

# Infrastructure Asset Management Plan

2022/23 - 2031/32

Transport



District Council of  
**Mount Remarkable**

## Document History and Status

Rev	Description	Author	Reviewed	Approved	Date
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Client: District Council of Mount Remarkable

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# 1 Executive Summary

The District Council of Mount Remarkable (Council) has worked on the development of this Asset Management Plan based on an asset register updated as of 1/7/2021. The purpose of this Asset Management Plan is to provide a clear strategy in relation to the maintenance, renewal and upgrade of Council’s transport network.

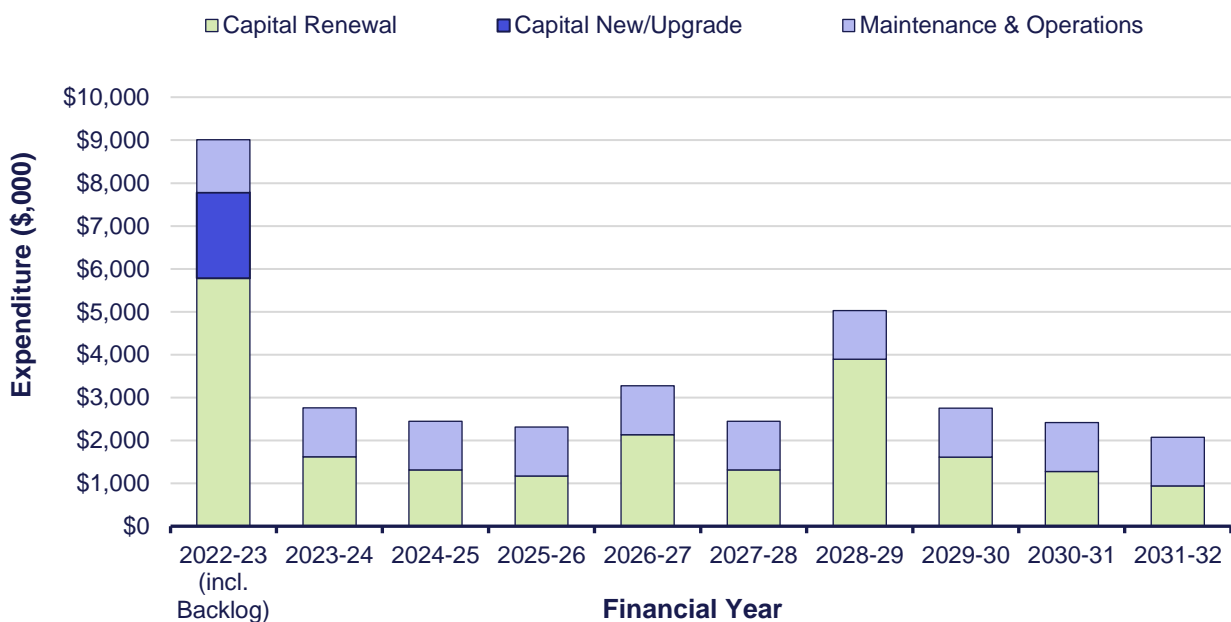
The transport network comprises of:

- Sealed Roads
- Unsealed Roads
- Kerbing
- Footpath
- Cross Drains
- Floodways
- Bridges

In 2021, Council undertook a condition assessment and asset validation audit of all assets within this Plan. Council’s asset register was updated following the audit. An estimated replacement cost has been calculated for each asset for planning purposes. As of the 1 July 2021, the transport assets within this Plan have an estimated replacement cost of \$96,316,945.

This plan outlines the estimated expenditure required from Council to maintain its transport assets to the prescribed service levels. The expenditure demand for operational and maintenance, renewal and upgrade is shown in the figure below. The strategies and methodology to predict the expenditure demands are described within this Plan.

## Projected Capital, Operations & Maintenance Expenditure



As shown in the graph above, there is a significant expenditure demand in Year 1 (2022-2023) totalling \$8.9M. This is comprised of an estimated \$5.0M of transport assets that were due for renewal prior to 2022-2023 (backlog) and an additional \$2M for the capital upgrade of Appila-Tarcowie Road Bridge subject to further investigation. The forecasted expenditures in the graph shown above does not take into consideration increases such as Consumer Price Index (CPI) or Building Price Index (BPI) for future years. It also does not cover additional costs for ongoing deterioration of some assets (such as road surface and pavement) and the increased scope of work to restore service levels should the appropriate intervention point be missed.

This Plan is intended to inform the development of the Long-Term Financial Plan to provide an estimated expenditure requirement to achieve the level of service outlined within this Plan. The final budget allocations for Council's Annual Business Plan is subject to further Council decision.

## 2 Introduction

### 2.1 Context

This Transport Asset Management Plan (Plan) has been developed through a comprehensive review of the previous Plan adopted in October 2015.

This Plan has been developed following a comprehensive review of the following information:

- Updated asset registers as of 1 July 2021 with inclusion of capital renewals and upgrades undertaken by Council during the financial year 2020/2021.
- Updated replacement costs based on industry recognised unit rates and Council tender contracts from 1 July 2018 to 1 July 2021. The updated replacement costs are only for planning purposes and a formal valuation has not been undertaken.
- The expenditure modelling for this Plan has taken into consideration the condition assessment audits undertaken in 2021 for all transport assets; including unsealed roads (Cat 1 to 3), sealed roads, kerbs, footpaths, cross drains, floodways and bridges. The condition data was used to calculate the remaining life based on the service levels for each asset class further described within this Plan.

**Table 2.1 Summary of Transport Assets**

Asset Type		Quantity	Unit	Replacement Cost
Sealed Road	Rural Standard Spray Seal	83.3	km	\$7,983,672
	Rural Hotmix Road	0.06	km	\$52,634
	Township Spray Seal	41.7	km	\$2,587,928
	Township Hotmix	4.3	km	\$1,958,426
	Township Concrete	0.06	km	\$10,174
	Sealed Road Pavement	129.4	km	\$24,050,887
Unsealed Road	Sheeted Road – Category 1	101.8	km	\$3,053,455
	Sheeted Road – Category 2	236.1	km	\$6,376,919
	Sheeted Road – Category 3	593.8	km	\$13,360,543
	Form Graded – Category 4	521.9	km	Non-Valued
	Township Sheeted Road	23.2	km	\$696,607
Footpath	Block Paved	3.0	km	\$532,139
	Unsealed Surface	32.7	km	\$1,002,563
	Hotmix Bitumen	1.8	km	\$127,833
	In-situ Concrete	3.0	km	\$1,308,152
	Natural	1.4	km	\$0
	Spray Seal	4.3	km	\$215,515
	Rail Trails	39.3	km	\$873,153



Asset Type		Quantity	Unit	Replacement Cost
	Pram Ramps	106	unit	\$238,000
Drainage	Cross Drains	415	unit	\$6,123,348
	Floodways	124	unit	\$6,276,557
Kerb	Kerb	44.6	km	\$12,267,099
Bridges	Bridges	19	unit	\$7,221,341

## 2.2 Background

The District Council of Mount Remarkable is located approximately 180 km north of Adelaide and covers an area of 3,424 square kilometres. It has a population of 2,864 (ABS 2016) with several townships such as Appila, Booleroo Centre, Hammond, Melrose, Murray Town, Port Germein, Weeroona Island, Willowie, Wilmington and Wirrabara.

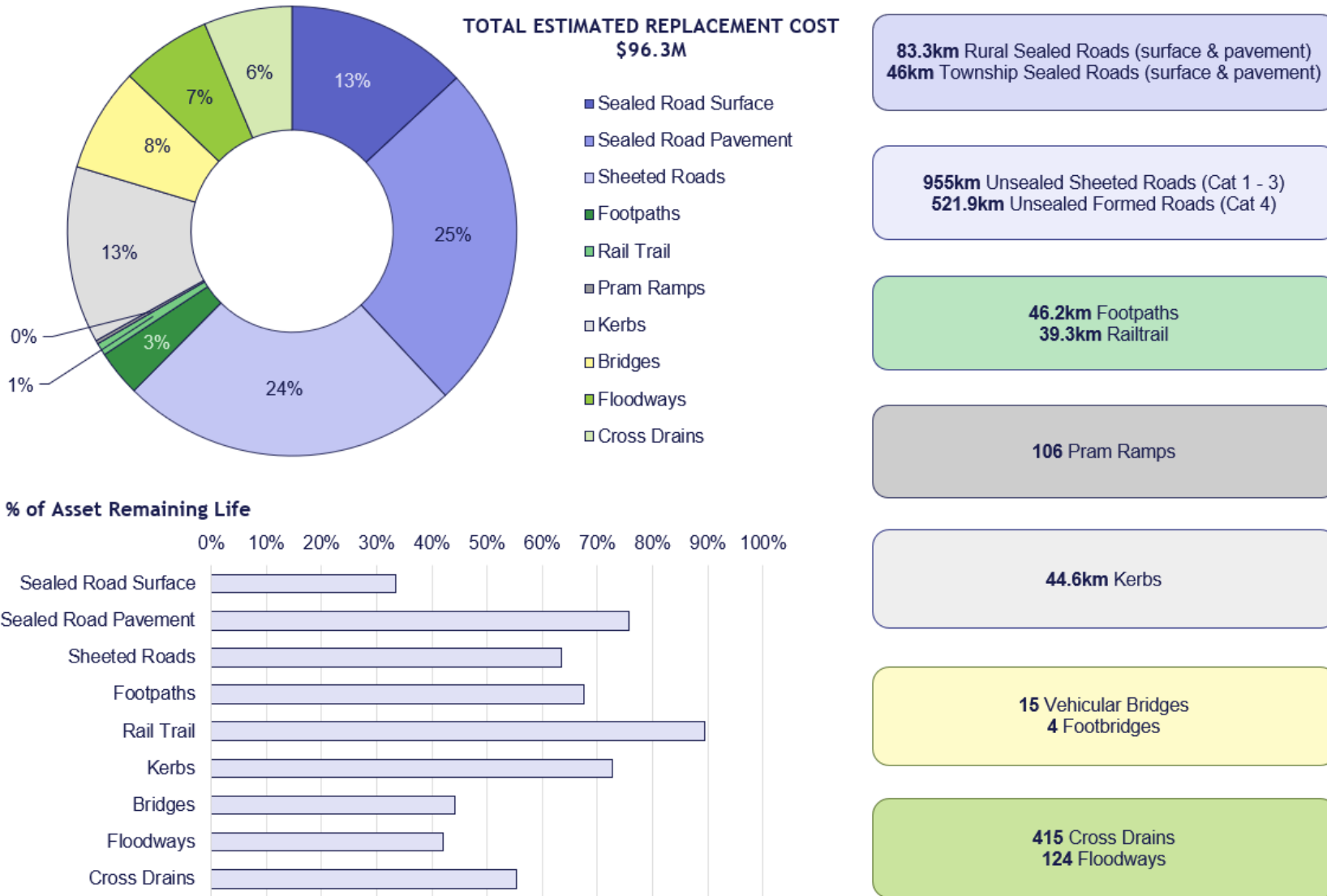
The transport assets provide a safe and efficient road and footpath network for residents and visitors to the region. Council aims to provide this service in the most cost-effective manner whilst still maintaining service levels required by the community and legislative requirements.

The primary commerce in the region is the production of food/agricultural commodities such as grazing, cropping, mixed farming, horticulture and forestry. These activities have seasonal impacts to the road network including surface wear rates, vegetation canopy and road safety corridor widths. Tourism is also a factor impacting on this plan due to the historical significance of the region attracting visitors.

The road network includes unsealed surfaces, sealed surfaces including the underlying pavement, kerbing, footpath, pram ramps, cross drain, bridge, and floodway assets. An overview of the estimated replacement cost for Transport infrastructure assets are shown Figure 2.1. It must be noted that this overview is not based on a formal valuation, however the basis may be used to inform future valuations.

Figure 2.1 Distribution of Transport Assets by Estimated Replacement Cost

### Transport Infrastructure



## 2.3 Plan Framework

This transport infrastructure asset management plan is based on the fundamental structure of the IPWEA NAMS 3 Asset Management for Small, Rural or Remote Communities template and has been simplified to minimise the content to suit Council's requirements.

Council provides services for the community in part through the provision of infrastructure assets. Council have acquired these assets directly through construction by Council staff or contractors and by donation of assets constructed by developers and others over time.

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:

- 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
- Future demand– how this will impact on future service delivery and how this is to be met
- Levels of service – specifies the services and levels of service to be provided by Council
- Plan improvement and monitoring – how the plan will be monitored to ensure it is meeting the organisation's objectives.

This asset management plan is prepared under the direction of Council's vision which is:

This is a remarkable community to be a part of; a remarkable place to live, and a remarkable place to work or be in business. We're a 'can do' Council and what we do, we strive to do remarkably well.

### Our Mission

- To enhance a sense of community.
- To develop vibrant, sustainable townships that our people feel proud of and connected to and that visitors want to explore.
- To provide quality services across all of our community.
- To advocate for the protection of our environment and heritage.
- To facilitate opportunities for the economic, social and cultural benefit of our community.
- To perform regulatory functions with diligence, care and consideration.
- To demonstrate sound leadership and work with our community to meet their expectations whilst operating in a financially responsible manner.

## Our Values

### **Be Remarkable**

Unique doesn't cut it. Remarkable is in our name, in our hearts and in our destiny.

### **Take Others on the Journey**

It takes a collective effort; we know we can't do it alone. We work with our stakeholders to build prosperity.

### **Engage, Listen, Act**

Within the boundaries of good public governance we 'have a go'.

### **Innovate**

Forward-thinking, we balance aspiration with responsibility in our considerations, priorities and decision making.

### **Adapt**

Change is behind us, upon us and ahead of us. We are receptive and adaptable.

### **Be Open and Transparent**

Through good governance and transparency, we hold the trust of our community.

### **Take Pride and Be Proud**

We take pride in what we do. We are proud of our past and optimistic about our future

# 3 Life Cycle Management

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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

Council's Transport assets are in both rural areas and townships within the Council and the assets covered by this asset management plan are shown in Figure 2.1.

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

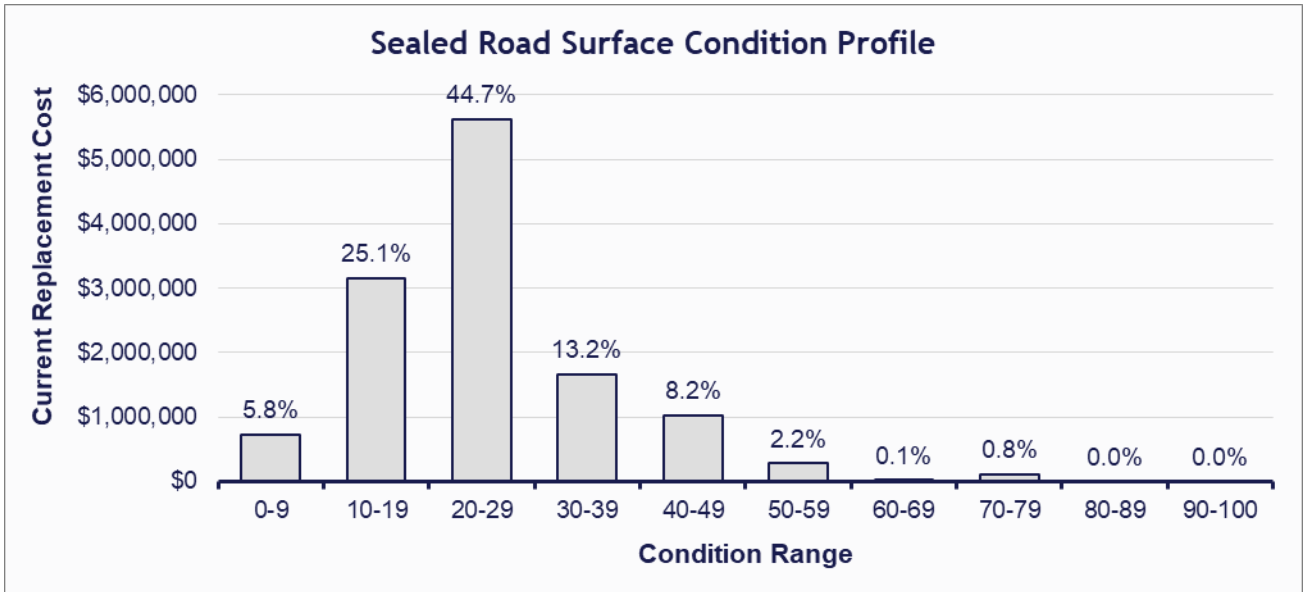
The renewal program has been develop based on the expiry date calculated from the most recent condition assessment and standard life. For the purposes of the plan, the funding demand is determined based on the calculated replacement cost for majority of assets (excluding Bridges and Footpaths – see Section 3.3.2 Capital Renewal). The replacement cost and service levels for assets have been outlined in 5.3 Construction, Renewal and Maintenance Standards. The condition profiles of all transport assets have been based on the 2021 condition audit. All profiles are shown by Current Replacement Cost (CRC) in the following figures.

Table 3.1 below includes the condition range and corresponding condition description for the purposes of interpreting the condition profiles for the transport asset. Various asset characteristics and defects were assessed to determine the overall condition score for these asset classes. The condition assessment methodology is outlined in Section 3.1.2 Asset Condition.

**Table 3.1 Condition Rating Descriptions (Sealed, Unsealed, Kerb, Footpath, Bridges)**

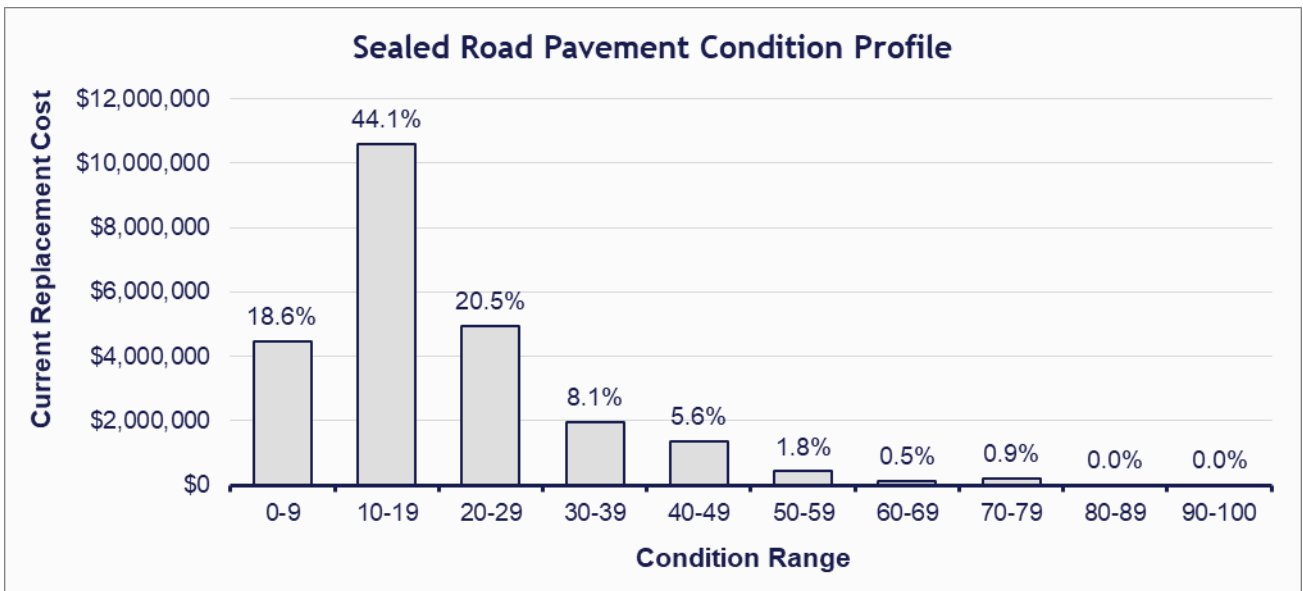
Condition Range	Description
0	As New
1-20	Very Good
21-40	Good
41-60	Fair
61-80	Poor
81-100	Very Poor

Figure 3.1 Summary Sealed Road Surface Condition Profile



As shown in Figure 3.1 above, 75.6% of the sealed road surface has a condition score less than 30 indicating that the road surface is in good condition. However, a condition score of greater than 32 is the first intervention point to undertake surface treatment works for high use roads. As the condition score progressively worsens, it is expected that additional preparation works will be required to restore the road to the meet the service levels.

Figure 3.2 Summary Sealed Road Pavement Condition Profile

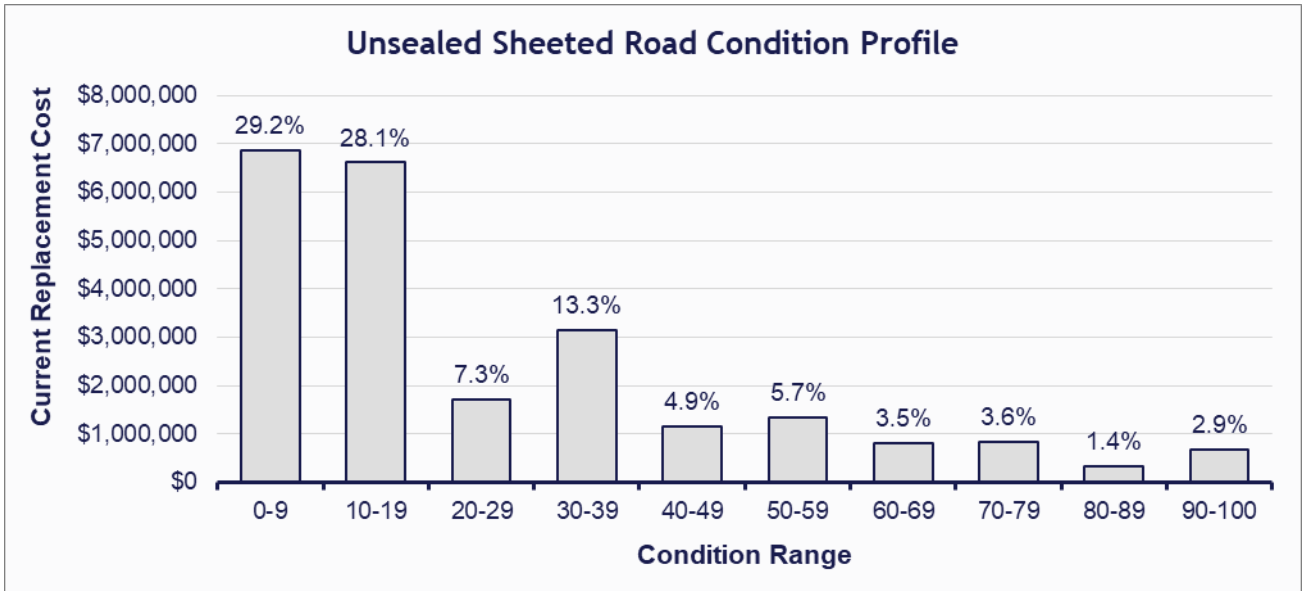


As shown in

Figure 3.2 above, 91.2% of all rural and township sealed road pavement assets have a condition score of less than 40, 7.4% in between 40 and 59 and the remaining 1.4% greater or equal to 60. The defined condition range at which sealed road pavement reach their end of life is 80. Generally, it is expected

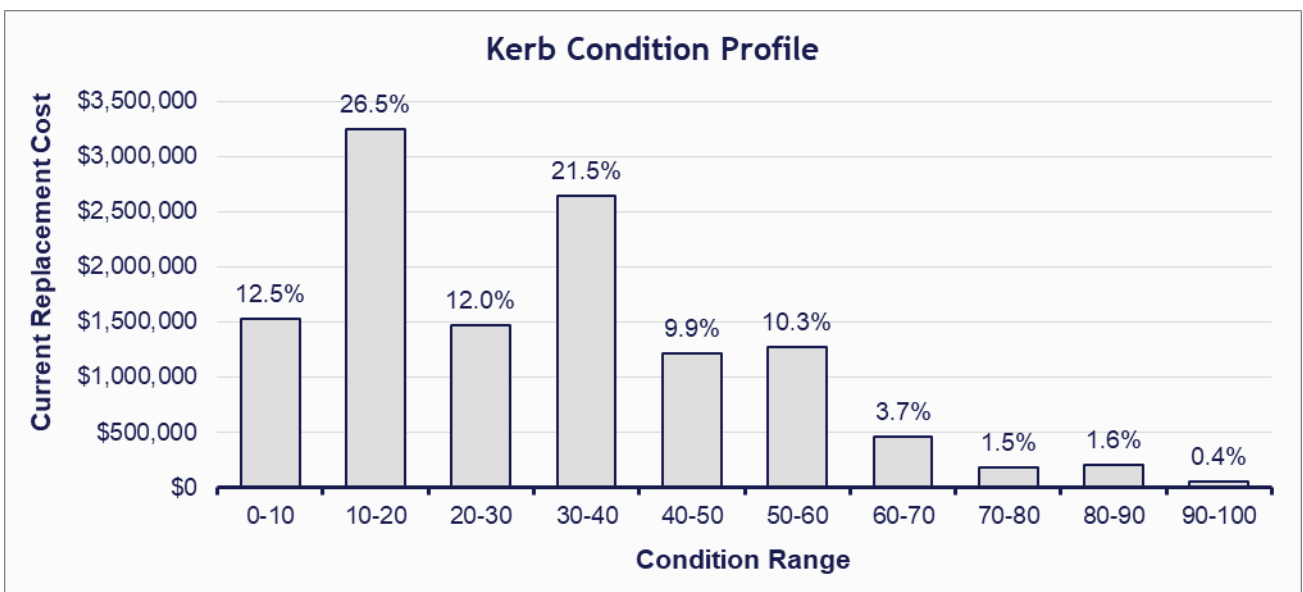
pavements between 41 and 60 require pavement maintenance, whereby pavements exceeding 60 in condition score require major works (rehabilitation or reconstruction).

Figure 3.3 Summary Unsealed Sheeted Road Condition Profile



As shown in Figure 3.3 above, 78% of unsealed sheeted roads have a condition score of less than 40, 10.7% between 40 and 59 and the remaining 11.3% greater than 59. The defined condition range at which sheeted road surfaces reach their end of life is between 65 to 70 respectively. As demonstrated in Figure 3.3, a portion of the network exceeds 70 in condition score and hence indicates a backlog of sheeted road surfaces due for renewal which will be discussed further in this Plan.

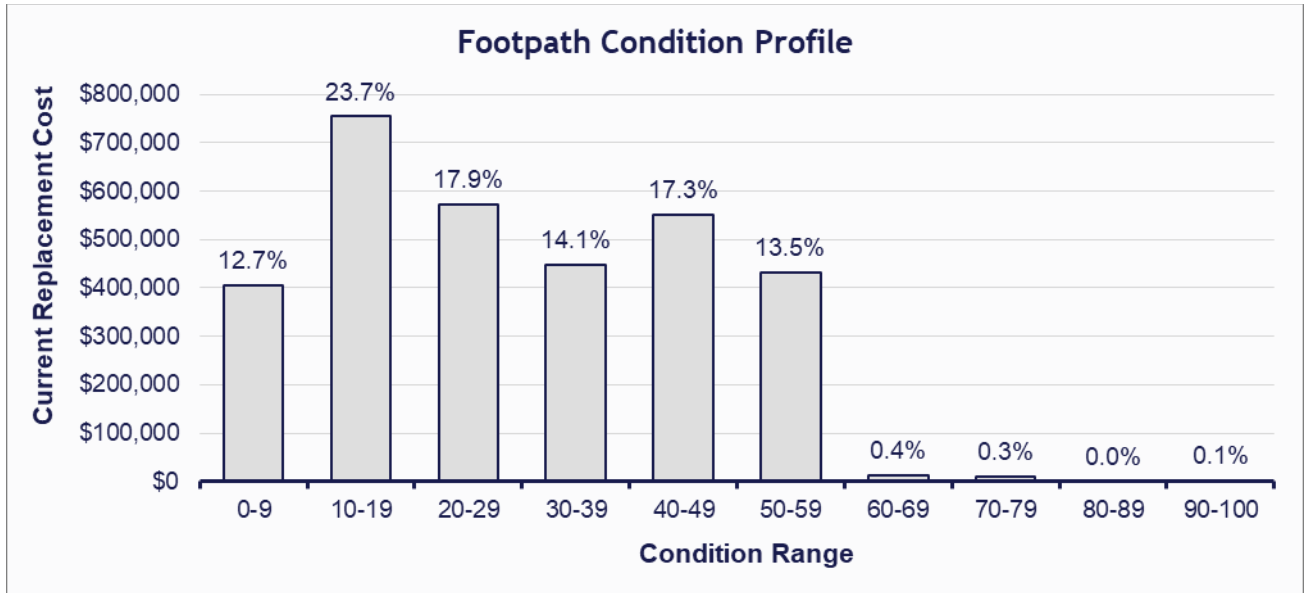
Figure 3.4 Summary Kerb Condition Profile



As shown in Figure 3.4, 72.5% of kerb assets have a condition score less than 40, 24% between 40 and 59 and the remaining 7.3% above 59. The defined condition score at which kerb assets reach their end of life is

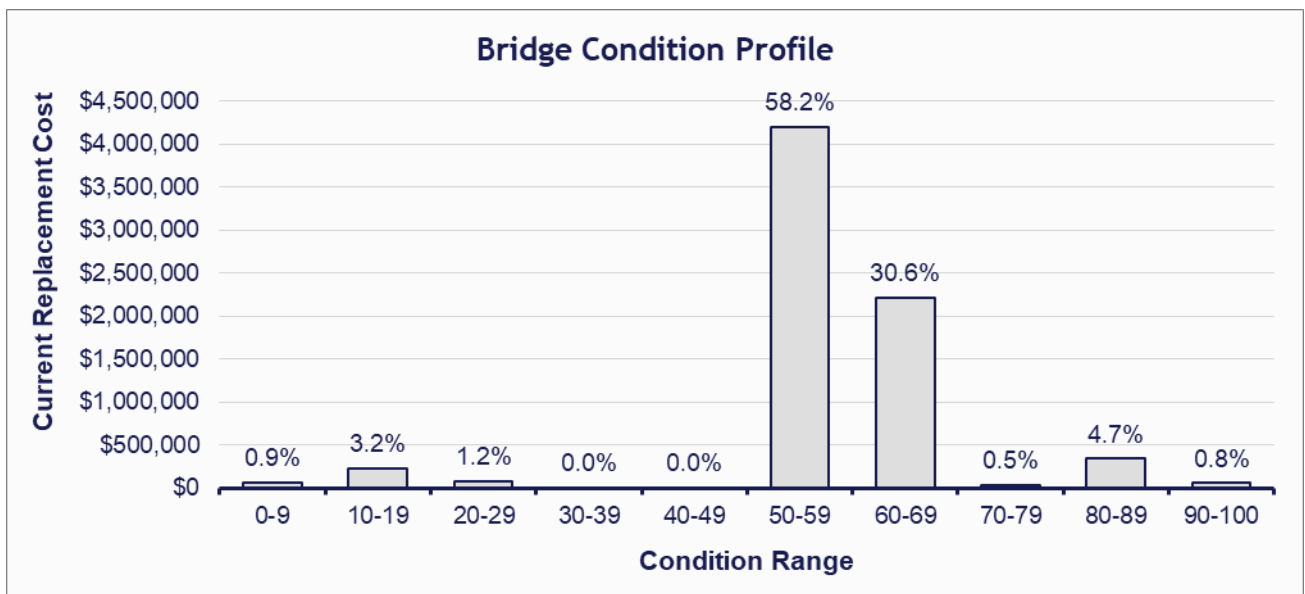
100 for total replacement, however kerb patching is generally undertaken by Council to maintain the condition of the kerb assets at a functional level. This is discussed further within this Plan.

Figure 3.5 Summary Footpath Condition Profile



As shown in Figure 3.5, 68.4% of footpath assets have a condition of less than 40, 30.8% between 40 and 59 and remaining 0.8% above 59. The defined condition score at which footpath assets reach their end of life is between 80 and 100. However, the condition profile does not take into consideration the compliance with the Disability Discrimination Act 1992 (DDA) which is a main driver to the renewal of footpaths. This is discussed further within this Plan.

Figure 3.6 Summary Bridges Condition Profile

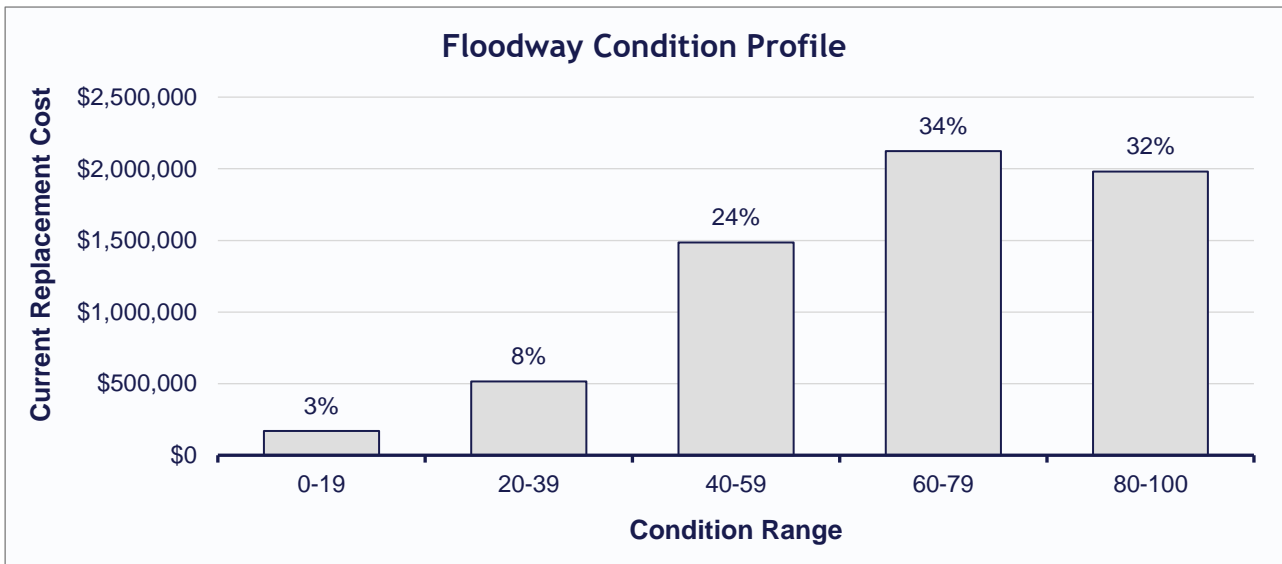


As shown in Figure 3.6, 5.2% of bridge assets have a condition score of less than 40, 58.2% between 40 and 59 and the remaining 36.6% greater than 59. There are a total of 19 bridges that are Council owned and



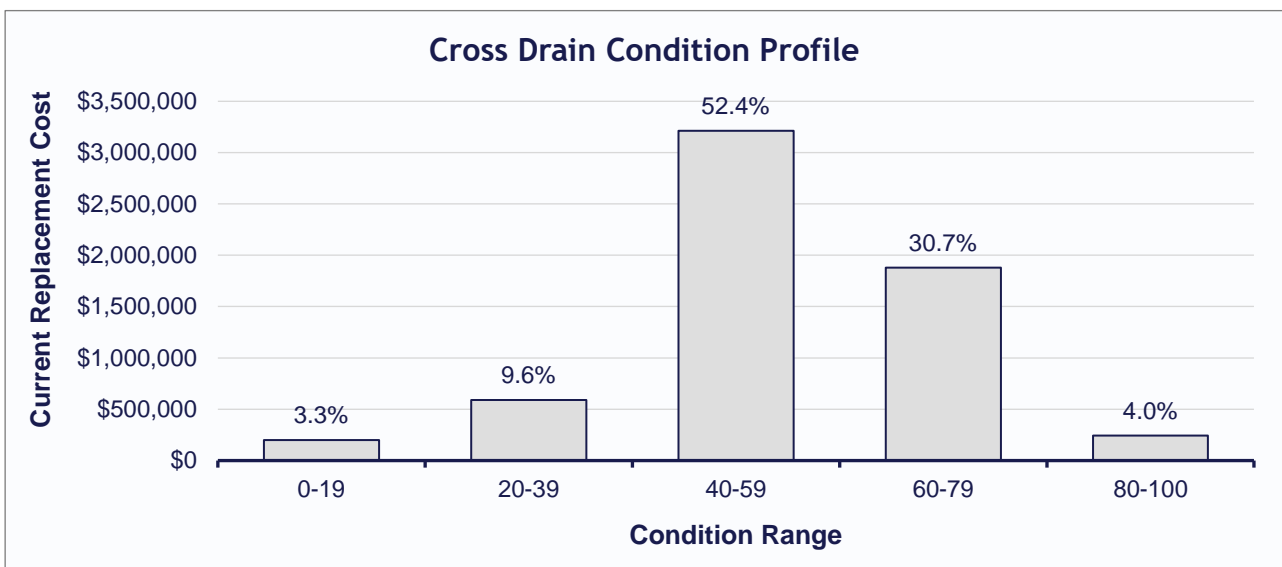
maintained. As part of the condition assessment undertaken in 2021, individual bridges were componentised (i.e. decking, structure, barrier etc.) given the varying replacement cost of components associated with bridges.

**Figure 3.7 Summary Floodways Condition Profile**



As shown in Figure 3.7, 32% of floodways have a condition score of greater than 80 indicating the replacement of the floodway is required.

**Figure 3.8 Summary Cross Drains Condition Profile**



As shown in Figure 3.8, 4% of cross drains have a condition score of greater than 80 indicating the replacement of the cross drain is required. However, it was noted during the 2021 condition audit that the majority of cross drains contain blockages caused by build up of debris. This is not reflected in the condition rating but should be considered as a maintenance requirement.



### 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 the following sub-sections.

#### Roads (Unsealed and Sealed)

**Table 3.2 Known Service Performance Deficiencies**

Location	Service Deficiency
Unsealed Roads	Backlog of \$2.15M of sheeted roads due for renewal as of 2022-2023 as shown in 3.3.2 Capital Renewal
Unsealed Roads	The road category assigned to the unsealed road network may not reflect the actual traffic volumes and vehicle types. Various unsealed roads may be functioning above or below the assigned level of service. Further refinement of Council unsealed road categories to be undertaken to ensure category is appropriate to usage.
Patrol Grading	Current funding is insufficient to undertake maintenance in accordance with service level outlined in 5.3 Construction, Renewal and Maintenance Standards. A projected annual maintenance/operational allowance of \$495K has been included in this plan to account for this service deficiency and as further described in Section 3.3.1 Routine Operations/Maintenance
Sealed Roads	Backlog of \$1.88M of sealed roads due for renewal as of 2022-2023 as shown in 3.3.2 Capital Renewal. This does not take into account the additional pavement preparation works that may be required to restore the service standard. It is assumed that this will be undertaken under maintenance as described in Section 3.3.1 Routine Operations/Maintenance
Sealed Road Maintenance	No sealed road maintenance budget allocated resulting in pavement issues throughout the sealed road network. A projected annual maintenance/operational allowance of \$100K has been included in this plan to account for this service deficiency and as further described in Section 3.3.1 Routine Operations/Maintenance
Footpaths	Gradual upgrade of footpaths within township to DDA (Disability Discrimination Act) compliance design standards – formal DDA compliance inspection has not been undertaken. A projected annual capital allowance of \$50K has been included in this plan to account for this service deficiency and as further described in Section 3.3.2 Capital Renewal
Kerbing	Immediate kerb patching required due to extensive damaged picked up as part of the 2021 condition assessment. Estimated cost to repair damages is \$69,300 and is included in Year 1 of the renewal program as described in Section 3.3.2 Capital Renewal.
Pram Ramps	Approximately 25% of Pram Ramps are considered to be non-compliant as assessed in 2021 condition inspection. Pram Ramps will be upgraded at the time of footpath renewal in accordance with DDA compliant standards where possible.

## Floodways & Cross Drains

**Table 3.3 Known Service Performance Deficiencies - Floodways and Cross Drains**

Location	Service Deficiency
Rural Road Drainage	Insufficient cross drains on unsealed roads where there are long lengths of table drain with no outlet resulting in stormwater scour in drains and roads. This is to be further inspected and appropriate locations are to be nominated for installation of new cross drains.
Township Drainage	Significant amount of overland flow path for stormwater is directed through private properties in the form of informal channels. Requires redirection or additional drainage for Council's Road network. This has not been accounted for in this current version of the Plan, however, has been included in the Improvement Plan Section 6.
Cross Drains	No maintenance of cross drains such as clearance of blockages. Significant number of cross drains blocked as of 2021 condition inspection. A projected annual maintenance/operational allowance of \$40K has been included in this plan to account for this service deficiency and as further described in Section 3.3.1 Routine Operations/Maintenance
Floodways	No delegated funding for upgrade or renewal of floodways resulting in a backlog of \$400K of floodways due for renewal as of 2022-2023 as shown in 3.3.2 Capital Renewal

## Bridges

Based on the Level 2 Bridge Condition Assessment undertaken in 2021, Council has the following observable capacity/performance issues identified for further consideration.

**Table 3.4 Known Service Performance Deficiencies**

Location	Service Deficiency
Bridge Barrier/Guardrails	Several bridge barriers are non-compliant with current design standards or are in poor condition – Refer to Table 3.5. This has been accounted for in Year 1 of the capital renewal plan, see Section 3.3.2 Capital Renewal
Structural Integrity	Vehicular Bridges require additional assessments such as Load Limit Assessment and Level 3 Structural Assessment to confirm capable of servicing current usage in a safe manner – Refer to Table 3.6. This is currently being undertaken.
General Maintenance and Renewal	Bridges have been identified to have multiple defects as of 2021 Bridge Inspection and require maintenance to prolong life of asset. A projected maintenance/operational allowance of \$150K has been included in Year 1 of this plan to account for this service deficiency and an annual allowance of \$50K thereafter to continue to maintain the bridge network. This is further described in Section 3.3.1 Routine Operations/Maintenance.  Refer to Table 3.16 for breakdown of maintenance items assessed as part of the 2021 condition assessment.

### Bridge Barrier/Guardrails

Several bridges have been identified as having poor condition bridge barriers that requires renewal and upgrade to meet current standards. A summary of the bridges that require a barrier upgrade within the 10-year plan is shown in Table 3.5 with an estimated cost of renewal.

**Table 3.5 Bridges Requiring Barrier/Guard Rail Upgrade**

Bridge Name	Treatment	Estimated Cost (\$)
Forest Road Bridge 1	Barrier Upgrade	\$100,000
Forest Road Bridge 2	Barrier Upgrade	\$75,000
Appila-Tarcowie Road Bridge	Barrier Upgrade	\$150,000
Wilmington Bridge	Barrier Upgrade	\$75,000
<b>Total (Barrier Upgrade)</b>		<b>\$400,000</b>



Figure 3.9 Forest Road Bridge 1 - Barrier



Figure 3.10 Forest Road Bridge 2



Figure 3.11 Appila Tarcowie Road Bridge



Figure 3.12 Wilmington Bridge

## Load Limit & Structural Assessment of Bridges

As part of the condition assessment, it was identified that several vehicular bridges may be providing a service outside of its known design constraints. It was noted that transportation configurations have changed which include vehicles of Higher Mass Limits (HML), Restricted Access Vehicles (RAVs - B-Doubles/road trains) and farming implements which are greater in dimension. These factors need inclusion in any consideration for bridge use and access to protect the structural integrity of each structure. The required investigation and the associated bridge are outlined in Table 3.6. The investigations have been scheduled to be completed in 2021/2022, such that future iterations of this Plan will include the cost associated with the investigation results.

**Table 3.6 Bridges Requiring Investigation**

Bridge Name	Treatment
Port Germein Road Bridge	Level 3 Structural Assessment
Forest Road Bridge 1	Load Limit Assessment
Appila-Tarcowie Road Bridge	Level 3 Structural Assessment, Condition Assessment Monitoring



Figure 3.13 Port Germein Bridge



Figure 3.14 Appila-Tarcowie Road Bridge



Figure 3.15 Forest Road Bridge 1



Figure 3.16 Forest Road Bridge 1

## General Bridge Maintenance

As part of the Level 2 Bridge condition assessment undertaken in 2021, the following minor bridge maintenance was identified as shown in Table 3.7. The estimated cost have been used to inform Year 1 of the maintenance and operational projected expenditure for 2022-2023.

**Table 3.7 Bridges Requiring Maintenance**

Bridge Name	Maintenance Treatment	Estimated Cost (\$)
Forest Road Bridge 1	Removal of existing rust on girder and undertake rust proofing treatment	\$12,000
Seaman Road Bridge	Fill and overlay cracking on concrete abutment with epoxy or concrete	\$5,000
Melrose Swing Bridge	Replacement of nuts and bolts from decking and joints	\$500
Reserve/ Centenary Park	Removal of existing rust and undertake rust proofing treatment	\$5,000
Reserve/ Beautiful Valley Park	Removal of existing rust and undertake rust proofing treatment	\$5,000
Old Stirling North Road Bridge 1	Fill and treat void minor avoid between wingwall and concrete abutment	\$3,000
Old Stirling North Road Bridge 2	Removal of existing rust along exposed reinforcement on underside of bridge, undertake rust proofing and overlay	\$5,000
Old Stirling North Road Bridge 3	Cover exposed reinforcement on outlet/inlet of concrete pipe	\$5,000
Old Stirling North Road Bridge 4	Repair dislodged stones from bridge (stone bridge)	\$10,000
Old Stirling North Road Bridge 6	Repair dislodged stones from bridge (stone bridge)	\$20,000
Old Stirling North Road Bridge 7	Repair dislodged stones from bridge (stone bridge)	\$25,000
Old Stirling North Road Bridge 8	Repair dislodged stones from bridge (stone bridge)	\$25,000
Wilmington Road Bridge	Replacement of Signage	\$500
	<b>Total</b>	<b>\$121,000</b>

### 3.1.2 Asset Condition

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 asset types is described below.

#### Sealed Roads

Sealed roads are inspected at a segment level, several defects are recorded and given a score between 0 and 100 based on their severity and extent of damage. The defects recorded vary depending on the type of surface, additional defects are collected to assess the underlying pavement and the construction date of the pavement is also included as a factor. The defects collected for sealed roads are shown below in Table 3.8.

**Table 3.8 Sealed Road Defects**

Sealed Road Defects	
Surface Score	<ul style="list-style-type: none"> <li>▪ Binder age</li> <li>▪ Aggregate</li> <li>▪ Flushing</li> <li>▪ Stripping</li> <li>▪ Ravelling (for hotmix bitumen)</li> </ul>
Deformation	<ul style="list-style-type: none"> <li>▪ Environmental deformation</li> <li>▪ Rutting (load induced deformation)</li> </ul>
Patching	<ul style="list-style-type: none"> <li>▪ Severity and extent of patches</li> </ul>
Cracking	<ul style="list-style-type: none"> <li>▪ Environmental cracking</li> <li>▪ Rutting (load induced deformation)</li> </ul>
Shape	<ul style="list-style-type: none"> <li>▪ Crossfall %</li> </ul>
Edge defects	<ul style="list-style-type: none"> <li>▪ Edge break and/or drop off, extent of patching</li> </ul>
Age	<ul style="list-style-type: none"> <li>▪ Pavement assets only</li> </ul>

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

#### Unsealed Road

Unsealed sheeted are inspected at a segment level, several defects are recorded and given a score between 0 and 100 based on their severity and extent of damage, the defects collected for sheeted roads are shown in Table 3.9.



**Table 3.9 Unsealed Road Defects**

Unsealed Road Defects	
Surface Score	<ul style="list-style-type: none"> <li>▪ Sheeting condition (sheeting material and extend of subgrade exposed)</li> </ul>
Shape	<ul style="list-style-type: none"> <li>▪ Crossfall %</li> </ul>
Rideability	<ul style="list-style-type: none"> <li>▪ Ride at posted speed limit</li> </ul>
Surface Defects	<ul style="list-style-type: none"> <li>▪ Severity/extent of corrugations, potholes, rutting, scour, loose material and soft surface</li> </ul>
Drainage	<ul style="list-style-type: none"> <li>▪ Impact in wet conditions</li> </ul>
Vegetation Canopy	<ul style="list-style-type: none"> <li>▪ Extent and clearance width</li> </ul>

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

### Footpaths

Footpath assets are inspected at a segment level for both left and right sides, several defects are recorded and given a score between 0 and 100 based on their severity and extent of damage and are dependent on the footpath surface, the defects collected for footpaths are shown in Table 3.10.

**Table 3.10 Footpath Defects**

Footpath Defects (by type)	
Spray Seal or Hotmix Bitumen	<ul style="list-style-type: none"> <li>▪ Cracking</li> <li>▪ Ravelling/Stripping</li> <li>▪ Services</li> <li>▪ Shape (crossfall %)</li> <li>▪ Displacement</li> </ul>
Concrete	<ul style="list-style-type: none"> <li>▪ Cracking</li> <li>▪ Fretting</li> <li>▪ Surface Wear</li> <li>▪ Services</li> <li>▪ Shape (crossfall %)</li> <li>▪ Displacement</li> </ul>
Paved	<ul style="list-style-type: none"> <li>▪ Gaps / Chips</li> <li>▪ Surface Wear</li> <li>▪ Services</li> <li>▪ Shape (crossfall %)</li> <li>▪ Displacement</li> </ul>
Gravel or Crusher Dust	<ul style="list-style-type: none"> <li>▪ Extent of cover, ground exposed, top up requirements (maintenance requirements)</li> </ul>

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

## Kerbs

Kerbing assets are inspected at a segment level for both left and right sides, several defects are recorded and give a score out of 100 based on their severity and extent of damage, the defects collected for kerbs are shown in Table 3.11.

**Table 3.11 Kerb Defects**

Kerb Defects	
Deterioration	<ul style="list-style-type: none"> <li>▪ Cracking</li> </ul>
Performance	<ul style="list-style-type: none"> <li>▪ Drainage</li> <li>▪ Vertical Displacement</li> </ul>
Patching	<ul style="list-style-type: none"> <li>▪ Extent of patching required (m)</li> </ul>

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

## Cross Drains and Floodways

Footpath assets are inspected at an individual component level with a single overall score based on a 0 (as new) to 100 (fully consumed) rating.

**Table 3.12 Cross Drain and Floodway Condition Scores**

Cross Drain and Floodway Condition Rating	
0	As new
1	Very Good - well maintained, no defects, no work required
2	Good - showing minor wear and deterioration - minor work only, replacement not likely in next 10 years
3	Fair - showing significant wear - maintenance required, replacement of most asset in 5-10 years
4	Poor - replacement of most asset in 2-5 years
5	Very Poor - immediate replacement required

## Bridges

The Austroads publication, Guidelines for Bridge Management – Structure Information AP-R252 was used as a guide to conduct the condition rating of the bridges. For each bridge component the percentage of the component in each condition rating (1 – 4) was recorded according to the condition shown below in Table 3.13.

**Table 3.13 Bridge Condition Scores**

Bridge Condition Rating	
1 – As Built	The bridge component is in good condition with little or no deterioration
2 – Good	The bridge component shows minor deterioration. Minor surface defects with no loss of serviceability.
3 – Fair	The bridge component shows advancing deterioration. Minor loss of section but insufficient to affect serviceability.
4 - Poor	The bridge component shows advanced deterioration. Structural assessment is warranted to ascertain impact on serviceability and strength.

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

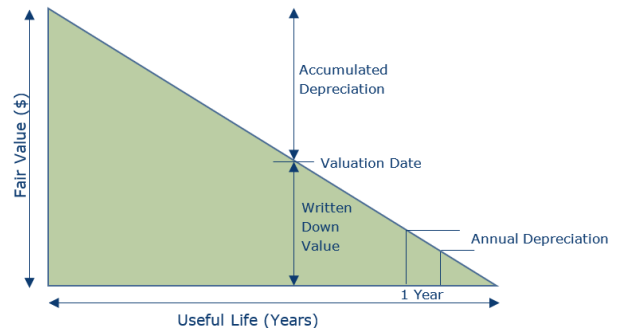
### 3.1.3 Asset Replacement Cost Estimates

The estimated replacement cost of all transport assets covered within this Plan as of 1 July 2021 is shown in Table 3.14. It must be noted that this is an estimated replacement cost and is not based on a formal valuation.

**Table 3.14 Transport Replacement Cost Summary at 1 July 2021**

Category	Estimated Replacement Cost	Estimated Carrying Amount	Estimated Annual Depreciation
Sealed Road Surface	\$12,592,834	\$4,221,973	\$592,123
Sealed Road Pavement	\$24,050,887	\$18,213,198	\$300,430
Sheeted Roads	\$23,487,523	\$14,909,645	\$954,164
Footpaths	\$3,186,202	\$2,149,074	\$74,114
Rail Trail	\$873,153	\$781,495	\$17,451
Pram Ramps	\$238,000	\$238,000	\$7,928
Kerbs	\$12,267,099	\$8,905,490	\$175,124
Floodways	\$6,276,557	\$2,632,073	\$83,285
Cross Drains	\$6,123,348	\$3,390,811	\$86,807
Bridges	\$7,221,341	\$3,187,826	\$106,875
<b>Total</b>	<b>\$96,316,944</b>	<b>\$58,629,585</b>	<b>\$2,398,301</b>

The estimated current rate of consumption (estimated annual depreciation/estimated replacement cost) for transport assets is estimated to be 2.5%. This indicates that on average, over the life of an asset, 2.5% of the replacement cost is consumed annually. The translation of this consumption rate into renewals is subject to a decision on funding, service level determination and asset condition.



## 3.2 Risk Management

An assessment of risks associated with service delivery for transport assets have been undertaken by Council. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

Risks assessed as being 'Extreme' and 'High' - will be identified with associated costs in future revisions of the plan. Table 3.15 is a summary of these risks.

### 3.2.1 Roads

Table 3.15 Risk Treatment Plan Summary

Service or Asset at Risk	What can Happen	Risk Rating (Ex,H,M,L)	Risk Treatment Plan
Sheeted roads	Flood damage resulting in a higher deterioration rate of road condition and hence higher cost to Council maintain service level	M	Early identification of damage and lodging claim to disaster fund
Sealed roads	Defects such as potholes resulting in personal injury and traffic accidents	M	Develop annual maintenance budget to address major defects
Kerb	Ponding of water within water table due to poor condition of kerb	L	Annual maintenance budget for kerb
Cross drains	Flooding of roadway or adjacent properties due to blockage	M	Develop annual maintenance schedule and budget to address blockages
Floodways	Vehicles attempt to cross when water depth and velocity too high	H	Install and upgrade signage and depth gauges on floodways – review high risk locations
Footpaths	Injury to pedestrians due to no footpath connectivity in high use locations (i.e. schools, shopping centres)	M	Maintain footpath linkages in between high use areas
Transport infrastructure in poor condition	Potential injury to public and future funding deficiency	H	Undertake routine condition assessment of transport infrastructure to allow for informed forward planning

### 3.2.2 Bridges

A condition assessment was undertaken in 2021 to determine the overall condition of the bridge infrastructure assets that highlighted defects for remediation works or further investigation. This assessment was used to support Council's capital renewal plan. Several bridges were identified to be in very poor condition and recommended for additional structural investigations (Level 3).

An assessment of the risks associated with service delivery from bridge infrastructure assets is yet to be undertaken. The outcome of a risk assessment will be to identify critical risks to Council. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develop a risk rating, evaluates the risk and develop a risk treatment plan for non-acceptable risks.

Risks recommended to be identified during the additional assessments include, but not limited to, the following:

- Integrity of the Structure
- Traffic in excess of Load Limit
- Traffic Collision
- Fire / Flood
- Vehicle leaving the surface of a Bridge.

This has been included in the Improvement Plan for Council to implement.

## 3.3 Required Expenditure

This asset management 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 and judgement.

Table 3.16 provides a summary of the operations and maintenance activities with the expenditure of 2021/2022 and the projected expenditure as of 2022/2023.

**Table 3.16 Annual Operations and Maintenance Expenditure**

Activity	2021/2022 Expenditure	Projected Expenditure
Pavement Remediation (emergency works)	\$75,000	\$75,000
Sheeted & Formed Road Maintenance (Patrol Grading)	\$295,000	\$495,000
Kerb Maintenance	\$15,000	\$15,000
Footpath Maintenance	\$25,000	\$25,000
General DDA Compliance Minor Works	\$50,000	\$50,000
Rail/Walking Trail	\$0	\$10,000
Drainage Maintenance	\$5,000	\$40,000
Flood Damage (Sheeted Road Maintenance)	\$20,000	\$20,000
Traffic Management (i.e. Signage, Roadside Slashing)	\$88,000	\$88,000
Roadside Weed Control	\$90,000	\$90,000
Tree Trimming	\$23,000	\$30,000
Bridge Maintenance*	\$0	Year 1: \$150,000 Year 2-10: \$50,000
Sealed Road Maintenance (Potholes, Patching)	\$0	\$100,000
Sealed Road - Shoulder Treatment	\$0	\$50,000
<b>Total</b>	<b>\$686,000</b>	<b>Year 1: \$1,238,000</b> <b>Year 2 to 10: \$1,138,000</b>

As shown in Table 3.16, there is an overall shortfall in operational and maintenance funding with the 2021/2021 expenditure of \$686,000 and the projected expenditure of \$1,238,000 for Year 1. From Table 3.16, it can be seen that the shortfall appears in several asset classes of unsealed roads, sealed roads, walking trails, cross drains and bridges. The projected operational and maintenance expenditure are based on estimated allowances to achieve the service levels outlined in 5.3 Construction, Renewal and Maintenance Standards (such as patrol grading), maintain new assets (such as the rail trail) and rectify the maintenance issues picked as part of the 2021 condition assessment (such as drainage maintenance) .

### Unsealed Roads

For unsealed roads, projected expenditure is based on the allowance of operating 3 patrol grading vehicles to average a total of 150km per a month. This is the required average to maintain the number of grading required per type of road as outlined in in 5.3 Construction, Renewal and Maintenance Standards.

The tree trimming allowance has also been increased based on the findings from the 2021 condition assessment. It was determined onsite that approximately 350km length of sheeted roads (Cat 1 to Cat 3) inhibit a vegetation envelope that does not achieve clearance requirements nominated the service levels outlined in 5.3 Construction, Renewal and Maintenance Standards or has vegetation within the road segment that encroaches within the width of the road.

## Sealed Roads

For sealed roads, there is historically no delegated maintenance and operational expenditure. However, based on the condition assessment undertaken in 2021, it was evident that pavement remediation works are required to extend the useful life of the sealed road network. The projected operational and maintenance expenditure provides an allowance for treatment activities such as shoulder remediation and pavement patch repairs.

## Cross Drains

For cross drains, historically there was no delegated maintenance and operational expenditure as of 2021/2022. Based on the condition assessment undertaken in 2021, the significant portion of cross drains were identified as blocked and hence the projected expenditure is based on cleaning and disposing of blockage material.

## Bridges

For bridges, historically there was no delegated maintenance and operational expenditure as of 2021/2022. Following the Level 2 Bridge Inspection, it has been identified that there is a requirement to undertake \$150,000 of works in Year 1. It is recommended to include an annual allowance of \$50,000 after Year 1 to continue maintenance of the bridge network. The Year 1 surplus in expenditure is based on the backlog of required works identified in Table 3.7.

## Rail Trail

The rail trail is an unsealed walking trail that is currently under construction and near completion. An allowance has been nominated within this Plan to ensure that the walking trail is maintained to the service standard.

### 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.

The condition data collected as part of the 2021 condition audit was used to calculate the remaining life for each asset based on the defined intervention point (Condition End of Life). The estimated renewal cost and intervention point aligns with the standard details in Section 5.3 Construction, Renewal and Maintenance Standards based on Council's current level of service. This method was used to develop the capital renewal plan for unsealed roads, sealed roads, floodways and cross drains

The method used to determine the capital renewal expenditure for footpaths is based on the Community demand such that the projected renewal cost provides an allowance for the gradual renewal of footpaths within the township that cater for high-use pedestrian volume. An annual allowance of \$50,000 has been allocated for the renewal of footpaths.

The method used to determine the kerb renewal expenditure utilises the condition assessment undertaken in 2021. The estimated renewal cost includes an allowance for immediate patch works identified during the condition assessment such that it appears within the backlog.

The information used to develop the capital renewal plan for bridges is based on the Level 2 Condition Assessment undertaken in 2021. Due to the significant cost associated with replacing a bridge and for the purpose of this Plan, it has been assumed that a full bridge replacement will not take place. As such, the estimated renewal budget is based on the renewal of individual bridge constituents such as barriers, signage replacement, decking, isolated patching and minor works. The renewal budget also includes an allowance for additional investigation for bridge structures such as Level 3 Structural Assessment and Load Limit

Assessments. It should be noted that the results from the Level 3 Structural Assessment will be used to determine future renewal activities. The cost associated with these future renewal activities have not been included within this Plan and will be included in future iterations.

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 3.17 and Figure 3.17.

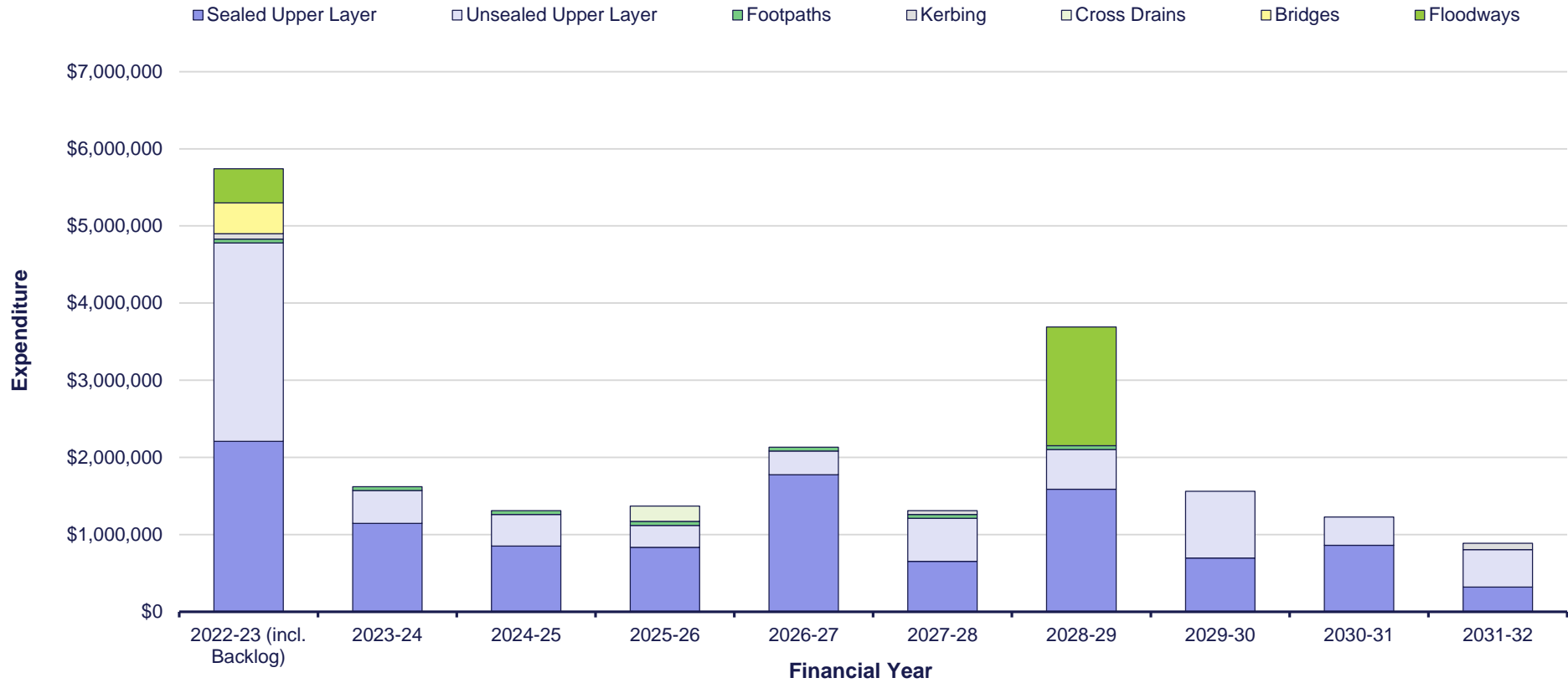


**Table 3.17 Required Capital Renewal Expenditure**

Financial Year	Sealed Road Capital Renewal Expenditure	Unsealed Road Capital Renewal Expenditure	Bridge Capital Renewal Expenditure	Kerb Capital Renewal Expenditure	Footpath Capital Renewal Expenditure	Cross Drain Capital Renewal Expenditure	Floodway Capital Renewal Expenditure	Total Capital Renewal Expenditure
2022-23 (including backlog)	\$2,207,863	\$2,571,138	\$400,000	\$69,300	\$50,000	\$42,687	\$442,616	\$5,783,604
2023-24	\$1,144,899	\$426,530	\$0	\$0	\$50,000	\$0	\$0	\$1,621,429
2024-25	\$851,381	\$408,025	\$0	\$0	\$50,000	\$0	\$0	\$1,309,406
2025-26	\$835,403	\$284,819	\$0	\$0	\$50,000	\$0	\$0	\$1,170,222
2026-27	\$1,776,278	\$307,076	\$0	\$0	\$50,000	\$0	\$0	\$2,133,354
2027-28	\$653,735	\$556,831	\$0	\$48,534	\$50,000	\$0	\$0	\$1,309,100
2028-29	\$1,587,446	\$516,322	\$0	\$0	\$50,000	\$200,096	\$1,537,841	\$3,891,705
2029-30	\$696,672	\$864,381	\$0	\$0	\$50,000	\$0	\$0	\$1,611,053
2030-31	\$859,624	\$368,388	\$0	\$0	\$50,000	\$0	\$0	\$1,278,012
2031-32	\$320,569	\$483,463	\$0	\$83,358	\$50,000	\$0	\$0	\$937,390
<b>Total</b>	<b>\$10,933,870</b>	<b>\$6,786,973</b>	<b>\$400,000</b>	<b>\$201,192</b>	<b>\$500,000</b>	<b>\$242,784</b>	<b>\$1,980,460</b>	<b>\$21,045,279</b>

Figure 3.17 Projected Capital Renewal Expenditure

Projected Capital Renewal Expenditure



### 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.

At present the focus is to maintain and improve the existing transport assets through targeted renewal, as such there is limited funding available to add new assets or upgrade the existing assets. As renewal funding reduces and the assets condition is maintained to the appropriate service standards new, or upgrade road asset projects can be scoped and funded whilst remaining sustainable. However, it should be noted that as outlined in Section 6 Plan Improvement and Monitoring, Council has considered the potential upgrade of unsealed roads to sealed roads within the township. The associated upgrade expenditure required has not been included within this Plan, however an indication on the cost difference have been included in Table 4.1.

Furthermore, as shown in Table 3.18, there is an allowance of \$2,000,000 for the upgrade of Appila-Tarcowie Road Bridge to ensure safe usage due to changing usage demand such as road trains.

### 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 3.18 and Figure 3.18 for projected operating (operations and maintenance), capital renewal, capital new/upgrade and estimated budget funding.

**Table 3.18 Operating and Capital Expenditure**

Financial Year	Operations & Maintenance	Capital Renewal	Capital New/Upgrade	Total Operating & Capital Expenditure
2022-23	\$1,238,000	\$5,783,605	\$2,000,000	\$9,021,605
2023-24	\$1,138,000	\$1,621,429	\$0	\$2,759,429
2024-25	\$1,138,000	\$1,309,406	\$0	\$2,447,406
2025-26	\$1,138,000	\$1,170,221	\$0	\$2,308,221
2026-27	\$1,138,000	\$2,133,354	\$0	\$3,271,354
2027-28	\$1,138,000	\$1,309,099	\$0	\$2,447,099
2028-29	\$1,138,000	\$3,891,705	\$0	\$5,029,705
2029-30	\$1,138,000	\$1,611,053	\$0	\$2,749,053
2030-31	\$1,138,000	\$1,278,012	\$0	\$2,416,012
2031-32	\$1,138,000	\$937,391	\$0	\$2,075,391
<b>Total</b>	<b>\$11,480,000</b>	<b>\$21,045,275</b>	<b>\$2,000,00</b>	<b>\$34,525,275</b>

**Figure 3.18 Projected Operating and Capital Expenditure over the Medium Term (10 Years)**

The projected operations, maintenance and capital expenditure required over the 10-year planning period is \$3.45M per year on average. Figure 3.18 show the required funding required with a significant surplus in 2022-2023 due to the backlog of several asset types as shown in Figure 2.1.

## 4 Future Demand

### 4.1 Demand Forecast

The demand on Council that would result in change to the way the road assets are maintained, renewed or upgraded in the future is more generally related to ongoing growing expectations from the community to have some roads changed to a higher category.

This relates to the ongoing development of agricultural practices and population and demographic changes influencing expectation being observed through requests and the decisions made to upgrade roads. Demand factor trends and impacts on service delivery are summarised in Table 4.1.

**Table 4.1 Demand Factors, Projections and Impact on Services**

Demand Driver	Present Position	Projection	Impact on Services
Upgrade of township unsealed road network to sealed	Council currently maintains approximately 23km of unsealed road network within the townships	Develop a long-term plan for the gradual capital upgrade of unsealed roads to sealed roads within the township	<p>Increase funding demand for capital and maintenance expense for township roads due to high level of service</p> <p>Based on 2021 replacement rates, the estimated capital replacement cost to upgrade unsealed roads within the township to sealed would cost approximately \$3.5M in comparison to \$700K to re-sheet. The estimated cost to upgrade unsealed roads includes allowance for 150mm pavement construction</p>
Changing economic demands on road network within and around Mount Remarkable District Council such as tourism and agriculture.	Assessment of road categorisation based on Council requirements. Examples include traffic volume (traffic counts), vehicle load rating and travel routes for heavy vehicles.	<p>Upgrade of roads based on increased demand – i.e. Booleroo Road from Category 1 unsealed road to a sealed road due to high use route and volume.</p> <p>Re-categorisation of low use roads and increased service level</p>	<p>Road safety risk due to road deteriorating</p> <p>Increased of replacement and maintenance cost with road network due to increased deterioration rate</p> <p>Increase renewal expenditure required to maintain service level</p>
Increased demand to use large agricultural vehicles on Category 4, Category 3, and Category 2 roads	Category 4 Roads are not maintained or renewed	Managed per a customer request due to low funding	Increased maintenance cost across all unsealed road to increase service level for larger vehicle access such as road widening and vegetation clearance

Demand Driver	Present Position	Projection	Impact on Services
Walking trail	Upgrade and extension of existing trail from Wilmington to Melrose and links to Booleroo Centre	Increase customer request for walking trail upgrade	Increased maintenance and upgrade of walking trails
Aging population	According to the Australian Bureau of Statistic, Mount Remarkable District Council has a median age of 53.	Increase demand for improved pedestrian access for high use areas.	Additional cost to expand footpath network within townships and upgrade existing network to DDA compliant standards.  Reduction of non-compliant pram ramps – as of 2021, there are 25 non-compliant pram ramps from the total 94.

## 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 new and housing developments as well as demand for wider agricultural vehicular movements. Developers will be required to provide additional infrastructure for the existing network and upgrade where necessary to ensure adequate transportation. Opportunities identified to date for demand management are shown in Table 4.1. Further opportunities will be developed in future revisions of this asset management plan.

**Table 4.2 Demand Management Plan Summary**

Service Activity	Demand Management Plan
Footpath	Establish key pedestrian trip generators including schools, hospitals, age facilities, develop hierarchy of footpaths, establish footpath upgrade plan including pedestrian pram ramps and road crossings and establish funding requirements to include in further Asset Plans.
Tourist Traffic	Where appropriate develop a case for upgrading certain roads, based on usage, and develop funding applications to support tourism.
Walking Trails	Map walking trails and superimpose the road network, look for linkages and rental agreements and establish a plan to expand the walking trial network if appropriate.
Restricted Access Vehicles (RAV)	Network assessment is complete, actions to be costed and prioritised, link the commodity networks and road categories for construction standards, establish funding gap and upgrade estimates to be included in future asset plans and budgets.
Increase in size of Agriculture Equipment	A further review on the extent of road network that no longer meets clearance widths for large agriculture equipment and define work and costs needed to maintain required clearance and include in future asset plans.
Town Seal Roads	Review of unsealed roads in towns and establish the priority and cost to prioritise and seal the any identified unsealed roads in towns.
Upgrading Unsealed Roads	Review the higher use category 1 roads and any category 2 roads may be upgraded to sealed. Collect traffic counts data and establish criteria for assessing the merit of sealing rural unsealed roads.

## 5 Levels of Service

The community generally expect that Council will provide transport networks which meets the required Australian and State legislative regulations. 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 5.1 and Table 5.2.

### 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 5.1 Community Levels of Service**

Key Performance Measure	Level of Service Objective	Performance Measure Process	Service Target
Quality	Roads to be accessible in the majority of weather conditions	Sheeted roads to be graded on a periodic basis depending on the type of road category  Council maintains a condition-based road register and rolling 5-year renewal plan to manage reseal and resheeting	Plan and budgets match to deliver required levels of service
	Footpaths provide safe access for higher pedestrian areas	Develop a footpath renewal plan based on high use areas	DDA compliance with a focus on high use area
Function/ Capacity/ Utilisation	Road suitable for road user needs	Roads are categorised based on traffic volumes and strategic importance	Road categories are defined and regularly updated and communicated
Safety	Provide safe and suitable roads free from hazards	Number of accidents reported and customer service request	Zero accidents caused by condition



## 5.2 Technical Levels of Service

Technical levels of service support the community service levels and are operational or technical measures of performance. These technical measures relate to the allocation of resources to service activities that the Council undertakes to best achieve the desired community outcomes. The technical level of service for roads, kerbs, pram ramps, cross drains and floodways are shown in Table 5.2. The technical level of service for bridges are shown in Table 5.3.

**Table 5.2 Technical Levels of Service - Transport Assets**

Key Performance Measure	Level of Service Objective	Performance Measure Process	Service Target
Operations	Efficiently utilise assets which will consume resources such as manpower, energy and materials (IIMM).	Resource/Expertise/ Capacity System/Process	Information is reliable for decision making
Maintenance	Retain assets in a suitable condition to meet it 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 (IIMM).	Asset Renewal is planned and occurs in line with established standards and timeframes	Annual works program is delivered
Upgrade	Upgrades are cost effective and meet end user needs and are affordable	Decision making process is established, agreed with Council and followed	All upgrades meet objective

**Table 5.3 Technical Level of Service - Bridges**

Key Performance Measure	Level of Service Objective	Performance Measure Process	Service Target
Operations & Maintenance	<p>Bridges are maintained at standard to enable road users to safely access the bridge with no high-risk hazards</p> <p>Bridges have appropriate signage for load limits</p>	<p>Regular inspections of bridges</p> <p>Reactive to customer service requests</p>	<p>All bridges are financially feasible to be maintained at a safe standard with appropriate signage. For bridges that are not viable to maintain, Council to consider decommissioning or changing the load limit depending on usage and traffic routes</p>
Renewal	<p>Bridge components are renewed once the component is at end of life</p>	<p>Undertake condition audit every 4-5 years for all bridges within the network. All components in poor condition to be considered for renewal in the renewal plan</p>	<p>For bridges due for renewal, Council to review bridge usage and determine appropriate replacement that is feasible for the community and financially viable for the Council</p>
Upgrade	<p>Bridges have appropriate load limit and compliant safety components. Upgrade bridge and guard rails were required</p>	<p>Review load limit and traffic logistics of bridge. Undertake Level 3 inspections when required.</p> <p>Review guard rails compliance within bridge inspection report and determine if upgrade is required</p>	<p>All bridges to be compliant for load limit and safety</p>

## 5.3 Construction, Renewal and Maintenance Standards

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

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 binder age and surface defects. For sheeted roads the condition score of each road is based on the sheeting depth, sheeting condition 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:

- Industrial Use
- High Use
- Local Use
- Rural

The sealed road network is further classified by the performance (excellent, good, fair & poor) of the surface based on historical seal dates, in addition to this the defects assessed at the recent condition assessment such as deformation and cracking have been used to further classify the roads into standard and non-standard.

The unsealed sheeted road network is classified according to its usage and are grouped as follows:

- Township Sheeted
- Category 1 – Sheeted High Use
- Category 2 – Sheeted Medium Use
- Category 3 – Sheeted Low Use
- Category 4 - Formed Graded (Non-Valued)

### 5.3.1 Township Sealed Roads

Council owns and maintains a township sealed road network totalling approximately 46km in length. The majority of the township sealed network consist of a spray seal surface (41.8km) with approximately 4.2km of hotmix bitumen around Booleroo Centre and Melrose respectively.

The spray seal roads within Council will remain spray seal for the planning period, unless there is a growing community requirement to use hotmix. Hotmix may be considered as the preferred renewal treatment for higher use intersections. All other towns will use spray seals as their main renewal treatment. For new developments road assets are vested to Council. The standard of construction and surfacing treatment is enforced through policies and development approval process.

The current standard for Township sealed roads are detailed in the Table 5.4.

**Table 5.4 Township Sealed Road Construction, Renewal and Maintenance Standards**

Current Standard for Township Sealed Roads		
Construction Method	<b>Seal Width</b>	<p>Current network seal width ranges from 3.1 metres to maximum 18 metres with an average of 7.8 metres across the township network.</p> <p>New construction of sealed networks will be constructed with minimum 7.2 metres width in accordance with LGA Infrastructure Guidelines.</p>
	<b>Seal Types</b>	Local roads to be constructed with two coat spray seal with high use and heavy intersection roads to utilise hotmix bitumen.
	<b>Pavement Width</b>	Pavement width is to lip of kerb or minimum 1 metre either side of seal width.
	<b>Pavement Depth</b>	<p>Pavement depth is assumed to be 300mm for heavy use roads and 200mm for normal use roads.</p> <ul style="list-style-type: none"> <li>Existing pavements for township sealed roads to utilise existing material with a rework and top up to depth as per the above.</li> </ul>
Renewal Method	<b>Reseal</b>	<p>Standard renewal of township sealed roads to be a 2-coat spray seal, with future consideration for a combination of 1 coat and 2 coat spray seal depending on road usage.</p> <p>Asphalt wearing surface to be used for heavy use turning locations (i.e. silo intersection, arterial intersections)</p>
	<b>Pavement</b>	<p>The renewal assumption for the purposes of the Plan include:</p> <ul style="list-style-type: none"> <li>Sealed Heavy Use Road to undertake a full pavement reconstruction of 300mm depth</li> <li>Existing township roads to re-work existing pavement and import up to 150mm to the required pavement depth.</li> </ul>
	<b>Seal Life</b>	<p>The standard life assumption for the purposes of the Plan include:</p> <ul style="list-style-type: none"> <li>Heavy Use Township Non-Standard Hotmix Bitumen – 20 years</li> <li>Heavy Use Township Spray Seal – 18 years</li> <li>High Use Township Hotmix (Non-Standard &amp; Standard) – 20 years</li> <li>High Use Township Spray Seal – 18 years</li> <li>Normal Use Township Hotmix (Non-Standard &amp; Standard) – 20 years</li> <li>Normal Use Township Spray Seal – 18 years</li> </ul>
	<b>Pavement Life</b>	80 years
Maintenance Method	<b>Maintenance</b>	<ul style="list-style-type: none"> <li>Minor works such as pothole repairs on as per need basis</li> <li>Roadside weed spraying</li> <li>Gravel shoulder top-ups as required</li> </ul>

## 5.3.2 Rural Sealed Roads

Council owns and maintains a rural sealed road network totalling approximately 83km in length. The spray sealed roads with Council will remain spray seal for the planning period. Hotmix may be considered as the preferred renewal treatment for higher and heavy use intersections. However, this will not be the standard renewal method for rural sealed roads.

**Table 5.5 Rural Sealed Roads - Construction, Renewal and Maintenance Standards**

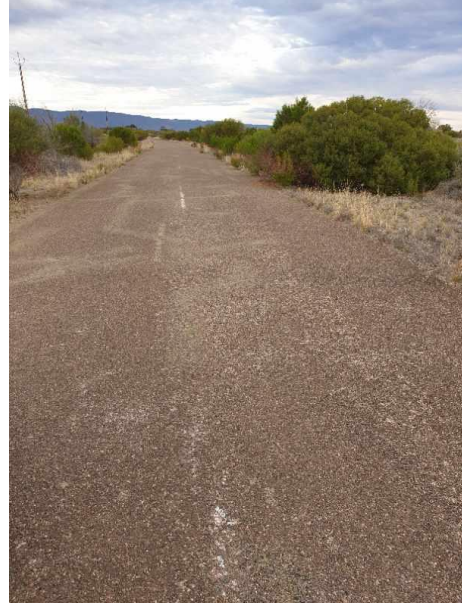
Current Standard for Rural Sealed Roads		
Construction Method	<b>Seal Width</b>	<p>Current network seal width ranges from 3.1 metres to maximum 11.2 metres with an average of 7.8 metres across the township network.</p> <p>New construction of Rural Sealed Networks will be constructed in accordance with LGA Infrastructure Guidelines with minimum seal width of:</p> <ul style="list-style-type: none"> <li>▪ Collector: 7.2m minimum</li> <li>▪ Local Use: 6.2m minimum</li> </ul>
	<b>Seal Types</b>	2 Coat Spray Seal
	<b>Pavement Width</b>	Minimum 1m either side of seal
	<b>Pavement Depth</b>	250mm (min) for arterial and collector roads, 200mm for local use (pavement base and sub-base)
Renewal Method	<b>Reseal</b>	<p>Dependent on road use</p> <ul style="list-style-type: none"> <li>▪ Single coat spray seal (spray seal 7 or 10mm) with an ongoing reseal pattern of 1 coat/2 coat. 2 coats is 10/5 or 14/7mm dependent on road usage.</li> <li>▪ Roads with high deformation and cracking have been identified as non-standard based on the condition assessment and will attract additional funds for renewal through rehabilitation</li> <li>▪ Rural intersections between sealed and unsealed to utilise standard 2 coat spray seal</li> </ul>
	<b>Pavement</b>	Existing pavements for township sealed roads to utilise existing material with a rework and top up to depth as per the above (allowance for up to 150mm within renewal expenditure estimates)
	<b>Seal Life</b>	Rural Spray Seal (Standard & Non-Standard) – 18 years
	<b>Pavement Life</b>	Rural Sealed Road Pavement (Standard & Non-Standard) – 80 years
	<b>Signage and Line Marking</b>	Refer AS1742.2
Maintenance Method	<b>Maintenance</b>	<ul style="list-style-type: none"> <li>▪ Minor works such as pothole repairs on as per need basis</li> <li>▪ Roadside weed spraying</li> <li>▪ Gravel shoulder top-ups as required</li> </ul>

**Current Standard for Rural Sealed Roads**

**Rural Heavy Use Hotmix Bitumen Road**



**Rural Non-Standard Spray Seal Road**



**Rural Standard Spray Seal Road**



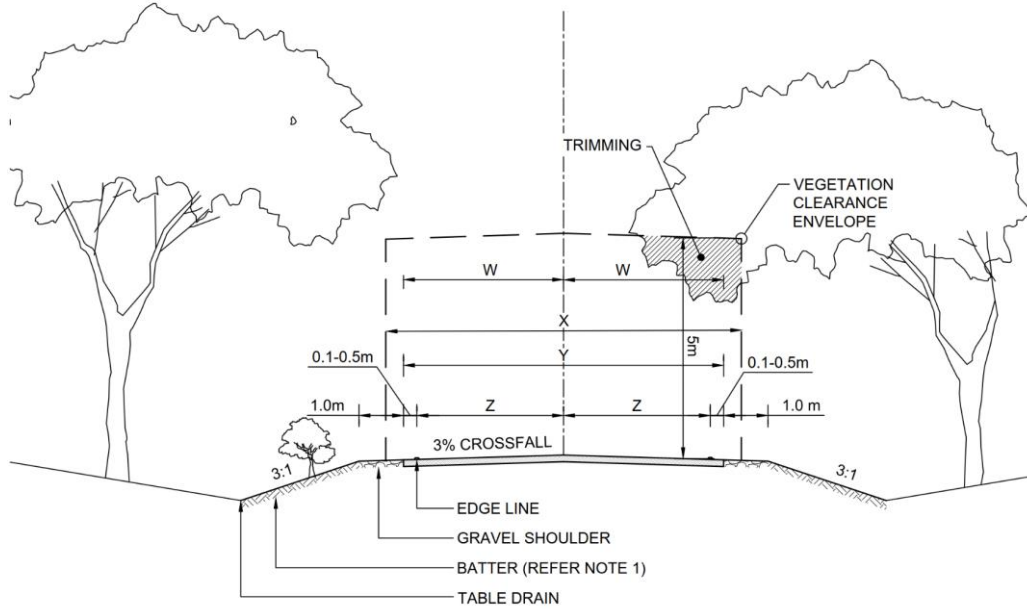
**Rural Apron Standard Spray Seal Road**



### Typical Current Construction Standard for Rural Sealed Roads

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

Figure 5.1 Typical Construction Cross Section for Rural Sealed Road



### 5.3.3 Unsealed Sheeted Roads

Council owns and maintains an unsealed sheeted road network totalling approximately 955km in length. The unsealed network within the region services the community in a wide range of ways from farm gate access, single and multiple residential dwelling access, tourism, and freight access for transportation goods. The unsealed network plays a critical role in supporting the local economy and rural communities.

The development of the road categories has been undertaken in an initial attempt to allow Council to apply different renewal and construction standards across the road network in an affordable way, rather than having one standard for all unsealed roads. The categories have been developed through a combination of desktop analysis, field observation and feedback from the local community. Unsealed sheeted roads have been categorised as follows:

**Table 5.6 Sheeted Road Categories**

Road Category	Length (km)
Township	23.2
Category 1	101.8
Category 2	236.2
Category 3	593.8
Category 4	521.9
<b>Total (Excluding Cat 5 - track roads)</b>	<b>1476.9</b>

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 drainage.

**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 has been categorised as shown in Table 5.6



## Township Sheeted Roads

Council owns and maintains 23km of sheeted township roads which serves primarily as local residential access routes with low traffic volume.

**Table 5.7 Township Sheeted Roads - Construction, Renewal and Maintenance Standards**

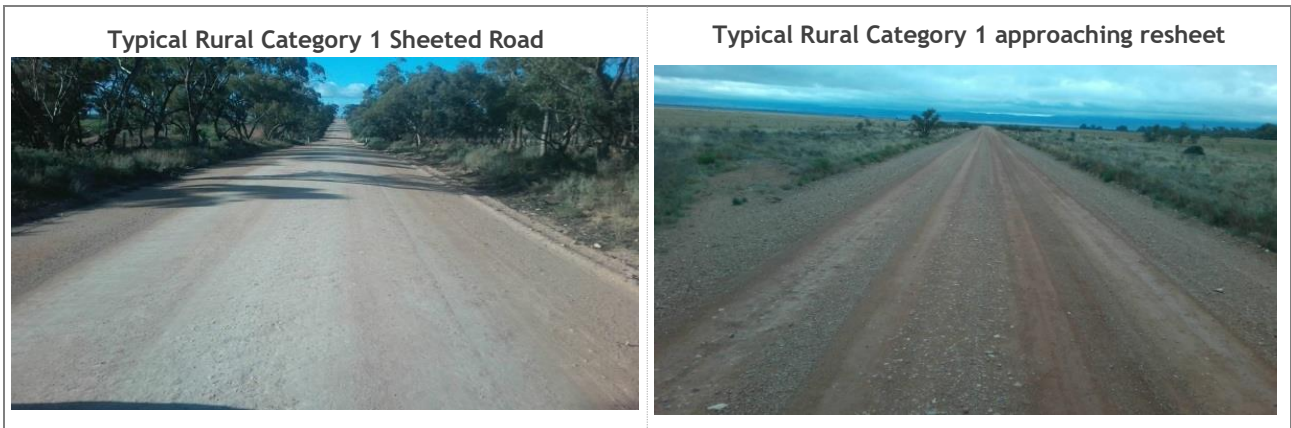
Current Standard for Township Sheeted Roads		
<b>Construction Method</b>	<b>Sheeting Width</b>	Current township sheeted road width ranges from 4 metres to 10.6 metres with an average of 6.2 metres.  New sheeted roads will be constructed with minimum 5.2 metre width.
	<b>Sheeting Depth</b>	Township sheeting to be constructed with a depth of 100mm.
	<b>Formation Width</b>	Varies depending on sheeting width, with additional 1 metre either side of seal width.
<b>Renewal Method</b>	<b>Resheet</b>	Supply, place and compact 100mm crushed material to restore the sheeted wearing surface including minor reshaping of existing formation and reinstatement of cut-out drains
	<b>Condition at End of Life</b>	Assume 25-50mm rubble left prior to resheeting with significant (5 to 15%) subgrade break through.
	<b>Useful Life</b>	The sheeted wearing surface is determined to have 24 to 28 years useful life depending on material quality  Poor Material Township Sheeted Road – 24 years  Average Material Township Sheeted Road – 26 years  Excellent Material Township Sheeted Road – 28 years
	<b>Formation</b>	Assume that some reforming of road cross fall and drainage will be required during resheeting of the road surface
<b>Maintenance Method</b>	<b>Maintenance</b>	<ul style="list-style-type: none"> <li>▪ 1 Patrol Grading per year</li> <li>▪ Pothole repair as required</li> <li>▪ Regulatory and warning signs replaced as required (Refer AS1742.2)</li> <li>▪ Spraying of verges on a needs basis</li> </ul>
<p><b>Typical Township Sheeted Road</b></p> 		

## Category 1 Rural Sheeted Roads

Council owns and maintains a Rural Sheeted Category 1 road network totalling approximately 101.8km. These roads generally carry traffic through the Council area and generally connect with DIT (Department of Transport) arterial roads. The roads have a higher standard alignment, reasonable sight distance and formation width to allow heavy vehicles to pass. If funds were available, roads would generally be selected for construction and sealing from this category. This road category may attract roads to recovery funding due to their importance.

**Table 5.8 Category 1 Sheeted Roads - Construction, Renewal and Maintenance Standards**

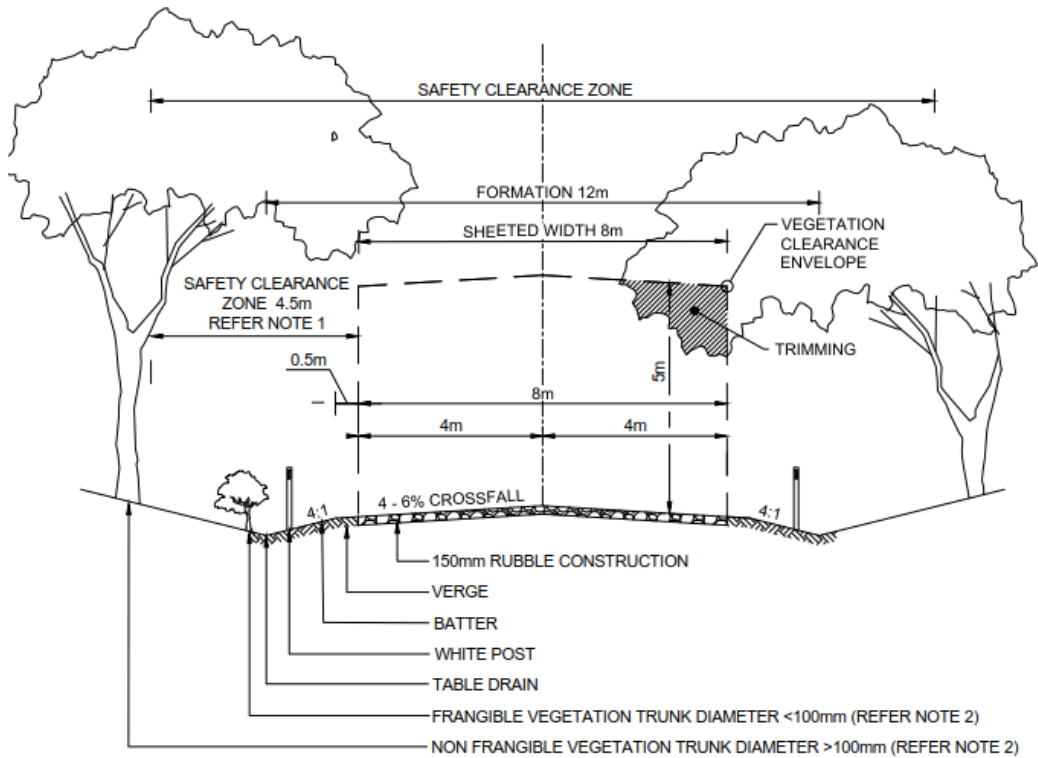
Current Standard for Category 1 Rural Sheeted Roads		
Construction Method	Sheeting Width	New construction of Category 1 Sheeted Roads to be 8m width (currently 6.5 to 9.3m)
	Sheeting Depth	150mm when newly constructed or immediately after a Resheet
	Formation Width	Edge of shoulder to edge of shoulder, additional 2 metres each side of sheeting. 12m minimum width. Note shoulder may or may not have rubble
Renewal Method	Resheet	Supply, place and compact crushed material to restore the sheeted wearing surface including minor reshaping of existing formation to 150mm
	Condition at End of Life	Assume 50mm rubble left prior to resheeting with no to minor (<2%) subgrade break through
	Useful Life	Category 1 Poor Material – 14 years Category 1 Average Material – 17 years Category 1 Excellent Material – 21 years
	Formation	The lower base and earthworks will typically be reworked as part of the resheeting activity, where appropriate to retain integrity of drainage and cross fall. The verge area may build up with road base and vegetation over time and will be managed through maintenance. As a result, no allowance is made for complete verge reshaping.
Maintenance Method	Maintenance	<ul style="list-style-type: none"> <li>▪ 3 Patrol Grading per year</li> <li>▪ Minor pothole and patching work as required</li> <li>▪ Regulatory and warning signs replaced as required (Refer AS1742.2)</li> <li>▪ Roadside slashing to improve line of sight</li> <li>▪ Vegetation and weed management</li> </ul>



**Target Service Level for Rural Category 1 Sheeted Road**

Figure 5.2 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 5.2 Rural Sheeted Arterial Construction Cross Section**





**NOTES**

1. Safety clear zones have been based on practicable considerations with consideration to Unsealed Roads Manual : Guide to good practice ( March 2009) & Austroads Part 6 Guide to Road Design (2010).
2. Frangible vegetation is permitted in the safety clear zone however should be clear in the vegetation clearance envelope.
3. Safety clearance zones are desirable, however not always achievable due to native vegetation restrictions.
4. White post placement is shown at a nominal distance of between 1.2m and 3m from the edge of sheeted material and at structures with consideration to Australian Standard Traffic Controls (AS1742.2).

## Category 2 Rural Sheeted Roads

Council owns and maintains a Rural Category 2 Sheeted Road network totalling approximately 236.2km. These are major roads for local and tourist traffic. These roads often form part of the school bus routes and have regular truck movements. Some roads from this category are selected for construction and sealing due to their high maintenance costs, tourist importance and close proximity to townships. This road category may attract Roads to Recovery funding due to their importance.

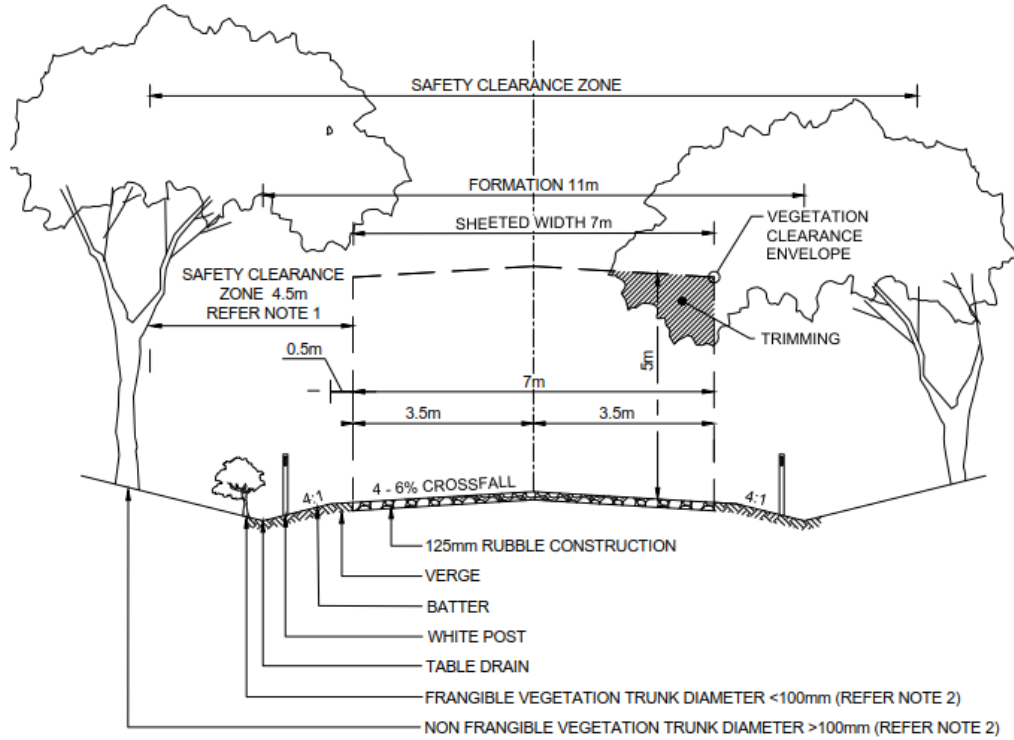
**Table 5.9 Category 2 Rural Sheeted Roads - Construction, Renewal and Maintenance Standards**

Current Standard for Category 2 Rural Sheeted Roads		
Construction Method	Sheeting Width	7m (currently 5.8 to 11.5m)
	Sheeting Depth	125mm when newly constructed or immediately after a resheet
	Formation Width	Edge of shoulder to edge of shoulder generally additional 2.0m each side of sheeting, 11m minimum. Note shoulder may or may not have rubble
Renewal Method	Resheet	Supply, place, and compact crushed material to restore the sheeted wearing surface including minor reshaping of existing formation
	Condition at End of Life	Assume 50mm rubble left prior to resheeting with moderate (2 to 5%) subgrade break through
	Useful Life	Category 2 Poor Material – 14 years Category 2 Average Material – 19 years Category 2 Excellent Material – 21 years
	Formation	The lower base and earthworks will typically be reworked as part of the resheeting activity, where appropriate to retain integrity of drainage and cross fall. The verge area may build up with road base and vegetation over time and will be managed through maintenance. As a result, no allowance is made for complete verge reshaping.
Maintenance Method	Maintenance	<ul style="list-style-type: none"> <li>▪ 2 Patrol Grading per year</li> <li>▪ Minor pothole and patching work as required</li> <li>▪ Regulatory and warning signs replaced as required (Refer AS1742.2)</li> <li>▪ Roadside slashing to improve line of sight</li> <li>▪ Vegetation and weed management</li> </ul>
<p>Typical Rural Category 2 Sheeted Road</p> 		<p>Typical Rural Category 2 approaching resheet</p> 

## Target Service Level Rural Category 2 Sheeted Roads - Typical

Figure 5.3 shows a typical construction cross section to illustrate Council's service target for rural sheeted Collector Roads. It is noted that this is not always achievable due to native vegetation restrictions.

Figure 5.3 Rural Sheeted Collector Construction Cross Section (Typical)





### NOTES

1. Safety clear zones have been based on practicable considerations with consideration to Unsealed Roads Manual : Guide to good practice ( March 2009) & Austroads Part 6 Guide to Road Design (2010).
2. Frangible vegetation is permitted in the safety clear zone however should be clear in the vegetation clearance envelope.
3. Safety clearance zones are desirable, however not always achievable due to native vegetation restrictions.
4. White post placement is shown at a nominal distance of between 1.2m and 3m from the edge of sheeted material and at structures with consideration to Australian Standard Traffic Controls (AS1742.2).

### Category 3 Rural Sheeted Road

Council owns and maintains a Rural Category 3 Sheeted Road in the network total approximately 593km. Rural Category 3 Sheeted Road are formed and sheeted and provide all weather access. These roads have been identified as having a higher freight, tourism and social importance than other local roads.

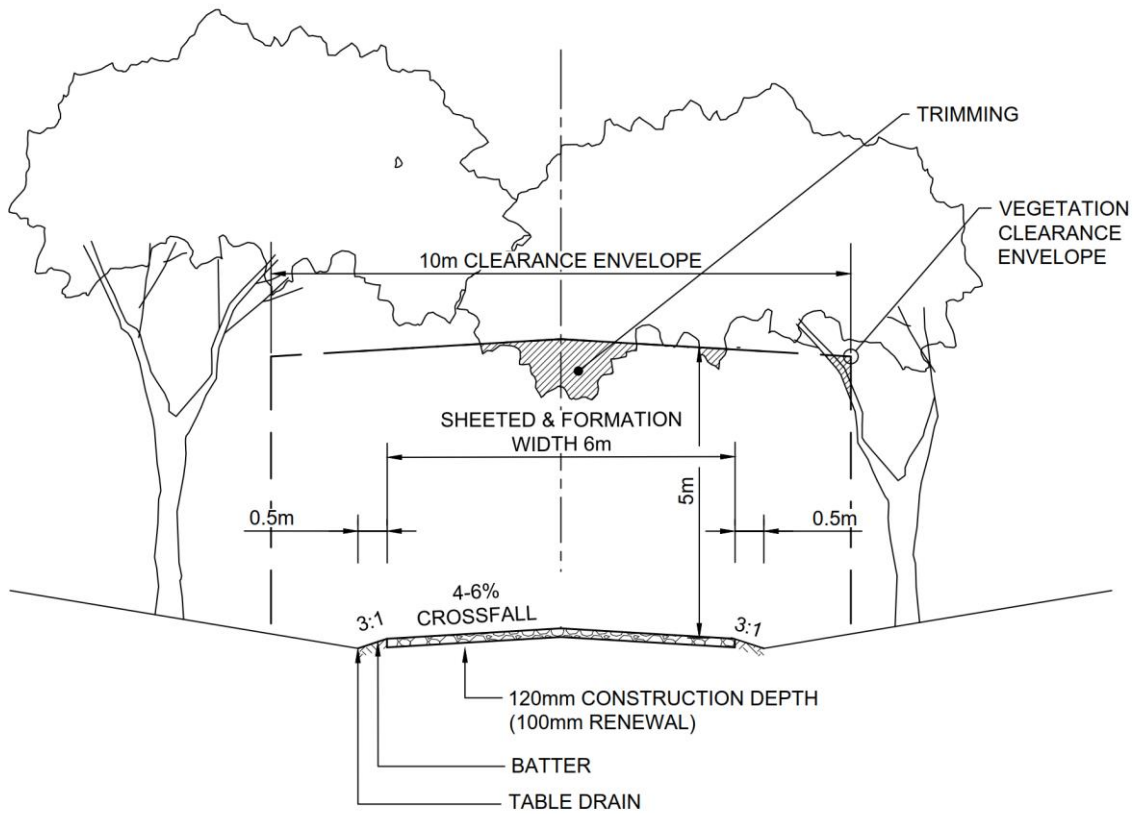
**Table 5.10 Category 3 Rural Sheeted Roads - Construction, Renewal and Maintenance Standards**

Current Standard for Category 3 Rural Sheeted Road		
<b>Construction Method</b>	<b>Sheeting Width</b>	6m (currently 3.5 to 9.8m)
	<b>Sheeting Depth</b>	100mm when newly constructed.
	<b>Formation Width</b>	Edge of shoulder to edge of shoulder generally additional 1.5m each side of sheeting, 9m minimum. Note shoulder may or may not have rubble
<b>Renewal Method</b>	<b>Resheet</b>	Supply, place and compact crushed material to restore the sheeted wearing surface including full reshaping of existing formation and reinstatement, shape, cross fall and verge drainage
	<b>Condition at End of Life</b>	Assume 25-50mm rubble left prior to resheeting with significant (5 to 15%) subgrade breakthrough
	<b>Useful Life</b>	The sheeted wearing surface is determined to have 24 to 28 years useful life depending on material quality  Poor Material Township Sheeted Road – 24 years Average Material Township Sheeted Road – 26 years Excellent Material Township Sheeted Road – 28 years
	<b>Formation</b>	Assume that reforming of road cross fall and drainage will be required during resheeting of the road surface.
<b>Maintenance Method</b>	<b>Maintenance</b>	<ul style="list-style-type: none"> <li>▪ 1 Patrol Grading per year</li> <li>▪ Minor pothole and patching work as required</li> <li>▪ Regulatory and warning signs replaced as required (Refer AS1742.2)</li> <li>▪ Roadside slashing to improve line of sight</li> <li>▪ Vegetation and weed management</li> </ul>
<b>Rural Category 3 Sheeted Road</b>		<b>Typical Rural Category 3 approaching resheet</b>
		

### Target Service Level Category 3 Rural Sheeted Road

Figure 5.4 shows a typical construction cross section to illustrate Council's service target for Category 3 Rural Sheeted Road. It is noted that this is not always achievable due to native vegetation restrictions.

Figure 5.4 Category 3 Rural Sheeted Road Construction Cross Section



## Formed Graded Roads - Category 4

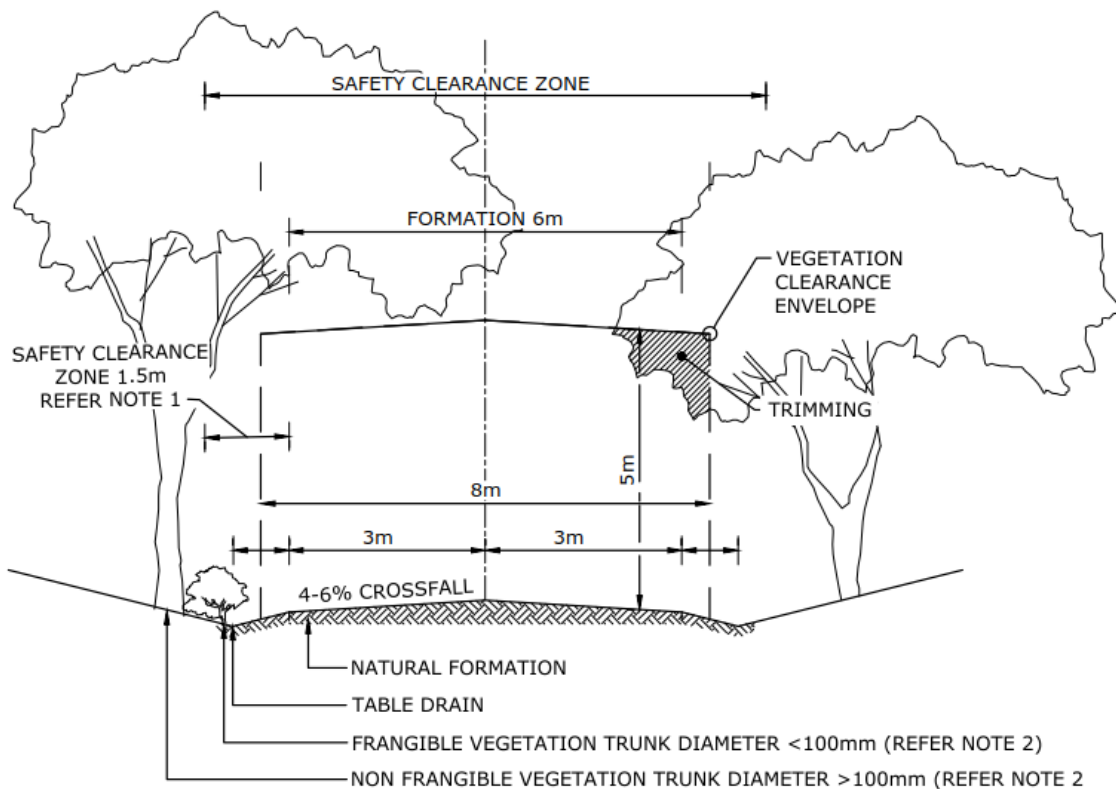
Council owns and maintains a rural formed graded road network totalling approximately 39km. Formed graded roads are low use roads only. Formed graded roads require no road base material to provide a surface. These roads are not renewed by capital works; however, they do undergo maintenance activities (i.e. grading) when damaged.

Current Standard for Formed Graded Roads	
Valuation Assumptions	Not a valued asset
Renewal Method	Not a valued asset, maintained by grading when required.
Maintenance Method	Grade when damaged and not serviceable Assumed 1 grade per every 1-2 years

## Target Service Level Formed Graded Roads - Category 4

Figure 5.5 shows a typical construction cross section to illustrate Council's service target for formed graded roads. It is noted that the target service level for rural roads is not always achievable due to native vegetation restrictions.

Figure 5.5 Category 4 - Formed Graded Construction Cross Section



### NOTES

1. Safety clear zones have been based on practicable considerations with consideration to Unsealed Roads Manual : Guide to good practice ( March 2009) & Austroads Part 6 Guide to Road Design (2010).



### 5.3.4 Kerbing & Spoon Drain

Council owns and maintains approximately 44.6km of kerbing and spoon drains with the majority located within the township. The kerbs are located along several high use roads within the township providing drainage primarily for the sealed road network.

**Table 5.11 Kerbing & Spoon Drain - Construction, Renewal and Maintenance Standards**

Current Standard for Kerbing		
Renewal Method	Renewal Method	Rework base to minimum 100mm depth with kerb or spoon drain to be replaced with equivalent of existing.
	Condition at End of Life	Kerbs and spoon drains are considered to be expired when the condition reaches 100.
	Useful Life	70 years useful life
Maintenance Method	Maintenance	<ul style="list-style-type: none"> <li>Minor defects and minor segment repairs on as-need basis.</li> </ul>

### 5.3.5 Footpaths

Council owns and maintains a network of unsealed and sealed footpaths totalling approximately 44.7km in length. The majority of the network are located within high pedestrian volume areas such as townships and tourist tracks. A summary of the footpath network is shown in Table 5.12.

**Table 5.12 Footpath Surface Material Type**

Footpath Surface Material	Length (km)
Block Paved	2.97
Crusher Dust	29.05
Gravel	3.38
Hotmix Bitumen	1.82
In-situ Concrete	2.99
Natural	1.35
Shell Grit	0.27
Spray Seal	4.28
<b>Total</b>	<b>46.1</b>

**Table 5.13 Footpath - Construction, Renewal and Maintenance Standards**

Current Standard for Footpaths		
Construction Method	Footpath Width	Footpaths to be constructed to achieve DDA compliance where possible such that minimum width of 1.2 metres and 0.9m at choke points.
	Footpath Gradient	Footpaths to be constructed to achieve maximum 2% crossfall and longitudinal gradient as per DDA compliance requirements where possible.
Renewal Method	Renewal	Footpaths to be replaced with equivalent type with allowance for upgrade to DDA compliance where possible (i.e., pram ramp installations, footpath widening and gradient adjustment)
	Useful Life	10 to 100 years depending on the type of surface material: <ul style="list-style-type: none"> <li>▪ Crusher Dust – 10 years</li> <li>▪ Insitu Concrete – 50 years</li> <li>▪ Block Paved – 50 years</li> <li>▪ Spray Seal – 30 years</li> <li>▪ Shell Grit – 10 years</li> <li>▪ Hotmix Bitumen – 30 years</li> </ul>
Maintenance Method	Maintenance	<ul style="list-style-type: none"> <li>▪ Trip hazards and defects as per need basis</li> <li>▪ Minor segment repairs as per need basis</li> <li>▪ Unsealed surfaces such as crusher dust, shell grit and all-natural surfaces to be undertaken as maintenance</li> </ul>

### 5.3.6 Floodways

Council owns and maintains a total of 124 concrete floodways with 107 located across sheeted roads and 17 along sealed road networks.

**Table 5.14 Floodways - Construction, Renewal and Maintenance Standards**

Current Standard for Floodways		
Renewal Method	Renewal Method	Replace with equivalent concrete floodway
	Condition at End of Life	Floodways are replaced when the condition is no longer trafficable which is equivalent to a condition end of life of 90.
	Useful Life	70-year useful life
Maintenance Method	Maintenance	<ul style="list-style-type: none"> <li>▪ Repairs as required (customer request based)</li> <li>▪ Regulatory and warning signs replaced as required (Refer AS1742.2)</li> <li>▪ Clearance of vegetation as an on-need basis</li> </ul>

### 5.3.7 Cross Drains

Council owns approximately 415 cross drains variety in size from 225mm pipes to significant 3000x2700mm box culvert crossings.

**Table 5.15 Cross Drains - Construction, Renewal and Maintenance Standards**

Current Standard for Footpaths		
Renewal Method	Renewal Method	<ul style="list-style-type: none"> <li>• Cross drains with crossings less than 600mm in height to be replaced with a headwall and equivalent sized pipe</li> <li>• Cross drains exceeding 600mm and below 900mm in diameter/height that are servicing rail trails to be replaced with pipe or culvert and re-utilise existing headwall</li> <li>• Cross drains exceeding 900mm in diameter/height that are servicing rail trails to be retrofitted with steel framed bridge on existing headwall</li> </ul>
	Condition at End of Life	Cross drains are replaced when the condition is no longer trafficable which is equivalent to a condition end of life of 90.
	Useful Life	70-year useful life
Maintenance Method	Maintenance	<ul style="list-style-type: none"> <li>▪ Clearance of blockages on as-need basis (customer request)</li> </ul>

### 5.3.8 Bridges

Council owns and maintains a total of 19 bridges ranging from pedestrian bridges to trafficable river crossings. Due to the substantial replacement cost associated with bridges, all bridges have been componentised into foundation, span, decking, piers, bearings, abutments, ancillary and barriers. Replacement of bridges will be dependent on the condition of each component with the most recent condition assessment undertaken in 2021. The standard of replacement is dependent on the bridge and function, such that Council’s level of service is in accordance with Table 5.3.

## 6 Plan Improvement and Monitoring

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

**Table 6.1 Tasks identified for improving future versions of the plan**

Task No.	Task	Responsibility
1.	Further structural and loading assessment of Council bridges – Refer to Table 3.6 Bridges Requiring Investigation.	Council Administration
2.	Develop unsealed road upgrade plan with consideration to demand and service deficiencies	Council Administration
3.	Develop a footpath renewal, upgrade, and maintenance plan to align with service levels and demand	Council Administration
4.	Align current road hierarchy with other freight network i.e. commodity routes to align construction standards	Council Administration
5.	Refinement of current unsealed road categorises to identify areas of over service or under servicing	Council Administration
6.	Assessment and documentation of underground drainage in townships	Council Administration
7.	Undertake routine signage audit of floodways to ensure safety signage are visible and present	Council Administration
8.	Review of Council's maintenance and operational budget which at current does not have allowance for several assets such as sealed roads and critical asset of bridges.	Council Administration
9.	Review and update of Customer and Technical Levels of Service	Council Administration
10.	Following approval of LTFP, determine the funding gap and associated risk and/or service level deficiencies to manage funding gap. Asset Renewal Ratios can then be established.	Council Administration
11.	Undertake valuation for Transport Asset Class and update Plan with valuation outcome.	Council Administration

This plan has a life of 4 years and is due for revision and updating within 2 years of each Council election however, it will be reviewed during annual budget planning processes and amended as required to address any material changes in service levels and/or resources available to provide those services as a result of budget decisions.

## 7 References

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IPWEA, 2006, NAMS.PLUS3 Asset Management, Institute of Public Works Engineering Australia, Sydney, [www.ipwea.org](http://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](http://www.ipwea.org)