



TRANSPORT ASSET MANAGEMENT PLAN

April 2021



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1 Executive Summary

The compilation of an Asset Management Plan (AMP) is a process of investigation and review of data from multiple sources, including Council's Engineering and Finance Departments, Councils Works Depot and External Consultants. The first iteration of these asset plans in 2014 identified significant opportunities to improve Councils asset knowledge, documentation, budgeting, construction methodologies and maintenance management.

Since Council's acceptance of the first AMP, improved data collection and field validation using tailored technology, upskilling of staff to undertake field based condition assessment, implementation of a componentised asset register and maintenance management system and integration with Councils finance systems and software have yielded significant improvements in Council's asset management maturity.

In addition to the above improvement, Council have engaged specialist asset management consultants Assetic to undertake strategic analysis of our generation two road surface condition data and provide Council with an optimised 10 year spending forecast for the period 2020 to 2030. Further detail of this optimised spending is included in Section 6.

1.1 Purpose of the Plan

The fundamental purpose of this Transport Asset Management Plan is to improve Council's long-term strategic management of its Transport Infrastructure assets in order to cater for the community's required levels of service in the future as detailed under Section 3. The plan defines the state of Council's Transport assets at the close of the past financial year, the 10-year funding required to achieve Council's adopted asset performance targets and the planned asset management activities over a 10-year planning period.

The Sorell community is continually growing and its forecast growth over the next 25 years is more than 5.7 times the state average. As a result of this growth, Council's services are in high demand along with requests for new facilities, infrastructure and recreational spaces. (Annual Report 2018-19, Mayors Report).

This Plan encompasses a variety of infrastructure assets and therefore the following is a list of the asset categories used within Assetic that make up Councils Transport Asset Class.

This Plan encompasses the following infrastructure asset categories:

- Roads (Sealed and Unsealed)
- Footpaths
- Kerbs
- Bridges / Major Culverts
- Traffic Management devices
- Bus Stops
- Public Transport Shelter

The following two figures demonstrate where this AMP sits amongst other Sorell Council documentation and what elements ideally feed the AMP and what outputs come out of a successfully implemented AMP.



Figure 1. Councils document hierarchy and descriptions of each for which all is published on Council's website to adhere to the Local Government Act.

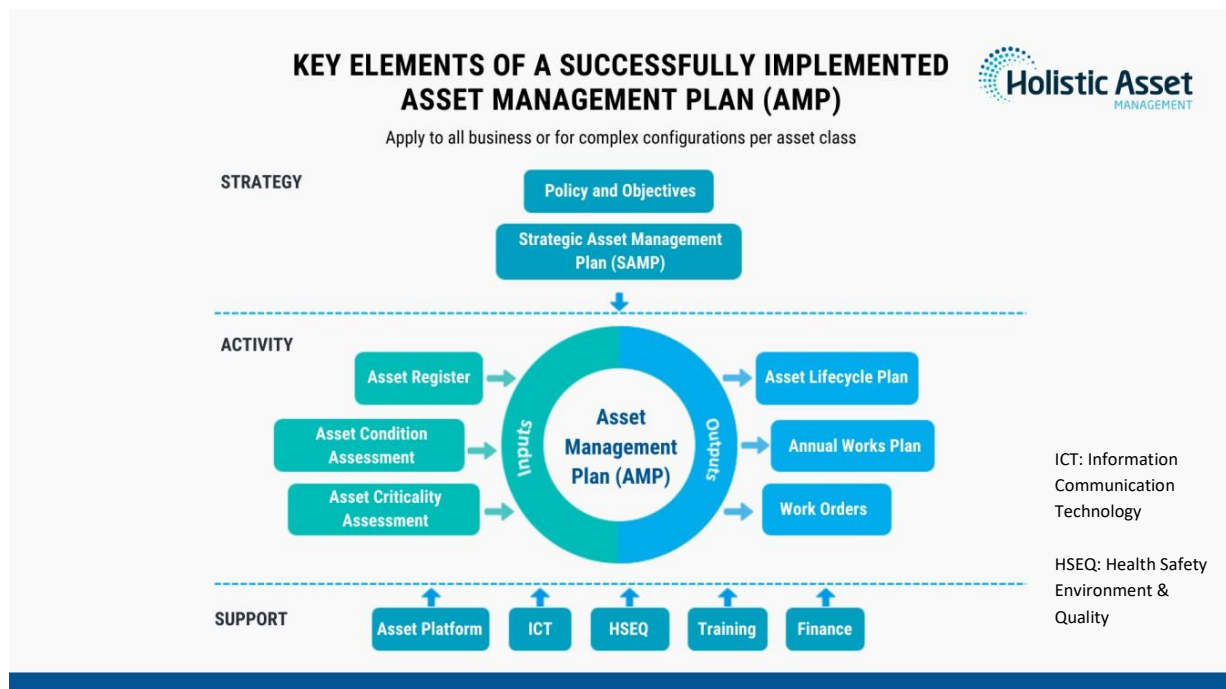


Figure 2. A detailed diagrammatic framework of the ideal elements that allow to successfully implement and Asset Management Plan. (Source: <https://www.holisticam.com.au/asset-management-plan-key-elements/>)

1.2 Current State of Council's Assets

Transport assets have a total replacement cost of \$191 million with a written down value of \$96.7 million as of June 30th 2020. Table 1 below shows the asset category breakdown for these amounts.

Table 1. A break up of the asset categories that make up the transport asset class and their respective replacement costs, depreciated replacement costs and consumption ratios as of June 30 2020.

Asset Category	Total Replacement Cost	Total Depreciated Replacement Cost	Asset Consumption Ratio
Car Parks	\$ 4,177,590	\$ 3,487,443	83%
Roads (All Components)*	\$ 235,545,909	\$ 154,789,350	66%
Roads (depreciable components only)	\$ 150,917,891	\$ 70,161,333	46%
Pathways	\$ 10,468,636	\$7,161,616	68%
Kerbs	\$ 5,541,759	\$ 3,543,546	64%
Bridges / Major Culverts	\$ 18,650,297	\$ 11,004,880	59%
Traffic Management Devices	\$ 1,032,076	\$ 968,697	94%
Public Transport Shelters	\$ 287,086	\$ 161,183	56%
Public Transport Stops	\$ 251,439	\$ 231,563	92%
Grand Total**	\$ 191,326,774	\$ 96,720,261	51%

*Roads replacement cost includes all components including Land Under Roads (LUR) and Formation which are non-depreciable.

** Grand total excludes the Land Under Roads and Formation totals

1.3 Key Achievements

The greatest achievement since 2014/15 transport AMP have been:

- The migration and implementation of Council's asset data to Assetic's cloud based asset register. This has allowed for customisation and deployment of field based service activities. Particular focus on the corrective and preventive maintenance program was made in order to rebalance preventative versus reactive maintenance.
- Council have also integrated Assetic and Navision (finance system) for the last 3 years whereby actual activity based costings are being attributed back to the asset / component and therefore data is now available to support how much it costs the organisation to undertake work at a capital and operational level based on failure type and locality.
- A full surface condition survey on Councils sealed roads and footpath assets was completed in 2019/20. The Condition results along with functionality and capacity ratings for sealed roads has driven Councils 10-year capital program for these asset categories.
- Council have also had an independent revaluation of the transport class in 2019/20.
- Safety audits on Council's arterial roads was also conducted and all recommendations have been considered and implemented as a result.

1.4 Asset Funding Levels

The forecast lifecycle cost necessary to provide the services covered by this Transport Asset Management Plan included maintenance and capital expenditure of assets over a 10 year planning period is demonstrated in table 2 below.

Table 2. Asset funding Level over a 10-year planning period for Transport Assets for Capital Expenditure on Renewal or Replacement of Existing Assets as of June 30th 2020. Note that from 2021 onwards shows the annual depreciated amount calculated as of June 30th 2020 transport revaluation.

Transport Assets Only	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Year Ending 30 June:	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	totals over 10 years \$'000
Roads	2460	3025	2442	2450	2452	2456	2461	2467	2472	2476	2482	27643
Bridges	17	397	235	235	235	235	235	235	235	235	235	2529
Footpaths /Cycle ways & Kerb and Channel	376	692	248	248	248	248	248	248	248	248	248	3,300
Transport Other (bus stops & Shelters, car parks, TMD)	241	0	0	0	0	0	0	0	0	0	0	241
Totals \$'000	3544	3658	2913	2921	2923	2927	2932	2938	2943	2947	2953	33599

Table 3. Asset funding Level over a 10-year planning period for Transport Assets for Depreciation, Amortisation & Impairment - Existing and Replaced Assets

Transport Assets Only	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Year Ending 30 June:	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	totals over 10 years \$'000
Roads	2450	2405	2420	2442	2450	2452	2456	2461	2467	2472	2476	26951
Bridges	183	235	235	235	235	235	235	235	235	235	235	2533
Footpaths & Cycleways	154	155	168	178	178	178	178	178	178	178	178	1901
Kerb & Channel	67	70	70	70	70	70	70	70	70	70	70	767
Transport Other (bus stops & Shelters, car parks, TMD)	109	105	105	105	105	105	105	105	105	105	105	1159
Totals \$'000	2963	2970	2998	3030	3038	3040	3044	3049	3055	3060	3064	33311

1.5 Action Plan

The next steps to improve asset management practices resulting from this AMP are as follows:

- Footpath and Kerb condition assessment and maintenance plan
- Footpath / kerb Condition assessment and collect asset performance indicators
- GHD Road Safety Audit on Collector Roads
- Enhance Unsealed roads AM practices / procedures, documentation and Condition data collection
 - Unsealed Road Renewal Optimisation using predictor upon completing of more detailed data collection
 - Revise / improve the maintenance configuration in Assetic for unsealed roads as a result of the above 'unsealed road renewal optimisation' outcomes.

- More accurate network measurements required on unsealed roads.
- Continued development and capture of routine traffic volume monitoring / annual traffic count program.
 - Traffic counts to be made available in Assetic Cloud.
- Continued investigation on new road rehabilitation e.g. Lime stabilisation and monitor segments where these new methods have been used.
- Continue to populate service criteria at the component level as after condition assessments are complete to drive the asset condition / performance curve.

2 Current State of Council's Assets

2.1 Key Indicators

The Transport Asset Class is comprised of a variety of different assets that make up 8 asset categories. The following table provides the quantum of Transport assets by asset category managed by Council as at 30th June 2020.

Table 4. A Summary of Transport Assets managed by Council as at 30th of June 2020.

Transport Categories	Measure	Additional Information	
Roads	339.5 Km	Asset Sub Type	Length (km)
		Sealed	205.6
		Unsealed	133.9
Kerbs	75.3 Km		
Pathways	84.3 Km	Asset Type	Length (Km)
		Sealed	64.6
		Unsealed	19.7
Bridges & Major Culverts	84 Qty	Asset Type	Length (m)
		Major Culvert (54)	199.5
		Bridges (30)	431.5
Car Parks	88 Qty	Asset Type	Area (m²)
		Sealed	25,292
		Unsealed	33,924
Traffic Management Devices	484 Qty	Asset Type	(Qty)
		Guardrails	3
		Pedestrian Crossing	3
		Pedestrian Refuge	46
		Roundabout	7
		Speed Hump	10
		TGSI (Tactile Ground Surface Indicators)	32
		Traffic Alignment Island	60
		Wheel Stops	316

Transport Categories	Measure	Additional Information
Public Transport Shelters	20 Qty	
Public Transport Stops	44 Qty	

The Current State of Council's Transport Assets can be demonstrated through an assets Overall Service Index (OSI). Table 5 provides the high-level Overall Service Index (OSI) of the Council's Transport assets. This was derived from the valuation index at the component level. The distribution percentage is as per current quantity of the assets where condition data is available. The current condition of the assets has been used in predictive modelling to determine the required funding levels for asset renewal and maintenance. The detail of funding level options is detailed in section 6.

Table 5. A Summary of the percent of the valuation index at each valuation index grouping.

Asset Class	Condition Rating Date	New	Very Good	Good	Fair	Poor	Very Poor / EoL
		0-1	1-2	2-3	3-4	4-5	5-6
Car Parks	Jan-20	30%	11%	45%	9%	4%	1%
Roads (combined sealed and unsealed)	Jan-20	1%	49%	19%	15%	7%	8%
Sealed Roads	Jan-20	1%	62%	19%	11%	7%	1%
Unsealed Roads	Jan-20	2%	14%	20%	28%	8%	28%
Pathways	Jan-20	13%	27%	24%	16%	11%	9%
Kerbs	Jan-20	10%	23%	42%	22%	3%	0.5%
Bridges / Major Culverts	Dec-19	12%	41%	13%	28%	6%	-
Traffic Management Devices	Jun-20	3%	43%	27%	14%	6%	7%
Public Transport Shelters	Jun-20	-	-	50%	50%	-	-
Public Transport Stops	Jun-20	35%	65%	-	-	-	-

Table 6 below demonstrates the asset consumption ratio per Transport Asset Category

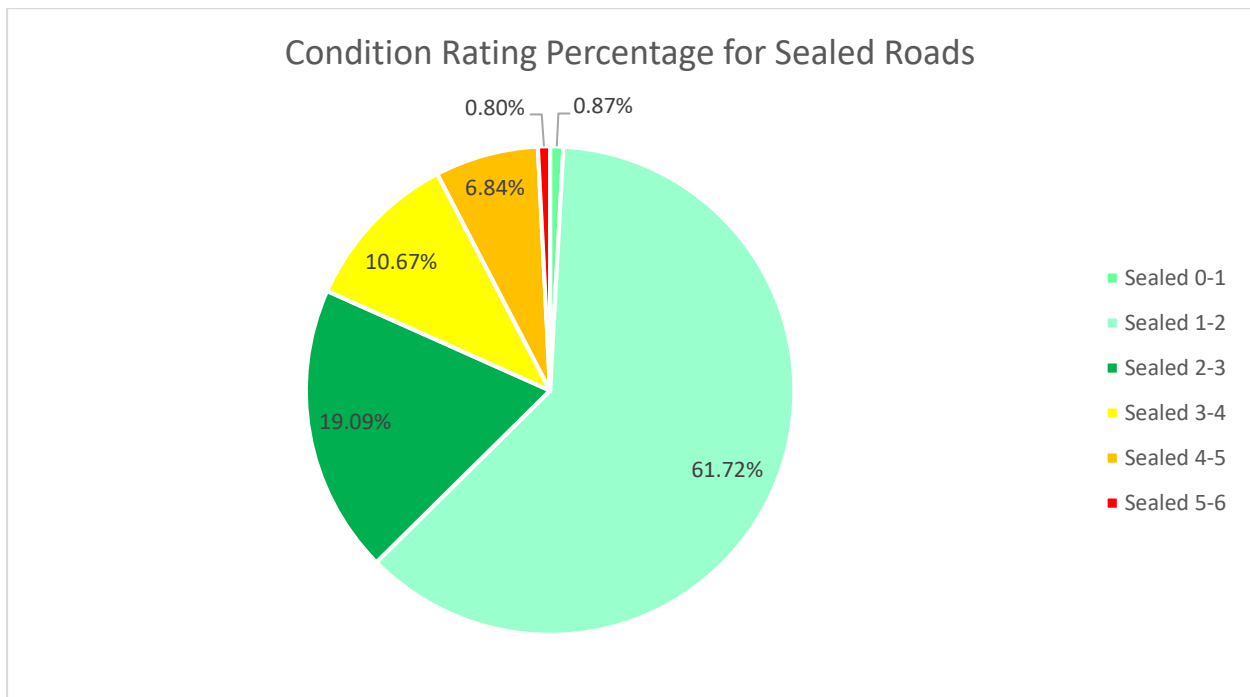
Table 6. Asset consumption ratio per Transport Asset Category (Total Depreciated Replacement Cost / Total Replacement Cost)

Asset Category	Total Replacement Cost	Total Depreciated Replacement Cost	Asset Consumption Ratio
Car Parks	\$ 4,177,590	\$ 3,487,443	83%
Roads	\$ 150,917,891	\$ 70,161,333	46%

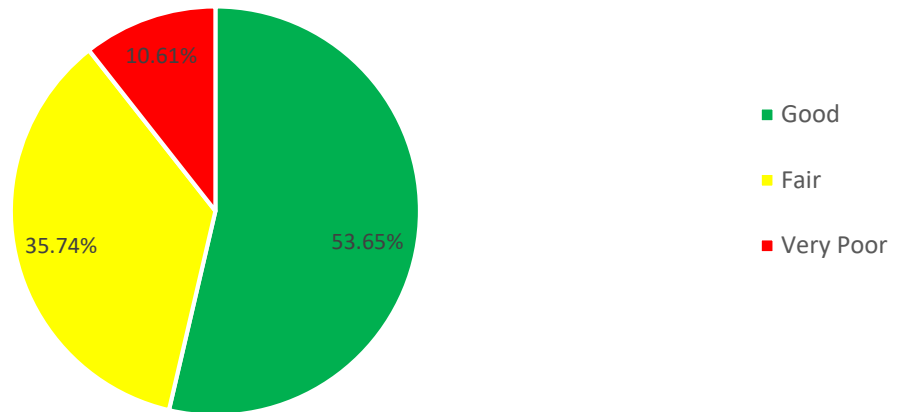
Asset Category	Total Replacement Cost	Total Depreciated Replacement Cost	Asset Consumption Ratio
Pathways	\$ 10,468,636	\$7,161,616	68%
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Traffic Management Devices	\$ 1,032,076	\$ 968,697	94%
Public Transport Shelters	\$ 287,086	\$ 161,183	56%
Public Transport Stops	\$ 251,439	\$ 231,563	92%
Grand Total	\$ 191,326,744	\$ 96,720,261	51%

2.2 Asset Class Status

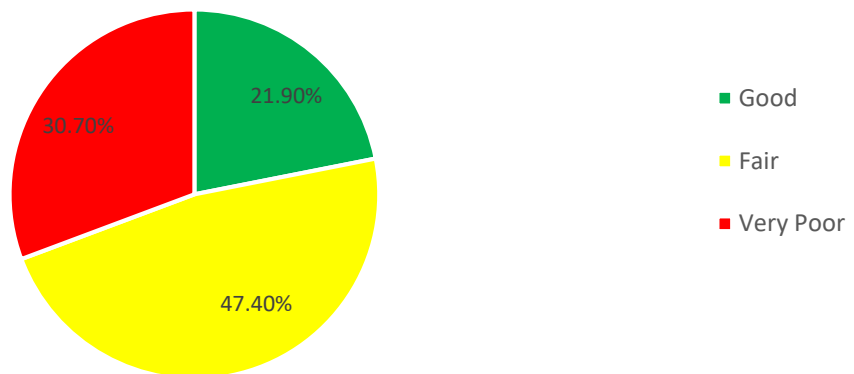
The following collection of pie charts demonstrate the overall condition status for each of the asset categories included in this plan. This was derived from the actual condition of the surface of roads and footpath as a result of a condition survey done in 2019. The remaining asset categories have used the valuation Index at the component level. A score of between 0-6 was used as the rating system at the time the data was collected. (0 being brand new and 6 being End of Life, a full description can be found in Tables 12 and 13 in section 3.3 Condition Assessment Framework).



Functionality Rating as a Percentage for Sealed Roads

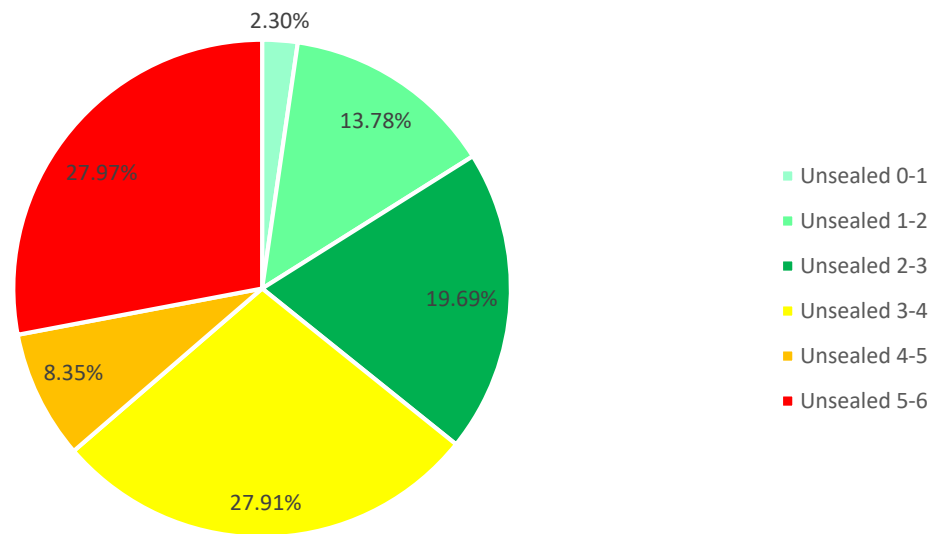


Capacity Rating as a Percentage for Sealed Roads

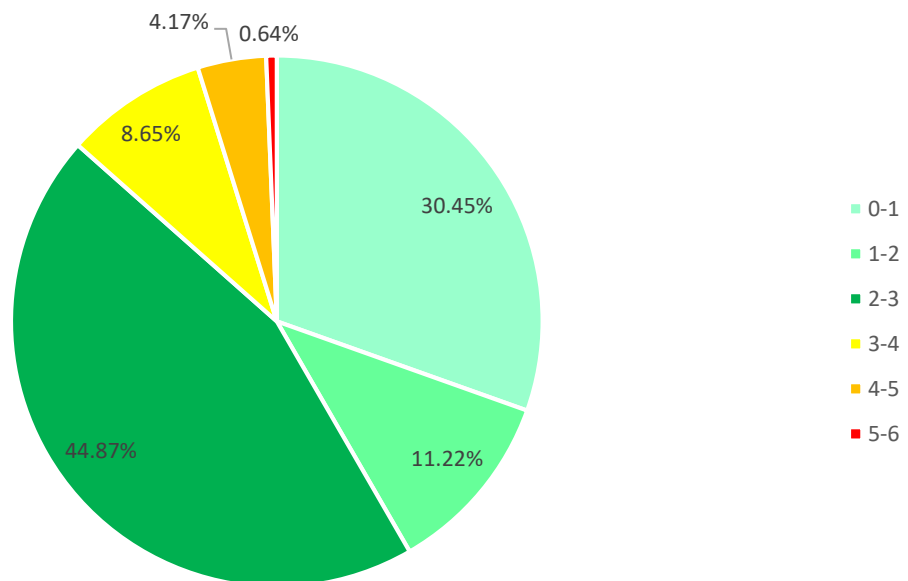


30% of the sealed road network is rated as very poor capacity indicating that road upgrades will be required for arterial roads to address the capacity issues OR perhaps greater issue in traffic management / planning required.

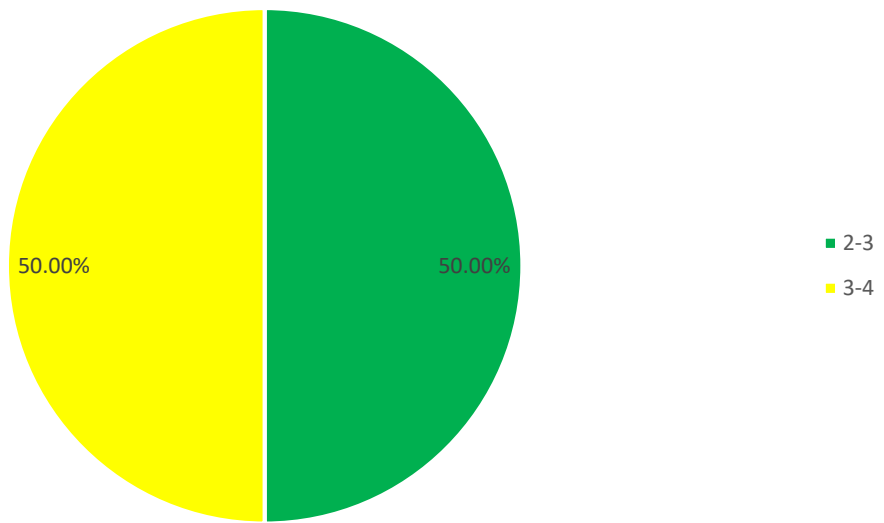
Condition Rating Percentage for Unsealed Road



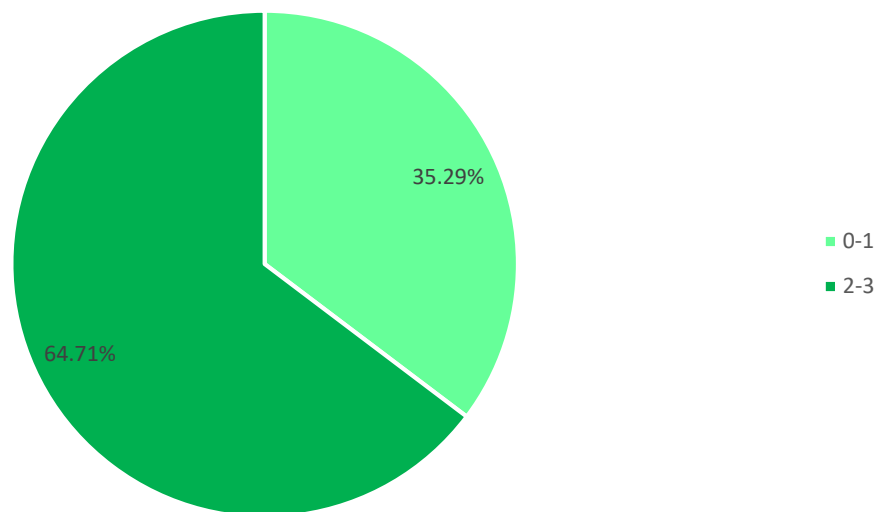
Condition Rating Percentage for Car Parks



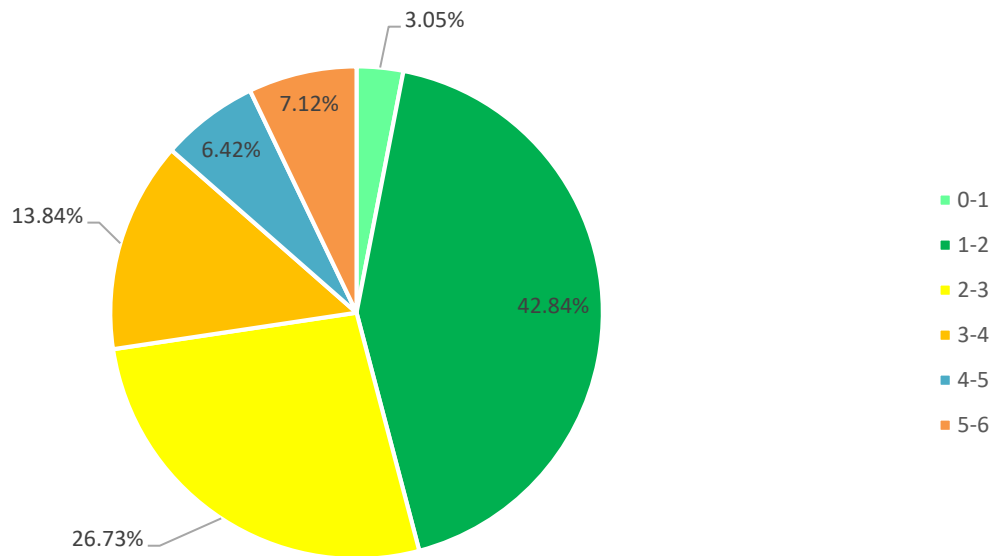
Condition Percentage for Public Transport Shelters



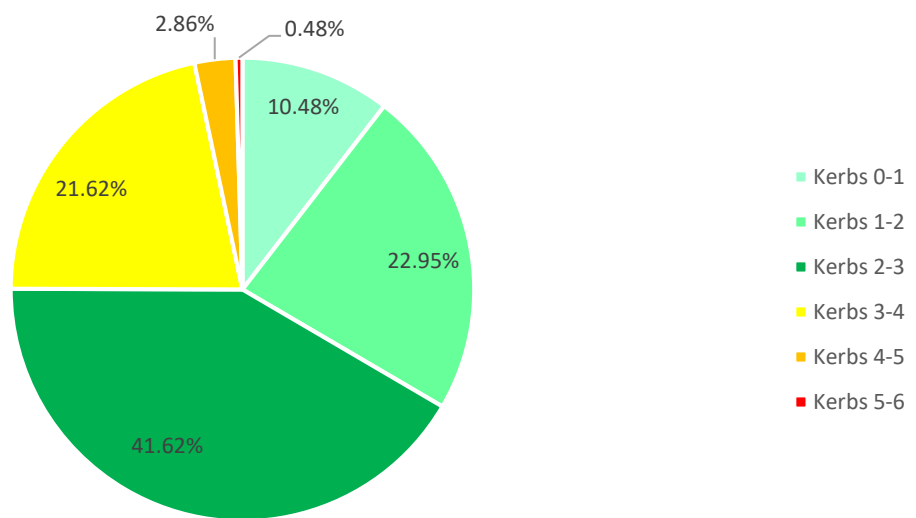
Condition Percentage for Public Transport Stops



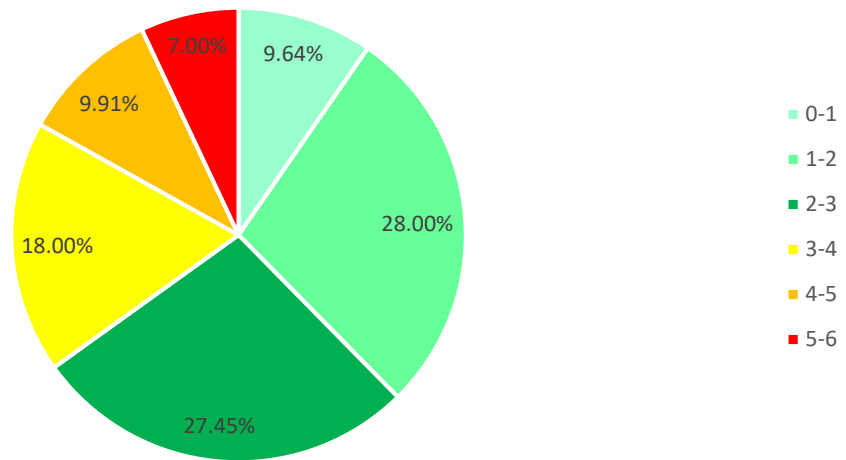
Condition Percentage for Public Traffic Management Devices



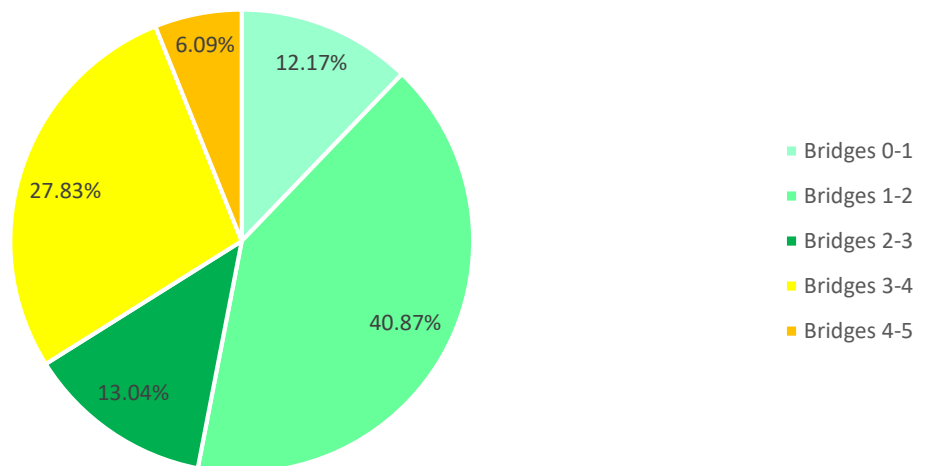
Condition Rating Percentage for Kerbs



Condition Rating Percentage for Pathways



Condition Rating Percentage for Bridges and Major Culverts



3 Levels of Service and Condition Assessment

“Council has over the past six years continued to strategically review all parts of its operations to maximise efficiencies and ensure we are effective and responsible in the use of ratepayer’s funds. Two specific areas have been focused on and communicated through the Sorell Council Strategic Plan 2019-20” (Mayor - Kerry Vincent).

1. Providing a sustainable level of service; and

2. Targeting our advocacy and facilitation with Government, their agencies, the community and the private sector.

3.1 Strategic Levels of Service

The development of asset strategies provide Council with a clear direction to guide its actions and to demonstrate and articulate its asset management practices for the purpose of providing outcomes to the community.

The Figure below represents the issues that should be addressed in the development of asset strategies for investment (capacity), preservation (maintenance) and road use. They are driven by the overall performance of the road network to provide the community and road users with the maximum possible benefits through the Levels of Service provided. They are meant to be fit-for-purpose, in terms of capacity, performance and condition. (ARRB Sealed Roads Best Practice Guide 3). Section 3.3.1 will detail further the performance indicators that Council has adopted and quantified for its sealed roads.

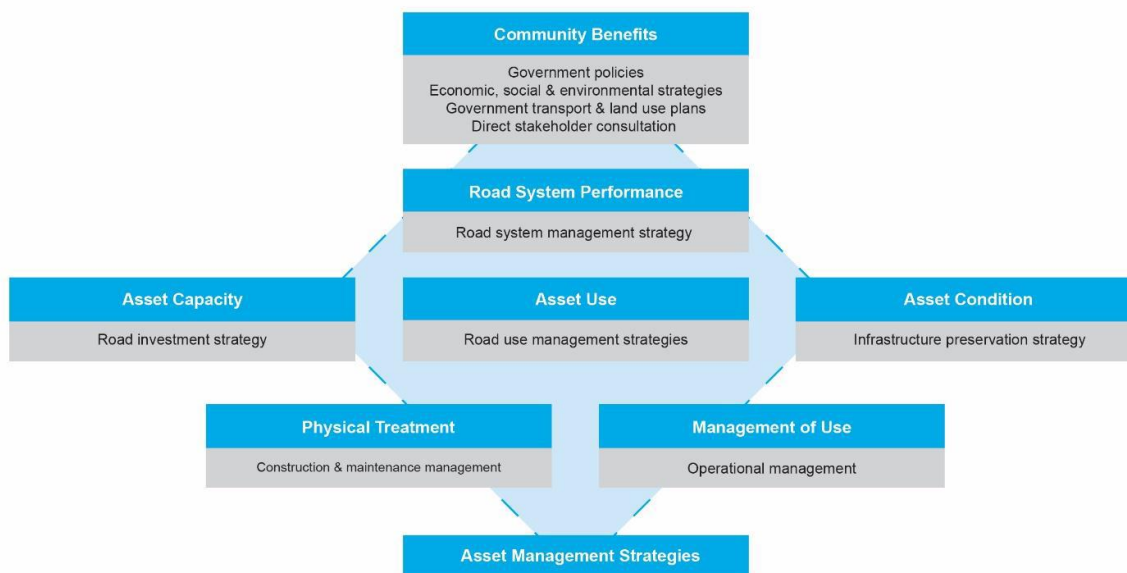


Figure 3. Development of road asset strategies. Source: ARRB Sealed Roads Best Practice Guide 3

The organisation has outlined strategic objectives within the Asset Management Strategy and they are developed in the strategic plan under Vision, Mission, Values and Priority Areas.

The organisation’s strategic Priority Area for Transport services is to: **Enable safe and efficient mobility for all people.** The Transport asset management objectives (or strategies) that will allow Council to adhere to this identified Priority Area objective is outlined in the following table.

Table 7. Asset Management Objectives Transport Services (Asset Management Strategy 2018).

Asset Management Objective	Action	Performance Target & Timeline
Maintain the network at a safe and functional standard	Ensure safety standards are achieved and satisfy community needs.	Local arterial and local collectors are built to municipal standards – 10 years. Footpath trip hazards are all less than 25mm – 3 years
Ensure developers provide an appropriate & adequate transport link to service new subdivisions or development.	To ensure all new transport links comply with Council's and regulatory standards.	Ongoing
Economic performance of transport network	Maximise economic performance of assets without compromising levels of service. Review costs of maintenance and optimise against renewal costs.	Annually
Environmental protection	Protection of natural environment. Compliance to environmental standards for new construction.	Ongoing
Climate change mitigation	Improve and maintain drainage on road side verges and channels to cater for higher than average rain fall intensity events (short duration).	Ongoing

The Asset Management Strategy also defines levels of service in two terms:

- 1. Community Levels of Service (CoL)** - measures how the community receives the service and whether the organisation is providing community value.

Community levels of service measures used in the asset management strategy are:

- Quality How good is the service?
- Function Does it meet users' needs?
- Capacity/Utilisation Is the service usage appropriate to capacity?

Some examples of Community Satisfaction levels for Councils Transport Services are management of road side verges; safe sealed roads and bridges; safe unsealed road network; safe pedestrian areas i.e. footpaths and walkways and street lighting

Other Community drivers come from community consultations / public community engagement meetings that Council facilitates throughout the year. Senior Advisory Group also meets quarterly and is primarily concerned with traffic / pedestrian safety and addresses this with the applicable Council staff.

2. Technical Levels of Service (TLoS) as listed in Council's 2018 Asset Management Strategy -

Supporting the community service levels are operational or technical measures of performance. These technical measures relate to the allocation of resources to service activities that the organisation undertakes to best achieve the desired community outcomes and demonstrate effective organisational performance.

Technical service measures are linked to annual budgets covering:

- Operations – the regular activities to provide services such as availability, cleansing, roadside verge mowing, etc.
- Maintenance – the activities necessary to retain an asset as near as practicable to an appropriate service condition (e.g. road potholing, unsealed road grading, footpath repairs, edge breaks).
- Renewal – the activities that return the service capability of an asset up to that which it had originally (e.g. road resurfacing, pavement reconstruction, lime stabilisation)
- Upgrade – the activities to provide a higher level of service (e.g. widening a road, sealing an unsealed road, one lane bridge to a two lane bridge) or a new service that did not exist previously (e.g. traffic management devices such as pedestrian refuges).

The service managers plan, implement and control these technical service levels to influence the customer service levels. Together the community and technical levels of service provide detail on service performance, cost and whether service levels are likely to stay the same, get better or worse.

The following table is an extract from the ARRB Sealed Roads Best Practice Guide 3. It demonstrates the linkage between a typical range of Customer Levels of Service and the actions of the Technical Levels of Service measures for the purpose of meeting and satisfying community drivers.

Table 8. A Summary of Customer Levels of Service attributes and the Technical Levels of Service actions that measure them. (Table source: ARRB)

CLoS attributes	CLoS description	TLoS measures
Accessibility	The network is available at all times to enable journeys to destinations to be completed	Roads aim to have 100% to 90% annual availability to traffic
Function	Different roads are available to different road users (cyclists, heavy vehicles, etc.) based on their functional needs	Rideability (roughness, potholes, cracking) Suitable lane width and numbers of lanes
Navigation	Signs, delineation and markings are clear, easy to read and provide information	Suitable reflectivity, conspicuity
Safety	The road network is becoming safer to use Safety risks are proactively managed	Adequate skid resistance, surface texture Limits to lane rut depth and edge drop-off Number of crashes per 100 000 km travelled Suitable shoulder width and surfacing
Reliability	Users can expect consistent travel times with some exceptions	Average travel speed (km/h)
Resilience	The likelihood of a journey being disrupted by an unplanned incident or hazard event is minimised	Adequate stability rating (factor of safety) of embankments and cuttings Minimal closures due to flooding

3.2 Operational Level of Service

Sorell Council has adopted Assetic's operational and tactical maintenance workflows across all asset classes recognised in Assetic including Land Improvements. Below is a diagram of these 2 workflows and how they relate to each other.

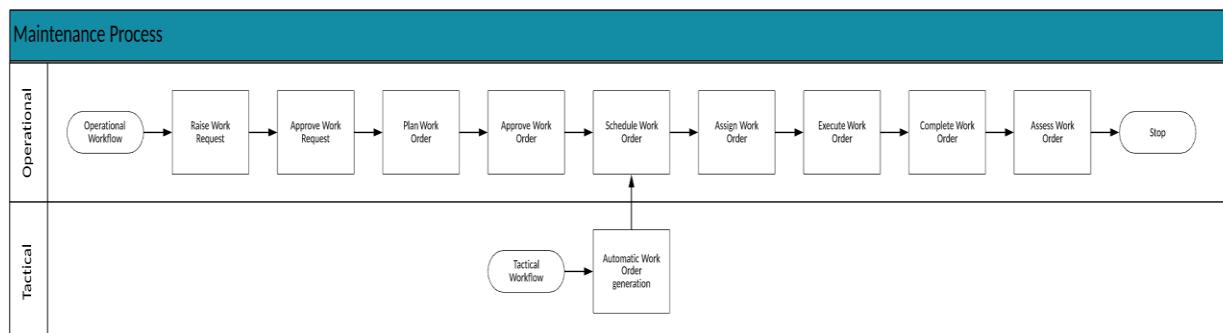


Figure 4. Assetic Maintenance Workflows (ref: Sorell SCADMS document by Assetic, page 30).

Operational maintenance workflow is primarily used for the non-repeatable work that can be planned and scheduled. Whereas the tactical workflow is used as the preventative maintenance strategy and the work as prior approval by management including funding, number of treatments and their frequency. This allows for high confidence in maintaining the acceptable asset condition throughout its life. An overview of Councils adopted technical maintenance levels of service and response times are outlined below in **Table 9. Road Response times**

Table 9. Road Response times

Priority Code	Priority Description	Response Time (hr)
1	Urgent (Today)	24
2	Important (6 Weeks)	1008
3	Required (16 Weeks)	2688
4	Maintenance (26 Weeks)	4368
5	Monitor (52 Weeks)	8736

In addition to dedicated response times Council have customised its Failure, Cause and Remedy categorisations within the maintenance module of Assetic. The following tables demonstrates the details of these three categories for Sealed and Unsealed Roads.

Failure items are only available for those work orders related to corrective maintenance and is much like a defect checklist. New sub failure codes were added to the roads asset category in 2018. The full list of failure codes for both sealed and unsealed roads can be found in the following two tables.

Table 10. Sealed Roads FCR Failure Items (source SCADMS document Table 39 prepared by Assetic 2018)

Failure Code	Failure Notation	Sub Failure Code	Sub Failure Notation
01	Roadside Furniture	01	Bins
		02	Bollards
		03	Guard Rails
		04	Guide Posts
		05	Linemarking

Failure Code	Failure Notation	Sub Failure Code	Sub Failure Notation
02	Sealed	06	Other Roadside Furniture
		07	Signs
		08	Street Lighting
		01	Croc Cracking
		02	Culvert
		03	Edge Break - 300mm or less intrusion
		04	Edge Break - 300mm or more intrusion
		05	Heaving
		06	Kerb and Gutter
		07	Oil Spill/Debris
		08	Open Drain
		09	Other Sealed Defect
		10	Pothole - Large
		11	Pothole - Medium
		12	Pothole - Small
		13	Rutting
		14	Shoulder
		15	Stripping
		16	Vegetation
		17	Vegetation – Line of Site (LOS)
		18	Vegetation - Other
		19	Vegetation - Overhang

Table 11. *Unsealed Roads FCR Failure Items (source SCADMS document Table 43 prepared by Assetic 2018)*

Failure Code	Failure Notation	Sub Failure Code	Sub Failure Notation
01	Roadside Furniture	01	Guard Rails
		02	Guide Posts
		03	Other Roadside Furniture
		04	Signs
		05	Street Lighting
02	Unsealed	01	Corrugations
		02	Culvert
		03	Debris
		04	Loss of Fines
		05	Maintenance Grade
		06	Open Drain
		07	Other Unsealed Defect
		08	Pavement Failure
		09	Pothole - Large
		10	Pothole - Medium
		11	Pothole - Small
		12	Rutting
		13	Vegetation
		14	Vegetation – Line of Site

Failure Code	Failure Notation	Sub Failure Code	Sub Failure Notation
		15	Vegetation - Other
		16	Vegetation - Overhang

Cause items are available for those work orders that relate to corrective maintenance only. The table below is the list of the available types of Cause codes.

Table 12. *Cause of Failure Codes*

Cause Code	Cause Notation	Sub Cause Code	Sub Cause Notation
01	Cause of Failure	01	Accidental Damage
		02	Asset Age
		03	Faulty Element
		04	General Wear & Tear
		05	Other
		06	Vandalism
		07	Vegetation
		08	Vehicle Damage
		09	Weather Event

Remedy items are used to summarise the work that is to be performed i.e. tasks, crafts and services activities assigned to the work order will define the activity more specifically.

Table 13. *Remedy Activity Codes*

Remedy Code	Activity	Remedy Use
01	Repair	Corrective
02	Replace	Corrective & Preventative
03	Inspect	Corrective & Preventative
04	Modify	Corrective & Preventative
05	Monitor	Corrective & Preventative
06	Other	Corrective & Preventative

The above Failure, Cause and Remedy codes and their customisation in the maintenance module within Councils asset register has allowed for improved corrective and preventive maintenance practices, in turn minimising the reactive maintenance (not scheduled) that arises from customer requests, my Local Services App and staff observations.

3.3 Condition Assessment Framework

3.3.1 Bridge Condition Framework

Table 14. Bridges and Major Culverts Condition Summary by AusSpan:

Condition Rating	Description
1	Very Good overall condition
2	Good overall condition - deterioration minor
3	Fair overall condition - deterioration obvious
4	Poor overall condition - deterioration severe
5	Very Poor overall condition - renewal required

3.3.2 Road Condition Framework

The condition of Council's sealed roads were assessed in 2019. The condition rating was based on a 0-6 rating scale obtained from Assetic. The condition survey has allowed for a more strategic maintenance program, capital budgeting and further scheduling of road asset renewals and or upgrades.

Table 15 below outlines the current condition rating scale and description.

Table 15. Condition Rating Scale and respective description used in Transport data collection.

Condition Grading	Description of Condition	Remaining Life
0	New: Brand new asset.	100% to 95% Useful life remaining
1	Very Good: No maintenance required	95% to 80% Useful life remaining
2	Good: Only planned maintenance required	80% to 60% Useful life remaining
3	Fair: Minor maintenance required plus planned maintenance	60% to 40% Useful life remaining
4	Poor: Significant maintenance required	40% to 20% Useful life remaining
5	Very Poor: Significant renewal/rehabilitation required	20% to 5% Useful life remaining
6	Abandoned: Asset no longer in use	5% to 0% Useful life remaining

The condition assessment criteria Council adopted was also obtained from Assetic. Detailed data was collected on defect types of: linear cracking, crocodile cracking, pavement deformation, surface texture, ravelling and oxidisation. Table 16 below is an example of the defect rating scale used.

Table 16. Defect rating for linear cracking

Defect Extent Rating	linear cracking as % of road segment length
1	<1%
2	1-5%
3	5-15%
4	15%-25%
5	>25%

Determining Severity

Severity is an indicator of how bad the defect is. Any one segment may have defects at a number of severity levels. The severity level that is chosen is the one that is most predominant across the segment.

Calculating Extent

For the purpose of field data collection, the raw measured data will be recorded against each asset segment for each of the condition distresses.

After field data collection is completed, this area (in square metres) or length (in metres) is then compared to the total area or length for the segment. This yields the percentage extent of the asset that is affected by each defect. Subsequently a score of 0 to 5 can be applied to each asset segment and for each condition distress.

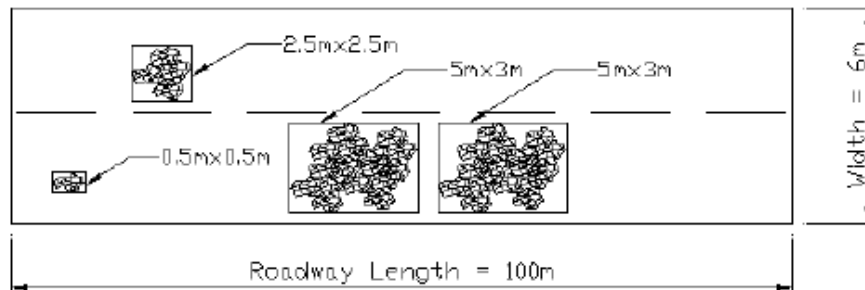
An example is provided below.

Crocodile Cracking Example

SEVERITY	
LEVEL	DESCRIPTION
Slight	Average Crack Width < 3mm
Moderate	Average Crack Width Between 3mm and 6mm
Extreme	Average Crack Width > 6mm

EXTENT		
LEVEL	DEGREE	AREA AFFECTED
0	Nil	No Defect Present
1	Negligible	Evident <1% of Total Area
2	Minor	Evident Between 1% to <5% of Total Area
3	Moderate	Evident Between 5% to <15% of Total Area
4	Extensive	Evident Between 15% to <25% of Total Area
5	Extreme	Evident >25% of Total Area

Example



Total area affected of crocodile cracking for segment = $2.5\text{m} \times 2.5\text{m} + 0.5\text{m} \times 0.5\text{m} + (5\text{m} \times 3\text{m} \times 2) = 36.5\text{m}^2$

Road segment area = $100 \times 6 = 600\text{m}^2$

Extent of segment area affected = $(36.5 / 600) \times 100 = 6.1\%$

Looking at the Crocodile Extent Table, 6.1% falls into rating 1 for this segment

Now apply the most predominant severity level identified

Slight

Medium

Extreme



In addition to the defect rating, a severity measure was also collected. In the form of high, medium, low or extreme, moderate and slight depending on the defect type. Further detail on the defect type and severity criteria can be found in Appendix A: Sorell Distress Modes and Functionality Assessments V1.2

3.3.3 Performance Indicators

The National State of the Assets 2018 report cites that the infrastructure performance is currently and consistently measured using 3 main indicators outlined in table x below.

Table 17. Infrastructure Performance Indicators

Indicator	What's Measured	
Condition	How good is the service?	What is the condition or quality of the service
Function	Is the service suitable for its intended purpose?	Is it the right service?
Capacity / Utilisation	Is the service under or over utilised?	Do we need more or less of these assets?

When these indicators are used in a measurement framework over time, trends appear and Council can begin to answer the question: *“Is the local infrastructure getting better, worse or staying the same?”*

Council adopted this method for assessing asset management performance on its sealed road network at the same time surface condition data was collected in 2019. The following table defines the assessment criteria used and the scale rating.

Table 18. Performance indicator assessment criteria and the associated scale rating (Source: Assetic Document).

Functionality Description	Capacity Description	Considered to be	Rating
Local Arterial Typical carriageway width in urban areas is $\geq 10\text{m}$ Local Collector Typical carriageway width in urban areas is $\geq 7.5\text{m}$ Local Access Typical carriageway width in urban areas is $\geq 6\text{m}$	Local Arterial Pavement depth $\geq 400\text{mm}$ Local Collector Pavement depth $\geq 300\text{mm}$ Local Access Pavement depth $\geq 250\text{mm}$	Good	1
Local Arterial Typical carriageway width in urban areas is between 6m to 10m Local Collector Typical carriageway width in urban areas is between 5m to 7.5m	Local Arterial Pavement depth $\geq 300\text{mm}$ and 400mm Local Collector Pavement depth $\geq 250\text{mm}$ and 300mm	Fair	3

Functionality Description	Capacity Description	Considered to be	Rating
Local Access Typical carriageway width in urban areas is between 4.5m to 6m	Local Access Pavement depth >= 150mm and 250mm		
Local Arterial Typical carriageway width in urban areas is <= 6m Local Collector Typical carriageway width in urban areas is <= 5m Local Access Typical carriageway width in urban areas is <= 4.5m	Local Arterial Pavement depth < 300mm Local Collector Pavement depth < 250mm Local Access Pavement depth < 150mm	Very Poor	5

In order to correctly measure the capacity portion of table **Table 18**, Council needs to refine its road hierarchy based on Annual Average Daily Traffic (AADT). Below is the table summarising Sorell's most recent roads hierarchy classification.

Table 19. Sorell Councils adopted Rural Local Road Hierarchy.

	Hierarchy Classification			
Classification	Local Arterial	Local Collector	Local Access	Minor
Function / Description	Major link for traffic flow between towns	Link from local arterial roads to and local access	Access for properties	Local roads maintained by the local authority
Running Surface	Sealed	Sealed / Unsealed	Sealed / Unsealed	Sealed / Unsealed
AADT	> 1500	200 - 1500	< 200	< 50
Carriageway Form	2 Lanes	2 Lanes	1 or 2 Lanes	1 or 2 Lanes
Centreline Marking	Yes	Site Specific	Site specific	None
Heavy Vehicle Route	Yes	Yes	Local access only	Local access only

The table above was derived from the TAO Rural Local Road Hierarchy with some modifications to better suit our Municipality and utilises our own traffic count data to determine hierarchy.

4 Key AM Achievements and Practices

4.1 AM Achievements

4.1.1 Roads

A notable improvement this year that aligns with our strategic objective of keeping roads safe for all people was that Council engaged GHD to undertake an independent road safety audit on a list of roads that make up the majority of Council's major road zone. The audit identified a number of risks to Council. As a result, Council has undertaken work as part of maintenance or capital works in order to mitigate the risk to Council where feasible. An example was a lack of speed signage at the Penna Road Junction. Council have now installed 100km/h speed signs west of bridge and either side of Penna Road in February 2020 as a result of the 'high' risk identified from GHD. The full summary of risks to Council and the log of actions that Council have carried out to date is listed in Appendix B.

All transport asset categories revalued in 2019/20 financial year.

Implementation of the Assetic cloud-platform which has significantly improved field-based activity identification, audit/inspections and data capture. In particular, a great deal of work went into customising the maintenance configuration module in Assetic in order to maximise Councils corrective and preventive maintenance program and minimise the reactive maintenance as a result.

Council have also now had integration between Assetic and Navision (finance system) for the last 3 years whereby actual activity based costings are being attributed back to the asset and or component where applicable and now have the data to support how much it costs the organisation to undertake work at a capital and operational level.

The benefits of this will allow for benchmarking between teams or with contract alternatives or other like organisations. It also allows, via reporting tools such as spatial thematic mapping or power BI (Business Intelligence) reporting (at a department level) the building of budgets based on reality and not on estimates only. It also makes the setting of individual KPI's more transparent. Council are now able to target and reduce maintenance costs because of less risk or contingency required to be built into these margins and 'what-ifs' into its budgets. Council is now also tracking the plant usage and will in time be able to analyse the equipment cost to have and maintain versus its usage and make better decisions on plant hire versus purchasing. Council's actuals to budget is getting more and more accurate on a yearly basis because of these processes and the way in which data is collected. In addition, the long term advantages will allow for further operational budgeting refinement with the use of Assetic's my predictor modelling. Council will also be able to deploy its capital program to maximise its lifecycle costs and minimise maintenance costs.

Other achievements include:

- Acquisition of Generation 2 data to accurately program the optimisation demonstrated by Assetic. This will initially relate to our sealed road network as first priority and functionality and capacity was also collected as part of this process for sealed roads only.
- Inventory of roadside drainage system.
- Program development and capture of routine traffic volume monitoring.
- Development of maintenance / hazard fault codes and associated response times for footpath and kerb assets.
- Improvements to the capture of maintenance data and capitalisation processes.
- Traffic count spatial layer and continuing to monitor traffic count which has helped to give Council measureable evidence of its road hierarchy / criticality. Traffic count data is also used to monitor speeds, of which Council receive many complaints directly about.
- Internal capacity and expertise to maintain the sealed roads within the team as a result of Council purchasing appropriate plant. The sealed road crews now have the ability do own repairs such as pot holes and edge breaks which offers timeliness and cost efficiency benefits.
- Road Safety Audit by GHD on Arterial Roads with recommendations for action completed 2019/20, refer to Appendix C of the list of actioned items in detail.
- Inclusion and Assetic recognition (transferred from Finance system, Navision) of Traffic Management devices in 2019/20 i.e. round-a-bouts, pedestrian refuges – Vulnerable Road Users asset funding.
- Publication of the Sorell Council Municipal Roadmap and ownership status can be found on website.
- Re-sheeting and resealing data collection improvements, internal staff are surveying the data to make sure the initial data is correct first before we collect the new re-sheeting data.

- Council approved policy on urban / rural zones for development conditions (see section 4.2 AM Practice for more details)
- Development and acceptance of Council’s Asset Capitalisation Business Rules.
- A workshop to discuss “Asset Optimisation” as it relates to transport renewal funding was held with the Councillors.
- Outputs from the Asset Optimisation modelling process were used to prepare the Long Term Financial Plan (LTFP) which has subsequently been accepted by Council in 2014/15 and again in 2020.
- A hierarchy of road importance, maintenance/hazard fault codes and associated response times was developed and introduced to the Assetic Strategic Maintenance Planning module for works management and maintenance planning.

4.1.2 Bridges

- Council’s bridges and major culverts asset category are revalued every 5 years despite an annual re-valuation and market value that AusSpan provides every year.
- AusSpan’s findings have recommended works on traffic barriers on the majority of our bridges. As a result council have adopted a third component on its Bridges and Major Culverts asset category in Assetic to address any future capital works and maintenance requirements more accurately to this component rather than attributing it to the sub and superstructures which have much longer useful lives.

4.1.3 Pathways and Kerbs

- Level 2 condition assessment of footpath and better inventory of unsealed pathways and beach accesses.
- Developed a medium to long-term maintenance plan for Kerbs / Footpaths
 - SCADMS – Footpath failure / remedy codes implemented
- Undertake detailed surface condition assessment including trip and hazard identification for Kerbs / Footpaths (Kerbs have adopted the footpath condition).
- Established the level of service for footpaths, 25mm benchmark for trip hazard from MAV (insurance from public liability) was their recommended based on public liability insurance case law around Australia. Allowing us to focus our condition data on our highest hierarchy in the footpath network.

4.2 AM Practice

4.2.1 Componentisation

Council has adopted a level of componentisation that aligns and has been recommended and endorsed by the Tasmanian Audit Office. Below is the first recommendation in the summary section (page 9) of the Report of the Auditor-General No.5 of 2013-14. *Infrastructure Financial Accounting in*

Local Government, Dec.2013:

Recommendation

1. The components of a road asset should be identified and recognised at Fair Value and should be separately valued and depreciated over their useful lives. Components of road assets can include:

Urban road components

- Earthworks (where material)
- Retaining walls (where material)
- Pavement sub-base^
- Pavement base
- Sealed wearing surface
- Kerb and channel (x2)
- Footpaths (x2)
- Bridges
- Culverts*
- Traffic management and protection devices
- Landscaping (where material)

Rural road components

- Earthworks (where material)
- Retaining walls (where material)
- Pavement sub-base^
- Pavement base
- Sealed/unsealed wearing surface
- Bridges
- Culverts*
- Traffic management/protection devices

Note ^ where pavements are managed as separate components

* where not recognised in road earthworks or as separate stormwater drainage assets.

Figure 5. The recommended componentisation of Transport Assets from Tas Audit office – Report of the Auditor-General No.5 of 2013-14

The Below figure is an example of the componentisation of a Council road.

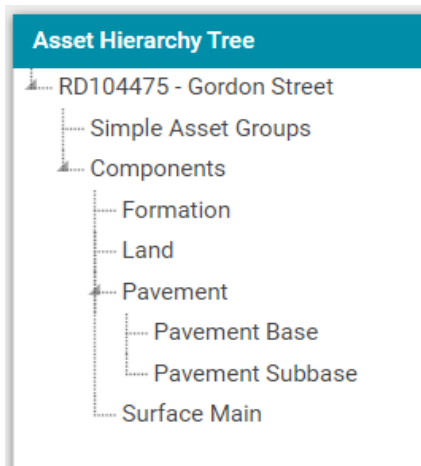


Figure 6. Road Components

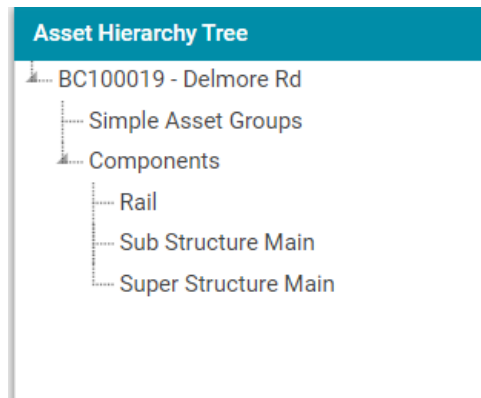


Figure 7. Bridge and Major Culvert Components

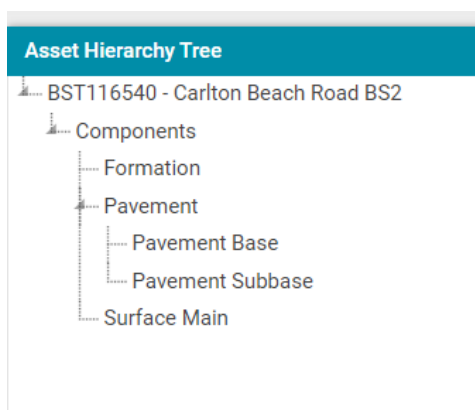


Figure 8. Transport Stop Components

The land component under public shelters and bus stops / lanes has already been factored in on the road segment / asset. However, if the bus shelter or stop resides within a Council car park, the land itself has also been recognised as its own asset within the Land Asset Category and not as an additional component of bus shelters and stops / lanes.

All other remaining transport assets i.e. Footpaths, Kerbs and Traffic Management Devices have the one component of Main or Surface only. Council has a separate asset class all together for retaining walls under the Land Improvement Asset Management Plan.

Urban versus Rural Zones Policy outlines some rules for how Council are to renew, upgrade and construct roads and footpaths. The policy states that:

New roads in the nominated urban areas will require a 40mm thick bituminous concrete (dense graded asphalt) seal on all new roads and 100mm thick reinforced concrete footpaths where required.

Further to the above for Council re-seals: A district surrounded by Dubs & Co Drive (north), Weston Hill Road/Pelham Street/Parsonage Place (east), Forcett Street (south), William Street (west), Montagu Street (north), and Arthur Street (west), in Sorell, will require an asphalt re-seal when sealing work is required. The area outside of the above district, but within the urban area, will be re-sealed with a like for like standard (or an improved standard as approved by GM).

In Midway Point, Penna Road (from Tasman Highway to Pitt Water Golf Course), Bay Road, Esplanade (from Bay Road) to Lake Vue Parade, Beach Road (to Fenton Street), and Fenton Street will require an asphalt re-seal when sealing work is required. The remaining streets in Midway Point will be re-sealed with a like for like standard (or an improved standard as approved by GM).

Rural areas will mostly require a two coat aggregate hot bitumen seal on roads. An asphalt seal may be required on roads in heavily trafficked areas or turning areas where heavy vehicles are expected. Footpaths are to have a gravel finished surface (or reinforced concrete approved by GM).

In Dodges Ferry, Carlton Beach Road from #48 to #62, Signal Hill Road from Carlton Beach Road to #12 will require an asphalt seal/re-seal as part of the “central business” due to heavy vehicle turning movements.

4.2.2 Strategic AM Maintenance Practices – Unsealed Roads

The unsealed road maintenance is divided into two strategies: Periodic maintenance carried out annually and a cyclic routine maintenance program undertaken monthly.

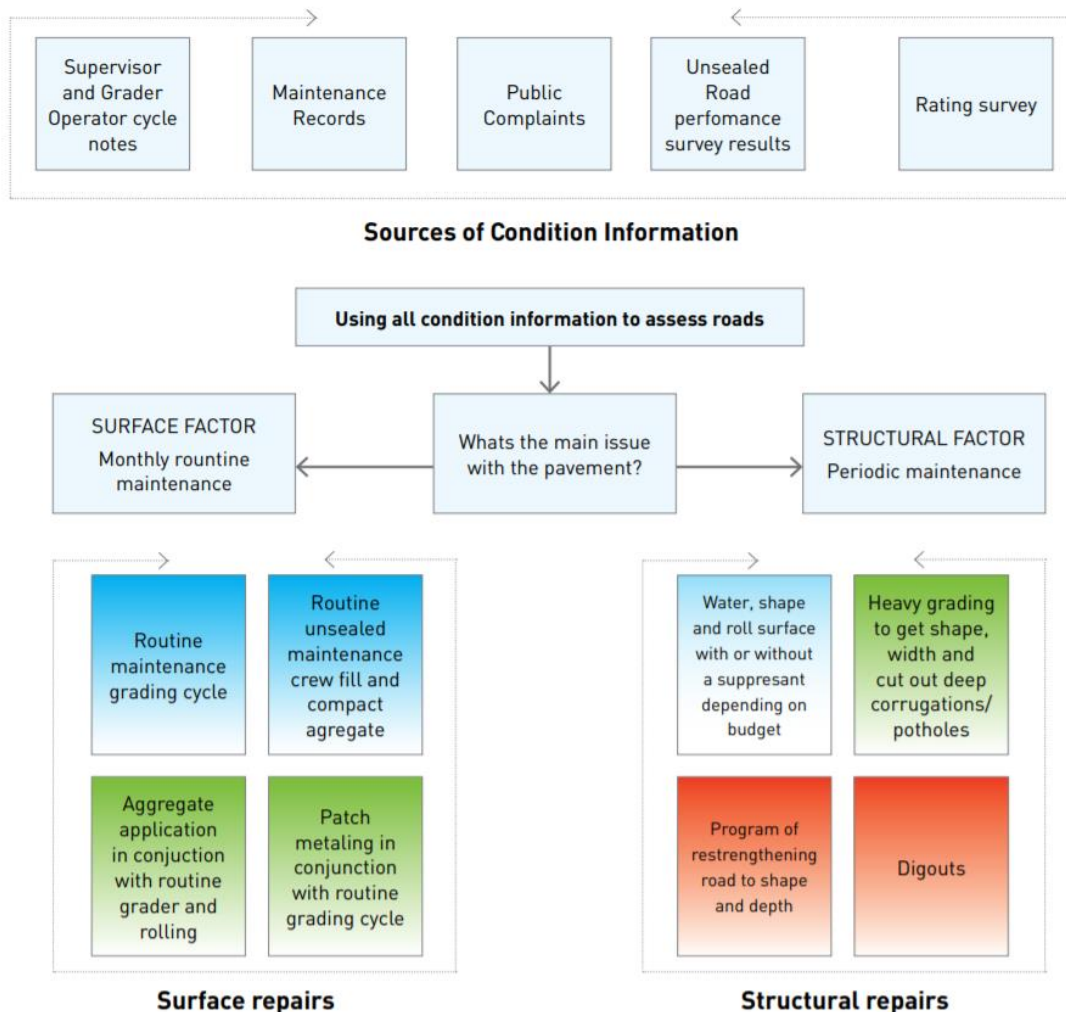


Figure 9. Determining the Maintenance Needs of an Unsealed Road Network

Planning Re-Gravelling

The following decision framework needs to be considered when creating long-term plans for re-gravelling. The suggested decision activities involved with the re-gravelling considerations are listed in Table 20.

Table 20: Decision Framework for Re-Gravelling Activities

QUESTION	FACTORS INFLUENCING DECISIONS	DECISION CRITERIA
What is the optimal re-gravelling timing for a specific road?	The remaining gravel on a particular road length. The point where the Level of Service (safety and roughness) drops below a certain point where it cannot be addressed	Example: less cohesive (clay) material would probably have a higher rate of gravel Level of Service. The re-gravelling rates can also be established through analysis of historical replacement records for specific materials.

	through periodic and routine maintenance Situations where gravel was lost as a result of a flood.	
How much material should be placed on each road?	Rate of gravel loss, design life, traffic loading, HCV (Heavy Commercial Vehicles) per day, Geometry, Exposure of subgrade material, Grading frequency, Historical re-gravelling records.	The routine grader operator gives the best indication of where gravel is needed and the quantities required. Test pitting of roads with edge of grader blade can be undertaken during the routine cycle to determine existing depths. Base course application when clay/soft spots occur would be to 100mm compacted depth, increasing to 150mm where HCV loading is frequent i.e. forestry access, milk tankers.
Should the material properties be enhanced before construction?	Properties of candidate material. Geometry. Site specific issues that can affect performance. Past maintenance and performance experience and records. Traffic volume.	Depending on the material properties plotted on Figure 2, it may be apparent that the material needs to be enhanced to achieve better performance and expected life from the gravel overlay. Options to achieve this include: Like-for-like replacement Thickness Achieving optimum water content before compacting either using watercart or utilising rain Stabilising it using lime or other chemicals.
QUESTION	FACTORS INFLUENCING DECISIONS	DECISION CRITERIA
What are the trade - offs involved with using superior performing materials?	Quality of the material. enhancement options Depth of design/material Cost of the Material Hauling distance Expected life-cycle performance. Construction costs. Social and environmental consideration specific to some options.	Geospatially analyse the long-term economics of using superior material, at presumably a higher direct or hauling cost, against the benefits of reduced periodic maintenance and future re gravelling.

The routine maintenance of unsealed roads involves treating the mainly surface defects that arise from the passage of traffic and effects of weather. The majority of this maintenance is addressed with the routine grader cycle.

Types of Grading and Level of Service

Wet weather grading – The autumn and early winter when the pavement has optimum moisture content in the aggregates is the best time to do heavy grading, reshaping and re-gravelling. During periods of heavy rainfall, the road material may be over saturated and moisture can penetrate the “crust” of the basecourse causing soft spots to be generated. The optimum time for grading is after rain.

Determining Grading Cycles

Deciding when to grade a road or to specify when to programme grading is subject to numerous factors.

Factors that influence frequency of unsealed pavement grading include:

- Traffic volumes and HCV (Heavy Commercial Vehicles) per day
- Road Conditions
- Seasonal conditions i.e. winter freeze, summer drought conditions
- Coordination with renewal works e.g. the gravelling and strengthening programmes
- Public complaints/political pressures
- Procurement Strategy – the basis of risk/payment for work by contractor e.g. lump-sum per month or kilometres per month
- Level of service the community requires

Types of Localised Repair and Routine Maintenance – Unsealed Roads

Localised repairs are defined as maintenance where work is required in localised ‘discrete’ positions, rather than a ‘treatment of a full section’. As aggregate metalling programmes are normally set at between four to ten years frequencies with between one and twelve monthly blading cycles, some additional work may be required. This is particularly likely where budget restrictions preclude all roads being included in routine metalling programmes.

Spot Patch Metalling of Clay Soft Spots: Clay soft spots occur when the pavement cover over a subgrade has reduced to point where there is no visible aggregate. This is a sign the traffic load over the pavement material has worn or pushed the aggregate down into a soft (normally wet) subgrade foundation.

When pavement aggregate is worn away until sub-base ‘cobbles’ are exposed and the surface is not able to be graded, an overlay of wearing course aggregate in patches is required. Sometimes this is placed and compacted in conjunction with routine grader cycle or spread and rolled by trucks.

Digout Repair: These are similar to clay patches in terms of identifying the need. The cause is attributed to a subgrade foundation weakening in a localised spot rather than through the full section of the road. This is likely to be a result of a drainage problem.

Potholes: Where excessive potholing occurs in flat areas of the pavement that have been subject to rainfall and traffic, scarifying with ‘sandvik’ tips on the blade of the grader during the routine cycle can be a temporary fix until reshaping and/or aggregate application can be planned. Other options are to patch spread metal to the localised area and truck roll the spread.

4.2.3 Strategic AM Maintenance Practices – Sealed Roads

Council uses the hierarchy detailed in Table 16 to dictate a transport asset ‘criticality’ and based on failure sub code and the priority category dictates a maintenance response time / priority.

For example the table below demonstrates the priority given to different types of failure codes, croc cracking and edge breaks, based on their given criticality.

Table 21. *Examples of sealed road failures and their respective maintenance response time based as determined by asset criticality*

Asset Category & Criticality	Failure Sub Code	Priority Category	Priority
Roads (Local Arterial)	Croc Cracking (Sealed Roads FCR - Sealed)	Priority - Roads & Stormwater	Maintenance (26 Weeks)
Roads (Local Collector)	Croc Cracking (Sealed Roads FCR - Sealed)	Priority - Roads & Stormwater	Monitor (52 Weeks)
Roads (Local Minor)	Croc Cracking (Sealed Roads FCR - Sealed)	Priority - Roads & Stormwater	Monitor (52 Weeks)
Roads (Local Arterial)	Edge Break - 300mm or less intrusion (Sealed Roads FCR - Sealed)	Priority - Roads & Stormwater	Important (6 Weeks)
Roads (Local Collector)	Edge Break - 300mm or less intrusion (Sealed Roads FCR - Sealed)	Priority - Roads & Stormwater	Required (16 Weeks)
Roads (Local Minor)	Edge Break - 300mm or less intrusion (Sealed Roads FCR - Sealed)	Priority - Roads & Stormwater	Maintenance (26 Weeks)
Roads (Local Arterial)	Edge Break - 300mm or more intrusion (Sealed Roads FCR - Sealed)	Priority - Roads & Stormwater	Urgent (Today)
Roads (Local Collector)	Edge Break - 300mm or more intrusion (Sealed Roads FCR - Sealed)	Priority - Roads & Stormwater	Important (6 Weeks)
Roads (Local Minor)	Edge Break - 300mm or more intrusion (Sealed Roads FCR - Sealed)	Priority - Roads & Stormwater	Required (16 Weeks)

5 Demand Management / Risk Management

5.1 Demand Drivers

With Sorell's population on the rise, demand for its services will also be on the rise, in which case Council should adopt a demand management plan for its assets across the entire asset register. Population is just one of the demand drivers, others may include, demographics, land area and technological changes. Below is a summary of the impact that these particular drivers may have on the asset categories in this plan.

Table 22. *Demand drivers and the potential impact on services within the Sorell Municipality.*

Demand drivers	Impact on Service considerations
Population	An increase in population will increase the requirement for community and infrastructure services. Existing services may require additional maintenance or renewal or traffic management devices to meet the increased frequency and numbers. Unsealed roads will see increase volume and potentially increase pavement deformation such as rutting as a result of increase in traffic / load which might ultimately be candidates for sealing. These costs should be considered when rate revenue is decisions are made.
Demographics	Age of population, consider the percentage of the population at given age brackets, more young families – require safe, wider footpaths, shared pathways for family bike rides, pram ramps etc. An aging population may require more disability accesses or improvements to public transport infrastructure, traffic management devices and pedestrian refuges (both young and aging to benefit from this).
Land Area	Sorell has many open space areas, marketing these as such so people take more advantage or know their whereabouts may be required.
Technological Changes	Technologies may help reduce operational and maintenance costs. For example, scheduled maintenance and inspection regimes via Assetic mobility app. Customers can register faults and photos with the My Local Services app, reducing inspection times (increased dependency on field based technology). Smaller lighter passenger vehicles will reduce wear and tear on road network. Increase in solar power use, reducing costs and carbon omissions. Improvements to bitumen quality or bitumen alternatives in order to achieve a longer useful life and less maintenance over their life Increase use of recycled material in pavement construction and maintenance in order to reduce greenhouse gas emissions and initial asset construction cost.

	Trenchless technologies, minimising disruptions to surface traffic, businesses etc. Video inspection asset data collection and link to Council's GIS potentially reducing reactive maintenance.
Climate changes	Increased weather events such as intense rain / flooding has a direct impact on the unsealed road network in particular.

Ultimately, there are 2 main drivers that would alter Council's current AM practices for the Roads Network:

1. If and when the demand for heavy vehicles increases on Councils unsealed roads. A surge in heavy vehicles for example could arise from a forestry industry boom and therefore the current asset management and maintenance practices on Council's roads would need to factor the impact of this type of load and frequency on the road network.
2. If transport standards change, e.g. trees need to be further away from the road reservation.

5.2 Demand Management Plan / Current Controls

- Sealing of unsealed roads if and when the vehicle count is 400 or greater determined via traffic count program. Urban street sealing projects are driven by amenity or safety concerns.
- Modern equivalent or municipal standard replacement asset method for Council's arterial roads. Other hierarchy types will be considered on a case by case basis.
- Unsealed Collector Roads requires more data collection to feed the functionality / capacity performance measures.
- Passenger transport strategy in the way of 'Park and Ride' facilities and other future dedicated transit lanes at peak times.
- Create good connectivity, parking, pricing of public transport (currently this is too high to encourage greater usage) and increase frequency of transport options outside of business hours including weekends.
- Heavy vehicle register via the National Heavy Vehicle Regulator (NHVR). Council have now adopted the Heavy Vehicle National Law (HVNL) as of July 2nd 2018. This will help mitigate the heavy vehicles on certain roads within the Municipality and give Council an opportunity to re-direct to routes onto either state highways or sealed arterial and collector roads where possible.
- Making sure that newly constructed transport assets as part of a development are built and supervised to the municipal standard. This will ultimately benefit the next generation of ratepayers and asset managers at Council.

6 Asset Funding Levels

The Australian Local Government Association (ALGA), has identified through its 2020/23 Strategic Plan a number of factor relating to financial sustainability. The following is a summary of the issues Sorell Council faces with its primarily rural status and increasing population.

Councils across Australia are now facing insufficient revenue capacity to maintain their road networks to the original design standards, let alone upgrade them to modern lane widths, safety standards or load-bearing capacities.

On top of this they are faced with funding improvements for higher-productivity freight vehicles, higher traffic volumes, and congestion etc. These impositions require wider and stronger roads and significantly larger intersections and filter lanes.

Many rural areas need horizontal equity support because of declining populations with those councils having limited capacity to raise more revenue from their communities.

In high growth area councils, the provision or upgrading of community and recreation facilities is not keeping pace with population growth. This in particular is an issue that Sorell Council faces currently.

In other Local Government areas, community and recreation facilities are now old and not keeping pace with demographic and population changes and rising community expectations. Replacements to modern standards and provision of additional or alternate facilities are unfunded, often relying on grant funding to be upgraded, replaced or built. (Source: ALGA: <https://alga.asn.au/policy-centre/financial-sustainability/background-on-local-government-funding/>)

Sorell understands and relates to all of the above and as a result does acknowledge and greatly value the financial assistance grants made available from federal and state sources.

6.1 Asset Class Expenditure

6.1.1 Capital Expenditure

Table 23 outlines the capital expenditure of Councils Transport asset for the 2019/20 financial year.

Table 23. *A Summary of Capital Expenditure of Transport Assets by Asset Category for the 2019/20 financial year.*

Asset Category	Acquisition (\$)		CapEx (\$)		Disposal (\$)				Total CapEx (\$)
2019/20 Fin year	Cost	WDV	Upgrade Cost	Renewal Cost	Cost	Acc Dep	WDV		Cost
Car Parks	3,642	3,642	-	132,307	42,161	30,498	-	11,663	135,949
Kerbs	58,207	58,207	3,057	18,944	5,817	-	1,011	4,807	80,208
Pathways	355,421	355,421	-	390,124	72,826	50,883	-	21,943	745,545
Public Transport Shelters	6,351	6,351	-	-	-	-	-	-	6,351
Public Transport Stops	130,480	130,480	7,419	-	6,360	-	1,174	5,186	137,899
Roads	-	-	-	3,390,537	2,975,976	-	1,084,354	1,891,622	3,390,537
Traffic Management Devices	215,595	215,595	-	-	-	-	-	-	215,595
Totals	1,649,835	1,649,835	121,667	4,254,560	3,376,167	-	1,311,966	-	6,026,062

Major Projects Completed in 2019/20 were:

- \$745K in concrete footpath additions and renewals.
- \$80K worth of kerb and channel additions and renewals.
- \$1.6M in resealing of roads.
- \$513K in gravel re-sheeting of roads
- Midway Point storm water GPT.
- \$38K of Storm water Pit renewals.
- \$215K of New Traffic Management Devices.
- Internal condition assessment on the entire sealed road network, including functionality and capacity measures.
- Footpath condition assessment – focusing on current condition of 3 or greater for renewal program planning.
- Car parks and Traffic Management Devices transferred from Navision (finance system) to Assetic Asset Register.

6.1.2 Maintenance Expenditure

Council, as a result of integrating its asset register (Assetic) with its finance system (Navision), now have the ability to analyse the maintenance expenditure. For example:

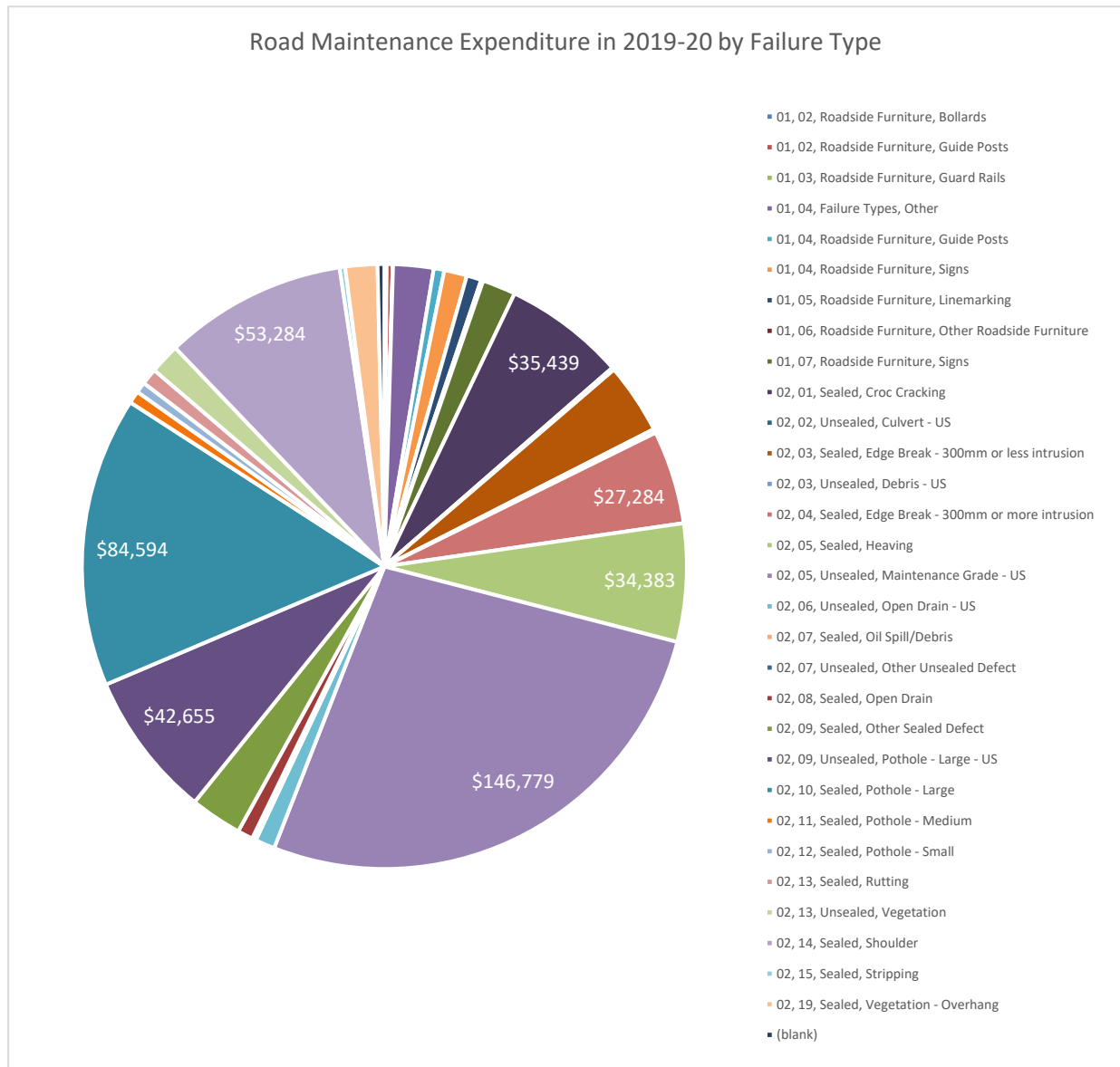


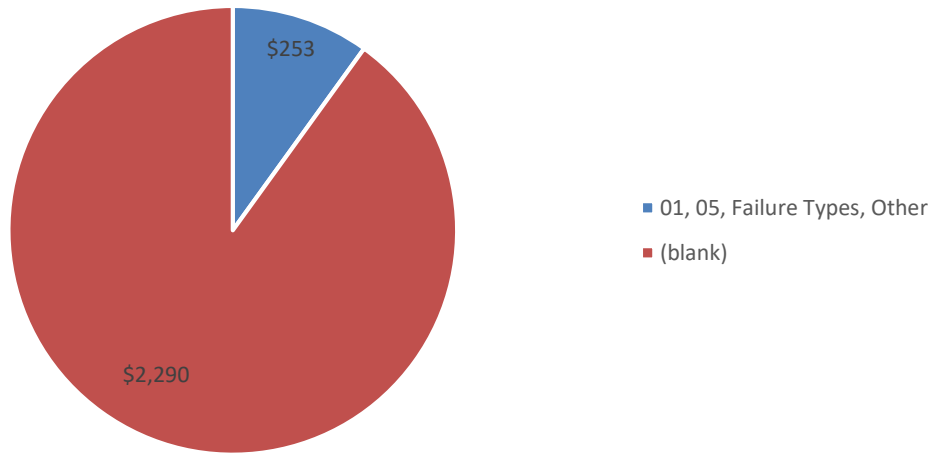
Figure 10. Graphical representation of types of failures and their respective maintenance expenditure for the 2019/20 financial year.

Table 24. Failure codes and the actual maintenance cost for the 2019/20 financial year.
Activity actual cost includes labour, plant, contractors and materials.

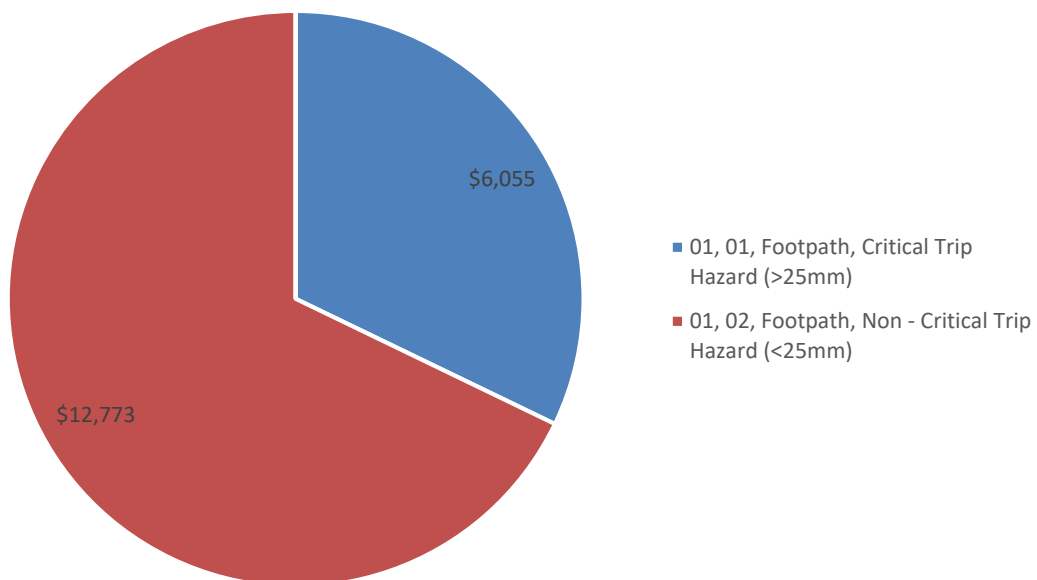
Asset Category	Roads
Year-month	2019-20 financial year
Row Labels	Total Service Activity Actual Cost
01, 02, Roadside Furniture, Bollards	\$ 652
01, 02, Roadside Furniture, Guide Posts	\$ 1,752
01, 03, Roadside Furniture, Guard Rails	\$ 96
01, 04, Failure Types, Other	\$ 11,764
01, 04, Roadside Furniture, Guide Posts	\$ 3,073
01, 04, Roadside Furniture, Signs	\$ 6,654
01, 05, Roadside Furniture, Line marking	\$ 4,270
01, 06, Roadside Furniture, Other Roadside Furniture	\$ 627
01, 07, Roadside Furniture, Signs	\$ 9,736
02, 01, Sealed, Croc Cracking	\$ 35,439
02, 02, Unsealed, Culvert - US	\$ 716
02, 03, Sealed, Edge Break - 300mm or less intrusion	\$ 20,600
02, 03, Unsealed, Debris - US	\$ 1,154
02, 04, Sealed, Edge Break - 300mm or more intrusion	\$ 27,284
02, 05, Sealed, Heaving	\$ 34,383
02, 05, Unsealed, Maintenance Grade - US	\$ 146,779
02, 06, Unsealed, Open Drain - US	\$ 5,733
02, 07, Sealed, Oil Spill/Debris	\$ 650
02, 07, Unsealed, Other Unsealed Defect	\$ 516
02, 08, Sealed, Open Drain	\$ 4,489
02, 09, Sealed, Other Sealed Defect	\$ 15,064
02, 09, Unsealed, Pothole - Large - US	\$ 42,655
02, 10, Sealed, Pothole - Large	\$ 84,594
02, 11, Sealed, Pothole - Medium	\$ 3,626
02, 12, Sealed, Pothole - Small	\$ 3,144
02, 13, Sealed, Rutting	\$ 4,749
02, 13, Unsealed, Vegetation	\$ 8,804
02, 14, Sealed, Shoulder	\$ 53,284
02, 15, Sealed, Stripping	\$ 1,584
02, 19, Sealed, Vegetation - Overhang	\$ 9,345
(blank)	\$ 1,983
Grand Total	\$ 545,199

Other actual maintenance costs for the remaining Transport Asset Categories are demonstrated in the following pie charts for the 2019/20 financial year. Note that there are no maintenance costs available for Kerbs, Public transport shelters and stops and traffic management devices as these categories are either new this year or do not have a maintenance configuration set up on Assetic.

Actual Maintenance Costs by Failure Code for Car Parks
for the 2019-20 Financial Year at Sorell



Actual Maintenance Costs by Failure Code for Pathways
for the 2019-20 Financial Year at Sorell



6.1.3 Bridge Maintenance

AusSpan audit Council's Bridges and major culvert Assets annually. The recommendations from 2020 audit have forecasted the bridge maintenance cost over the next 20 years and is shown in figure 11. The horizontal-line of expected budget, is Councils bridge maintenance amount (external contractors and materials only) of \$30,000 for draft LTFP for 2020/21.

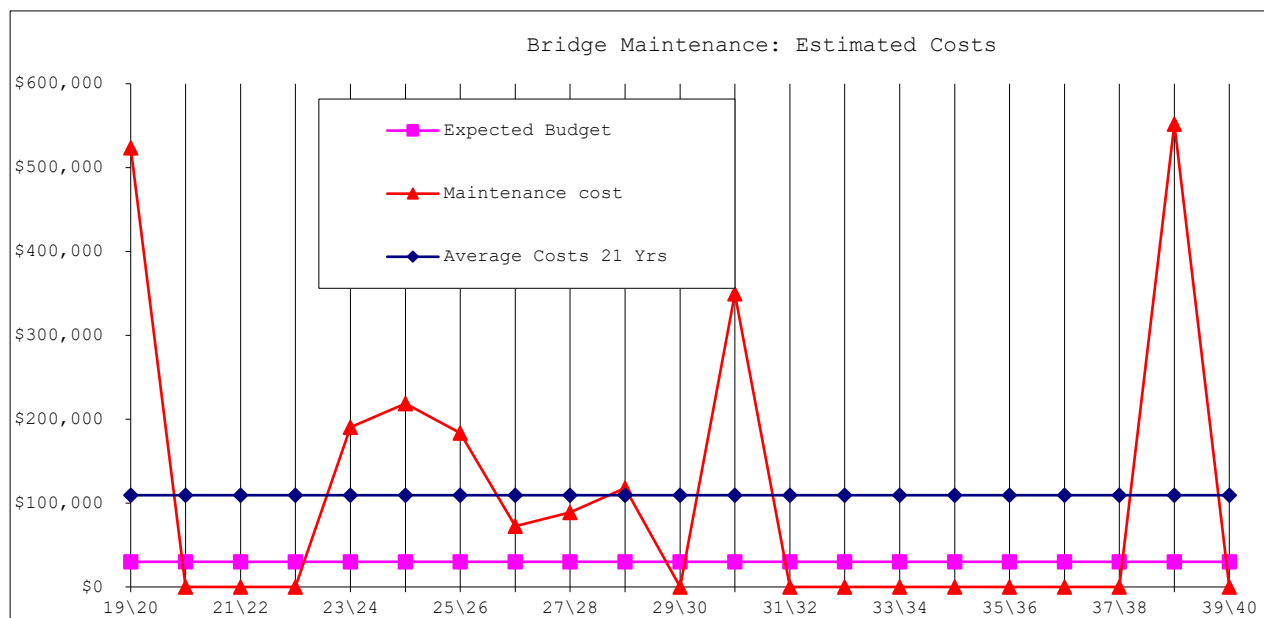


Figure 11. AusSpans Expected maintenance costs for Sorell's Bridges and Major Culvert assets over 20 years. This also assumes 0% inflation allowance.

Councils Maintenance cost on bridges for the 2019-20 is demonstrated in the following figure.

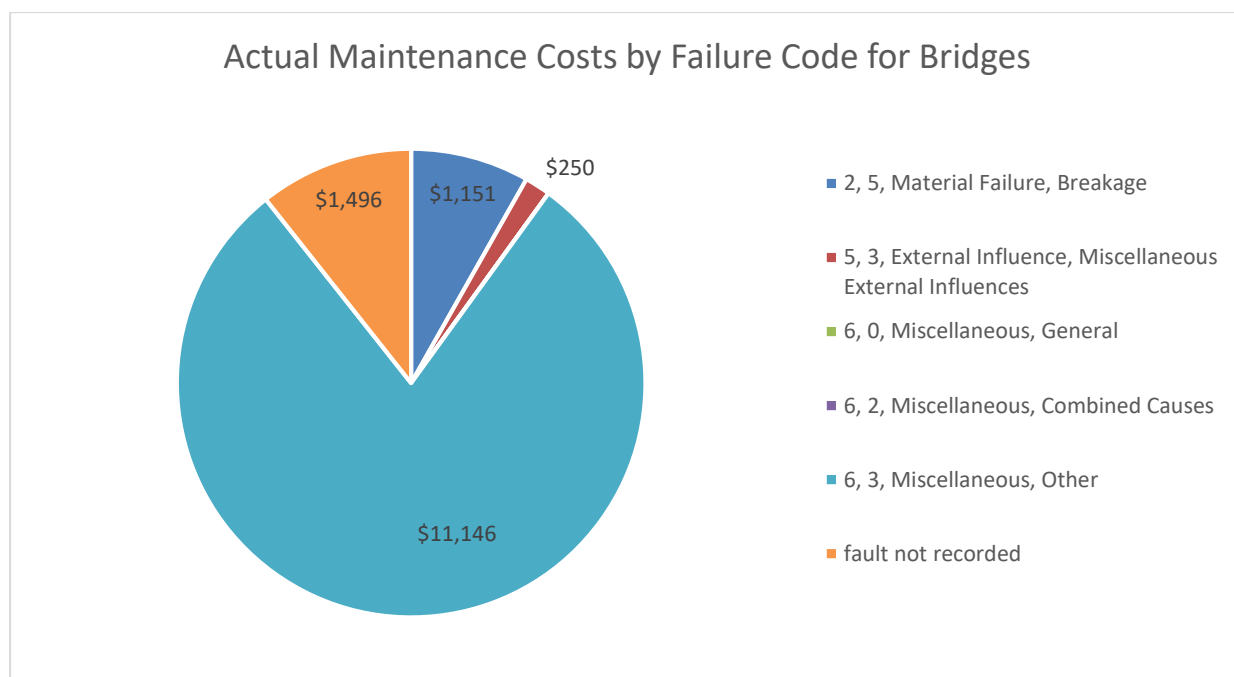


Figure 12. Demonstrates the actual maintenance cost spent on Bridges for the 2019/20 financial year.

6.2 Forecast 10-Year Funding Required

The transport valuation was done by an independent assessor, Assetic, where by the condition of the assets was the foundation for the fair value of the transport components. However, this methodology was rejected by the Tasmanian Audit Office and Assetic revalued the transport assets and components with age as the main driver. Council are now in a unique position whereby a comparison of the 2 methods can be made and see the impact over time. Council however from a renewal / replacement capital works program has adopted the condition based valuation for when an asset will actually reach its end of life (EoL). Below summarises' the transport asset categories for which council has both a condition versus age based valuation.

6.2.1 Roads

The projected capital expenditure that will be required for renewal and replacement of existing Transport assets for the next 10 years, 2020/21 to 2029/30 is \$26M based on the annual depreciation of road assets.

Table 25. *A Comparison of the projected capital expenditure required on renewal and replacement of existing road assets at the time the asset will be at its end of life for age and condition based analysis.*

year	Roads				
	Planned Expenditure (based on Annual Depreciation)	Projected Expenditure based on Age	Theoretical finance Funding Gap with Age Based Valuation	Projected Expenditure based on Condition	Theoretical finance Funding Gap with Condition Based Valuation
2020/21	2,505,000	11,276,739	- 8,771,739	886,894	1,618,106
2021/22	2,610,000	132,248	2,477,752	-	2,610,000
2022/23	2,610,000	1,294,536	1,315,464	1,814,682	795,318
2023/24	2,610,000	352,534	2,257,466	341,536	2,268,464
2024/25	2,610,000	841,152	1,768,848	812,014	1,797,986
2025/26	2,610,000	380,033	2,229,967	233,795	2,376,205
2026/27	2,610,000	2,714,217	- 104,217	2,171,658	438,342
2027/28	2,610,000	3,296,771	- 686,771	773,167	1,836,833
2028/29	2,610,000	770,191	1,839,809	110,523	2,499,477
2029/30	2,610,000	10,481,210	- 7,871,210	8,412,802	- 5,802,802
Total:	25,995,000	31,539,632	- 5,544,632	15,557,071	10,437,929

Table 25 Assumptions / Methodology:

- Age based / Straight-line accounting revaluation method to determine the remaining useful life of road components was undertaken

- Planned expenditure is based on the annual depreciation of the transport asset category as per the LTFP
- Projected Expenditure is based on the expiration date (year) that the asset is due for renewal i.e. the year an asset will be at its end of life based on the assets current consumption ratios.
- Theoretical finance funding gap is the difference between the planned expenditure and the projected expenditure even though these 2 fields were derived from different sources.
- Planned expenditure based on annual depreciation and projected expenditure based on replacement cost and assets end of life.

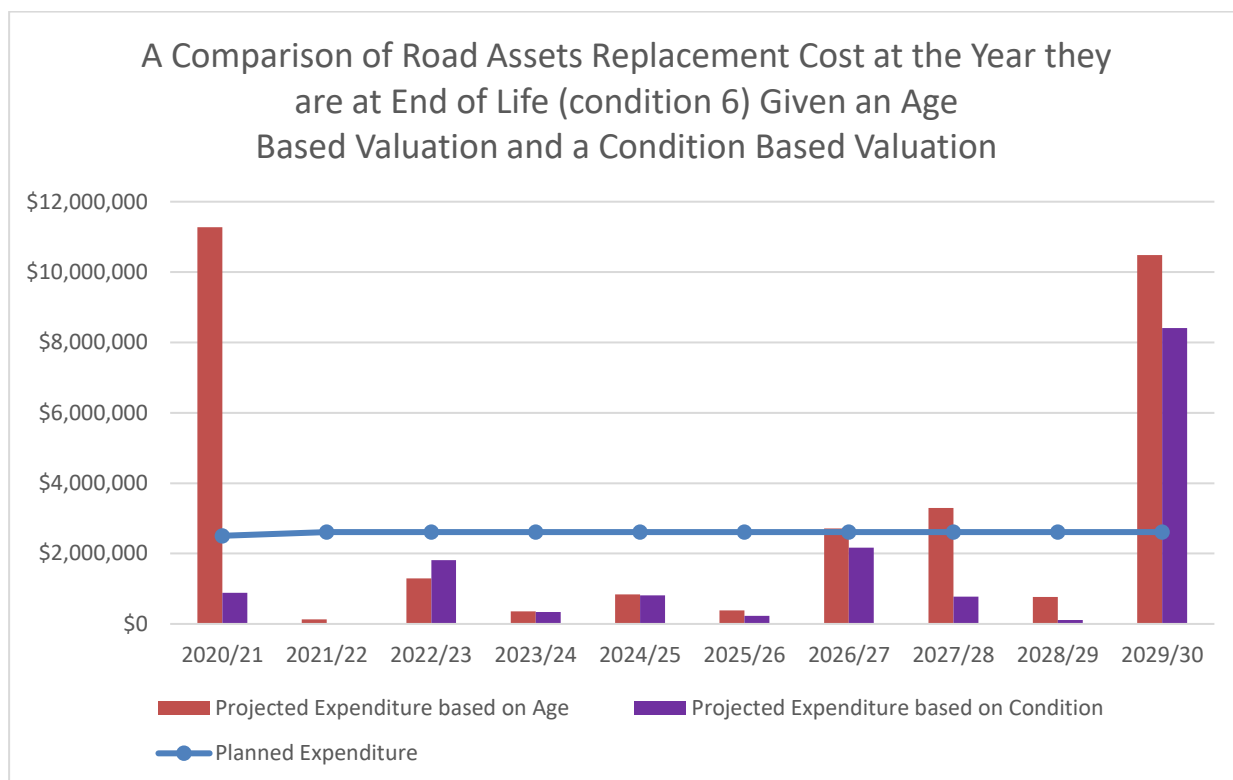


Figure 13. Demonstrates when road assets will reach its end of life and the replacement cost required in that year and where our current renewal forecast funding allocation is set to. Note the funding allocation line hasn't assumed any CPI or other increases, this line would also be a moving average based on annual depreciation at the end of each financial year.

Depending on the methodology used, condition versus age based valuations will affect Council's ability to meet the recommended renewal ratio of 100% (Figure 13). If Council had not done a comprehensive condition survey on its sealed road network and an age based valuation methodology is used, Council would not have the funds to renew the aging road components council has (condition 6 based on age only) and would require council to spend over \$11M in the first year to renew these components. This is compared to <\$1M if condition of the surface and its assumptions made on the pavement base and subbase are considered. Therefore Council's 10-year capital works program for its roads, pathways and bridges has been determined via condition which is the best representation Council has in order to forecast reality.

6.2.2 Footpaths and Kerbs

The following tables demonstrates the funding required of Council to renew footpath and kerb assets when they reach their End of Life (EoL) based on their condition.

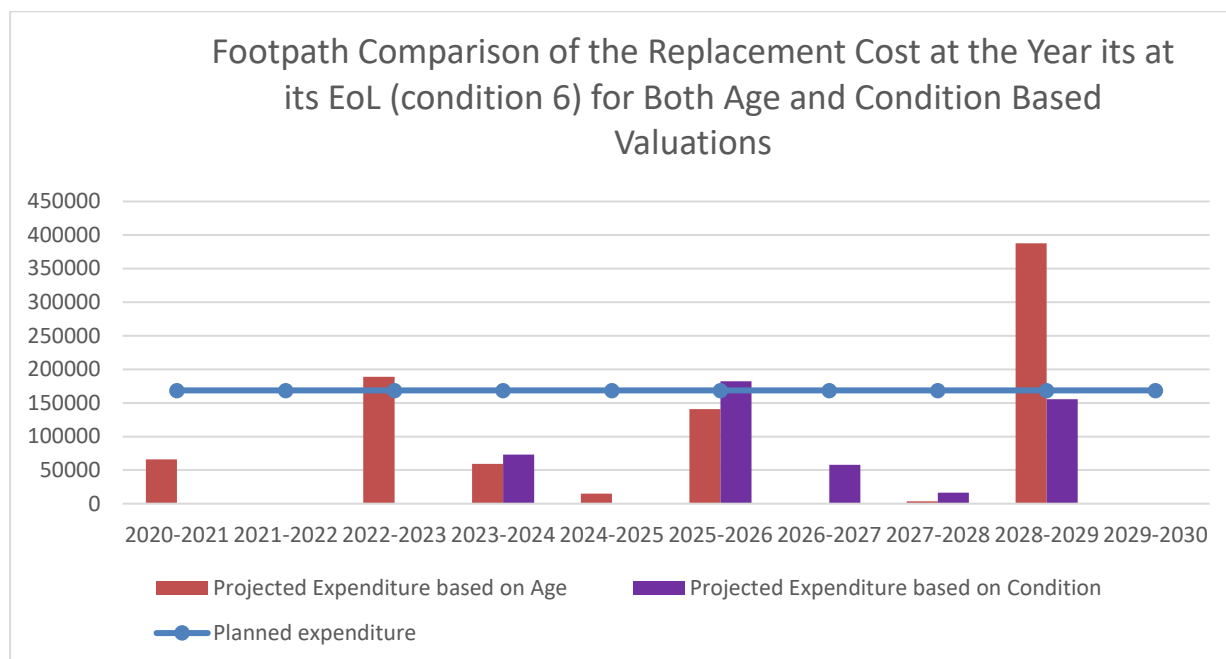


Figure 14. Demonstrates when footpath assets will reach its end of life and the replacement cost required in that year and where our current renewal forecast funding allocation is set to. Note the funding allocation line hasn't assumed any CPI or other increases, this line would also be a moving average based on annual depreciation at the end of each financial year.

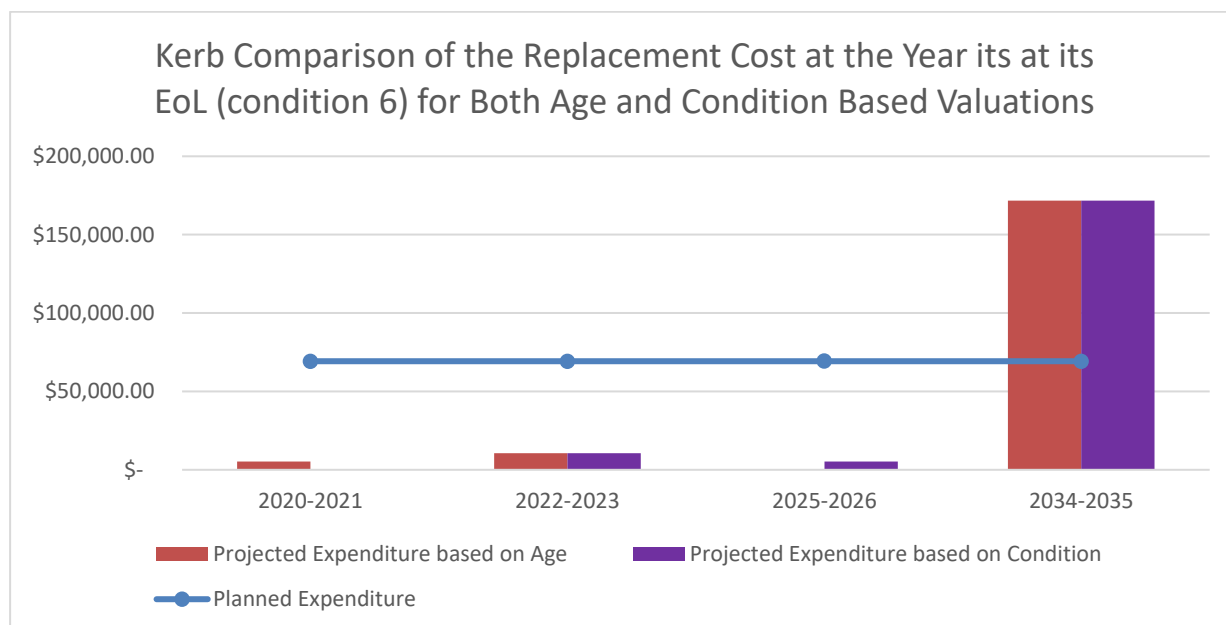


Figure 15. Demonstrates when kerb assets will reach its end of life and the replacement cost required in that year and where our current renewal forecast funding allocation is set to. Note the funding allocation line hasn't assumed any CPI or other increases, this line would also be a moving average based on annual depreciation at the end of each financial year.

6.2.3 Bridges

Bridge comparisons can be made between Council’s valuation index for condition below in **Figure 16** and AusSpans detailed condition survey with resulting renewal recommendations found in section 6.1.3 Bridge Maintenance.

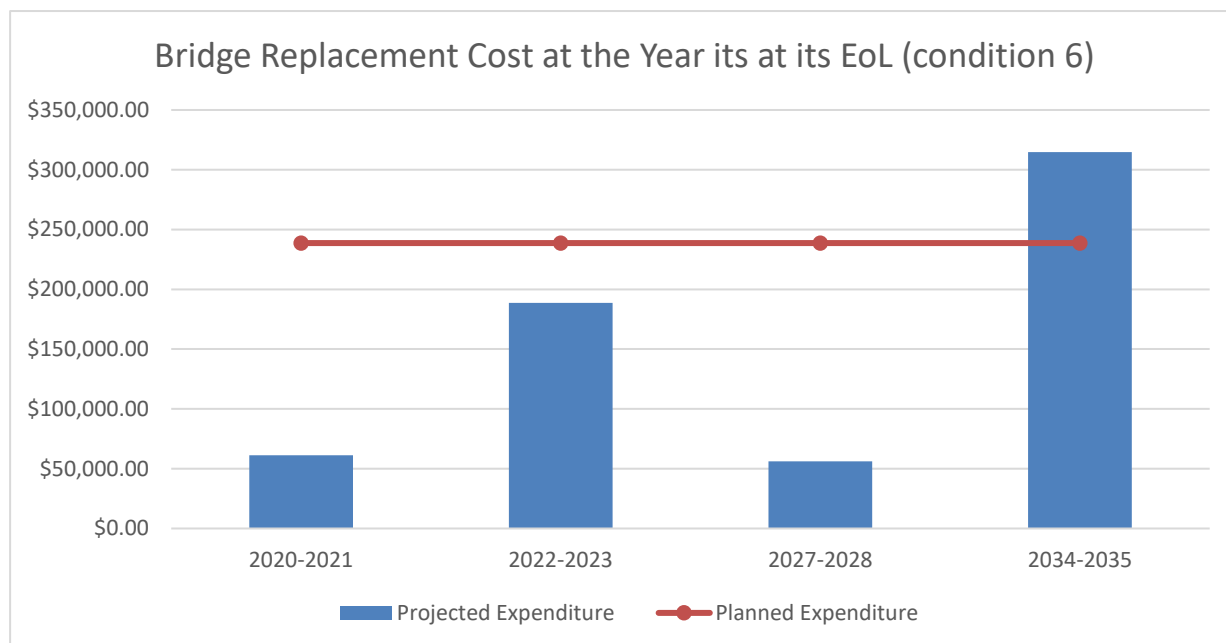


Figure 16. Demonstrates when bridge assets will reach its end of life and the replacement cost required in that year and where our current renewal forecast funding allocation is set to. Note the funding allocation line hasn’t assumed any CPI or other increases, this line would also be a moving average based on annual depreciation at the end of each financial year.

6.2.4 Predictor based 10 year funding required

Council have validated the output from Predictor and in the first year council have followed closely the recommended renewal candidates in the 2020/21 capital budget which has now been approved by Council. Below outlines the 10 year capital works program derived primarily from Assetic’s Predictor and vetted by Sorell’s Roads Supervisor of 40 years.

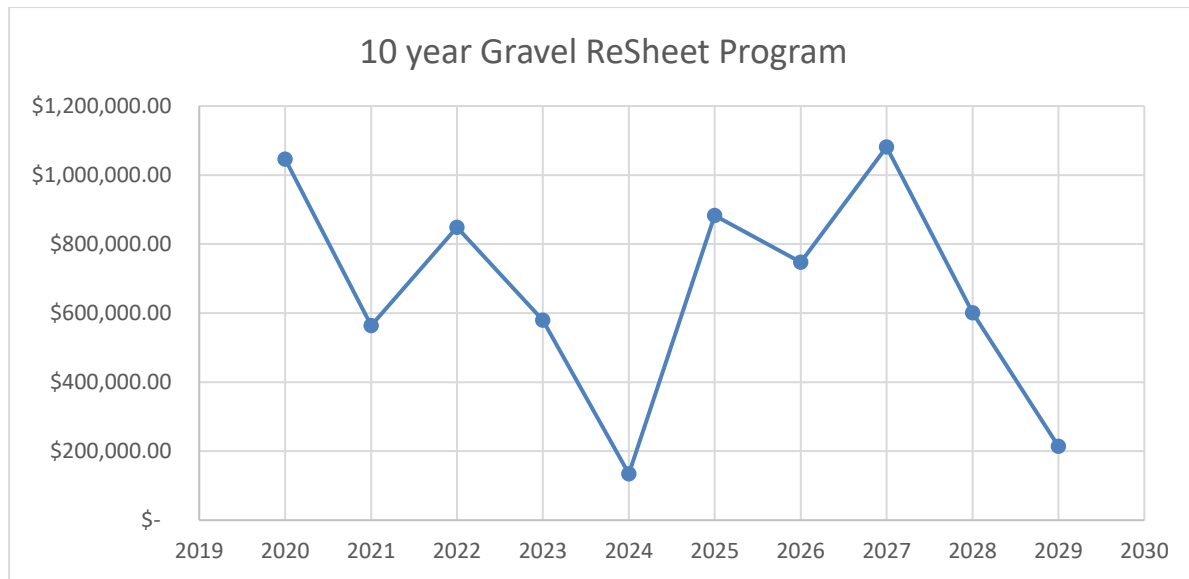


Figure 17. *Planned expenditure on Unsealed Roads over the next 10 years.*

Table 26. *An extract example of Council's unsealed roads 10-year capital program based on strategic modelling (my Predictor) and analysis done by staff with intimate Road network knowledge down to the segmented (per asset) predicted cost.*

		Year										Grand Total
		1	2	3	4	5	6	7	8	9	10	
Bream Creek Road	RD103793			\$8,526					\$9,414			\$17,940
	RD103794			\$22,058					\$24,354			\$46,412
	RD103795			\$22,058					\$24,354			\$46,412
	RD103796			\$21,176					\$23,380			\$44,555
	RD103797			\$20,298					\$22,410			\$42,708
	RD103798			\$21,176					\$23,380			\$44,555
	RD103799			\$3,245					\$3,582			\$6,827
	RD103800			\$21,176					\$23,380			\$44,555
	RD103801			\$20,298					\$22,410			\$42,708
	RD103802			\$17,931					\$19,797			\$37,728
	RD103803			\$21,176					\$23,380			\$44,555
	RD103804			\$20,298					\$22,410			\$42,708
	RD103805			\$21,176					\$23,380			\$44,555
	RD103806		\$19,900					\$21,971				\$41,870
	RD103807		\$15,810					\$17,455				\$33,264
	RD103808		\$15,151					\$16,728				\$31,878
	RD103809		\$15,810					\$17,455				\$33,264
	RD103810					\$22,031					\$24,324	\$46,355
	RD103811		\$7,612					\$8,404				\$16,016
	RD103813		\$20,760					\$22,921				\$43,681

Sealed Road Capital program:

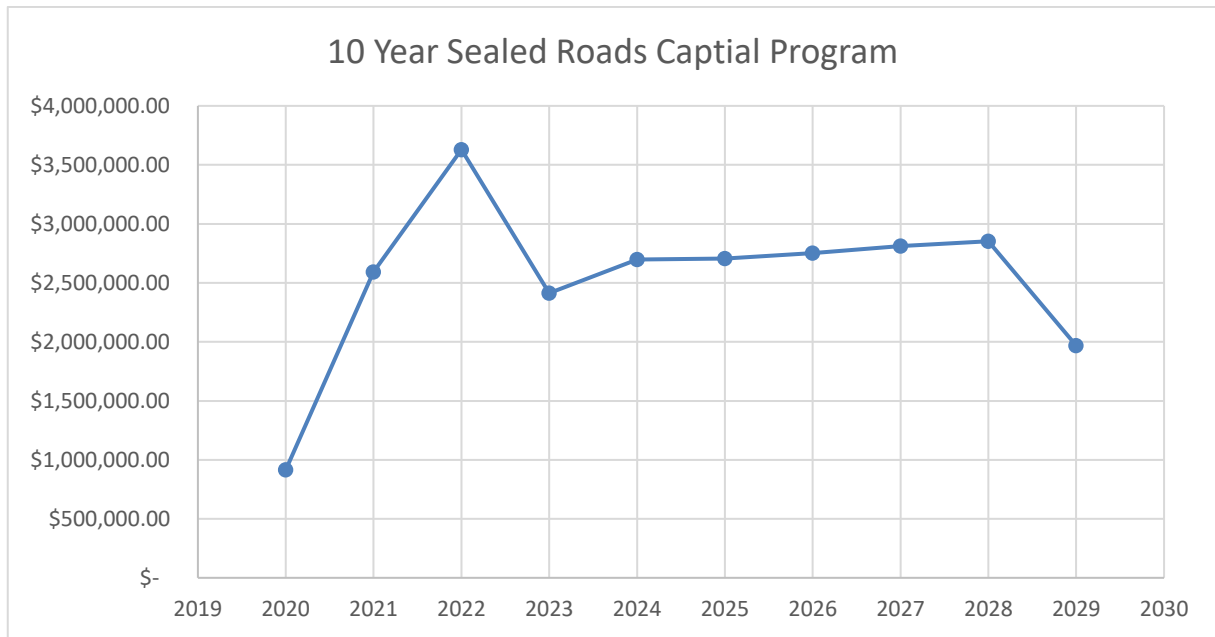


Figure 18. *Planned expenditure on Sealed Roads over the next 10 years.*

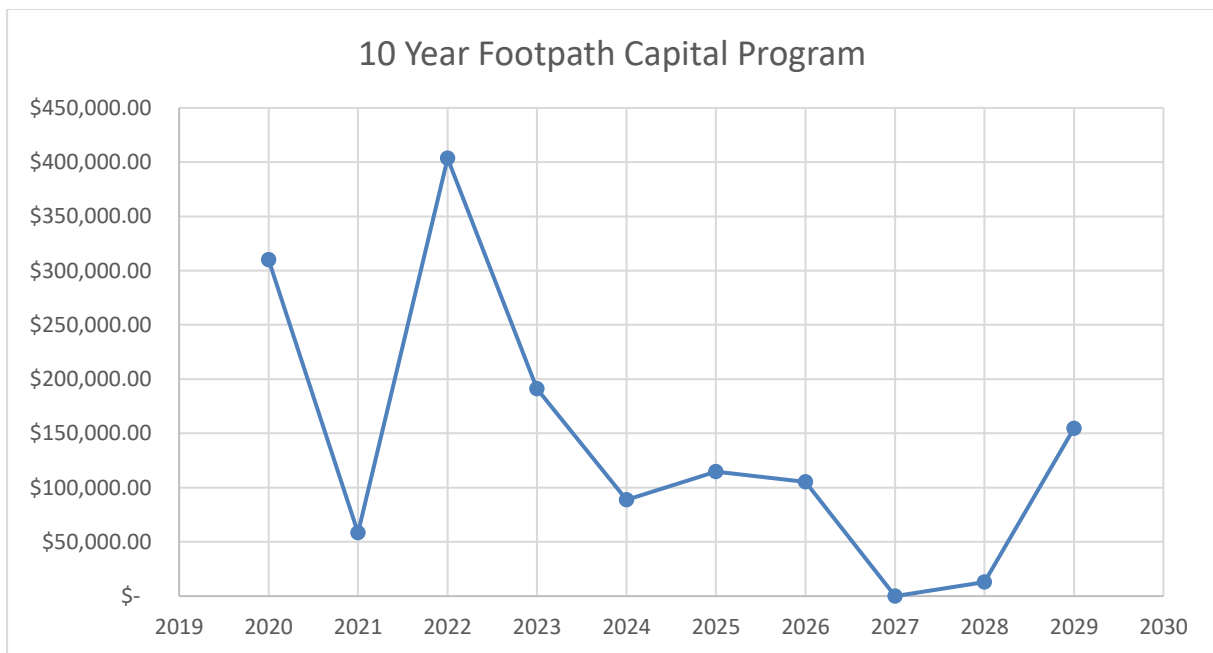


Figure 19. *Planned expenditure on Footpaths over the next 10 years.*

Table 27. Extract from my predictor Footpath – 10-year Capital program.

Road Name	Condition 5	Material	Asset ID	1	2	3	4	5	6	7	8	9	10
First Avenue	Condition 5, Full Renewal	Concrete	PW102570										\$ 1,370.94
Forcett Street	Condition 5, Full Renewal	Concrete	PW102611				\$ 6,837.11						
Garden Lane	Condition 5, Full Renewal	Concrete	PW102614						\$14,614.32				
Geeves Crescent	Condition 5, Full Renewal	Concrete	PW102624					\$ 3,721.63					
Hoffman Street	Condition 5, Full Renewal	Concrete	PW102662										\$31,968.79
Honolulu Street	Condition 5, Full Renewal	Concrete	PW102664					\$14,056.41					
Junction Street	Condition 5, Full Renewal	Concrete	PW102682				\$20,440.03						
Lewisham Scenic Drive	Condition 5, Full Renewal	Concrete	PW102700		\$11,441.44								
			PW102704		\$ 7,906.79								
			PW102705			\$20,596.00							
			PW102706				\$ 4,309.86						
			PW102708			\$ 8,628.00							
			PW102710				\$10,173.97						
			PW102711				\$10,176.14						
			PW102713				\$ 8,883.36						

Table 28. AusSpan recommended renewal on 3 of Council's concrete Bridges including year to renew and projected cost.

Bridge No	River Name	Road Name	Year Constructed	Deck Type	Sub Cost	Super Cost	Renew Year Sub	Renew Year Super	Current Work Cost	New Replacement Cost
1753	Sedbury Crk	Marchwiell	2000	CON	60102	74757	2019	2019	134859	\$134,859
2857	Sorell River	Bridges	1944	CON	88830	99950	2024	2024	188780	\$188,780
894	Sorell River Trib	Pawleena	2002	MPC		70308	2027	2027	70308	\$70,308

6.3 Committed Funding

Projected expenditure identified in **Table 25** is to be funded from Council's operating and capital budgets, loans and reserves and Federal and State Government grants. The funding strategy is detailed in Council's 10-year long term financial plan. The 10-year LTFP is a dynamic document that is reviewed twice annually and refined on a continual basis, to reflect as accurately as possible changes in financial circumstances.

The funding committed towards Transport Assets for 2019/20 as per the long term financial plan is summarised in the table below.

Table 29. Committed funding for as per the LTFP (draft) for Capital Expenditure on New/Upgraded Assets:

Year Ending 30 June:	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 1 MYBR Budget \$'000	Year 2 Plan \$'000	Year 3 Plan \$'000	Year 4 Plan \$'000	Year 5 Plan \$'000	Year 6 Plan \$'000	Year 7 Plan \$'000	Year 8 Plan \$'000	Year 9 Plan \$'000	Year 10 Plan \$'000	Year 11 Plan \$'000
Roads	1,003	1,441	740	1,535	1,555	168	2177	792	191	447	478	602	475	470	574	672
Bridges	0	5	456	52	0	0	30									
Footpaths/Cycleways & Kerb and Channel	250	232	363	42	324	280	500									

Note: There is no committed funding for new/upgraded for all the transport asset categories, due to limited funding for new/upgraded assets available per the Long Term Financial Plan

The forecast for asset repairs and maintenance is calculated by assuming an annual increase of 3% on the previous year's actual expense. Repairs and maintenance expenditure on new/upgraded assets is calculated as 2.5% of the value of new/upgraded assets from 6 years prior. For example, in 2015 the value of new/upgraded assets for roads was \$1.0M therefore in 2021, \$514,000 is forecast as the maintenance required for new/upgraded assets.

Table 30. Maintenance and Repair budget forecasting for the next 10 years (including this year) for Bridges based on a maintenance budget of \$30k based only on external contractors and materials as per the LTFP for 2020/21.

Year	Bridges		
	Forecast of 3%	Increase due to new assets (2.5%)	Total Repairs and Maintenances forecast Budget requirements
2020/21	\$30,000	\$0	\$30,000
2021/22	\$30,900	\$0	\$30,900
2022/23	\$31,800	\$125	\$31,925
2023/24	\$32,800	\$11,400	\$44,200
2024/25	\$33,800	\$1,300	\$35,100
2025/26	\$34,800	\$0	\$34,800
2026/27	\$35,800	\$0	\$35,800
2027/28	\$36,900	\$0	\$36,900
2028/29	\$38,000	\$0	\$38,000
2028/30	\$39,000	\$0	\$39,000
Total:			\$356,625

Table 31. Maintenance and Repair budget forecasting for the next 10 years (including this year) for Roads based on a maintenance budget of \$475k based on external contractors and material only as per the LTFP for June 2020/21 (draft).

Year	Roads (sealed and unsealed)		
	Forecast of 3%	Increase due to new assets (2.5%)	Total Repairs and Maintenances forecast Budget requirements
2020/21	\$475,000	\$0	\$475,000
2021/22	\$489,250	\$25,075	\$514,325
2022/23	\$503,928	\$36,025	\$539,953
2023/24	\$519,045	\$18,500	\$537,545
2024/25	\$534,617	\$38,375	\$572,992
2025/26	\$550,655	\$38,875	\$589,530
2026/27	\$567,175	\$10,775	\$577,950
2027/28	\$584,190	\$0	\$584,190
2028/29	\$601,716	\$0	\$601,716
2029/30	\$619,767		\$619,767
Total:			\$5,612,968

6.4 Financial Ratios

Currently the allocation of new and upgrade funding is predicted only for our roads. However, Councils AM practice for all asset categories will be to prioritise the funding based on condition and its hierarchy i.e. arterial roads (highest traffic in urban area) with condition 3 may see renewal funding allocation over a condition 4 on local minor roads, provided it meets safe / industry standards and meets Councils / community levels of service.

Industry standards on asset renewal funding ratio in Tasmania has been outlined by the Tasmanian Audit Office: *“To maintain operating capacity, we would expect a council to fund 90% of its planned asset requirements. Identification of shortfalls enabled councils to develop strategies to address future asset replacement requirements in full (ref: <https://www.audit.tas.gov.au/wp-content/uploads/Volume-3-Local-Government-2017-18>).”*

It should be noted that, the review of asset renewal funding was only examined for Road Infrastructure, and they found that *“A total of 27 of the 28 councils that had long-term asset management plans demonstrated ratios equal to or better than our 90% benchmark.”*

Sorell Councils asset renewal funding philosophy is to establish what levels of service should be. In the long term Council will aim to achieve the 100% renewal funding ratio based on condition.

Table 32. An extract from the LTFP 2020-2021 of the capital expenditure on renewal or replacement of existing assets.

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Year Ending 30 June:	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 1 Plan \$'000	Year 2 Plan \$'000	Year 3 Plan \$'000	Year 4 Plan \$'000	Year 5 Plan \$'000	Year 6 Plan \$'000	Year 7 Plan \$'000	Year 8 Plan \$'000	Year 9 Plan \$'000	Year 10 Plan \$'000	Year 11 Plan \$'000	Year 12 Plan \$'000	Year 13 Plan \$'000	Year 14 Plan \$'000	Year 15 Plan \$'000	Year 16 Plan \$'000
Capital Expenditure on Renewal or Replacement of Existing Assets:																						
Land	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Land under Roads	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Land Improvements	488	120	0	138	18	139	178	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337
Buildings	786	264	78	0	38	86	65	772	872	872	872	872	872	872	872	872	872	872	872	872	872	872
Leasehold Improvements	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Plant & Equipment	249	427	163	400	310	779	712	408	408	408	408	408	408	408	408	408	408	408	408	408	408	408
Fixtures, fittings and furniture	0	0	0	0	0	0	0	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133
Computers and Telecommunications (including intangibles)	144	66	35	0	107	239	147	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
Roads	675	1,266	2,655	3,458	2,328	2,460	3,025	2,442	2,450	2,452	2,456	2,461	2,467	2,472	2,476	2,482	2,489	2,497	2,507	2,518	2,530	2,543
Bridges	356	24	2,146	0	1,158	17	397	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
Footpaths/Cycleways & Kerb and Channel	296	170	365	221	338	376	692	248	248	248	248	248	248	248	248	248	248	248	248	248	248	248
Storm Water	0	0	61	0	0	182	337	628	628	628	628	628	628	628	628	628	628	628	628	628	628	628
Waste	0	0	0	0	0	0	0	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Formation Earthworks	0	0	0	0	0	661	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Transport Infrastructure	0	0	0	0	0	241	0															
Total	2,994	2,337	5,503	4,217	4,297	5,180	5,553	5,330	5,438	5,440	5,444	5,449	5,455	5,460	5,464	5,470	5,477	5,485	5,495	5,506	5,518	5,531

Asset management ratios provide insight into an organisation's performance and success in managing its assets. Council's asset management ratios for its asset portfolio calculated as of Feb 2021 have been reported in Table 33 below, an extract of the Long Term Financial Plan Report:

Table 33. An extract of the long term financial Plan: Key financial Indicators and calculation data 2020/21.

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
KEY FINANCIAL INDICATORS. Year Ending 30 June:	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 1 Plan \$'000	Year 2 Plan \$'000	Year 3 Plan \$'000	Year 4 Plan \$'000	Year 5 Plan \$'000	Year 6 Plan \$'000	Year 7 Plan \$'000	Year 8 Plan \$'000	Year 9 Plan \$'000	Year 10 Plan \$'000	Year 11 Plan \$'000	Year 12 Plan \$'000	Year 13 Plan \$'000	Year 14 Plan \$'000	Year 15 Plan \$'000	Year 16 Plan \$'000
Operating Surplus Ratio %	21.6%	2.0%	4.5%	3.1%	7.6%	9.7%	-3.8%	1.2%	0.7%	1.0%	1.1%	1.4%	0.8%	0.8%	1.2%	1.6%	2.0%	2.4%	2.7%	3.1%	3.4%	3.6%
Operating Surplus Ratio Target Min%																						
Operating Surplus Ratio Target Max%																						
Net Financial Liabilities Ratio %	-146%	-176%	-157%	-168%	-194%	-164%	-148%	-137%	-136%	-133%	-131%	-128%	-126%	-123%	-121%	-119%	-116%	-113%	-111%	-108%	-106%	-104%
Net Fin Liabilities Ratio Target Min%																						
Net Fin Liabilities Ratio Target Max%																						
Asset Renewal Funding Ratio %	100%	100%	100%	100%	100%	105%	110%	104%	102%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Asset Renewal Funding Ratio Target Min%																						
Asset Renewal Funding Ratio Target Max%																						
FINANCIAL INDICATOR CALCULATION DATA	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 0 Actual \$'000	Year 1 Plan \$'000	Year 2 Plan \$'000	Year 3 Plan \$'000	Year 4 Plan \$'000	Year 5 Plan \$'000	Year 6 Plan \$'000	Year 7 Plan \$'000	Year 8 Plan \$'000	Year 9 Plan \$'000	Year 10 Plan \$'000	Year 11 Plan \$'000	Year 12 Plan \$'000	Year 13 Plan \$'000	Year 14 Plan \$'000	Year 15 Plan \$'000	Year 16 Plan \$'000
Total Operating Revenue	18,545	16,443	18,024	17,871	18,705	19,133	18,124	19,706	20,180	20,732	21,303	21,889	22,492	23,113	23,750	24,405	25,079	25,772	26,485	27,217	27,971	28,745
Asset Management Plan recommended Capital Expenditure on	2,994	2,337	5,503	4,217	4,297	4,939	5,037	5,129	5,330	5,438	5,440	5,444	5,449	5,455	5,460	5,464	5,470	5,477	5,485	5,495	5,506	5,518
Capital Expenditure on Renewal/Replacement of Existing Assets	2,994	2,337	5,503	4,217	4,297	5,180	5,553	5,330	5,438	5,440	5,444	5,449	5,455	5,460	5,464	5,470	5,477	5,485	5,495	5,506	5,518	5,531
Difference in Asset Renewal/Replacement proposed in AMP and	0	0	0	(0)	0	241	516	201	108	2	4	5	6	5	5	6	7	8	10	11	12	13

Asset Sustainability is another financial indicator that Council reports on in the Annual Plan and to the Tasmanian Audit office. The ratio calculates the extent to which Council is maintaining operating capacity through renewal of the existing asset base. In 2020 Council's Asset Sustainability ratio was 93%.

The calculation of the ratios above are as follows:

- Asset Sustainability → Capital Renewal Expenditure divided by Annual Depreciation Expense
- Asset Renewal Funding → Net Present Value (NPV) of planned capital renewal expenditure divided by the net present value of desired capital renewal expenditure

Key assumptions made in this Land Improvement Asset Management Plan are:

- The current levels of service will remain constant over the life of this AMP.
- The treatment and maintenance costs are based on Council's current schedule of rates and may not directly compare to Council's internal service provision actual costs.
- All predicted financial figures are based on current rates and are not adjusted by the inflation rate for the particular year of works.
- Continued use of current construction techniques and materials in alignment with current standards.
- Current maintenance funding levels are meeting service level requirements.
- Capital renewal is generally 'like for like' however mandated improvements are factored into replacement costs.
- Depreciation is in accordance with Council Policy.
- The proposed capital renewal program will be funded as per the scenario recommended.

7 Action Plan

7.1 AM Document Register

Table 34. Document Register

Document Type	Asset Category	Adopted Version / Date	Planned Revision
Strategic Plan (10 year)		Aug 2019-29	2029
Asset Management Policy		Aug 2018	Sept 2022
Asset Management Objectives			
Strategic Asset Management Plan		V2 18/09/2018	
Asset Management Plans:			
	Transport	V2 Draft 2017	Current Draft: 2 nd generation 2020
	Buildings	V1 2014	V2 2020
	Stormwater Drainage	V1 2014	V2 2021

Land Improvements	current (V1 2019)	V2 2022
Asset Capitalisation Business Rules	V2 June 2020	V2 2021

7.2 AM Practice Improvements

Improving asset knowledge and practice is a continual process of refinement. Whilst there have been many improvements to Council practices, there are also a number of identified further improvements to be made.

The following table outlines Council's transport improvement action plan

Table 35. *Asset Management improvement action plan for the next 5 years.*

Asset Management Objectives	Action	Performance Target & Timeline	Officer responsible
<i>Traffic counts to be made available in Assetic Cloud.</i>	<i>Data entry of traffic count data into Assetic under the corresponding asset.</i>	<i>2020/21</i>	<i>Asset / GIS Team Leader, GIS Asset Information Officer, with help / consult from Works Support Officer</i>
<i>Footpath and Kerb condition assessment and maintenance plan.</i>	<i>Fault, Cause and Remedy Codes to be adopted and maintenance/ Inspection regime implemented.</i>	<i>2020/21 Annual Inspections</i>	<i>Asset / GIS Team Leader, GIS Asset Information Officer, Works Support Officer and Works Programmer - Roads</i>
<i>Footpath / kerb Condition assessment and collect asset performance indicators.</i>	<i>Walking the footpath and kerb network and collect surface condition and functionality and capacity ratings</i>	<i>2020/21</i>	<i>TBC</i>
<i>GHD Road Safety Audit.</i>	<i>Road safety audit on local collector hierarchy class (completing the arterial / collector road network).</i>	<i>2020/21</i>	<i>Engineering Manager – Projects & Development</i>
<i>Enhance Unsealed roads AM practices / procedures an documentation and condition data collection.</i>	<i>Formulate a more robust methodology for unsealed roads. Collect data on functionality an capacity</i>	<i>Before next Transport Revaluation / AMP in 5 years (2025)</i>	<i>Asset / GIS Team Leader, GIS Asset Information Officer and Works Programmer - Roads</i>
<i>More accurate network measurements required on unsealed roads</i>	<i>Measure surface widths</i>	<i>2020/21 – 2021/22</i>	
<i>Continued development and capture of routine traffic volume monitoring / annual traffic count program</i>	<i>Move traffic counters around the network to capture volumes and speed</i>	<i>On-going</i>	<i>Works Support Officer and Works Programmer – Roads and GIS</i>

Asset Management Objectives	Action	Performance Target & Timeline	Officer responsible
			Asset Information Officer
<i>Continued investigation on new road rehabilitation ex. Lime stabilisation and monitor segments where these new methods have been used.</i>	<i>Review annually the segments that have used these new methods over time</i>	<i>On-going</i>	<i>Engineering Manager – Projects & Development and Works Programmer – Roads</i>
<i>Continue to populate service criteria at the component level as after condition assessments are complete to drive the asset condition / performance curve</i>	<i>Import service criteria from both condition assessments done on sealed road (first one on major roads only, and most recent (2019) from all sealed roads in Sorell. This will allow for seeing trends and graphically depict the road assets condition / service potential.</i>	<i>2021</i>	<i>Assetic (as part of revaluation data), Asset / GIS Team Leader, GIS Asset Information Officer</i>
<i>Unsealed Road Renewal Optimisation</i>	<i>Functionality and capacity, Identify Drainage concerns, Recommendations for loss of gravel, how much are we losing on average on yearly basis (set sample size). Action will be to Measure the compacted re-sheet (in order to quantify the rate of gravel loss over time) and long terms will re-establish a more realistic life of the re-sheets</i>	<i>2025 (before the next transport revaluation)</i>	<i>Asset / GIS Team Leader, GIS Asset Information Officer, Works Support Officer and Works Programmer – Roads</i>
<i>Revise / improve the maintenance configuration in Assetic for unsealed roads as a result of the above ‘unsealed road renewal optimisation’ outcomes.</i>	<i>Configure the maintenance module, fault, cause and remedy.</i>	<i>2025 (before the next transport revaluation)</i>	<i>Asset / GIS Team Leader, GIS Asset Information Officer, Works Support Officer and Works Programmer – Roads</i>

GHD Road safety audits will be conducted during 2020/21 for both day and night on these roads this year which will complete Sorell’s road network of 60km/h roads and over:

- Pawleena Road (Arthur Highway to end)
- Delmore Road (Nugent Road to Arthur Highway)
- White Hill Road (off Delmore Road)
- Bream Creek Road (Kellevie Road to Marion Bay Road)
- Marion Bay Road – Bay Road (Arthur Highway to Arthur Highway)
- Boomer Road (Arthur Highway to Bay Road)
- Lewisham Road – Lewisham Scenic Drive (Arthur Highway to Old Forcett Road)

- Primrose Sands Road (Fulham Road to Colleen Crescent intersection)

Further to this, Councils grant proposals, while fairly successful, could be more robust by providing more data to support the grant process.

7.3 Identified Further Improvements

Lastly, the tasks outlined in **Table 35**, will in turn help develop and link to Councils future annual operational plans.

Specific Longer term improvements include:

- Over next 10 years, we will have gathered useful maintenance history with regards to costs which will also feed My Predictor in order to work out which assets are costing us more to repair and maintain and therefore improving the renewal profiling when we get to that point.
- Ongoing and future analysis of the accumulating data on actual activity based costings which will soon also be further separated in to labour, material and plant as of 2021 with the implementation of Microsoft Dynamics 365 Business Central Cloud Finance System (D365BC).
- Customer performance measures require more attention. A broad community survey would allow Council to validate the Council strategy by obtaining feedback on what differences they have observed. The survey would require funding and need to be statistically valid. Council could also provide more education to community about what Council is responsible for versus Tasmania Parks and Wildlife Services, Crown / Department of Primary Industry Services, Department of State Growth etc.

8 References:

Documents	location / folder / Website	Source
Sorell Roads Distress Modes and Functionality Assessments V1.2	S:\Engineering_Asset Management\00_ASSET DOCUMENTATION\ASSET MANAGEMENT PLANS\2019-20 AMPs	Internal
Multiple sample transport AMPs	S:\Engineering_Asset Management\00_ASSET DOCUMENTATION\ASSET MANAGEMENT PLANS\Examples from other Councils	Internal
Assetic Simple AM Plan from Assetic	S:\Engineering_Asset Management\00_ASSET DOCUMENTATION\ASSET MANAGEMENT PLANS	Internal
Minimum Levels of Componentisation for Road Infrastructure Assets Guideline	https://austroads.com.au/publications/asset-management/ap-r577-18/media/AP-R577-18_Minimum_Levels_of_Componentisation_for_Road_Infrastructure_Assets_Guideline.pdf	external
National State of the Assets - Roads and Community infrastructure Nov 2018	Technical reference - https://alga.asn.au/2018-national-state-of-the-assets-report/	External
UNSEALED ROAD MAINTENANCE STRUCTURE	S:\Engineering_Asset Management\00_ASSET DOCUMENTATION\ASSET MANAGEMENT PLANS\2019-20 AMPs	external
Tasmanian audit office - Infrastructure Financial Accounting in Local Government	https://www.audit.tas.gov.au/publication/infrastructure-financial-accounting-local-government/ and locally: S:\Engineering_Asset Management\00_ASSET DOCUMENTATION\ASSET MANAGEMENT PLANS\2019-20 AMPs	external
for development standards - Tasmanian Standard drawings	hard copy	external
2020 beyond Road Reconstruction Candidates	S:\Engineering_Asset Management\00_ASSET DOCUMENTATION\ASSET MANAGEMENT PLANS\2019-20 AMPs	external
2017/18 Draft Transport AMP (By Brenton Oakley)	S:\Engineering\Depot\TARDIS - Brenton\Asset Documentation	Internal
	https://www.transport.tas.gov.au/_data/assets/pdf_file/0004/112468/DIER_Southern_Integrated_Transport_Plan_2010.pdf	external
	https://www.transport.tas.gov.au/road/projects/southeasttrafficsolution	external
	https://www.transport.tas.gov.au/road/projects/sorell_to_hobart_planning_study	external

Documents	location / folder / Website	Source
ALGA: Background on Local government Funding	https://alga.asn.au/policy-centre/infrastructure/roads-funding/ https://alga.asn.au/policy-centre/financial-sustainability/background-on-local-government-funding/	external
Holistic Asset Management Plan	<i>Source:</i> https://www.holisticam.com.au/asset-management-plan-key-elements/)	external

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Appendix B: Hierarchy Classification TAO recommendation

Proposed Rural Local Road Hierarchy: Source: Appendix 1 – Page 71 - Experts Report in 'Report of the Auditor-General No. 5 of 2013-14 – Infrastructure Financial Accounting in Local Government.

December 2013

	Hierarchy Classification						
Parent Classification	Rural Arterial	Collector		Local Access	Other		
Child Classification	6. Rural Arterial	7. Rural Collector	8. Rural Feeder	9. Rural Local Access	10. Other Minor	11. Other Roads	12. Rural Road Reserves
Function/Description	Major link for traffic flow between towns, major tourist destinations and industrial areas	Link from local arterial roads and local roads	Access for properties and link to collector roads	Access for properties	Local roads maintained by the local authority	Other roads not maintained by the local authority	Non-constructed/maintained road reserves
Running surface	Sealed/unsealed	Sealed/unsealed	Sealed/unsealed	Sealed/unsealed/unformed	Sealed/unsealed/unformed	Sealed/unsealed/unformed	Unformed
AADT	> 1,500 vpd	>500 - <1,000 vpd	>200 – <500 vpd	<200 vpd	<50 vpd		
AADTT / EHV	>300 AADTT &/or >20% EHV	100 – 300 AADTT or >20% EHV	40 – 100 AADTT or >20% EHV	<40 AADTT or <20% EHV	<10 AADTT		
Carriageway Form	2 lanes	2 lanes	2 lanes	1 or 2 lanes	1 or 2 lanes		
Centerline Marking	Yes	Site specific	Site specific	None	None		
Heavy Vehicle Route	Yes	Yes	Yes	Local access only	Local access only		

AADT – Annual Average Daily Traffic

AADTT – Annual Average Daily Truck Traffic

EHV – Equivalent Heavy Vehicles (%)

Appendix C: Road Safety Review: GHD

SORELL ROAD SAFETY REVIEWS - RECOMMENDATIONS TO REDUCE HIGH/MEDIUM RISKS

OCTOBER/NOVEMBER 2019

Report No	Location	Description of fault/finding	Risk Rating	Responsibility	Actions	Completion Date
3.1	<u>BRINKTOP ROAD</u>					
3.1.1	Tasman Hwy to Penna Road	Narrow road cross section	High	Leon	Leon to measure road width to see if possible to install edge lines.	6/12/2019
3.1.4	Penna Road junction	Lack of speed signage	High	Ken G	Install 100km/h speed signs west of bridge and either side of Penna Road.	15/02/2020
3.1.4	Penna Road junction	Limited sight distance	High	Ken G	As above - can't change geometry of road.	N/A
3.1.6	Guard rail end terminals	Install energy absorbing end terminals	Medium	Nil	End terminals were current standard when installed. Too costly to replace.	N/A
3.1.7	Accesses to #692 & #677	Limited sight distance	Medium	Leon	To be improved with current contract C-20-T-003	30/04/2020
3.1.8	Penna Road to top of Brinktop hill	Poor horizontal geometry	High	Leon	Some will be improved with current contract C-20-T-003. Designed to 80km/h standard but DSG said NO to reducing speed limit.	30/04/2020
3.1.11	Top of Brinktop hill	Steep batter slopes - no safety barriers	High	Leon	Shall be installed (as required) with current contract	30/04/2020
3.1.12	West of Penna Road junction	Poor reflectivity of existing signs	High	Ken G	Replace "T" sign to improve night reflectivity	15/02/2020
3.2	<u>KELLEVIE ROAD</u>					
3.2.6	Kellevie Road - gravel section	Large trees close to road	High	Ken G	Mark & remove most dangerous trees staged over 2 years	15/02/2020
3.2.8	Kellevie Road - gravel section	Gravel road deteriorated	Medium	Ken G	Part of maintenance regime.	N/A
3.2.9	Various segments	Install energy absorbing end terminals	Medium	Nil	End terminals were current standard when installed. Too costly to replace.	N/A
3.2.12	Bream Creek Rd junction	Give Way sign set back from junction	Medium	Ken G	Place Give Way sign closer to junction - install new "T" junction signs similar to Nugent Rd/Kellevie Rd junction treatment.	15/02/2020
3.2.14	Bridge on Kellevie Road	Insufficient delineation at night	Medium	Ken G	Replace signs with larger reflective signs (C size)	15/02/2020
3.2.14	Bridge on Kellevie Road	Insufficient delineation at night	Medium	Ken G	Replace signs with larger reflective signs (C size)	15/02/2020
3.3	<u>NUGENT ROAD</u>					
3.3.4	Nugent Road ??	Large tree close to road	High	Ken G	Remove one large tree - sort location	15/02/2020
3.3.7	Near Noel White access	Poor horizontal alignment	High	Ken G	Replace "CAM" signs with "B" size signs.	15/02/2020
3.3.11	West of Delmore Road junction	Old chevron sign is not reflective	Medium	Ken G	Replace chevron sign with new reflective sign.	15/02/2020
3.3.12	Delmore Road junction	Right of Way unclear	Medium	Ken G	Update HOLDING line on Delmore Road	15/02/2020
3.3.18	Kellevie Road junction	Right of Way unclear due to geometry	Medium	Ken G	Upgrade Give Way sign to "C" size. Install new "T" junction signs on Nugent Rd either side of junction.	15/02/2020

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					Install "Nugent Road" signs below "T" signs.	
3.3.19	Bridge on Nugent Road	Warning sign at wrong angle	Medium	Ken G	Already fixed by twisting sign back into position.	Completed
3.3.20	Bridge on Nugent Road	Insufficient delineation on gravel road sections at night.	Medium	Ken G	Install guide posts and bridge delineators as needed.	15/02/2020
3.3.21	Near Noel White access	Poor reflectivity of existing CAMs signs	Medium	Ken G	Replace "CAM" signs with "B" size signs	15/02/2020
3.4	<u>OLD FORCETT ROAD/CARLTON BEACH ROAD</u>					
3.4.2	Gillingbrook Road junction	Limited sight distance	High	Leon	Previous TIA states junction is just suitable. Reference in Tardis - 5.2016.147.1	N/A
3.4.3	Malwood Place junction	Limited sight distance	High	Leon	Leave as is- cannot change geometry or reduce speed.	N/A
3.4.7	Carlton Beach Road	No footpath on northbound side	Medium	Russell	Footpath required as funding approved - not urgent.	Future Program
3.4.12	Heatherbell Road	Limited sight distance	High	Leon	Leave as is- cannot change geometry or reduce speed.	N/A
3.4.13	Villawood Court	Limited sight distance	High	Leon	Leave as is- cannot change geometry or reduce speed.	N/A
3.4.15	Villawood, Heatherbell, Centenary & Okines junctions	No street Lighting	Medium	Leon	Lack of power poles at these locations to hang lighting from.	N/A
3.4.16	Old Forcett Rd - south of school access	Narrow road, no edgelines, south of school access	Medium	Ken G	Check "T" junction signs & reflectivity.	15/02/2020
3.5	<u>CARLTON RIVER ROAD</u>					
3.5.3	Carlton River Rd - numerous locations	Horizontal geometry does not meet 80km/h design requirements	High	Ken G	Check reflectivity of CAMs signage near Dodges Hill Rd, Gate Five Rd, & other locations.	15/02/2020
3.5.12	West of Homewood Drive	Fourth chevron marker angled in wrong direction	Low	Ken G	Twist sign back into position	15/02/2020
3.5.14	East of Chaseys Creek	Gap in guide posts	Medium	Ken G	Install guide post(s) as required.	15/02/2020
3.6	<u>SUGARLOAF ROAD</u>					
3.6.2	Sugarloaf Rd - various locations	Horizontal geometry does not meet requirements for a posted speed of 100km/h.	High	Leon	Geometry of road will be improved as Council continues upgrade works. Installation of guardrail at steep batters will also occur. Leon to write to DSG to reduce speed limit to 80km/h.	30/04/2020
3.6.4	Sugarloaf Rd - various locations	Large trees within clear zone.	Medium	Leon/Ken G	Leon to write to DSG to reduce speed limit to 80km/h. Remove large tree shown in photo.	15/02/2020
3.6.9	Sugarloaf Rd - various locations	Insufficient stopping sight distance	Medium	Leon	Leon to write to DSG to reduce speed limit to 80km/h.	15/02/2020
3.7	<u>FULHAM ROAD</u>					
3.7.3	Fulham Road - various locations	Horizontal geometry does not meet requirements for a posted speed of 100km/h.	High	Leon	Black spot funding applied for south of Carlton River Bridge. Other corners fitted to suit geology of the saddle.	Future Program
3.7.3	Fulham Road - various locations	Horizontal geometry does not meet requirements for a posted speed of 100km/h.	High	Ken G	Other corners fitted to suit geology of the saddle. Curve warning signs with 45km/h warning limits to be installed.	15/02/2020
3.7.14	Fulham Rd - south of Carlton River Bridge	Poor reflectivity of speed limit warning sign.	Medium	Ken G	Replace 35km/h warning sign under curve warning sign.	15/02/2020
3.7.16	Fulham Road - south of Dunalley bridge	Insufficient delineation at Fish & Chip shop corner	Medium	Ken G	Install guide posts on outside of 90 degree curve.	15/02/2020

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3.7.17	Fulham Rd	Poor reflectivity of chevron alignment markers	Medium	Ken G	Replace chevron markers to improve reflectivity.	15/02/2020
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Appendix D: Valuation Summary Based on Fair Value / Condition

Roads Summary:

SORELL COUNCIL VALUATION AS AT 30 JUNE 2020 SUMMARY: ROADS							
	Financial Class	Valuation Type	Gross Replacement Cost (\$)	Accumulated Depreciation (\$)	Fair Value (\$)	Estimated Annual Depreciation (\$)	Fair Value / GRC %
Revalued amount at 30 June 2020	Roads	Sealed Road - Asphalt Surface	3,399,773	960,470	2,439,303	135,991	72%
		Sealed Road - Asphalt Pavement Base	3,552,290	1,342,803	2,209,487	44,404	62%
		Sealed Road - Asphalt Pavement Sub Base	2,548,735	143,102	2,405,633	10,620	94%
		Sealed Road - Asphalt Pavement Base - Collector/Arterial	497,993	324,894	173,098	6,225	35%
		Sealed Road - Asphalt Pavement Sub Base - Collector/Arterial	594,114	180,735	413,379	2,475	70%
		Sealed Road - Chip Seal Surface	16,126,459	6,272,319	9,854,140	806,323	61%
		Sealed Road - Chip Seal Pavement Base	18,320,264	7,414,461	10,905,804	229,003	60%
		Sealed Road - Chip Seal Pavement Sub Base	13,185,447	933,221	12,252,225	54,939	93%
		Sealed Road - Chip Seal Pavement Base - Collector/Arterial	23,218,791	9,208,156	14,010,635	290,235	60%
		Sealed Road - Chip Seal Pavement Sub Base - Collector/Arterial	27,830,144	1,957,153	25,872,991	115,959	93%
		Sealed Road - Concrete Surface	143,369	35,847	107,522	1,792	75%
		Sealed Road - Concrete Pavement Base	51,800	12,952	38,849	648	75%
		Sealed Road - Concrete Pavement Sub Base	14,299	3,575	10,724	179	75%
		Sealed Road - Pavers Surface	7,204	5,103	2,101	120	29%
		Sealed Road - Pavers Pavement Base	-	-	-	-	0%
		Sealed Road - Pavers Pavement Sub Base	-	-	-	-	0%
		Unsealed - Road Surface	5,362,944	2,794,126	2,568,818	536,294	48%
		Unsealed - Road Pavement Base	16,138,778	10,960,977	5,177,800	268,980	32%
		Unsealed - Road Pavement Base	9,512,681	4,448,409	5,064,272	39,636	53%
		Unsealed - Road Pavement Sub Base - Collector/Arterial	10,837,378	5,597,347	5,240,031	45,156	48%
		Bus Shelters	94,092	41,025	53,067	1,570	56%
		Bus Stops	127,993	35,287	92,706	2,908	0%
		Car Parks	3,980,463	1,419,648	2,560,816	84,953	64%

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		Traffic Management Devices	2,129,281	427,813	1,701,467	40,589	80%
Totals			157,674,292	54,519,423	103,154,869	2,718,998	65%

Pre revaluation at 30 June 2020	Roads	Sealed Road - Asphalt Surface	3,307,243	1,025,639	2,281,604	214,007	69%
		Sealed Road - Asphalt Pavement Base	3,257,424	1,270,079	1,987,344	53,229	61%
		Sealed Road - Asphalt Pavement Sub Base	2,428,951	479,099	1,949,852	10,143	80%
		Sealed Road - Asphalt Pavement Base - Collector/Arterial	493,451	469,696	23,755	7,563	5%
		Sealed Road - Asphalt Pavement Sub Base - Collector/Arterial	355,285	219,981	135,304	1,480	38%
		Sealed Road - Chip Seal Surface	16,018,161	5,625,083	10,393,079	890,922	65%
		Sealed Road - Chip Seal Pavement Base	17,187,146	11,010,173	6,176,973	269,040	36%
		Sealed Road - Chip Seal Pavement Sub Base	12,655,459	4,610,143	8,045,316	52,737	64%
		Sealed Road - Chip Seal Pavement Base - Collector/Arterial	20,422,674	14,367,241	6,055,433	280,131	30%
		Sealed Road - Chip Seal Pavement Sub Base - Collector/Arterial	15,150,734	7,711,672	7,439,063	63,128	49%
		Sealed Road - Concrete Surface	211,021	12,030	198,992	2,110	94%
		Sealed Road - Concrete Pavement Base	42,822	3,079	39,743	714	93%
		Sealed Road - Concrete Pavement Sub Base	2,550	32	2,518	11	99%
		Sealed Road - Pavers Surface	503	377	126	8	25%
		Sealed Road - Pavers Pavement Base	2,175	1,740	435	36	20%
		Sealed Road - Pavers Pavement Sub Base	933	575	358	5	38%
		Unsealed - Road Surface	4,082,623	2,471,448	1,611,175	553,226	39%
		Unsealed - Road Pavement Base	13,933,494	9,739,524	4,193,970	164,147	30%
		Unsealed - Road Pavement Base	7,827,206	3,919,001	3,908,205	34,272	50%
		Unsealed - Road Pavement Sub Base - Collector/Arterial	5,290,970	3,017,515	2,273,455	22,046	43%
		Bus Shelters	86,000	56,000	30,000	1,400	35%
		Bus Stops	-	-	-	-	0%
		Car Parks	2,820,173	2,100,754	719,419	84,905	26%
		Traffic Management Devices	47,410	27,331	20,079	2,087	42%
Totals			125,624,410	68,138,212	57,486,198	2,707,347	46%

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Difference	Roads	Sealed Road - Asphalt Surface	92,530	- 65,169	157,699	- 78,016	3%
		Sealed Road - Asphalt Pavement Base	294,866	72,724	222,142	- 8,825	1%
		Sealed Road - Asphalt Pavement Sub Base	119,784	- 335,998	455,781	476	14%
		Sealed Road - Asphalt Pavement Base - Collector/Arterial	4,541	- 144,802	149,343	- 1,338	30%
		Sealed Road - Asphalt Pavement Sub Base - Collector/Arterial	238,829	- 39,246	278,075	995	31%
		Sealed Road - Chip Seal Surface	108,298	647,236	- 538,938	- 84,599	-4%
		Sealed Road - Chip Seal Pavement Base	1,133,118	- 3,595,712	4,728,830	- 40,037	24%
		Sealed Road - Chip Seal Pavement Sub Base	529,988	- 3,676,922	4,206,910	2,203	29%
		Sealed Road - Chip Seal Pavement Base - Collector/Arterial	2,796,117	- 5,159,085	7,955,202	10,104	31%
		Sealed Road - Chip Seal Pavement Sub Base - Collector/Arterial	12,679,410	- 5,754,519	18,433,929	52,831	44%
		Sealed Road - Concrete Surface	- 67,653	23,817	- 91,470	- 318	-19%
		Sealed Road - Concrete Pavement Base	8,978	9,872	- 894	- 66	-18%
		Sealed Road - Concrete Pavement Sub Base	11,749	3,543	8,205	168	-24%
		Sealed Road - Pavers Surface	6,701	4,726	1,975	112	4%
		Sealed Road - Pavers Pavement Base	- 2,175	- 1,740	- 435	- 36	-20%
		Sealed Road - Pavers Pavement Sub Base	- 933	- 575	- 358	- 5	-38%
		Unsealed - Road Surface	1,280,321	322,678	957,642	- 16,932	8%
		Unsealed - Road Pavement Base	2,205,284	1,221,454	983,830	104,833	2%
		Unsealed - Road Pavement Base	1,685,475	529,408	1,156,067	5,364	3%
		Unsealed - Road Pavement Sub Base - Collector/Arterial	5,546,408	2,579,832	2,966,576	23,110	5%
		Bus Shelters	8,092	- 14,975	23,067	170	22%
		Bus Stops	127,993	35,287	92,706	2,908	0%
		Car Parks	1,160,290	- 681,106	1,841,396	48	39%
		Traffic Management Devices	2,081,870	400,482	1,681,388	38,502	38%
Totals			32,049,882	- 13,618,789	45,668,671	11,651	20%

Road Inputs

Road Type	Component	Component Valuation Type	Previous Unit Rate	Proposed Unit Rate	Previous Useful Life	Proposed Useful Life
Unsealed Road	Surface	Gravel - 40mm	6.50	8.14	10.00	10.00

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Unsealed Road	Pavement Base	Gravel - 100mm	16.00	20.36	60.00	60.00
Unsealed Road	Pavement Sub Base	Gravel - 100mm	16.00	20.36	240.00	240.00
Unsealed Road	Pavement Sub Base - Arterial/Collector	Gravel - 200mm	16.00	33.30	240.00	240.00
Sealed Road	Asphalt Surface	Asphalt - 25mm	25.30	28.20	20.00	25.00
Sealed Road	Asphalt Pavement Base	Pavement Base 150mm	28.75	30.36	80.00	80.00
Sealed Road	Asphalt Pavement Sub Base	Pavement Sub Base 100mm	20.70	21.60	240.00	240.00
Sealed Road	Chip Seal Surface	Double Coast Seal	11.50	13.95	20.00	20.00
Sealed Road	Chip Seal Pavement Base	Pavement Base 150mm	28.75	30.36	80.00	80.00
Sealed Road	Chip Seal Pavement Sub Base	Pavement Sub Base 100mm	20.70	21.60	240.00	240.00
Sealed Road	Pavement Base - Arterial/Collector	Pavement Base 150mm	28.75	30.36	80.00	80.00
Sealed Road	Pavement Sub Base - Arterial/Collector	Pavement Sub Base 200mm	28.75	36.22	240.00	240.00
Sealed Road	Concrete Surface	Concrete - 130mm	130.32	88.54	100.00	80.00
Sealed Road	Concrete Pavement Base	Pavement Base 150mm	31.41	30.36	60.00	80.00
Sealed Road	Concrete Pavement Sub Base	Pavement Sub Base 40mm	5.21	8.14	240.00	80.00
Sealed Road	Pavers Surface	Pavers	6.50	93.15	60.00	60.00
Sealed Road	Pavers Pavement Base	Pavers - No Base	28.13	0.00	60.00	0.00
Sealed Road	Pavers Pavement Sub Base	Pavers - No Sub Base	12.06	0.00	180.00	0.00

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Pavement - Concrete	Brand New	100	0	80	80	80	100
Road Pavement - Concrete	Very Good-No Defects	75	1	80	60	60	75
Road Pavement - Concrete	Very Good to Good-No Defects	58.33333333	2	80	47	47	58.33333333
Road Pavement - Concrete	Good-Minor Defects	45.83333333	3	80	37	37	45.83333333
Road Pavement - Concrete	Good to Fair-Minor Defects	29.16666667	4	80	23	23	29.16666667
Road Pavement - Concrete	Fair-Some Defects	12.5	5	80	10	10	12.5
Road Pavement - Concrete	Fair to poor-Some Defects	0	6	80	0	0	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Surface - Asphalt	Brand New	100	0	25	25	25	100

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Road Surface - Asphalt	Very Good-No Defects	84	1	25	21	21	84
Road Surface - Asphalt	Very Good to Good-No Defects	72	2	25	18	18	72
Road Surface - Asphalt	Good-Minor Defects	60	3	25	15	15	60
Road Surface - Asphalt	Good to Fair-Minor Defects	40	4	25	10	10	40
Road Surface - Asphalt	Fair-Some Defects	24	5	25	6	6	24
Road Surface - Asphalt	Fair to poor-Some Defects	0	6	25	0	0	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Surface - Spray Seal	Brand New	100	0	20	20	20	100
Road Surface - Spray Seal	Very Good-No Defects	83.33333333	1	20	17	17	83.33333333
Road Surface - Spray Seal	Very Good to Good-No Defects	66.66666667	2	20	13	13	66.66666667
Road Surface - Spray Seal	Good-Minor Defects	50	3	20	10	10	50
Road Surface - Spray Seal	Good to Fair-Minor Defects	33.33333333	4	20	7	7	33.33333333
Road Surface - Spray Seal	Fair-Some Defects	16.66666667	5	20	3	3	16.66666667
Road Surface - Spray Seal	Fair to poor-Some Defects	0	6	20	0	0	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Pavement - Sealed Road	Brand New	100	0	80	80	80	100
Road Pavement - Sealed Road	Very Good-No Defects	65	1	80	52	52	65
Road Pavement - Sealed Road	Very Good to Good-No Defects	55	2	80	44	44	55
Road Pavement - Sealed Road	Good-Minor Defects	40	3	80	32	32	40
Road Pavement - Sealed Road	Good to Fair-Minor Defects	25	4	80	20	20	25
Road Pavement - Sealed Road	Fair-Some Defects	15	5	80	12	12	15
Road Pavement - Sealed Road	Fair to poor-Some Defects	0	6	80	0	0	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Sub Pavement - Sealed Road	Brand New	100	0	240	240	240	100

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Road Sub Pavement - Sealed Road	Very Good-No Defects	95.83333333	1	240	230	230	95.83333333
Road Sub Pavement - Sealed Road	Very Good to Good-No Defects	75	2	240	180	180	75
Road Sub Pavement - Sealed Road	Good-Minor Defects	50	3	240	120	120	50
Road Sub Pavement - Sealed Road	Good to Fair-Minor Defects	25	4	240	60	60	25
Road Sub Pavement - Sealed Road	Fair-Some Defects	8.333333333	5	240	20	20	8.333333333
Road Sub Pavement - Sealed Road	Fair to poor-Some Defects	0	6	240	0	0	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Surface - Gravel	Brand New	100	0	10	10	10	100
Road Surface - Gravel	Very Good-No Defects	90	1	10	9	9	90
Road Surface - Gravel	Very Good to Good-No Defects	80	2	10	8	8	80
Road Surface - Gravel	Good-Minor Defects	70	3	10	7	7	70
Road Surface - Gravel	Good to Fair-Minor Defects	50	4	10	5	5	50
Road Surface - Gravel	Fair-Some Defects	30	5	10	3	3	30
Road Surface - Gravel	Fair to poor-Some Defects	0	6	10	0	0	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Pavement - Gravel	Brand New	100	0	60	60	60	100
Road Pavement - Gravel	Very Good-No Defects	66.66666667	1	60	40	40	66.66666667
Road Pavement - Gravel	Very Good to Good-No Defects	50	2	60	30	30	50
Road Pavement - Gravel	Good-Minor Defects	41.66666667	3	60	25	25	41.66666667
Road Pavement - Gravel	Good to Fair-Minor Defects	25	4	60	15	15	25
Road Pavement - Gravel	Fair-Some Defects	16.66666667	5	60	10	10	16.66666667
Road Pavement - Gravel	Fair to poor-Some Defects	0	6	60	0	0	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Pavement - Gravel	Brand New	100	0	240	240	240	100

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Road Pavement - Gravel	Very Good-No Defects	66.66666667	1	240	160	160	66.66666667
Road Pavement - Gravel	Very Good to Good-No Defects	50	2	240	120	120	50
Road Pavement - Gravel	Good-Minor Defects	41.66666667	3	240	100	100	41.66666667
Road Pavement - Gravel	Good to Fair-Minor Defects	25	4	240	60	60	25
Road Pavement - Gravel	Fair-Some Defects	16.66666667	5	240	40	40	16.66666667
Road Pavement - Gravel	Fair to poor-Some Defects	0	6	240	0	0	0

Footpaths

SORELL COUNCIL VALUATION AS AT 30 JUNE 2020 SUMMARY: FOOTPATHS AND CYCLEWAYS							
	Financial Class	Valuation Type	Gross Replacement Cost (\$)	Accumulated Depreciation (\$)	Fair Value (\$)	Estimated Annual Depreciation (\$)	Fair Value / GRC %
Revalued amount at 30 June 2020	Footpaths and Cycleways	Concrete - 75mm	6,377,386	1,082,692	5,294,694	79,717	83%
		Premium Concrete/Exposed Aggregate	477,412	122,828	354,584	4,774	74%
		Pavers	1,222,195	608,172	614,023	15,277	50%
		Asphalt	1,299,519	731,656	567,863	32,488	44%
		Spray Seal	240,039	160,115	79,924	12,002	33%
		Gravel	301,611	124,772	176,839	15,081	59%
		Sand - Not Valued	-	-	-	-	0%
		Artificial Grass	3,096	1,859	1,238	206	40%
		Concrete - Bridge	68,739	650	68,090	859	99%
		Timber - Bridge	50,026	25,637	24,389	1,001	49%
		Footbridge/Boardwalk	117,440	55,810	61,631	2,349	52%
		Plastic Mesh/Pavers	17,748	9,111	8,637	444	49%
		Timber - Path	22,739	3,168	19,571	455	86%
		Timber - Ramp	16,473	11,711	4,763	329	29%
		Timber Steps	20,686	13,812	6,873	414	33%
Totals			10,235,110	2,951,992	7,283,118	165,396	71%

Pre revaluation at 30 June 2020	Footpaths and Cycleways	Concrete - 75mm	6,427,538	1,122,153	5,305,384	80,781	83%
		Premium Concrete/Exposed Aggregate	481,463	123,823	357,640	4,815	74%
		Pavers	927,924	503,597	424,327	11,599	46%
		Asphalt	1,143,727	721,240	422,487	27,448	37%
		Spray Seal	177,112	147,369	29,742	8,856	17%
		Gravel	607,241	154,979	452,262	16,052	74%

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		Sand - Not Valued	58,688	55,597	3,091	2,934	5%
		Artificial Grass	354	213	142	24	40%
		Concrete - Bridge	59,525	561	58,965	744	99%
		Timber - Bridge	21,804	6,032	15,772	319	72%
		Footbridge/Boardwalk	82,264	46,274	35,990	1,645	44%
		Plastic Mesh/Pavers	14,711	7,193	7,517	368	51%
		Timber - Path	16,159	1,399	14,759	780	91%
		Timber - Ramp	6,428	4,419	2,009	107	31%
		Timber Steps	6,500	4,213	2,287	108	35%
Totals			10,031,437	2,899,062	7,132,375	156,580	71%

Difference	Footpaths and Cycleways	Concrete - 75mm	- 50,152	- 39,461	- 10,690	- 1,064	0%
		Premium Concrete/Exposed Aggregate	- 4,052	- 995	- 3,057	- 41	0%
		Pavers	294,271	104,574	189,697	3,678	5%
		Asphalt	155,792	10,416	145,376	5,040	7%
		Spray Seal	62,927	12,746	50,181	3,146	17%
		Gravel	- 305,630	- 30,207	- 275,423	- 972	-16%
		Sand - Not Valued	- 58,688	- 55,597	- 3,091	- 2,934	-5%
		Artificial Grass	2,742	1,646	1,096	183	0%
		Concrete - Bridge	9,214	89	9,125	115	0%
		Timber - Bridge	28,222	19,605	8,617	681	-24%
		Footbridge/Boardwalk	35,177	9,536	25,641	704	9%
		Plastic Mesh/Pavers	3,038	1,917	1,120	76	-2%
		Timber - Path	6,580	1,769	4,812	- 325	-5%
		Timber - Ramp	10,046	7,292	2,754	222	-2%
		Timber Steps	14,186	9,600	4,586	305	-2%
Totals			203,673	52,930	150,743	8,816	0%

Footpath Inputs

Footpath Type	Valuation Footpath Type	Valuation Pattern	Previous Unit Rate	Proposed Unit Rate	Previous Useful Life	Proposed Useful Life
Concrete	Concrete - 75mm	Footpath - Concrete	97.37	104.39	80.00	80.00
Exposed Aggregate	Premium Concrete/Exposed Aggregate	Footpath - Concrete	137.81	137.41	100.00	100.00
Premium Concrete	Premium Concrete/Exposed Aggregate	Footpath - Concrete	137.81	137.41	100.00	100.00
Pavers	Pavers	Footpath - Other	125.69	165.55	80.00	80.00
Asphalt	Asphalt	Footpath - Other	55.16	65.93	40.00	40.00
Spray Seal	Spray Seal	Footpath - Other	30.20	40.93	20.00	20.00
Gravel	Gravel	Footpath - Other	11.97	12.49	20.00	20.00

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Sand	Sand - Not Valued	Footpath - Other	11.97	0.00	20.00	0.00
Artificial Grass	Artificial Grass	Footpath - Other	25.00	218.42	15.00	15.00
Fibreglass	Footbridge/Boardwalk	Footpath - Other	540.00	706.76	50.00	50.00
Plastic	Footbridge/Boardwalk	Footpath - Other	540.00	706.76	50.00	50.00
Plastic	Plastic Mesh/Pavers	Footpath - Other	162.50	165.55	40.00	40.00
Plastic	Plastic Mesh/Pavers	Footpath - Other	162.50	165.55	40.00	40.00
Plastic Mesh	Plastic Mesh/Pavers	Footpath - Other	50.00	165.55	40.00	40.00
Concrete	Concrete - Bridge	Footpath - Other	1,667.38	1,925.47	80.00	80.00
Timber	Timber - Bridge	Footpath - Other	340.00	415.85	50.00	50.00
Timber	Timber - Path	Footpath - Other	78.30	270.03	60.00	50.00
Timber	Timber - Ramp	Footpath - Other	78.30	270.03	60.00	50.00
Timber	Timber Steps	Footpath - Other	105.00	270.03	60.00	50.00

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Useful Life	Remaining Useful Life
Footpath - Concrete	Brand New	100	0	100	100	80	80
Footpath - Concrete	Very Good-No Defects	95	1	100	95	80	76
Footpath - Concrete	Very Good to Good-No Defects	70	2	100	70	80	56
Footpath - Concrete	Good-Minor Defects	42	3	100	42	80	34
Footpath - Concrete	Good to Fair-Minor Defects	30	4	100	30	80	24
Footpath - Concrete	Fair-Some Defects	10	5	100	10	80	8
Footpath - Concrete	Fair to poor-Some Defects	0	6	100	0	80	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Useful Life	Remaining Useful Life	Useful Life	Remaining Useful Life	Useful Life	Remaining Useful Life	Useful Life	Remaining Useful Life
Footpath - Other	Brand New	100	0	80	80	50	50	40	40	20	20	15	15
Footpath - Other	Very Good-No Defects	94	1	80	75	50	47	40	38	20	19	15	14
Footpath - Other	Very Good to Good-No Defects	60	2	80	48	50	30	40	24	20	12	15	9
Footpath - Other	Good-Minor Defects	43	3	80	34	50	22	40	17	20	9	15	6
Footpath - Other	Good to Fair-Minor Defects	30	4	80	24	50	15	40	12	20	6	15	5
Footpath - Other	Fair-Some Defects	17	5	80	14	50	9	40	7	20	3	15	3
Footpath - Other	Fair to poor-Some Defects	0	6	80	0	50	0	40	0	20	0	15	0

Kerbs

SORELL COUNCIL VALUATION AS AT 30 JUNE 2020 SUMMARY: KERB AND CHANNEL							
	Financial Class	Valuation Type	Gross Replacement Cost (\$)	Accumulated Depreciation (\$)	Fair Value (\$)	Estimated Annual Depreciation (\$)	Fair Value / GRC %

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Revalued amount at 30 June 2020	Kerb and Channel	Barrier	4,609,473	1,859,936	2,749,537	57,618	60%
		Mountable	517,136	62,032	455,103	6,464	88%
		Wide Kerb and Channel	269,080	74,887	194,193	3,364	72%
		Totals		5,395,689	1,996,856	3,398,833	67,446

Pre revaluati on at 30 June 2020	Kerb and Channel	Barrier	4,602,664	1,836,588	2,766,076	58,344	60%
		Mountable	543,114	57,851	485,263	6,789	89%
		Wide Kerb and Channel	157,358	45,722	111,637	1,967	71%
		<i>Totals</i>		5,303,136	1,940,161	3,362,975	67,099

Difference	Kerb and Channel	Barrier	6,809	23,348	-16,539	-725	0%
		Mountable	-25,978	4,181	-30,159	-325	-1%
		Wide Kerb and Channel	111,722	29,166	82,556	1,397	1%
Totals			92,553	56,695	35,858	347	0%

Kerb inputs

Kerb Profile Type	Kerb Valuation Type	Previous Unit Rate	Proposed Unit Rate	Previous Useful Life	Proposed Useful Life
Barrier	Barrier	70.20	71.16	80.00	80.00
KC	Barrier	70.20	71.16	80.00	80.00
BK	Barrier	70.20	71.16	80.00	80.00
FK	Barrier	70.20	71.16	80.00	80.00
DD	Barrier	70.20	71.16	80.00	80.00
KCM	Mountable	70.20	76.36	80.00	80.00
Mountable	Mountable	70.20	76.36	80.00	80.00
PCM	Mountable	70.20	76.36	80.00	80.00
KCM2	Mountable	70.20	76.36	80.00	80.00
Spoon Drain	Wide Kerb and Channel	70.20	180.74	80.00	80.00
VEE CHANNEL	Wide Kerb and Channel	70.20	180.74	80.00	80.00
Wide Kerb and Channel	Wide Kerb and Channel	140.40	180.74	80.00	80.00

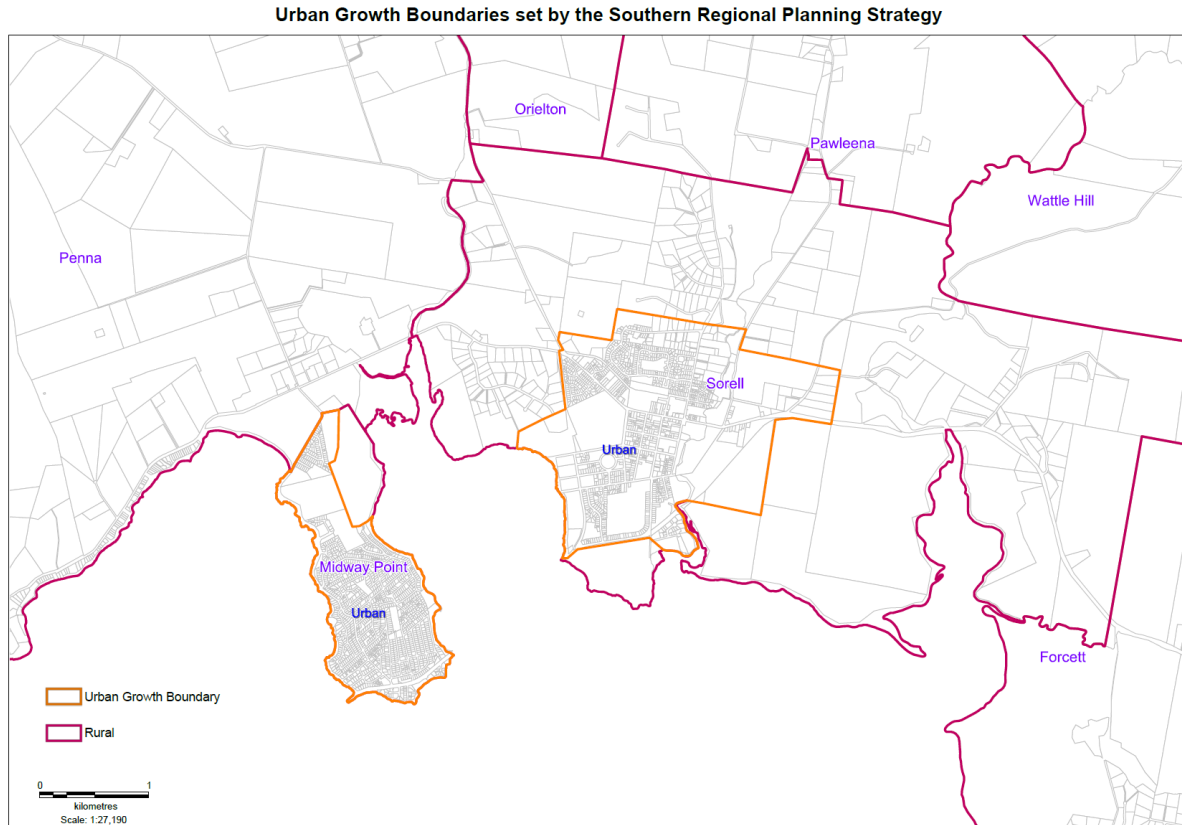
Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Kerb and Channel	Brand New	100	0	80	80	80	100
Kerb and Channel	Very Good-No Defects	94	1	80	75	75	94
Kerb and Channel	Very Good to Good-No Defects	63	2	80	50	50	63
Kerb and Channel	Good-Minor Defects	43	3	80	34	34	43
Kerb and Channel	Good to Fair-Minor Defects	22	4	80	18	18	22
Kerb and Channel	Fair-Some Defects	7	5	80	6	6	7

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Kerb and Channel	Fair to poor-Some Defects	0	6	80	0	0	0
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Appendix E: Urban vs Rural Map

Used to help define our rural versus urban sub type against the road assets, however, the Southern Beaches now has more ‘urban’ deemed roads and this map requires updating to reflect the Southern Beaches area such as Dodges Ferry, Lewisham, Primrose Sands.



Appendix F: 2019/2021 Revaluation Inputs

Road Type	Component	Component Valuation Type	Previous Unit Rate	Proposed Unit Rate	Previous Useful Life	Proposed Useful Life
Unsealed Road	Surface	Gravel - 40mm	6.50	8.14	10.00	10.00
Unsealed Road	Pavement Base	Gravel - 100mm	16.00	20.36	60.00	60.00
Unsealed Road	Pavement Sub Base	Gravel - 100mm	16.00	20.36	240.00	240.00
Unsealed Road	Pavement Sub Base - Arterial/Collector	Gravel - 200mm	16.00	33.30	240.00	240.00
Sealed Road	Asphalt Surface	Asphalt - 25mm	25.30	28.20	20.00	25.00
Sealed Road	Asphalt Pavement Base	Pavement Base 150mm	28.75	30.36	80.00	80.00
Sealed Road	Asphalt Pavement Sub Base	Pavement Sub Base 100mm	20.70	21.60	240.00	240.00
Sealed Road	Chip Seal Surface	Double Coat Seal	11.50	13.95	20.00	20.00
Sealed Road	Chip Seal Pavement Base	Pavement Base 150mm	28.75	30.36	80.00	80.00
Sealed Road	Chip Seal Pavement Sub Base	Pavement Sub Base 100mm	20.70	21.60	240.00	240.00
Sealed Road	Pavement Base - Arterial/Collector	Pavement Base 150mm	28.75	30.36	80.00	80.00
Sealed Road	Pavement Sub Base - Arterial/Collector	Pavement Sub Base 200mm	28.75	36.22	240.00	240.00
Sealed Road	Concrete Surface	Concrete - 130mm	130.32	88.54	100.00	80.00
Sealed Road	Concrete Pavement Base	Pavement Base 150mm	31.41	30.36	60.00	80.00
Sealed Road	Concrete Pavement Sub Base	Pavement Sub Base 40mm	5.21	8.14	240.00	80.00
Sealed Road	Pavers Surface	Pavers	6.50	93.15	60.00	60.00
Sealed Road	Pavers Pavement Base	Pavers - No Base	28.13	0.00	60.00	0.00
Sealed Road	Pavers Pavement Sub Base	Pavers - No Sub Base	12.06	0.00	180.00	0.00

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Pavement - Concrete	Brand New	100	0	80	80	80	100
Road Pavement - Concrete	Very Good-No Defects	75	1	80	60	60	75
Road Pavement - Concrete	Very Good to Good-No Defects	58.333333	2	80	47	47	58.333333
Road Pavement - Concrete	Good-Minor Defects	45.833333	3	80	37	37	45.833333
Road Pavement - Concrete	Good to Fair-Minor Defects	29.166667	4	80	23	23	29.166667
Road Pavement - Concrete	Fair-Some Defects	12.5	5	80	10	10	12.5
Road Pavement - Concrete	Fair to poor-Some Defects	0	6	80	0	0	0

Valuation Pattern	Description	Remainin g Useful Life Percentag e	Condi ti on	Usef ul Life	Remaini ng Useful Life	Desired Remaini ng Useful Life	Desired Remainin g Useful Life %
Road Surface - Asphalt	Brand New	100	0	25	25	25	100
Road Surface - Asphalt	Very Good-No Defects	84	1	25	21	21	84
Road Surface - Asphalt	Very Good to Good-No Defects	72	2	25	18	18	72
Road Surface - Asphalt	Good-Minor Defects	60	3	25	15	15	60
Road Surface - Asphalt	Good to Fair-Minor Defects	40	4	25	10	10	40
Road Surface - Asphalt	Fair-Some Defects	24	5	25	6	6	24
Road Surface - Asphalt	Fair to poor-Some Defects	0	6	25	0	0	0

Valuation Pattern	Description	Remainin g Useful Life Percentag e	Condi ti on	Usef ul Life	Remaini ng Useful Life	Desired Remaini ng Useful Life	Desired Remainin g Useful Life %
Road Surface - Spray Seal	Brand New	100	0	20	20	20	100
Road Surface - Spray Seal	Very Good-No Defects	83.33333 333	1	20	17	17	83.33333 333
Road Surface - Spray Seal	Very Good to Good-No Defects	66.66666 667	2	20	13	13	66.66666 667
Road Surface - Spray Seal	Good-Minor Defects	50	3	20	10	10	50
Road Surface - Spray Seal	Good to Fair-Minor Defects	33.33333 333	4	20	7	7	33.33333 333
Road Surface - Spray Seal	Fair-Some Defects	16.66666 667	5	20	3	3	16.66666 667
Road Surface - Spray Seal	Fair to poor-Some Defects	0	6	20	0	0	0

Valuation Pattern	Description	Remainin g Useful Life Percentag e	Condi ti on	Usef ul Life	Remaini ng Useful Life	Desired Remaini ng Useful Life	Desired Remainin g Useful Life %
Road Pavement - Sealed Road	Brand New	100	0	80	80	80	100
Road Pavement - Sealed Road	Very Good-No Defects	65	1	80	52	52	65
Road Pavement - Sealed Road	Very Good to Good-No Defects	55	2	80	44	44	55
Road Pavement - Sealed Road	Good-Minor Defects	40	3	80	32	32	40
Road Pavement - Sealed Road	Good to Fair-Minor Defects	25	4	80	20	20	25
Road Pavement - Sealed Road	Fair-Some Defects	15	5	80	12	12	15

Road Pavement - Sealed Road	Fair to poor-Some Defects	0	6	80	0	0	0
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Valuation Pattern	Description	Remainin g Useful Life Percentag e	Condi ti on	Usef ul Life	Remaini ng Useful Life	Desired Remaini ng Useful Life	Desired Remainin g Useful Life %
Road Sub Pavement - Sealed Road	Brand New	100	0	240	240	240	100
Road Sub Pavement - Sealed Road	Very Good-No Defects	95.833333	1	240	230	230	95.833333
Road Sub Pavement - Sealed Road	Very Good to Good-No Defects	75	2	240	180	180	75
Road Sub Pavement - Sealed Road	Good-Minor Defects	50	3	240	120	120	50
Road Sub Pavement - Sealed Road	Good to Fair-Minor Defects	25	4	240	60	60	25
Road Sub Pavement - Sealed Road	Fair-Some Defects	8.333333	5	240	20	20	8.333333
Road Sub Pavement - Sealed Road	Fair to poor-Some Defects	0	6	240	0	0	0

Valuation Pattern	Description	Remainin g Useful Life Percentag e	Condi ti on	Usef ul Life	Remaini ng Useful Life	Desired Remaini ng Useful Life	Desired Remainin g Useful Life %
Road Surface - Gravel	Brand New	100	0	10	10	10	100
Road Surface - Gravel	Very Good-No Defects	90	1	10	9	9	90
Road Surface - Gravel	Very Good to Good-No Defects	80	2	10	8	8	80
Road Surface - Gravel	Good-Minor Defects	70	3	10	7	7	70
Road Surface - Gravel	Good to Fair-Minor Defects	50	4	10	5	5	50
Road Surface - Gravel	Fair-Some Defects	30	5	10	3	3	30
Road Surface - Gravel	Fair to poor-Some Defects	0	6	10	0	0	0

Valuation Pattern	Description	Remainin g Useful Life Percentag e	Condi ti on	Usef ul Life	Remaini ng Useful Life	Desired Remaini ng Useful Life	Desired Remainin g Useful Life %
Road Pavement - Gravel	Brand New	100	0	60	60	60	100
Road Pavement - Gravel	Very Good-No Defects	66.666667	1	60	40	40	66.666667
Road Pavement - Gravel	Very Good to Good-No Defects	50	2	60	30	30	50
Road Pavement - Gravel	Good-Minor Defects	41.666667	3	60	25	25	41.666667

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Road Pavement - Gravel	Good to Fair-Minor Defects	25	4	60	15	15	25
Road Pavement - Gravel	Fair-Some Defects	16.66666667	5	60	10	10	16.66666667
Road Pavement - Gravel	Fair to poor-Some Defects	0	6	60	0	0	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Pavement - Gravel	Brand New	100	0	240	240	240	100
Road Pavement - Gravel	Very Good-No Defects	66.66666667	1	240	160	160	66.66666667
Road Pavement - Gravel	Very Good to Good-No Defects	50	2	240	120	120	50
Road Pavement - Gravel	Good-Minor Defects	41.66666667	3	240	100	100	41.66666667
Road Pavement - Gravel	Good to Fair-Minor Defects	25	4	240	60	60	25
Road Pavement - Gravel	Fair-Some Defects	16.66666667	5	240	40	40	16.66666667
Road Pavement - Gravel	Fair to poor-Some Defects	0	6	240	0	0	0

Road Type	Component	Component Valuation Type	Previous Unit Rate	Proposed Unit Rate	Previous Useful Life	Proposed Useful Life
Car Parks & Bus Lane	Surface	Gravel - 40mm	6.50	8.14	10.00	10.00
Car Parks & Bus Lane	Pavement Base	Gravel - 100mm	16.00	20.36	60.00	60.00
Car Parks & Bus Lane	Pavement Sub Base	Gravel - 100mm	16.00	20.36	240.00	240.00
Car Parks & Bus Lane	Pavement Sub Base - Arterial/Collector	Gravel - 200mm	16.00	33.30	240.00	240.00
Car Parks & Bus Lane	Asphalt Surface	Asphalt - 25mm	25.30	28.20	20.00	25.00
Car Parks & Bus Lane	Asphalt Pavement Base	Pavement Base 150mm	28.75	30.36	80.00	80.00
Car Parks & Bus Lane	Asphalt Pavement Sub Base	Pavement Sub Base 100mm	20.70	21.60	240.00	240.00
Car Parks & Bus Lane	Chip Seal Surface	Double Coat Seal	11.50	13.95	20.00	20.00
Car Parks & Bus Lane	Chip Seal Pavement Base	Pavement Base 150mm	28.75	30.36	80.00	80.00
Car Parks & Bus Lane	Chip Seal Pavement Sub Base	Pavement Sub Base 100mm	20.70	21.60	240.00	240.00
Car Parks & Bus Lane	Pavement Base - Arterial/Collector	Pavement Base 150mm	28.75	30.36	80.00	80.00
Car Parks & Bus Lane	Pavement Sub Base - Arterial/Collector	Pavement Sub Base 200mm	28.75	36.22	240.00	240.00

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Car Parks & Bus Lane	Concrete Surface	Concrete - 130mm	130.32	88.54	100.00	80.00
Car Parks & Bus Lane	Concrete Pavement Base	Pavement Base 150mm	31.41	30.36	60.00	80.00
Car Parks & Bus Lane	Concrete Pavement Sub Base	Pavement Sub Base 40mm	5.21	8.14	240.00	80.00
Car Parks & Bus Lane	Pavers Surface	Pavers	6.50	93.15	60.00	60.00
Car Parks & Bus Lane	Pavers Pavement Base	Pavers - No Base	28.13	0.00	60.00	0.00
Car Parks & Bus Lane	Pavers Pavement Sub Base	Pavers - No Sub Base	12.06	0.00	180.00	0.00
Car Parks & Bus Lane	Formation	Formation - 300 mm	6.64	7.92	N/A	N/A
Bus Shelter	Main	Bus Shelter Type 1	10,000.00	10,211.39	40.00	40.00
Bus Shelter	Main	Bus Shelter Type 2	12,000.00	16,133.69	60.00	60.00
Bus Shelter	Main	Bus Shelter Type 3	30,000.00	25,267.94	100.00	100.00
TCD	Main	Speed Hump	NA	3,200.45	NA	20.00
TGSI	Main	Tactile ground surface indicators X 16		1,048.80		20.00
TGSI	Main	Tactile ground surface indicators X 8	409.60	570.40		20.00
Wheel Stops	Main	Wheel Stops - Concrete	NA	610.31	NA	50.00
Wheel Stops	Main	Wheel Stops - Plastic	NA	313.38	NA	20.00
TCD	Main	Line marking	200.00	281.18	6.00	6.00
TMD	Main	Traffic Alignment Island	NA	895.48	NA	60.00
TMD	Main	Pedestrian Refuge	NA	2,050.00	NA	60.00
TMD	Main	Roundabout 3.5m radius with gravel infill	NA	8,457.61	NA	20.00
TMD	Main	Roundabout 3.5m radius with pavers infill	NA	12,201.02	NA	50.00
TMD	Main	Roundabout 8.5m radius with pavers infill	NA	21,449.61	NA	50.00
TMD	Main	Guardrail	NA	369.67	NA	60.00

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Pavement - Concrete	Brand New	100	0	80	80	80	100
Road Pavement - Concrete	Very Good-No Defects	75	1	80	60	60	75
Road Pavement - Concrete	Very Good to Good-No Defects	58.33333333	2	80	47	47	58.33333333
Road Pavement - Concrete	Good-Minor Defects	45.83333333	3	80	37	37	45.83333333
Road Pavement - Concrete	Good to Fair-Minor Defects	29.16666667	4	80	23	23	29.16666667
Road Pavement - Concrete	Fair-Some Defects	12.5	5	80	10	10	12.5

Road Pavement - Concrete	Fair to poor-Some Defects	0	6	80	0	0	0
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Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Surface - Asphalt	Brand New	100	0	25	25	25	100
Road Surface - Asphalt	Very Good-No Defects	84	1	25	21	21	84
Road Surface - Asphalt	Very Good to Good-No Defects	72	2	25	18	18	72
Road Surface - Asphalt	Good-Minor Defects	60	3	25	15	15	60
Road Surface - Asphalt	Good to Fair-Minor Defects	40	4	25	10	10	40
Road Surface - Asphalt	Fair-Some Defects	24	5	25	6	6	24
Road Surface - Asphalt	Fair to poor-Some Defects	0	6	25	0	0	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Surface - Spray Seal	Brand New	100	0	20	20	20	100
Road Surface - Spray Seal	Very Good-No Defects	83.33333333	1	20	17	17	83.33333333
Road Surface - Spray Seal	Very Good to Good-No Defects	66.66666667	2	20	13	13	66.66666667
Road Surface - Spray Seal	Good-Minor Defects	50	3	20	10	10	50
Road Surface - Spray Seal	Good to Fair-Minor Defects	33.33333333	4	20	7	7	33.33333333
Road Surface - Spray Seal	Fair-Some Defects	16.66666667	5	20	3	3	16.66666667
Road Surface - Spray Seal	Fair to poor-Some Defects	0	6	20	0	0	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Pavement - Sealed Road	Brand New	100	0	80	80	80	100
Road Pavement - Sealed Road	Very Good-No Defects	65	1	80	52	52	65
Road Pavement - Sealed Road	Very Good to Good-No Defects	55	2	80	44	44	55
Road Pavement - Sealed Road	Good-Minor Defects	40	3	80	32	32	40
Road Pavement - Sealed Road	Good to Fair-Minor Defects	25	4	80	20	20	25

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Road Pavement - Sealed Road	Fair-Some Defects	15	5	80	12	12	15
Road Pavement - Sealed Road	Fair to poor-Some Defects	0	6	80	0	0	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Sub Pavement - Sealed Road	Brand New	100	0	240	240	240	100
Road Sub Pavement - Sealed Road	Very Good-No Defects	95.83333333	1	240	230	230	95.83333333
Road Sub Pavement - Sealed Road	Very Good to Good-No Defects	75	2	240	180	180	75
Road Sub Pavement - Sealed Road	Good-Minor Defects	50	3	240	120	120	50
Road Sub Pavement - Sealed Road	Good to Fair-Minor Defects	25	4	240	60	60	25
Road Sub Pavement - Sealed Road	Fair-Some Defects	8.333333333	5	240	20	20	8.333333333
Road Sub Pavement - Sealed Road	Fair to poor-Some Defects	0	6	240	0	0	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Surface - Gravel	Brand New	100	0	10	10	10	100
Road Surface - Gravel	Very Good-No Defects	90	1	10	9	9	90
Road Surface - Gravel	Very Good to Good-No Defects	80	2	10	8	8	80
Road Surface - Gravel	Good-Minor Defects	70	3	10	7	7	70
Road Surface - Gravel	Good to Fair-Minor Defects	50	4	10	5	5	50
Road Surface - Gravel	Fair-Some Defects	30	5	10	3	3	30
Road Surface - Gravel	Fair to poor-Some Defects	0	6	10	0	0	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Pavement - Gravel	Brand New	100	0	60	60	60	100

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Road Pavement - Gravel	Very Good-No Defects	66.66666667	1	60	40	40	66.66666667
Road Pavement - Gravel	Very Good to Good-No Defects	50	2	60	30	30	50
Road Pavement - Gravel	Good-Minor Defects	41.66666667	3	60	25	25	41.66666667
Road Pavement - Gravel	Good to Fair-Minor Defects	25	4	60	15	15	25
Road Pavement - Gravel	Fair-Some Defects	16.66666667	5	60	10	10	16.66666667
Road Pavement - Gravel	Fair to poor-Some Defects	0	6	60	0	0	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Road Pavement - Gravel	Brand New	100	0	240	240	240	100
Road Pavement - Gravel	Very Good-No Defects	66.66666667	1	240	160	160	66.66666667
Road Pavement - Gravel	Very Good to Good-No Defects	50	2	240	120	120	50
Road Pavement - Gravel	Good-Minor Defects	41.66666667	3	240	100	100	41.66666667
Road Pavement - Gravel	Good to Fair-Minor Defects	25	4	240	60	60	25
Road Pavement - Gravel	Fair-Some Defects	16.66666667	5	240	40	40	16.66666667
Road Pavement - Gravel	Fair to poor-Some Defects	0	6	240	0	0	0

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Traffic Management Devices	Brand New	100	0	20	20	20	100
Traffic Management Devices	Very Good-No Defects	90	1	20	18	18	90
Traffic Management Devices	Very Good to Good-No Defects	80	2	20	16	16	80
Traffic Management Devices	Good-Minor Defects	70	3	20	14	14	70
Traffic Management Devices	Good to Fair-Minor Defects	50	4	20	10	10	50
Traffic Management Devices	Fair-Some Defects	30	5	20	6	6	30

Traffic Management Devices	Fair to poor-Some Defects	0	6	20	0	0	0
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Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Buildings	Brand New	100	0	100	100	100	100
Buildings	Very Good-No Defects	95	1	100	95	95	95
Buildings	Very Good to Good-No Defects	70	2	100	70	70	70
Buildings	Good-Minor Defects	42	3	100	42	42	42
Buildings	Good to Fair-Minor Defects	30	4	100	30	30	30
Buildings	Fair-Some Defects	10	5	100	10	10	10
Buildings	Fair to poor-Some Defects	0	6	100	0	0	0

Kerb Profile Type	Kerb Valuation Type	Previous Unit Rate	Proposed Unit Rate	Previous Useful Life	Proposed Useful Life
Barrier	Barrier	70.20	71.16	80.00	80.00
KC	Barrier	70.20	71.16	80.00	80.00
BK	Barrier	70.20	71.16	80.00	80.00
FK	Barrier	70.20	71.16	80.00	80.00
DD	Barrier	70.20	71.16	80.00	80.00
KCM	Mountable	70.20	76.36	80.00	80.00
Mountable	Mountable	70.20	76.36	80.00	80.00
PCM	Mountable	70.20	76.36	80.00	80.00
KCM2	Mountable	70.20	76.36	80.00	80.00
Spoon Drain	Wide Kerb and Channel	70.20	180.74	80.00	80.00
VEE CHANNEL	Wide Kerb and Channel	70.20	180.74	80.00	80.00
Wide Kerb and Channel	Wide Kerb and Channel	140.40	180.74	80.00	80.00

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Desired Remaining Useful Life	Desired Remaining Useful Life %
Kerb and Channel	Brand New	100	0	80	80	80	100
Kerb and Channel	Very Good-No Defects	94	1	80	75	75	94
Kerb and Channel	Very Good to Good-No Defects	63	2	80	50	50	63

Kerb and Channel	Good-Minor Defects	43	3	80	34	34	43
Kerb and Channel	Good to Fair-Minor Defects	22	4	80	18	18	22
Kerb and Channel	Fair-Some Defects	7	5	80	6	6	7
Kerb and Channel	Fair to poor-Some Defects	0	6	80	0	0	0

Footpath Type	Valuation Footpath Type	Valuation Pattern	Previous Unit Rate	Proposed Unit Rate	Previous Useful Life	Proposed Useful Life
Concrete	Concrete - 75mm	Footpath - Concrete	97.37	104.39	80.00	80.00
Exposed Aggregate	Premium Concrete/Exposed Aggregate	Footpath - Concrete	137.81	137.41	100.00	100.00
Premium Concrete	Premium Concrete/Exposed Aggregate	Footpath - Concrete	137.81	137.41	100.00	100.00
Pavers	Pavers	Footpath - Other	125.69	165.55	80.00	80.00
Asphalt	Asphalt	Footpath - Other	55.16	65.93	40.00	40.00
Spray Seal	Spray Seal	Footpath - Other	30.20	40.93	20.00	20.00
Gravel	Gravel	Footpath - Other	11.97	12.49	20.00	20.00
Sand	Sand - Not Valued	Footpath - Other	11.97	0.00	20.00	0.00
Artificial Grass	Artificial Grass	Footpath - Other	25.00	218.42	15.00	15.00
Fibreglass	Footbridge/Boardwalk	Footpath - Other	540.00	706.76	50.00	50.00
Plastic	Footbridge/Boardwalk	Footpath - Other	540.00	706.76	50.00	50.00
Plastic	Plastic Mesh/Pavers	Footpath - Other	162.50	165.55	40.00	40.00
Plastic	Plastic Mesh/Pavers	Footpath - Other	162.50	165.55	40.00	40.00
Plastic Mesh	Plastic Mesh/Pavers	Footpath - Other	50.00	165.55	40.00	40.00
Concrete	Concrete - Bridge	Footpath - Other	1,667.38	1,925.47	80.00	80.00
Timber	Timber - Bridge	Footpath - Other	340.00	415.85	50.00	50.00
Timber	Timber - Path	Footpath - Other	78.30	270.03	60.00	50.00
Timber	Timber - Ramp	Footpath - Other	78.30	270.03	60.00	50.00
Timber	Timber Steps	Footpath - Other	105.00	270.03	60.00	50.00

Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Useful Life	Remaining Useful Life
Footpath - Concrete	Brand New	100	0	100	100	80	80
Footpath - Concrete	Very Good-No Defects	95	1	100	95	80	76
Footpath - Concrete	Very Good to Good-No Defects	70	2	100	70	80	56
Footpath - Concrete	Good-Minor Defects	42	3	100	42	80	34
Footpath - Concrete	Good to Fair-Minor Defects	30	4	100	30	80	24
Footpath - Concrete	Fair-Some Defects	10	5	100	10	80	8

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Footpath - Concrete	Fair to poor-Some Defects	0	6	100	0	80	0
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Valuation Pattern	Description	Remaining Useful Life Percentage	Condition	Useful Life	Remaining Useful Life	Useful Life	Remaining Useful Life	Useful Life	Remaining Useful Life	Useful Life	Remaining Useful Life	Useful Life	Remaining Useful Life
Footpath - Other	Brand New	100	0	80	80	50	50	40	40	20	20	15	15
Footpath - Other	Very Good-No Defects	94	1	80	75	50	47	40	38	20	19	15	14
Footpath - Other	Very Good to Good-No Defects	60	2	80	48	50	30	40	24	20	12	15	9
Footpath - Other	Good-Minor Defects	43	3	80	34	50	22	40	17	20	9	15	6
Footpath - Other	Good to Fair-Minor Defects	30	4	80	24	50	15	40	12	20	6	15	5
Footpath - Other	Fair-Some Defects	17	5	80	14	50	9	40	7	20	3	15	3
Footpath - Other	Fair to poor-Some Defects	0	6	80	0	50	0	40	0	20	0	15	0

Appendix G: Transport Business Rules

Urban Street Seal		Useful Life	<div> Note: Install 150mm thick 'Base A' prior to placement of seal. Do not adjust Subbase layer </div>
14/7 2-Coat Seal	15		
150mm Base 'A'	60		
150mm Base 'B'	240		
Unsealed Pavement		Useful Life	<div> Note: This process includes 100% disposal of SURFACE component. Possibly amend U/L to 3 years and 7 years for My Predictor input </div>
100mm Gravel	5 - 10		
150mm SubBase '1'	100		
150mm SubBase '2'	240		
Lime Stabilised Pavement		Useful Life	<div> Note: Stabilised Base includes 50% recycling of original SURFACE component, 50% disposal. </div>
14/7 2-Coat Seal	15		
200mm Stabilised Base	25		
Original SubBase '2'	240		

Reference	Nominal Particle Size and Material
Base 'A'	20mm FCR
Base 'B'	40mm FCR
SubBase '1'	60mm FCR
SubBase '2'	100mm FCR

Useful Life by Road Hierarchy	Asphalt Surface	2-Coat Seal
Local Access	25	15
Local Minor	25	15
Local Collector	15	15
Local Arterial	15	15

Reseal: Surface Component Determination

	First Coat	Second Coat
First application	14mm	7mm
First Reseal	10mm	
Second Reseal	7mm	
Third Reseal	14mm	
Fourth Reseal	10mm	
Reconstruction	14mm	7mm

Treatment Specifics

Reconstruction	This process includes 100% disposal of SURFACE, BASE and SUBBASE components
Urban Street Seal	This process includes application of 150mm Base 'A' prior to the application of the surface component
Unsealed Resheet	This process includes 100% disposal of SURFACE component

Footpath Width by Path Hierarchy

Local Access	1.5m standard
Local Minor	1.5m standard
Priority Footpath or Local Collector Road	2.5m - 3m min. Potential for placement of path on one side in lieu of 2 x 1.5m paths
Priority Footpath or Local Arterial Road	2.5m - 3m min. Potential for placement of path on one side in lieu of 2 x 1.5m paths

General Requirements

Semi-mountable kerb	Where Semi-mounted kerb is adopted around a turning head, the thickness of all adjoining footpath shall be no less than 150mm thick.
Concrete minimum standard	All new Footpaths in Sorell and Midway Point residential areas shall be constructed of 100mm thick concrete.
Trails and Pathways	The adopted construction material of all new Trails and Pathways are to the discretion of Council