

# GLEN INNES SEVERN COUNCIL





## ROADS

# ASSET MANAGEMENT PLAN PART 2



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## 1. EXECUTIVE SUMMARY

Community consultation has been completed for the development of the Community Strategic Plan and associated suite of documents. The overwhelming message coming from the process was that the primary desire of the community is to restore the road network to a satisfactory level of service. This plan therefore is at the centre of Council's focus during the term of the current delivery plan.

Council finds itself in the unenviable position of having less resources at hand than are required to bring the network to a satisfactory condition in a timely manner. This plan provides for a pathway toward restoring the network to an acceptable standard through short, medium and long-term planning.

Council implemented a special rates variation during an earlier delivery plan cycle with a particular purpose of addressing the backlog of infrastructure works, primarily in the road asset class. Rehabilitation works initially focussed on the sealed network, and the worst of the problems in that area were resolved. The unsealed network has been the focus of attention over the last three years, with the worst of the problematic roads now having been gravel re-sheeted with quality manufactured material.

A team-based structure has been created, and team leaders are being actively mentored to further develop this new culture. This has proved to be successful, with excellent projects now routinely being delivered by staff who have adjusted quickly.

A dedicated crew is allocated to the maintenance of drains on local roads, addressing a lack of maintenance over many years in that area. These works will protect road gravel, and as drainage works are carried out additional gravel will be applied to restore unsealed road gravel surfaces that have been washed away over time.

This version of the plan continues to build on the use of laser profiling to obtain very accurate condition assessment data on sealed roads. For sealed road assets, a specific intervention methodology is defined whereby segments are to be rehabilitated at the following roughness levels (NAASRA\*):

Rural Roads	135
Urban Roads	225

*\*NAASRA has been chosen for reporting to provide a more meaningful number to the lay reader.*

It is noted that the acceptable roughness of an urban road (with a speed limit of 50kph) is much greater than a rural road. International studies have shown that the motorist perception of acceptable roughness is very dependent on the speed environment, and the above intervention levels have been adopted based on local feedback regarding roads with that particular roughness.

A significant number of sealed roads were measured for roughness in 2008. This has provided a very useful historical snapshot of the network condition at that time, enabling a calculation of

deterioration when the network was again measured in 2016, and has continued to be assessed annually to 2021. The deterioration rate of typical segments averaged 1.475 points per year increase during that time. Typical segments are those that had no major rehabilitation work performed during the time and did not demonstrate excessive rates of deterioration in comparison to the majority (i.e. outliers in the data set have been removed). That figure has therefore been accepted as the rate of deterioration for a typical sealed road segment.

An advantage of this technology is that it enables those roads that are deteriorating more rapidly than typical roads, to be identified and managed. Physical investigation into underlying factors will be undertaken prior to the next review of this plan, particularly regarding pavement and subgrade strength. In addition, the measured rate of deterioration for these segments will be used for calculation of depreciation. In some cases, these roads are failing up to 10 times faster than typical roads, and allowance will have to be made for early intervention or renewal.

The step-by-step process that has been adopted in the management of the sealed road network is as follows:

- The network is componentised into segments that are essentially uniform in character (i.e. age, construction dimensions and materials used). Assets are broken into seal, base (incorporates single coat seal), sub-base and bulk earthworks.
- Each segment is mapped, and sufficient data is held for each segment (length, seal width, construction year etc.) to enable financial and engineering management.
- Roughness is used as the primary measurement of pavement condition. Roughness is measured each year for all segments according to current Austroads standards and reported using the International Roughness Index quality controls (IRI<sub>qc</sub>) as defined by Austroads. To provide a meaningful number to the lay reader, roughness is converted to NAASRA in this document.
- Asset consumption is calculated using either the actual rate of increasing roughness or the average over typical segments (currently 1.475 points per year), whichever is the greater.
- Atypical segments (identified from anomalous roughness or rutting measurements) are investigated individually to determine the best management practice for each. The deterioration rate of these assets is calculated based on the individual asset deterioration rate observed.
- Rutting is used only as a secondary measurement of abnormal early failure of a pavement.
- The above approach to pavement management relies strongly on the maintenance of a waterproof seal and the construction of a sufficiently strong pavement on a well-drained subgrade. Failure to provide these elements will be the primary cause of atypical (excessive and non-linear) deterioration rates. Bitumen seals are scheduled for renewal each 15 years.
- Seal cracking is identified during annual investigation. Cracking is to be rectified through either crack sealing or early resealing according to the seal maintenance program.

This plan is a living document that provides the current status of the network, including the most recent condition assessment of each asset. It also defines particular methodologies that have been adopted or are proposed for the management of the network and will be reviewed annually to monitor progress against key performance indicators.

## 2. INTRODUCTION

### 2.1 BACKGROUND

This asset management plan covers the following infrastructure assets:

**Table 2.1.a Assets covered by this Plan**

Asset Type	Quantity	Replacement Value	Accumulated Depreciation
Major Street Furniture	110	\$ 2,330,657	-\$ 427,085
Footpaths	176 assets	\$ 4,547,286	-\$ 1,244,616
Carparks	42 assets	\$ 1,470,964	-\$ 448,242
Kerb and Gutter	373 assets	\$ 11,347,385	-\$ 5,681,485
Local Sealed Roads	351 km	\$ 99,705,148	-\$ 27,177,413
Local Unsealed Roads	732 km	\$ 75,408,998	-\$ 21,707,462
Other Sealed Roads	10 km	\$ 2,541,653	-\$ 985,675
Regional Sealed Roads	68 km	\$ 23,370,468	-\$ 5,289,837
Total	N/A	\$ 220,722,558	-\$ 62,961,814

It is noted that these road assets may comprise pavement, seal, gravel surfacing, small drains and roadside furniture but does not include bridges, which comprise an asset class in their own right.

Community consultation has been completed for the development of the Community Strategic Plan and associated suite of documents. The overwhelming message coming from the process was that the primary desire of the community is to restore the road network to a satisfactory level of service.

**Table 2.1. Road Infrastructure Backlog**

Component	Infrastructure Backlog	Replacement Cost	Infrastructure Backlog %**
Roads - Local - Sealed - Rural	\$ 4,116,932	\$ 54,558,834	8%
Roads - Local - Sealed - Urban	\$ 1,143,476	\$ 22,855,277	5%
Roads - Local Rural Unsealed	\$ 8,527,316	\$ 36,166,441	24%
Roads - Other - Urban Sealed	\$ 230,360	\$ 2,222,018	10%
Roads - Regional - Sealed - Rural	\$ 694,043	\$ 18,538,027	4%
Roads - Regional - Sealed - Urban	\$ 25,121	\$ 1,041,833	2%
Bulk Earthworks	\$ -	\$ 64,707,795	0%
Total Road Pavements	\$ 14,737,249	\$ 200,090,225	7%

*These figures are derived from Councils audited financial statements and represent the cost to bring each class to satisfactory condition.*

This plan provides the current status of the network, including the most recent condition assessment of each asset. It also defines particular methodologies that have been adopted or are proposed for the management of the network.

Council finds itself in the unenviable position of having less resources at hand than are required to bring the network to a satisfactory condition in a timely manner. This plan provides for a pathway toward restoring the network to an acceptable standard through short, medium and long-term planning.

## 2.2 GOALS AND OBJECTIVES OF ASSET MANAGEMENT

Relevant Council goals and objectives communicated to Council via the Community Strategic Plan are listed in Table 2.2 below.

**Table 2.2: Council Goals and how these are addressed in this Plan**

Goal	Objective	How Goal and Objectives are addressed in AMP
<b>CS 1.1.8 - Implement the Pedestrian Access and Mobility Plan.</b>	To provide accessible pathways around the town and villages.	Paths identified in the PAMP are prioritised for inclusion in the Operational Plan and Budget capital works program.
<b>EH 4.8.1 - Convert priority roads from unsealed to sealed surface as funding allows to mitigate storm erosion and maintenance issues during drought.</b>	To improve resilience of the rural road network by converting priority roads from unsealed to sealed surface.	This plan includes the priority list of roads for conversion to seal.
<b>EH 4.8.2 - Improve drainage to reduce road pavement damage during future storm events.</b>	To improve resilience of the rural road network by improving drainage capacity of rural roads.	Rural stormwater drainage assets are included as a component of rural roads.
<b>IM 3.1.1 - Implement Capital Roads Infrastructure works according to adopted service levels.</b>	To implement maintenance infrastructure works according to adopted service levels.	This plan incorporates methods to optimise the maintenance of the road network.
<b>IM 3.1.5 - Maintain a Survey and Design and Road Safety customer service delivery function.</b>	To ensure new roads are constructed to appropriate standards	This plan identifies the roads requiring design in the current term of Council.
<b>IM 3.2.6 - Deliver Best Practice Road Management Functions.</b>	Customer requests are maintained accurately in a register and addressed in a timely manner.	This plan relies on the newly developed customer service request system to provide effective customer service including feedback to customers to "close the loop".
<b>IM 3.2.9 - Implement the Asset Management Plan for footpaths and review as necessary.</b>	Implement the Asset Management Plan for footpaths and review as necessary.	This asset management plan includes footpath networks.



**IM 3.2.14 - Implement the Roads Asset Management Plan and review as necessary.**

Roads and drainage assets are fit for purpose and meet community service level aspirations.

This plan develops an asset management program for roads and drainage that sets Council's maintenance and renewal program to maximise the use of available funding for the maintenance and renewal of infrastructure, based on predictive modelling of the network through advanced inspection methods and ongoing review of asset consumption.

**IM 3.2.7 - Monitor the street lighting maintenance program within Glen Innes and the villages.**

Street lighting is provided and maintained in Glen Innes and the villages

Street lights are provided by a third party arrangement for other capital and operational costs and funded through an allocation identified in the Operational Plan and Budget.

## 2.4 CORE AND ADVANCED ASSET MANAGEMENT

### *Sealed Roads*

The progression to advanced asset management (by definition asset management that incorporates modelling of future asset consumption based on known deterioration rates) for the sealed road network is now starting to be possible due to a history of objective assessment data having been collected since 2008.

The laser road profiling technology that has been used to assess the condition of sealed roads in that time is extremely accurate and repeatable. Data is collected for roughness and rutting and cracking of the surface is recorded by video. Cracking is also captured by field inspection of the network.

The Austroads guidelines define roughness as being anomalies with road surface profile wavelengths between 0.5 m and 50 m. The guidelines describe two (2) broad measures of roughness, the NAASRA Roughness Meter (NRM roughness values in counts/km) and the International Roughness Index. A standard reporting interval of 100m is adopted and the NAASRA value is used by Council as it provides an intuitively more meaningful range of numbers.

Some segments of the sealed road network lack an adequate sub grade or are compromised in some other way and are observed to be deteriorating more rapidly than is acceptable. These segments will be assessed individually and managed initially to improve subgrade drainage and restore seal integrity. A new heavy patching team has been implemented in the organization structure and will work through these segments to address problem areas and restore the integrity of the pavement.

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*Unsealed Roads*

Unlike sealed road pavements, unsealed roads vary in condition significantly in short periods of time. Grading maintenance activity has a very large effect on surface condition, and so any objective measurement will be affected by the timing of grading maintenance activity and seasonal conditions. The methodology to model the deterioration of unsealed roads in a meaningful way is unknown within the industry.

## 3. LEVELS OF SERVICE

### 3.1 CUSTOMER RESEARCH AND EXPECTATIONS

Council's customer research into Rural Road assets needs and satisfaction has included:

- External customer surveys;
- Internal staff surveys;
- Community requests to Council;
- Community engagement during the development of the Community Strategic Plan;
- Feedback from the Roads Consultative Committee.

### 3.2 LEGISLATIVE REQUIREMENTS

*Refer to Core Asset Management Plan.*

### 3.3 CURRENT LEVELS OF SERVICE

Council has previously adopted a road hierarchy that informs the level of service for transport infrastructure. The current hierarchy has eight (8) categories.

Hierarchy Level	Traffic Warrant
1 - Arterial	Regional Road.
2 - Primary	ADT > 150 vpd.
3 - Major Collector	ADT > 100 and ≤ 150 vpd.
4 - Minor Collector	ADT > 50 and ≤ 100 vpd.
5 - Local Access, Type A	Minimum level of service for all school bus routes.
6 - Local Access, Type B	ADT > 20 and ≤ 50 vpd.
7 - Local Access, Type C	ADT ≤ 20 vpd.
8 - Formed Track (4WD Access - Signposted 'Road Not Maintained')	

Implications of the current hierarchy:

- Existing gravel roads will be sealed as per the priority list detailed in section of the 4.4 New Assets
- Rural Local Access Roads that are currently sealed, and do not serve a school bus route, will be converted to an unsealed pavement at end of life if average daily traffic is less than

40 vehicles per day. Under the revised hierarchy school bus routes can only be reverted to gravel if the necessary community consultation and Council recommendation is sought.

### 3.4 DESIRED LEVELS OF SERVICE

For sealed roads the desired level of service was previously set to slightly better the lowest average roughness on record, being the average roughness that existed in 2008. This equates to an average roughness for rural sealed roads of 80 and for urban sealed roads of 100. At this point in time the target has been set to at least maintain the average roughness of the sealed road network year on year until those average results from 2008 are matched.

The table below shows average roughness for segments with valid data in each given year. The current level of service is therefore not meeting the desired level of service, however, is tracking slightly better year on year.

**Table 3.4: Average Roughness by Survey Year and Road Location**

	2008	2018	2020	2021
Rural	84	90	87	87
Urban	102	121	118	115

For unsealed roads there is no current objective measurement that provides a consistent result. The level of service has therefore been set with reference to the number of maintenance requests received into the infrastructure services customer request database. It is also determined by subjective feedback from the Roads Consultative Committee. The management of the unsealed road network is aimed at continually improving the results received through these two (2) channels.

The management practices that have been set to deliver these results include the use of teams of maintenance staff who are set routine tasks that move them systematically around the network in such a way as to minimise travel time between tasks. A single team leader is set in place for each team and held accountable for the team's performance.

Maintenance grading provides the best opportunity for assessment of gravel condition, and the maintenance grading team leader is given the responsibility of selecting pavement sections that require patch re-sheeting. This gravel is sourced while the maintenance grader is on site, facilitating efficiency in minor re-sheeting tasks.

Table 3.4a: Community Levels of Service

KEY PERFORMANCE INDICATOR	COMMUNITY LEVEL OF SERVICE	PERFORMANCE MEASUREMENT PROCESS	TARGET PERFORMANCE	CURRENT PERFORMANCE
<b>Sustainability</b>	Roads are managed for future generations: maintaining an agreed level of service in a financially sustainable fashion.	Roughness of sealed roads.	The average roughness reduces or is maintained year on year.	<p>Average roughness has <b>reduced from 90 to 87 (NAASRA)</b> for <b>rural</b> roads in the period 2018 – 2021, but remains above the 2008 figure of 84.</p> <p>Average roughness has <b>reduced from 121 to 115 (NAASRA)</b> for <b>urban</b> roads in the period – 2018- 2021 but remains well above the 2008 figure of 102.</p>
		Condition of unsealed roads at the bottom of the maintenance cycle.	Subjective feedback from the roads consultative committee indicates satisfactory performance with regard to the condition of unsealed roads.	The gravel re-sheeting program and subsequent Otta seal program has resulted in positive feedback from the roads committee, however recent natural disaster impacts are contributing to a new round of complaints across the network.

	<p>Scheduled maintenance is well planned.</p>	<p>Unsealed roads are graded by in house resources according to a defined geographic schedule that minimises travel distance between tasks. The schedule is sufficient to maintain the condition of roads at an acceptable standard until the following grade is due.</p>	<p>95% of roads are graded by in house resources according to the grading schedule.</p>	<p>Roads are graded according to a geographic schedule in 95% of cases.</p>
	<p>Pavement materials are reused where possible.</p>	<p>Existing road base material is recycled when sealed pavements are rehabilitated.</p>	<p>Pavement design is optimised to utilise 100% of existing pavement material through thorough measurement of existing pavement depth and quality.</p>	<p>Pavements are recycled, with lime demand testing now able to be undertaken by a regional service.</p>
	<p>Road construction machinery is selected for efficiency of operations.</p>	<p>Plant options are well researched and selected to optimise the efficiency of operations.</p>	<p>The most efficient plant is utilised for each task.</p> <p>Sufficient plant items are on hand to provide appropriate flexibility to utilise maintenance graders to perform re-sheeting operations as part of the grading schedule.</p>	<p>All maintenance graders have now been replaced. Additional plant has now been procured to assist with heavy patching to help improve the overall condition of the sealed network.</p>

Table 3.4b: Community Levels of Service

KEY PERFORMANCE INDICATOR	COMMUNITY LEVEL OF SERVICE	PERFORMANCE MEASUREMENT PROCESS	TARGET PERFORMANCE	CURRENT PERFORMANCE
<b>Safety</b>	Safe accessible network.	Crash reports.	Zero reported crashes attributed to road condition.	1
		Customer Service Request 'CRS'.	<5 per month.	2.3 per month
<b>Quality</b>	Driveability.	Customer Service Requests regarding pot holes, patching and repairs to transport infrastructure.	< 10 per month.	51 per month
<b>Function</b>	Meet user requirements for accessibility, road width, and traffic management.	Customer Service Request.	<20 per year.	29 per year
		Austrroads technical specifications and guidelines.  Customer satisfaction survey.	Compliance with current standards and specs.	

Table 3.4c: Technical Levels of Service

KEY PERFORMANCE INDICATOR	COMMUNITY LEVEL OF SERVICE	PERFORMANCE MEASUREMENT PROCESS	TARGET PERFORMANCE	CURRENT PERFORMANCE
Condition	Average Roughness of <b>rural</b> sealed road network (NAASRA count).	Annual independent assessment of road network using automated vehicle mounted measuring equipment.	Average Roughness of the <b>rural</b> sealed road network (NAASRA) is less than previous year or 80, whichever is the greater.	87
Condition	Average Roughness of <b>urban</b> sealed road network (NAASRA count).	Annual independent assessment of road network using automated vehicle mounted measuring equipment.	Average Roughness of the <b>urban</b> sealed road network (NAASRA) is less than previous year or 100, whichever is the greater.	115
Condition	Acceptable condition of unsealed rural roads.	Inspection.  Condition of road at time of grading (subjective).	95% of unsealed roads are in acceptable travelling condition immediately prior to grading.	60% of roads are in acceptable travelling condition at time of grading.



<b>Cost effectiveness</b>	Reuse of materials.	Pavement design records.	100% of rehabilitation projects are designed and pavement reuse is optimised.	Reuse of pavements occurs routinely, however rehabilitation projects are not currently investigated to a level that optimises reuse.
<b>Safety</b>	Provide: <ul style="list-style-type: none"> <li>• clear signage;</li> <li>• well maintained line marking;</li> <li>• appropriate traffic management devices.</li> </ul>	Compliance inspections.  Customer service request 'CRS'.	Zero compliance defects.  <10 per year.	Zero compliance defects per year.  27 customer requests per year.

## 4. FUTURE DEMAND

### 4.1 DEMAND FORECAST

*Refer to Core Asset Management Plan.*

#### 4.1.2 DEMAND FACTORS – TRENDS AND IMPACTS

Developers will contribute roads in land divisions, but Council will need to upgrade connector roads and footpath links to cater for growth demands and achieve cohesive networks.

The aim of the road construction programs is to improve the amenity of urban areas through the rehabilitation of streets and to provide improved infrastructure and access for rural residents and industry through major freight links and access roads, particularly heavy vehicle routes.

To enable fair and planned distribution of funding throughout the LGA, many different factors are taken into account:

- Traffic surveys to determine vehicle and cyclist numbers and vehicle classifications.
- Meetings with various industry groups (key stakeholders) to determine future expansion of industry and required needs, e.g. A-double route to the Rangers Valley feedlot.
- Known traffic black spots (sites with a high crash history).
- High road maintenance costs areas.
- Known development areas.

The impact of some demand factors on services are shown in Table 4.1.

**Table 4.1.2: Demand Factors, Projections and Impact on Services**

FACTOR	IMPACT
<b>Population changes in townships/rural areas</b>	Expectations on level of service independent of number of properties serviced.
<b>Rural freight task increasing</b>	Greater demand for increased capacity freight vehicles. Last mile considerations.

## 4.2 CHANGES IN TECHNOLOGY

Technological changes (as distinct from changes to installations brought about by external, e.g. environmental, forces) will impact on the asset classes in this AMP over the 10 year timeframe.

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Changes in construction techniques and maintenance practices are likely, such as:

- Improved products for in-situ recycling of pavement materials.
- Greater use of recycled materials.
- Improved quality of pavement materials through the operation of Glen Innes Aggregates.

## 4.3 DEMAND MANAGEMENT PLAN

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices include non-asset solutions, insuring against risks and managing failures.

Opportunities identified to date for demand management are shown in Table 4.3. Further opportunities will be developed in future revisions of this asset management plan.

**Table 4.3. Demand Management Plan Summary**

SERVICE ACTIVITY	DEMAND MANAGEMENT PLAN
<b>Road maintenance and upgrades</b>	<p>Upgrades and network extensions to meet population growth demand and changes identified in review reports and planning studies.</p> <p>Provide access for wheeled mobility devices, pedestrians, cyclists and tourism growth.</p>
<b>Safety Improvement Plan</b>	<p>Upgrades to improve user safety (to be developed further within the next review period).</p> <p>Regular road safety audits and inspections.</p> <p>Consideration of a Road Safety Officer position if external funding is received.</p>

<b>Road Hierarchy Review Plan</b>	<p>Review of Hierarchy Plan to incorporate planned works particularly and examination of utilisation patterns and network links, within next review period.</p> <p>Consideration of freight routes.</p>
<b>Community demand for reconstruction and reseal of roads and car parks</b>	<p>Study road condition rating from this plan and prioritise a list of roads to be included in the annual reseal / rehabilitation program.</p> <p>Investigate alternative treatments to lower life cycle costs i.e. seal types, rejuvenation.</p>
<b>Upgrading of Unsealed Roads</b>	<p>Progressive re-sheeting of all unsealed roads. Unsealed roads with a traffic volume exceeding 50 vehicles per day to be considered for conversion to bitumen seal.</p>
<b>New land divisions</b>	<p>Implement quality control measures for donated assets.</p>
<b>Kerb Maintenance and Upgrades</b>	<p>Upgrades to meet community expectations.</p>
<b>Planning</b>	<p>Revise planning controls to increase population density and decrease the extent of new road network. Encourage industry to be near State controlled roads.</p>
<b>Capital Works</b>	<p>Schedule a long term capital works program and develop an infrastructure backlog management plan.</p>

#### 4.4 NEW ASSETS

The new assets required to meet community expectations will be constructed by Council and be funded utilising external funding streams as they become available.

A formula has been developed combining average daily traffic (including heavy traffic), drainage issues, Cost benefit and cost efficiencies and School bus routes to produce a priority list of gravel roads for sealing. The formula is as follows:

Average Daily Traffic + Drainage + Cost Efficiency + Cost Benefit + School Bus Route + Classification.

This formula as produced the priority list below.

**Table 4.4: New Assets**

ROAD NAME	RANK	Status
Old Grafton Road	1	Completed
Strathbogie Road / Gordons Road	2	Funding Obtained
West Furracabad Road	3	Funding Obtained
Yarraford Road	3	Completed
Chandler Road	4	Allocated in 2022/23 Draft Budget
Blacks Road	5	Allocated in 2022/23 Draft Budget
Maybole Road	6	Completed
Duval Road	7	Allocated in 2022/23 Draft Budget
Ward Crescent	8	Allocated in 2022/23 Draft Budget
Pinkett Road	9	Funding Obtained
Gulf Road	10	Funding Obtained
Mt Mitchell Road	11	Completed
Ten Mile Road	12	Funding Obtained
Rodgers Road	12	Allocated in 2022/23 Draft Budget
Tent Hill Road	13	Funding Obtained
Waterloo Road	14	
Kings Plains Road	15	
Shannon Vale Road	16	
Glen Elgin Road	17	
Wilson Road	18	
Caerleon Road	19	

Acquiring these new assets will commit Council to fund ongoing operations and maintenance costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operating and maintenance costs. The introduction of the Graded Aggregate Seal treatment (otherwise known as Otta seal) combined with successful grant applications has seen in excess of 100km of unsealed road funded for conversion to a sealed surface. These works have been delayed by the impact of natural disaster but are expected to be completed in the winter months of 2022, noting that this treatment requires cooler temperatures to be installed.

## 5. LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how Council plans to manage and operate the assets at the agreed levels of service (defined in section 3) while optimising life cycle costs.

### 5.1 BACKGROUND DATA

#### 5.1.1 PHYSICAL PARAMETERS

The assets covered by this asset management plan are shown in Table 2.1.

#### 5.1.2 ASSET CAPACITY AND PERFORMANCE

Council's services are generally provided to meet design standards where these are available.

Locations where deficiencies in service performance are known are detailed in Table 5.1.2.

**Table 5.1.2: Known Service Performance Deficiencies**

LOCATION	SERVICE DEFICIENCY
<b>Road Surfacing</b>	Inadequate expenditure during the last three (3) decades has led to a backlog of work required and this has resulted in a peak in expenditure arising within the next three (3) years, which we are now trying to address with an appropriate increase in annual resealing. This lag has meant a drop in service level achieved due to increasing roughness and unnecessary failure of some pavements.
<b>Road Pavements</b>	Inadequate expenditure during the last three (3) decades has also impacted on pavement condition as seals have failed and moisture infiltration has occurred together with traffic changes. Again, a service level decrease has required greater financial input to address the shortfall.
<b>Gravel Re-sheeting</b>	The lag in expenditure created during the last three (3) decades has also impacted on unsealed pavement condition as gravel has been lost over time, and drainage has not been maintained adequately to prevent unnecessary gravel loss due to washouts. The gravel re-sheeting program conducted during the last delivery program has restored service on a number of roads and has allowed conversion to seal using the graded aggregate treatment.

### 5.1.3 ASSET CONDITION

The condition profile of Council's assets has moved from a basic core approach utilising a five (5) tiered ranking system to an advanced method whereby each asset is modelled for an accurate end of life forecast.

For sealed road assets the average roughness of the network has been adopted as the primary measure of network condition. This is differentiated into rural and urban assets because of the effect that the different speed environment has on the perceived level of acceptable roughness.

For unsealed road assets it is acknowledged that there is not really an objective measurement that is available that can provide a measure of the network condition. Subjective methods are therefore used, being an annual inspection by an experienced staff member in combination with total numbers of maintenance requests received, and feedback obtained from the Roads Consultative Committee.

### 5.1.4 ASSET VALUATIONS

The value of assets is shown below for transport infrastructure assets as at 30 June 2021. Assets are valued at green field rates.

Asset Type	Quantity	Replacement Value	Annual Depreciation
Major Street Furniture	110	\$ 2,330,657	-\$ 54,071
Footpaths	176 assets	\$ 4,547,286	-\$ 56,841
Carparks	42 assets	\$ 1,470,964	-\$ 27,721
Kerb and Gutter	373 assets	\$ 11,347,385	-\$ 139,243
Local Sealed Roads	351 km	\$ 99,705,148	-\$ 1,197,006
Local Unsealed Roads	732 km	\$ 75,408,998	-\$ 1,201,739
Other Sealed Roads	10 km	\$ 2,541,653	-\$ 56,528
Regional Sealed Roads	68 km	\$ 23,370,468	-\$ 288,185
Total	N/A	\$ 220,722,558	-\$ 3,021,333

It is noted here that the asset consumption rate is higher than the depreciation shown in Council's financial statements. The reason for this is that some assets are fully depreciated, and can incur no further depreciation expense, yet need to be accounted for in terms of future replacement.

Table 5.1: Financial Reporting Ratios

FINANCIAL REPORTING CRITERION	ROAD INFRASTRUCTURE, %
Asset Consumption Rate (Annual)	1%
Asset Renewal Rate (Annual)	1%
Asset Upgrade Expansion Rate (Annual)	0%
Road Asset Backlog Ratio (Special Schedule 7)	7%

## 5.2 RISK MANAGEMENT PLAN

The risk assessment process identified credible risks, the likelihood of the risk event occurring and the consequences should the event occur. Future refinements will use these factors to develop risk ratings, incorporating a risk treatment plan for non-acceptable risks.

Critical risks, being those assessed as 'Very High' (VH) - requiring immediate corrective action and 'High' (H) – requiring prioritised corrective action identified in the infrastructure risk management plan are summarised in Table 5.2.

Table 5.2: Critical Risks and Treatment Plans

ASSET AT RISK	WHAT CAN HAPPEN	RISK RATING (VH, H)	RISK TREATMENT PLAN
Sprayed seal surfacing	Increase in seal failures leading to pavement failures.	H	Increase cyclical maintenance expenditure to match asset depreciation.
Road surfacing	Seal wear or binder bleeding can result in vehicle instability in high speed rural environments	H	Monitor seal condition and reseal ahead of normal intervention as required.



<b>Pavements</b>	Increase in pavement reconstruction due to lack of maintenance and patching.	H	<p>Increased maintenance inspections and repairs.</p> <p>The maintenance budget for unsealed roads has been increased to accommodate the year round use of three (3) maintenance graders.</p>
<b>Road seals and pavements</b>	Poor service trench reinstatement by Utilities.	H	Issue specification for reinstatement work.

### 5.3 ROUTINE MAINTENANCE PLAN

Routine maintenance is the regular ongoing work that is necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make the asset operational again.

#### 5.3.1 MAINTENANCE PLAN

Maintenance includes reactive, planned and cyclic maintenance work activities.

Reactive maintenance is unplanned repair work carried out in response to service requests and management/supervisory directions.

Planned maintenance is repair work that is identified and managed through a maintenance management system. These activities include inspection, assessing the condition against failure/breakdown experience, prioritising, scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.

Cyclic maintenance is replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including patch gravel re-sheeting. This work generally falls below the capital/maintenance threshold.

Maintenance expenditure levels have been increased dramatically in the unsealed road network in recent years and are now considered to be adequate to meet required service levels.

Assessment and prioritisation of reactive maintenance is undertaken by Council staff using experience and judgement following inspection. As the increased budget allows for improved maintenance of the network overall it is envisaged that reactive maintenance will reduce in favour of planned and cyclic maintenance activities, which are inherently more efficient.

#### 5.3.2 STANDARDS AND SPECIFICATIONS

Maintenance work is carried out in accordance with the following Standards and Specifications.

- ARRB Sealed Local Roads Manual;
- ARRB Unsealed Local Roads Manual;
- AS 2150-2005 Hot mix asphalt – A guide to good practice;
- GISC Safe Work Method Statements;
- AAPA Bituminous Surfacing Manual;
- Austroads Guide to Sprayed Sealing;
- Requirements by manufacturers for the use of proprietary products;
- Traffic control at Works on Roads;
- Project-specific Technical Specifications;
- GISC Internal Service Level Agreements;
- AS4283-1995 Cold mixed asphalt for maintenance patching;
- AS5100.1-2017 Bridge design-scope and general principles;
- AS2008-2013 Bitumen for pavements;
- AS3727.1:2016 Pavements Residential.

### 5.3.3 SUMMARY OF FUTURE MAINTENANCE EXPENDITURES

Future maintenance expenditure is forecast to trend in line with the value of the asset stock as shown in Table 5.4.1. Note that all costs are shown in current dollar values. The cost of road works has not been indexed in the table below, however, a fuel and the latest construction index will need to be applied before setting each yearly budget

**Table 5.3.3: Planned Maintenance Expenditure**

Road Maintenance Expenditure				
Year	Sealed	Unsealed	Footpaths	Year Total
2023	\$ 835,724	\$ 1,629,224	\$ 30,631	\$ 2,495,579
2024	\$ 835,724	\$ 1,629,224	\$ 30,631	\$ 2,495,579
2025	\$ 835,724	\$ 1,629,224	\$ 30,631	\$ 2,495,579
2026	\$ 835,724	\$ 1,629,224	\$ 30,631	\$ 2,495,579
2027	\$ 835,724	\$ 1,629,224	\$ 30,631	\$ 2,495,579
2028	\$ 835,724	\$ 1,629,224	\$ 30,631	\$ 2,495,579
2029	\$ 835,724	\$ 1,629,224	\$ 30,631	\$ 2,495,579
2030	\$ 835,724	\$ 1,629,224	\$ 30,631	\$ 2,495,579
2031	\$ 835,724	\$ 1,629,224	\$ 30,631	\$ 2,495,579
2032	\$ 835,724	\$ 1,629,224	\$ 30,631	\$ 2,495,579
Total by Type	\$ 8,357,240	\$ 16,292,242	\$ 306,308	\$ 24,955,790

Deferred maintenance, i.e. works that are identified for maintenance and unable to be funded are to be included in the risk assessment process in the Infrastructure Risk Management Plan.

Maintenance is funded from Council's operating budget and grants where available. This is further discussed in Section 6.2.

## 5.4 RENEWAL/REPLACEMENT PLAN

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

### 5.4.1 RENEWAL PLAN

Assets requiring renewal are identified from forecasts of remaining life obtained from roughness inspections. The priority ranking criteria is detailed in Table 5.4.1.

Table 5.4.1: Renewal Priority Ranking Criteria

CRITERIA	WEIGHTING
<b>Intervention Score</b>	No current weighting or ranking against other Asset Classes.
<b>Road</b>	No current weighting or ranking against other Asset Classes.
<b>Other</b>	No current weighting or ranking against other Asset Classes.
<b>Condition</b>	No current weighting or ranking against other Asset Classes.
<b>Total</b>	100%

Renewal will be undertaken using 'low-cost' renewal methods where practical. The aim of 'low-cost' renewals is to restore the service potential or future economic benefits of the asset by renewing the assets at a cost less than replacement cost.

An example of low-cost renewal, in lieu of full pavement reconstruction, is pavement rehabilitation work, where patching and strengthening of the pavement is undertaken.

#### 5.4.2 RENEWAL STANDARDS

Renewal work is carried out in accordance with the Standards and Specifications noted in Section 5.3.1.

### 5.4.3 SUMMARY OF OPTIMAL RENEWAL EXPENDITURE

The projected capital renewal program is shown in Appendix B.

Any future deferred renewal, i.e. those assets projected for renewal and not planned for renewal in capital works programs, are to be included in the risk assessment process in the Corporate Risk Management Plan.

## 5.5 CREATION/ACQUISITION/UPGRADE PLAN

New works are those works that create a new asset that did not previously exist or works which upgrade or improve an existing asset beyond its existing capacity. They may result from growth, social or environmental needs. Assets may also be acquired at no cost to Council from land development. These assets from growth are considered in Section 4.4.

### 5.5.1 SELECTION CRITERIA

New assets and upgrade/expansion of existing assets are identified from various sources such as Councillor or community requests, proposals identified by strategic plans or partnerships with other organisations. Candidate proposals are inspected to verify need and to develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds and scheduled in future works programmes. The priority ranking criteria is detailed below.

**Table 5.5.1: New Assets Priority Criteria**

CRITERIA	COMMENTARY
<b>Community Strategic Plan</b>	Projects are identified annually during the development of the Operational Plan, and assessed against other asset class projects by senior staff, and recommendations are made to the elected Council for decision.
<b>Technical need (e.g. heavy vehicle increases)</b>	Projects required as a result of technical need may arise, however these will generally be funded through external sources. If funding is required from internal accounts that funding will be beyond the scope of this plan.
<b>Total</b>	100%

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### 5.5.2 STANDARDS AND SPECIFICATIONS

Standards and specifications for new assets and for upgrade/expansion of existing assets are the same as those for renewal shown in Section 5.3.1.

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### 5.5.3 SUMMARY OF FUTURE UPGRADE/NEW ASSETS EXPENDITURE

The primary assets to be created are new bitumen seals on roads highlighted in Section 4.4 of this document, and these upgrades are to be funded from grant availability.

New assets and services are to be funded grants where available. This is further discussed in Section 6.2.

## 5.6 ***DISPOSAL PLAN***

Road closures, i.e. the legal prevention of use of a road reserve by vehicles and the public, often result in retention of the land by Council for use as a revegetation corridor. Existing road pavement materials may be ripped and left in-situ. Upgraded pavements (i.e. by depth, not width) may result in the existing pavement layers being removed and reused elsewhere as second grade re-sheeting on local rural roads. For all practical purposes, the value of salvaged road and footpath materials is of little consequence.

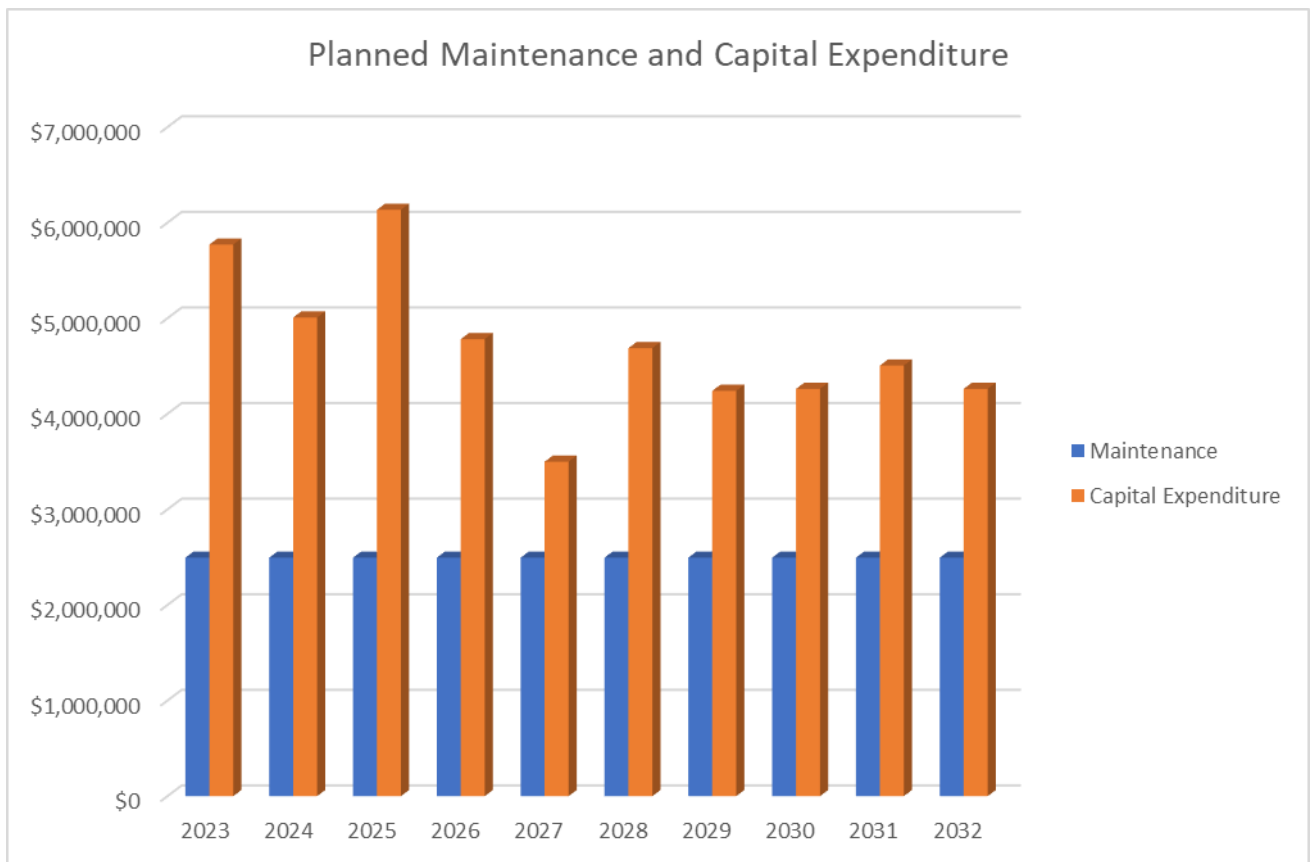
## 6. FINANCIAL SUMMARY

This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset performance.

### 6.1 FINANCIAL STATEMENTS AND PROJECTIONS

The financial projections are shown in Fig 6.1 for planned operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets).

**Fig 6.1: Planned Operating and Capital Expenditure**



### 6.1.1 SUSTAINABILITY OF SERVICE DELIVERY

There are two (2) key indicators for financial sustainability that have been considered in the analysis of the services provided by this asset category, these being long term life cycle costs and medium-term costs over the 10 year financial planning period.

#### Long term - Life Cycle Cost

Life cycle costs (or whole of life costs) are the average costs that are required to sustain the service levels over the longest asset life. Life cycle costs include maintenance and asset consumption (depreciation expense). The annual average life cycle cost for the services covered in this asset management plan is \$5,516,000.

Life cycle costs can be compared to life cycle expenditure to give an indicator of sustainability in service provision. Life cycle expenditure includes maintenance plus capital renewal expenditure. Life cycle expenditure will vary depending on the timing of asset renewals. The average planned expenditure over the 10-year forward plan is \$7,211,000 per annum.

A gap between life cycle costs and life cycle expenditure gives an indication as to whether present consumers are paying their share of the assets they are consuming each year. The purpose of this Transport asset management plan is to identify levels of service that the community needs and can afford and develop the necessary long-term financial plans to provide the service in a sustainable manner.

The situation at present is that the community is expending more than the life cycle cost of the network. Additional funding of \$1,694,000 is available to address some of the backlog of infrastructure works. The life cycle sustainability index is 131%.

## 6.2 FUNDING STRATEGY

Projected costs are to be funded from Council's operating and capital budgets. The funding strategy will be detailed in the Council's LTFP.

It is noted that backlog works associated with bitumen seal renewals are required to be done sooner rather than later, as the ingress of water through cracked seals will create additional pavement decay. It will therefore be necessary to borrow to address that issue. This will be able to be afforded as existing loans reach maturity over the next 5-10 years.

## 6.3 VALUATION FORECASTS

Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by Council and from assets constructed by land developers and others and donated to Council. The replacement value of assets is also forecast to increase by 2.3% above inflation due to rising energy costs.



## **6.4 KEY ASSUMPTIONS MADE IN FINANCIAL FORECASTS**

This section details the key assumptions made in presenting the information contained in this asset management plan and in preparing forecasts of required operating and capital expenditure and asset values, depreciation expense and carrying amount estimates. It is presented to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts.

Key assumptions:

- Assumptions have not been made on changes to useful life based on improved maintenance and renewal practices. This results in a conservative outlook.
- Present service levels will remain constant until revised service levels are produced in accordance with Section 3.3.
- Assumption of normal weather conditions.
- Borrowings of \$1,000,000 per year are taken up to assist with backlog reduction.

Accuracy of future financial forecasts may be improved in future revisions of this Asset Management Plan by the following actions:

- Undertaking regular surveys on the road pavement, surface, and kerb conditions.
- Reducing expenditure on unplanned road maintenance and using these funds for planned reconstruction, rehabilitation and reseal programs.
- Improved information systems on maintenance and operating expenditures.
- A review of the effective economic life of different pavement rehabilitation methods providing the potential to further increase efficiencies
- Changes in development needs associated with the rate and location of growth.
- Changes in the desired level of service and service standards from those identified in this plan.

## **7. ASSET MANAGEMENT PRACTICES**

### **7.1 ACCOUNTING/FINANCIAL SYSTEMS**

*Refer to Core Asset Management Plan.*

### **7.2 ASSET MANAGEMENT SYSTEMS**

*Refer to Core Asset Management Plan.*

### **7.3 INFORMATION FLOW REQUIREMENTS AND PROCESSES**

*Refer to Core Asset Management Plan.*

### **7.4 STANDARDS AND GUIDELINES**

*Refer to Core Asset Management Plan.*

### **7.5 DATA CONFIDENCE LEVEL**

Data confidence levels for this AMP are rated as B or C.

## 8. PLAN IMPROVEMENT AND MONITORING

### 8.1 PERFORMANCE MEASURES

The effectiveness of the asset management plan can be measured in the following ways:

- The degree to which the required cash flow identified in this asset management plan are incorporated into Council's Long Term Financial Plan and Community Strategic Plan;
- The degree to which 1-5 year detailed works programs, budgets, business plans and organisational structures take into account the 'global' works program trends provided by the asset management plan.

### 8.2 IMPROVEMENT PLAN

*Refer to Core Asset Management Plan.*

The asset management improvement plan generated from this asset management plan is shown in Table 8.2.

**Table 8.2: Improvement Plan**

TASK NO	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TARGET COMPLETION DATE
1	Maintenance Activities - document levels of service and a Maintenance Management Plan	Director Infrastructure Services Personal Assistant	Staff	Completed
2	Undertake yearly condition assessments of 100% of the roadwork network.	Manager of Infrastructure Delivery	Contract Laser profiling	Ongoing
3	Undertake an annual review of this Asset Management plan.	Manager of Infrastructure Delivery	Staff	Ongoing

### **8.3 MONITORING AND REVIEW PROCEDURES**

This asset management plan will be reviewed following annual budget preparation and amended to recognise any changes in service levels and/or resources available to provide those services as a result of the budget decision process.

The Plan is a living document and is to be updated annually.

## REFERENCES

*Refer to Core Asset Management Plan.*

## APPENDICES

### APPENDIX A: PLANNED TRANSPORT INFRASTRUCTURE EXPENDITURES FOR LONG-TERM FINANCIAL PLAN

Year	Maintenance Expenditure	Required Renewal*	Planned Capital Expenditure*	Backlog*
2023	\$ 2,495,579	\$10,500,616	\$6,026,391	\$4,474,225
2024	\$ 2,495,579	\$7,111,049	\$7,048,270	\$62,779
2025	\$ 2,495,579	\$3,656,593	\$3,805,660	-\$149,067
2026	\$ 2,495,579	\$10,752,587	\$4,302,045	\$6,450,542
2027	\$ 2,495,579	\$3,469,923	\$3,373,676	\$96,247
2028	\$ 2,495,579	\$7,326,101	\$4,209,695	\$3,116,407
2029	\$ 2,495,579	\$2,957,927	\$4,015,840	-\$1,057,913
2030	\$ 2,495,579	\$3,104,348	\$4,033,314	-\$928,966
2031	\$ 2,495,579	\$780,800	\$2,962,000	-\$2,181,200
2032	\$ 2,495,579	\$2,423,168	\$4,343,410	-\$1,920,241
10-year Total	\$ 24,955,790	\$52,083,113	\$ 44,120,301	\$7,962,812

\* Footpath, Major Street Furniture, Carparks, and Kerb & Gutter are not modelled.

**APPENDIX B: PROJECTED 10-YEAR CAPITAL WORKS PROGRAM FOR SEALED AND UNSEALED ROAD NETWORK**

FUNDING SOURCE	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	10 Year Summary
Total Required Renewal	\$10,500,616	\$7,111,049	\$3,656,593	\$10,752,587	\$3,469,923	\$7,326,101	\$2,957,927	\$3,104,348	\$780,800	\$2,423,168	\$52,083,113
General Fund	\$359,975	\$1,536,270	\$843,660	\$1,340,045	\$411,676	\$1,247,695	\$1,053,840	\$1,071,314	\$0	\$1,381,410	\$9,245,885
Additional Borrowing	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$10,000,000
Quarry Surplus	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$5,000,000
LRCI	\$154,416	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$154,416
ROSI	\$2,550,000	\$2,550,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,100,000
Roads to Recovery Grants	\$872,000	\$872,000	\$872,000	\$872,000	\$872,000	\$872,000	\$872,000	\$872,000	\$872,000	\$872,000	\$8,720,000
Regional Roads Grants	\$590,000	\$590,000	\$590,000	\$590,000	\$590,000	\$590,000	\$590,000	\$590,000	\$590,000	\$590,000	\$5,900,000
Total Funding	\$6,026,391	\$7,048,270	\$3,805,660	\$4,302,045	\$3,373,676	\$4,209,695	\$4,015,840	\$4,033,314	\$2,962,000	\$4,343,410	\$44,120,301
Unfunded Backlog	\$4,474,225	\$62,779	-\$149,067	\$6,450,542	\$96,247	\$3,116,407	-\$1,057,913	-\$928,966	-\$2,181,200	-\$1,920,241	\$7,962,812

1. The 'Total Required Renewal' row is based on a physical condition and engineer assessment performed by a sealed road expert; the assessment occurred in December 2021. The results gave a 2- year intervention range. The intervention year was chosen by Council staff, within the range provided by the engineer, using local knowledge taking account of the grouping of assets for treatment, priority of treatment type, Council staff capacity, and spreading of costs where possible.
2. The gravel re-sheeting requirement is added to each year based on estimated depreciation expense.
3. Assumed funding streams reduce the renewals required until a backlog of untreated assets remain. A positive effect indicates an increase to the total backlog of untreated assets. A negative figure in the year identifies capacity to deal with emergent work or address the extant backlog.
4. The '10-year Summary' column shows total expenditure by funding stream and overall effect on the road network backlog.
5. This model shows sealed and unsealed roads only.