Asset Management Plan

Transport

Wakefield Regional Council

19 March 2021

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WAKEFIELD
REGIONAL COUNCIL

Document History and Status

Rev	Description	Author	Reviewed	Approved	Date
A	Initial Draft for Council Comment	RKE/TJF	RKE	RKE	20 November 2020
B	Update following feedback from Council	RKE/TJF	RKE	RKE	3 December 2020
C	Amendment after peer review	AM/RKE	RKE	RKE	4 December 2020
D	Amendment to reduce expenditure to suit changes to LTFP	RKE	RKE	RKE	3 February 2021
E	Amendment to maintenance expenditure	TJF	RKE	RKE	4 February 2021
F	Amendment to Appendix B	TJF	RKE	RKE	5 February 2021
G	Amendment to renewal expenditure	TJF	RKE	RKE	15 February 2021
H	Update following feedback from Council	TJF	RKE	RKE	16 February 2021
I	Final amendments	TJF	RKE	RKE	19 March 2021

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1 Executive Summary

The purpose of this Asset Management Plan is to provide a clear strategy in relation to the maintenance, renewal and upgrade of Wakefield Regional Council's road network.

Wakefield Regional Council is responsible for 144km of sealed rural roads, 76km of sealed township roads and 2,571km of unsealed roads. Council's total road network exceeds 2,790kms which is one of the largest council road networks in South Australia.

Given Council's relatively small population and rate base, maintaining such a large road network is financially challenging and requires careful planning and continuous improvement to ensure Council's network meets the needs of the community now and into the future. In developing this plan, Council must also consider its other obligations and how to best distribute its limited resources to ensure a balance across other areas of community responsibility.

In 2020, Council worked closely with the community to develop Wakefield 2030, Council's 10 year community plan. As part of the consultation Council held a series of farmers forums to better understand the needs of this sector in relation to the road network. It became very clear that providing a quality road network with appropriate access is critical to the growth and future success of the agricultural sector.

At the forums the categorisation of unsealed roads was discussed along with roadside vegetation requirements. Council also shared information about the estimated $14M backlog on unsealed roads. It was acknowledged during discussions with the community that agricultural equipment is getting larger, efficiency pressures are demanding larger transport vehicles and many roads are used differently today compared to a decade ago. The community feedback has directly influenced the development of this plan.

Road Network Backlog

After undertaking a field reassessment of the sealed network in 2020, as at 1 July 2021 (first year of this plan), Council's road network is estimated to have a renewal backlog of $16.34M; including sealed and unsealed roads. Wakefield 2030 has set an ambitious strategic target of achieving a road network backlog of less than $1M by 2030. The strategies set within this plan have responded to Wakefield 2030's direction and aim to significantly reduce the existing backlog to $4.75M by 2030.

Key Strategies for Unseal Roads

The following provides a summary of the key strategies identified within this plan to manage Council's unsealed road network:

Strategy (1) Address the unsealed road backlog

As at 1 July 2021, Council unsealed road network will have an estimated renewal backlog of $12.26M after the completion of the 2020-21 program. Modelling has indicated that the length of road in backlog is approximately 301km. Modelling has been based on spending a total of $25,953,763 over the next 10 years, or an average of $2,595,376 per year. The table below shows 36.9Km of the existing backlog will not be treated in the 10 year plan, and with the actual funding additional unsealed roads will fall into back log progressively over the next 10 years, estimated to have a backlog of $4.75M after 10 years.

10 Year Plan (Length (m) of Road treated in the existing Backlog)										Backlog after 10 Year Period	Total
2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31		
57,164	63,057	36,847	24,848	7,065	23,239	4,344	19,972	26,455	1,434	36,965	301,390

Strategy (2) Address the roadside vegetation backlog

The total estimated road length impacted by vegetation is estimated to be 911km, this length has been used to develop a rolling 5 year program.

This is based on the actual road length of rural sealed roads and unsealed road category 1 to 5, that have been assessed from site assessments as needing clearing. In addition, it is assumed 30% of the Category 6 road network will need vegetation maintenance.

To maintain ongoing roadside vegetation maintenance and to clear the identified backlog within 3 years an allowance is made for $276,690/annum for the first 3 years. Thereafter allowance is made to develop a 5 year rolling program to cover the 911km road length influenced by vegetation totalling $273,239/annum for the remaining life of the plan.

The last 3 years has seen $410,000/annum spent on reducing the backlog, which has helped to sustain an ongoing commitment to vegetation management.

Initially, a targeted clearance approach will be activated to quickly address known problem areas. This will be informed through a community hot spot identification program. Once hot spots are addressed, the program will continue to address the backlog and ongoing roadside vegetation management.

Strategy (3) Develop an unsealed road classification policy

The utilisation of Council's road network continues to evolve, and Council must be able to respond in an efficient, timely and agile manner to ensure the needs of the community continue to be met.

Results from a recent road categorisation community survey, highlighted that there is a need for Council to periodically verify road categories to ensure available limited resources are invested in the right roads and ultimately meet the needs of the community.

This plan has identified the need to develop, in close consultation with the community, an Unsealed Road Classification Policy, that identifies key criteria and measures to be used to confirm or inform an adjustment to the classification of unsealed roads. The Policy will need to carefully prescribe the process of data collection and the process for adjusting the classification of a road when there is confirmation a change is required.

A measured policy approach will ensure future decision making is consistent, measured, and transparent across the whole network. Work on the Policy is proposed to commence in 2021-22.

Key Strategies for Sealed Roads

The following provides a summary of the key strategies identified within this plan to manage Council's sealed road network:

Strategy (4) Address the sealed road backlog

As at 1 July 2021, Council's sealed road network will have an estimated renewal backlog of $4.08M after the completion of the 2020-21 program based on a comprehensive field assessment process conducted in 2020. Modelling has indicated that the length of road in backlog is approximately 36km. Modelling has shown that by spending a total of $15,577,470 over the next 10 years or an average of $1,557,747 per year will clear the backlog by 2030. The table below shows the annual distribution of length of road in backlog that is addressed each year over the life of the plan.

10 Year Plan (Length (m) of Road treated in Backlog)										
2021-22	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**2030-31**	**Total**
7,741	5,224	3,414	5,665	2,533	4,403	2,632	2,641	1,672	0	35,924

Strategy (5) Address the sealed road maintenance backlog

An assessment of Council sealed road network has highlighted that there is a significant amount of maintenance required with an estimated maintenance backlog of $4,436,932. This backlog is, however, expected to be reduced to $2,060,000 over the life of this plan, due to increased renewal works as per Strategy (4) above. To eliminate this maintenance backlog a staged accelerated funding program is proposed over 3 years totalling $2,540,00 to cover backlog and normal maintenance and then from 2024-25 a standard maintenance program of $240,000 per year has been identified over the remaining life of the plan to stay on top of maintenance requirements.

Strategy (6) Address kerbing/water table maintenance backlog

A maintenance backlog of $710,036 has been identified for kerbs across the Council area and a nominal allowance of $50,000/annum is considered for annual maintenances totalling $1,160,036 for 10 years. To balance long term financial plan funding the Plan has addressed this through deferring all maintenance to occur by spending $165,719/annum in the last 7 years of the Plan.

Strategy (7) Address footpath maintenance backlog

A maintenance backlog of $1,107,404 has been identified for formed footpath across the Council area and a nominal allowance of $250,000/annum from year 5 is based on historic annual maintenance totalling $2,607,404 for 10 years. To balance long term financial plan funding the Plan has addressed the above requirements for spending $2,607,404 through deferring all maintenance to commence in the last 5 years of the Plan. Accordingly, $372,486/annum is proposed to commence in the last 7 years of the Plan.

In addition to this a further $260,000/annum is allocated across the 10 years to deliver a gravel/crusher dust (unsealed) footpath maintenance program.

Strategy (8) Address non-compliance of access ramps

It has been identified that across Wakefield Regional Council townships, that the majority of access ramps are in poor condition and/or do not comply with current standards. To address access issues $415,000 has been identified over the first 3 years of this plan which will address the poor condition of access ramps and ensure compliance with disability legislation.

Conquest Asset Management System

Council employs a sophisticated asset management platform called Conquest. Conquest holds information on all of Council's assets including length/size, value, useful life and importantly, condition. The Conquest software is highly intelligent and through the use of the Road Surface Manager module (RSM) is able to run unlimited scenarios and models utilising the above information that is able to predict future renewal outcomes/results.

The outputs from the Conquest/RSM System have informed the financial information and predicted conditions within this asset plan. Annually, inputted Conquest data will be refined, based on actual results, and this plan continually improved. The 'continuous improvement model' is the methodology used for the ongoing improvement and management of Council's assets, which has been in place now for the last decade.

2 Introduction

2.1 Community Consultation

Infrastructure management plans aim to ensure our assets deliver a desired level of customer service, appropriately balancing community expectations, risks and the ability and willingness of the community to pay for that level of service. In drafting this plan, Council has tested community views and incorporated feedback from a range of forums to help deliver a robust, sustainable and community-focused plan for the future.

Community Survey

In 2019, Council undertook a major community survey to gauge local perceptions in relation to Council's customer services, activities and priorities.

Roads – both unsealed road maintenance and bituminising – dominated the feedback. In terms of general services provided, unsealed road maintenance had the highest rating for importance (96%) but the second lowest rating for satisfaction (25%), while road bituminising rated very high (92%) in terms of importance but received the lowest satisfaction rating (24%). Analysis showed that if Council wished to shift levels of dissatisfaction it needed to focus on unsealed road maintenance, road surfacing and footpath maintenance.

Of those who were detractors, the key reason cited was 'infrastructure needs improvement, in particular roads'. Respondents also cited improving roadways (40%) as the key factor to further improve quality of life in the region, while road maintenance ranked top when it came to the suggested strategic priorities for Council (95%).

However, only 36% of respondents indicated they would pay more for improved services, with just over a third of those (35%) suggesting they would pay more for better roads and footpath maintenance.

Farmers Forums

In early 2020, to help shape the Wakefield 2030 Community Plan, two forums were held to determine the strategic priorities for our farmers and begin a discussion on our road network to help inform this plan.

The Farmers Forums delivered unequivocal feedback to Council in relation to roads. In summary:

- Wakefield's unsealed roads were not wide enough, with roadside vegetation causing issues for many farmers;
- Larger, heavier farm vehicles required more robust infrastructure and many roads were not up to the task;
- Regular road maintenance should be a priority, in particular around intersections.

It was acknowledged a lack of accessible rubble had made things difficult for Council but a new Rubble Pit Policy that included appropriate levels of payment to farmers and remediation of used pits was seen as a step in the right direction.

Unsealed Roads Survey and Workshops

Further engagement took place in late 2020, with a survey of rural property owners and follow-up workshops with farmers as the key users of our unsealed road network.

While the survey and workshops flagged specific roads of concern for farmers, they also provided an opportunity for Council to emphasise the principles of asset management planning and seek ideas from the participants on new approaches for the future.

Two major themes emerged in each of the four workshops and have formed critical elements of this plan:

1. **Road categorisation:** the survey asked our rural property owners if there were specific road segments that could be reclassified (i.e. category upgrade or downgrade). The 93 surveys returned suggested approximately 160km of roads should be made into a higher category road, with only a handful of road sections suggested for a downgrade. There was significant interest in the workshops around the science behind determining a category of road and suggestions that some Category 6 roads needed only partial remediation or vegetation clearance, while others had issues with water pooling in several segments of the road, not the entire stretch.
2. **Roadside vegetation:** as with the Farmers Forums, road width was widely discussed and overhanging vegetation, in particular, was seen as a major issue. Council has, in the past year, doubled the budget for roadside vegetation management to allow access for farming equipment and these efforts were praised by participants.

Based on the feedback, this asset management plan proposes:

- No changes to the categorisation of roads for the life of the asset plan but, rather, a policy that will allow Council to be agile and responsive, renewing or upgrading roads based on a range of criteria (Strategy 3)
- An increased focus on maintaining appropriate road access through roadside vegetation management (Strategy 2).

2.2 Context

This Asset Management Plan has been developed through a comprehensive review as an update to the previous plan from April 2018.

This Plan has been developed using the following information:

- Capital additions, disposals and annual depreciation undertaken by Tonkin for the 2019-20 financial year resulting in an asset register up to date as at 30 June 2020
- Condition data collected during 2020 by Council's team for sealed roads, footpaths and individual access ramps which is used for improving renewal and proactive maintenance expenditure projections within this Plan
- For unsealed roads and kerbs the assets inspected in 2017 have been updated with capital works to 30 June 2020 and has been used for renewal and proactive maintenance within this Plan
- Full valuation of transport assets undertaken in parallel with this Plan by Tonkin as at 1 July 2020, including the collected data to provide the estimated capital renewal included in this Plan.

2.3 Background

The Wakefield Regional Council owns and manages an extensive rural sheeted road network, together with a smaller rural sealed network. In addition to this there is a township road network that consists of numerous towns with mainly sealed and some sheeted road surfaces.

Council's township sealed surfaces (Categories A, B and C) and rural sealed surfaces are treated as capital expenditure. Council's township sheeted (Category D) and rural sheeted (Category 1, 2, 3, 4 & 5) roads are treated as capital expenditure. In addition to this, Council has Category 6 which is formed graded and requires maintenance activities such as grading and vegetation clearing and Category 7 roads are unformed and not maintained.

Other asset groups included within the transport infrastructure group include kerbs, footpaths and access ramps. Sealed footpaths are treated as capital expenditure but unsealed footpaths, including gravel and crusher run footpaths, are funded under maintenance. While unsealed footpaths are delivered through maintenance a condition assessment has been undertaken to assist in planning for the maintenance. Access ramps have been assessed based on Disability Discrimination Act (DDA) and Disability Inclusion Act 2018 (SA) to enable Council to plan for replacement as part of this Plan.

An overview of the Transport infrastructure assets covered by this Plan are shown in Figure 1. These values are based on the register as at 1 July 2020 and sealed roads include both the surface and underlying pavement.

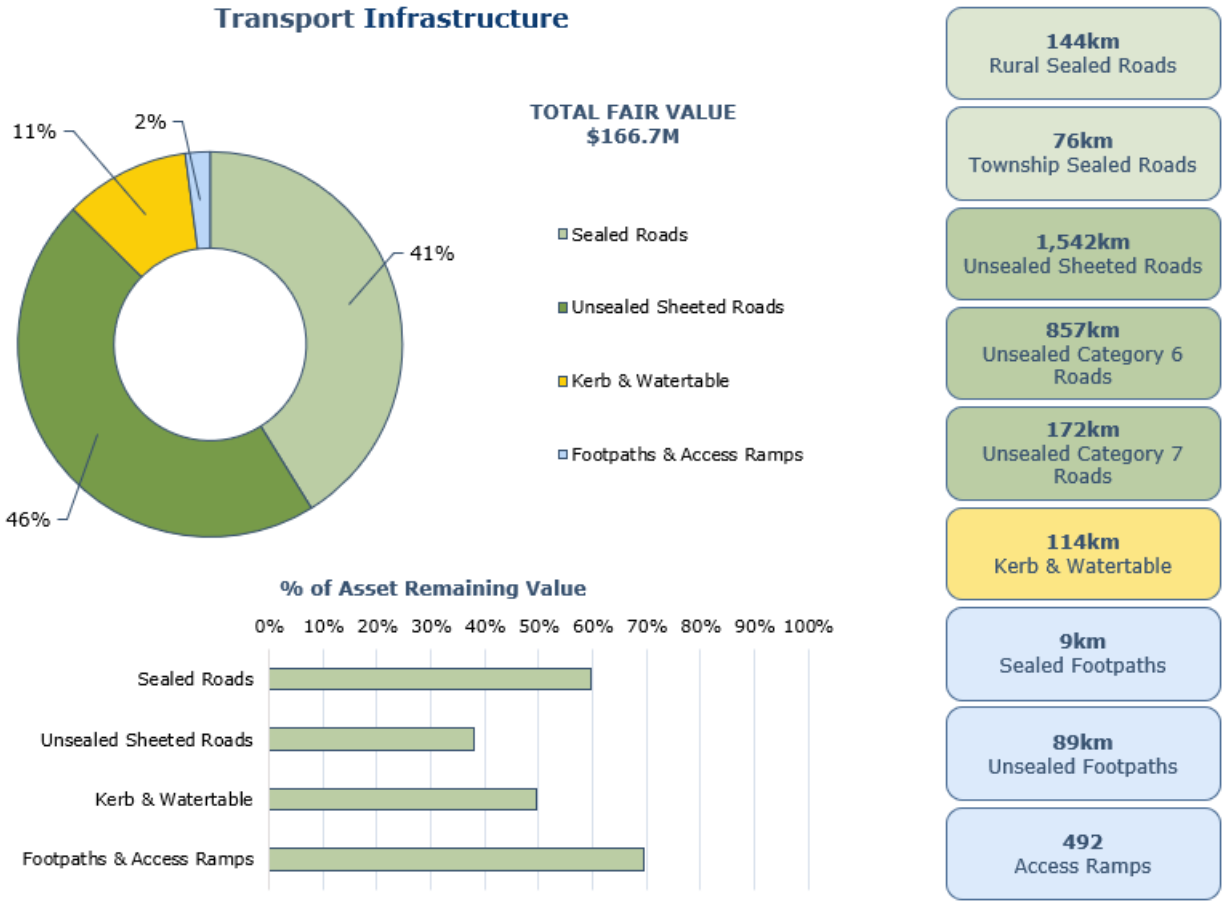


Figure 1 Distribution of Transport Assets by Fair Value as at 1 July 2020

2.4 Plan Framework

This Plan is based on the fundamental structure of the Institute of Public Works Engineering Australasia (IPWEA) National Asset Management Strategy (NAMS) 3 - Asset Management for Small, Rural or Remote Communities template.

Wakefield Regional Council provides services for the community and a major part of this is through the provision of infrastructure assets. Over the years, Council has acquired these assets directly through construction by Council staff or contractors or by inheritance from developers or other organisations.

The Transport assets are fundamental to the safe movement of the local community, businesses, visitors, and goods within and across the Council. Ensuring the assets are maintained and renewed in a timely fashion is a fundamental requirement.

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

- Taking a life cycle approach.
- Developing cost-effective management strategies for the long term.
- Providing a defined level of service and monitoring performance.
- Managing risks associated with asset failures.
- Sustainable use of physical resources.

Key elements of the plan are:

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

This Plan is prepared under the direction of the community's Wakefield 2030 vision and key themes are as follows:

"Wakefield is a thriving and connected regional community known for its lifestyle, vibrant towns and economic prosperity. The region is growing, supported by quality assets and driven by a strong sense of pride and confidence.

Wakefield is a great place to do business and a great place to belong."

Liveable Communities

Wakefield is a great place to live, work and play. Our vibrant, attractive towns are full of energy and excitement, with places and spaces designed for people to pursue recreation, leisure and fun. Our communities are connected by social events, a sense of pride and belonging and quality infrastructure that serves them well.

Thriving Region

Wakefield is open for business. Our region's economic future is bright as existing businesses thrive and expand, while new businesses and industries put down local roots. Our population is growing as people recognise the affordable, quality lifestyle on offer, with new housing options enticing people to move to the area.

Sustainable Future

Wakefield has a clean, green future. Strong partnerships between Council, the community and other agencies have been formed as we come together to manage our environment in the best possible way. We are seen as a region that respects its natural assets and seeks sustainable outcomes for the community.

The Wakefield 2030 has set an ambitious strategic target which is to reduce Council's infrastructure gap on roads to less than $1M by 2030.

In order to deliver on Council's vision, and the strategic target, the way infrastructure is managed from planning, budgeting, delivery and maintenance and operations needs to be of a high standard with resources equipped to match the demand that this Plan outlines.

The transport network is core to the vision to allow residents and businesses to travel safely and to move commodity and freight across and through the Council area to support the local economic activity. With the changing demands on the use of the network a dynamic approach to road management is needed to sustainably deliver the service expected by the community. The Plan outlines how Council will continue to fund road management to reduce the backlog of roads that require renewal.

To do this the sealed road data collected during 2020 included identification of individual defects allowing Council to proactively target maintenance works. In addition, sophisticated modelling of the road network continues to be used to provided Council with the best possible picture of the required treatments and costs to strategically maintain and improve the road network. The modelling has been used for the development of this Plan.

3 Life Cycle Management

The life cycle management plan details how Council plans to manage and operate the assets at the agreed levels of service (defined in Section 5) while optimising life cycle costs.

3.1 Background Data

Wakefield Regional Council transport assets are located in both rural areas and townships within the Council and the assets covered by this Plan are summarised in Figure 1, on page 10.

In early 2020 Council reinspected all sealed roads including footpath and kerb. The unsealed road network was assessed in 2016 and that condition assessment is used for this Plan but updated for any resheeting work undertaken since the inspection.

The transport assets have been visually inspected and the condition is measured using a 0-100 rating system, a summary of the condition rating methodology implemented for the different assets types is described below.

Sealed Road

Sealed roads are inspected at a segment level and the condition of several defects are recorded and given a score out of 100 based on their severity and extent of damage. The defects recorded vary depending on the type of surface and additional defects are collected to assess the underlying pavement condition. Defects collected for sealed roads include:

- Deformation
- Rutting
- Cracking
- Patching
- Potholes
- Binder age (spray seal only)
- Bleeding
- Texture
- Stripping (spray seal only)
- Aggregate
- Edge Defect.

The individual defect scores are weighted to provide a single overall score based on a 0 (as new) to 100 (fully consumed) rating for the sealed surface. The defect scores and pavement age are weighted to provide an overall condition score for the pavement.

Unsealed Road

Unsealed sheeted are inspected at a segment level and the condition of several defects are recorded and given a score out of 100 based on their severity and extent of damage. The defects collected for sheeted roads include:

- Sheeting depth
- Sheeting Condition (subgrade breakthrough)
- Surface Wear
- Rideability
- Drainage.

The individual defect scores are weighted to provide a single overall score based on a 0 (as new) to 100 (fully consumed) rating.

Kerbing

Kerbing assets are inspected at a segment level for both left and right sides. When a kerb segment is condition rated the overall condition of the kerb upright and kerb gutter is recorded along with the length requiring replacement (m). The overall condition is given a score out of 100 based on a 0 (as new) to 100 (fully consumed) rating. The length requiring replacement for each segment is used for maintenance planning.

Footpath

Footpath assets are inspected at a segment level for both left and right sides. When a footpath segment is condition rated several individual defects are collected such as cracking, displacement, surface wear and crossfall for sealed footpaths. Material loss is recorded for crusher dust and gravel (unsealed) footpaths. The individual scores are weighted to provide a single overall score based on a 0 (as new) to 100 (fully consumed) rating.

In addition to the overall segment condition rating for the footpath and kerb network, for maintenance planning the following defects were collected:

- Access ramps were inspected for condition and compliance
- Footpaths were inspected for defects and trip hazards
- Kerbs were inspected for condition and defects.

For the unsealed road network as part of the previous assessment tree maintenance requirements were assessed, and this has been used to predict future works for ongoing tree canopy management. This also applies to the sealed network.

3.1.1 Asset Capacity and Performance

Council's services are generally provided to meet design standards where these are available. Locations where deficiencies in service performance are known are detailed in Table 1.

Table 1 Known Service Performance Deficiencies

Location	Service Deficiency
Rural cross drains and floodways	Prone to blockage due to lack of maintenance
Rural road drainage	Many roads are below surrounding ground level and while reconstruction will increase crown height the table drains in place will still be below surrounding ground level
Vegetation	Clearance envelopes are only achieved at time of resheeting and are not maintained except following customer request and inspections
Rural road crossfall	Rural roads generally do not have adequate cross fall and can only be addressed through resheeting and reforming in line with program, and accordingly potholes need to be tolerated
Sheeting Material	North section of Council does not have access to good sheeting material. Local poor quality material is used for low category roads and good material is imported for Category 1 and 2 sheeted roads only.

3.1.2 Asset Condition

The transport assets consumption is measured by condition at time of inspection. The condition at time of inspection is used to calculate the estimated condition at time of valuation for each asset.

The condition profile (condition at time of valuation) of the transport assets shown by fair value included in this Plan is shown in the following figures.

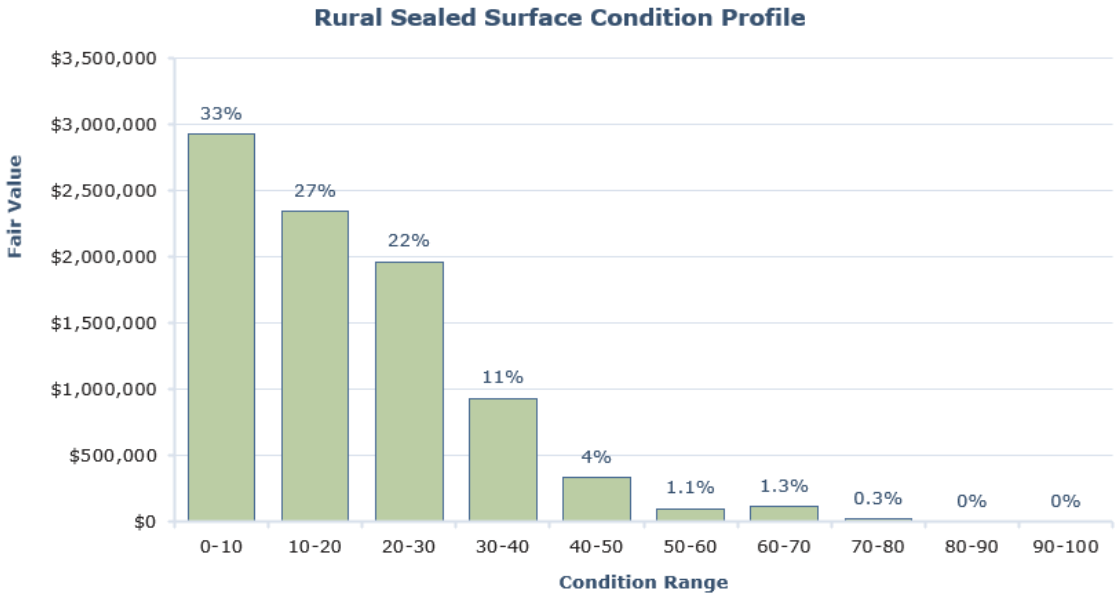


Figure 2 Rural Sealed Road Surface Condition Profile

As shown in Figure 2, approximately 82% of the rural sealed surfaces have a condition score less than 30 with 7% of the rural sealed surfaces with a condition score above 40. The defined condition range at which rural sealed upper and lower surface layer assets reach their end of life is 35 and 45 respectively. Where condition falls below 45 there are generally pavement issues developing.

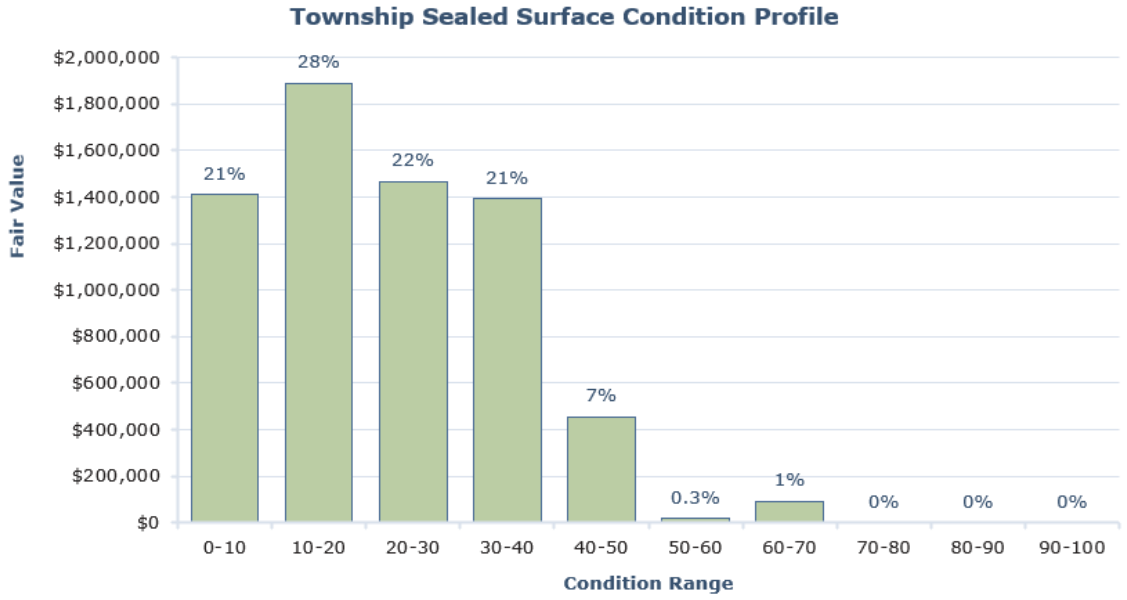


Figure 3 Township Sealed Road Surface Condition Profile

As shown in Figure 3, approximately 92% of the township sealed surfaces have a condition score less than 40 with less than 2% of the township sealed surfaces with a condition score above 50. The defined condition range at which town sealed upper and lower surface layer assets reach their end of life is 35 and 45 respectively. Where condition falls below 45 there are generally pavement issues developing.

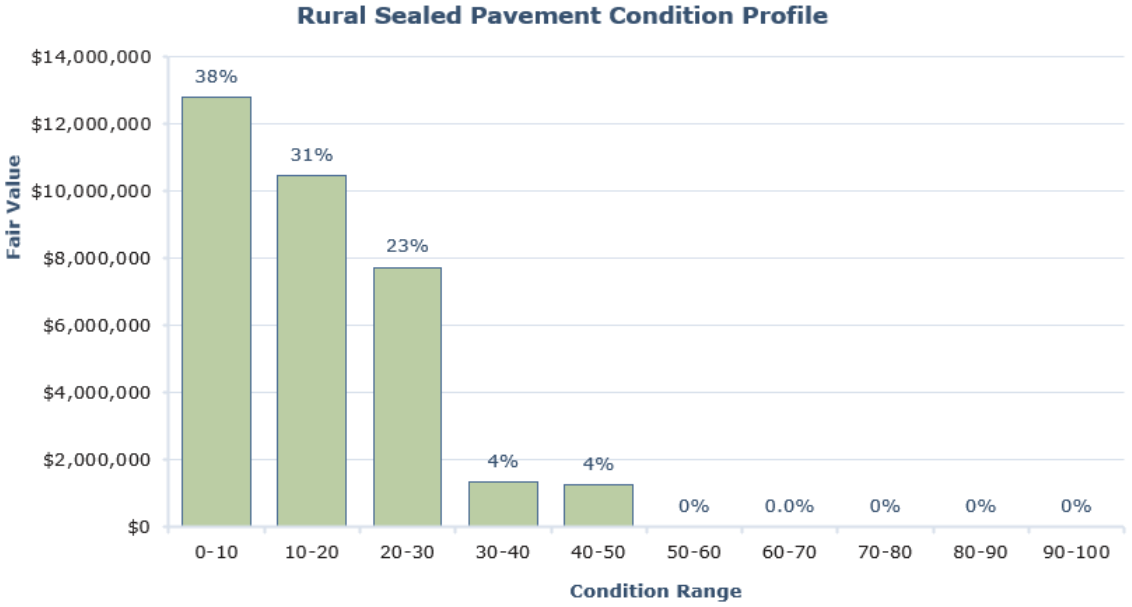


Figure 4 Rural Sealed Road Pavement Condition Profile

As shown in Figure 4, approximately 92% of the rural pavement assets have a condition score less than 30. Approximately 4% of the rural pavement assets have a condition score above 40. The defined condition range at which rural pavement base and sub-base assets reach their end of life is between 45 and 60. This section of the network will need pavement maintenance and in some instance's pavement renewal in the planning period. There is another 4% of roads between 30-40 which would attract maintenance and preparation work leading up to road surfacing to avoid them deteriorating beyond 45.

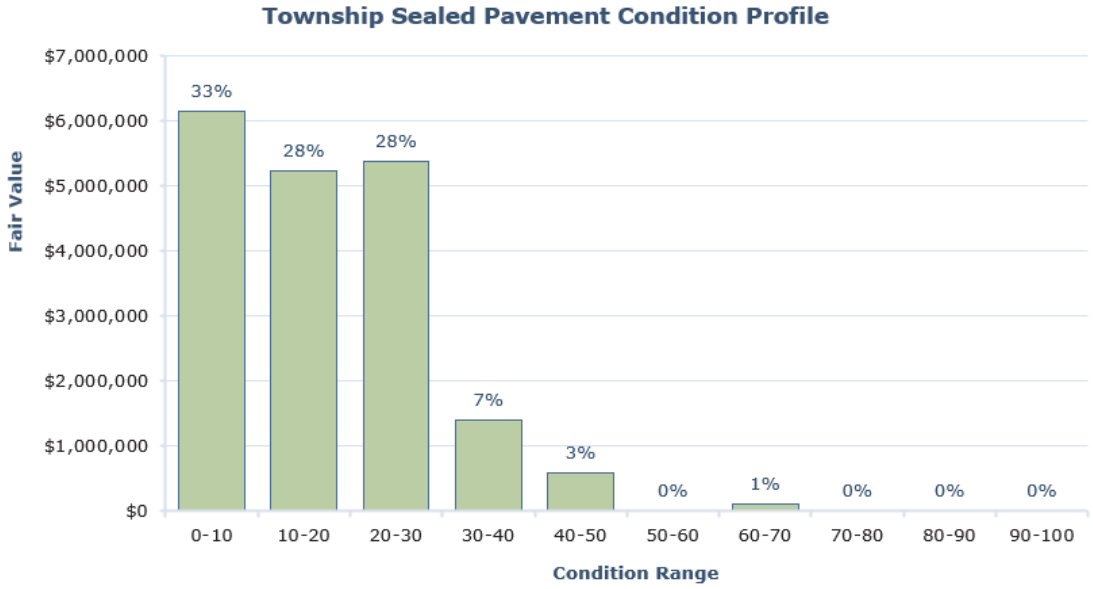


Figure 5 Township Sealed Road Pavement Condition Profile

As shown in Figure 5, approximately 89% have a condition score less than 30. Approximately 4% of the township pavement assets have a condition score above 40. The defined condition range at which town pavement base and sub-base assets reach their end of life is between 40-45 and 55-60 respectively. This section of the network will need pavement maintenance and in some instance's pavement renewal in the planning period. There is another 7% of roads between 30-40 which would attract maintenance and preparation work leading up to road surfacing to avoid them deteriorating beyond 40-45.

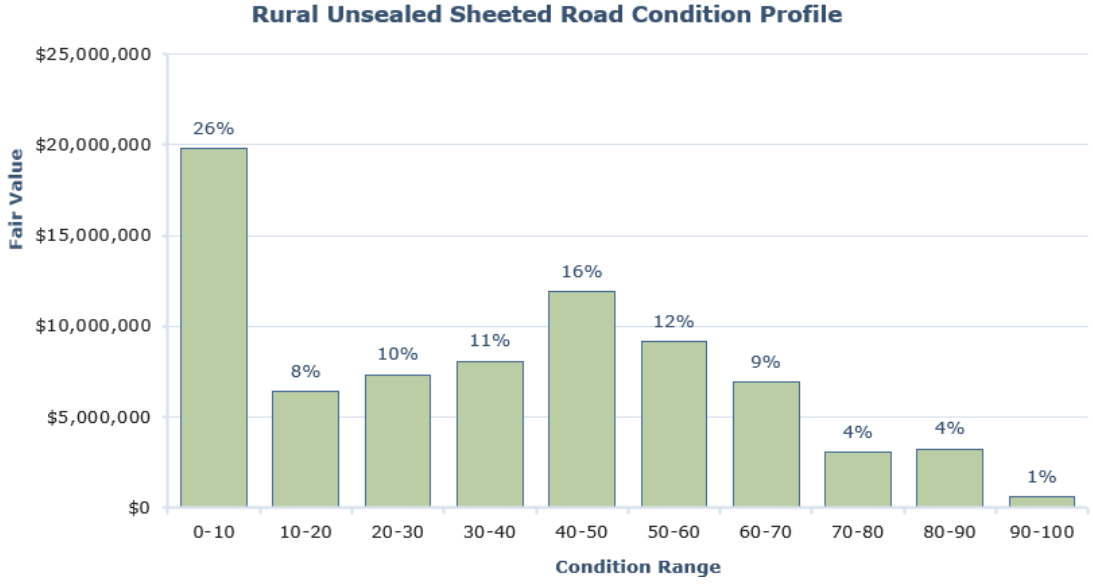


Figure 6 Rural Unsealed Sheeted Road Surface Condition Profile

As shown in Figure 6, approximately 82% of the rural unsealed sheeted surface assets have a condition score less than 60. The defined condition range at which rural sheeted assets reach their end of life is between 60-68 for Cat 1 to 4 roads and 80 for Cat5. With a further 30% of the network between 40 and 60 in the planning period there is a high demand for road resheeting to reduce backlog and prevent increasing the backlog. The 26% of the network less than 10 reflects a recent increase in resheeting budgets.

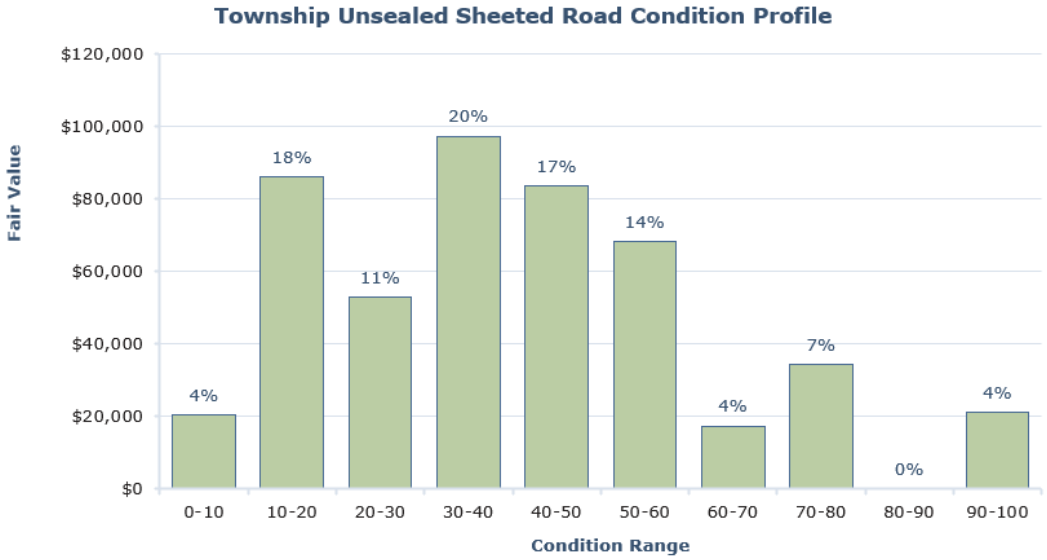


Figure 7 Township Unsealed Sheeted Road Surface Condition Profile

As shown in Figure 7, , approximately 85% of the town unsealed sheeted surface assets have a condition score less than 60. The defined condition range at which rural sheeted assets reach their end of life is 68. With a further 31% of the network between 40 and 60 in the planning period there is a high demand for road resheeting although the costs are relatively low compared to rural network.

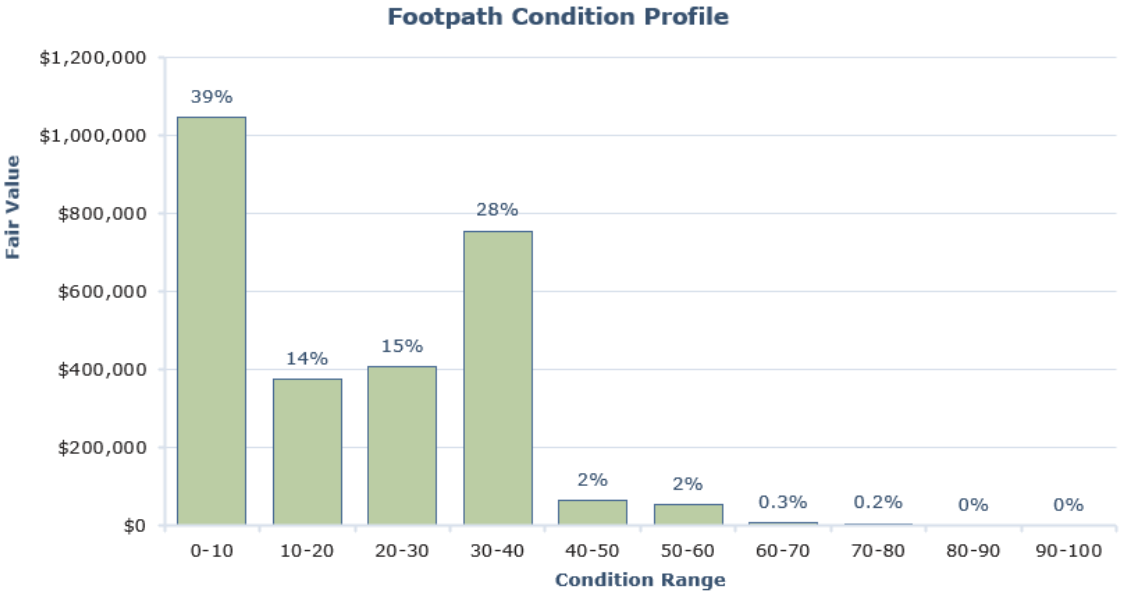


Figure 8 Sealed Footpath Condition Profile

As shown in Figure 8, approximately 95% of the sealed footpath assets have a condition score of less than 40. The defined condition at which footpath assets reach their end of life is 80 for footpath surfaces and 95 for footpath bases.

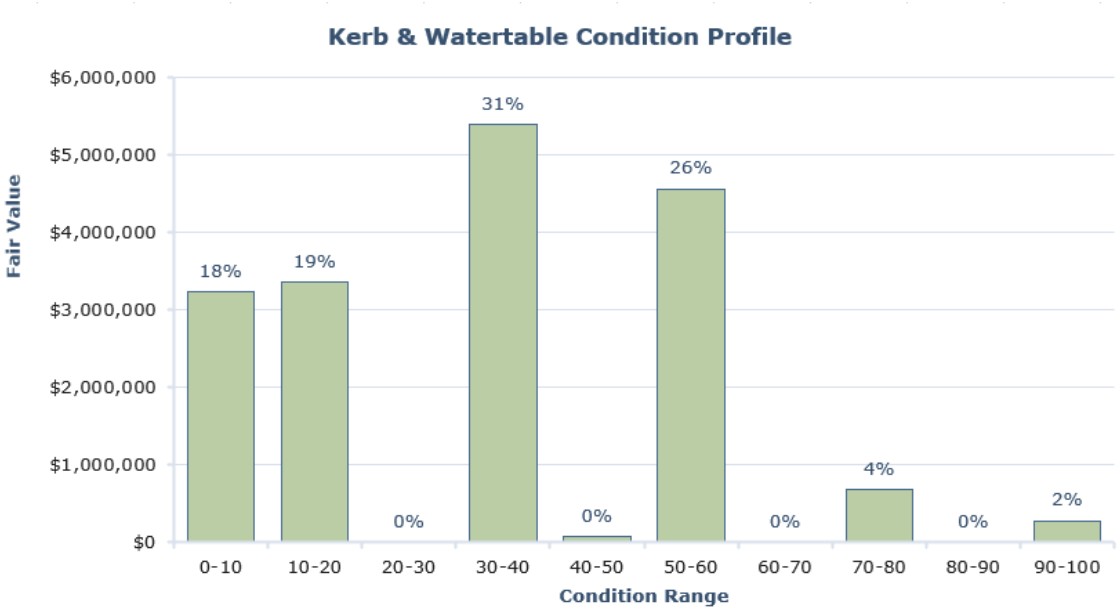


Figure 9 Kerb & Watertable Condition Profile

As shown in Figure 9, approximately 37% of the kerb & watertable assets have a condition score less than 30 and 95% have condition score less than 70. 5% of the kerbs have a condition score above 70 and these assets appear in the 10 year renewal expenditure. The defined condition at which kerb assets reach their end of life is 100.

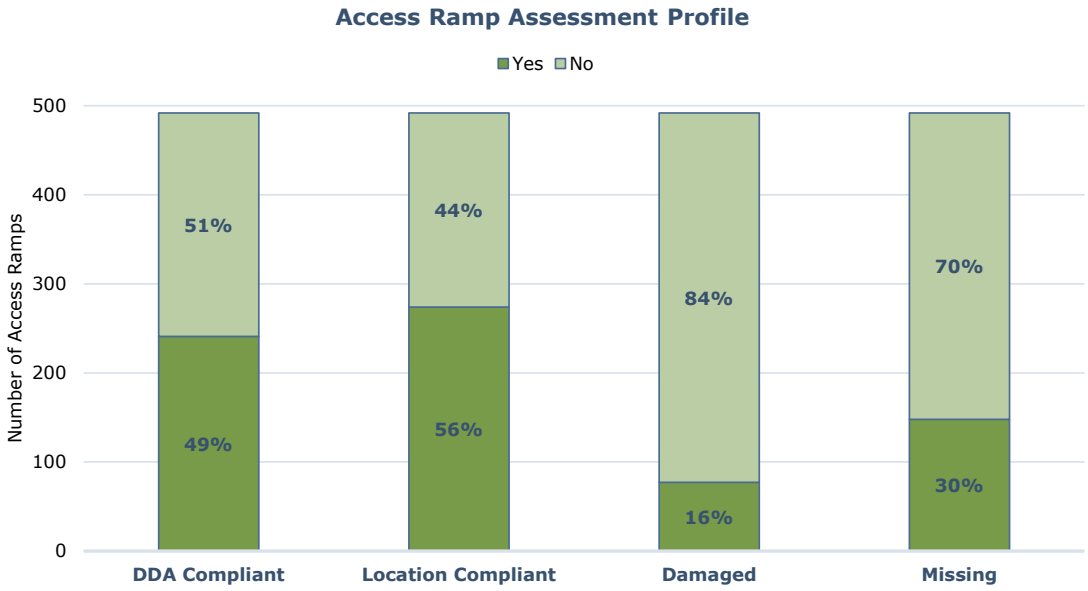


Figure 10 Access Ramp Assessment Profile

Figure 10 provides an indication of the data collected for access ramp assets, it shows that approximately half of the ramps are not compliant with DDA. Some ramps may fall into both compliance categories, the profile indicates that only a small percentage are damaged, missing access

ramps represent a location where a ramp is required or where part of the kerb has been removed or adjusted to provide a slope from the footpath/verge to the road for crossing purposes. The access ramp data has been used to develop a renewal expenditure profile to address non-compliant, damaged and missing access ramps.

3.1.3 Asset Valuations

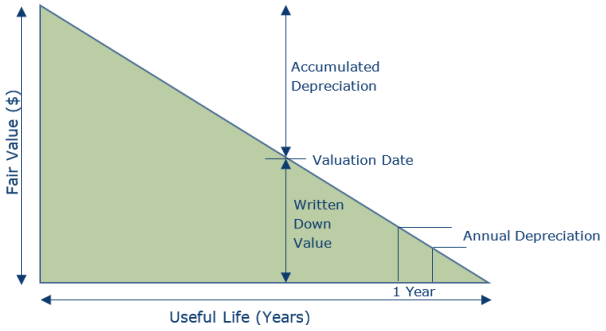
The value of the transport assets covered by this Plan and based on the 1 July 2020 revaluation being developed in parallel to this Plan is shown below.

Table 2 Road Asset Value Summary as at 1 July 2020

Category	Fair Value	Carrying Amount (Written Down Value)	Annual Depreciation Forecast (2020-21)
Sealed Roads	$68,644,062	$40,965,105	$1,324,761
Unsealed Roads	$77,012,176	$29,136,419	$1,886,946
Kerb & Watertable	$17,585,424	$8,695,305	$247,411
Footpaths (Sealed) & Access Ramps	$3,458,223	$2,406,094	$62,975
Total	**$166,699,885**	**$81,202,924**	**$3,522,093**

The annual depreciation forecast is an estimate of the expected depreciation expense for 2020-21 excluding any capital additions or disposals.

The current rate of consumption (annual depreciation/fair value) for transport assets is 2.1%. This indicates that on average, over the life of an asset, 2.1% of the fair value amount is consumed annually. The translation of this consumption rate into renewals is subject to a decision on funding, service level determination and asset condition.



It should be noted that expired assets (backlog) have no written down value and they do not attract annual depreciation. Once expired assets are renewed, they will be subject to annual depreciation and thus the overall annual depreciation of the road assets will increase as the expired assets are renewed and this needs to be factored into future budgeting.

As part of the 1 July 2020 revaluation, Council and Tonkin are reviewing how best to financially manage expired assets now and into the future. It is estimated that up to an additional $741,141 worth of annual depreciation would be reported if the register were adjusted for expired assets. This would increase the rate of consumption from 2.1% to 2.5%. This will be reviewed and possibly updated in future versions of the Plan once a decision on dealing with expired assets is made by Council.

3.2 Risk Management

No formal assessment of risks associated with service delivery from transport infrastructure assets has been undertaken by Council. However, a preliminary risk treatment plan summary is provided in Table 3 below.

The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks. Risks assessed as being 'Extreme' and 'High' will be identified with associated costs in future revisions of the Plan.

Table 3 Risk Treatment Plan Summary

Service or Asset at Risk	What can Happen	Risk Rating (Ex,H,M,L)	Risk Treatment Plan
Unsealed sheeted roads	Flood damage and unexpected cost for repair not covered by budget or federal relief funding	H	Early identification of damage and lodging claim to disaster fund in accordance with current procedure

3.3 Required Expenditure

This Plan identifies the projected operations, maintenance and capital renewal expenditures required to provide an agreed level of service to the community over a 10 year medium term financial planning period. This provides input into 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

3.3.1 Routine Operations/Maintenance

Routine maintenance is the regular on-going work that is necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make the asset operational again. Maintenance includes reactive (unplanned), planned and specific maintenance work activities. Assessment and prioritisation of reactive maintenance is undertaken by operational staff using experience, judgement, customer needs and the overall works program.

Since the last asset plan there has been a noticeable deterioration of sections of the sealed road network. Accordingly, greater detail has been collected in terms of maintenance defects for road surfaces, kerb, footpath and access ramps.

In addition to this, gravel and crusher dust footpaths have been assessed with a view to developing a proactive renewal program for resurfacing these assets.

In developing a maintenance program consideration has been given to the historic maintenance expenditure, together with the defects collected to develop a proactive maintenance program.

The following table provides a summary of the historic maintenance costs for the last three years and the anticipated backlog from inspections undertaken in 2020.

Table 4 Historic Annual Operations and Maintenance Expenditure

Asset Group	Historic Annual Operations & Maintenance Expenditure	Backlog Maintenance
General Maintenance	$418,800	$0
Sealed Road Maintenance	$240,000	$2,060,000*
Unsealed Road Maintenance	$1,206,667	$0
Footpath Maintenance	$250,000	$1,525,307**
Vegetation envelope clearance	$410,000	$830,069
Kerb & Water table Maintenance	$50,000	$710,036
Total	**$2,575,466**	**$4,967,509**

Notes:

* actual backlog is $4,436,932, however is reduced to $2,060,000 as many road defects will be corrected when roads are renewed early in the plan

** the footpath backlog consists of gravel footpath $417,902 and formed footpath defects $1,107,404

To deal with the backlog of maintenance established through the field assessment the following is presented to demonstrate a backlog of maintenance works.

To deal with the maintenance backlog and continue with historic maintenance activities the following summary of the assumptions has been used to develop the maintenance expenditure profile for this Plan.

- General maintenance including spraying, traffic control, line marking, slashing, storm damage and waste removal is set at historic levels of $418,000/annum.
- Unsealed road maintenance will continue as per historic costs of $1,206,667.
- For sealed roads a backlog maintenance program of $2,540,000 is included for the first 3 years and then reverts back to historic spending levels of $240,000/annum.
- For unsealed footpaths a proactive program has been generated to resurface these footpaths at a cost of $260,000/annum.
- For formed footpaths a maintenance program starts from year 3 at cost of $372,486/annum.
- For kerbs a maintenance program starts from year 3 at a cost of $165,719/annum. If the road is subject to surface renewal is assumed those defects will be covered under renewal.
- Vegetation envelope clearance assumes clearing 553km in the next 3 years, then clearing 911km on a rolling 5 year cycle. This assumes 182-185 km/annum of vegetation clearing for the duration of this plan. This is based on the actual road length of rural seal roads, unsealed road category 1 to 5, that have been assessed as needing clearing from site assessments. In addition, it is assumed 30% of the Category 6 road network will be cleared.

Table 5 and Figure 11 below show the maintenance expenditure selected for this Plan based on the above philosophy

Table 5 Projected Maintenance Expenditure

Financial Year	General Maint.	Unsealed Road Maint.	Sealed Road Maint.	Unsealed Footpath Maint.	Footpath Defect Maint.	Kerb Defect Maint.	Veg. Envelope Clearance	Total
2021-22	$418,800	$1,206,667	$549,000	$260,000	$0	$0	$276,690	$2,711,156
2022-23	$418,800	$1,206,667	$515,000	$260,000	$0	$0	$276,690	$2,677,156
2023-24	$418,800	$1,206,667	$1,476,000	$260,000	$0	$0	$276,690	$3,638,156
2024-25	$418,800	$1,206,667	$240,000	$260,000	$372,486	$165,719	$273,239	$2,398,706
2025-26	$418,800	$1,206,667	$240,000	$260,000	$372,486	$165,719	$273,239	$2,398,706
2026-27	$418,800	$1,206,667	$240,000	$260,000	$372,486	$165,719	$273,239	$3,152,194
2027-28	$418,800	$1,206,667	$240,000	$260,000	$372,486	$165,719	$273,239	$3,152,194
2028-29	$418,800	$1,206,667	$240,000	$260,000	$372,486	$165,719	$273,239	$3,152,194
2029-30	$418,800	$1,206,667	$240,000	$260,000	$372,486	$165,719	$273,239	$3,152,194
2030-31	$418,800	$1,206,667	$240,000	$260,000	$372,486	$165,719	$273,239	$3,152,194
Total	**$4,188,000**	**$12,066,667**	**$4,220,000**	**$2,600,000**	**$2,607,404**	**$1,160,035**	**$2,742,742**	**$29,584,848**
Avg	**$418,800**	**$1,206,667**	**$422,000**	**$260,000**	**$260,740**	**$116,004**	**$274,274**	**$2,958,485**

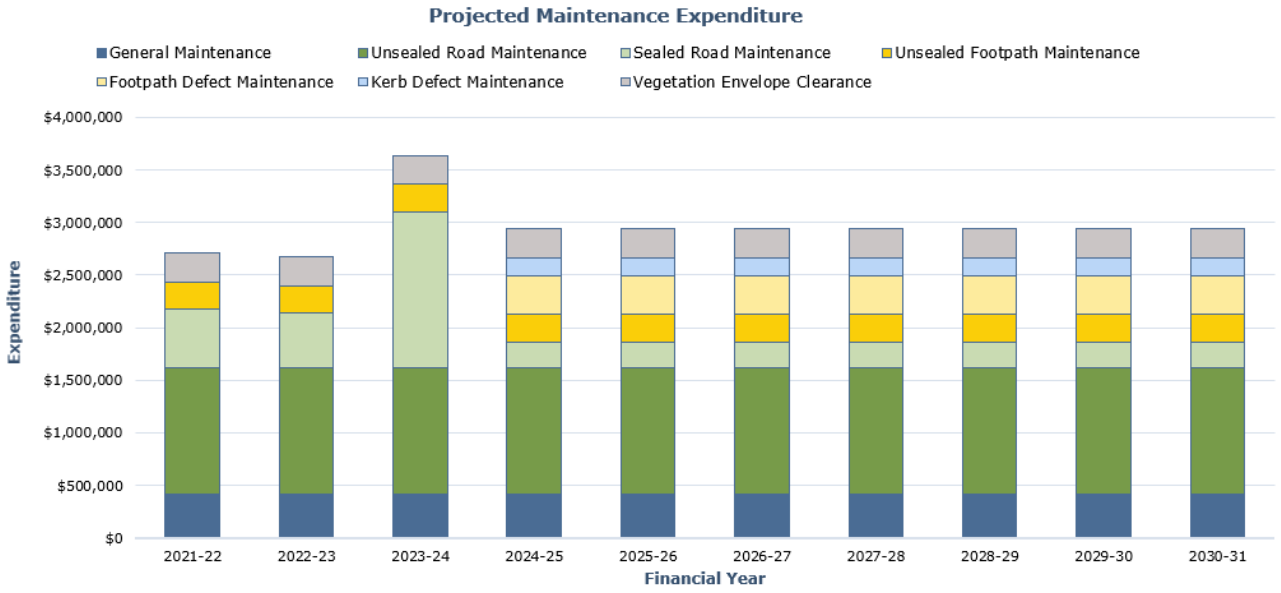


Figure 11 Projected Maintenance Expenditure

3.3.2 Capital Renewal

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

For seal and pavement and resheeting of unsealed roads, the method used to develop the renewal plan was based on outcomes from Road Surface Manager (RSM) modelling. While previous plans have been based on a fixed annual budget as determined from the long-term financial plan, this Plan is presented to align closely with the 2030 vision of having a backlog less than $1M.

For the commencement of the 2020-21 financial year, the RSM model is predicting a total demand for spending of $21.28M. When taking the 2020-21 capital works into account, the resultant demand for spending leading into the year 1 of this Plan reduces to $16.34M, comprising of $4.08M Sealed and $12.26M Unsealed.

To get all roads at or above the intervention level for renewal there are 36km of sealed roads and 301km of unsealed roads requiring renewal in addition to the normal renewal that will occur when roads reach intervention, this totals 337 km.

In order to catchup there are 2 scenarios considered:

Scenario 1 – Treat All Roads in Year 1 and then revert to normal renewal. This would result in an immediate injection of $20.2M and then average $2.7M per year for the remaining 9 years. This would eliminate all roads that are currently in backlog by Year 3.

Scenario 2 – Adopt a renewal plan for sealed roads and unsealed roads as shown in Table 6. This would eliminate sealed roads that are currently in backlog in year 9 of the plan and would carry over 36.9km of unsealed roads that are currently in backlog outside the 10 year planning period. Additional unsealed roads will fall into backlog during this period and a combined backlog estimate at year 10 is $4.75M. It is anticipated to sustain the network from Year 11-20 the combined average renewal funding will be in the order of $2.92M/annum, which is as a result of targeting the backlog in the first 10 years.

Scenario 2 is used for this Plan to assist in spreading out funding and to meet Long Term Financial plan capacity. The list of roads generated from the model for the next 5 years are included in Appendix A. This is a guide only to be reviewed and amended annually as part of the planning and budget process, with consideration being given to material availability and the verification of asset condition.

Other aspects on the renewal program are:

- Kerb renewal and kerb patching in preparation for sealing works is included and averages $305,674/annum and this is allocated when needed based on field assessment undertaken in 2020.
- Footpath renewal of asphalt, seal, concrete and pavers when they need full replacement and averages $6,412/annum and is allocated when needed based on field assessment undertaken in 2020.
- Access ramps that are on poor condition or do not comply to current standards are to be replaced to support the initiative for disability access across the Council. This is a $415,000 package of work spread over 3 years at $138,500/annum.

The costs associated with the renewals have been aggregated for each financial year over a 10 year planning period (medium term) and shown in Table 6 and Figure 12.

Table 6 Projected Renewal Expenditure

Financial Year	Sealed Road Renewal	Unsealed Road Renewal	Kerb & Watertable Renewal	Footpath Renewal	Access Ramp Renewal	Total Capital Renewal Expenditure
2021-22	$845,672	$2,992,060	$283,113	$0	$138,500	$4,259,345
2022-23	$1,043,227	$2,997,542	$58,876	$3,826	$138,500	$4,241,970
2023-24	$1,045,610	$2,999,251	$438,754	$0	$138,500	$4,622,115
2024-25	$1,003,181	$2,242,742	$448,384	$0	$0	$3,694,307
2025-26	$1,397,479	$2,243,057	$243,952	$3,489	$0	$3,887,977
2026-27	$2,048,332	$2,497,612	$241,203	$0	$0	$4,787,147
2027-28	$2,052,172	$2,496,323	$342,401	$26,600	$0	$4,917,496
2028-29	$2,055,551	$2,491,616	$423,767	$0	$0	$4,970,934
2029-30	$2,039,264	$2,494,979	$387,099	$11,225	$0	$4,932,567
2030-31	$2,046,982	$2,498,581	$189,189	$18,982	$0	$4,753,734
Total	**$15,577,470**	**$25,953,763**	**$3,056,739**	**$64,121**	**$415,500**	**$45,067,592**
Avg	**$1,557,747**	**$2,595,376**	**$305,674**	**$6,412**	**$41,550**	**$4,506,759**

Note – this will result in the backlog gradually reducing year by year from $16.34M to $4.75M over the period of the plan as shown in Appendix B.

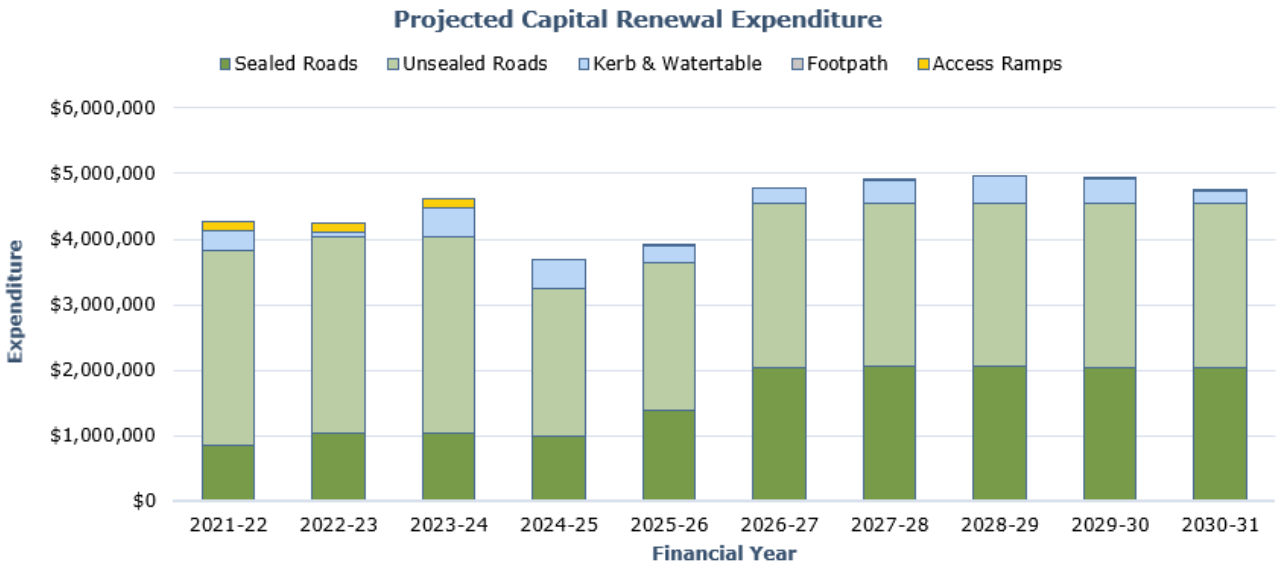


Figure 12 Projected Capital Renewal Expenditure

Further discussion regarding the RSM model that was run for unlimited budget and for fixed budget figures is provided in Appendix B.

3.3.3 Capital New/Upgrade and Acquisition

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

For this Plan the only upgrade plan is the development of Townsvale Estate by Council to subdivide and develop the road network from formed graded with no formal drainage to a fully sealed and drainage road network. The figures allocated are from previous investigation and planning work undertaken.

The costs associated with the new/upgrades have been aggregated for each financial year over a 10 year planning period (medium term) as shown in Table 7 and Figure 13.

Table 7 Budgeted New/Upgrade Expenditure

Financial Year	Total
2021-22	$180,000
2022-23	$0
2023-24	$0
2024-25	$0
2025-26	$0
2026-27	$0
2027-28	$620,000
2028-29	$450,000
2029-30	$440,000
2030-31	$0
Total	**$1,690,000**
Avg	**$169,000**

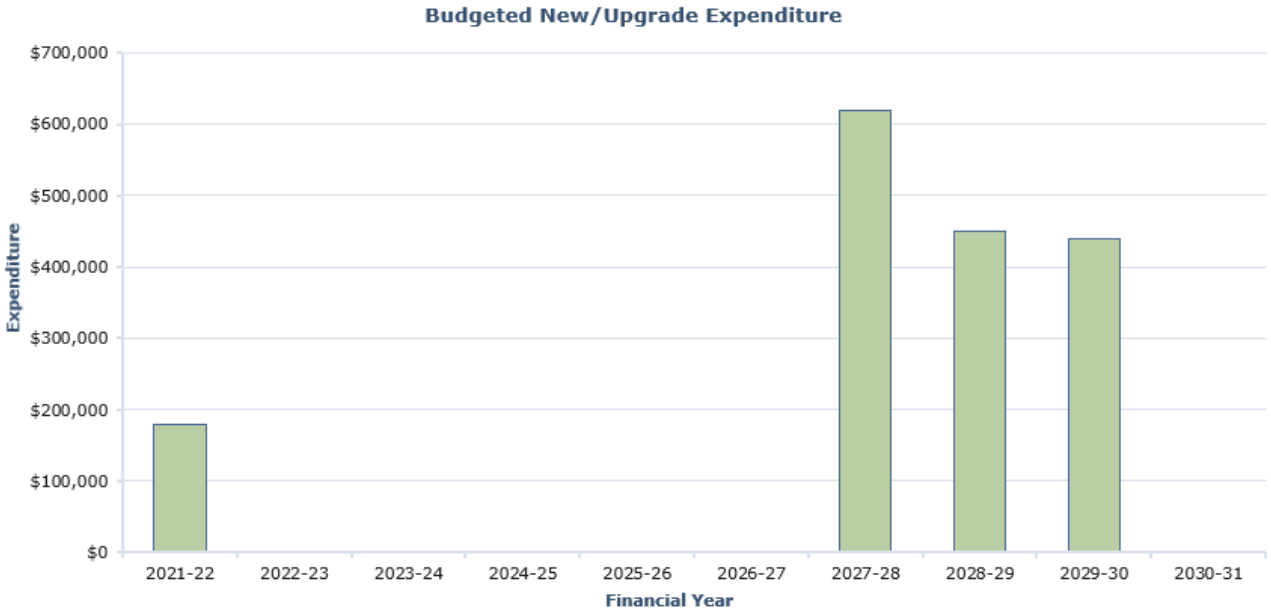


Figure 13 Capital New/Upgrade Expenditure

3.3.4 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. Council has not identified any transport infrastructure assets to be disposed in the 10 year planning period (medium term).

3.3.5 Financial Projections

The financial projections are shown in Table 8 and Figure 14 for projected operating (operations and maintenance), capital renewal, capital new/upgrade and estimated budget funding.

Table 8 Operating and Capital Expenditure

Financial Year	Maintenance	Capital Renewal	Capital New / Upgrade	Estimated Budget Funding
2021-22	$2,711,156	$4,259,345	$180,000	$7,150,502
2022-23	$2,677,156	$4,241,970	$0	$6,919,127
2023-24	$3,638,156	$4,622,115	$0	$8,260,271
2024-25	$2,936,911	$3,694,307	$0	$6,631,219
2025-26	$2,936,911	$3,887,977	$0	$6,824,888
2026-27	$2,936,911	$4,787,147	$0	$7,724,058
2027-28	$2,936,911	$4,917,496	$620,000	$8,474,407
2028-29	$2,936,911	$4,970,934	$450,000	$8,357,845
2029-30	$2,936,911	$4,932,567	$440,000	$8,309,479
2030-31	$2,936,911	$4,753,734	$0	$7,690,645
Total	**$29,584,849**	**$45,067,592**	**$1,690,000**	**$76,342,441**
Avg	**$2,958,485**	**$4,506,759**	**$169,000**	**$7,634,244**

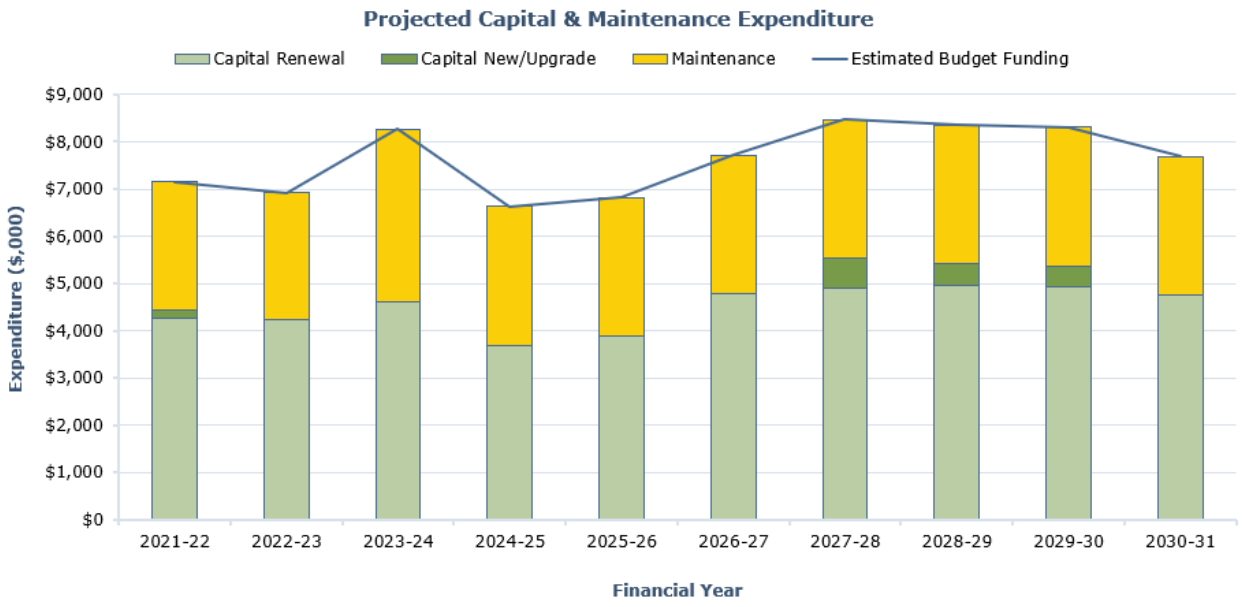


Figure 14 Projected Maintenance & Capital Expenditure over the Medium Term (10 Years)

The projected maintenance and capital expenditure required over the 10 year planning period is on average $7,634,244 per year.

4 Future Demand

4.1 Demand Forecast

The demand on Council that would result in changes to the way the road assets are maintained, renewed or upgraded in the future is more likely to relate to ongoing growing expectations from the community to have a higher service standard.

Demand factor trends and impacts on service delivery are summarised in Table 9.

Table 9 Demand Factors, Projections and Impact on Services

Demand Driver	Present Position	Projection	Impact on Services
Heavy Vehicle Access	Limited to B Double Commodity on all sheeted roads (gazetted for commodity only and not general freight)	All sheeted roads to have 30m Road Train Access	Route assessments and upgrade works to road width and intersections impacts on resources and budget that is not allowed for in this Plan
	Road Trains currently not permitted on unsealed road	All sheeted roads to have 36m Road Train Access	As above but to a higher degree
	Limited to 30m Road Train commodity from DIT Road to commodity facility	All sealed roads to have 36m Road Train Access	Route assessments and upgrade works to road width and intersections impacts on resources and budget that is not allowed for in this Plan
	National Heavy Vehicle Regulator (NHVR) approvals are limited	Increase in approvals necessitating changes to use of road network	Increase in roads constructed to the appropriate standards necessitating review of road categories and construction standards
Sealing Town Roads	9.3km of unsealed town roads	Develop a Plan to upgrade and prioritise township seals	Potential increase in the town sealed network
Disability Inclusion	Footpath access ramps do not comply to current standards	Footpath access ramps to be replaced to complete	Improve access for all footpath users
Changing unsealed road users demands	The assignment of road categories is not reflecting the changing nature of road use	Road categories will need to change to meet requirements of road users	Road maintenance and construction standards may not reflect road use

4.2 Demand Management Plan

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Council will determine the ability of the existing assets to manage increased usage for increased freight requirements as well as demand for wider agricultural vehicular movements. Opportunities identified to date for demand management are shown in Table 10. Further opportunities will be developed in future revisions of this Plan.

Table 10 Demand Management Plan Summary

Service Activity	Demand Management Plan
Heavy Vehicle Access	• Meet with NHVR to understand the requirements of the freight industry • Identify the impacts on the current network and establish alternative acceptance criteria • Develop a plan to determine likely roads that will be impacted and establish budgets for route assessments and upgrades and review annually • Criteria and Budget approval by Council annually • Update the Asset Plan progressively as criteria for acceptance changes • Review impact on asset life on a case by case basis.
Town Sealed Roads	Review the 9.3km of unsealed roads in towns and establish cost to prioritise and seal the unsealed roads in towns.
Unsealed Road Classification Policy	Formulate and implement a policy for assigning categories to unsealed roads including clear responsibility for implementation

5 Levels of Service

The community generally expects that Council will provide transport networks which meet their needs. Council, in response to customer feedback, has defined service levels in two terms and provides the level of service objective, performance measure process and service target in Table 11 and Table 12.

5.1 Community Levels of Service

Community levels of service relate to the service outcomes that the community wants in terms of quality reliability, responsiveness, amenity, safety and financing.

Table 11 Community Levels of Service

Key Performance Measure	Level of Service Objective	Performance Measure Process	Service Target
Quality	Roads - all weather access for all sealed and sheeted roads	Customer requests are recorded on customer service data base	Deal with requests on a case by case basis in line policy in line with road category
	Road – Farm Machinery can traverse the network to suit standard operations	Customer requests are recorded on customer service data base	Cat 1,2,3 roads clearance envelope maintained Cat 4,5 Road clearance envelope to be included on a planned program Cat 6 Road clearance envelope clearance targeted where critical for farm machinery movements
	Footpaths provide safe access for higher pedestrian areas	Customer requests are recorded on customer service data base	Requests inspected within 24 hours, and action programmed
	Footpaths provide all weather access for lower pedestrian areas	Customer requests are recorded on customer service data base	Requests inspected within 5 days, and action programmed
	Town roads will be progressively upgraded from unsealed to sealed	Develop a plan and fund it	Plan is not funded at present
Function / Capacity / Utilisation	Road suitable for road user needs	Road uses are categorised based on traffic volumes and strategic importance	Road categories are defined and regularly reviewed and updated in line with Policy (to be established)
Safety	Provide safe and suitable roads free from hazards	Customer requests on identified hazards are recorded on customer service data base Grader operators report on roadside hazards	Requests inspected within 24 hours, and action programmed

5.2 Technical Levels of Service

Technical levels of service support the community service levels and define how operations, maintenance, renewal and upgrade of asset is managed to achieve the desired outcomes of this plan.

Table 12 Technical Levels of Service

Key Performance Measure	Level of Service Objective	Performance Measure Process	Service Target
Operations	Efficiently utilise assets which will consume resources such as staff, energy and materials (International Infrastructure Management Manual (IPWEA, 2015 edition))	Strategic Plan	Every 4 years
		Business Plan	Annually
		Transport IAMP	Every 4 Years
		Condition assessment	Sealed and unsealed assessed every 5 years
		Asset System in place and kept up to date	Annual report from asset system
		Rolling 3 year capital renewal program	Updated annually
		Council and external resources are available to meet customer service level	Budget in place
Maintenance	Retain assets in a suitable condition to meet original service potential in line expected life	Routine Maintenance performed as set out in road categories	Based on categories
		Perform reactive maintenance as required	Demand is met when required
Renewal	Replace existing assets with assets of equivalent capacity or performance capability (International Infrastructure Management Manual (IPWEA, 2015 edition))	Asset Renewal is planned and occurs in line with established standards and timeframes	Annual works program is delivered

Key Performance Measure	Level of Service Objective	Performance Measure Process	Service Target
Upgrade	Upgrades are cost effective and meet end user needs and are affordable and sustainable	Adopt a plan to seal all Town roads with residential housing	Plan is not funded at present
		All Rural Road upgrades subject to cost benefit analysis	All project subject to cost benefit analysis and presented to Council
		All Development driven upgrades to be funded by contribution	Minimum 50% contribution and remainder is funded through upgraded budget

5.3 Construction, Renewal and Maintenance Standards for Roads

This Plan has been developed based on assumptions related to the construction and renewal standards set out in the following sections for the sealed and unsealed road network.

As explained previously, the Condition Score of a road is a measure of the road consumption between 0 and 100 where 0 represents a newly surfaced road and 100 represents a fully deteriorated road. For sealed roads a condition score is determined based on stripping, binder age and surface defects. For sheeted roads the condition score of each road is based on the sheeting depth, sheeting condition, rideability and drainage condition of the road. The Condition at End of Life is the condition at which intervention to maintain road serviceability is required.

The sealed road network is classified as follows:

- Township Sealed Category A
- Township Sealed Category B
- Township Sealed Category C
- Rural Sealed.

Prior to 1996, township pavements were constructed at a depth of 150mm to 200mm. Since 1997, township pavements have been constructed at a depth of 300mm. Between 1998 and 2005, with the availability of additional funding, some rural unsealed roads were upgraded to sealed roads but with a lower construction standard. Some of these roads are now showing signs of deterioration. In order to take this into consideration all sealed road categories have been subclassified based on known construction variables and evidence of early performance deterioration.

The unsealed road network is classified as follows:

- Township Sheeted Category D
- Rural Sheeted Category 1
- Rural Sheeted Category 2
- Rural Sheeted Category 3
- Rural Sheeted Category 4

- Rural Sheeted Category 5
- Rural Formed and Graded Category 6
- Rural Unformed Category 7.

The rural sheeted road categories are further categorised into sheeting material quality and drainage standard to refine renewing life projections. This is included in Conquest/RSM model assumptions.

5.3.1 Township Sealed Roads

Council owns and maintains a township sealed road network totalling approximately 76km in length. Most of the township sealed roads are spray seal with only several road segments being hotmix seals.

Current Standard for Township Sealed Roads

Construction Method

Seal Width: varies (ranges between 2.5m and 24m, average is 9.7m)

Seal Types: Spray seal 2 coat seal or hotmix bitumen seal

Pavement Width: Varies

Pavement Depth: Varies

- Acquired assets 300mm (need to define new land division requirements)
- Existing pavement will be renewed by rework and top up on existing pavement rather than full depth reconstruction.

Formation: Included

Renewal Method

Reseal: Varies

- Single coat spray seal (spray seal 7mm S35E) with an ongoing reseal pattern of 2 coat/1 coat/2 coat for Category A & B roads and Category C poor construction roads. The reseal pattern for Category C standard construction roads will be 2coat/1coat/1coat/2coat.
- Profile existing hotmix surface, supply and lay 40-50mm hotmix bitumen surface.
- Breakup and remove existing concrete and reinstate 150mm reinforced concrete surface.

Pavement: Varies

- Saw cut to preserve kerb, demolition and rework of existing material, placement of 150mm of granular material, trim and compact.
- For Township roads constructed pre 1996 with thin pavements, renewal is likely to require reworking the pavement, however if the condition deteriorates further then full pavement replacement will be required.

Formation: Assume have indefinite life hence no cost incurred at renewal

Seal Life: 15 to 25 years for the upper spray seal layer depending on usage and 30 to 75 years for the longer life lower spray seal layer; 25 to 30 years for the hotmix bitumen surfaces and 50 years for the reinforced concrete surfaces.

Pavement Life: 40 to 80 years for the pavement depending on usage and construction standard and 100 to 320 years for the post 1996 standard construction pavement sub base component.

Maintenance Method

- Preventative edge patching, pothole repairs, crack seal and pavement repairs
- Side drains cleaned and good working order.

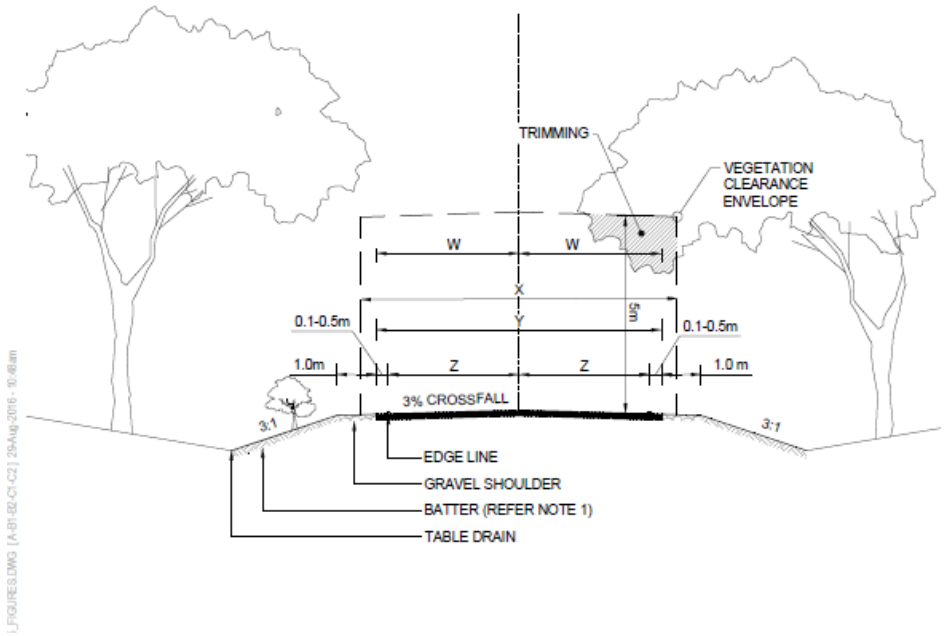
Typical Township Sealed Road with preparation works prior to seal, which can be applied as a proactive maintenance activity

5.3.2 Rural Sealed Roads

Council owns and maintains a rural sealed road network totalling approximately 144km. Rural sealed roads are categorised into standard and poor construction roads. Most of the rural sealed roads are spray seal with only isolated road segments being hotmix where high turning areas with heavy traffic

The typical construction standard that currently exists related to these categorises is shown on the typical section below and the subsequent table.

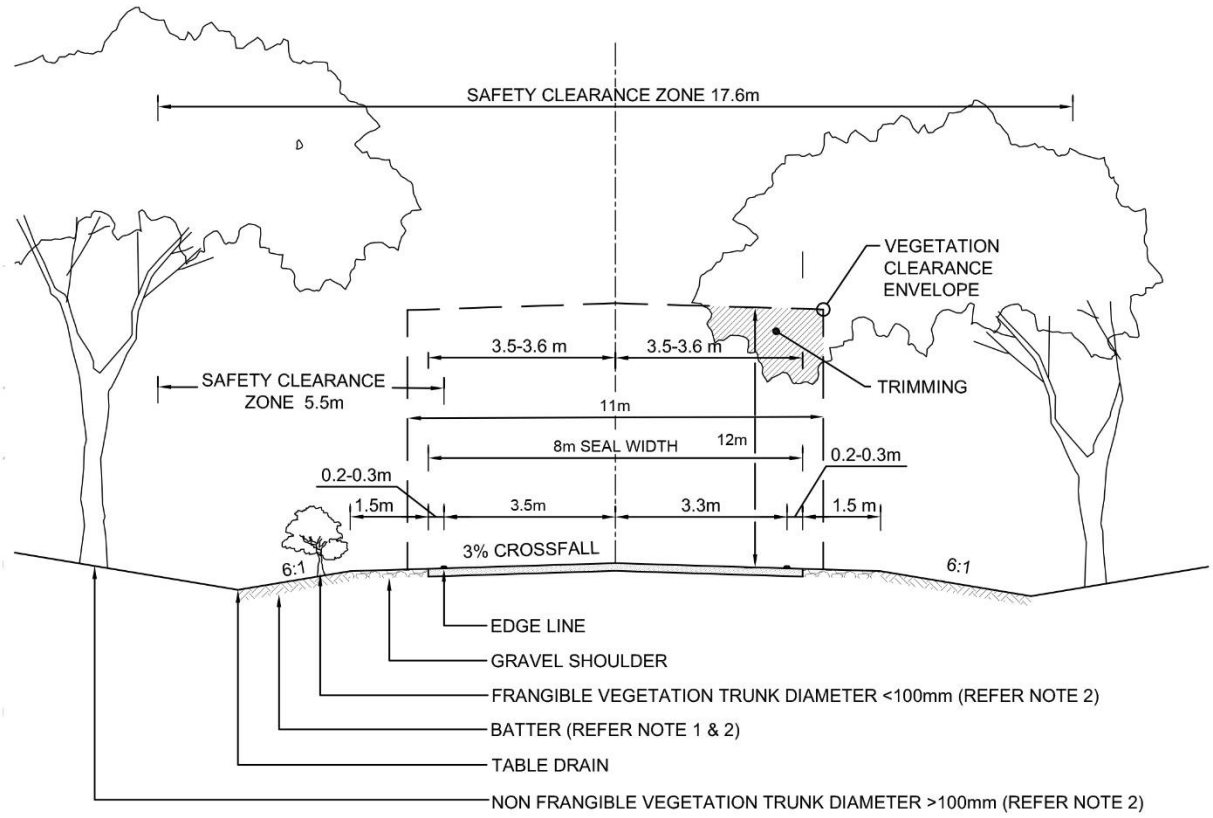
Typical Current Construction Standard for Rural Sealed Roads



	Rural Seal
X (desirable)	11m
Y (Actual)	6 -8m (average 7.3m)
Y (desirable minimum)	8.0m

Figure 15 Rural Sealed Roads Current Cross Section Construction

Figure 16 shows a typical construction cross section to illustrate a desirable standard for new construction. It is noted that this is not always achievable due to native vegetation restrictions.



NOTES

1. Where available safety clearance zone exceeds 21.6m in open country batters can reduce from 6:1 to 4:1, to reduce earthworks footprint.
2. Where terrain requires batters steeper than 3:1, refer Austroad (2010) Part 6 Guide to Road Design for assessment of safety barriers.
3. Frangible vegetation is permitted in the safety clear zone however should be clear in the vegetation clearance envelope.
4. Determination of safety clearance zone is based on an AADT ≤750, Design Speed of 100km/hr and fill batter slope of 6:1.

Figure 16 Desirable Rural Seal Construction Cross Section

Current Standard for Rural Sealed Roads

Construction Method

Seal Width: 8.0m (currently 6-8m)

Seal Types: Spray seal 2 coat seal or hotmix bitumen seal

Pavement Width: 1.5m either side of seal

Pavement Depth: 300mm for rural roads

Formation: Included.

Renewal Method

Reseal: Single coat spray seal (spray seal 7mm S35E) with an ongoing reseal pattern of 2 coat/1 coat/1 coat/2 coat for standard construction roads and 2 coat/1 coat/2 coat for poor construction roads.

Pavement: Pulverise existing seal and base, granular overlay, water and roll.

Formation: Assume have indefinite life hence no cost incurred at renewal

Seal Life: 20 to 25 years for the upper spray seal layer, 40 to 75 years for the lower spray seal layer and 25 to 28 years for hotmix bitumen surfaces.

Pavement Life: 60 to 80 years for pavement base depending on construction standard

Road Maintenance

As part of the data collected in 2020 individual defects on sealed roads have been identified by staff. Works consist of repairing potholes, road edges, patching areas with heaving cracking or pavement failure and repairs to unsealed shoulders for sealed roads. A maintenance budget has been developed for the sealed road network for this Plan.

5.3.3 Unsealed Road Categorisation

Unsealed roads within the Wakefield Regional Council serve the community in a wide range of ways from farm gate access, single and multiple residential dwelling access to tourism and freight access, school bus routes and for commodity access for transportation of primary produce including grain and hay. Intensive farming including piggeries, poultries and feed lots has increased in the area in the last 10 years. Unsealed roads play a critical role in supporting the local economy and rural communities.

The unsealed road network has been segmented and digitised in the Council's GIS system. Road categories have been defined based on usage, material quality and drainage standard. Categorising the rural sheeted network enables Council to apply different renewal and construction standards across the network in an affordable way, rather than having one standard for all unsealed roads. Road categorisation can evolve over time and be further refined in future plans.

To determine the remaining useful life of any unsealed road in the network the following data has been used.

Road Condition – The condition of each unsealed road segment is stored in the Council's Asset Management System Conquest. The unique condition score is calculated from field assessed condition data taking into the consideration Sheeting depth, sheeting condition (extent of subgrade breakthrough), Shape (Cross fall and Rideability).

Condition at End of Life (CEoL) – For each road category a condition at end of life has been determined to identify the condition at which intervention is required.

Road Categories – The unsealed road network that will be resheeted has been categorised into Categories 1 to 5 based on road usage and further categorised as good, fair or poor material and good or poor drainage creating a total of 30 rural sheeted categories. For unsealed roads that do not attract resheeting Categories 6 and 7 are defined based on a levels of maintenance Council will commit to those categories.

5.3.4 Rural Sheeted Category 1 Roads

Council owns and maintains a rural sheeted Category 1 road network totalling approximately 189km. Category 1 unsealed roads within the Council are rural arterial roads. These roads generally carry traffic through the Council area and generally connect with Department for Infrastructure and Transport (DIT) arterial roads. The roads have a higher standard alignment, reasonable sight distance and formation width to allow heavy vehicles to pass. If grant funds or developer contributions were available, roads would generally be selected for construction and sealing from this category.

Figure 17 shows a typical construction cross section to illustrate Council's service target for rural sheeted Category 1 roads. It is noted that this is not always achievable due to native vegetation restrictions.

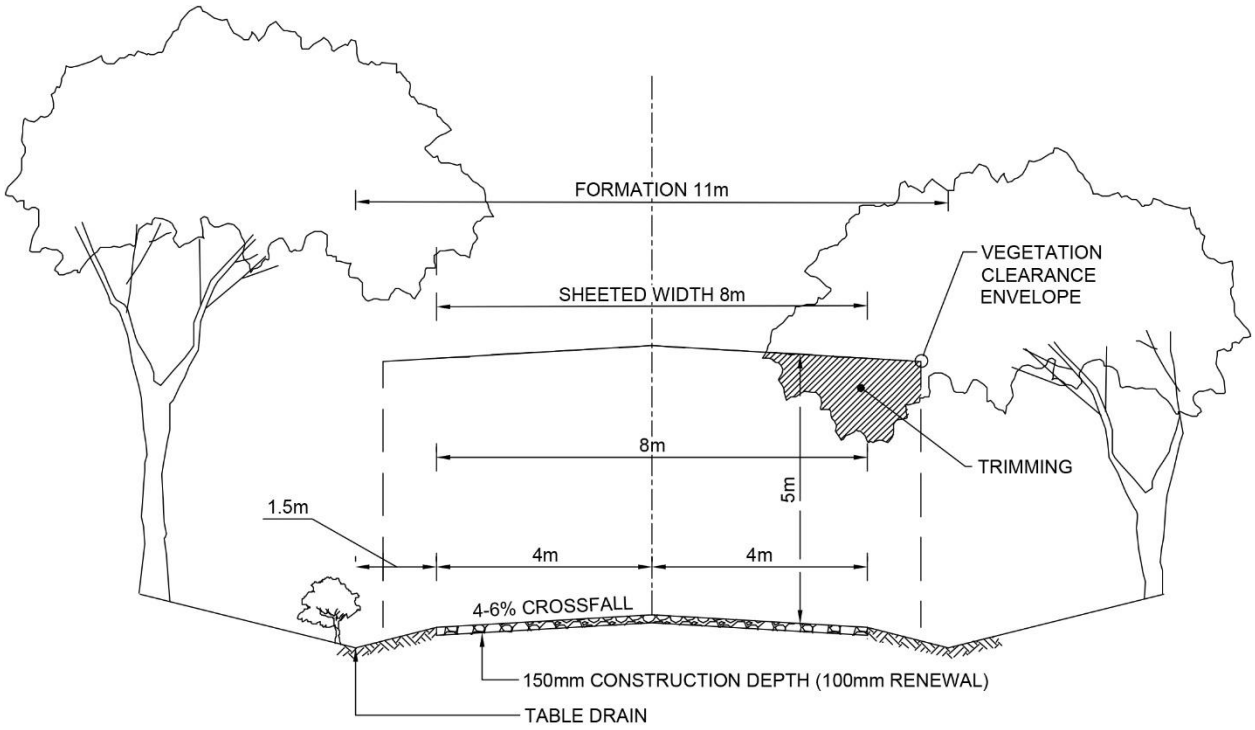


Figure 17 Rural Sheeted Category 1 Construction Cross Section

Current Standard for Rural Sheeted Category 1 Roads

Construction Method

Sheeting Width: 8m (currently 7m-10m)

Sheeting Depth: 150mm when newly constructed

Formation Width: Additional 1.5m each side of sheeting.

Renewal Method

Resheet: Supply, place and compact 100mm crushed material to restore the sheeted wearing surface.

Condition at End of Life: Assume 50mm rubble left prior to resheeting with no subgrade break through, equates to a score of 60 in the asset system.

Useful Life: The upper sheeted wearing surface varies based on material quality and drainage standard, 12 to 21 years.

Formation: Life of the lower base and earthworks to reform the subgrade prior to resheeting is assumed to be four times that of the associated sheeted wearing surface (48 to 84 years).

Maintenance

- 4 programmed grades per year
- Heavy patching as required
- Side drains and culverts cleaned infrequently or through inspection/or customer service requests
- Regulatory and warning signs replaced as required
- Tree clearing to suit 10m envelope when road resheeted then based on inspections or complaints.

Typical Category 1 Rural Sheeted Road in End of Life Condition 60

5.3.5 Rural Sheeted Category 2 Roads

Council owns and maintains a rural sheeted Category 2 road network totalling approximately 146km. These are rural collector roads for local traffic and local producers. These roads often form part of the school bus routes and have regular truck movements to farms.

Figure 18 shows a typical construction cross section to illustrate Council's service target for rural sheeted Category 2 roads. It is noted that this is not always achievable due to native vegetation restrictions.

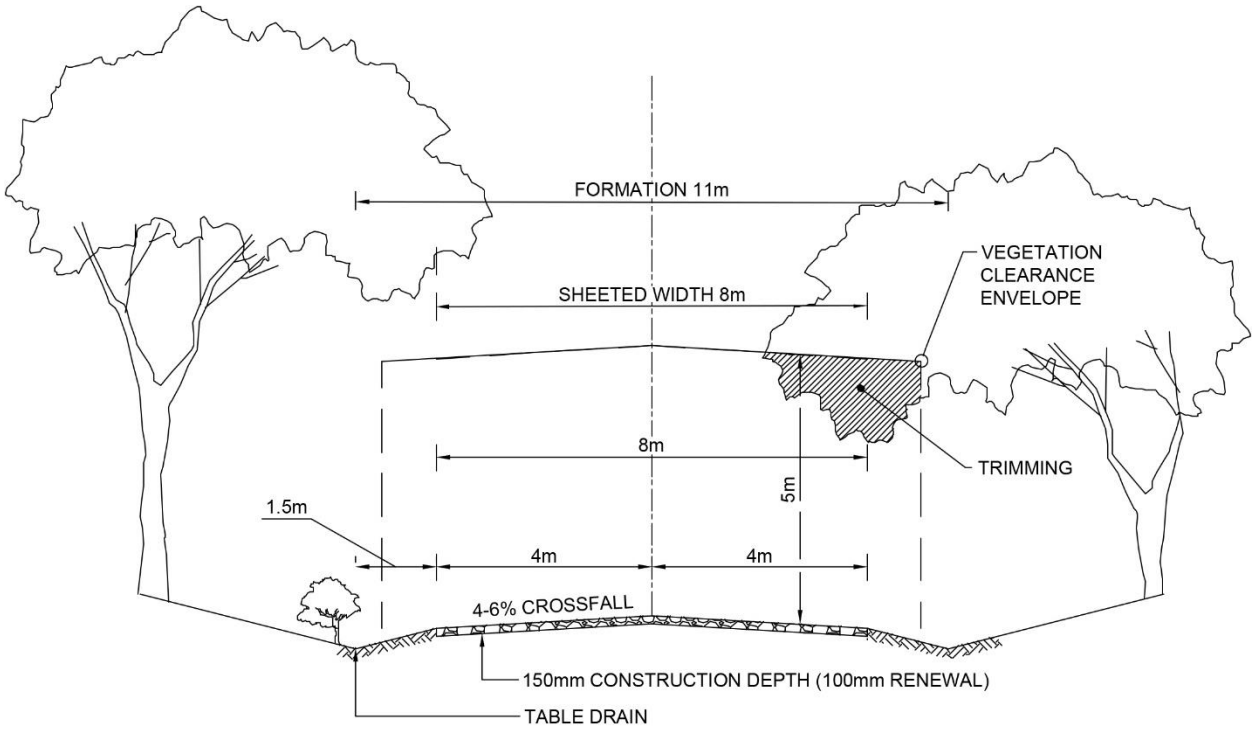


Figure 18 Rural Sheeted Category 2 Construction Cross Section

Current Standard for Rural Sheeted Category 2 Roads

Construction Method

Sheeting Width: 8m (currently 6m - 8m)

Sheeting Depth: 150mm when newly constructed

Formation Width: Additional 1.5m either side of sheeting.

Renewal Method

Resheet: Supply, place and compact 100mm crushed material to restore the sheeted wearing surface.

Condition at End of Life: Assume 50mm rubble left prior to resheeting with minimal subgrade break through, equates to a score of 65 in the asset system.

Useful Life: The upper sheeted wearing surface varies based on material quality and drainage standard, 16 to 25 years.

Formation: Life of the lower base and earthworks to reform the subgrade prior to resheeting is assumed to be four times that of the associated sheeted wearing surface (64 to 100 years).

Maintenance

- 4 programmed grades per year
- Heavy patching as required
- Side drains and culverts cleaned infrequently or through inspection/or customer service requests
- Regulatory and warning signs replaced as required
- Tree clearing to suit 10m envelope when road resheeted then based on inspections or complaints.

Typical Category 2 Rural Sheeted Road in expired Condition 65

5.3.6 Rural Sheeted Category 3 Roads

Council owns and maintains a rural sheeted Category 3 road network totalling approximately 298km. These are local access community collector roads for local traffic and primary producers. These roads often form part of the school bus routes and have regular truck movements to farms.

Figure 19 shows a typical construction cross section to illustrate Council's service target for rural sheeted Category 3 roads. It is noted that this is not always achievable due to native vegetation restrictions.

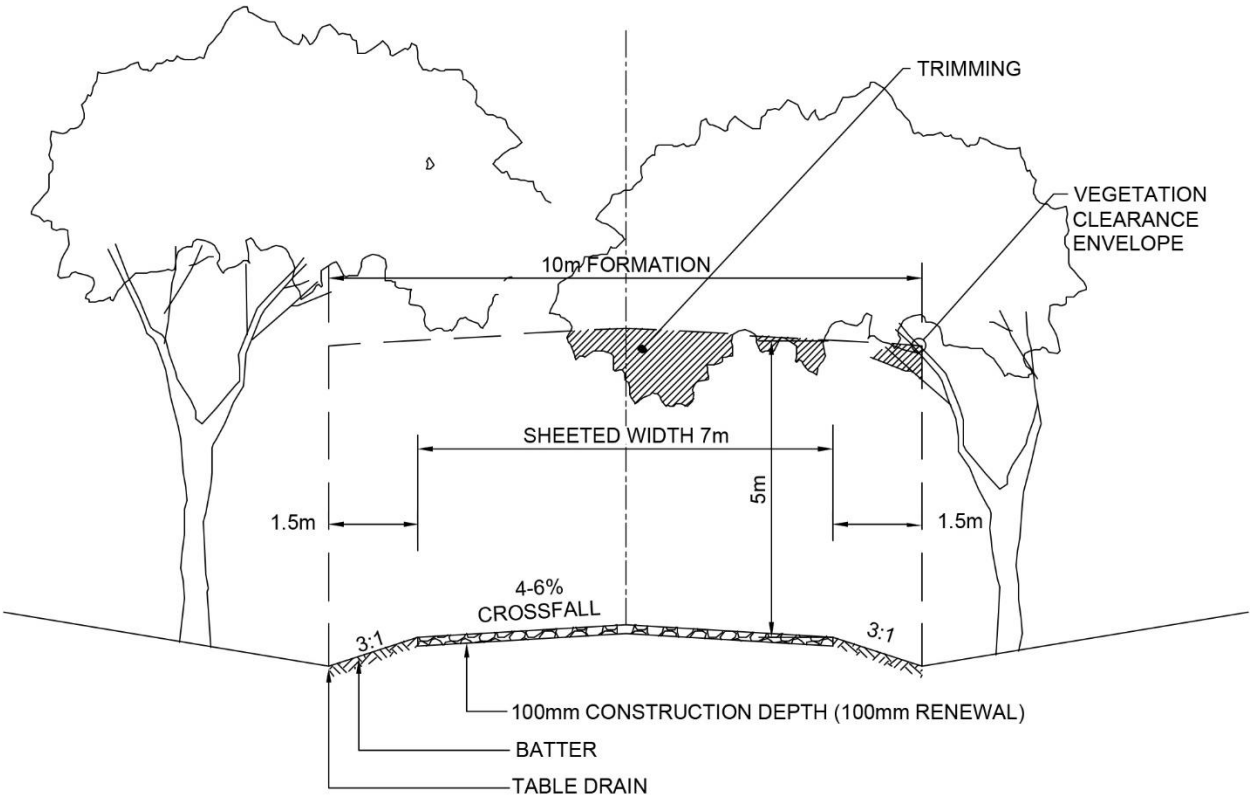


Figure 19 Rural Sheeted Category 3 Construction Cross Section

Current Standard for Rural Sheeted Category 3 Roads

Construction Method

Sheeting Width: 7m (majority are 7m wide, some are 6m or 8m wide)

Sheeting Depth: 100mm when newly constructed

Formation Width: Additional 1.5m each side of sheeting.

Renewal Method

Resheet: Reform existing material to create cross fall and shape. Supply, place and compact 100mm crushed material.

Condition at End of Life: Assume minimal rubble left prior to resheeting, equates to a score of 65 in the asset system.

Useful Life: The upper sheeted wearing surface varies based on material quality and drainage standard, 20 to 30 years.

Formation: Life of the lower base and earthworks to reform the subgrade prior to resheeting is assumed to be four times that of the associated sheeted wearing surface (80 to 120 years).

Maintenance

- 3 programmed grades per year
- Side drains and culverts cleaned infrequently or through inspection/or customer service requests
- Regulatory and warning signs replaced as required
- Tree clearing to suit 10m envelope when road resheeted then based on inspections or complaints.

Typical Category 3 Rural Sheeted Road in almost End of Life Condition

5.3.7 Rural Sheeted Category 4 Roads

Council owns and maintains a rural sheeted Category 4 road in the network total approximately 691km. These are local access medium use roads for local traffic.

Figure 20 shows a typical construction cross section to illustrate Council's service target for rural sheeted Category 4 roads. It is noted that this is not always achievable due to native vegetation restrictions.

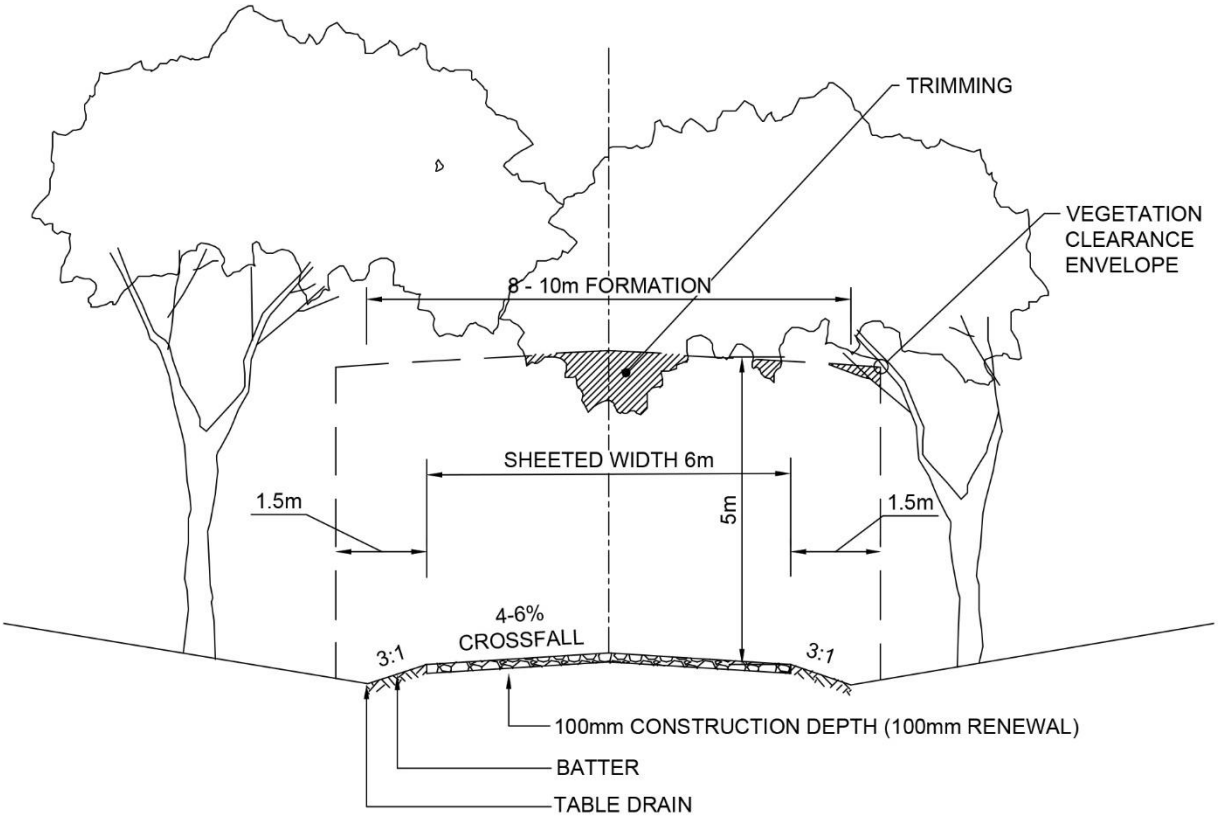


Figure 20 Rural Sheeted Category 4 Construction Cross Section

Current Standard for Rural Sheeted Category 4 Roads

Construction Method

Sheeting Width: 6m (currently 5m – 8m)

Sheeting Depth: 100mm when newly constructed.

Formation Width: Additional 1-1.5m each side of sheeting, aim to achieve 8-10m where possible.

Renewal Method

Resheet: Reform existing material to create cross fall and shape. Supply, place and compact 100mm crushed material.

Condition at End of Life: Assume minimal rubble left prior to resheeting, equates to a score of 68 in the asset system.

Useful Life: The upper sheeted wearing surface varies based on material quality and drainage standard, 26 to 35 years.

Formation: Life of the lower base and earthworks to reform the subgrade prior to resheeting is assumed to be two times that of the associated sheeted wearing surface (52 to 70 years).

Maintenance

- 2 programmed grades per year
- Side drains and culverts cleaned infrequently or through inspection/or customer service requests
- Regulatory and warning signs replaced as required
- Tree clearing to suit 10m envelope when road width exceeds 7m
- Tree clearance to suit (road width plus 1.5m either side) envelope when road width is less than 7m.

Typical Category 4 Rural Sheeted Road in approaching End of Life Condition 68

5.3.8 Rural Sheeted Category 5 Roads

Council owns and maintains a rural sheeted Category 5 road network totalling approximately 210km. These are local access low use roads for local traffic.

Figure 21 shows a typical construction cross section to illustrate Council's service target for rural sheeted Category 5 roads. It is noted that this is not always achievable due to native vegetation restrictions.

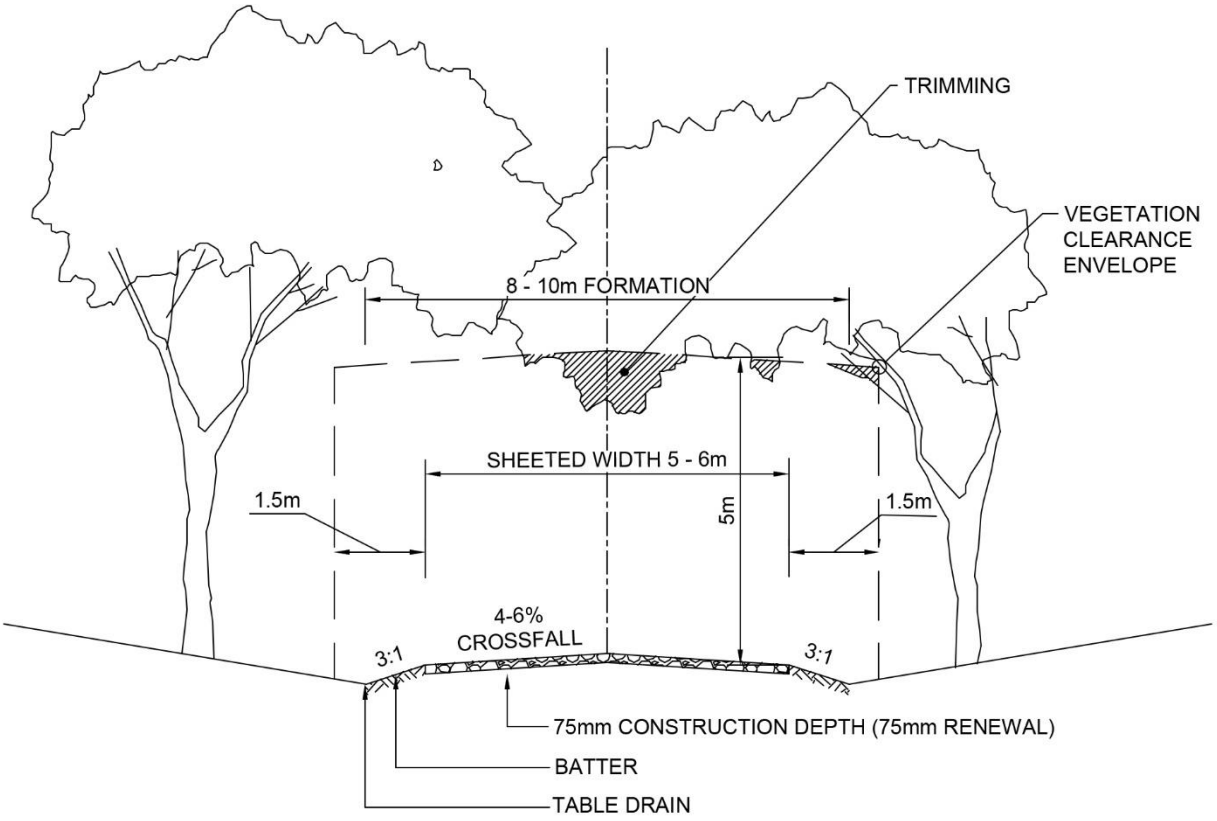


Figure 21 Rural Sheeted Category 5 Construction Cross Section

Current Standard for Rural Sheeted Category 5 Roads

Construction Method

Sheeting Width: 5m (currently 4m – 8m)

Sheeting Depth: 75mm when newly constructed

Formation Width: Additional 1-1.5m each side of sheeting, aim to achieve 8-10m where possible.

Renewal Method

Resheet: Reform existing material to create cross fall and shape. Supply, place and compact 75mm crushed material.

Condition at End of Life: Assume no rubble left prior to resheeting with extensive subgrade break through, equates to a score of 80 in the asset system.

Useful Life: The upper sheeted wearing surface and lower base & earthworks varies based on material quality and drainage standard, 27 to 40 years

Formation: Assume that some reforming of road cross fall and drainage will be required during resheeting of the road surface.

Maintenance

- 1 programmed grade per year
- Side drains and culverts cleaned infrequently or through inspection/or cusstomer service requests
- Regulatory and warning signs replaced as required
- Tree clearing to suit 10m envelope when road width exceeds 7m
- Tree clearance to suit (road width plus 1.5m either side) envelope when road width is less than 7m.

Typical Category 5 Rural Sheeted Road in approaching End of Life Condition

5.3.9 Rural Formed and Graded Category 6 Roads

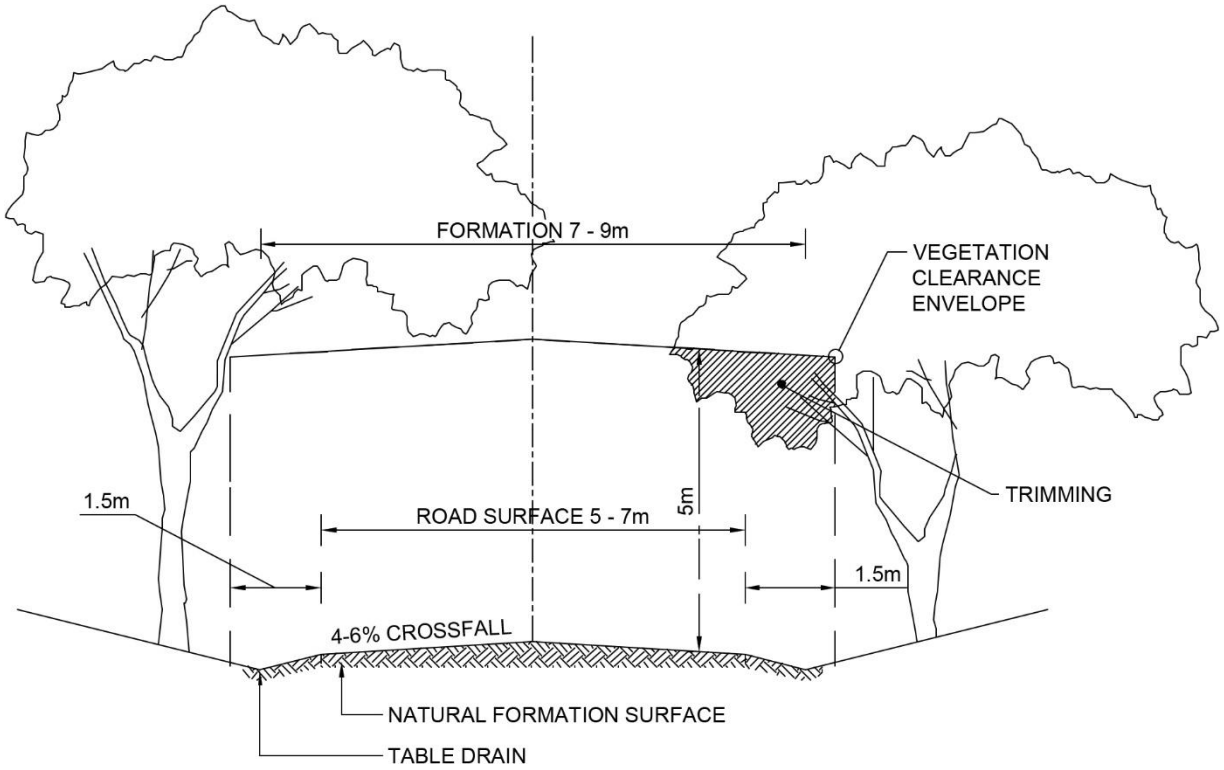


Figure 22 Rural Sheeted Category 6 Construction Cross Section

Current Standard for Rural Sheeted Category 6 Roads

Renewal Method

Not a valued asset in asset management plan.

Maintenance

- Width will vary, maintain 7m where possible
- 1 programmed grade a year
- Tree clearing to suit (road width plus 1.5m either side) envelope where used for farm paddock access.

5.3.10 Rural Unformed Category 7 Roads

These Roads and unformed tracks and road reserves that are not maintained.

6 Plan Improvement and Monitoring

The following tasks have been identified for improving future versions of the Plan. Council should assign responsibilities and resources to these tasks as part of the endorsement of the Plan.

Table 13 Tasks Identified for Improving Future Versions of the Plan

Task No.	Task	Responsibility
1.	Assessment of the impact of dealing with the National Vehicle Regulator and the impact of increased demand on the road network due to increased road train movements. • Planning assessment to define which roads will be impacted by increased road train movements • Assessment of impacts and asset upgrade requirements and associated costs	Council
2.	Consideration and identification of upgrade works to seal currently sheeted roads, particularly the township unsealed roads. Development of budgets and timeframes for upgrade works	Council
3.	Develop a policy position and criteria to allow road categories to be adjusted by staff as part of day to day operations. Any changes to the road categories will be reported to Council	Council
4.	Inspect category 6 road and determine which road need to be included in vegetation clearing program	Council
5.	Establish a community 'hot spot' identification program that allows roadside vegetation issues to be quickly identified and addressed	Council

This Plan will be reviewed during annual budget planning processes and amended to recognise any material changes in service levels and/or resources available to provide those services as a result of budget decisions.

7 References

IPWEA, 2006, NAMS.PLUS3 Asset Management, Institute of Public Works Engineering Australia, Sydney, www.ipwea.org

IPWEA, 2011, Asset Management for Small, Rural or Remote Communities Practice Note, Institute of Public Works Engineering Australia, Sydney, www.ipwea.org

Wakefield Regional Council, Wakefield 2030 Our Community Plan (Draft for Consultation)

Appendix A Projected 5 Year Capital Renewal

The following plan is a guide only and will be reviewed and amended annually as part of the planning and budget process, with consideration being given to material availability and the verification of asset condition.

Projected 5 Year Capital Renewal Program - Unsealed Roads					
Year	*Surface ID*	*Segment Description*	*Treatment*	*Cost*	*Length (m)*
2021-22	15725	Almond Tree Road (025) from Freebairn Rd to Days Hill Rd	Rural Category 2 Sheeted Poor Material / Good Drainage Reconstruction	$126,368	2407
2021-22	14949	Angle Grove Road (010) from Boucaut Rd to Horrocks Highway	Rural Category 2 Sheeted Fair Material / Good Drainage Resheet	$130,728	2514
2021-22	14959	Barabba Road (005) from Tank Rd to 2200m Nth of Tank Rd	Rural Category 2 Sheeted Poor Material / Good Drainage Resheet	$102,284	2248
2021-22	3074	Barunga Top Road (035) from Wokurna Rd to Garfield Rd	Rural Category 2 Sheeted Good Material / Good Drainage Resheet	$159,848	3074
2021-22	2909	Barunga Top Road (045) from Stringer Rd to Keilli Rd	Rural Category 2 Sheeted Fair Material / Good Drainage Reconstruction	$89,340	1489
2021-22	3329	Beaufort Road (025) from Branch Hill Rd to Baum Rd	Rural Category 1 Sheeted Good Material / Good Drainage Resheet	$87,776	1688
2021-22	15684	Beaufort Road (030) from Baum Rd to Railway Line Rd	Rural Category 1 Sheeted Good Material / Good Drainage Resheet	$98,124	1887
2021-22	15685	Beaufort Road (035) from Railway Line Rd to Augusta Highway	Rural Category 1 Sheeted Good Material / Good Drainage Resheet	$120,016	2308
2021-22	15769	Branch Hill Road (015) from Angel Rd to Olive Rd	Rural Category 2 Sheeted Good Material / Good Drainage Resheet	$133,172	2561
2021-22	3054	Bumbunga Road (055) from Salt Lake Rd to Atkinson Rd	Rural Category 2 Sheeted Good Material / Poor Drainage Reconstruction	$62,265	1186
2021-22	15669	Cameron Street (020) from Smith St to Elder Tce	Township (Cat D) Sheeted Reconstruction	$6,617	153
2021-22	3342	Days Hill Road (035) from Dale Rd to Woods Rd	Rural Category 1 Sheeted Fair Material / Good Drainage Resheet	$24,700	475
2021-22	3337	Days Hill Road (040) from Woods Rd to Owen Rd	Rural Category 1 Sheeted Good Material / Poor Drainage Reconstruction	$146,880	2448
2021-22	3367	Dows Road (005) from South East Tce (Owen) to Wattle Rd	Rural Category 2 Sheeted Good Material / Poor Drainage Resheet	$34,788	892
2021-22	15872	Dows Road (010) from Wattle Rd to Gory Rd	Rural Category 2 Sheeted Good Material / Good Drainage Resheet	$54,600	1200
2021-22	15865	Falcon Road (010) from Piggery House to Hay Shed	Rural Category 2 Sheeted Fair Material / Good Drainage Resheet	$112,216	2158
2021-22	3012	Hart Road (035) from Hart Field Day site to Carlmain	Rural Category 3 Sheeted Good Material / Poor Drainage Resheet	$42,450	955
2021-22	2899	Hart Road (060) from Yackandanda Rd to Farm Gate	Rural Category 3 Sheeted Fair Material / Poor Drainage Resheet	$101,568	2285
2021-22	3288	Kallora Road (040) from Greig Rd to Goldneys Rd	Rural Category 2 Sheeted Good Material / Poor Drainage Reconstruction	$215,700	3595
2021-22	2929	Landslide Road (030) from Gliding Club Rd to Linton Rd	Rural Category 3 Sheeted Fair Material / Poor Drainage Resheet	$70,987	1597
2021-22	14618	Pinery Road (050) from End of seal to Powerline Rd (near Pinery)	Rural Category 1 Sheeted Good Material / Good Drainage Resheet	$117,728	2264
2021-22	3144	Saint Road (010) from Rundle Rd to Erith Rd	Rural Category 2 Sheeted Good Material / Poor Drainage Reconstruction	$140,580	2343
2021-22	3063	South Hummocks Road (020) from Crusher Rd to 500m Sth Crusher Rd	Rural Category 3 Sheeted Fair Material / Poor Drainage Reconstruction	$39,795	758
2021-22	2946	Windview Road (005) from Augusta Hwy to Barunga East Rd	Rural Category 1 Sheeted Good Material / Good Drainage Resheet	$135,363	2975
2021-22	2874	Windview Road (015) from Falcon Rd to Burnsfield Rd	Rural Category 1 Sheeted Fair Material / Good Drainage Resheet	$156,988	3019
2021-22	2875	Windview Road (020) from Burnsfield Rd to Sturt Pea Rd	Rural Category 1 Sheeted Good Material / Good Drainage Resheet	$181,376	3488
2021-22	2870	Windview Road (025) from Sturt Pea Rd to 1650m Sth Mallee Corner Rd	Rural Category 1 Sheeted Good Material / Good Drainage Resheet	$78,104	1502
2021-22	15811	Windview Road (030) from 1650m Sth Mallee Corner Rd to Mallee Corner Rd	Rural Category 1 Sheeted Fair Material / Good Drainage Reconstruction	$100,980	1683
2021-22	2950	Wokurna Road (045) from Hewitt Rd to Barunga Top Rd	Rural Category 1 Sheeted Poor Material / Poor Drainage Reconstruction	$120,720	2012
2022-23	3341	Aldenhoven Road (035) from Boundary Rd to Holman Rd	Rural Category 3 Sheeted Poor Material / Poor Drainage Resheet	$88,811	1998
2022-23	2517	Atkinson Road (035) from Dobie Rd to Magpie Creek Rd	Rural Category 4 Sheeted Good Material / Poor Drainage Resheet	$98,190	2209
2022-23	2977	Barunga East Road (005) from Windview Rd to 2650m Nth Windview Rd	Rural Category 4 Sheeted Good Material / Good Drainage Resheet	$117,748	2649
2022-23	2978	Barunga East Road (015) from Burnsfield Rd to House	Rural Category 4 Sheeted Fair Material / Good Drainage Resheet	$100,457	2260
2022-23	2956	Barunga Homestead Road (010) from Viterra Entrance to Barunga Gap Rd	Rural Category 4 Sheeted Fair Material / Good Drainage Resheet	$75,609	1701
2022-23	15065	Barunga Top Road (050) from Keilli Rd to Hope Gap Rd	Rural Category 2 Sheeted Poor Material / Good Drainage Resheet	$34,892	671
2022-23	2622	Bigg Road (Halbury) (005) from Cross Rd (Halbury) to Pine Rd (Halbury)	Township (Cat D) Sheeted Reconstruction	$36,278	699
2022-23	3220	Branch Hill Road (025) from Baum Rd to Rail Crossing	Rural Category 3 Sheeted Fair Material / Good Drainage Resheet	$67,328	1515
2022-23	3160	Branch Hill Road (035) from McLachlan Rd to Augusta Highway	Rural Category 3 Sheeted Good Material / Good Drainage Resheet	$57,474	1293

The following plan is a guide only and will be reviewed and amended annually as part of the planning and budget process, with consideration being given to material availability and the verification of asset condition.

Projected 5 Year Capital Renewal Program - Unsealed Roads					
Year	*Surface ID*	*Segment Description*	*Treatment*	*Cost*	*Length (m)*
2022-23	15866	Everard Road (025) from Farm Driveway to Cook Rd	Rural Category 3 Sheeted Good Material / Poor Drainage Reconstruction	$92,243	1757
2022-23	3244	Everard Road (030) from Cook Rd to Bowillia Rd	Rural Category 3 Sheeted Fair Material / Poor Drainage Reconstruction	$130,830	2492
2022-23	3471	Florence Street (Port Wakefield) (010) from End of Seal to George St	Township (Cat D) Sheeted Reconstruction	$8,027	116
2022-23	2887	Greenshields Road (005) from Middle Range Rd to Kangaroo Flat Rd	Rural Category 4 Sheeted Good Material / Good Drainage Resheet	$117,926	2653
2022-23	15084	Hart Road (010) from Wundke Rd to Kangaroo Flat Rd	Rural Category 3 Sheeted Fair Material / Poor Drainage Resheet	$71,031	1598
2022-23	15088	Hart Road (025) from 600m East of Martin Rd to Powerline Rd	Rural Category 3 Sheeted Fair Material / Poor Drainage Resheet	$60,230	1355
2022-23	3313	Hoskin Corner Road (005) from Owen Rd to Water Tower Rd	Rural Category 3 Sheeted Poor Material / Good Drainage Resheet	$104,280	2346
2022-23	15747	Kallora Road (005) from Balaklava Rd to Erith Rd	Rural Category 1 Sheeted Good Material / Good Drainage Resheet	$179,712	3456
2022-23	2933	Klemm Road (010) from Rail Corridor Rd to Goss Rd	Rural Category 4 Sheeted Fair Material / Poor Drainage Resheet	$68,231	1535
2022-23	16288	Landslide Road (010) from 800m Sth Barunga Gap Rd to 300m Sth Cemetery	Rural Category 3 Sheeted Poor Material / Good Drainage Reconstruction	$28,020	467
2022-23	15825	Martin Road (005) from Magpie Creek Rd to 450m Nth Smitham Rd	Rural Category 3 Sheeted Poor Material / Poor Drainage Resheet	$47,917	1078
2022-23	2940	Martin Road (015) from Grumpy Rd to Hart Rd	Rural Category 3 Sheeted Fair Material / Good Drainage Resheet	$110,280	2481
2022-23	15842	OHara Road (015) from Watchman Exchange Rd to Bowillia Rd	Rural Category 3 Sheeted Fair Material / Poor Drainage Resheet	$106,369	2393
2022-23	3408	Port Lorne Road (010) from Finch Rd to Thornton Tce (Pinery)	Rural Category 3 Sheeted Fair Material / Poor Drainage Resheet	$48,539	1092
2022-23	3378	Port Lorne Road (015) from Thornton Tce (Pinery) to Blacket Rd	Rural Category 3 Sheeted Fair Material / Good Drainage Resheet	$89,459	1761
2022-23	15749	Port Lorne Road (020) from Blacket Rd to Plains Rd	Rural Category 3 Sheeted Fair Material / Good Drainage Resheet	$54,985	1237
2022-23	2918	Pratt Road (005) from Magpie Creek Rd to Blyth Rd	Rural Category 4 Sheeted Good Material / Poor Drainage Resheet	$73,914	1940
2022-23	2919	Pratt Road (010) from Blyth Rd to Bowillia Rd	Rural Category 4 Sheeted Good Material / Poor Drainage Resheet	$111,023	2914
2022-23	15666	Robert Street (025) from John St to Hugh Tce	Township (Cat D) Sheeted Reconstruction	$8,961	148
2022-23	3285	Salter Springs Road (030) from Duck Rd to River Wakefield	Rural Category 3 Sheeted Poor Material / Good Drainage Resheet	$77,076	1734
2022-23	3059	School Corner Road (005) from Barunga Gap Rd to Barunga Top Rd	Rural Category 4 Sheeted Good Material / Poor Drainage Reconstruction	$18,135	403
2022-23	3316	Standpipe Road (015) from Blyth Plains Rd to Brightwood Rd	Rural Category 3 Sheeted Good Material / Good Drainage Resheet	$125,616	2826
2022-23	15870	Standpipe Road (020) from Brightwood Rd to Wanappe Rd	Rural Category 3 Sheeted Good Material / Good Drainage Resheet	$109,258	2458
2022-23	15120	Target Hill Road (005) from Traeger Rd to Woods Rd	Rural Category 3 Sheeted Good Material / Poor Drainage Resheet	$196,291	4416
2022-23	15075	Templeton Road (090) from Nth end of seal to Gleeson Rd	Rural Category 1 Sheeted Good Material / Good Drainage Resheet	$11,440	176
2022-23	2885	Wandel Road (near Blyth) (030) from Dobie Rd to Pratt Rd	Rural Category 4 Sheeted Good Material / Good Drainage Resheet	$94,717	2486
2022-23	3086	Whiting Ford Road (005) from Dunn Rd to Wedding Rd	Rural Category 3 Sheeted Fair Material / Good Drainage Resheet	$52,140	1173
2022-23	15782	Woodlands Road (010) from Tucker Rd to Steve Rd	Rural Category 3 Sheeted Good Material / Poor Drainage Resheet	$124,104	2792
2023-24	3139	Argyl Road (015) from Racecourse Rd to Plains Rd	Rural Category 4 Sheeted Good Material / Poor Drainage Resheet	$89,478	2013
2023-24	3141	Argyl Road (020) from Plains Rd to Dalkey Rd	Rural Category 4 Sheeted Good Material / Good Drainage Resheet	$75,476	1698
2023-24	3185	Bald Hill Road (005) from Proof Range Entrance to First Bend	Rural Category 4 Sheeted Fair Material / Good Drainage Resheet	$15,316	402
2023-24	2955	Boucaut Road (005) from Stone Cutter Rd to Stone Cutter Rd	Rural Category 4 Sheeted Poor Material / Good Drainage Resheet	$102,102	2297
2023-24	3083	Catford Road (near Halbury) (010) from End of Old Seal to Hoyleton Rd	Rural Category 4 Sheeted Good Material / Poor Drainage Reconstruction	$147,105	2802
2023-24	3016	Churches Road (040) from Lake View Rd to Northern Council Boundary	Rural Category 4 Sheeted Good Material / Poor Drainage Reconstruction	$79,433	1513
2023-24	3131	Crawford Road (005) from Barker Rd to Simon Rd	Rural Category 4 Sheeted Good Material / Poor Drainage Reconstruction	$45,413	865
2023-24	16400	Days Hill Road (005) from Eastern Council Boundary to Almond Tree Rd	Rural Category 1 Sheeted Poor Material / Good Drainage Resheet	$138,320	2660
2023-24	3198	Dohse Road (010) from Gulfview Rd to Penna Rd	Rural Category 4 Sheeted Fair Material / Good Drainage Resheet	$69,120	1555
2023-24	3429	Finch Road (030) from Thornton Tce (Pinery) to Melvin Tce (Pinery)	Rural Category 4 Sheeted Good Material / Poor Drainage Resheet	$16,307	428

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Projected 5 Year Capital Renewal Program - Unsealed Roads					
Year	*Surface ID*	*Segment Description*	*Treatment*	*Cost*	*Length (m)*
2023-24	3084	Five Corners Road (005) from Augusta Hwy to Bumbunga Rd	Rural Category 4 Sheeted Poor Material / Poor Drainage Reconstruction	$142,170	2708
2023-24	3115	Gardner Road (015) from Dunstan Rd to Bencubbin Rd	Rural Category 4 Sheeted Fair Material / Good Drainage Resheet	$59,785	1345
2023-24	3021	Goss Road (005) from Stone Cutter Rd to Farm Driveway	Rural Category 4 Sheeted Fair Material / Poor Drainage Resheet	$31,159	701
2023-24	2884	Hart Road (020) from Martin Rd to 600m East of Martin Rd	Rural Category 3 Sheeted Fair Material / Poor Drainage Resheet	$26,359	593
2023-24	2984	Hart Road (045) from Rail Corridor Rd to Grain Silo Entrance	Rural Category 3 Sheeted Good Material / Good Drainage Resheet	$140,862	3169
2023-24	3701	Hugh Terrace (015) from Robert St to Joanna St	Township (Cat D) Sheeted Reconstruction	$5,225	151
2023-24	2997	Lake View Road (040) from Power Station Rd to Farm Driveway	Rural Category 4 Sheeted Fair Material / Good Drainage Resheet	$102,724	2311
2023-24	3268	Lower Templeton Road (025) from Gleeson Rd to Lamond Rd	Rural Category 4 Sheeted Good Material / Poor Drainage Reconstruction	$31,605	602
2023-24	3159	Lower Templeton Road (040) from Cook Rd to Bowillia Rd	Rural Category 4 Sheeted Good Material / Poor Drainage Reconstruction	$93,030	1772
2023-24	3126	Old Boundary Road (020) from OHara Rd to Stow Rd	Rural Category 2 Sheeted Good Material / Poor Drainage Resheet	$127,348	2449
2023-24	3045	Pine Hill Road (005) from Rail Corridor Rd to Rail Corridor Rd	Rural Category 4 Sheeted Fair Material / Good Drainage Resheet	$72,320	1627
2023-24	15070	Pinery Road (055) from Powerline Rd (near Pinery) to Plains Rd	Rural Category 1 Sheeted Good Material / Good Drainage Resheet	$76,700	1475
2023-24	3417	Port Lorne Road (045) from Dead Mans Hill Rd to Port Wakefield Highway	Rural Category 3 Sheeted Good Material / Good Drainage Resheet	$193,142	3802
2023-24	15839	Rifle Range Road (010) from Hoepner Rd to Watchman Exhange Rd	Rural Category 3 Sheeted Good Material / Good Drainage Resheet	$113,748	2559
2023-24	3140	Saint Road (015) from Erith Rd to Kallora Rd	Rural Category 2 Sheeted Good Material / Good Drainage Resheet	$218,296	4198
2023-24	3018	Seed Shed Road (015) from Harmerville Rd to Hart Church Rd	Rural Category 4 Sheeted Good Material / Good Drainage Resheet	$89,656	2017
2023-24	3064	South Hummocks Road (015) from Isaacson Rd to Crusher Rd	Rural Category 3 Sheeted Good Material / Good Drainage Resheet	$60,007	1350
2023-24	3050	Sturt Pea Road (015) from Provisional School Rd to Churches Rd	Rural Category 4 Sheeted Poor Material / Poor Drainage Reconstruction	$122,693	2337
2023-24	3049	Sunny Hill School Road (005) from Ninnes Rd to Pump Station Rd	Rural Category 4 Sheeted Good Material / Poor Drainage Resheet	$69,190	1816
2023-24	3132	Tiller Road (Balaklava) (010) from Veitch Rd to Saint Station Rd	Rural Category 4 Sheeted Fair Material / Poor Drainage Resheet	$158,509	3566
2023-24	2988	Wandel Road (near Blyth) (025) from Old Boundary Rd to Dobie Rd	Rural Category 4 Sheeted Poor Material / Poor Drainage Reconstruction	$170,153	3241
2023-24	3095	Wedding Road (005) from Sichem Rd to Traeger Rd	Rural Category 4 Sheeted Good Material / Good Drainage Resheet	$51,117	1150
2023-24	3096	Wedding Road (035) from 43m Nth of Gilmac Exit to South Tce (Balaklava)	Rural Category 4 Sheeted Good Material / Good Drainage Resheet	$60,630	1364
2023-24	14416	Yackandanda Road (015) from Kite Rd to 100m Sth of Kite Rd	Rural Category 4 Sheeted Good Material / Poor Drainage Resheet	$4,756	107
2024-25	3176	Bald Hill Road (010) from First Bend to End	Rural Category 4 Sheeted Fair Material / Poor Drainage Reconstruction	$155,025	3445
2024-25	3168	Barker Road (010) from Woolshed Flat Rd to Crawford Rd	Rural Category 4 Sheeted Fair Material / Poor Drainage Reconstruction	$147,060	3268
2024-25	16394	Bismark Valley Road (065) from McLachlan Rd to House	Rural Category 3 Sheeted Fair Material / Good Drainage Resheet	$70,187	1579
2024-25	3227	Dalkey Road (015) from Burford Rd to Ford Rd	Rural Category 4 Sheeted Good Material / Poor Drainage Reconstruction	$204,803	3901
2024-25	3343	Days Hill Road (020) from Holman Rd to Farmhouse	Rural Category 1 Sheeted Fair Material / Good Drainage Resheet	$97,448	1874
2024-25	14944	Days Hill Road (025) from Farmhouse to Water Tower Rd	Rural Category 1 Sheeted Fair Material / Good Drainage Resheet	$120,796	2323
2024-25	3242	Everard Road (005) from Templeton Rd to 1900m Est Templeton Rd	Rural Category 4 Sheeted Fair Material / Poor Drainage Reconstruction	$85,680	1904
2024-25	3375	Finch Road (020) from Traeger Rd to Port Lorne Rd	Rural Category 3 Sheeted Fair Material / Good Drainage Resheet	$105,207	2071
2024-25	3204	Gulfview Road (020) from Penna Rd to Scott Rd	Rural Category 4 Sheeted Fair Material / Poor Drainage Reconstruction	$117,023	2229
2024-25	2605	Hill Road (near Balaklava) (005) from Plains Rd to Racecourse Rd	Rural Category 4 Sheeted Good Material / Good Drainage Resheet	$109,703	2468
2024-25	3266	Lower Templeton Road (015) from Moebus Rd to OHara Rd	Rural Category 4 Sheeted Good Material / Good Drainage Resheet	$126,727	2851
2024-25	3224	Malakhoff School Road (005) from Port Wakefield Hwy to Port Wakefield Hwy	Rural Category 4 Sheeted Fair Material / Poor Drainage Resheet	$132,283	2976
2024-25	3235	Neville Road (005) from Balaklava Rd to Salter Springs Rd	Rural Category 4 Sheeted Fair Material / Good Drainage Reconstruction	$84,525	1610
2024-25	3231	Pistol Club Road (005) from Watchman Rd to Spillane Rd	Rural Category 4 Sheeted Good Material / Poor Drainage Reconstruction	$70,895	1167

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Projected 5 Year Capital Renewal Program - Unsealed Roads					
Year	*Surface ID*	*Segment Description*	*Treatment*	*Cost*	*Length (m)*
2024-25	3376	Port Lorne Road (040) from McArdle Rd to Dead Mans Hill Rd	Rural Category 3 Sheeted Good Material / Poor Drainage Resheet	$49,936	983
2024-25	2999	Pratt Road (015) from Bowillia Rd to Wandel Rd (near Blyth)	Rural Category 4 Sheeted Good Material / Poor Drainage Resheet	$38,983	877
2024-25	3312	Salter Springs Road (005) from Balaklava Rd to Neville Rd	Rural Category 3 Sheeted Good Material / Good Drainage Resheet	$89,389	2011
2024-25	3295	Sichem Road (005) from Traeger Rd to Dalkey Rd	Rural Category 4 Sheeted Fair Material / Good Drainage Resheet	$49,073	1104
2024-25	3298	Stone Reserve Road (005) from Balaklava Rd to Barker Rd	Rural Category 4 Sheeted Good Material / Poor Drainage Resheet	$27,337	861
2024-25	3186	Wanappe Road (045) from Stow Rd to OHara Rd	Rural Category 4 Sheeted Fair Material / Poor Drainage Reconstruction	$144,780	2413
2024-25	3259	Wanappe Road (050) from OHara Rd to Watchman Rd	Rural Category 4 Sheeted Fair Material / Poor Drainage Reconstruction	$108,150	2060
2024-25	3005	Wiltunga Road (005) from Western Council Boundary to Barunga Gap Rd	Rural Category 4 Sheeted Fair Material / Poor Drainage Resheet	$85,166	1916
2024-25	16281	Wokurna Road (060) from 400m East of Council Boundary to Council Boundary	Rural Category 1 Sheeted Good Material / Good Drainage Resheet	$22,568	434

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Projected 5 Year Capital Renewal Program - Sealed Roads					
Year	*Surface ID*	*Segment Description*	*Treatment*	*Cost*	*Length (m)*
2021-22	2797	Alma Road (025) from 1730m East of Alma South Rd to Eastern Council Boundary	Rural Spray Seal Non Standard Construction Major Rehabilitation	$217,911	1701
2021-22	2768	Blyth Road (020) from Bumbunga Rd to 500m East of Bumbunga Rd	Rural Spray Seal Non Standard Construction Major Rehabilitation	$61,552	481
2021-22	27129	Boronia Circuit (015) from No. 28 Boronia Cct to No. 31 Boronia Cct	Town Cat C Spray Seal Standard Construction Major Rehabilitation	$6,032	41
2021-22	27133	Christopher Street (015) from Start of Cul-de-sac to End	Town Cat C Spray Seal Cul-de-sac Standard Major Rehabilitation	$9,395	23
2021-22	8634	Francis Street (Lochiel) (LHS Parking Lane) (015.L) from Robert St to Joanna St	Town Cat C Spray Seal Parking Major Reseal	$2,663	128
2021-22	3532	Harley Street (LHS Parking Lane) (005.L) from South Tce to Guildford St	Town Cat C Spray Seal Parking Major Rehabilitation	$9,170	209
2021-22	29835	Harley Street (RHS Parking Lane) (005.R) from South Tce to Guildford St	Town Cat C Spray Seal Parking Major Rehabilitation	$9,170	209
2021-22	29837	Harley Street (RHS Parking Lane) (015.R) from Nth End Hotel to Wakefield St	Town Cat C Spray Seal Parking Major Reseal	$1,370	69
2021-22	27113	Honeysuckle Drive (015) from Start of Cul-de-sac to End	Town Cat C Spray Seal Cul-de-sac Standard Major Rehabilitation	$12,534	27
2021-22	3497	J.S. McEwin Terrace (005) from Harley St to House No. 6	Town Cat C Spray Seal Non-Standard Reconstruction	$17,511	52
2021-22	2776	Muanu Road (010) from 30m West of Boconnoc Park Rd (End of Hotmix Bitumen) to 1700m West of Boconnoc Park Rd	Rural Spray Seal Non Standard Construction Major Rehabilitation	$211,506	1651
2021-22	14647	North Terrace (RHS Parking Lane) (025.R) from Eleventh Terrace to East Tce	Town Cat C Spray Seal Parking Major Reseal	$4,148	167
2021-22	2771	Old Mallala Road (005) from South West Tce (Owen) to Gory Rd	Rural Spray Seal Poor Construction Minor Rehabilitation	$90,493	972
2021-22	3650	South Terrace West (005) from 10m West of Railway Terrace West to West Tce	Town Cat C Spray Seal Non-Standard Reconstruction	$57,373	135
2021-22	2803	Templeton Road (015) from Tiller Rd to 1094m Nth of Tiller Rd	Rural Spray Seal Standard Construction Preventative	$52,003	1109
2021-22	2846	Thornton Terrace (005) from Finch Rd (Pinery) to Melvin Tce (Pinery)	Rural Spray Seal Poor Construction Major Reseal	$26,060	506
2021-22	14627	Wharf Crescent (010) from Wharf Place to Start of Cul-de-sac	Town Cat C Spray Seal Poor Construction Minor Rehabilitation	$14,775	171
2021-22	3108	Wheat Road (015) from Augusta Hwy to Poutry Farm	Rural Hotmix Intersection/Short Section Reconstruction	$42,007	91
2022-23	2796	Alma Road (020) from Alma South Rd to 1730m East of Alma South Rd	Rural Spray Seal Non Standard Construction Major Rehabilitation	$221,882	1732
2022-23	3605	Edith Terrace (North) (005) from Howe St to Baker St	Town Cat C Spray Seal Non-Standard Reconstruction	$64,369	205
2022-23	3592	Edith Terrace (North) (010) from Baker St to Short Tce	Town Cat C Spray Seal Non-Standard Reconstruction	$70,592	225
2022-23	3588	Edith Terrace (South) (005) from Wallace St to Short Tce	Town Cat C Spray Seal Non-Standard Reconstruction	$137,035	436
2022-23	14788	Francis Street (Lochiel) (LHS Parking Lane) (005.L) from Smith St to Barr St	Town Cat C Spray Seal Parking Major Reseal	$4,107	198
2022-23	16359	Gilbert Street (LHS Parking Lane) (025.L) from Stormwater SEP to Hill St	Town Cat C Spray Seal Parking Minor Rehabilitation	$6,392	160
2022-23	15925	Gwy Terrace (LHS Parking Lane) (005.L2) from Railway Tce to George St	Town Cat C Spray Seal Parking Major Reseal	$3,573	86
2022-23	16450	Harley Street (LHS Parking Lane) (015.L) from Nth End Hotel to Wakefield St	Town Cat C Spray Seal Parking Major Reseal	$1,536	77
2022-23	8651	Humphry Street (015) from Wallace St to Edith Tce	Town Cat C Slurry Seal Non-Standard Major Reconstruction	$222,524	330
2022-23	2834	Main Street (Brinkworth) (005) from Condowie Plain Rd to Sturt Pea Rd	Rural Spray Seal Standard Construction Preventative	$15,935	317
2022-23	2777	Muanu Road (015) from 1700m West of Boconnoc Park Rd to Kybunga Top Rd	Rural Spray Seal Poor Construction Minor Rehabilitation	$140,665	1511
2022-23	3478	North Terrace (LHS Parking Lane) (020.L) from Railway Terrace East to Eleventh Tce	Town Cat C Spray Seal Parking Major Reseal	$3,434	138
2022-23	2779	Proof Range Road (005) from Port Wakefield Hwy to 1077m Sth Port Wakefield Hwy	Rural Spray Seal Standard Construction Preventative	$57,009	1064
2022-23	29991	Reinke Court (010) from Start of Cul-de-sac to End	Town Cat C Spray Seal Cul-de-sac Standard Major Rehabilitation	$12,701	29
2022-23	14928	Scotland Place (005) from Edith Tce to George St	Town Cat C Spray Seal Standard Construction Preventative	$1,785	44
2022-23	2793	Templeton Road (020) from 1094m Nth of Tiller Rd to Veitch Rd	Rural Spray Seal Standard Construction Preventative	$52,472	1119
2022-23	29996	Wray Road (003) from Owen Road to 20m South of Owen Rd	Rural Spray Seal Intersection/Short Section Major Rehabilitation	$9,084	22
2022-23	3700	Wray Road (005) from 20m South of Owen Rd to 20m North of Pinery Rd	Rural Spray Seal Poor Construction Major Reseal	$18,135	299
2023-24	2788	Blyth Road (070) from Old Boundary Rd to 1525m West of Dobie Rd	Rural Spray Seal Standard Construction Preventative	$72,456	1545
2023-24	2787	Blyth Road (075) from 1525m West of Dobie Rd to Dobie Rd	Rural Spray Seal Poor Construction Major Reseal	$88,283	1520
2023-24	14440	Company Street (025) from Edward St to North St	Town Cat C Spray Seal Non-Standard Reconstruction	$65,217	126
2023-24	3565	Drake Crescent (005) from Kindergarten to Burra St West	Town Cat C Spray Seal Standard Construction Major Reseal	$3,570	37
2023-24	3699	Dunn Road (005) from Traeger Rd to Edith Tce (Balaklava)	Rural Spray Seal Poor Construction Minor Rehabilitation	$236,995	2227
2023-24	3600	East Terrace (Balaklava) (020) from Harris St to Roberts Ave	Town Cat B Spray Seal Standard Construction Preventative	$7,665	114
2023-24	3604	Edgar Street (005) from East Tce to Railway Reserve	Town Cat B Spray Seal Non-Standard Construction Major Rehabilitation	$14,893	125
2023-24	8865	Eime Drive (005) from J.S. McEwin Tce to End	Town Cat C Spray Seal Non-Standard Reconstruction	$80,923	240
2023-24	3482	Francis Street (Lochiel) (LHS Parking Lane) (010.L) from Barr St to Robert St	Town Cat C Spray Seal Parking Major Reseal	$4,007	193
2023-24	16470	Harley Street (LHS Parking Lane) (020.L) from Wakefield St to J.S. McEwin Tce	Town Cat C Spray Seal Parking Minor Rehabilitation	$4,696	118
2023-24	29838	Harley Street (RHS Parking Lane) (020.R) from Wakefield St to J.S. McEwin Tce	Town Cat C Spray Seal Parking Minor Rehabilitation	$4,457	112
2023-24	15651	Light Street (North) (010) from Gilbert St to Barry St	Town Cat B Spray Seal Non-Standard Construction Major Rehabilitation	$55,811	235

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Projected 5 Year Capital Renewal Program - Sealed Roads					
Year	*Surface ID*	*Segment Description*	*Treatment*	*Cost*	*Length (m)*
2023-24	3697	Light Street (South) (005) from Gilbert St to Barry St	Town Cat B Spray Seal Non-Standard Construction Major Rehabilitation	$54,788	230
2023-24	3511	Manley Street (005) from Whitwarta Rd to Oval Entrance	Town Cat C Spray Seal Standard Construction Preventative	$3,546	76
2023-24	2778	Proof Range Road (010) from 1077m Sth Port Wakefield Hwy to 2414m Sth Port Wakefield Hwy	Rural Spray Seal Standard Construction Preventative	$71,620	1336
2023-24	2780	Proof Range Road (015) from 2414m Sth Port Wakefield Hwy to 3868m Sth Port Wakefield Hwy	Rural Spray Seal Standard Construction Preventative	$77,977	1455
2023-24	2781	Proof Range Road (020) from 3868m Sth Port Wakefield Hwy to Proof Range Entrance	Rural Spray Seal Standard Construction Preventative	$84,817	1582
2023-24	2805	Templeton Road (025) from Veitch Rd to 1300m Nth of Veitch Rd	Rural Spray Seal Standard Construction Preventative	$61,195	1305
2023-24	2807	Templeton Road (035) from 2600m Nth of Veitch Rd to 3573m Nth of Veitch Rd	Rural Spray Seal Standard Construction Preventative	$49,230	980
2023-24	15658	Wedding Road (010) from Traeger Rd to 60m Nth of Traeger Rd	Rural Spray Seal Poor Construction Major Reseal	$3,463	60
2024-25	2789	Blyth Road (065) from Cook Rd to Old Boundary Rd	Rural Spray Seal Poor Construction Major Reseal	$59,059	1017
2024-25	14770	Edgar Street (010) from Railway Reserve to Main St	Town Cat B Spray Seal Non-Standard Construction Major Rehabilitation	$17,623	64
2024-25	16362	Gilbert Street (LHS Parking Lane) (030.L) from Hill St to Archer St	Town Cat C Spray Seal Parking Major Reseal	$2,239	90
2024-25	29832	Gilbert Street (RHS Parking Lane) (030.R) from Hill St to Archer St	Town Cat C Spray Seal Parking Major Reseal	$2,375	95
2024-25	3547	Harley Street (LHS Parking Lane) (010.L) from Guildford St to Nth End Hotel	Town Cat C Spray Seal Parking Major Reseal	$586	29
2024-25	29836	Harley Street (RHS Parking Lane) (010.R) from Guildford St to Nth End Hotel	Town Cat C Spray Seal Parking Major Reseal	$593	30
2024-25	2804	Koolunga Road (015) from End K/wt to Mallee Corner Rd	Rural Spray Seal Non Standard Construction Major Rehabilitation	$162,828	1271
2024-25	2808	Koolunga Road (020) from Mallee Corner Rd to 1945m Nth of Mallee Corner Rd	Rural Spray Seal Non Standard Construction Major Rehabilitation	$249,206	1945
2024-25	2838	Ninnes Road (005) from Lochiel to Ottens Track	Rural Spray Seal Poor Construction Major Reseal	$108,147	1861
2024-25	2839	Ninnes Road (010) from 190m S of Ottens Track to Linton Rd	Rural Spray Seal Poor Construction Minor Rehabilitation	$192,317	2066
2024-25	2833	Pinery Road (030) from 2600m SW of Woods Rd to Traeger Rd	Rural Spray Seal Standard Construction Preventative	$51,411	1181
2024-25	3479	Railway Terrace (Owen) (LHS Parking Lane) (025.L) from Second St to North West Tce	Town Cat C Spray Seal Parking Major Reseal	$5,408	109
2024-25	27193	Railway Terrace East (012) from High St to Third St	Town Cat B Spray Seal Non-Standard Construction Major Rehabilitation	$39,727	128
2024-25	2806	Templeton Road (030) from 1300m Nth of Veitch Rd to 2600m Nth of Veitch Rd	Rural Spray Seal Standard Construction Preventative	$65,652	1307
2024-25	3722	West Street (005) from Wharf Cres to Mine St	Town Cat C Spray Seal Standard Construction Major Rehabilitation	$24,390	190
2024-25	2991	Wokurna Road (025) from Atkinson Farmhouse to West End of Seal	Rural Spray Seal Poor Construction Major Reseal	$21,619	372
2025-26	2795	Alma Road (015) from Almond Tree Rd to Alma South Rd	Rural Spray Seal Non Standard Construction Reconstruction	$629,606	2003
2025-26	15661	Almond Tree Road (010) from End of Seal to Alma Rd	Rural Spray Seal Poor Construction Major Reseal	$5,647	97
2025-26	15663	Barunga Homestead Road (005) from Barunga Gap Rd to North Side of Rail Corridor	Rural Hotmix Intersection / Short Section Standard Construction Plane and Reinstate	$37,033	78
2025-26	2843	Blyth Road (055) from Hancock Rd to Glen Rd	Rural Spray Seal Standard Construction Major Reseal	$89,032	1532
2025-26	2791	Blyth Road (060) from Glen Rd to Cook Rd	Rural Spray Seal Standard Construction Preventative	$73,821	1574
2025-26	15035	Blyth Road (090) from Magpie Creek Rd to Bowillia Rd	Rural Spray Seal Standard Construction Preventative	$71,935	1534
2025-26	15036	Blyth Road (095) from Bowillia Rd to Blyth Plains Rd	Rural Spray Seal Standard Construction Major Reseal	$106,085	1826
2025-26	14920	Dunn Road (010) from Edith Tce (Balaklava) to Balaklava Rd	Rural Spray Seal Standard Construction Preventative	$43,462	927
2025-26	3507	John Street (Balaklava) (005) from Werocata Rd to War Memorial Dve	Town Cat B Spray Seal Standard Construction Minor Rehabilitation	$54,870	458
2025-26	27196	Magpie Creek Road (005) from Condowie Plain Rd to 140m S of Condowie Plains Rd	Rural Spray Seal Poor Construction Major Reseal	$8,395	145
2025-26	14924	Pinery Road (005) from North West Tce (Owen) to Wray Rd	Rural Spray Seal Standard Construction Preventative	$10,060	224
2025-26	14953	Pinery Road (015) from Water Tank Rd to Woods Rd	Rural Spray Seal Standard Construction Preventative	$57,952	1331
2025-26	2851	Pinery Road (020) from Woods Rd to 1450m SW of Woods Rd	Rural Spray Seal Standard Construction Preventative	$63,330	1454
2025-26	2842	Pinery Road (025) from 1450m SW of Woods Rd to 2600m SW of Woods Rd	Rural Spray Seal Standard Construction Major Reseal	$62,113	1151
2025-26	3626	Railway Terrace (Hamley Bridge) (005) from Barry St to Railway Station	Town Cat B Spray Seal Non-Standard Construction Major Rehabilitation	$13,720	71
2025-26	14371	Templeton Road (040) from 3573m Nth of Veitch Rd to Rifle Range Rd	Rural Spray Seal Standard Construction Preventative	$25,688	511
2025-26	16523	Wakefield Street (Blyth) (010) from School to Burney St	Town Cat C Spray Seal Standard Construction Preventative	$1,246	29
2025-26	14605	Wokurna Road (015) from East End of Seal to West End of Seal	Rural Spray Seal Poor Construction Minor Rehabilitation	$31,701	341
2025-26	14415	Yackandanda Road (020) from 100m Sth Kite Rd to 300m Sth Kite Rd	Rural Spray Seal Poor Construction Major Reseal	$11,783	203

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Projected 5 Year Capital Renewal Program - Footpath and Kerb & Watertable						
Year	*ID*	*Segment Description*	*Asset Type*	*Cost*	*Length (m)*	*RSM Year*
2022-23	FP-0544005-RHS	Railway Terrace (Hamley Bridge) (005) from Barry St to Railway Station	Spray Seal Footpath Surface	$3,825.54	64	
2025-26	FP-0544005-LHS	Railway Terrace (Hamley Bridge) (005) from Barry St to Railway Station	Spray Seal Footpath Surface	$3,488.70	73	
2021-22	K-0031005-LHS	August Street (005) from South Tce to Moore St	Upright Kerb & Watertable (Post 1996 Pavement Construction)	$15,639.43	106	2026
2021-22	K-0031015-LHS	August Street (015) from Guilford St to Wakefield St	Upright Kerb & Watertable (Post 1996 Pavement Construction)	$17,405.00	118	2027
2021-22	K-0158010-LHS	Copper Street (South) (010) from Dead End to Mine St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$21,882.06	137	
2021-22	K-0158010-RHS	Copper Street (South) (010) from Dead End to Mine St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$21,885.26	137	
2021-22	K-0191005-RHS	East Terrace (Balaklava) (005) from Edith Tce to Kelly St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$41,322.83	258	2025
2021-22	K-0228005-RHS	Francis Street (Balaklava) (005) from Edith Tce to Phillips St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$58,664.67	367	2026
2021-22	K-0239010-LHS	George Street (Balaklava) (010) from Civic Centre to Scotland St	Upright Kerb & Watertable (Post 1996 Pavement Construction)	$8,997.50	61	2031
2021-22	K-0285005-RHS	Harris Street (005) from Wallace St to Short Tce	Upright Kerb & Watertable (Post 1996 Pavement Construction)	$25,694.50	174	2028
2021-22	K-0415025-RHS	Main Street (Brinkworth) (025) from Boucaut St to Junction St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$22,093.24	138	2026
2021-22	K-0687010-RHS	Walter Street (010) from Florence St to Malcolm St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$21,213.35	133	2033
2021-22	K-0688010-LHS	Walters Street (010) from Edward St to Burra St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$22,784.35	142	2026
2023-24	K-0163005-LHS	Cross Street (Balaklava) (005) from Ralli St to John St	Upright Kerb & Watertable (Post 1996 Pavement Construction)	$17,815.05	121	
2023-24	K-0221005-RHS	Florence Street (Hamley Bridge) (005) from Stockport Rd to Bowen St	Upright Kerb & Watertable (Post 1996 Pavement Construction)	$66,242.25	449	2028
2023-24	K-0228005-LHS	Francis Street (Balaklava) (005) from Edith Tce to Phillips St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$58,667.87	367	2026
2023-24	K-0243020-LHS	Gilbert Street (020) from Light St to Stormwater SEP	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$10,697.86	67	
2023-24	K-0243020-RHS	Gilbert Street (020) from Light St to Stormwater SEP	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$10,702.66	67	
2023-24	K-0545020-LHS	Railway Terrace (Owen) (020) from Main St to Second St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$20,493.44	128	
2023-24	K-0546015-LHS	Railway Terrace East (015) from Third St to Second St	Upright Kerb & Watertable (Post 1996 Pavement Construction)	$17,857.82	121	2029
2023-24	K-0546016-LHS	Railway Terrace East (016) from Second St to First St	Upright Kerb & Watertable (Post 1996 Pavement Construction)	$17,818.00	121	2029
2023-24	K-0677005-LHS	Verco Street (005) from Humphry St to May Tce	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$29,804.27	186	
2023-24	K-0677005-RHS	Verco Street (005) from Humphry St to May Tce	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$29,804.27	186	
2023-24	K-0717005-RHS	Whitwarta Road (005) from Railway Tce to Werocata Rd	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$66,794.85	418	2027
2023-24	K-0717010-LHS	Whitwarta Road (010) from Werocata Rd to Hudson Rd	Upright Kerb & Watertable (Post 1996 Pavement Construction)	$9,466.55	64	2025
2024-25	K-0031005-RHS	August Street (005) from South Tce to Moore St	Upright Kerb & Watertable (Post 1996 Pavement Construction)	$15,635.00	106	2026
2024-25	K-0031010-RHS	August Street (010) from Moore St to Guilford St	Upright Kerb & Watertable (Post 1996 Pavement Construction)	$16,667.50	113	2027
2024-25	K-0031015-RHS	August Street (015) from Guilford St to Wakefield St	Upright Kerb & Watertable (Post 1996 Pavement Construction)	$17,405.00	118	2027
2024-25	K-0116005-RHS	Burra Street (East) (005) from East St to Thomas Crs	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$35,115.61	220	2033
2024-25	K-0117005-LHS	Burra Street (West) (005) from Drake Crs to Walters St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$10,939.43	68	2028
2024-25	K-0117005-RHS	Burra Street (West) (005) from Drake Crs to Walters St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$10,942.63	68	2028
2024-25	K-0152025-LHS	Company Street (025) from Edward St to North St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$22,864.34	143	2023
2024-25	K-0152025-RHS	Company Street (025) from Edward St to North St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$22,861.14	143	2023
2024-25	K-0187005-LHS	Drake Crescent (005) from Kindergarten to Burra St West	Upright Kerb & Watertable (Post 1996 Pavement Construction)	$6,571.12	45	2026
2024-25	K-0190005-RHS	East Street (005) from Cul-de-sac to Port Wakefield Highway	Rollover Kerb & Watertable (Pre 1996 Pavement Construction)	$7,263.09	45	2030
2024-25	K-0190015-RHS	East Street (015) from Burra Street (East) to Gibbon St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$46,298.21	289	2032
2024-25	K-0415030-RHS	Main Street (Brinkworth) (030) from Junction St to Clare St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$21,917.26	137	2033
2024-25	K-0479025-RHS	North Terrace (025) from Eleventh Terrace to East Tce	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$30,620.17	191	
2024-25	K-0681005-RHS	Wakefield Street (Port Wakefield) (005) from Edward St to Bowling Club	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$12,478.44	78	2032
2024-25	K-0688010-RHS	Walters Street (010) from Edward St to Burra St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$22,781.15	142	2026
2024-25	K-0688015-LHS	Walters Street (015) from Burra St to Mine St	Upright Kerb & Watertable (Pre 1996 Pavement Construction)	$22,291.61	139	2026

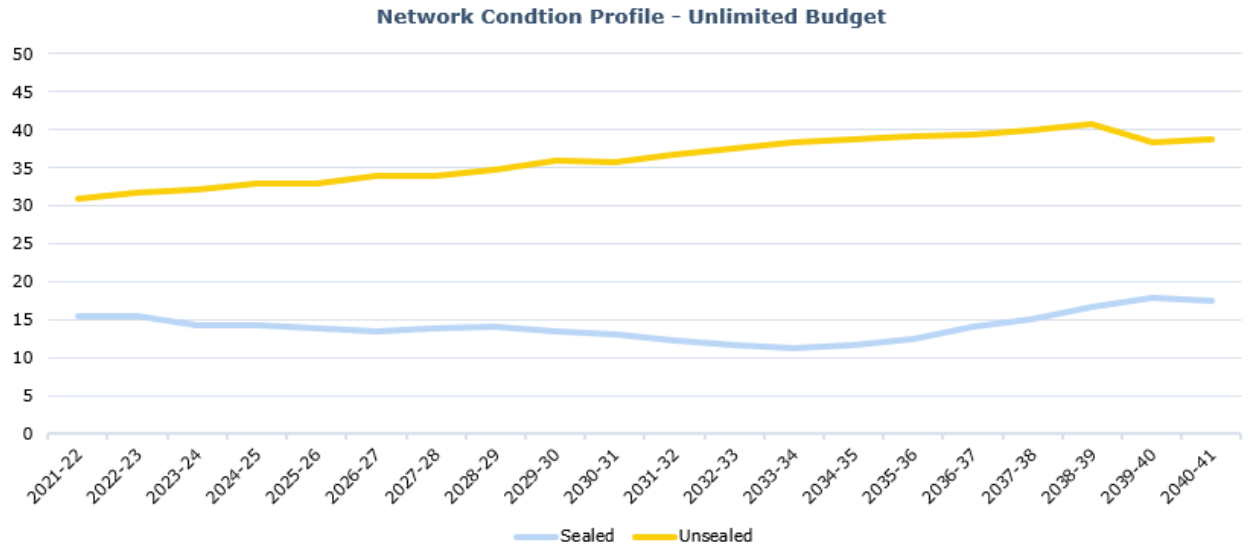
Appendix B 20 Year Road Modelling Summary

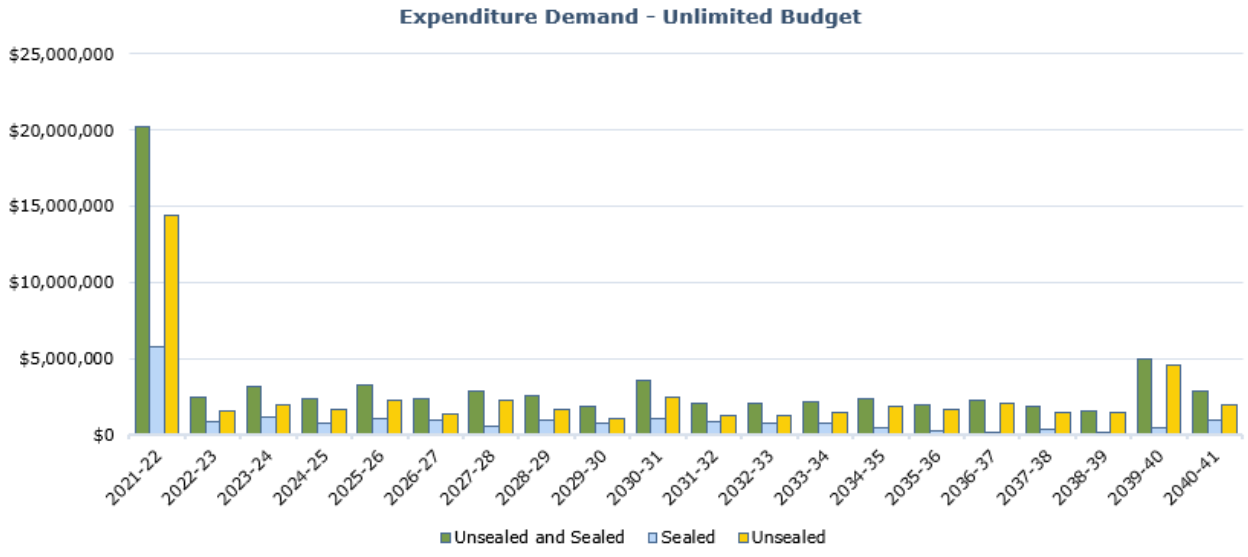
Road Surface Manager (RSM) was used to determine the demand for road renewal for sealed, rehabilitation and reconstruction for sealed roads and resheeting and reconstruction for unsealed roads. Treatment interventions were set for various surface types and standard deterioration curve developed to suit assumed modelling life's, also for each surface type.

Unlimited Budget Scenario

The unlimited budget scenario was established to determine the level of funding demanded by the network. The model predicts the network condition after each years spending and estimates changes to average network condition across the network.

As shown in the charts below the demand for funding is very high for the first year then it reverts to expenditure well below annual depreciation. Over the first 10 years of the plan the demand for expenditure is $1.37M/annum for sealed roads and $3.07M/annum for unsealed roads in order to remove the backlog on the basis in year1 $20.2M is injected into the network. Thereafter for the remaining 10 years the demand for funding reduces to $512K/annum for sealed roads and $1.89M/annum for unsealed roads.





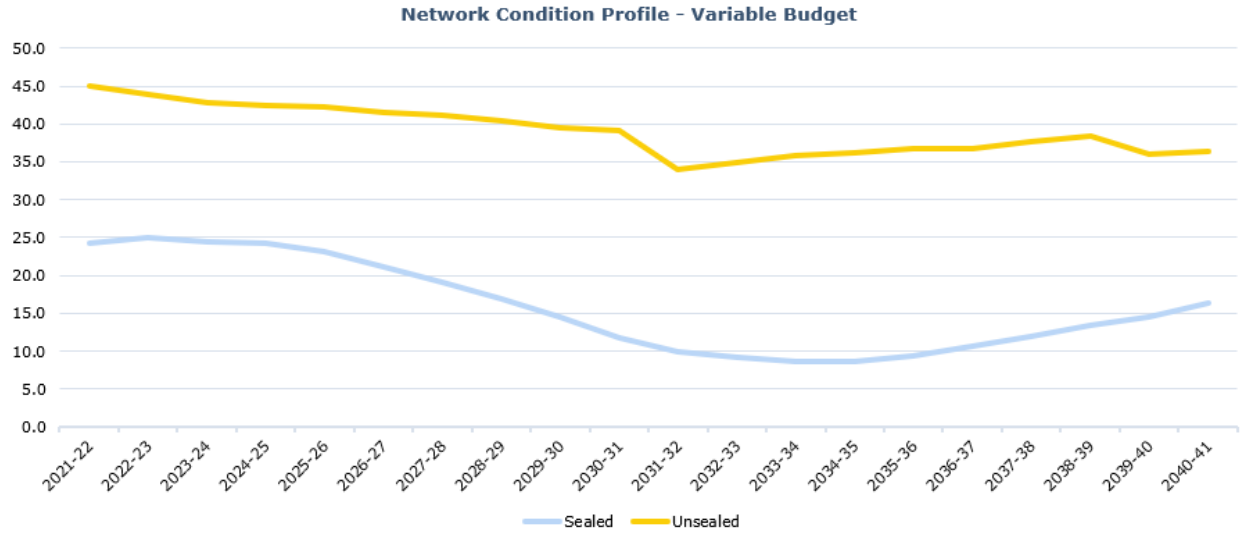
Budgeted Scenario

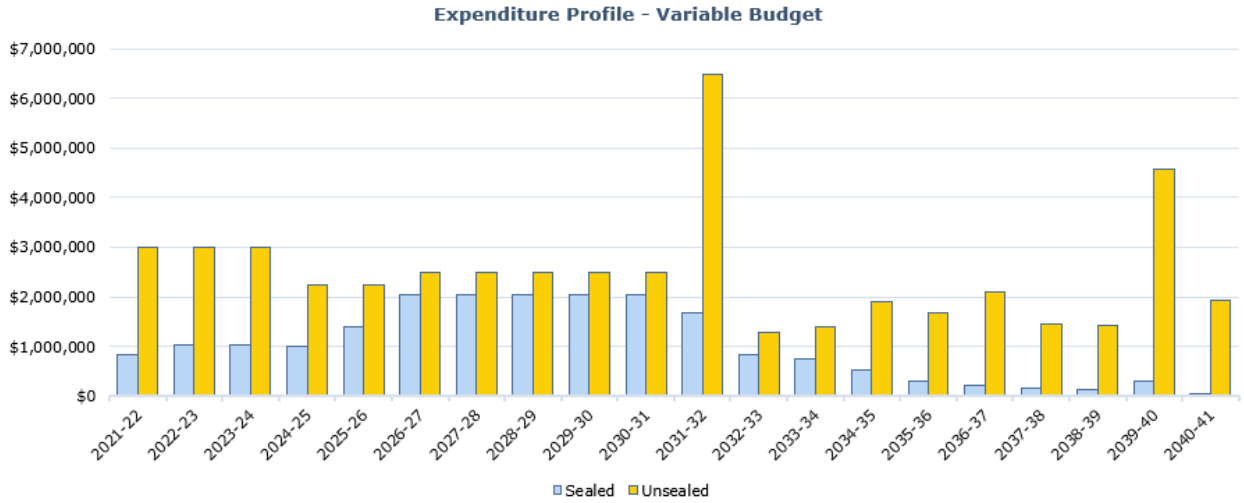
The model was rerun for a variable fixed budget linked to the long-term financial plan for the first 10 years and thereafter an unlimited budget was allocated.

For the sealed roads a budget of $845k in year 1 was allocated, increasing to between $1M and $1.4M/annum from year 2-5 and then just over $2M/annum for years 6-10. For the remainder of the model beyond 10 years the demand for funding reduced to average $498k/annum until year 20.

The model was also run for unsealed roads over 20 years with the budget used for the long term financial plan (see Table 6) starting with $3M/annum for years 1-3, $2.25M/annum for years 4-5 and then $2.5M/annum for years 6-10. For the remainder of the model beyond 10 years the demand for funding reduced to average $2.42M/annum until year 20.

As shown in the charts below, when compared to the unlimited funding scenario the seal network condition will converge into a range of conditions over time that aligned with the unlimited budget which is meeting service level requirements. For the unsealed network after 10 years the network will not be meeting service levels with the condition only reaching 39.1 as opposed to 35.6 for the unlimited budget. However, if increased funding is sustained beyond 10 years the network condition converges in 2032-33 to match the unlimited budget. This suggests the unsealed backlog will be carried over 2 years beyond the 10 year planning period.




Expenditure Profile - Variable Budget
$7,000,000
$6,000,000
$5,000,000
$4,000,000
$3,000,000
$2,000,000
$1,000,000
$0
2021-22
2022-23
2023-24
2024-25
2025-26
2026-27
2027-28
2028-29
2029-30
2030-31
2031-32
2032-33
2033-34
2034-35
2035-36
2036-37
2037-38
2038-39
2039-40
2040-41
Sealed
Unsealed

For the 10 year planning period the total demand for sealed expenditure is $15.6M with funding averaged at $1.557M/annum. The demand for unsealed roads is $30.7M however only $25.95M is allocated in the LTFP. Accordingly, there is a funding gap of $4.75M.

The table below shows the gradual reduction in roads that are currently in backlog. For sealed road there is no backlog after 10 years, however for unsealed roads 37Km of the existing backlog will not be treated, and with the reduced funding additional unsealed roads will fall into back log progressively over the next 10 years and estimated to have a backlog of $4.75M after 10 years.

		10 Year Plan (Length (m) of Road treated in Backlog)												
Network	**Scenario**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**2030-31**	**After 10 year period**	**Total (m)**	**Total (m)**
Sealed	Variable Budget	7,741	5,224	3,414	5,665	2,533	4,403	2,632	2,641	1,672	-	-	35,924	337,314
Unsealed	Variable Budget	57,164	63,057	36,847	24,848	7,065	23,239	4,344	19,972	26,455	1,434	36,965	301,390	
Sealed	Unlimited	35,535	389	-	-	-	-	-	-	-	-	0	35,924	337,314
Unsealed	Unlimited	287,004	10,584	3,802	-	-	-	-	-	-	-	0	301,390	