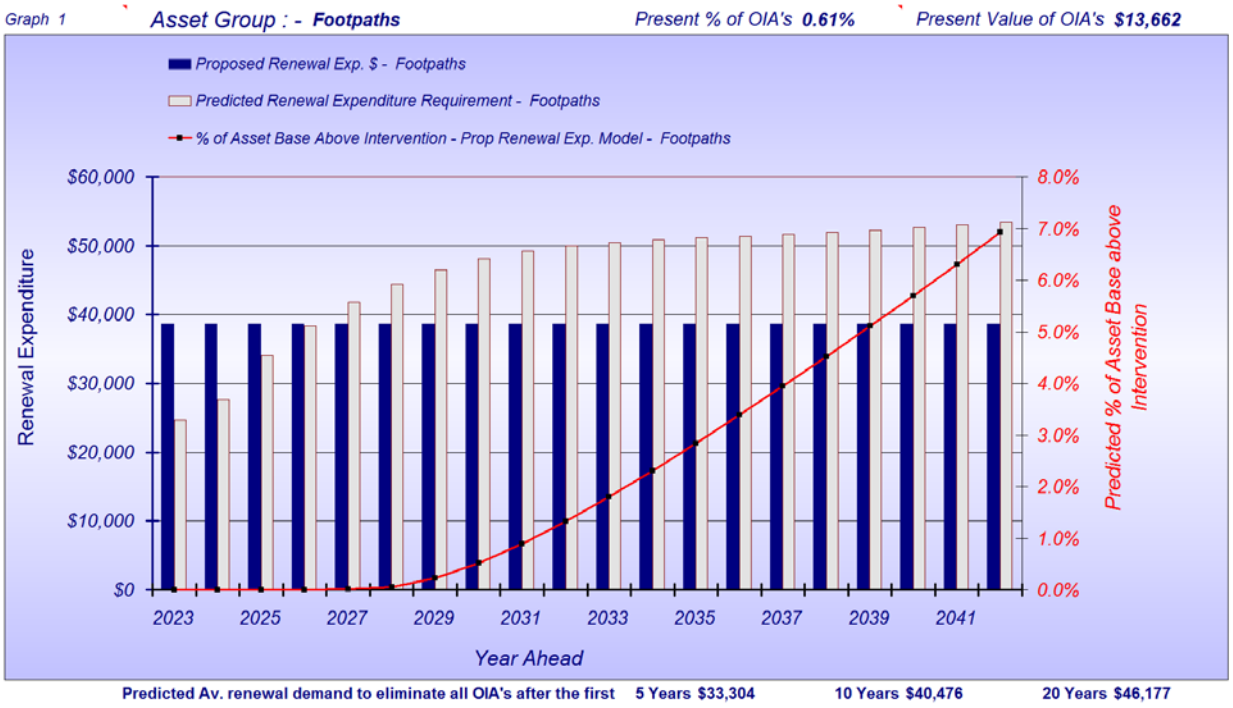

Figure F8 Recommended future Renewal funding strategy

The recommended funding level over the next 10 years commences at $39,000 pa next year and is to be subject to any additional CPI increases as appropriate. But we have allowed for an additional $11,000 pa for the repair of isolated footpath failures. Thus the total recommended footpath renewal expenditure is $50,000

Unlike the kerb assets were we did assess isolates failures and were thus able to include them as part of the modelling operation we did not assess the isolated footpath failures and so have to make a best estimate of that component of the renewal program. Thus the total recommended renewal program for the footpath assets in $50,000 pa, which is close to your planned renewal expenditure when the isolated footpath repairs are added in.

8.3 Footpath Summary

The footpath assets were found to be in excellent overall condition, but there was a build up of poor condition assets at and above condition 8 that does need to be addresses

It is recommended that the average renewal funding level over the next 10 years be set at $50,000 pa next year and be subject to any CPI increases as appropriate.

Section 9: Aggregated Modelling Results for Road Network

9.1 Overall Financial Reporting

Accurate network modelling within the Moloney system depends upon several independent modelling variables. Council now has a good handle on the condition of the assets but we are not able to deliver the very important unique degradation curves until we have a second condition survey undertaken on the same basis. Modelling results will be further refined when unique degradation curves are available.

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 up to 40 individual asset sets and to then combine these results firstly into up to ten reporting groups (Sub asset sections in this report). Then finally into an aggregated set of reports for the whole road network. This section will deal with the aggregated modelling results for the whole roads group.

9.1.1 Predicted renewal expenditure to eliminate ALL OIA's

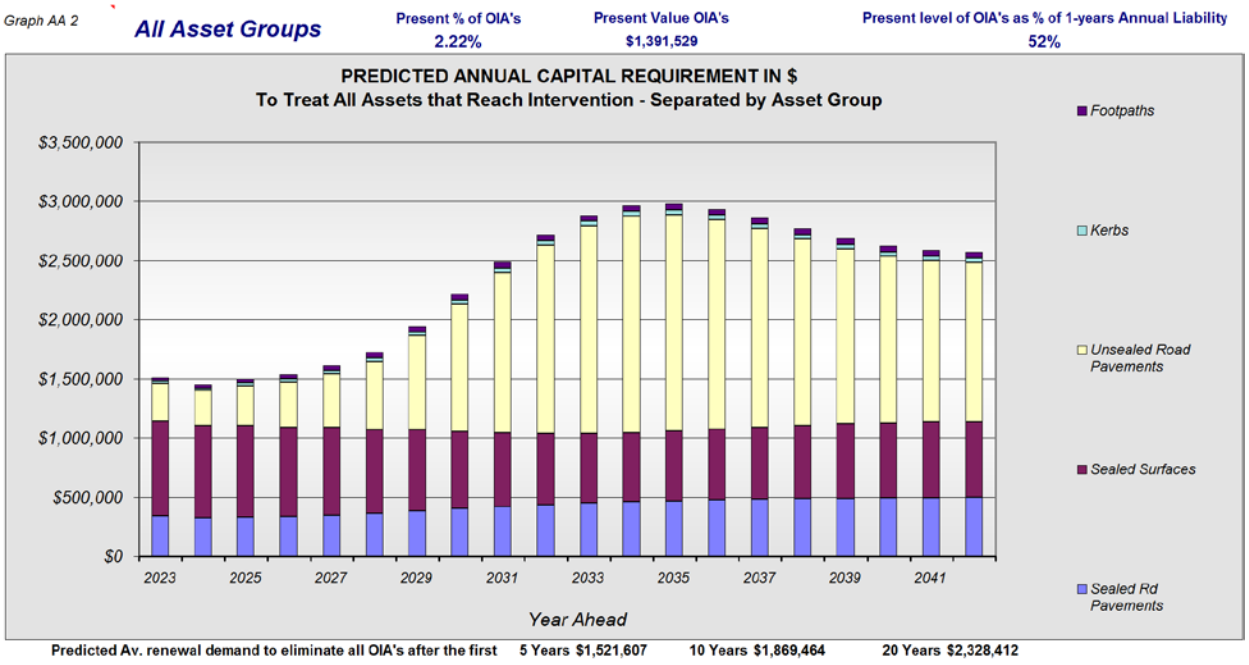

Figure Agg 1 Predicted Renewal Demand to treat all assets that reach the Intervention level

Figure Agg 1 plots the annual funding required to treat all over intervention assets within the first 5 years. It also splits the total renewal demand into the sub asset sets that were analysed within sections 4 to 8 above.

Figure Agg 1 plots the 20 year estimated renewal demand to treat all assets that are predicted to reach the retreatment intervention level through normal decay with time. Because the model is programmed to ease in the year one demand over 5 years when the raw year one demand is 30% greater than year two, it is best to report the commencing renewal demand as an average figure for the first 5 years. The average renewal demand over the first 5 years for the whole roads group is estimated at $1,523,164. The peak demand over the next 20 years is estimated at $2,980,000 in the year 2036. But remember this is aiming for a zero level of OIA's.

9.1.2 Condition based upon the total level of OIA's

Agg 1 also displays at the top of the graph the present extent of over intervention assets (OIA's) for the whole roads group expressed in three ways.

1. As a percentage of the total asset base valuation - 2.22%.
2. As the total renewal value of the OIA's - $1,391,529.
3. As the percentage of one years annual liability (or annual consumption rate), corresponding to the level of your OIA's - 52%

Your Over Intervention Assets (OIA's) as a % of Annual Depreciation

Present extent of OIA's expressed in three ways			Your overall road asset condition based in the extent of OIA's	
Current % of OIA's expresses in years worth of average annual liability	Your present value of OIA's in $	Your OIA's as a % of your total asset base valuation	Moloney standardised condition description	Additional comments on sandardised condition descriptor
52%	$1,392,000	2.22%	Excellent	Very low level of over intervention assets

Figure Agg 2 Your overall condition based on the level of OIA's

9.1.2.1 Condition based upon industry standardised intervention levels

The extent of OIA's reported will depend upon the level of service. Low level of service will result in a lower level of OIA's. Just as a high level of service will result in higher level of OIA's.

For comparison purposes it is best to report the level of OIA's based on an industry standard set of intervention levels. See Appendix D.3.1 below for more details

Standardised Levels of Over Intervention Assets

Present extent of OIA's expressed in three ways			Your overall road asset condition based in the extent of OIA's	
Current % of OIA's expresses in years worth of average annual liability	Your present value of OIA's in $	Your OIA's as a % of your total asset base valuation	Moloney standardised condition description	Additional comments on sandardised condition descriptor
47%	$1,140,000	1.81%	Exceptionally good	Extremely low levels of over intervention assets

Figure Agg 3 Your overall condition based on the standardised intervention levels.

The results within Figure Agg 3 based on the standardised intervention levels improves your position a little because some of your intervention levels are a little below (better level of service) the standardised figures. This moves you into the best category of "Exceptionally Good".

9.1.3 Predicted condition based upon planned renewal expenditure

Figure Agg 4 plots the extent of the asset base that is predicted to rise above the intervention level (red line) based upon the continuation of the planned level of renewal expenditure (in blue bars) on the same basis as the present split between the road sub assets. It also plots the predicted renewal demand to treat all over intervention assets within the grey bars (Same aggregate figures as within Figure Agg 1 but not split into the sub asset modelling groups).

If the planned total renewal expenditure of $1,811,000 is maintained for the next 10 years with the same split between the asset classes, figure Agg 4 indicates that the present extent of OIA's at 2.22% of the total replacement value of all assets will rise to 4.68% after 10 years.

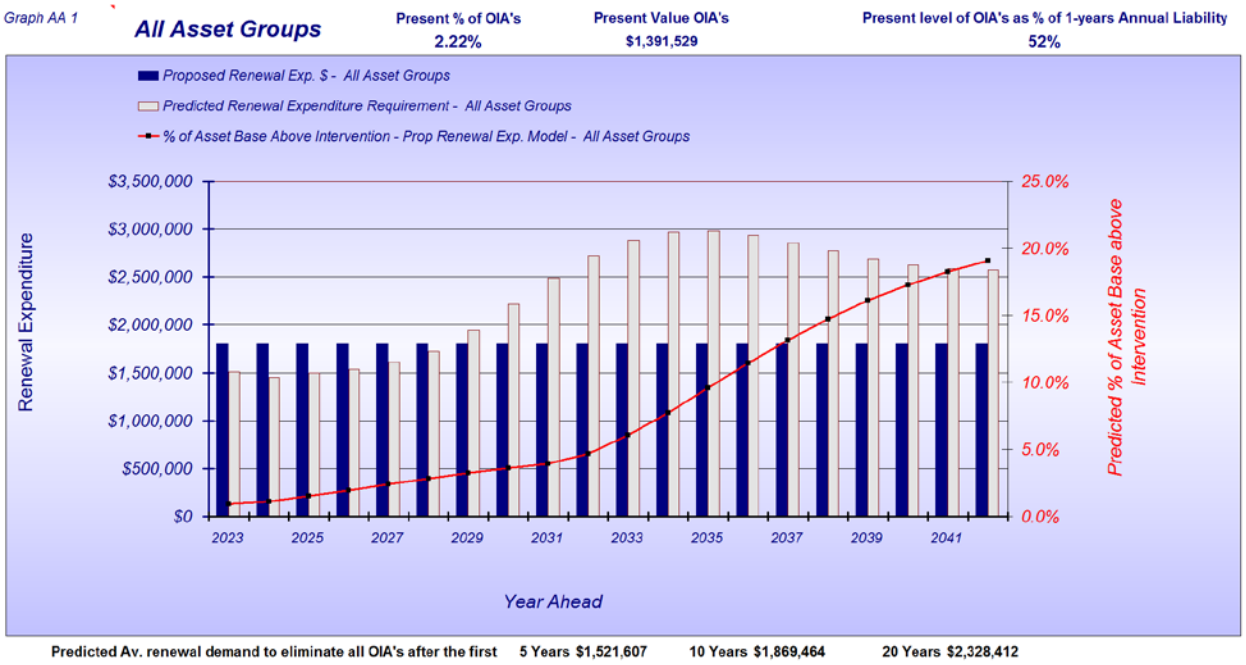

Figure Agg 4 – Future Predicted Condition - Based on the continuation of the planned expenditure profile

The Moloney financial modelling software has the capacity to develop a recommended renewal funding profile that will deliver a nominated extent of over intervention assets within a selected time frame. A global outcome can be set for the whole roads group. In this way the model is also used to allocate funding between the sub asset groups on a needs basis to deliver the best overall condition outcome for the whole roads group.

Please refer to Appendix D which explains why and how we set the desired extent of over intervention assets in terms of the number of year's worth of annual liability that it represents. Appendix D4 also provides an explanation of the Moloney funding scenario finder along with its three basic input criteria requirements.

		Criteria 1. Extent of OIA's		Criteria 2.	Criteria 3		
Road Sub Asset Set Description	Value of the Desired level of over int. assets	Desired extent of Over intervention assets (OIA's) as a % of one Years Annual Liability	Desired Extent of OIA's as a % of total Sub Asset base valuation	Years to achieve Desired Condition outcome	Annual % of Compounding funding increase (if required)	Amount in $ of the Annual % Increase	Moloney Standardised Descriptor for the Desired Condition Outcome
Sealed Rd Pavements	$182,087	50%	0.69%	10	0.00%	$0	Excellent
Sealed Surfaces	$274,117	50%	2.49%	10	0.00%	$0	Excellent
Unsealed Rd Pavements	$552,146	50%	2.48%	10	0.00%	$0	Excellent
Kerbs	$15,214	50%	0.72%	10	0.00%	$0	Excellent
Footpaths	$24,954	50%	1.11%	10	0.00%	$0	Excellent
All Assets	$1,048,517	50%	1.64%	10	0.00%	$0	Excellent

Figure Agg 5 Modelling scenario finder inputs - All Assets

The three input criteria adopted for each of the road sub asset sets are as detailed within figure Agg 5 with the results of the funding scenario finder operation contained within figure Agg 6.

Figure Agg 5 above contains the three input criteria being applied within the Moloney funding scenario finder for each of the four road sub asset sets that were modelled. The same three criteria were adopted for all sub assets.

It was found that a total renewal expenditure of $1,810,000 pa for the next 10 years would deliver on the required condition outcome as outlined within figure Agg 5.

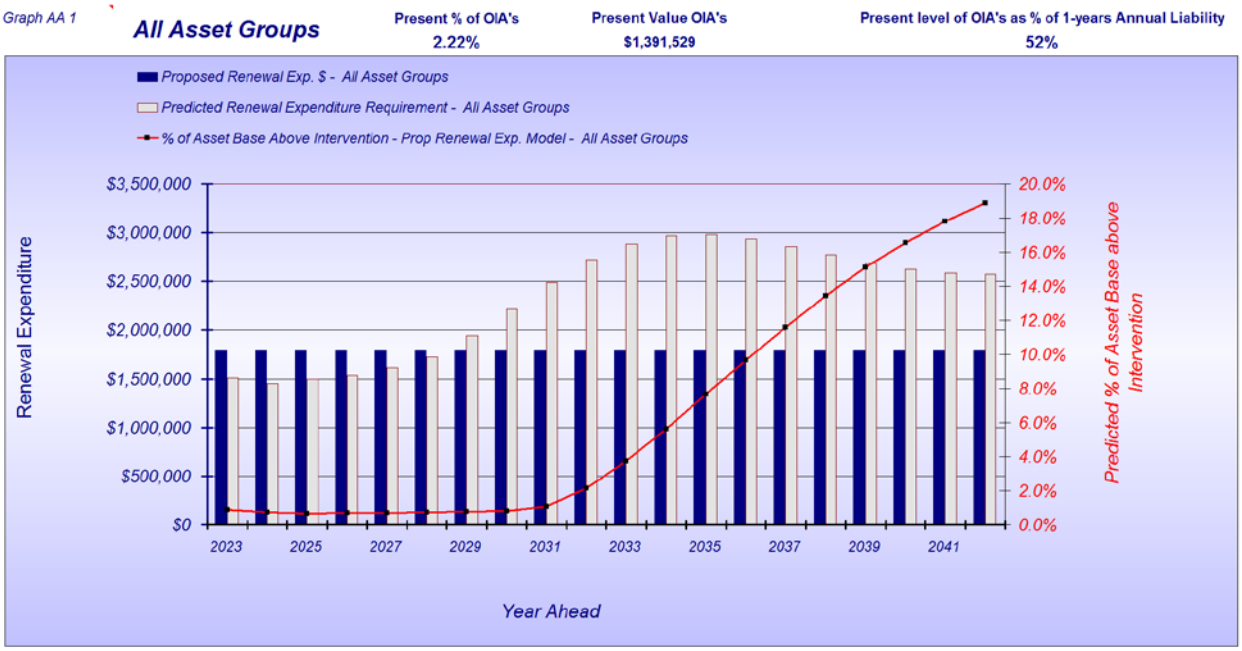

Figure Agg 6 – Recommended future funding Strategy

Figure Agg 6 details the recommended total renewal expenditure level for the next 10 years.

It was found that a flat annual expenditure of $1,810,000 pa would deliver the required condition outcome of 50% of one years annual liability or 1.64% of the total network replacement value as the total level of OIA's after 10 years.

There may be a need to increase funding a little into the second decade, but there will be several condition surveys between then and now, which will further refine the modelling predictions. The modelling inputs will be refined into the future when unique degradation curves are developed following a second condition survey.

The better condition outcome within the Moloney scenario finder - (recommended funding strategy), for the same total renewal expenditure of $1,810,000 is achieved because of the optimisation of the renewal expenditure between the sub asset classes that is undertaken within the funding scenario model.

Other scenarios can be run to achieve different outcomes on different time frames. The Moloney model 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 for the organization. Note also that the model is not limited to road assets and can be set up to analyse any assets that are created, decay with time and then require replacement or renewal.

The model can also be set to allow for annual CPI increases. But over a 10 - 20 year time frame it can be difficult to distinguish between real increasing renewal demand and that relating to inflation. Hence our preference is to report in today's values only.

It is also stressed that the recommended funding strategy should be seen more as an average expenditure requirement over the next 10 years. There may be years when expenditure is higher or lower, or where the funding split between the sub asset classes change. The primary aim of the financial modelling work is to deliver the average renewal demand across all of the road sub assets that are included within this report as a single average total renewal demand for the whole road network.

	A	B	C	D	E	F	G
Sub Asset Description	Average renewal expenditure over last 5 years	Average Planned renewal expenditure for the next 5 Years	Average Annual Liability (Based upon modelling lives and valuations) (AL)	Annual Depreciation based on Accounting valuations and lives (AD)	Average Capital Renewal Demand for next 5-years to eliminate all over intervention assets	Year of Condition Inspection	Recommended Year 1 funding level with no annual compounding increase
Sealed Pavements	**$380,000**	**$500,000**	**$364,174**	**$308,867**	**$334,822**	2022	$346,000
Sealed Surfaces	**$488,000**	**$450,000**	**$548,233**	**$574,401**	**$772,342**	2022	$686,000
Unsealed Pavements	**$538,000**	**$800,000**	**$1,104,293**	**$1,075,513**	**$360,000**	2022	$700,000
Kerbs	**$150,000**	**$25,000**	**$30,427**	**$30,305**	**$23,000**	2022	$28,000
Footpaths	**$180,000**	**$36,000**	**$49,907**	**$50,695**	**$33,000**	2022	$50,000
Totals	**$1,736,000**	**$1,811,000**	**$2,097,034**	$2,039,781	$1,490,164		**$1,810,000**
C - B Estimated Annual Consumption Rate		**$286,034**					

Figure Agg 7 – Summary Table of Current & Recommended Renewal Expenditure Levels

Figure Agg 7 provides some important overall financial figures. It shows that Southern Midlands Council is presently funding its road renewal program at $1,811,000 pa. The full annual liability is estimated at $2,097,034 pa with annual depreciation estimated at $2,039,781 pa, so the assets will be consumed at around $286,034 pa.

There are some differences between the "Annual Liability" (AL) figures and the "Annual Depreciation" (AD) Figures. The differences mostly hinge upon the adopted asset service lives and unit renewal rates.

The AD figures are bound to Australian and international accounting standards that are really designed to deliver a tax deductible figure for business, while we have far more freedom with the AL figures to deliver the best estimate of the actual ongoing annual liability (or annual consumption rate) to manage the assets in perpetuity. We have tended to adopt slightly shorter service lives for some of the AL calculations. This has resulted from the adoption of some lower retreatment intervention levels to better match what council is currently achieving.

Hence the total annual liability figure within figure Agg 7 of $2,097,034 pa is a little higher than the annual depreciation figure of $2,039,781.

All figures within this report are in today's values. No allowance has been made for CPI increases. The Moloney software does have the capacity to report with an allowance for CPI if required. But over a 10-20 year time frame CPI lifts values quite markedly and it can be difficult to discern if a rising renewal demand is due to CPI increases or a real growth in renewal demand. Thus we prefer to report the predicted renewal demand in today's values.

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Appendix A: Asset Valuations

This appendix deals with asset valuations

A.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 pa is based upon the best available accounting greenfields construction costs and the adopted accounting service lives.

Annual Depreciation has not been used within this report as the basis of the average long term renewal demand. We have adopted what we call the "Annual Liability" for this purpose. See Appendix E for the definitions of both figures.

The annual liability figures are all based on the estimated rehabilitation costs (Not greenfields construction costs) and we have more flexibility to set service lives that are closer to the lives coming out of the degradation curve analysis. In this way our financial modelling results can be more accurate and we can compare planned or recommended expenditure levels to the actual average annual long term liability rather than the annual depreciation which is designed to deliver a tax deductible figure for use in business tax calculations.

ASSET DESCRIPTION	Total Quantity	Units	Replace. Value $	Asset Life in Years	Written Down Value $	Accumul. Deprec. $	Annual Deprec. $	Average Date of Cond. Assessment	Annual Liability from Modelling inputs
Footpath	15,153	Lin. Met	2,247,774	49.0	1,556,745	691,029	50,695	Feb-2022	$49,907
Kerb	22,330	Lin. Met	2,121,350	70.0	1,296,774	824,576	30,305	Feb-2022	$30,427
Sealed Pavements	220,471	Lin. Met	26,312,444	90.2	15,974,289	10,338,155	308,867	Feb-2022	$364,174
Unsealed Pavement	549,302	Lin Met	22,273,325	20.8	19,989,056	2,284,269	1,075,513	Feb-2022	$1,104,293
Sealed Surface	220,611	Lin. Met	11,008,698	18.8	5,578,474	5,430,224	574,401	Feb-2022	$548,233
Sealed Rd Formation	220,471	Lin. Met	22,302,246	250.0	20,072,021	2,230,225	89,209	10-Feb-22	$0
U/S Rd Formation	549,362	Lin. Met	34,476,931	250.0	31,029,238	3,447,693	137,908	10-Feb-22	$0
			$120,742,768		**$95,496,598**	**$25,246,171**	**$2,266,898**		**$2,097,034**

Figure 3.1 Table of asset valuations for financial modelling purposes

There are some differences between the "Annual Liability" (AL) figures and the "Annual Depreciation" (AD) Figures. The differences mostly hinge upon the adopted asset service lives and unit renewal rates.

The AD figures are bound to Australian and international accounting standards that are really designed to deliver a tax deductible figure for business, while we have far more freedom with the AL figures to deliver the best estimate of the actual ongoing annual liability (or annual consumption rate) to manage the assets in perpetuity. We have tended to adopt slightly shorter service lives for some of the AL calculations. This has resulted from the adoption of some lower retreatment intervention levels to better match what council is currently achieving.

Hence the total annual liability figure within figure Agg 7 of $2,097,034 pa is a little higher than the annual depreciation figure of $2,039,781.

Council is advised to check and approve all of the inputs into the asset valuations within Figure 3.1 before adopting them for accounting purposes.

Appendix B: 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 and or subsequent surveys.

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 or service life cycles within the accounting system.

At this stage we have only the one condition survey for Southern Midlands Council and as such are not in a position to develop the curves. We will adopt the best fit curves based on our experience with other councils over the last 27 years.

Appendix C - The Moloney Financial Model

C.1 The basis of the 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 not an individual asset.
- The model commences with the present condition distribution (series1 figures within each of the of the sub assets sections),
- The degradation curves are applied to the present condition distribution annually. If there was a 10 year life found within the degradation curves between conditions 3 and 4 then the model would degrade 1/10 or 10% of the condition 3 assets to condition 4 annually. This process operates across the condition range annually.
- From this point there are two distinct modelling paths. Model 1 and Model 2.
- Within Model No 2 - A retreatment intervention condition is nominated (level of service) 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 to deliver a zero level of over intervention assets. (See the series 5 figures in each of the sub asset sections above). The model returns the repaired assets back to condition zero annually and they start their cycle again.
- Within Model No 1 - A proposed 20 year capital renewal expenditure profile is input and the model predicts the resulting asset condition change with time. (See the series 6 figures in the sub asset sections).
- Model No 1 takes the annual value of the planned renewal expenditure from the worst end of the condition distribution and put back to condition zero each year. Condition change can be monitored in a number of ways but the extent of the asset base that rises above the selected intervention level each year is considered to be the most useful. This is referred to as the level of "Over intervention Assets" or OIA's.
- We have also reverse engineered model No 1 through an iterative process to deliver a desired extent of OIA's after a selected number of years. The model delivers the annual expenditure necessary to achieve this outcome. We call this operation the "funding scenario finder" and a further explanation is available within Appendix D below. A detailed explanation is available from our web site at www.moloneys.com.au off the Information Tab - 1 The Funding Scenario Finder Aug 2018

C .1.1 More detail on the operation of the Financial Model

For a more detailed explanation of the model and how it works please refer to our web site at www.moloneys.com.au and from the Information tab download the PDF document titled "The basis of the Moloney Model". There is also an extensive amount of other background information. No log in or other details are required to be input on the web site for access to this information.

C.2 Source and Status of the Modelling Inputs

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.

Rehabilitation Cost	—	Supplied by Council - Reviewed by Moloney
Present Expenditure Levels	—	Supplied by Council
Asset Quantity	—	Directly from this survey
Asset Condition	—	Directly from this survey
Degradation Curves	—	Best fit curves supplied 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.

C.2.1 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 the asset. Unit rates used within the asset valuation section may vary depending upon the accounting requirements of the council and may not directly relate to the values and or service lives used within the model.

C.2.2 Modelling Projections

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

Any variation from this approach would be detailed within the sub asset report sections. For example council may have a policy to reconstruct all sealed rural roads of a particular class to a minimum width of say 6.8 m. We can adjust the model to accommodate this policy and if this were done it would be explained within the relevant sub asset section.

Appendix D Setting the Extent of Over Intervention assets and the funding scenario finder

This Appendix will deal with the setting of the Intervention Level and the setting of the extent of Over Intervention Assets. It will also briefly cover the operations of the Moloney "funding scenario finder".

D.1 Definitions

D.1.1 Intervention Level - Level of Service

The Intervention level is the condition rating at which it is believed the asset should be replaced or rehabilitated. An asset usually commences at condition zero when new or newly rehabilitated and then progresses with time up the 0 - 10 condition rating scale. While the scale ends at condition 10 it would be normal to intervene to replace of rehabilitate the asset within the condition range 6 - 9 depending upon the desired level of service.

The intervention Level is simply the condition rating point at which the authority decides an asset should ideally be replaced or rehabilitated. You may not always achieve this level of service and the extent of the asset base that is above the selected intervention level at any time is your level of over intervention assets or your level of OIA's.

D .1.2 The Extent of Over Intervention Assets (OIA's)

The extent of OIA's is a very strong indicator of overall condition performance. In very simple terms it is the extent of the asset base that is above the selected Intervention level. It can be applied at an individual asset set level, a sub asset group level or at a whole of roads group level. It can also be expressed in a number of different ways three of which are illustrated at the top of Figure Agg 2 above and are as described below.

1. The OIA's as a Percentage of the total asset set valuation
2. The Dollar value of the OIA's
3. The OIA's as a percentage of the value of one year's average annual liability or consumption rate.

D .1.3 Annual Liability

The term "Annual Liability" is a practical substitute for the accounting term of "Annual Depreciation". They can be equal or quite close in value in some cases. But can also be very different in value. The problem stems from the purpose of each figure. Annual depreciation is designed to deliver the amount that can be claimed for taxation purposes for the ongoing consumption of an asset and has some strong requirements in terms of international and Australian accounting standards.

Annual liability is similar in nature to annual depreciation. But it is aimed at providing an estimate of the future cost associated with the ongoing ownership and replacement of the assets. It is derived in the simplest sense by dividing the replacement cost by the service life. But for a variety of reasons the best estimate of the replacement cost and the service life used in the derivation of annual depreciation can be different to your actual future liability to maintain the asset. Hence we often refer to the "Annual Liability" Cost.

To simplify matters and to ensure consistent reporting within this document we have adopted "Annual liability" (AL) as our reporting figure that links to the future renewal demand associated with your assets.

Our annual liability figures come directly from the replacement cost divided by the life to the selected intervention level as used for each individual asset set that is modelled. (You can see these figures for each asset set within the series 4 tables within each of the sub asset set sections - Sections 4 to 9).

D .2 Setting the Extent of Over Intervention Assets (OIA's)

If you had $1,000 as the level of OIA's on a total asset base of $100,000 your extent of OIA's would be 1.0% (See 1 in D.1.2 above). Its value would be $1,000 (See 2 in D.1.2 above). However, there is a problem in reporting on a simple percentage of OIA's across assets with different service lives. Just as there is in comparing the dollar value between authorities with very different asset replacement values.

For example, if reporting on a single asset set with a service life of 100 years that had OIA's of 10% of the asset base, this would represent a very poor situation, with 10 years worth of average annual liability as the backlog or level of OIA's. But if reporting on an asset set with a service life of 10 years that same 10% level of OIA's, would represent only 1 year's level of average annual liability and would be a very sound position to be in. Hence straight reporting of the percentage of OIA's does not translate well between assets with different service lives.

Similarly the total dollar value of OIA's cannot be compared between authorities with different asset base valuations and unit renewal rates.

To address this problem the extent of OIA's can be expresses as the number of years worth of annual liability (in accounting terms the number of years worth of annual depreciation) that the level of OIA's represents. The size of the backlog of OIA's expressed in this way provides a really strong indicator that is independent of both asset service life, total asset valuation and the unit renewal rate.

This is of particular value when using the Moloney funding scenario finder on multiple asset sets with different service lives. In this situation the desired extent of OIA's can be set just once within the model as a percentage of one year's annual liability, rather than manually selecting different percentages of OIA's to match expected service life. Service life is thus eliminated as a variable. The model can then apply the same condition outcome in financial terms to sub asset sets with quite different service lives.

Expanding upon the above example. If you set the desired level of OIA's at a global level to one years annual liability then the Moloney funding scenario finder would set the actual desired percentage of OIA's (which is the figure it uses in it's calculations) for asset classes with different service lives as detailed below.

- 100 year service life - 1.0% of OIA's
- 10 Year service life - 10.0% of OIA's
- 25 Year service life - 4.0% of OIA's

The Moloney model required the actual percentage of OIA's to be set for each individual data set that is to be modelled. The funding scenario finder can set this figure for each individual asset set based on it's service life.

D .3 Standardised descriptors for the level of over Intervention Assets OIA's

Figure D 1 has been developed as a guide to the selection of a suitable level of OIA's. The figures within the table are based on our 26 years of road condition rating experience, involving in excess of 280 full council road network surveys.

Guide to the acceptable extent of over intervention assets (OIA's)

% Range of one years Annual Liability	Your Asset Base renewal value at the top of this range	Value expresses as a % of the total Asset Base	Standardised Condition Description	Additional Comments on Descriptor
0% - 50%	$1,048,517	0.9%	Exceptionally good	Extremely low levels of over intervention assets
51% - 100%	$2,097,034	1.7%	Excellent	Very low level of over intervention assets
101% - 150%	$3,145,552	2.6%	Very Good	low level of over intervention assets
151% - 200%	$4,194,069	3.5%	Good	Low to acceptable level of over intervention assets
201% - 250%	$5,242,586	4.3%	Fair	Condition only Fair and a little below the good range
251% - 300%	$6,291,103	5.2%	Acceptable	Level of OIA's at the upper extent of the acceptable range
301% - 350%	$7,339,620	6.1%	Poor	Moving into the start of the problem area
351% - 400%	$8,388,137	6.9%	Very Poor	In need of urgent reduction
401% and Above	$10,485,172	8.7%	Disastrous	Severe problems with assets in this condition

Figure D 1 Standardised descriptors for the level of OIA's

Figure D 1 displays nine ranges of OIA's expressed in years worth of annual liability. As explained above, linking the extent of OIA's back to the number of years of annual liability eliminates the problem that can occur with different asset lives. Reporting the extent of OIA's in this way provides a uniform platform that enables strong external benchmarking of Council performance as well as eliminating the bias that can occur with short life assets that may have what at first appears to be a high level of OIA's. It also allows the setting of a single and consistent extent of OIA's across several data sets with quite different service lives when using the Moloney funding scenario finder model.

What the table is saying in the simplest of terms is that a level of one year's annual liability as the value of OIA's is an excellent position. Two years remains at a good level. Three years is at the top of the acceptable range and four year and more is considered to be into the problem zone.

Another way of looking at it is to think of it as the number of years you are behind in meeting the renewal demand in terms of year's worth of unmet annual liability, or average annual renewal demand.

Present extent of OIA's expressed in three ways			Your overall road asset condition based in the extent of OIA's	
Current % of OIA's expresses in years worth of average annual liability	Your present value of OIA's in $	Your OIA's as a % of your total asset base valuation	Moloney standardised condition description	Additional comments on sandardised condition descriptor
52%	$1,392,000	2.22%	Excellent	Very low level of over intervention assets

Figure D 2 Your extent of OIA's as a percentage of one year's annual liability based on your adopted intervention levels

Figure D 2 presents your level of OIA's expressed as a percentage of one year's level of annual liability. Your figure being 52%. The table also records the total value of your OIA's" in straight dollar terms as well as it's percentage of the total asset base replacement value.

IMPORTANT NOTE: The figures quoted within Figure D2 for Southern Midlands Council are based on your adopted intervention levels. See Section D 3.1 below for your level of OIA's based upon standardized intervention levels.

D 3.1 Standardized extent of OIA's

The adopted intervention levels (level of service) can vary widely between councils. Hence it is useful for comparison purposes to report the extent of over intervention assets (OIA's) based on a set of industry standard intervention levels. In this way your level of OIA's as reported within Figure D3 below can more accurately be used for comparison purposes to the figures within Figure D1 above as they apply to all councils on the same basis.

In your case the adopted level of service is a little higher than the industry base level for some assets. Hence the reported extent of OIA's based on the standardized intervention levels is a little lower than that based on your adopted intervention levels and as reported within Figure D 2 above.

Present extent of OIA's expressed in three ways			Your overall road asset condition based in the extent of OIA's	
Current % of OIA's expresses in years worth of average annual liability	Your present value of OIA's in $	Your OIA's as a % of your total asset base valuation	Moloney standardised condition description	Additional comments on sandardised condition descriptor
47%	$1,140,000	1.81%	Exceptionally good	Extremely low levels of over intervention assets

Figure D 3 Your extent of OIA's as a Percentage of one year's annual liability with Standardised Intervention levels

Figure D 3 indicated that based upon the standardised intervention levels your total extent of OIA's drops to 47% of one years annual liability which lifts you into the "Exceptionally good" condition range as detailed within Figure D 1 above.

Note that all figures used within the report that represent the average annual asset consumption rate (annual liability) are linked to the asset lives and unit rates used within the modelling process. The report is in no way bound to accounting lives or unit renewal rates, as these can have accounting standards constraints that render them quite problematic in the prediction of future ongoing renewal demand.

D .4 The Moloney funding scenario finder and it's inputs

The Moloney financial modelling software has the capacity to develop a recommended renewal funding profile that will deliver a nominated extent of over intervention assets within a selected time frame. A global outcome can be set for the whole roads group. In this way the model is also used to allocate funding between the sub asset groups to deliver the best overall condition outcome for the whole roads network.

There are three input criteria that can be set independently for each sub asset class or they can all be set to a common figure for all sub assets. They are generally set to a common figure but sometimes there may be sound reasons why certain sub assets are set independently. For example you may require a

zero level of over intervention assets on the Footpath assets because of their perceived higher public risk while accepting some extent of OIA's on other sub assets.

The funding scenario finder operates within the Moloney model in an iterative way to find a recommended funding profile that will deliver on a desired condition outcome. There are three basic input criteria.

1. Desired extent of over intervention assets (OIA's)
2. Year ahead by which you wish to achieve this outcome
3. The value of any annual compounding percentage increase in renewal funding

D.4.1 Desired extent of over intervention assets

As detailed within D3 above the extent of over intervention assets is generally set in terms of the number of year's worth of annual liability that it represents. It is often set to the same figure for all road sub assets so that the model then also distributes the total renewal demand bases on need. But it can be varied if required.

D.4.2 Year ahead to achieve the condition outcome

This can be set within the model for any time frame from 3 - 50 years. The most common time frame used is 10 years, but in some cases this is extended to 20 years.

D.4.3 Annual compounding increase in renewal expenditure

This facility was included to enable the year one commencing expenditure to be lowered to match the planned renewal expenditure. In this way a funding strategy can be developed that commences from your present level of renewal expenditure and ends up at a higher level in later year. Most councils do have a growing renewal demand and this facility caters for that situation. It is designed to delivers a proposed future funding strategy that starts from where you currently are and gets you to where you need to be with asset condition in future years.

D.4.4 The funding scenario finder operation

The program uses the Moloney Model No 1 (see Appendix C 1 above) in an iterative way to deliver the recommended funding strategy. Model No 1 was designed to deliver the predicted condition outcome for a selected renewal expenditure profile over a 3 - 50 years time frame.

An iterative process has been set up within Model No 1 based on the above three input criteria. It commences by estimating the year one commencing funding level required to achieve the condition outcome. It then keeps adjusting that figure by lifting or dropping it depending upon the condition outcome. When the condition outcome is within 0.05% of the desired level of OIA's (as set in 1 above) the process ceases and that figure is returned as the required year one commencing expenditure level.

Within the Moloney software the scenario finder can be run for a single asset set or more commonly for all road sub assets. When running it for multiple road sub asset sets it has the added advantage of splitting the total renewal funding on a needs basis between the different road sub asset classes and ensuring that none are forgotten.

Appendix E: What the condition Inspection has Delivered

This appendix will deal with an explanation of what the condition survey has delivered.

E.1 Segmentation and measurement of the road network

The linear road network was broken down into like performing segments that were generally constructed at the same time. Then each of the five sub asset components that were present within each segment and were to be part of the condition survey were measured quantified and condition rated.

For Southern Midlands Council the full road network was broken down into 1,027 individual like performing segments. Each segment was then measured and condition rated for the particular sub assets that were present.

E.2 What has been delivered

Once this data was placed within the MAMS System, the software delivered a range of outputs including those listed below.

E.2.1 Capital works programs

Works programs in priority order, based upon both the condition of the assets and the hierarchy or relative importance of the road, can be delivered within the following areas:

- Reseal – resurfacing program on sealed roads
- Sealed Road Pavement Rehabilitation program
- Sealed Road Pavement Major Patching or dig out repair program
- Sealed Road shoulder repair program
- Unsealed Road Resheeting program.
- Unsealed road isolated failure patching program.
- Kerb Renewal program and a separate Isolated Failure repair program.
- Footpath renewal program
- A host of other major maintenance reports such as crack sealing report, edge break report etc. These can be extracted from the data and are programmed directly into the MAMS road software.
- The MAMS software also has a mechanism for prioritising capital works on the more important classes of road

E.2.2 Asset valuations

Asset valuations can be delivered based on either the condition or the age of the assets. For a detailed explanation of the road asset valuation methodology adopted by MAMS please refer to the document titled Road Asset Valuations June 2018 available on our web site at Moloneys.com.au under the Information tab.

But a note of caution, the asset valuations presented within this report may vary from those adopted for accounting purposes. There are a lot of matters to be considered in the delivery of the accounting valuation figures and unless we were specifically engaged to deliver accounting valuations our figures may vary from councils adopted figures and you are advised to undertake your own accounting valuations using the survey data set as the basis of that operation.

E.2.3 Prediction of future financial renewal demand

The Moloney financial model can be used in conjunction with the survey information to deliver a prediction of the ongoing renewal demand and a recommended future funding strategy. See Appendix C and D for more details relating to the operation of the Moloney Model.

E.2.4 Performance benchmarking

Council's asset performance since the last survey (if this is the second or subsequent survey) is benchmarked against a series of key performance indicators. We also provide longer term benchmarking

where there has been more than 2 condition inspections undertaken. External benchmarking is provided against all councils assessed by MAMS on the same performance indicators, currently 72 councils.

Appendix F Glossary of Terms and Definitions

The table below contains a list of explanations for some common terms and phrases that have been used within the report

Term Used in Report	Explanation
Asset Condition Rating Scale	The condition Rating scale for all assets is on a (0 - 10) scale with 0- Brand new and 10 - No remaining value
Annual Depreciation (AD)	This is an accounting term designed to deliver the annual tax deductibility associated with an asset. It is largely irrelevant to Local Government financial management and forecasting, but Australian accounting standards dictate that it be reported upon even though councils do not pay income tax.
Annual Liability (AL)	This is the average annualised cost of the future replacement of the full extent of the asset base. It can vary dramatically from "Annual Depreciation". Financial Forecasting needs to be linked to the Liability of future renewal or replacement cost rather that historic cost. Throughout the report any reference to "Annual Liability" will be linked to the financial modelling unit rates and service lives and not those used for accounting purposes.
Asset set	This is an individual set of assets that is modelled within the Moloney model as a single asset set. There may be five sealed road pavement "Asset Sets" that make up the Sealed Rd Pavement asset group or "Sub Asset Set". They are generally modelled separately because of different "Service Lives" and or different "Levels of Service"
Backlog	This is an alternative term used to express the extent of Over Intervention Assets as a backlog of unmet renewal demand.
Funding Scenario Finder	The Moloney Financial Model has an inbuilt function that can create a recommended funding profile across the whole of the roads group based on a desired extent of over intervention assets (OIA's) after a set time frame. The scenario finder enables all asset sets to be modelled together and to also have the renewal expenditure optimised between the sub asset groups.
Greenfields - Brownfields Construction costs	These are accounting terms that can have a huge impact on financial modelling outcome. Greenfields construction cost is the original cost when the site was vacant with no traffic or other incumbrances. Brownfields construction cost is the cost associated with the reconstruction of the asset with all of the additional incumbrances such as other services, traffic etc. ALL replacement costs within this report are based on Brownfields costs as this is the only realistic way to undertake meaningful financial modelling.
Intervention Level - Or Retreatment Intervention Level	This is the point within the condition rating scale (0 - 10) that you determine the asset needs to be replaced or rehabilitated. It represents your planned level of service and is normally within the 6 - 9 cond. Range
Level of Service	Level of service within this report is directly related to the selected "Intervention Level". Low intervention level delivers high level of service, while high intervention level delivers Low level of service.
MAMS	Moloney Asset Management Systems.
Moloney Standardised Condition Descriptor	This is a description developed by MAMS that links overall asset condition to the extent of over intervention assets expressed as the number of years worth of "Annual Liability"
OIA's	"Over Intervention Assets"
Over Intervention Assets OIA's	This is the extent of the asset base that is above the selected intervention level. It is the extent of the asset base that needs renewal now. Sometimes referred to as the backlog of OIA's
Replacement Value	All replacement values used within this report (other than within Appendix A dealing with accounting valuations) are based on the actual planned replacement or rehabilitation cost of the asset. Also referred to as the "Renewal Cost". It may vary considerably from the accounting replacement cost. (See "Greenfields - Brownfields" Definition)
Service Life	This is the expected life in years that an asset on average will remain in service. Service life will reduce as your level of service improves with lower intervention levels. You don't get the additional asset life that could be obtained beyond the intervention level (if adopting a higher level of service).
Sub Asset Set	For reporting purposes this document has adopted up to five road sub asset sets within the broader roads asset group. They are, Sealed Rd Pavements, Sealed Surfaces, Unsealed Rd Pavements, Kerbs and Footpaths. The asset sets are modelled and reported upon separately within the report, broadly in line with councils funding categories.

Figure F 1 Glossary of terms and Definitions used in report