

# Asset Management Plan

## Transport & Stormwater

**District Council of Tumby Bay**

231223.01R002Rev0



DISTRICT COUNCIL OF TUMBY BAY



# 1 Document Control

Rev No	Date	Revision Details	Author	Reviewer	Approver
0	11/04/2024	Issued for Consultation	KD	RKE	DW



# Contents

<b>1</b>	<b>Document Control.....</b>	<b>2</b>
<b>2</b>	<b>Introduction .....</b>	<b>5</b>
2.1	Background.....	5
2.2	Plan Framework.....	6
<b>3</b>	<b>Levels of Service.....</b>	<b>8</b>
3.1	Strategic and Corporate Goals .....	8
3.2	Legislative Requirements .....	8
3.3	Asset Hierarchy .....	8
3.4	Community Levels of Service.....	10
3.5	Technical Levels of Service.....	12
3.6	Construction and Renewal Standards for Roads .....	13
<b>4</b>	<b>Future Demand .....</b>	<b>14</b>
4.1	Demand Forecast .....	14
4.2	Demand Management Plan.....	16
<b>5</b>	<b>Life Cycle Management .....</b>	<b>17</b>
5.1	Background Data .....	17
5.2	Risk Management.....	21
5.3	Required Expenditure .....	23
<b>6</b>	<b>Plan Improvement and Monitoring .....</b>	<b>29</b>
<b>7</b>	<b>References.....</b>	<b>30</b>

## Tables

Table 2.1	Assets covered by this plan as at 30 <sup>th</sup> June 2023.....	5
Table 2.2	Key Stakeholders .....	7
Table 3.1	Legislative Requirements.....	8
Table 3.2	Asset Categorisation .....	9
Table 3.3	Community Levels of Service .....	10
Table 3.4	Technical Levels of Service .....	12
Table 4.1	Demand Factors, Projections and Impact on Services.....	14
Table 4.2	ABS Demographic Statistics for The District Council of Tumby Bay LGA .....	15
Table 4.3	Demand Management Plan Summary.....	16
Table 5.1	Known Service Performance Deficiencies.....	21



Table 5.2 Provisional Risk Assessment .....	22
Table 5.3 Annual Maintenance & Operations Expenses .....	23
Table 5.4 Required Capital Renewal Expenditure .....	24
Table 5.5 Budgeted New/Upgrade Expenditure.....	26
Table 5.6 Operating and Capital Expenditure .....	27
Table 6.1 Tasks identified for improving future versions of the AM Plan .....	29

## Figures

Figure 2.1 Transport & Stormwater Assets by Replacement Value as at 30 <sup>th</sup> June 2023 .....	6
Figure 5.1 Summary Stormwater Asset Age Profile .....	17
Figure 5.2 Summary Sealed Road Condition Profile.....	18
Figure 5.3 Summary Unsealed Road Condition Profile .....	18
Figure 5.4 Summary Footpath Condition Profile.....	19
Figure 5.5 Summary Kerb and Spoon Drain Condition Profile .....	19
Figure 5.6 Summary Bridge Condition Profile .....	20
Figure 5.7 Summary Rural Stormwater Condition Profile .....	20
Figure 5.8 Required Capital Renewal Expenditure .....	25
Figure 5.9 Summary Projected Maintenance, Operations and Capital Expenditure.....	28

## Appendices

Appendix A Asset Condition Assessment
Appendix B Road Construction Standards

## 2 Introduction

### 2.1 Background

The District Council of Tumby Bay is situated to the north of Port Lincoln on the east coast of the Eyre Peninsula, is approximately 630km from Adelaide and covers an area of 261,950 hectares. The district has a population of 2,817 (Census 2021). The township of Tumby Bay is located 45km north of Port Lincoln. Tumby Bay has an approximate population of 1,511 with an increased population during the summer months.

Tumby Bay is the major centre of the Council area, Port Neill a small coastal town 40km north east of Tumby Bay, Ungarra a small farming town located 28km north west of Tumby Bay and Lipson a small historic farming town located 12km north west of Tumby Bay.

Council provides a Transport and Stormwater infrastructure network to residential and commercial properties in both the rural areas and built-up township areas.

The transport infrastructure assets provide transport services through the provision of a safe and effective road and footpath network. The road network includes unsealed surfaces, sealed surfaces including the underlying pavement, kerbing, footpath and bridge assets.

The stormwater infrastructure assets provide a network of underground pipes and culverts within the townships of Tumby Bay and Port Neill, enabling rainfall to be easily directed from the roads. Throughout the rural areas stormwater assets are located where it is necessary to direct water under the road (cross drains) or in some circumstances over the road (floodway).

An overview of the Transport & Stormwater infrastructure assets covered by this asset management plan are shown in Table 2.1.

**Table 2.1 Assets covered by this plan as at 30<sup>th</sup> June 2023**

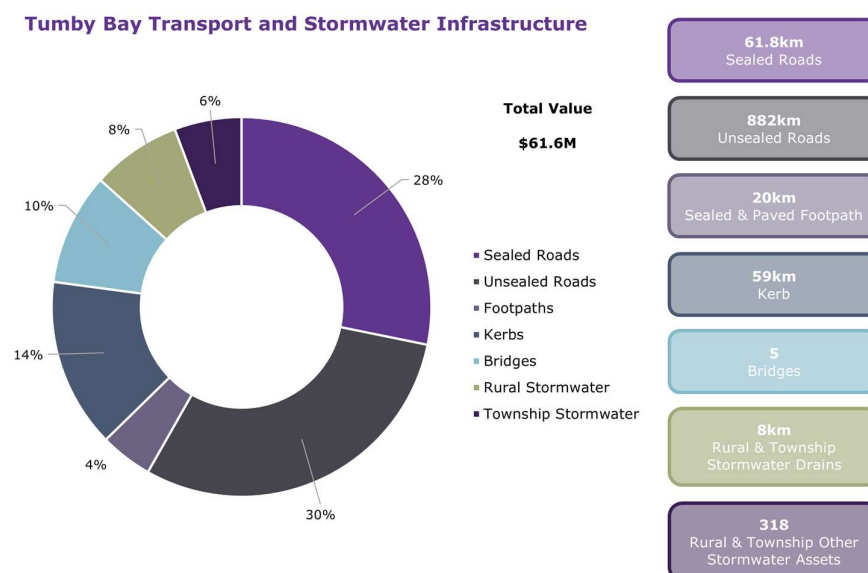
Asset Category	Dimension	Replacement Value
Sealed Road	61.8km	\$17,368,574
Unsealed Road	882.2km Sheeted	\$18,483,974
Footpath	20km Sealed/Paved	\$2,750,569
Kerbing	59.4km	\$8,891,817
Bridge	5 items	\$5,874,766
Rural Stormwater	3.6km of drains, 76 headwalls, 73 vertical walls, 57 extended aprons, and 61 floodway's	\$4,696,276
Township Stormwater	4.4km of drains, 75 stormwater pits, 23 headwalls and 14 other	\$3,524,361
<b>TOTAL</b>		<b>\$61,590,337</b>

Council is also responsible for several unsealed (gravel, rubble or crusher dust) footpaths and approximately 110km of formed roads, however it has been determined that the renewals are funded through maintenance expenditure rather than capital, for this reason these assets are not shown in Table 2.1.

In accordance with Council policy the pipe/culvert/headwall combinations at any site that are valued under Council's capitalisation threshold are funded through maintenance expenditure rather than capital. For this reason these assets are also not shown in Table 2.1. In reality, Council maintains approximately 11.4km of rural stormwater drains and approximately 277 headwalls, vertical walls and extended aprons.

Figure 2.1 shows the distribution of transport and stormwater assets by replacement value as at 1st July 2023 (note: sealed roads include the surface and underlying pavement).

**Figure 2.1 Transport & Stormwater Assets by Replacement Value as at 30<sup>th</sup> June 2023**



## 2.2 Plan Framework

This Transport and Stormwater infrastructure asset management plan is based on the fundamental structure of the IPWEA NAMS Asset Management for Small, Rural or Remote Communities template and has been simplified to minimise the content to suit The District Council of Tumby Bay.

The District Council of Tumby Bay 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:

- 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.

Key Stakeholders in the preparation and implementation of this AMP are shown in Table 2.2.

**Table 2.2 Key Stakeholders**

Key Stakeholder	Role in AMP
Mayor and Elected Members	<p>Represent needs of community.</p> <p>Allocate resources to meet the Council's objectives in providing services while managing risks.</p> <p>Ensure Council is financially sustainable.</p> <p>Adopting AM plan, annual infrastructure budget approvals, support Council staff with plan implementation.</p>
Chief Executive Officer	<p>Endorse the development of asset management plans and provide the resources required to complete this task.</p> <p>Set high level priorities for asset management development and raise the awareness of this function among staff and contractors. Support the implementation of actions resulting from this plan and lead improvements to asset management strategies and service delivery.</p> <p>Support for an asset management driven budget and LTFP.</p>
Manager – Works and Infrastructure	<p>Lead the development of Asset Management Plans</p> <p>Deliver the annual Capital, operational and Maintenance works plans.</p> <p>Coordination of works team and external contractors</p> <p>Manage Technical Levels of Service</p>
Deputy Chief Executive Officer	<p>Consolidation of the asset register and ensuring the asset valuations are accurate.</p> <p>Development of supporting financial policies such as capitalisation and depreciation.</p> <p>Preparation of asset sustainability and financial reports incorporating asset depreciation in compliance with current accounting standards.</p>
Community (residents, businesses, property owners), Visitors	<p>End users of the Assets, provide feedback on Levels of Service</p> <p>Reporting defects and deficiencies in Councils service request system</p>
Insurers	<p>Mutual agreement with Council to cover risk exposure.</p>
Asset Management Consultants	<p>Provide support for the development of asset management plans and the implementation of effective asset management principles within Council.</p> <p>Provide Asset Revaluation Support</p>

## 3 Levels of Service

Levels of service relate to outcomes the customer receives in terms of quality, quantity, responsiveness and performance as provided by the asset, they are developed in line with Councils strategic and corporate goals and legislative requirements.

### 3.1 Strategic and Corporate Goals

Council's new strategic plan is under development and will generate a new vision and will set out Council's strategic and corporate objectives for the next 10 years.

The AM Plan is built upon best practices for infrastructure asset management, and it is anticipated that it will deliver outcomes consistent with Council's long-term vision.

### 3.2 Legislative Requirements

There are many legislative requirements relating to the management of assets. Legislative requirements that impact the delivery of the Transport and Stormwater infrastructure service include:

**Table 3.1 Legislative Requirements**

Legislation	Requirement
Local Government Act 1999	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long-term financial plan supported by asset management plans for sustainable service delivery.
Local Government (Financial Management and Rating) Amendment Act 2005	Impetus for the development of a Strategic Management Plan, comprising an (Infrastructure) Asset Management Plan and Long-term Financial Plan.
Disability Discrimination Act 1992	The objectives of this act are to eliminate, as far as possible discrimination against persons on the grounds of disability. It sets the standard for accessibility.
Work Health & Safety Act	Sets out roles and responsibilities to secure the health, safety and welfare of persons at work and covering injury management, emphasising rehabilitation of workers particularly for return to work. Organisations are to provide a safe working environment and supply equipment to ensure safety.
Environment Protection Act 1993.	Provides the regulatory framework to protect South Australia's environment, including land, air and water.
Native Vegetation Act 1991	The Act and Regulations apply to the management of native vegetation on Council land, roadsides and road reserves.
Natural Resources Management Act 2004	This Act provides for the protection and management of catchments and the sustainable use of water resources

### 3.3 Asset Hierarchy

The asset hierarchy determines the strategic importance of Transport and Stormwater within the network of Council assets. Council does not have the resources to maintain every asset to the same level of service. Ranking the assets within a hierarchy and assigning different levels of service for each hierarchy level enables Council to prioritise resourcing that is appropriate for each asset. This means that the higher order assets attract greater resources because they carry greater risk and are of greater importance to the community. They may have shorter lead times to



intervention to repair, maintain or renew the asset. Whereas assets that sit lower down the asset hierarchy, do not carry the same level of importance and lead time to intervention may be greater.

To assist in this process of determining the level of service all Transport and Stormwater assets are classified using the following categories:

**Table 3.2 Asset Categorisation**

<b>Road Asset Hierarchy</b>	
Township Sealed	High, Medium and Low use (Cold Overlay/Spray Seal)
Rural Sealed	High use (Spray Seal)
Rural Sheeted Category 1	High use Arterial
Rural Sheeted Category 2A	High use Collector
Rural Sheeted Category 2B	Medium use Collector
Rural Sheeted Category 3A	Standard use
Rural Sheeted Category 3B	Low use
Township Sheeted	Low use
Natural Formed Category 4A	Standard use (non-valued)
Natural Formed Category 4B	Fire track (non-valued)
<b>Other Transport Asset Hierarchy</b>	
Bridge Cat 1	High use
Bridge Cat 2	Medium use
Bridge Cat 3	Low use
Sealed Footpath	Concrete, pavers and bitumen
Unsealed Footpath	Non-valued
<b>Stormwater Asset Hierarchy</b>	
Town SW Drains	Pipes and Culverts
Town SW Nodes	Pits and Headwalls
Kerb	Concrete (upright/rollover/median) - Town roads
Spoondrains	Concrete - Town Roads
Floodways	Concrete/Stone - Town and Rural
Rural Crossdrains	Rural road SW Management

Council has defined service levels according to “Community Levels of Service” and “Technical Levels of Service” and provides the level of service objective, performance measure process and service target in Table 3.3 and Table 3.4. These service levels apply only to the valued assets in the above hierarchy. Non-Valued assets have not been considered for management within this AM Plan.



### 3.4 Community Levels of Service

Community levels of service relate to the service outcomes that the community desires in terms of quality reliability, function and responsiveness.

**Table 3.3 Community Levels of Service**

Key Performance Measure	Level of Service Objective	Performance Measure Process	Current Service Level	Target Service Level
<b>Quality</b>	Sealed Roads – rideability and potholes, edge condition	Service requests, elected member and staff feedback	Ad-hoc inspections during other works to prioritise actions. Reactive response to customer service requests.	Opportunities for future improvement through proactive maintenance inspections with logging and actioning of defects.
	Unsealed Roads – rideability, potholes, slipperiness, washouts, Vegetation clearance	Service requests, elected member and staff feedback.	Ad-hoc inspections during other works to prioritise actions. Reactive response to customer service requests.	Opportunities for future improvement through proactive maintenance inspections with logging and actioning of defects.
		Patrol grading and vegetation maintenance schedule	Schedule subject to inspection and prioritisation. Reactive response to customer service requests.	
	Footpaths, kerbs, shared paths – Trip Hazards, slipperiness, visual amenity	Service requests, elected member and staff feedback	Some backlog of maintenance work due to limited local external resources and budget constraints	Reduced backlog with improved work practices with annual contractor workplan & schedule, implementation of panel contractor arrangements.
	Bridges - Surface condition, approach/barrier safety and visibility	Service requests, elected member and staff feedback	Annual staff inspection process. Identified defects addressed on a priority basis subject to budget limitations.	Continue to respond to requests in accordance with defined Council policies and timeframes.
<b>Function</b>	Sealed Roads are suitable for vehicle usage – Freight, community and tourist routes.	Community feedback and staff assessment	No major issues	Continue to respond to requests in accordance with defined Council policies and timeframes.

Key Performance Measure	Level of Service Objective	Performance Measure Process	Current Service Level	Target Service Level
	Unsealed Roads are suitable for vehicle usage – Freight, community and tourist routes.	Community feedback and staff assessment	No major issues	Continue to respond to requests in accordance with defined Council policies and timeframes.
	Footpaths and shared paths connect all key public locations	Community feedback and staff assessment	Some issues with widths and condition of older footpaths <1.5m. Challenges with gradient and widths of kerb ramps.	No change
	Stormwater assets	Community feedback and staff assessment	No major issues	Continue to respond to requests in accordance with defined Council policies and timeframes.
<b>Capacity/Utilisation</b>	Transport assets suitable for current and forecast traffic levels	Community feedback – traffic Counts, NHVR permits	No current issues	No change anticipated unless significant change in demand is driven by external development.
	Stormwater assets suitable for known flows	Community feedback – flooding reports	Some known, low priority capacity issues in Tumby Bay as per Stormwater Management Plan. Some surface flow issues reported in Port Neill (vicinity of Caravan Park)	No improvements planned for Tumby Bay. Planning works for improvements in Port Neill proposed within AMP.



### 3.5 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. Technical service measures are linked to the activities and annual budgets covering:

**Upgrade** – the activities to provide a higher level of service (e.g. sealing an unsealed road) or a new service that did not exist previously.

**Operations** – the regular activities to provide services (e.g. Road sweeping, cross drain clearing, verge management, inspections, etc.

**Maintenance** – the activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life (e.g. road patching, unsealed road grading, Pipe and drain repairs),

**Renewal** – the activities that return the service capability of an asset up to that which it had originally provided (e.g. road resurfacing, pavement reconstruction & pipeline replacement),

*Table 3.4 Technical Levels of Service*

Key Performance Measure	Level of Service Objective	Performance Measure Process	Current Service Level	Target Service Level
<b>Operations</b>	Efficiently utilise assets which will consume resources such as manpower, energy and materials.	Reinspection process developed and managed.	Some proactive activity across the network.	A more proactive operations schedule linked to reinspection program and asset hierarchy
<b>Maintenance</b>	Retain assets as near as practicable to its original condition but excluding rehabilitation or renewal.	Internal Maintenance Schedule	Patrol grading program developed and managed. Maintenance patching program developed and managed.	A proactive maintenance schedule linked to reinspection program and asset hierarchy with targeted works plans.
<b>Renewal</b>	Replace existing assets with assets of equivalent capacity or performance capability.	Re-sheet and Renewal program, annual capital works plan.	Renewal in line with AMP and annual budget process.	Meet and maintain planned renewal expenditures. Continue to monitor changing transport patterns and ensure adopted level of service standards remain relevant.
<b>Upgrade</b>	Upgrades are cost effective, meet end user's needs, are affordable and are in line with council policies	Budget and Audit Review	Meeting internal requirements.	No Change



### **3.6 Construction and Renewal Standards for Roads**

This plan has been developed based on assumptions related to the construction and renewal standards for the sealed and unsealed road network set out in Appendix B.

## 4 Future Demand

### 4.1 Demand Forecast

Factors affecting demand include population change, changes in demographics, seasonal factors, vehicle ownership, consumer preferences and expectations, economic factors, agricultural practices, environmental awareness, etc. 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
Significant potential major development sites	Development plans under consideration for Mining and export sites.	Demand for heavy vehicle (including over dimensional) and increase in vehicle movements (service/staff vehicles) to service mine and port proposals.  Changes to distribution of Heavy traffic across the district.	Reduction in life of assets and increase in maintenance costs. Potential for re-classification of some roads.
Grain production and routing changes	Increased grain production levels. High levels of grain cartage on existing roads	Increased movements and loads	Increased sheeting depth requirements and road damage repairs required after harvest.
	Lack of rail infrastructure and frequently changing grain receiver routes result in high demand and difficult to predict road utilisation.	Increased demand on road network.	Challenge to adapt and keep up to date on demand and shifting maintenance requirements. Existing and potential growth and more vehicle movements.
Demand for wider vehicles and over-dimensional heavy vehicles for commodity movement	Meeting demand on approved routes	Demand for upgrade of road network to meet expanding user desire	Increased construction and maintenance costs. Potential road safety impacts.
	Challenging to maintain clear widths desired by customers. Vegetation encroachment is a significant issue.  Significant annual budget allocated for roadside vegetation management	Ongoing challenges in meeting expectation	Difficulty meeting customer expectation for carriageway clear width
Growth in Tourism – Increasing caravan numbers	Predominantly on arterial roads and in townships	Increasing movements on local roads to destinations, particularly coastal.	Potential expectation of higher quality roads. Change in vehicle types using road network and potential change in user risk profile.

Demand Driver	Present Position	Projection	Impact on Services
Waste Management Facility – Butler Centre Rd	Sub-regional landfill site servicing several Councils	Increasing waste tonnages from sources on Eyre Peninsula.	Increased requirement for road renewal and maintenance
Changing Demographics	2,817 as at 2021 Census (ABS). Higher proportion of people aged +65 Years - 31% as at 2021 Census (ABS).	Overall population numbers growing slowly with an increasing aging population.	Mobility considerations and Disability Access plan. Additional requirements for footpath and access points - e.g. kerb ramps
DDA Compliance	Some footpaths not complying with current standards	Community and regulatory drivers to increase compliance	Increasing requirement for footpath renewal and upgrade. Increased unit price for replacement
Climate Change	Increasing rainfall events and intensity	Expected to continue	"Increased demand on road maintenance and grading services  Potential requirements for increased stormwater capacity  Requirement for additional stormwater clear out and maintenance"
	Higher peak temperatures with extended hot periods	Expected to continue	Bitumen bleeding.  Additional water demand during road construction.

The District Council of Tumby Bay, like many rural areas has limited growth in population as shown in Table 4.1. The ABS states that in 2021 people in the +65 years group made up 17.2% of the Australian population and this is projected to increase over time. For Tumby Bay the % of people in the +65 years group has increased from 21.6% in 2006 through to 30.7% in 2021 highlighting the trend in demographics for the region and the potential for impacts to Council in its provision of footpath services.

**Table 4.2 ABS Demographic Statistics for The District Council of Tumby Bay LGA**

Census Year	Total Population	No. of Families	No. of People Aged +65 Years	% of People +65 Years
<b>2021</b>	2,817	764	864	30.7%
<b>2016</b>	2,610	709	710	27.3%
<b>2011</b>	2,586	711	621	24.0%
<b>2006</b>	2,541	702	549	21.6%

## 4.2 Demand Management Plan

Demand for a change in services including provision of new services will be managed through a combination of:

- Further analysis of providing the service at current and target service levels,
- Managing existing assets through planned maintenance, renewal and upgrade,
- Providing new assets to meet demand,
- Communicate service levels to the community measured against current funding capacity,
- Disposal of assets determined surplus to requirements.

Opportunities identified to date for demand management are shown in Table 4.1. The impact of climate change on assets is an emerging and complex discussion and further opportunities will be developed in future revisions of this AM Plan.

**Table 4.3 Demand Management Plan Summary**

Demand Driver	Demand Management Plan
Major Development	Council a key part of part of the development proposal process, seeking the best outcome for community. Construction and maintenance agreements to be sought with proponents, agencies and stakeholders
Grain transportation	Ongoing assessment of road service levels Monitor road pavement performance and adapt practices to meet demand. Monitor grain movement trends
Larger freight and agricultural vehicles	Application of DPTI Heavy Vehicle Framework Council level of service policy Network route assessment Define responsibility for assessment and upgrades. Application of NVC Roadside Vegetation Guidelines for clearance envelopes Pursue Eyre Peninsula Roadside Vegetation Management Plan top provide specific exemptions for local requirements. Maintain existing budget allocations to deliver tree trimming program
Additional Tourism Traffic	Monitor tourism trends. Promote designated camping sites to reduce access to unsuitable areas.
Demographics and DDA Requirements	Maintain current understanding of economic development proposals and potential for rapid population change. Consider changing needs of community through strategic planning and subordinate documents. Compliance requirements will be dealt with over the long term during any planned renewal works and new footpath construction.
Climate Change	Review annual grading planning. Be prepared to be responsive to assess damage in extreme events and post process to lodge claims for funding support to public infrastructure damage through State/Federal disaster funds. Work with bitumen contractors and civil engineering consultants to optimise binder selection and construction methods for sealed roads. Review construction practices to accommodate requirement for additional moisture conditioning of materials during extended hot/dry weather.



## 5 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 2) while optimising life cycle costs.

### 5.1 Background Data

The District Council of Tumby Bay's Transport & Stormwater assets are located in both rural areas and townships within the Council and the assets covered by this asset management plan are shown in Table 2.1.

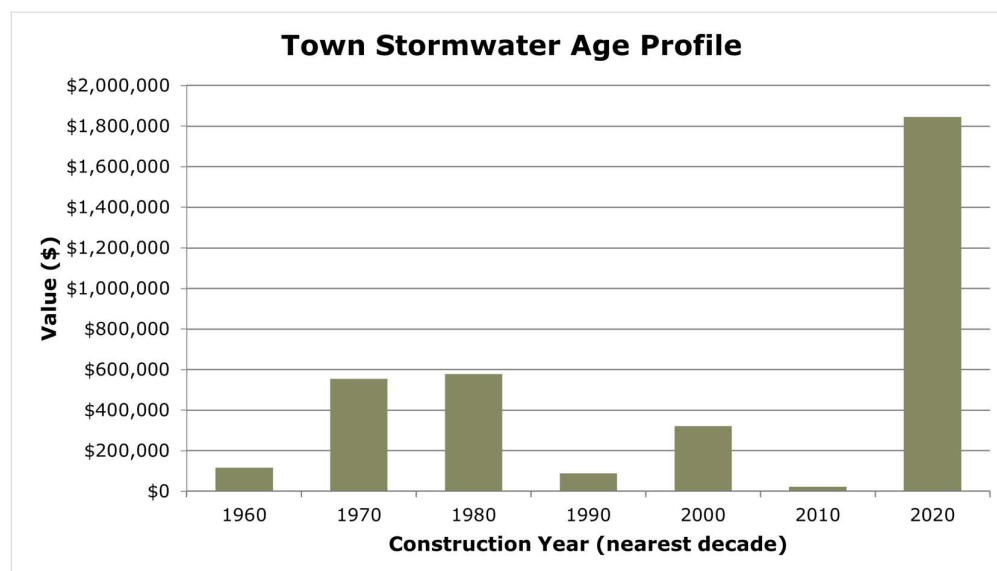
#### 5.1.1 Asset Capacity and Performance

The condition of Councils transport and stormwater assets is monitored through regular field inspections by Council works Supervisors and management. The 2022-23 valuation process included a formal condition assessment of all assets except township stormwater. The condition rating was then converted into a 0-100 consumption score for Councils asset management system, Conquest.

Details of the condition assessment process are included in Appendix A.

The township stormwater assets consumption is measured by age. The age profile of the township stormwater assets shown by Current Replacement Cost (CRC) included in this plan is shown in Figure 5.1 and reflects the significant investment by Council in township stormwater construction in recent years. There is approximately \$215k of township stormwater listed in the 15-year renewal plan.

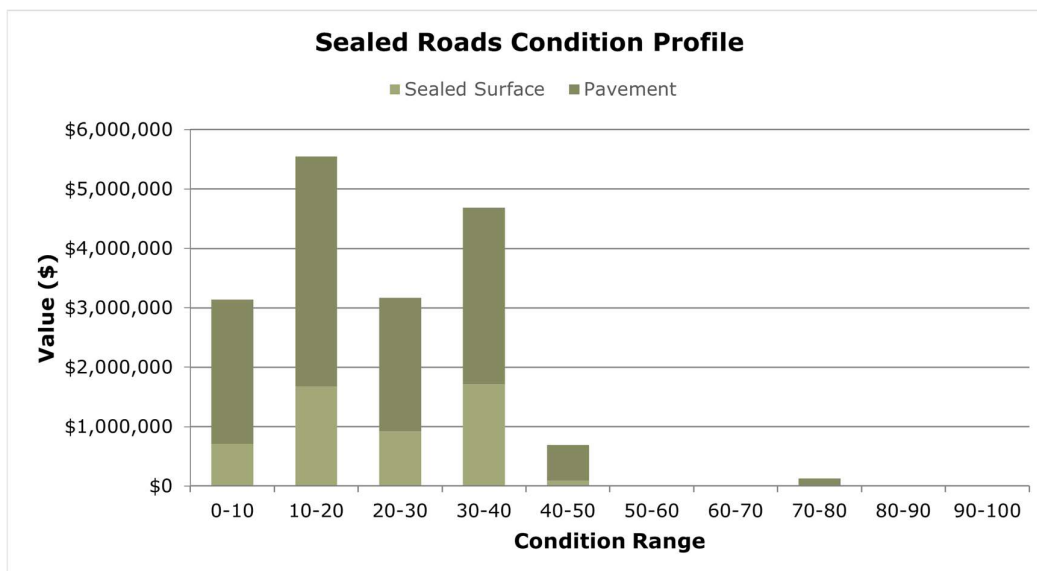
**Figure 5.1 Summary Stormwater Asset Age Profile**



The condition profile of the transport and the rural stormwater assets shown by Current Replacement Cost (CRC) included in this plan is shown in figures 4.2 to 4.7.



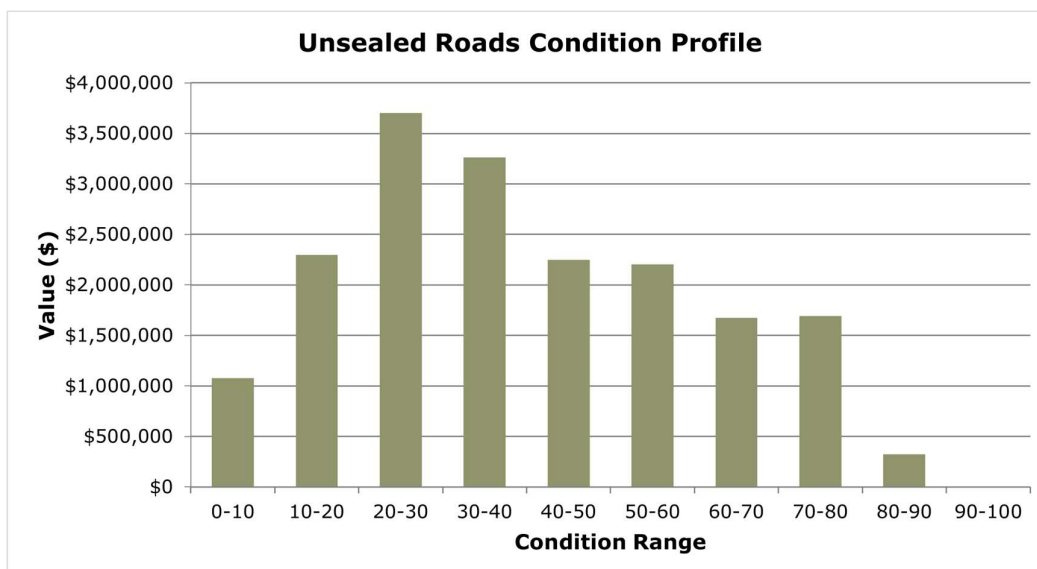
**Figure 5.2 Summary Sealed Road Condition Profile**



The defined condition score at which sealed road surface assets reach their end of life (CEoL) ranges between 35 and 48. The 15-year renewal plan targets road surfaces that are reaching CEoL during the life of this AM Plan. There are approximately \$3.35M of sealed roads listed in the renewal plan.

Pavement assets under the seal are long life assets and there are none scheduled for renewal in the life of this AM Plan.

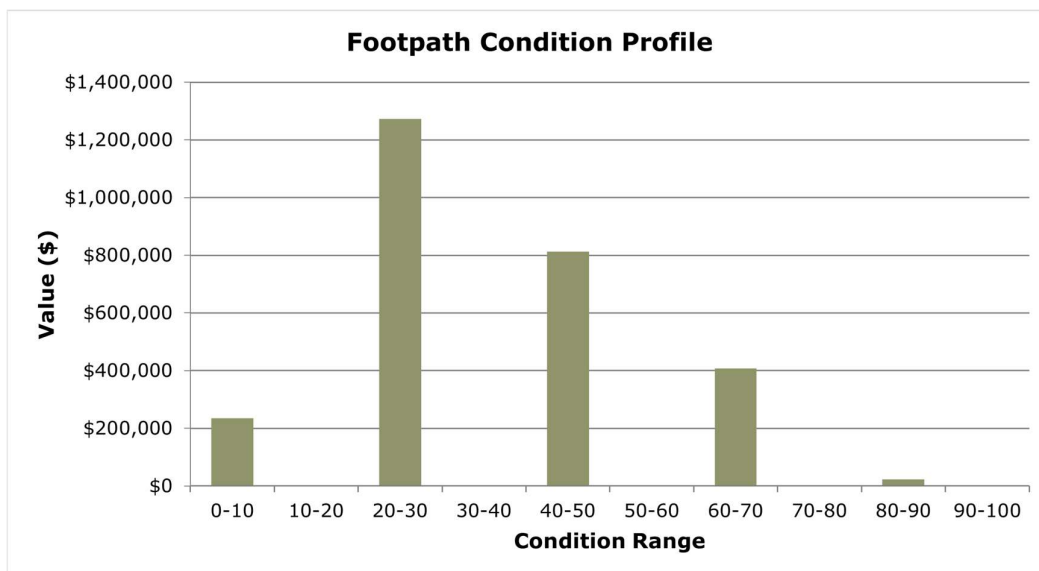
**Figure 5.3 Summary Unsealed Road Condition Profile**



The CEoL for unsealed road assets ranges between 60 and 90 depending on road classification. An extensive resheeting program is included in the 15-year renewal plan and includes approximately \$13.4M of renewal expenditure.

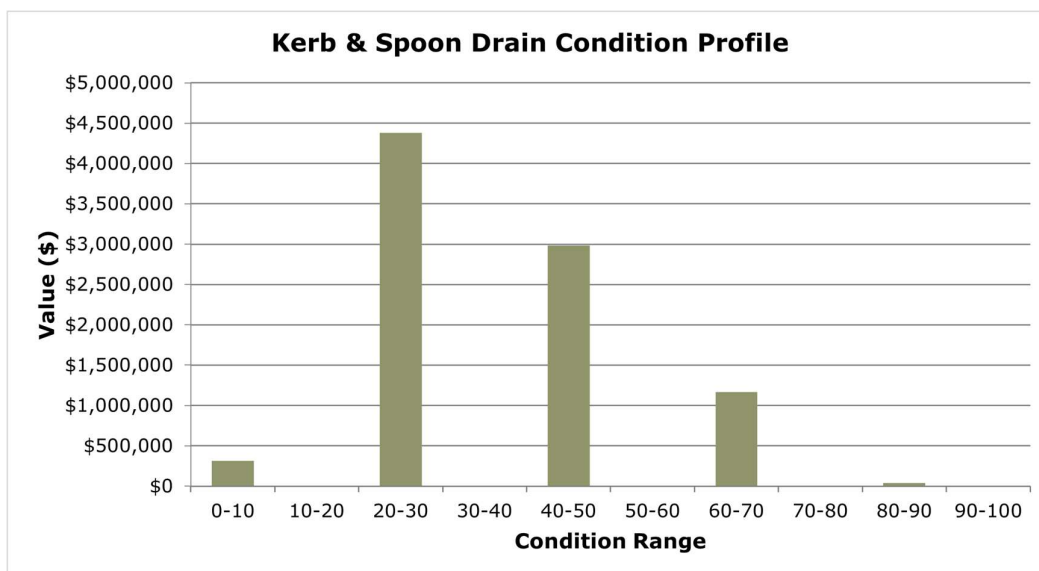


**Figure 5.4 Summary Footpath Condition Profile**



The CEoL for footpath assets is 100, this indicates that the footpath is fully expired prior to being considered for renewal. It is likely that community feedback would drive earlier intervention to some footpaths prior to reaching condition 100. Approximately \$25K of footpath assets are listed in the 15-year renewal plan.

**Figure 5.5 Summary Kerb and Spoon Drain Condition Profile**



The CEoL for kerb and gutter assets is 100, this indicates that the asset is fully expired prior to being considered for renewal. Approximately \$40K of kerb and gutter assets are listed in the 15-year renewal plan.

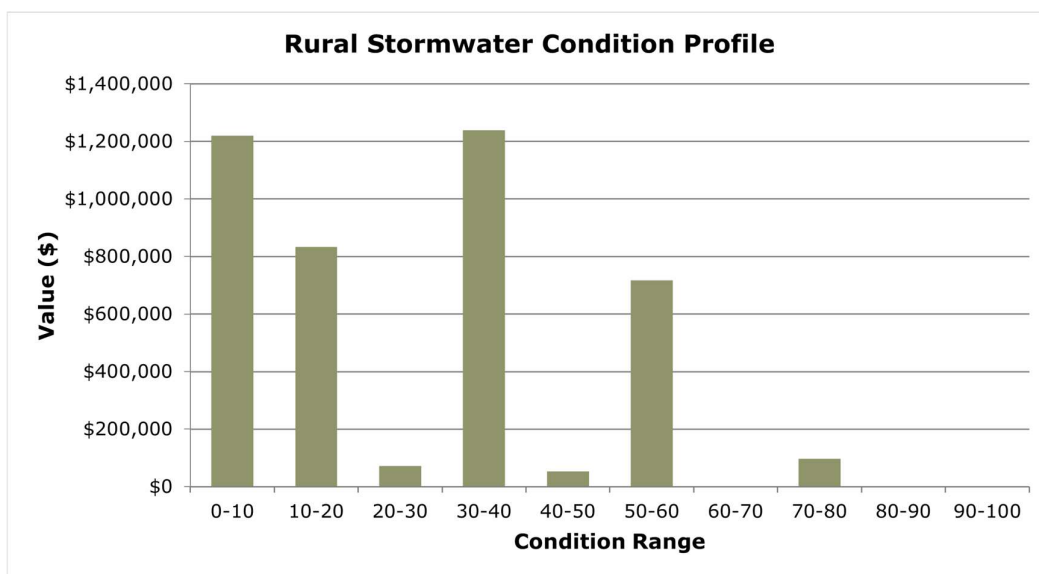


**Figure 5.6 Summary Bridge Condition Profile**



Council is responsible for 5 bridge assets. The high value of condition 0-10 assets reflects the recent upgrade of the Graham Smelt Causeway Bridge. There are no bridge assets scheduled for renewal during the 15-year planning period of this AM Plan.

**Figure 5.7 Summary Rural Stormwater Condition Profile**



The CEoL for rural stormwater assets is 100, and these are considered long term assets. Approximately \$97K of rural stormwater assets are listed in the 15-year renewal plan.

### 5.1.2 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 5.1.

**Table 5.1 Known Service Performance Deficiencies**

Location	Service Deficiency
Age friendly infrastructure within townships	<p>Inconsistent surface type, width and alignment of footpaths. Risk of trip hazard, particularly for people with mobility restrictions. Currently being addressed through routine inspection and maintenance (paving repairs, concrete grinding, etc.)</p> <p>Provision of kerb ramps inconsistent and of varying standard to be addressed at time of footpath renewal.</p> <p>Significant improvement in linkage between aged activity hubs since the last AM plan, foreshore walking trail connection from aged homes/hospital to CBD and senior citizens has been completed. Footpath construction from town oval to foreshore/senior citizens largely completed. Further improvements are being considered through Urban Design Framework process.</p>
Carriageway clearance width management	Vegetation encroaching in envelope affecting large vehicles. Seasonal issue particularly at seeding time. Increasing agricultural and commodity vehicle sizes is adding to the challenge of dealing with this requirement.
Family friendly infrastructure	Improvements in pedestrian and bicycle movements through townships have been implemented since the previous AM Plan. Further opportunities to improve and promote the links between activity hubs (school, town oval, town centre, foreshore) being considered through Urban Design Framework process.
Tumby Bay	Lack of direct collector road network to service 'island' residential areas. Current indirect route places high traffic volumes on local access standard roads.

## 5.2 Risk Management

The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

Critical risks, assessed as being 'Very High' - requiring immediate corrective action and 'High' - requiring prioritised corrective action will be identified with associated costs in future revisions of the plan.

This plan does not include a full risk assessment, future iterations of the plan may consider this. At a high level, the risks in Table 5.1 have been identified and considered in the development of this plan:



**Table 5.2 Provisional Risk Assessment**

Service or Asset at Risk	What can Happen	Risk Rating (VH,H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Sealed Roads Renewal	Increasing cost of contract services leading to reduced capacity of Council to complete maintenance and renewal	High	Increased budget allocation.  Optimised maintenance program to manage deterioration of surfaces.	Medium	\$TBA per annum in the renewal budget
Sheeted Roads Renewal	Long term supply and cost of suitable sheeting material at risk – limited new pits known	High	Increased budget allocation and modified work practices	Medium	To be reviewed annually as works programs are confirmed and detailed estimates reviewed.
Loss of Key Staff	Key experienced staff have the technical skills and local knowledge to support the maintenance and renewal of the transport assets	High	Implement a corporate process to best engage key staff and update the documentation of current work practices.  Multiple staff trained in each key role.	Medium	Ongoing costs are included in the operations budget
Grant Funding	Council is heavily dependent on grant funding for renewal and operations of its transport assets.  Current funding levels are not guaranteed in the long term	High	Continue lobbying State and Federal Government for ongoing and increased funding commitments	Medium	Ongoing costs are included in the operations budget
Environmental	Increasing Rainfall event frequency and intensity potentially leading to road erosion and premature renewal works.  Increased cost due to requirement for modified binders	High	Ensure verge, drain and stormwater infrastructure are inspected and renewed frequently.	Medium	\$TBA per annum in the operations and renewal budgets

## 5.3 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 15-year financial planning period. This provides input into the current long term financial plan and is aimed at providing the required services in a sustainable manner.

Note that all costs outlined in this section are Present values (2023 costs) – no indexation is applied in the AM Plan, this is managed through the LTFP.

### 5.3.1 Maintenance & Operations

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, examples include road sign replacement, patrol grading, pothole repairs, sealed road edge repairs and patching, Assessment and prioritisation of reactive maintenance is undertaken by operational staff using experience and judgement.

Operations include regular activities to provide services such as public health, safety and amenity, inspections, cross drain cleaning, verge spraying etc..

Council's future Transport and Stormwater maintenance & operational forecasts are based on the costs provided for previous years and have been set at the level of the 2023-24 budget which takes into account recent materials and labour inflation and optimised maintenance schedules.

For the purposes of this AM Plan it has been assumed that Operations and Maintenance are split 50% - 50%.

**Table 5.3 Annual Maintenance & Operations Expenses**

Transport and Stormwater	2021-22	2022-23	2023-24	Yr. 1 – 2024-25 Forecast
Annual Operations and Maintenance	\$843,578	\$1,334,073	\$1,045,800	\$1,045,800

### 5.3.2 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.

The 15-year renewal plan for assets including kerb, footpath, bridge, rural and township stormwater assets was based on the asset expiry date data for assets within the register.

The method used to develop the renewal plan for the sealed and unsealed roads utilised the expiry dates from the most recent condition data collection in 2022-23. The Sealed and unsealed roads expiring over the 15-year planning period were selected for final review and prioritisation. During this review it was identified that there are some discrepancies between condition data developed during the field assessment process and the final review and prioritisation. A detailed renewal schedule has been finalised for Yr1 (2024-25) of the AM Plan however to improve confidence in the available data and determine the optimum long-term expenditure to maintain the condition of Council's road network a further field review and analysis will be completed over the next 12 months as part of the improvement plan.

For the purposes of long-term financial planning, the average cost for sealed and unsealed road renewals from the 2022-23 condition assessment data has been utilised for Yr2 – Yr15.



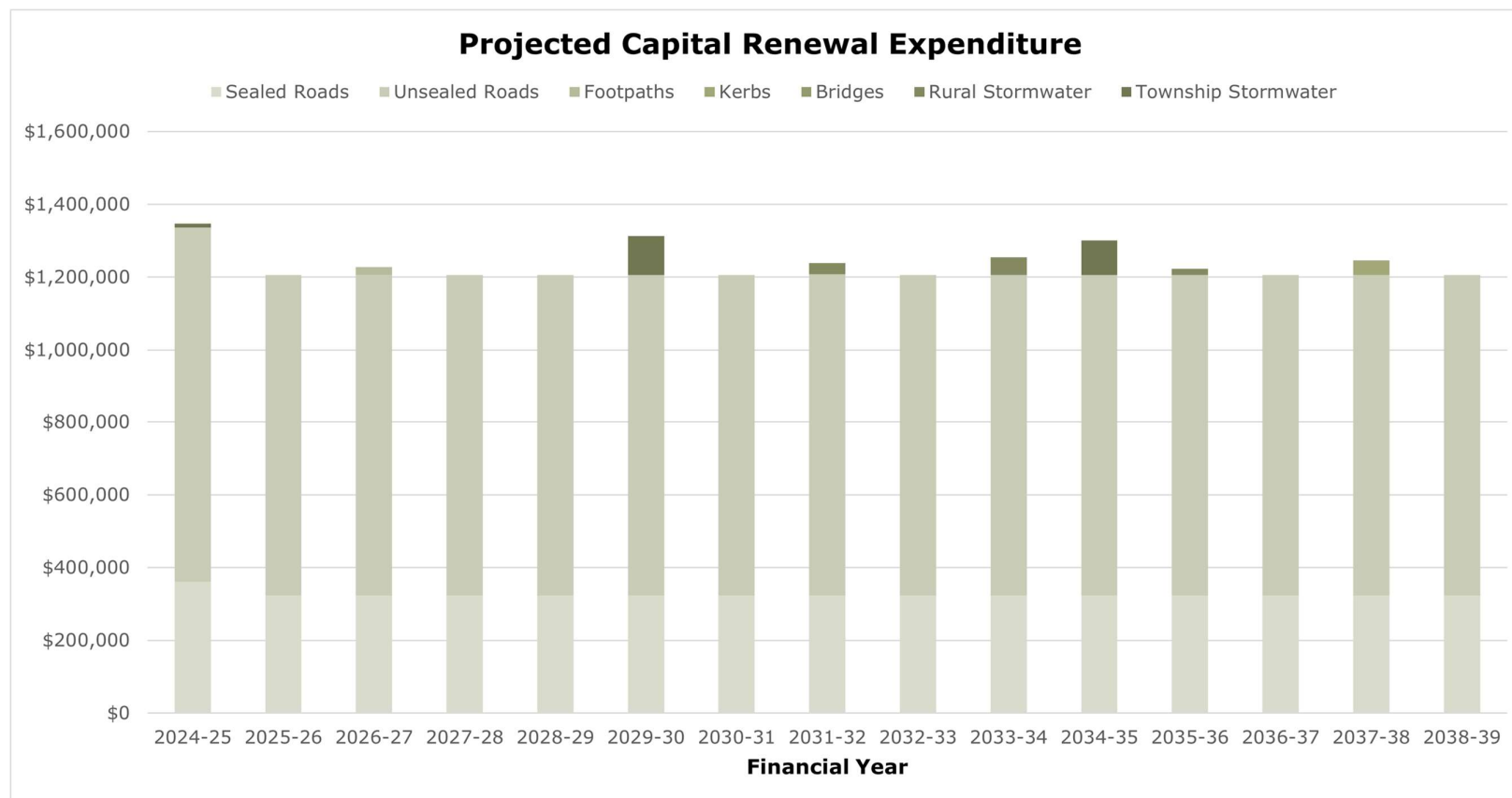
The costs associated with the renewals have been aggregated for each financial year over the 15 year planning period and shown in Table 5.4 and Figure 4.8. The average annual capital renewal cost is \$1.24M.

**Table 5.4 Required Capital Renewal Expenditure**

Financial Year	Capital Renewal Expenditure
2024-25	\$1,346,680
2025-26	\$1,205,461
2026-27	\$1,228,218
2027-28	\$1,205,461
2028-29	\$1,205,461
2029-30	\$1,313,384
2030-31	\$1,205,461
2031-32	\$1,238,290
2032-33	\$1,205,461
2033-34	\$1,255,107
2034-35	\$1,301,121
2035-36	\$1,223,192
2036-37	\$1,205,461
2037-38	\$1,246,114
2038-39	\$1,205,461
Total	\$18,590,333



**Figure 5.8 Required Capital Renewal Expenditure**



### 5.3.3 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.

The specific Upgrade projects over the 15-year planning period are:

- Peake Tce, Port Neill Stormwater Planning
- Pumpa Street, Tumby Bay Road Upgrade

The costs associated with the new/upgrades have been summarised for each financial year over the 15-year planning period and shown in Table 5.5.

**Table 5.5 Budgeted New/Upgrade Expenditure**

Financial Year	Project	Upgrade Expenditure
<b>2025-26</b>	Peake Tce, Port Neill Stormwater Planning	\$50k
<b>2026-27</b>	Peake Tce, Port Neill Stormwater Implementation	\$200k
<b>2029-30</b>	Pumpa Street Upgrade	\$1,320k
<b>Total</b>		<b>\$1,570k</b>

### 5.3.4 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. In general the cost of disposal of an asset or component is included within planned renewal and upgrade projects. There are no planned asset disposals within the 15 year planning period.

### 5.3.5 Financial Projections

The financial projections are shown in Table 5.6 and Figure 5.9 for projected Maintenance & Operations, Renewal, Upgrade & Acquisition, Disposals and total estimated budget funding.

The average annual projected maintenance & operations, renewal, upgrade & acquisition and disposal expenditure required over the 15-year planning period is \$2.39M.

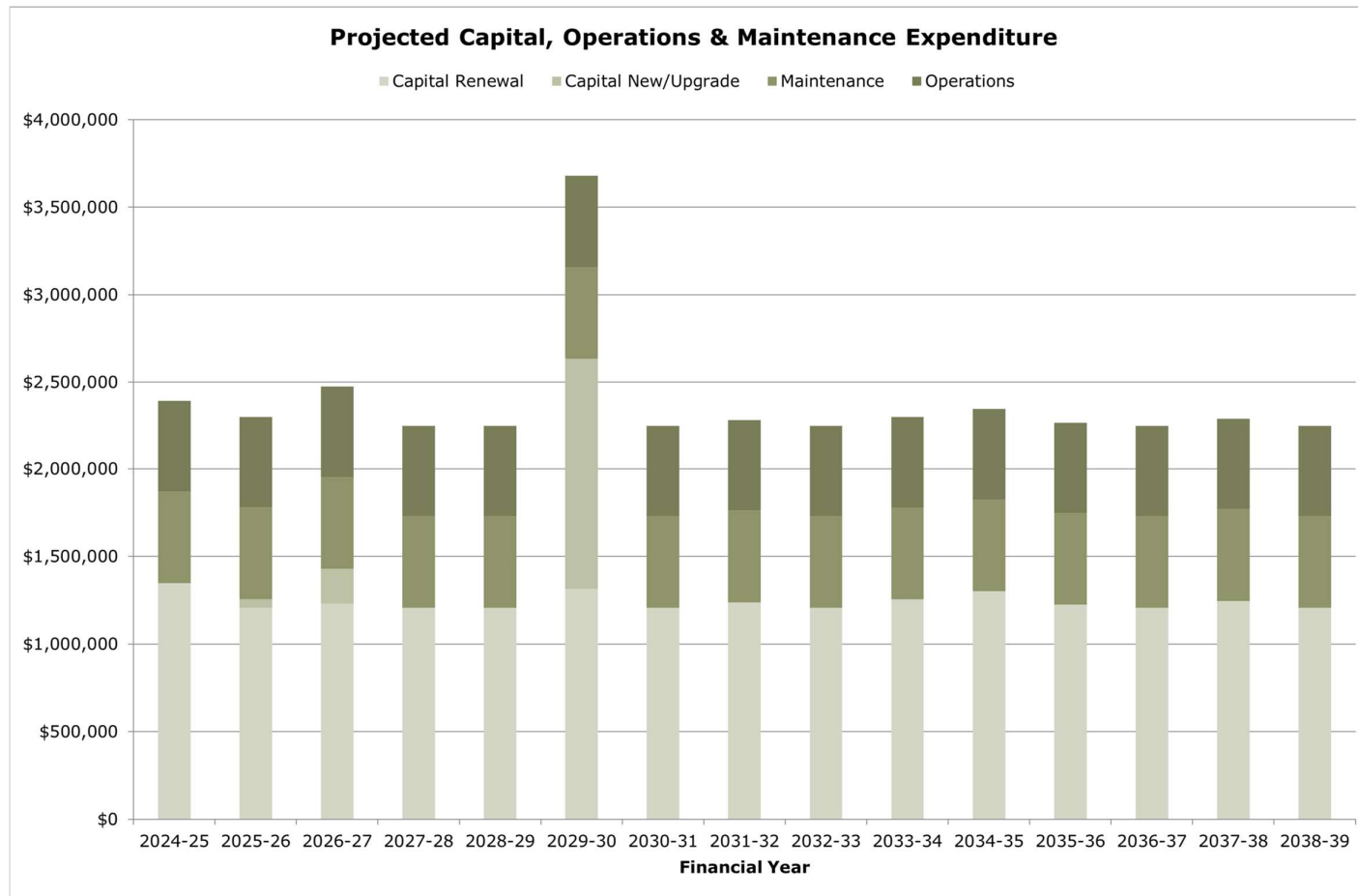
The level of expenditure will be updated following the comprehensive review and analysis of the condition data for the Sealed and Unsealed Roads which will determine specific annual renewal projects to optimise the sustainability of the management of Councils Transport and Stormwater assets.



**Table 5.6 Operating and Capital Expenditure**

<b>Financial Year</b>	<b>Maintenance &amp; Operations</b>	<b>Renewal</b>	<b>Upgrade</b>	<b>Disposal</b>	<b>Estimated Budget Funding</b>
<b>2024-25</b>	\$1,045,800	\$1,346,680	\$0	\$0	\$2,392,480
<b>2025-26</b>	\$1,045,800	\$1,205,461	\$50,000	\$0	\$2,301,261
<b>2026-27</b>	\$1,045,800	\$1,228,218	\$200,000	\$0	\$2,474,018
<b>2027-28</b>	\$1,045,800	\$1,205,461	\$0	\$0	\$2,251,261
<b>2028-29</b>	\$1,045,800	\$1,205,461	\$0	\$0	\$2,251,261
<b>2029-30</b>	\$1,045,800	\$1,313,384	\$1,320,000	\$0	\$3,679,184
<b>2030-31</b>	\$1,045,800	\$1,205,461	\$0	\$0	\$2,251,261
<b>2031-32</b>	\$1,045,800	\$1,238,290	\$0	\$0	\$2,284,090
<b>2032-33</b>	\$1,045,800	\$1,205,461	\$0	\$0	\$2,251,261
<b>2033-34</b>	\$1,045,800	\$1,255,107	\$0	\$0	\$2,300,907
<b>2034-35</b>	\$1,045,800	\$1,301,121	\$0	\$0	\$2,346,921
<b>2035-36</b>	\$1,045,800	\$1,223,192	\$0	\$0	\$2,268,992
<b>2036-37</b>	\$1,045,800	\$1,205,461	\$0	\$0	\$2,251,261
<b>2037-38</b>	\$1,045,800	\$1,246,114	\$0	\$0	\$2,291,914
<b>2038-39</b>	\$1,045,800	\$1,205,461	\$0	\$0	\$2,251,261
<b>Total</b>	<b>\$15,687,000</b>	<b>\$18,590,333</b>	<b>\$1,570,000</b>	<b>\$0</b>	<b>\$35,847,333</b>

**Figure 5.9 Summary Projected Maintenance, Operations and Capital Expenditure**



## 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 6.1 Tasks identified for improving future versions of the AM Plan**

Task No.	Task	Responsibility
1.	Conduct a risk assessment workshop in order to develop a comprehensive asset management risk and treatment plan for inclusion in future iterations of the AM Plan.	Council
2.	Visual condition assessment of individual township stormwater pits and update renewal plan. Township stormwater assets are currently age based and grouped within the asset register. Consider as part of the next inspection for valuation.	Council
3	Complete a review and calibration of road condition assessment scoring and update 15-year renewal planning to suit.	Council
4	Review standard useful life for sealed road assets to determine if there are opportunities to extend renewal periods for short life sealed segments	Council

This AM 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.

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

## 7 References

- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/IIMM](http://www.ipwea.org/IIMM)
- IPWEA, 2015, 3rd edn., 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/IIMM](http://www.ipwea.org/IIMM)
- IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/namsplus](http://www.ipwea.org/namsplus).
- IPWEA, 2015, 2nd edn., 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/AIFMM](http://www.ipwea.org/AIFMM).
- IPWEA, 2020 'International Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney
- IPWEA, 2018, Practice Note 12.1, 'Climate Change Impacts on the Useful Life of Assets', Institute of Public Works Engineering Australasia, Sydney
- IPWEA, 2012, Practice Note 6 Long-Term Financial Planning, Institute of Public Works Engineering Australasia, Sydney, <https://www.ipwea.org/publications/ipweabookshop/practicenotes/pn6>
- IPWEA, 2014, Practice Note 8 – Levels of Service & Community Engagement, Institute of Public Works Engineering Australasia, Sydney, <https://www.ipwea.org/publications/ipweabookshop/practicenotes/pn8>
- ISO, 2014, ISO 55000:2014, Overview, principles and terminology
- ISO, 2018, ISO 31000:2018, Risk management – Guidelines
- IPWEA, 2006, *NAMS.PLUS 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)
- District Council of Tumby Bay Road Asset Valuation & Methodology 1 July 2022 (220835.01R005RevB)
- District Council of Tumby Bay Stormwater Asset Valuation & Methodology 1 July 2022 (220835.01R004RevA)



## Appendix A Asset Condition Assessment

As part of the recent asset valuation process, transport and rural stormwater 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.

It was not practical to condition rate township stormwater assets, therefore construction dates (age) were used to estimate asset consumption.

### ***Sealed Road***

Sealed roads are inspected at a segment level, 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, 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 include:

- Binder
- Flushing (Texture)
- Stripping
- Patching
- Aggregate
- Environmental cracking
- Load induced cracking

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 give a score out of 100 based on their severity and extent of damage, the defects collected for sheeted roads include:

- Sheeting depth
- Sheeting condition
- Drainage
- Rideability
- Shape (cross fall)

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

### ***Footpath***

Footpath assets are inspected at a segment level for both left and right hand sides. When a footpath segment is condition rated the overall condition of the footpath is recorded along with the cross fall (%). The individual 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 hand sides. When a kerb segment is condition rated the cracking, misalignment, chipping and drainage ability of the kerb is assessed along with the replacement required (%). The individual scores are weighted to provide a single overall score based on a 0 (as new) to 100 (fully consumed) rating.

### ***Bridge***

Bridge assets are inspected at a component level and include wingwalls, floor, abutments, deck, kerbs, barriers and surface. The components score is then averaged to provide an overall score based on a 0 (as new) to 100 (fully consumed) rating.

### ***Rural Stormwater***

Rural stormwater assets include pipes, box culverts, headwalls and floodways, each asset type is inspected individually. Pipe and box culvert assets are assessed based by visual assessment of the condition, a blockage score and a vegetation score. These three scores are weighted to provide a single overall score based on a 0 (as new) to 100 (fully consumed) rating. Headwall and floodway assets are assessed by visual assessment of the condition only based on a 0 (as new) to 100 (fully consumed) rating.





## Appendix B Road Construction Standards

This plan has been developed based on assumptions related to the construction and renewal standards set out in this appendix for the sealed 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 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 condition of the network is further defined in Section 4 – Life Cycle Management.

### **Township Sealed (High, Medium & Low Use)**

Council owns and maintains a township sealed road network totalling approximately 33km. Township sealed roads are categorised based on high, medium and low use. Service level requirements for township sealed roads vary depending on several factors and as such no single desirable service level can be provided.

#### ***Current Standard***

##### **Construction Method**

*Seal Width:* Varies

*Seal Types:* Spray seal and cold overlay

*Pavement Width:* Varies

*Pavement Depth:* 200mm

*Formation:* Included

##### **Renewal Method**

*Reseal:* Varies

Two coat spray seal on township high use roads (spray seal 14/7mm)

Single coat spray seal on township medium and low use roads (spray seal 5mm)

Note: it is assumed cold overlay surfaces will be replaced with spray seal.

*Pavement:* Varies

For township high use roads, rework existing pavement and sub-base, import 200mm granular material, water and roll, prime surface

For township medium and low use roads, pulverise existing sub-base, stabilise recompact and trim, prime surface

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

*Seal Life:* 10 to 30 years depending on usage

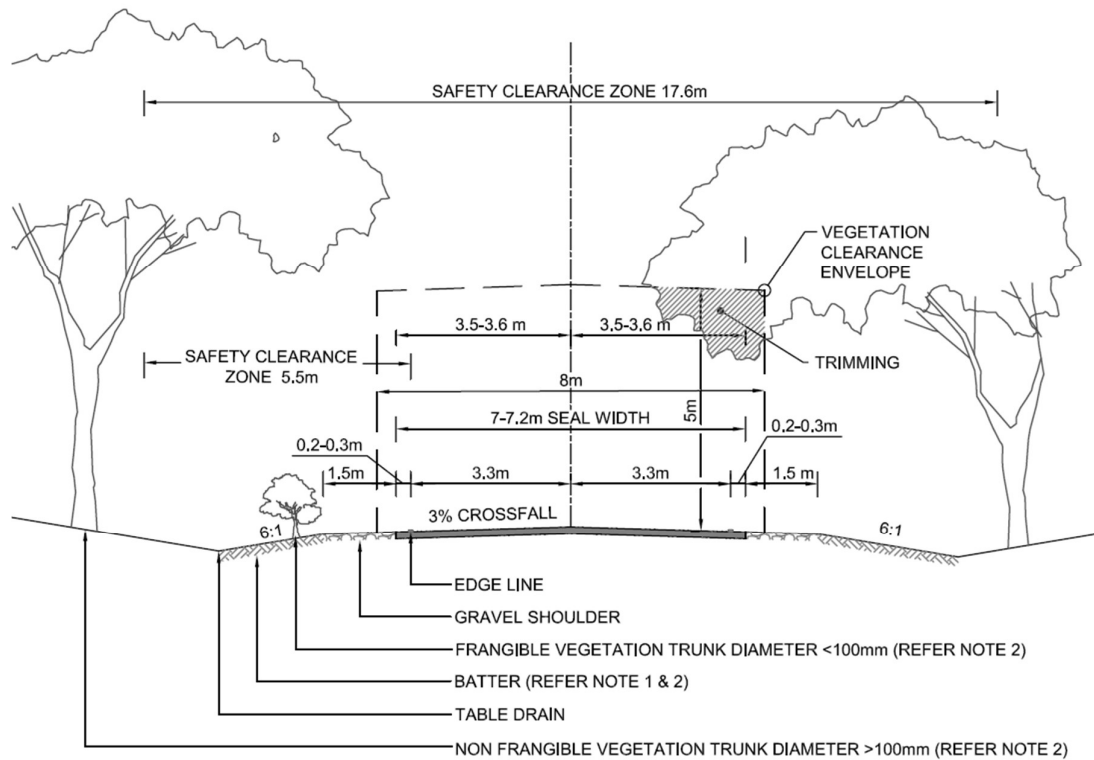
*Pavement Life:* 50 to 132 years depending on usage



## Rural Sealed

Council owns and maintains a rural sealed road network totalling approximately 28.4km. Rural sealed roads are all classified as high use. The figure below shows a typical construction cross section to illustrate Councils service target for rural sealed roads. It is noted that this is not always achievable due to native vegetation restrictions.

### Target Service Level



#### 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.

### Rural Sealed Construction Cross Section



#### ***Current Standard***

##### **Construction Method**

*Seal Width:* Varies

*Seal Types:* Spray seal

*Pavement Width:* Varies

*Pavement Depth:* 200mm

*Formation:* Included

##### **Renewal Method**

*Reseal:* Single coat spray seal on (spray seal 7mm)

*Pavement:* Pulverise existing seal and base, import 125mm granular material, water and roll, prime surface.

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

*Seal Life:* 15 years.

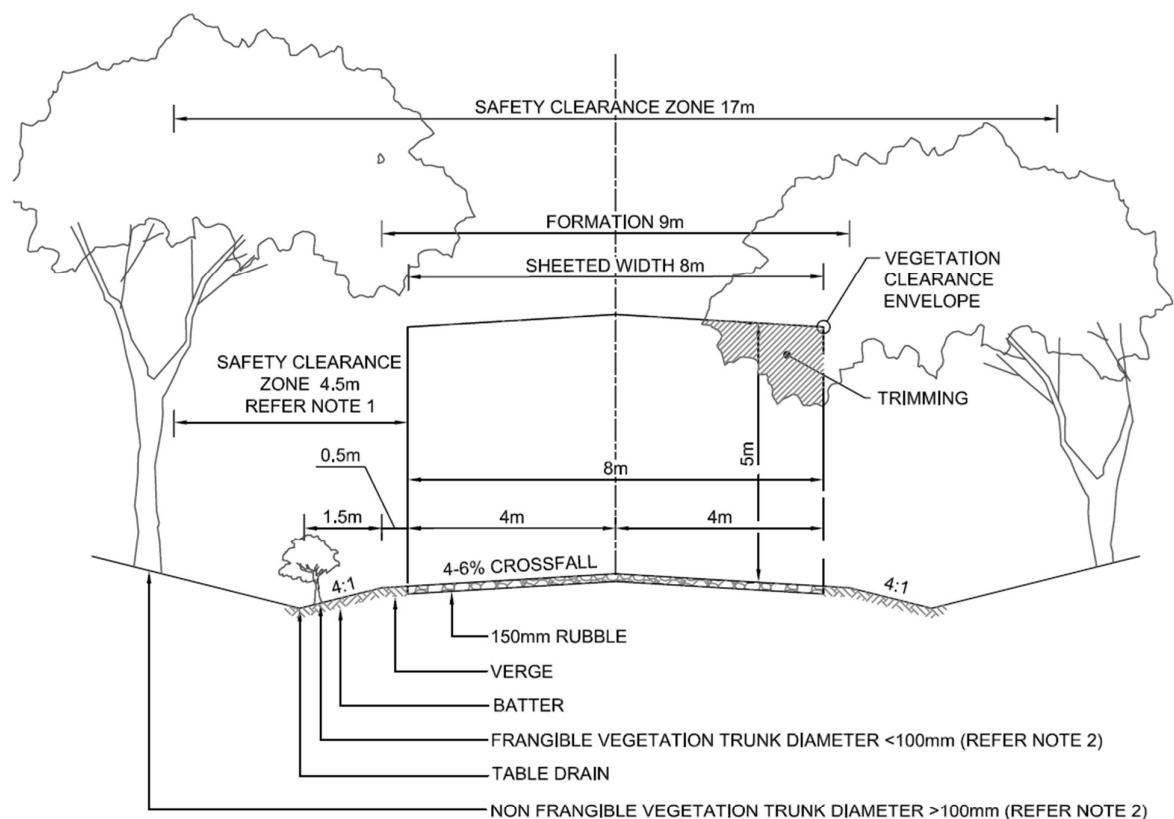
*Pavement Life:* 120 years depending on material.



## Rural Sheeted Category 1 (Arterial)

Council owns and maintains a rural sheeted category 1 road network totalling approximately 130km. Rural sheeted category 1 roads are all classified as high use. The figure below shows a typical construction cross section to illustrate Councils service target for rural sheeted category 1 roads. It is noted that this is not always achievable due to native vegetation restrictions.

### Target Service Level



#### 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.

### Rural Sheeted Category 1 Construction Cross Section



### ***Current Standard***

#### **Construction Method**

*Sheeting Width:* 8m

*Sheeting Depth:* 120mm on 50mm nominal residual material (total 170mm)

*Formation:* Included

#### **Renewal Method**

*Resheet:* Reform existing material to create cross fall and shape. Supply, place and compact 120mm crushed material.

*Condition at End of Life:* Assume 50mm rubble left prior to resheeting with no subgrade break through, equates to a score of 82 in the asset system.

*Useful Life:* 8 to 16 years depending on material quality.

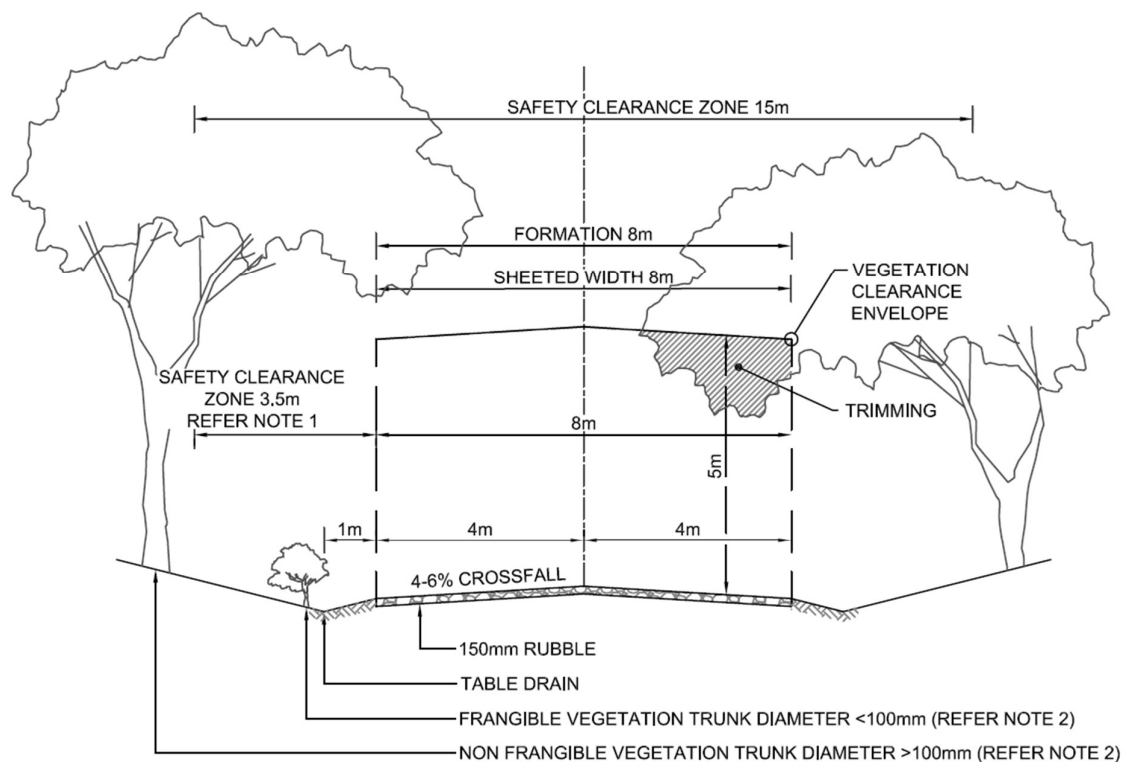
*Formation:* Assume have indefinite life hence no cost incurred at renewal.



## Rural Sheeted Category 2A High Use (Collector)

Council owns and maintains a rural sheeted category 2A road network totalling approximately 180km. Rural sheeted category 2A roads are all classified as high use. The figure below shows a typical construction cross section to illustrate Councils service target for rural sheeted category 2A roads. It is noted that this is not always achievable due to native vegetation restrictions.

### Target Service Level



### 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.

### Rural Sheeted Category 2A Construction Cross Section



### ***Current Standard***

#### **Construction Method**

*Sheeting Width:* 8m

*Sheeting Depth:* 120mm on 30-40mm nominal residual material (total 150-160mm)

*Formation:* Included

#### **Renewal Method**

*Resheet:* Reform existing material to create cross fall and shape. Supply, place and compact 120mm crushed material. No allowance made for residual rubble.

*Condition at End of Life:* Assume 30-40mm rubble left prior to resheeting with no subgrade break through, equates to a score of 83 in the asset system.

*Useful Life:* 10 to 18 years depending on material quality

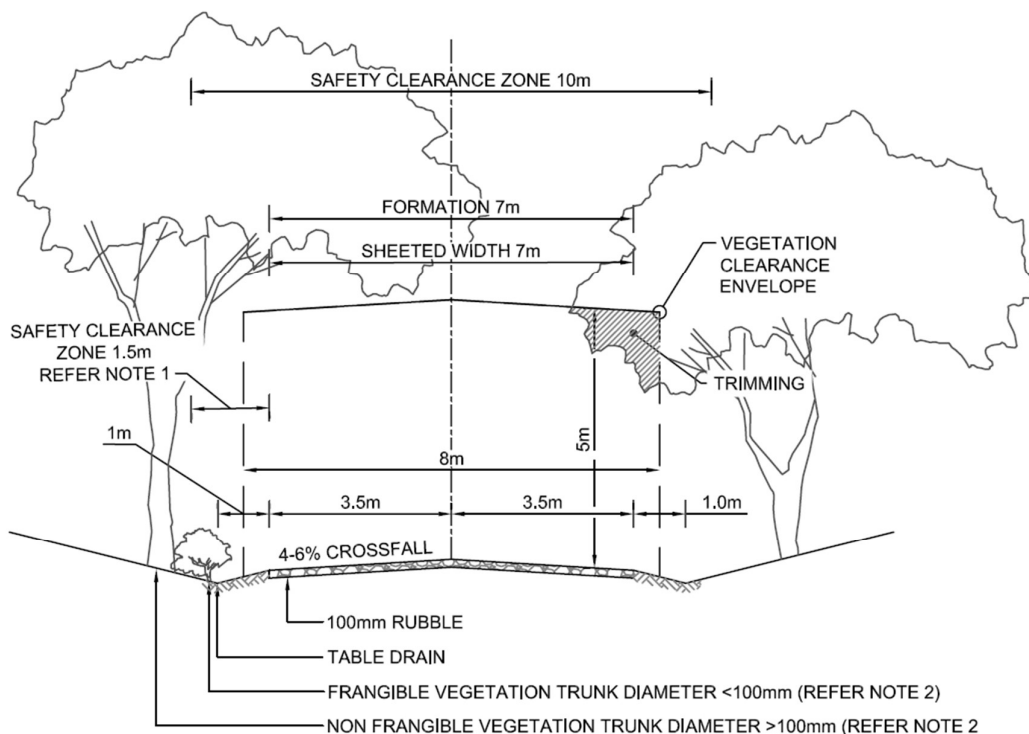
*Formation:* Assume have indefinite life hence no cost incurred at renewal



### Rural Sheeted Category 2B Medium Use (Collector)

Council owns and maintains a rural sheeted category 2B road network totalling approximately 289km. Rural sheeted category 2B roads are all classified as medium use. The figure below shows a typical construction cross section to illustrate Councils service target for rural sheeted category 2B roads. It is noted that this is not always achievable due to native vegetation restrictions.

#### Target Service Level



#### 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. For single lane, two way roads the following applies
  - a. 6m vegetation clear envelope width
  - b. 6m sheeted rubble width
  - c. 8.5m safety clear zone

#### Rural Sheeted Category 2B Construction Cross Section





### ***Current Standard***

#### **Construction Method**

*Sheeting Width:* 7m

*Sheeting Depth:* 120mm on 30-40mm nominal residual material (total 150-160mm)

*Formation:* Included

#### **Renewal Method**

*Resheet:* Reform existing material to create cross fall and shape. Supply, place and compact 120mm crushed material.

*Condition at End of Life:* Assume 30-40mm rubble left prior to resheeting with no subgrade break through, equates to a score of 85 in the asset system.

*Useful Life:* 14 to 25 years depending on material quality

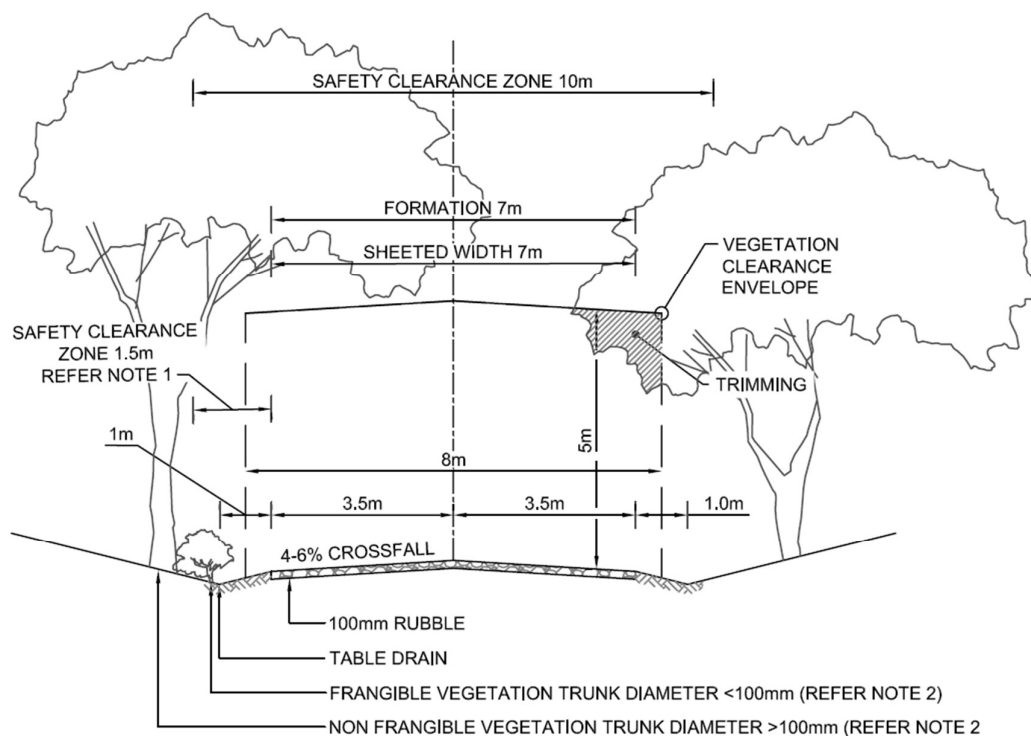
*Formation:* Assume have indefinite life hence no cost incurred at renewal



### Rural Sheeted Category 3A Standard Use & 3B Low Use (Local)

Council owns and maintains a rural sheeted category 3A & 3B road network totalling approximately 199km and 83km respectively. Rural sheeted category 3A roads are classified as standard use with category 3B roads classified as low use. The figure below shows a typical construction cross section to illustrate Councils service target for rural sheeted category 3A & 3B roads. It is noted that this is not always achievable due to native vegetation restrictions.

#### Target Service Level



#### 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. For single lane, two way roads the following applies
  - a. 6m vegetation clear envelope width
  - b. 6m sheeted rubble width
  - c. 8.5m safety clear zone

#### Rural Sheeted Category 3A & 3B Construction Cross Section



### ***Current Standard***

#### **Construction Method**

*Sheeting Width:* 6m

*Sheeting Depth:* 100mm on 20-25mm remaining material (total 120-125mm)

*Formation:* Included

#### **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 20-25mm rubble left prior to resheeting with no subgrade break through, equates to a score of 90 in the asset system.

*Useful Life:* Varies

3A Standard Use 22 to 30 years depending on material quality.

3B Low Use 35 to 32 years depending on material quality.

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

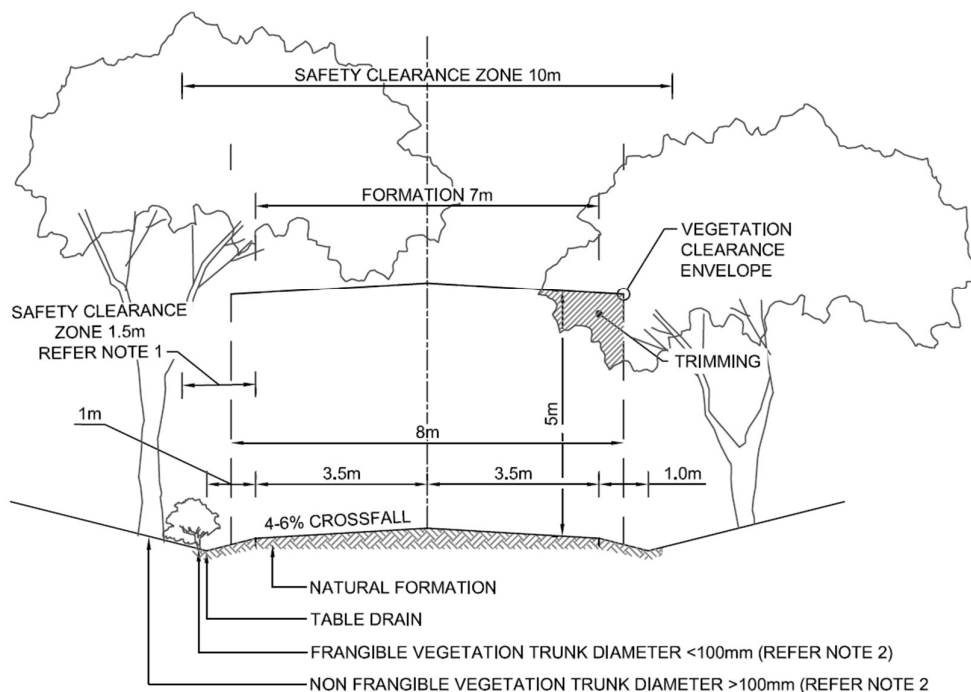


## Rural Natural Formed Category 4A Standard Use & 4B Fire Track

Council owns and maintains a rural natural formed category 4A & 4B road network totalling approximately 81km and 29km respectively. Rural natural formed category 4A roads are classified as standard use with category 4B roads classified as fire track use. The figure below shows a typical construction cross section to illustrate Councils service target for rural natural formed category 4A & 4B roads. Natural formed roads require no road base material to provide a surface, they are never renewed by capital works, they do undergo regular maintenance activities (grading). Category 4A and 4B roads do not require all weather access.

It is noted that this is not always achievable due to native vegetation restrictions.

### Target Service Level



#### 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. For single lane, two way roads the following applies
  - a. 6m vegetation clear envelope width
  - b. 6m formation
  - c. 8.5m safety clear zone

### Rural Natural Formed Category 4A & 4B Construction Cross Section

#### Current Service Level

#### Replacement Cost Assumptions

Not a valued asset

#### Renewal Method

Not a valued asset, maintained by grading.