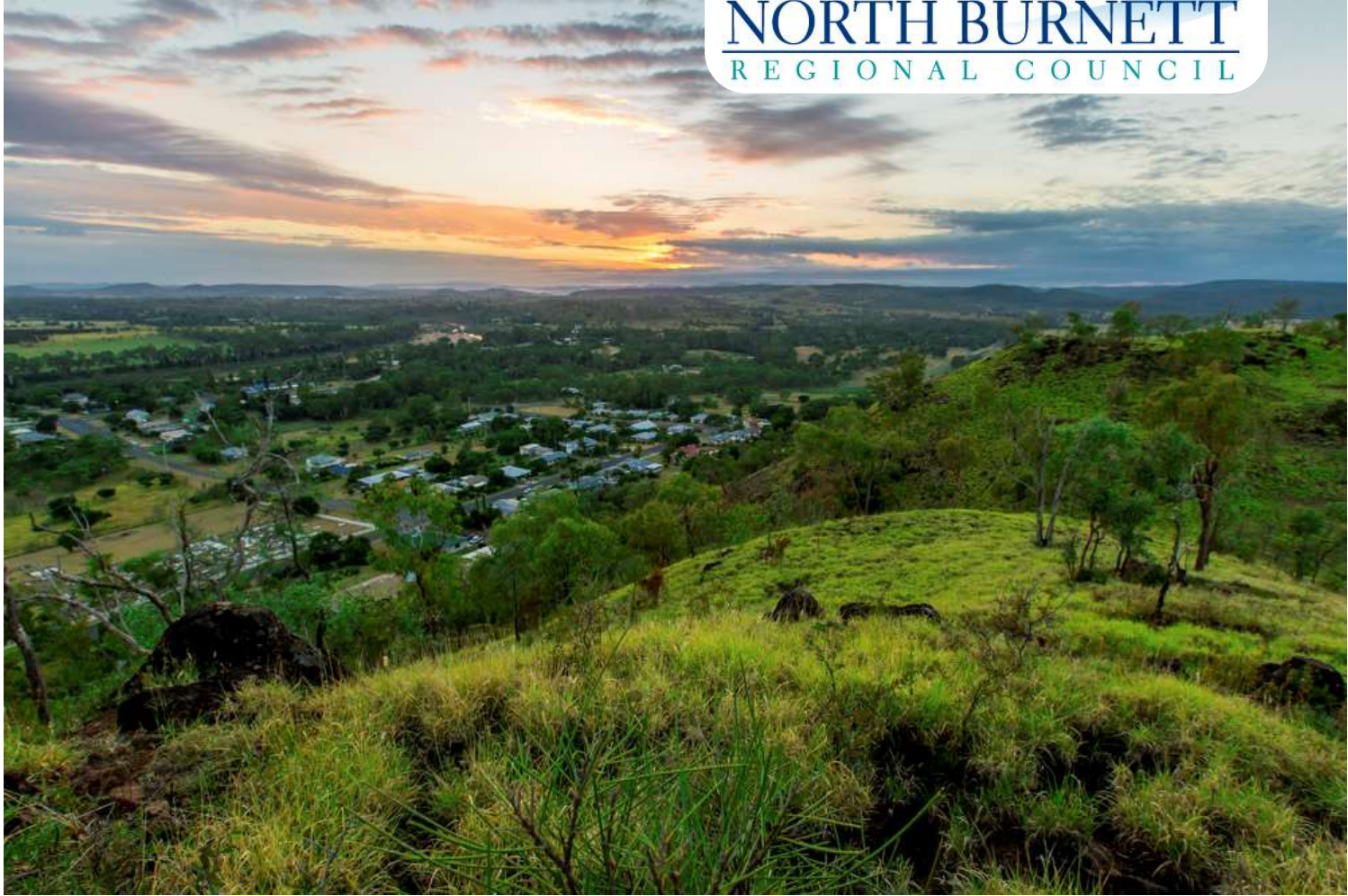




NORTH BURNETT
REGIONAL COUNCIL



Asset Management Plan-Roads & Bridges

The North Burnett Regional Council Asset Management Plan Roads & Bridges was adopted by Council at the General Meeting in Mount Perry on 26 June 2019. (Resolution Number 2019-191)

Version: 1.03

Copies of the Plan Name

Copies of the Plan Name are available free of charge electronically on council's website

www.northburnett.qld.gov.au or can be viewed at any Customer Service Centre.

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1. Primary number changes to Versions (eg V1.00 to V2.00) will be made when the document undergoes its regular review and when significant changes are made to standards and guidelines for inspections, intervention levels or works.
2. Secondary number changes (V1.00 to V1.01) will apply to minor amendments that do not materially impact the documents and are intended only to clarify or update issues.

ABBREVIATIONS

AMP	Asset Management Plan
ABS	Australian Bureau of Statistics
DTMR	Department of Transport and Main Roads
FWP	Forward Works Plan
LCC	Life Cycle Cost
LCE	Life Cycle Expenditure
LoS	Levels of Service
LRRS	Local Roads of Regional Significance
IRI	International Roughness Index
NBRC	North Burnett Regional Council
QAO	Queensland Audit Office
PI	Performance Indicator
RACAS	Road Asset Condition Assessment System
R2R	Roads to Recovery
RUL	Remaining Useful Life
SL	Service Level
TIDS	Transport Infrastructure Development Scheme
VRACAS	Virtual RACAS Software

EXECUTIVE SUMMARY

BACKGROUND

This Asset Management Plan (AMP) for North Burnett Regional Council's roads, stormwater drainage, kerb, pathways, traffic management assets, excluding Department of Roads and Main Roads (DTMR) assets, was developed using data from the recent RACAS data survey, comprehensive valuation and Council's future works programs.

The purpose of this AMP is to assist Council in:

- Demonstrating responsible management.
- Clearly outlining the measurable service levels.
- Communicating and justify funding requirements for the future.
- Complying with regulatory requirements.

ASSETS

Infrastructure assets included in this plan comprise approximately 865 km of sealed roads, 3,280 km of unsealed roads (1,108 km with gravel), 106 km of pathways, 32 km of kerb, 55 bridges, 125 major and 6304 minor culverts.

Roads, bridges, pathways and drainage assets at 30 June 2018 have a current replacement cost of \$1.068 B (73% are roads), a fair value (written down value) of \$876 M and annual depreciation \$7.5 M. This asset class makes up 80% of the Council's total infrastructure asset stock.

LEVELS OF SERVICE FOR ROADS

North Burnett Regional Council have developed practical service level measures for their major road asset components to ensure that services are engaged to best fit customer expectations and to optimise expenditure. These are:

SEALED ROADS

- *surface renewal* is programmed when the % of Surface Defects is greater than 90% by Area (stripping and cracking) and IRI less than 9 or % Pavement Defects area is less than 40% to avoid resurfacing a failing pavement.
- *pavement renewal* is programmed when IRI is greater than or equal to 9 and % of Pavement Defects is greater than or equal to 40% (rutting and failure) and Surface Defects is not greater than 50% by Area (to avoid pavement rehab of a new reseal).

UNSEALED ROADS

- *surface maintenance* is engaged via grading works when the safe driving speed is less than 65-70 km/hr, which represents an international roughness index of 9.

- *pavement renewal* (wet weather access) is engaged when gravel coverage is less than 50% by length for road hierarchy 4a to 5b.

Footpath and kerb: maintenance and renewals are based on visual inspections to identify trip, defects and overall condition.

Bridge and drainage structures (all structure types): renewals are based on structural integrity, via a level 2 inspection every 5 years.

DEMAND AND CAPACITY

- Future growth is predicted to be -1.0% for the next 20 years. It is estimated the (medium) projected population will reach approximately 9,726 by year 2036. As a result, demand is not viewed as influencing this class of assets over the next 20 years.

LIFECYCLE EXPENDITURE

OPERATIONS AND MAINTENANCE (OPEX)

The average maintenance is approximately \$2.40 million per annum for roads and drainage works and this is 0.2% of the gross replacement costs. A benchmark of 16 councils of similar km's is about 0.5% to 0.8% of gross replacement cost.

CAPITAL (CAPEX)

NEW AND UPGRADE CAPITAL WORKS

Planned (forward works program) new and upgrade works over the next 10 years to 2028/29 totals approximately \$8.2 million, taken from Council's forward works plan, which amounts to a 0.8% increase on current.

A benchmark of 16 councils of similar km's, we found the average was 3.8% of gross replacement cost. Council is one of the best Councils in regard to keeping new works % down. These assets add continued liability to council with additional depreciation and maintenance annually.

RENEWALS

Total planned renewals (forward works program) spend is approximately \$49 million over the next 10, which is 5% of the gross replacement cost. The majority of these renewals are \$10.9 million for sealed surfaces, followed by \$10.6 million for sealed pavements, \$9.05 million for bridges and \$17.68 million for unsealed pavements.

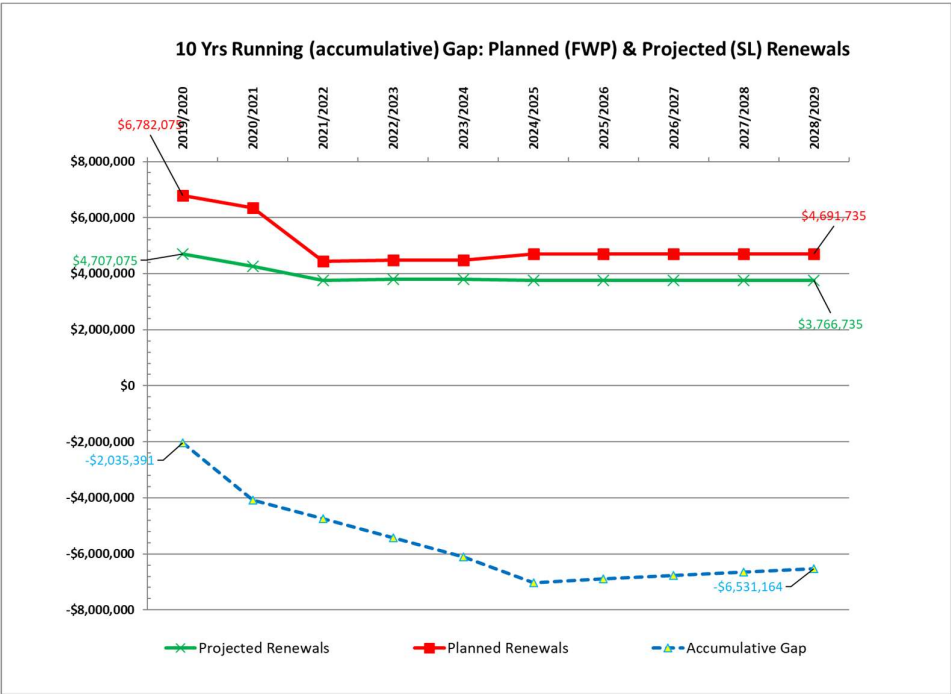
A benchmark of 16 councils of similar km's, we found the average was 7% of gross replacement cost. Council is on the lower side of benchmark. Annually it is 0.5% compared to the average of 0.7% of the gross replacement cost. The lower % could be a direct reflects of the service levels provided or the costing used to state these %'s.

Comparing this to the Projected' long term renewals (service level projections) determined from the racas condition assessments and the 2018 asset valuations remaining life data we estimate projected renewals to total approximately \$43.4 million over the next 10 years.

On average, the planned renewals (forward works) is approximately \$4.9 million per year and the average required (service level) renewals is higher at approximately \$4.3 million per year. On this basis it can be concluded that Council will be adequately funding renewals.

WHAT IS THE GAP

The following chart shows the accumulative gap in renewal funding between what Council plans to spend and projections of required renewals over the next 10 years. Council is more than adequately funding renewals as shown by the increasing negative gap.



ASSET SUSTAINABILITY

WHOLE OF LIFE CYCLE COSTING

The Whole of Life Cycle Cost (WLCC) being the average cost required to operate and maintain the assets over their life including renewal estimated at approximately \$6.8 million per annum over the next 10 years.

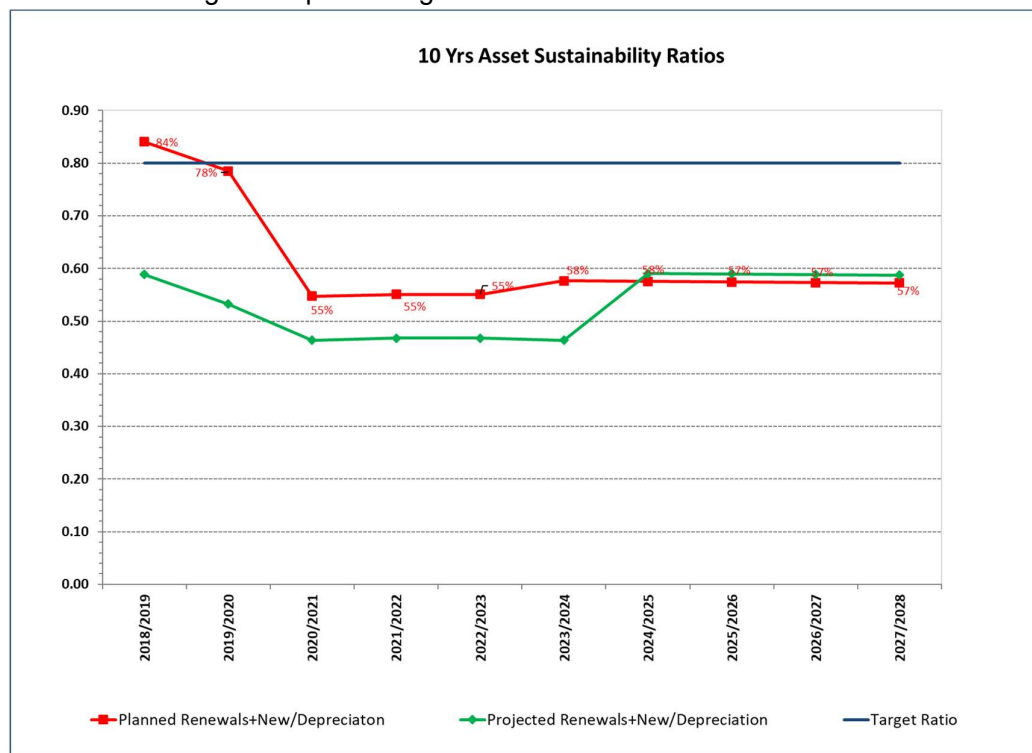
The Whole of Life Cycle Expenditure (WLCE) is Council's average budgeted cost for this and is estimated at an average \$7.4 million per annum for the next 10 years.

This gives a life cycle sustainability index (ratio) of 1.1, Council's budgeted versus projected (WLCC: WLCE), which is greater than a target index of 0.80 to maintain service levels. Based on the life cycle sustainability index, Council is adequately funding the required projections over the next 10 years for the defined services levels.

ASSET SUSTAINABILITY RATIO

A financial measure of satisfactory levels of expenditure on asset replacements is the **Asset Sustainability Ratio** - the net capital expenditure on replacements as a percentage of the depreciation. It indicates whether the amount of replacement exceeds or is less than the amount of depreciation, that is, whether assets are being replaced at the rate they are wearing out.

An index of less than 1.0 on an ongoing basis indicates that capital expenditure levels are not being optimised to minimise whole of life cycle costs of assets, or that assets may be deteriorating at a greater rate than spending on their renewal. Predictions for planned and projected renewals over the next 10 years are illustrated below against a proposed conservative target of equal to or greater than 0.80.



IMPROVEMENT PROGRAM AND PLAN MONITORING

A 3-year program is included in this AMP for implementing the improvement actions identified in preparing this initial plan. The key improvements include job costing at road level and measurement of assigned service levels:

Improvement Task	Timeframe
Undertake regular (3-year maximum interval) road condition assessments (using RACAS) and analyse using VRACAS. Surface and Pavement Defects.	2021/22
Review planned renewals and associated budgets based on results tabled in this AMP for other asset types (from valuation condition renewals).	Jun-19
Pathway and Kerb electronic condition assessment using RACAS	Jun-20
Measure performance against assigned service levels using the service tables in AMP	Jun-20
Complete Verification of the Assetic Register with GIS to ensure council maintain a comprehensive register of all assets and required attributes for management - Undertake audit of road components. - Complete analysis of map data and audit asset date. Utilise RACAS data for initial review. - Ensure all infrastructure is captured. - Complete Hardcopy Register Book for Workforce as an outcome.	Prior to next Comprehensive valuation. 2021/22
Further develop collection forms to capture defects and condition/failure data for assets as required.	Ongoing
Undertake review of road network against the standardised Road Hierarchy. Identify the gaps in the network and costs for the future.	Ongoing
During project identification stage include financial impacts of new work, i.e. asset write-offs, depreciation impact and possible maintenance implications of doing the work (increase in maintenance expected or same?). Whole of Life Costing.	2020/21
Annual review to identify opportunities for available grant funding for road projects to narrow the funding gaps	Ongoing
Complete planned inspections – Major culverts / bridges (5-year program), Load limits on bridges if required.	Ongoing
Develop “state of the assets” reporting tools to show the service level trends eg: asset condition, function and capacity.	2020/21
Implement RACAS Inspections to drive the unsealed roads maintenance programming	Jun-19
Benchmarking Referencing for Funding Models. i.e. maintenance, renewals and upgrades	2020/21
Unsealed road IRI condition data recorded before grading works	Ongoing
Unsealed road works records i.e. grading lengths	Ongoing

This Asset Management Plan should be fully reviewed every three years (2021/22 financial year) and the Improvement Program updated annually.

1.0 BACKGROUND

1.1 PURPOSE OF THE PLAN

The purpose of this Asset Management Plan (AMP) is to assist Council in:

- Demonstrating responsible management;
- Clearly outlining the measurable service levels;
- Communicating and justify funding requirements for the future; and
- Complying with regulatory requirements.

This 'core' plan documents asset management planning information for the road assets for the North Burnett Regional Council. This includes a review of strategic trends facing the Council and potential impacts on the asset stock, asset condition and performance against key indicators, long term financial forecasts for the 10-years 2019/20 to 2029/30 and an improvement plan for managing the assets. Financial implications for providing the required levels of service into the future are also provided based on the associated separate spreadsheet model for the AMP.

The potential benefits are:

- Enables Council to satisfy more community needs at less cost allowing the resources saved to be deployed to provide more services;
- Enables Council to know where to spend funds to get the most bang for their buck;
- Protects Council from industry regulators, QAO etc.;
- Protects Council against potential litigation;
- Documented asset management processes make it easier for existing and new staff;
- Enables Council to avoid waste - and the associated unfavourable publicity; and
- Financial Sustainability.

1.2 COUNCILS' VISION, GOALS AND OBJECTIVES

Under the Corporate Plan 2017-2022 with regards to 'Asset Infrastructure Management' Council *'is committed to develop 3/5/10 year asset management plans and implement for all asset groups and ensure that the assets maintained and constructed are appropriate to the current and future need of the region. It will ensure affordable and sustainable outcomes by undertaking robust and accountable financial, resource and infrastructure planning. Operational and Capital budgets programme delivery on time and within budget.'*

The strategic goals in the Corporate Plan are:

Our vision is:

"By 2030, the North Burnett will be the region of choice for people to live, work and play."

Our mission is:

"To lead the region toward a thriving future for us all to enjoy."

The key elements to meet these Goal are:

- Taking a life cycle approach
- Developing cost-effective management strategies for the long term
- Providing a defined affordable level of service and monitoring performance

- Understanding and meeting the demands of growth through demand management and infrastructure investment
- Managing risks associated with asset failures
- Sustainable use of physical resources
- Continuous improvement in asset management practices
- Reduce the gap between expectations of service provision and affordability.

1.3 KEY STAKEHOLDERS

Key Stakeholder	Role in Asset Management Plan
NBRC Councillors	<ul style="list-style-type: none"> • Represent needs of community and service level expectations; • Endorsement of the asset management policy and plans • Ensure organisation is financial sustainable.
Chief Executive Officer (CEO)	<ul style="list-style-type: none"> • Overall responsibility for developing an asset management policy, plans and procedures and reporting on the status and effectiveness of asset management within Council. • Allocate resources to meet the organisation's objectives in providing services while managing risks; • Ensuring organisation is financial sustainable
Asset Management Group	<ul style="list-style-type: none"> • Custodian of the corporate asset register and ensuring the asset valuations are accurate; • Preparation of asset sustainability and financial reports incorporating asset depreciation in compliance with current Australian accounting standards; • Asset Management System and Geographic Information System development and administration; • Develop 10 Year Capital Works Plans and budgeting; • Ensure funds are invested appropriately to ensure best value for money is delivered to the community; • Develop the maintenance standards deployed and Council's ability to meet technical and community levels of service.
NBRC Staff	<ul style="list-style-type: none"> • Verify the size, location and condition of assets; • Provide local knowledge detail on all infrastructure assets • Capital Works, Operation and Maintenance management to meet agreed levels of service; • Liaison internally with the Senior Management Team with regard to asset prioritisation and planning.
The community (residents, businesses, property owners), Developers, Consultants/Contractors	<ul style="list-style-type: none"> • Be aware of service levels and costs; • Participate in consultation processes; • Provide feedback on services.
State and Federal Government	<ul style="list-style-type: none"> • Provide Leadership in promoting Best Practice Asset Management; • Facilitate Training and Education; • Recognising the importance of LG Assets to community and provide funding; • and other assistance to sustain.

1.4 LEGISLATIVE REQUIREMENTS

Legislation	Requirement
Local Government Act	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by asset management plans for sustainable service delivery.
Roads Act 1997	To provide public access to roads, to classify roads, to act as the local road authority, to carry out certain functions e.g. road works and to regulate activities on public roads.
Work Health, Safety and Welfare Act & Regulations	Sets out roles and responsibilities to secure the health, safety and welfare of persons at work.
Native Vegetation Act	To manage native vegetation, to prevent broad scale clearing, to protect native vegetation, to improve native vegetation and to encourage revegetation of land.
AS 1742 (Traffic)	To ensure compliance and uniformity with traffic control devices.
Australian Road Rules	To ensure compliance and uniformity with road rules in the State and elsewhere in Australia
The Australian Accounting Standards	The Australian Accounting Standards Section 27 (AAS27) requires that assets be valued, and reported in the annual accounts, which also includes depreciation value (i.e. how fast are these assets wearing out).
Environmental Planning and Assessment Act 1979	Sets out guild lines for land use planning and promotes sharing of responsibilities between various levels of government in the state.
Environmental Planning and Assessment Amendment Act 2008	Sets out guidelines for land use planning and promotes sharing of responsibilities between various levels of government in the state.
Protection of the Environment Operations Act 1997	Sets out Council responsibility and powers of local area environment and its planning functions.
Civil Liability Act 2002	To manage negligence, elements of a claim, duty of care, standard of care and causation and to address the requirements of sections 42 and 45.

2.0 ASSET DESCRIPTION

The Council owns and maintains its local road network within the North Burnett Regional Council located in the Darling Downs region of Queensland, along the state's border with New South Wales. This Asset Management Plan (AMP) is for the roads, stormwater drainage, kerb, pathways, traffic management assets, aerodromes and excluding DTMR assets.

2.1 PHYSICAL PARAMETERS

The assets included in this Asset Management Plan are shown in the following table, based on 2018 valuations data.

TABLE 2.1.A EXTENT OF ASSETS

Subcategory1	Length (m)
<i>Subcategory2</i>	
Sealed Roads	
Surface Rural	752
Surface Urban	114
Unsealed Roads	
Pavement Rural	2,924
Formed Rural	236
Unformed Rural	121
Pavement Urban	25
Pathways	106
Kerbs	32
Bridges and Major Culverts	
Minor Culverts	6,304
Bridges	55
Major Culverts	125

2.2 ASSET VALUATIONS

Roads, bridges, drainage and pathways as at 30 June 2018 derived from a comprehensive revaluation have a current replacement cost of approximately \$1.68 billion (73% are roads), a fair value (written down value) of approximately \$876 million and annual depreciation \$7.5 million. There is a significant balance in Council's financial statements (both asset values and depreciation expense).

Details for the assets in Subcategories of the 'Roads Infrastructure' Category are provided in Table 2.2.A.

TABLE 2.2.a ASSET VALUATIONS AS AT 30 JUNE 2018

Subcategory	Current Replacement Cost (\$)	Fair Value (\$)	Annual Depreciation (\$)
Sealed Roads			
<i>Sealed Surface</i>	\$55,648,219	\$29,265,602	\$2,782,341
<i>Sealed Pavements</i>	\$199,070,648	\$169,698,324	\$1,860,463
<i>Sealed Formation</i>	\$101,273,265	\$101,273,265	\$0
Unsealed Roads			
<i>Unsealed Pavements</i>	\$346,580,519	\$282,170,182	\$2,193,902
<i>Unsealed Formation</i>	\$269,644,287	\$269,644,287	\$0
Bridges	\$27,266,597	\$12,236,529	\$328,366
Stormwater Drainage	\$6,178,108	\$3,047,470	\$65,630
Culverts	\$43,210,838	\$23,357,304	\$548,575
Pathways	\$6,378,793	\$2,730,931	\$122,826
Kerb	\$12,920,809	\$5,979,326	\$157,302
Grand Total	1,068,172,082	876,132,836	7,511,055

2.3 ASSET REGISTERS

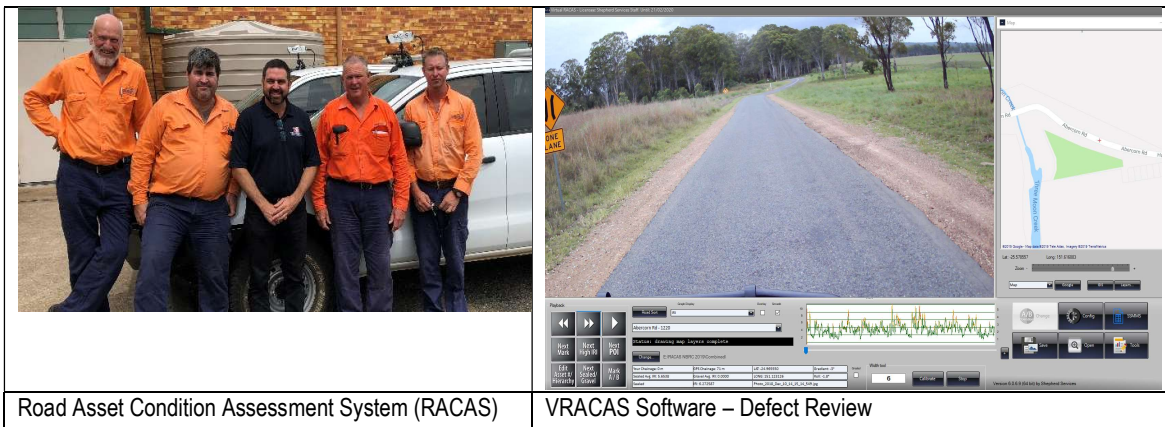
Council has two asset registers:

- A register and their relevant spatial attributes on the GIS system.
- A database of all assets in Assetic asset management system.

2.4 ASSET CONDITION

As part of the comprehensive asset valuation process and as an input to asset management planning, electronic roads survey using www.RACAS.com.au with condition monitoring was undertaken of all Council's roads assets.





For sealed roads the International Roughness Index (IRI), stripping, cracking and rutting and for unsealed roads IRI and subgrade was determined.

Council now has a full visual condition and inventory of data for sealed and unsealed roads, with defects assessed.

A portion of condition data was captured for a representative sample of the footpaths and major drainage structures.

The information obtained provides improved mapping of assets, triggers for maintenance and renewal treatments, reviewing and determining remaining useful life (RUL) and valuation.

2.4.1 ROADS

Summary condition data for sealed surfaces and unsealed roads is provided in Tables 2.4.1.a-d on the following pages.

TABLE 2.4.1.A SEALED ROADS SURFACES CONDITION – STRIPPING AND CRACKING

Surface Defect Group	Length m	Condition	% Of Network	Average Councils
'0-10	672,670	1	82%	78%
'10-20	33,517	2	4%	5%
'20-30	22,527	3	3%	3%
'30-40	16,950	4	2%	3%
'40-50	16,368	5	2%	3%
'50-60	10,000	6	1%	1%
'60-70	5,790	7	1%	1%
'70-80	7,397	8	1%	1%
'80-90	8,828	9	1%	1%
'90-100	26,392	10	3%	3%
	820,439		100%	100%

Network is consistent with others. If anything, council has a higher % of condition 1 roads then most.

TABLE 2.4.1.B SEALED ROADS PAVEMENT CONDITION – FAILURES AND RUTTING

Pavement Defect Group	Length m	Condition	% Of Network	Average Councils
'0-10	479,052	1	58%	81%
'10-20	42,104	2	5%	5%
'20-30	37,143	3	5%	3%
'30-40	31,431	4	4%	2%
'40-50	30,906	5	4%	2%
'50-60	27,433	6	3%	1%
'60-70	22,256	7	3%	1%
'70-80	24,389	8	3%	1%
'80-90	22,291	9	3%	1%
'90-100	103,434	10	13%	3%
	820,439		100%	100%

Network is showing signs of higher defects then the average of council in condition 10 with a % of 13% compared to the average of 3%. There is a need moving forward to invest more monies into sealed pavement rehab.

TABLE 2.4.1.C SEALED ROADS PAVEMENT CONDITION – INTERNATIONAL ROUGHNESS INDEX

IRI	Length m	Condition	% Of Network	Average Councils
2	5406	1	1%	2%
3	72642	2	9%	17%
4	126444	3	15%	29%
5	200538	4	24%	25%
6	190034	5	23%	14%
7	117756	6	14%	7%
8	57869	7	7%	3%
9	26415	8	3%	2%
10	11349	9	1%	1%
11	7470	10	1%	0%
12	1750		0%	0%
			100%	100%

IRI is another measure of pavement failure. It is considered based on research that pavements are failing as IRI goes beyond IRI 6. The data here confirms the previous table.

TABLE 2.4.1.d UNSEALED ROADS PAVEMENT CONDITION – % GRAVEL COVERAGE AND AVERAGE SURFACE ROUGHNESS

Road Class	Length m	IRI	% Gravel Coverage by Length
4A	985,093	7	87
4B	122,818	7	84
5A	1,402,411	7	77
5B	483,426	8	57
5F	26,078	11	37
Other	11,978	10	69
	Average	8	76
	Regional Average	7	47

Council running surface condition is on the higher side, yet the gravel coverage is very good. Both services are purely driving by the amount of funds council has to spent or external funding that is provided.

2.5 ASSET USEFUL LIFE AND RELATIONSHIP TO SERVICE

The valuation results assessment of useful life (UL) of assets are shown in Table 2.5.a.

TABLE 2.5.a AVERAGE USEFUL LIFE FOR INFRASTRUCTURE CATEGORIES

Subcategory	Average Useful Life (Years)
Sealed Roads - surface	20
Sealed Roads - pavement	100
Sealed Roads - Formation	1000
Unsealed Roads - pavement	20
Unsealed Roads - formation	1000
Kerb	36
Pathways	22
Carparks - surface	20
Bridges	21
Culverts	40
Drainage Pits	38
Drainage Pipes	52

There is a relationship with useful life and some of the major service levels chosen by council, below is some background to help the organisation understand the linkage.

Service levels relate to the condition of the road and are measured differently for each asset type. For sealed surface it is the % of area of cracking and stripping.



From our experience with other organisations we have found that the % of defects and useful relationship looks like the below table in general.

Useful Life	Surface Defects by % Area
10	'0-10
11	'10-20
12	'20-30
13	'30-40
14	'40-50
15	'50-60
16	'60-70
17	'70-80
18	'80-90
19	'90-100

Council has chosen % defects >90 with an associated useful life of 19 years. The average among councils in the region is about 15 years. With the best at 12 years the worst at 19 years.

For sealed pavement it is the % of area of rutting and failures.



From our experience with other organisations we have found that the % of defects and useful relationship looks like the below table in general.

Useful Life	Pavement Defects by % Area
30	'0-10
35	'10-20
40	'20-30
45	'30-40
50	'40-50
55	'50-60
60	'60-70
65	'70-80
70	'80-90
75	'90-100

Council has chosen % >40 with an estimated life of 50 years. The average among councils is 60-70% with the best at 40-50% defects the worst at 90-100% defects.

For unsealed pavement it is the % of area of subgrade (visually logged instances of subgrade appearing in the road).



From our experience with other organisations we have found that the % of defects and useful relationship looks like the below table in general.

Useful Life	% Subgrade
7	0
8	10%
9	20%
10	30%
12	40%
14	50%
18	60%
23	70%
35	80%
70	90%

Estimated Useful lives are based on a 15mm gravel loss/yr on a 100mm pavement depth.

Council has chosen 50% of subgrade is acceptable (this is the service level) and therefore the useful life is estimated at 14 years. The average among councils is 40-50% with the best at 20% defects the worst at 30% defects.

3.0 LEVELS OF SERVICE

3.1 BACKGROUND

3.1.1 ROAD CLASSIFICATIONS

Council's roads are classed as shown Table 3.1.1.a.

TABLE 3.1.1.A ROAD CLASSES

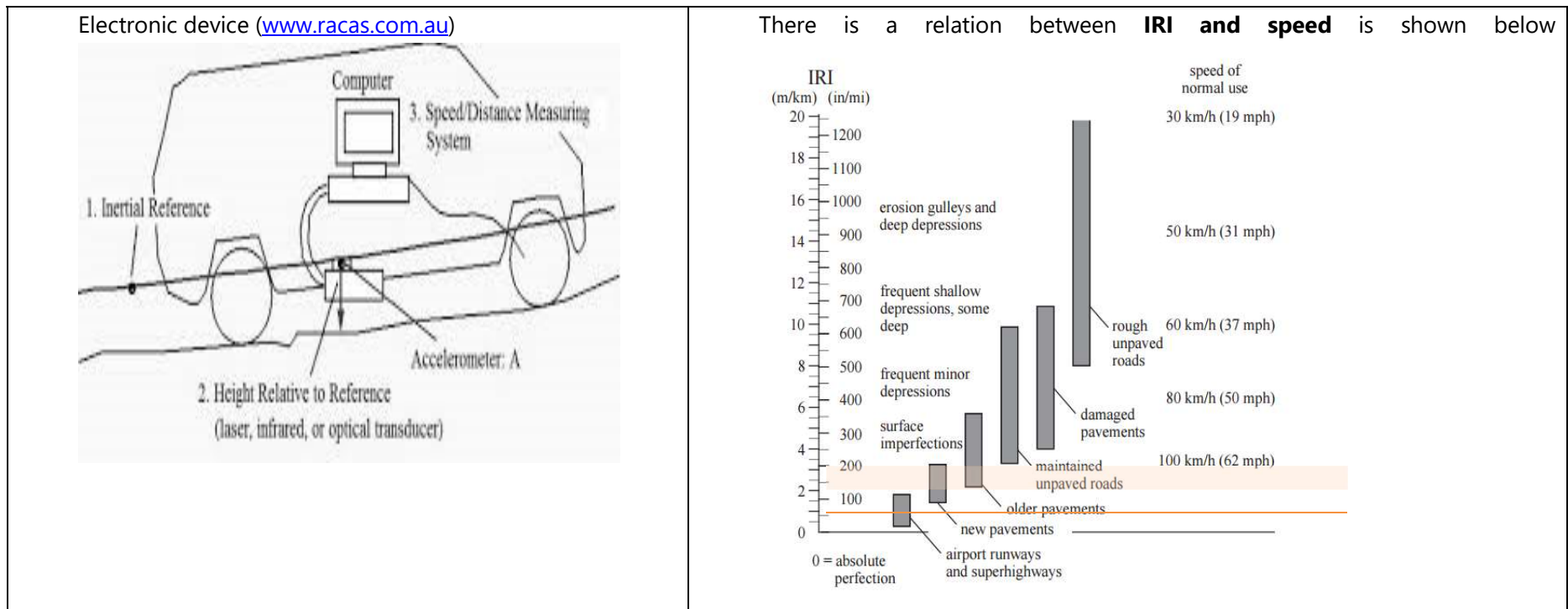
Class	Length m	%
4A	991	25%
4B	497	12%
5A	1,645	41%
5B	756	19%
5F	145	4%
	4,034	

Class	Road Type	Purpose	Function & Character
4A	<i>Principal Rural Road</i>	Principal Rural roads provide connection for Freight and Industry Efficiency, Safe School Bus Routes & Local Roads of Regional Significance	It is intended that Principal Rural roads will: * Be designed to carry freight and other heavy vehicles associated with rural, primary and mining production activities * Provide direct access to properties * Be of sufficient width to accommodate road function / use
4B	<i>Rural Collector</i>	Rural Collector roads provide connection between rural access roads Freight and Industries Efficiency direct access to adjoining rural properties and other higher order roads	It is intended that Rural Collector roads will: * Provide direct access to properties * To carry through traffic * Be designed to carry freight and other heavy vehicles associated with rural, primary and mining production activities * Minimum of 2 roads joining the collector road * Be of sufficient width to accommodate road function / use
5A	<i>Rural / Rural Residential Access</i>	Rural Access roads provide direct access to adjoining rural and rural residential properties along with access to regional tourist destinations	It is intended that Rural / Rural Residential Access roads will: * Provide direct access to properties containing a permanently occupied dwelling * Be of sufficient width to accommodate road function / use
5B	<i>Minor Rural Access</i>	Minor Rural Access roads provide direct access to adjoining rural properties	It is intended that Minor Rural Access roads will: * Provide direct access to properties * Be of sufficient width to accommodate road function / use
5F	<i>Unformed Roads</i>	Unformed roads provide direct access to Fire Break and or Stock Route	It is intended that Unformed roads will: * Provide 4WD Track - No formation work * Provide Fire Break Management * Provide Stock Route

3.1.2 ROUGHNESS MEASUREMENT

There are numerous methods of defining the smoothness (or roughness) of a running surface using either electronic or visual onsite assessments. All measurements have a direct relationship to driver speed and comfort. The smoother the road the faster and safer the user can travel over the road from one location to another. The industry standard value for measuring the roughness of a road is called the International Roughness Index (IRI). It is a measure of the axle movements along the road. For example, a new sealed road would normally rate an IRI value of 2. An unsealed road after grading would rate 3 to 4.

FIGURE 3.1.2.A IRI MEASUREMENT AND SPEED

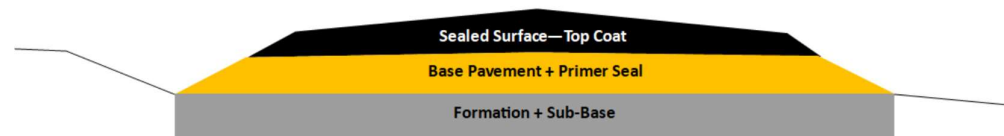


3.2 SERVICE LEVELS - SEALED ROAD SURFACES

Service Description: Sealed surface condition maintained to protect the underlying pavement from water infiltration and damage, within funding restraints. Provide an aesthetically pleasing surface to suit the community expectations within finding restraints.

HOW IS IT DEFINED AND MEASURED?

Water infiltration through the sealed surface via defects causes early pavement failure. Therefore, surface defects are the major measurable items for the determination of this service level. A typical cross section of a sealed road and photo examples of common surface defects are shown below in Figure 3.2.a - Typical Cross Section of a Sealed Road and Surface Defects.



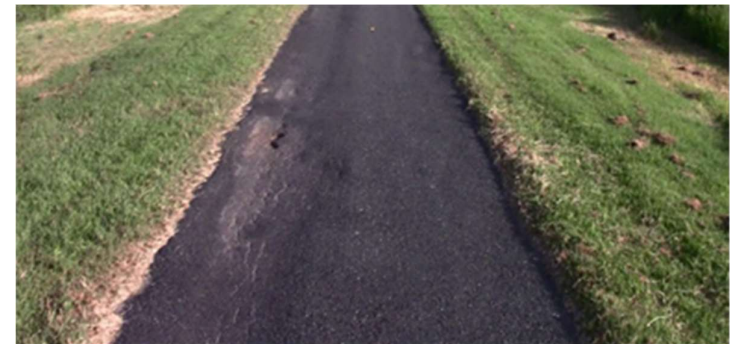
Sealed Road Profile



Stripping



Cracking



Rutting

Service levels for the sealed road surfaces are provided in Table 3.2.a.

Table 3.2.A SERVICE LEVELS - SEALED ROAD SURFACES

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Function	Enable the Movement of People and Goods in an Efficient Manner	Number of reported complaints	Non-Safety Matters: < 30 per month. Safety Matters: 0 per month.	No available data
Safety	Safe environment	Number of reported incidents/accidents	No Incidents per Accidents caused by facilities or processes	No available data
TECHNICAL LEVELS OF SERVICE				
Maintain A Sound Running Surface Cost Effectively While Only Servicing Roads When Required.				
Condition Measure	Sealed Surface Condition maintained to provide adequate running surface	Defect % by Area for the following defects. <ul style="list-style-type: none"> • Stripping • Cracking 	Surface enrichment is based on intervention criteria: <u>Criteria A:</u> Intervention if % of Surface Defects >90% by Area (stripping and cracking-fix before pavement is exposed). <u>Criteria B:</u> IRI < 9 or % Pavement Defects <40% to avoid resurfacing a failing pavement.	Condition 1=82% of total network, which is a great % in condition 1. Condition 10=26.39 km and are to be renewed in year 1 and is planned. Survey to be completed every two year.
Delivery Measure		Cost/yr	Council have developed 5-year program based on the assigned service levels. The estimate expenditures are as follows; 19/20-785K 20/21-657K 21/22-292k 22/23-1.03M 23/24-1.13M	Current spend \$1.0 m and Service Level is being met based on current spends – no gap.

			Detail road names and chainages are provided in appendix.	
Safety	Remove hazards	Respond to complaints or rolling inspection program	High risk items repaired within given time frames. Risk Rating: Low - As resources permit Medium - <14 days High – make safe <24 hrs, Repair <3 days Very High - Make safe <4 hrs, Repair <24 hrs	No Available data

3.3 SERVICE LEVELS – SEALED ROAD PAVEMENTS

Service Description: Maintain the structure integrity of the pavement to ensure the running surface condition is kept to standard.

HOW IS IT DEFINED AND MEASURED?

The major structural defect in a sealed pavement is rutting and the extremes of this is an actual failure as observed in Figure 3.3.a. Also, International Roughness Index (IRI) is a measure of pavement movement and ultimately failure. Service levels for sealed road pavements are provided in Table 3.3.a.

FIGURE 3.3.A EXAMPLE DEFECTS



Rutting defect– bulging and shoving



Failure – bitumen broken

TABLE 3.3.A SERVICE LEVELS - SEALED ROAD PAVEMENTS

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Function	Enable the Movement of People and Goods in an Efficient Manner	Number of reported complaints	Non-Safety Matters: <30 per month. Safety Matters: 0 per month.	No Available data
Safety	Safe environment	Number of reported incidents/accidents	No Incidents per Accidents caused by facilities or processes	No Available data
TECHNICAL LEVELS OF SERVICE				
Maintain A Structurally Sound Road Pavement Cost Effectively While Only Servicing Roads When Required.				

Condition Measure	Sealed Pavement Condition maintained to provide an adequate running surface	Defect % by Area for the following defects. <ul style="list-style-type: none"> • Rutting • Failures And International Roughness Index	Criteria: \geq IRI 9 and % of Pavement Defects \geq 40% (rutting and failure) and Surface Defects $>$ 50% by Area (stripping and cracking).	Total of 17km met that criteria with another 28km that are expected to meet that criteria in the next 5 years. Program is delivered as follows; Yr 1 – 5.7km plus tids projects Yr 2-18km plus tids projects Yr 3-11 km plus tids projects Yr 4- 5.35km Yr 5-5.35km
Delivery Measure	Sealed Pavement Condition maintained to provide an adequate running surface	Annual Cost	Council have developed 5-year program based on the assigned service levels. The estimate expenditures are as follows; 19/20–867K plus tids 20/21-2.7MK plus tids 21/22-1.65M-plus tids 22/23-668K plus tids 23/24-668K Detail road names and chainages are provided in appendix.).	Average from 5 yrs. maintenance spend is \$141 k. There are gaps in funding, yet Council have committed to funding the future program of works.
Safety	Remove hazards	Respond to complaints or rolling inspection program	High risk items repaired within given time frames Risk Rating: Low - As resources permit Medium - <14 days High – Make safe <24 hrs, Repair < 3 days Very High - Make safe <4 hrs, Repair <24 hrs	No Available data

3.4 SERVICE LEVELS - UNSEALED ROAD SURFACES

Service Description: Unsealed roads provide a running surface that vehicle can transverse on from one location to another safely. Trip time is dependent on the smoothness of the road and geometric restraints.

Service Measures:

Criteria: Intervention for Roughness Condition \geq IRI 9 before engaging full maintenance, its placement on works program. Using electronic roughness device for measurement. The higher the class of road the more regularly grading is required.

TABLE 3.4.A SERVICE LEVELS - UNSEALED ROADS GRADING

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Function	Enable the Movement of People and Goods in an Efficient Manner	Number of reported complaints	Non-Safety Matters: < 30 per month. Safety Matters: 0 per month.	No Available data
Safety	Safe environment	Number of reported incidents/accidents	No Incidents per Accidents caused by facilities or processes	No Available data
TECHNICAL LEVELS OF SERVICE				
Maintain An Adequate Running Surface Condition Cost Effectively While Only Servicing Roads When Required.				
Condition Measure	Graded km per Road Class (based on Modelling tool and IRI intervention)	Measure in terms of International Roughness Index	Criteria: Intervention for Roughness Condition \geq IRI 9 before engaging full maintenance. 80% of all roads at intervention before grading.	No available data. Future collection form to be used record information. Need condition data before grading works occurs.
Delivery Measure	Graded km (based on Modelling tool and IRI intervention)	Modelling Tool determines the estimate km that would be graded to meet Condition criteria.	1030km graded/yr for IRI average of 9. Based on model.	No available data. Future collection form to be used record information Need to implement a basic works order system to record this information.

Delivery Measure	Cost		<p>Total \$1.5M to achieve an IRI of 9 at \$500/km/network</p> <p>Alternative Service Costs:</p> <p>Total \$2.2M to achieve an IRI of 8 at \$750/km/network</p> <p>Total \$3M to achieve an IRI of 7 at \$1000/km/network</p>	<p>Average spending for last 5 years is \$1.6M (17/18 - \$1.9M)</p> <p>No gap in funding.</p>
Safety	Remove hazards	Based on visual guideline and procedure for repair time frames	<p>High risk items repaired within given timeframes</p> <p>Risk Rating:</p> <p>Low - As resources permit</p> <p>Medium - < 14 days</p> <p>High – make safe <24 hrs, Repair > 3 days</p> <p>Very High - Make safe < 4 hrs, Repair < 24 hrs</p>	No available data.

3.5 SERVICE LEVELS – UNSEALED ROAD PAVEMENTS

HOW IS IT DEFINED AND MEASURED?

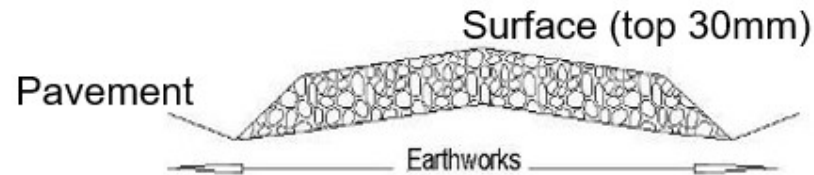
Wet weather access is defined in terms to how much imported gravel or natural pavement is provided on top of the existing formation of an unsealed road. Unsealed roads with limited gravel pavement will be at risk, after rain, for a vehicle not to be able to transverse over the road safely.

Service Measures:

Criteria: % of Gravel coverage by length per class.

A typical cross section of an unsealed road and photo examples of different amounts of gravel pavement are shown in Figure 3.6.a.

FIGURE 3.5.A TYPICAL CROSS SECTION OF AN UNSEALED ROAD AND GRAVEL PAVEMENTS



Unsealed Road Profile



No Gravel Pavement (0% Coverage)



Poor Gravel Pavement (10-20% Coverage)



Good Gravel Pavement (100% Coverage)

Service Description: *Unsealed roads provide wet weather access via a gravel pavement so that vehicles can transverse from one location to another safely after a significant rain event within funding restraints. Trip time is depending on the gravel quality and thickness and geometric drainage restraints.*

Service levels for unsealed roads surface are provided in Table 3.6.a.

TABLE 3.6.A SERVICE LEVELS - UNSEALED ROAD PAVEMENTS

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Function	Provide sections of Gravel Pavement to assist with wet weather access when funds are available.	Number of reported complaints	Non-Safety Matters < 30 per month. Safety Matters 0 per month.	No Available data
Safety	Safe environment	Number of reported incidents/accidents	No Incidents per accidents caused by facilities or processes	No Available data
TECHNICAL LEVELS OF SERVICE				
Maintain A Gravel Pavement For Wet Weather Access Within Funding Restraints.				
Condition Measure (subgrade a measure of wet weather accessibility)	Adequate Wet weather access	Assessed as % of Gravel Material visually presented by Length	Council plan to fund 50% in this plan. Some of the improvements have come via the flood damage program.	Survey result of current Gravel Coverage by Length Class 4A=87% gravel coverage Class 4B=84% gravel coverage Class 5A=77% gravel coverage Class 5B=57% gravel coverage Class5F=37% gravel coverage Average is 76%
Delivery Measure	Cost	Cost per year (Measure of cost effectiveness)	\$2M/year is estimated to obtain following Gravel Coverage; Class 4A=50% gravel coverage Class 4B=50% gravel coverage Class 5A=50% gravel coverage Class 5B=30% gravel coverage Below is the program for coming years; \$1.7M in 2019/20, \$290k in 2020/21	Average spend for the last 5 years is \$1.36M/year. Council need to realise that the current levels of service on the network will reduce to 26% over time based on \$2M funding and reduced by 36% over time based on existing funding of \$1.3M/yr

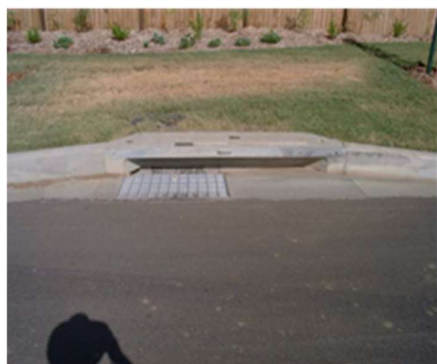
			<p>\$1.67M in 2021/22, \$2.0M onwards is recommended for renewals.</p> <p>Obtained from Modelling Tool</p> <p>\$5.2M/yr is required to keep existing services at an average of 76% gravel coverage.</p>	Potential Funding gap of 640k after year 2022.
Safety	Remove hazards	Based on visual guideline and procedure for repair timeframes	<p>High risk items repaired within given timeframes</p> <p>Risk Rating:</p> <p>Low - As resources permit</p> <p>Medium - < 14 days</p> <p>High – make safe < 24hrs, Repair < 3 days</p> <p>Very High - Make safe < 4hrs, Repair < 24hrs</p>	No data available

3.6 SERVICE LEVELS – DRAINAGE ASSETS (URBAN)

Service Description: Maintain an adequate drainage network to support the road surface condition so vehicles can pass over the road under normal weather conditions.

Typical examples of drainage including kerb assets are shown in Figure 3.7.a below:

FIGURE 3.6.A EXAMPLES OF TYPICAL DRAINAGE



Urban Drainage



Rural Drainage



Kerb

TABLE 3.6.B SERVICE LEVELS - DRAINAGE

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Function	Maintain an adequate drainage network to support the road network	Number of reported complaints	Non-Safety Matters: < 30 per month. Safety Matters: 0 per month.	No Available data
Safety	Safe environment	Number of reported incidents/accidents	No Incidents per accidents caused by facilities or processes	No Available data

TECHNICAL LEVELS OF SERVICE				
Condition Measure	Maintain an adequate drainage network to support the road surface condition so vehicles can pass over the road under normal weather conditions.	Structural integrity, via bi annual visual inspections of the oldest asset stock, to produce forward works program.	Using a condition rating process as described in Table 3.7.c. Future works are for condition 4 and 5.	No survey data available. Recommend drainage inspections every 5 years.
Delivery Measure	Maintain an adequate drainage network to support the road surface condition so vehicles can pass over the road under normal weather conditions.	Annual Costs	\$223 k is the annual depreciation amount (\$66 k stormwater and \$157 k kerb) Yet the renewal profile suggest that no major drainage assets are due over the next 5 years.	No record of spending. Suggest reviewing condition and valuation data. More monitoring needs to place on the renewal program.
Safety	Remove hazards	Respond to complaints or rolling inspection program	High risk items repaired within given timeframes. Risk Rating: Low - As resources permit, Medium - <14 days, High – make safe < 24hrs, Repair < 3 days, Very High - Make safe < 4hrs, Repair < 24hrs	No Available data

TABLE 3.6.C CONDITION RATINGS BASED ON REMAINING USEFUL LIFE

Rating	Description	% Remaining Useful
0	Brand New	100%
1	Excellent (only normal maintenance required)	95%
2	Good (minor defects only/minor maintenance required up to 25%)	75%
3	Average (significant maintenance required 50%)	50%
4	Poor (requires replacement within next 1-5 years)	20%
5	Asset Failure (requires immediate replacement)	5%

3.7 SERVICE LEVELS – BRIDGES AND MAJOR CULVERTS

Service Description: Maintain an adequate Bridge or major drainage structure to support the road surface condition so vehicles can pass over the road under normal wet weather conditions. An example of a typical bridge is shown in Figure 3.8.a below:

FIGURE 3.7.A EXAMPLE OF TYPICAL BRIDGE



TABLE 3.7.A SERVICE LEVELS – BRIDGES AND MAJOR CULVERTS

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Function	Maintain an adequate bridge condition to support the road network	Number of reported complaints	Non-Safety Matters: < 30 per month. Safety Matters: 0 per month.	No Available data
Safety	Safe environment	Number of reported incidents/accidents	No Incidents per accidents caused by facilities or processes	No Available data
TECHNICAL LEVELS OF SERVICE				

Condition Measure	Maintain an adequate bridge structure to support the road surface condition so vehicles can pass over the road under normal weather conditions.	<p>Structural integrity, via visual inspections to produce forward works program.</p> <p>Classification (TDMR):</p> <p>'major' culverts meets the following criteria:</p> <p>-metal culverts (steel and aluminium): at least one barrel (cell) with span, height or diameter ≥ 1.2 m, or</p> <p>-all other culverts: pipes with at least one barrel (cell) with diameter ≥ 1.8 m, or rectangular/oval/arch culverts at least one barrel (cell) with span > 1.8 and height > 1.5 m</p>	<p>Using the Department of Main Roads Inspection Standard for level 1-3.</p> <p>Level 2 inspection completed on all bridges to ensure safety and Structural integrity</p> <p>https://www.DTMR.qld.gov.au/business-industry/Technical-standards-publications/Structures-Inspection-Manual</p>	<p>All bridges have had a level 2 inspection.</p> <p>Major Culvert haven't been identified at this stage yet are planned for survey in the next 12 months.</p>
Delivery Measure	Maintain an adequate drainage network to support the road surface condition so vehicles can pass over the road under normal weather conditions.	Annual Costs	<p>\$500 K has been programmed for renewal for next 5 years.</p> <p>\$1.4 M has been programmed for bridge replacement for next 2 years.</p>	No Available data
Safety	Remove hazards	Respond to complaints or rolling inspection program	<p>High risk items repaired within given timeframes</p> <p>Risk Rating</p> <p>Low - As resources permit</p> <p>Medium - < 14 days</p> <p>High – make safe < 24 hrs, Repair < 3 days</p> <p>Very High - Make safe < 4hrs, Repair < 24 hrs</p>	No Available data

3.8 SERVICE LEVELS – PATHWAYS

Service Description: Council to provide accessible and safe pedestrian facilities.

A typical concrete footpath example is shown in Figure 3.9.a below:

FIGURE 3.9.A TYPICAL FOOTPATH



TABLE 3.8.B SERVICE LEVELS – PATHWAYS

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Function	Footpath enables a resident to get from one point to another in a continuous and uninterrupted path of travel	Number of reported complaints	Non-Safety Matters: < 30 per month. Safety Matters: 0 per month.	No Available data
Safety	Safe environment	Number of reported incidents/accidents	No Incidents per accidents caused by facilities or processes	No Available data

TECHNICAL LEVELS OF SERVICE				
Condition Measure	Council to provide accessible and safe pedestrian facilities	Footpath assessments are completed on an annual rolling inspection program focussing on the development of a prioritised works program.	Using a condition rating process as described in Table 3.7.c. Future works are for condition 4 and 5. Isolated failures should be repaired immediately.	Recommend pathways inspections every 2 years.
Delivery Measure	Council to provide accessible and safe pedestrian facilities	Annual Cost	<p>\$123k is the annual depreciation amount.</p> <p>Yet the renewal profile suggest that no major drainage assets aren't due till 2034-35.</p>	Currently Council have no programmed works
Safety	Remove hazards	Respond to complaints or rolling inspection program	<p>High risk items repaired within given timeframes</p> <p>Risk Rating (IPWEA page 43):</p> <p>Low - As resources permit</p> <p>Medium - < 14 days</p> <p>High – make safe < 24 hrs, Repair < 3 days</p> <p>Very High - Make safe < 4 hrs, Repair < 24 hrs.</p>	No Available data

3.9 SERVICE LEVELS – CULVERTS (RURAL)

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Function	Maintain an adequate culvert condition to support the road network	Number of reported complaints	Non-Safety Matters: < 30 per month. Safety Matters: 0 per month.	No Available data
Safety	Safe environment	Number of reported incidents/accidents	No Incidents per accidents caused by facilities or processes	No Available data
TECHNICAL LEVELS OF SERVICE				
Condition Measure	Maintain an adequate culvert structure to support the road surface condition so vehicles can pass over the road under normal weather conditions.	Structural integrity, via visual inspections to produce forward works program.	Using the Department of Main Roads Inspection Standard.	No survey data available. Recommend drainage inspections every 5 years.
Delivery Measure	Maintain an adequate culvert network to support the road surface condition so vehicles can pass over the road under normal weather conditions.	Annual Costs	\$548 k is the annual depreciation amount. Yet the renewal profile suggest that no major drainage assets aren't due till 2031-32.	No Available data Suggest reviewing condition and valuation data. More monitoring needs to place on the renewal program.
Safety	Remove hazards	Respond to complaints or rolling inspection program	High risk items repaired within given timeframes Risk Rating Low - As resources permit Medium - < 14 days High – make safe < 24 hrs, Repair < 3 days Very High - Make safe < 4hrs, Repair < 24 hrs	No Available data

4.0 FUTURE DEMAND

North Burnett and the surrounding region have a population of 10,632 in 2017 with current negative growth rate. Future growth is predicted to be -1.0% for the next 20 years. It is estimated the (medium) projected population will reach approximately 9,726 by year 2036.

The planned new asset and upgrades for next 10 years to cater for future demand projections and service requirements are shown in Figure 5.2.1.a and b. Demand is not viewed as influencing this class of assets over the next 20 years.

Projected Population				Average Annual Change	
	Low Series	Medium Series	High Series	(medium series)	
				Number	Per Cent
2011	10,374	10,374	10,374		
2016	10,125	10,160	10,195	-214	-2.1%
2021	9,891	9,998	10,107	-162	-1.6%
2026	9,767	9,915	10,066	-83	-0.8%
2031	9,642	9,825	10,014	-90	-0.9%
2036	9,499	9,726	9,960	-99	-1.0%

5.0 WHOLE OF LIFECYCLE MANAGEMENT PLAN

5.1 OPERATIONS AND MAINTENANCE EXPENDITURE (OPEX)

5.1.1 HISTORICAL

The historical expenditure for the last five years from the operations and maintenance job costing is summarised in Figure 5.1.1. against depreciation and detailed in the Appendix.

The average annual Opex total is approximately \$2.40 million. The amounts for asset components are shown in Table 5.1.1.a.

TABLE 5.1.1.A AVERAGE HISTORICAL OPEX BY ASSET COMPONENT

Asset Component	5 Years Average Annual Expenditure (\$)	% of Total Opex	% of Replacement Costs
Sealed Surface	\$235,155	10%	0.02%
Sealed Pavements	\$0	0%	0.00%
Unsealed Pavements	\$217,525	9%	0.02%
Unsealed Grading	\$1,598,721	67%	0.15%
Kerbs	\$60,435	3%	0.01%
Pathways	\$60,435	3%	0.01%
Stormwater	\$94,285	4%	0.01%
Bridge	\$32,232	1%	0.00%
Culverts	\$96,695	4%	0.01%
Total	\$2,395,483	100%	

5.1.2 FUTURE

The future annual Opex is based on adopted historical annual average of \$2.5 million and the increase in maintenance from new and upgrade works.

5.2 CAPITAL EXPENDITURE

5.2.1 NEW AND UPGRADE WORKS

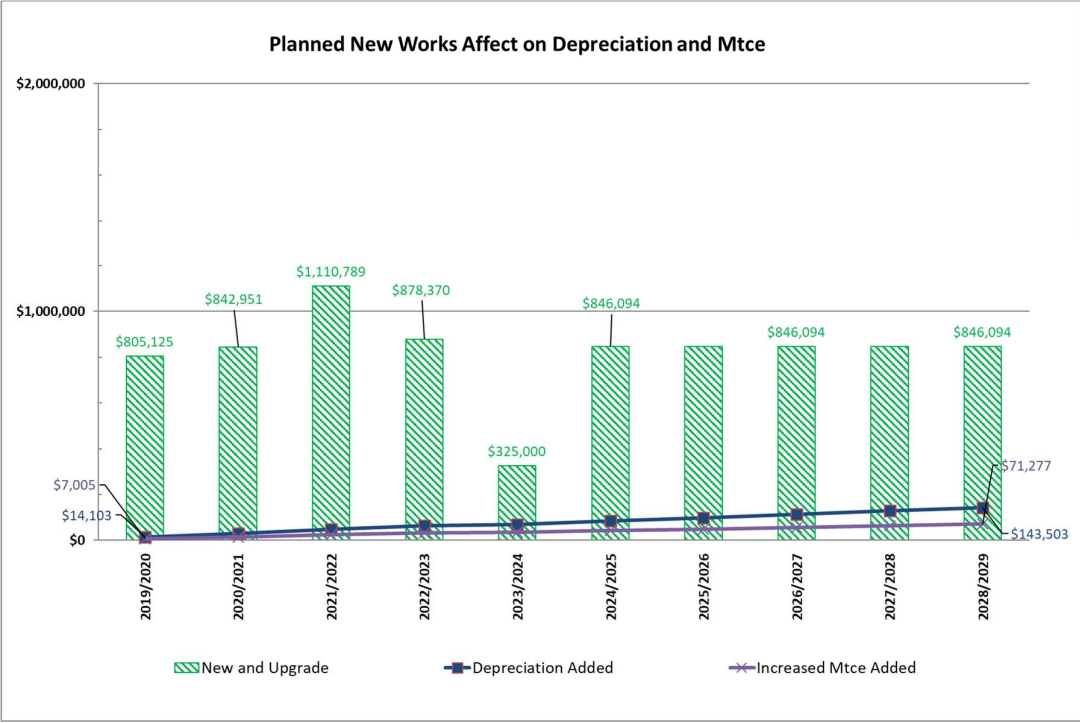
5.2.1.1 HISTORICAL

There is no historical data available for new works. The budgeted amount for 2018/19 is approximately \$0.8 million (30% new and 70% upgrade).

5.2.1.2 FUTURE – NEW/UPGRADE WORKS

Planned (budgeted) new works over the next 10 years 2019/20 to 2028/29 total approximately \$8.2 million (annual average \$0.82 million) taken from Council's forward works plan are shown in Figure 5.2.1.2.a.

FIGURE 5.2.1.2.A PLANNED NEW/UPGRADE WORKS EXPENDITURE



The effect of the total of new asset growth expenditure on depreciation requirements and maintenance spend over 10 years is shown in Figure 5.2.1.2.b. Annual maintenance will gradually increase, by approximately \$0.071 million in year 10 and depreciation by approximately \$0.142 million in year 10.

5.2.2 RENEWALS

5.2.2.1 HISTORICAL

The amounts for renewals for the last five years taken from Council's forward works plan is approximately \$2.4. million. The budgeted amount for 2019/20 is approximately \$2.5 million.

5.2.2.2 FUTURE

Figure 5.2.2.2.a shows '**Planned**' long-term renewals expenditure taken from Council's forward works plan that is based on factors such as available funding, community expectations and the like.

Total planned renewals (forward works program) spend is approximately \$49 million over the next 10, which is 5% of the gross replacement cost. The majority of these renewals are \$10.9 million for sealed surfaces, followed by \$10.6 million for sealed pavements, \$9.05 million for bridges and \$17.68 million for unsealed pavements.

A benchmark of 16 councils of similar km's, we found the average was 7% of gross replacement cost. Council is on the lower side of benchmark. Annually it is 0.5% compared to the average of 0.7% of the gross replacement cost. The lower % could be a direct reflects of the service levels provided or the costing used to state these %'s

Figure 5.2.2.2.b shows '**Projected**' long-term renewals based on the desired services and determined from the recent condition assessments.

Comparing this to the Projected' long term renewals (service level projections) determined from the racas condition assessments and the 2018 asset valuations remaining life data we estimate projected renewals to total approximately \$43.4 million over the next 10 years.

On average, the planned renewals (forward works) is approximately \$4.9 million per year and the average required (service level) renewals is higher at approximately \$4.3 million per year. On this basis it can be concluded that Council will be adequately funding renewals.

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FIGURE 5.2.2.2.A PLANNED LONG-TERM RENEWALS

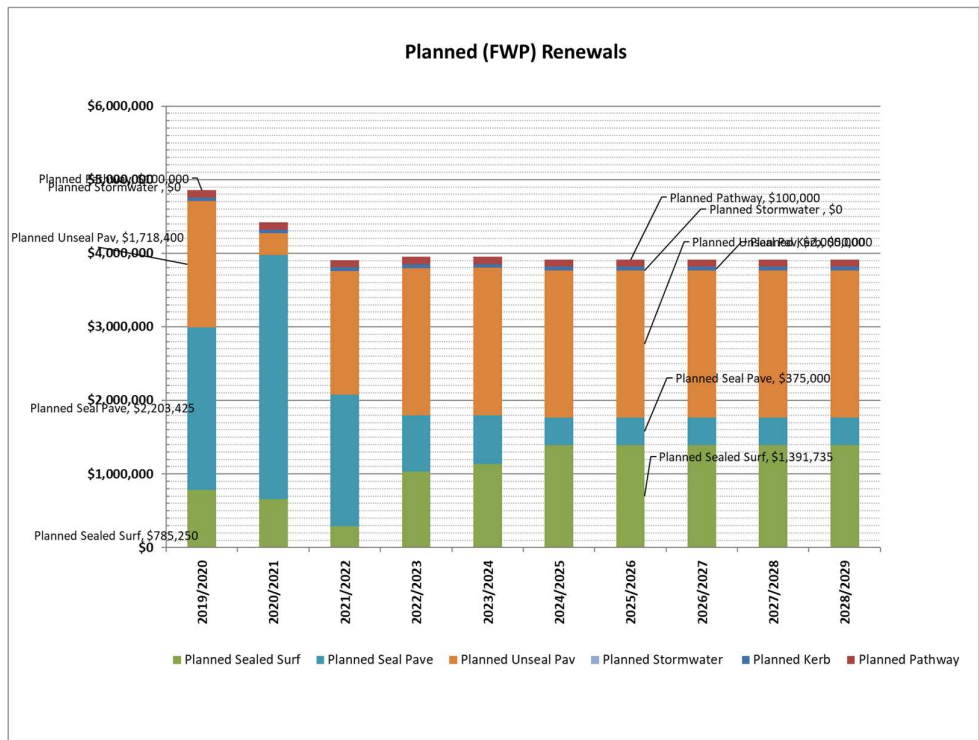


FIGURE 5.2.2.2.B PROJECTED LONG TERM RENEWALS

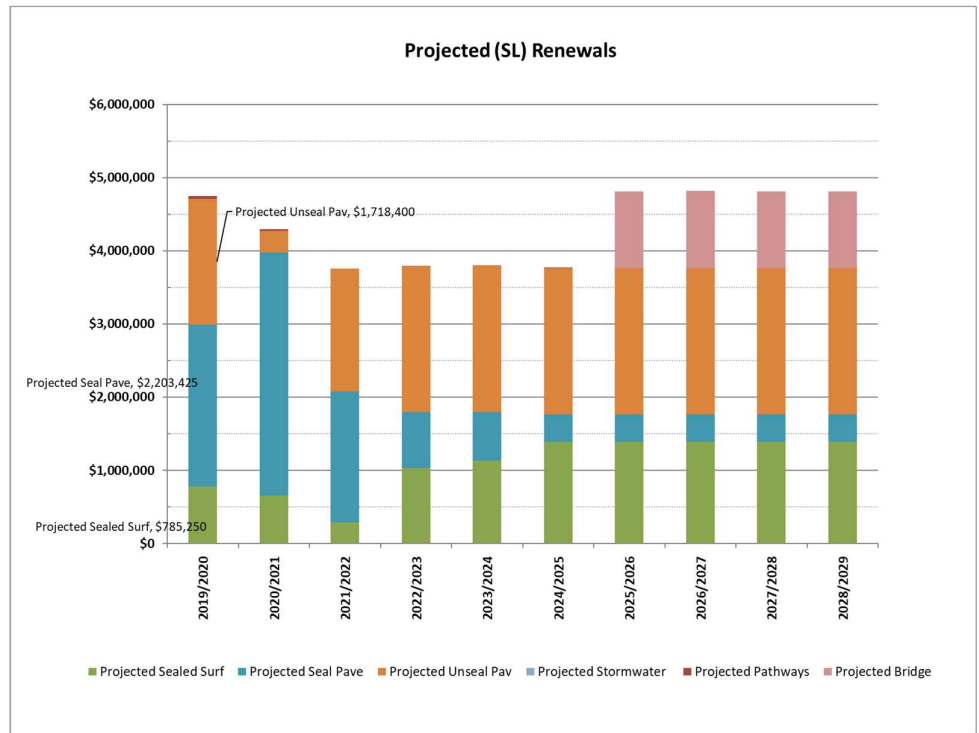
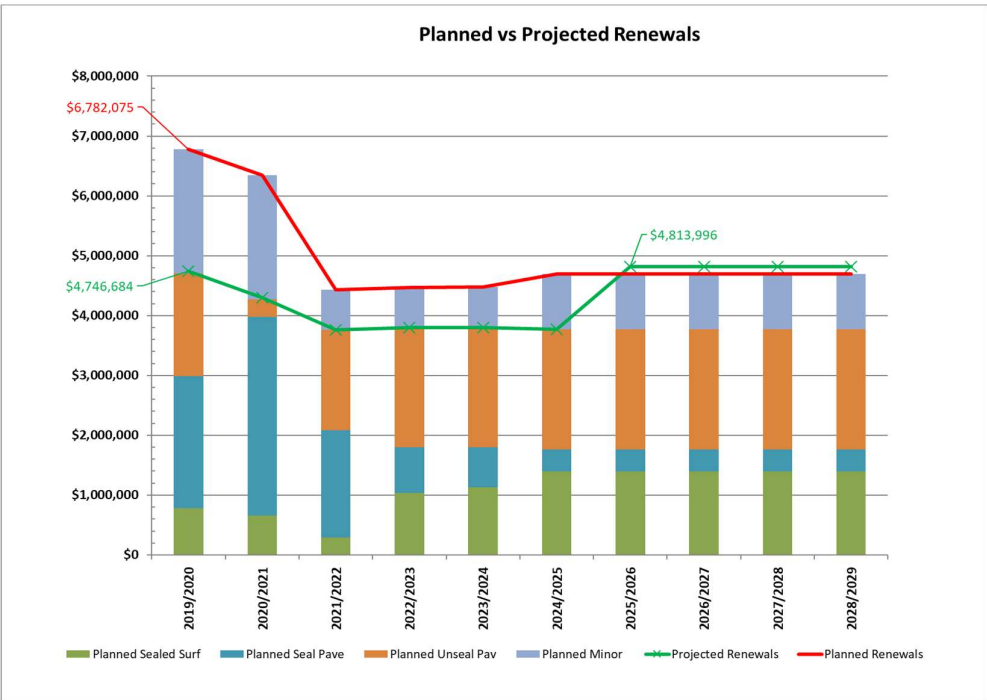


Figure 5.2.2.2.c compares total 'Planned' and 'Projected' long term renewals expenditure over the long term.

FIGURE 5.2.2.2.C PLANNED VERSUS PROJECTED LONG-TERM RENEWALS



The renewal averages for the next 10-years 2019/20 to 2029/30 are displayed in Figure 5.2.2.2.d. This chart shows the average annualised amounts for renewals both in forward planned works and from the comprehensive valuation and condition assessments.

Accumulation of depreciation is also shown, although not a true reflection of the required long-term funding, it indicates the consumption of assets.

On average the planned renewals (Council's budget) is approximately \$4.90 million per year and the average projected renewals approximately \$4.3 million per year (from valuation condition renewals). On this basis it can be concluded overall that Council will be adequately funding renewals.

FIGURE 5.2.2.2.D AVERAGE PLANNED AND PROJECTED LONG-TERM RENEWALS AND DEPRECIATION

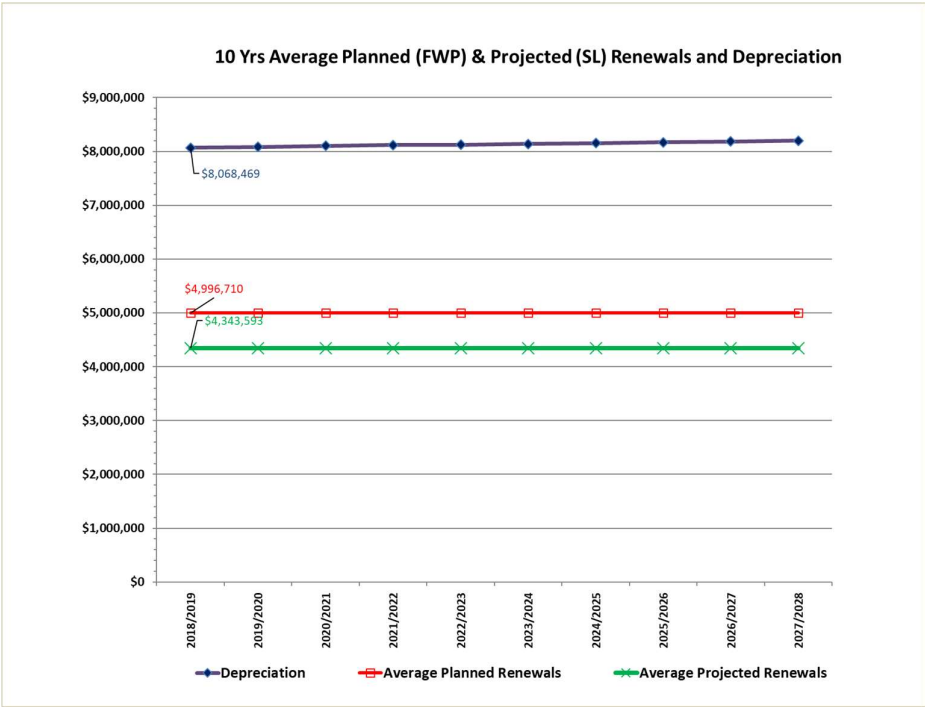


Figure 5.2.2.2.e indicates the accumulative gap in renewal funding between what Council plans to spend (FWP) and projections of required renewals (SL) over the next 10-years 2019/20 to 2029/30. The increasing negative gap to minus approximately \$6.5 million indicates a possible trend of overspending on renewals.

FIGURE 5.2.2.2.E ACCUMULATIVE GAP BETWEEN PLANNED AND PROJECTED RENEWALS

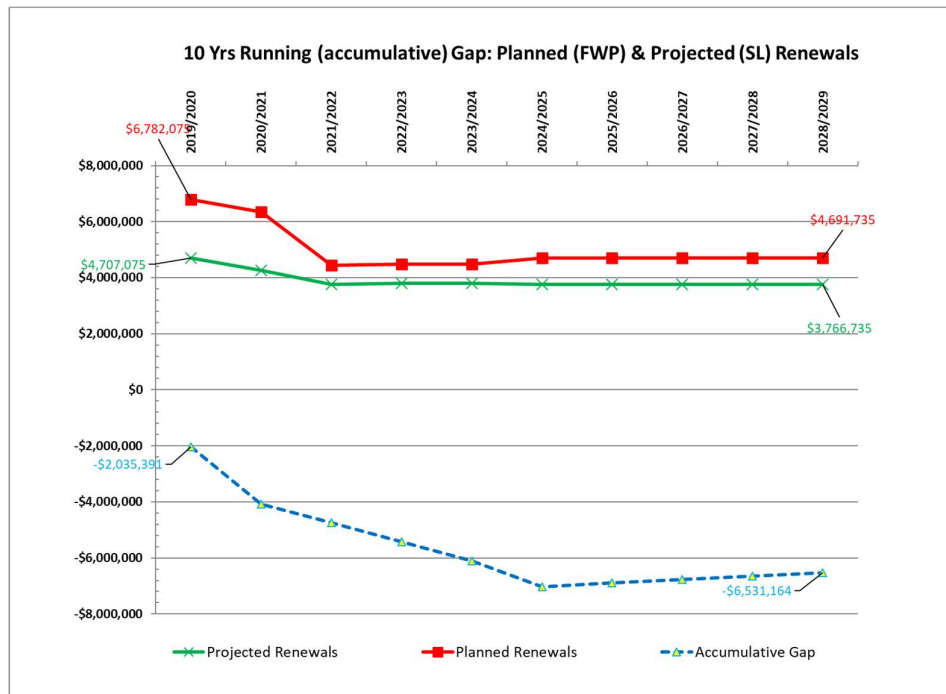


TABLE 5.2.2.2.A COMPARISON OF 10 YEARS PLANNED AND PROJECTED RENEWALS BY ASSET COMPONENT

Asset Component	Planned (FWP) Expenditure (\$m)	Project (SL) Expenditure (\$m)	SL-FWP Difference (\$m)
Sealed Surface	10.9	10.9	-
Sealed Pavements	10.6	10.6	-
Unsealed Pavements	17.7	17.7	-
Kerbs	0.5	-	-0.5
Pathways	1.0	0.1	-0.9
Stormwater	-	-	-
Bridge	9.1	4.2	-4.9
Culverts	0.3	0.0	- 0.2
Total	50.0	43.4	-6.5

5.3 ASSET SUSTAINABILITY

5.3.1 LIFE CYCLE COST VERSUS EXPENDITURE

The Whole of Life Cycle Cost W(LCC) estimated at approximately an average approximately \$6.8 million per annum over the next 10-years from valuation data projections is the average cost required to operate and maintain the assets over their life including renewal.

The Whole of Life Cycle Expenditure (LCE) is Council's budgeted cost for this and is estimated at approximately an average approximately \$7.4 million per annum for the next 10 years.

This gives a life cycle sustainability index (ratio) of 1.1, Council's budgeted versus projected (WLCC: WLCE), which is greater than a target index of 0.80 to maintain service levels.

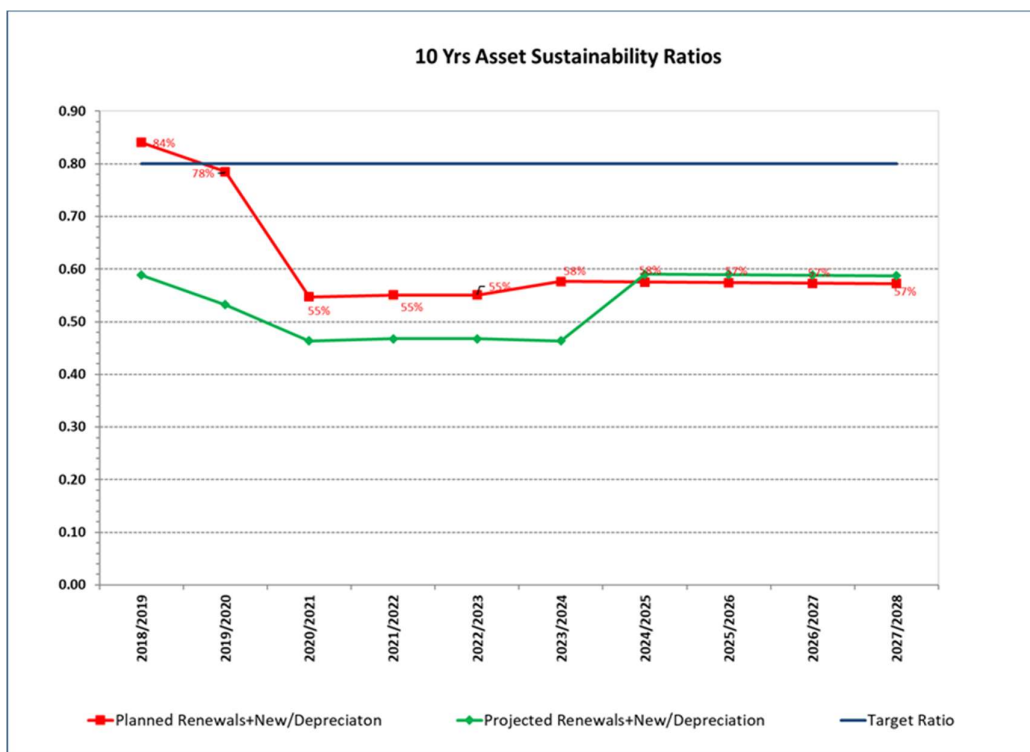
Based on the life cycle sustainability index, Council is adequately funding the required projections over the next 10 years for the defined services levels

5.3.2 ASSET SUSTAINABILITY RATIO

A financial measure of satisfactory levels of expenditure on asset replacements is the Asset Sustainability Ratio - the net capital expenditure on replacements as a percentage of the depreciation. It indicates whether the amount of replacement exceeds or is less than the amount of depreciation, that is, whether assets are being replaced at the rate they are wearing out.

An index of less than 1.0 on an ongoing basis indicates that capital expenditure levels are not being optimised so as to minimise whole of life cycle costs of assets, or that assets may be deteriorating at a greater rate than spending on their renewal. Predictions for planned and projected renewals over the next 10 years are illustrated in Figure 5.3.2.a against a proposed conservative target of equal to or greater than 0.80. The index is below the target line for planned renewals indicating asset sustainability over time will likely result in reducing service levels.

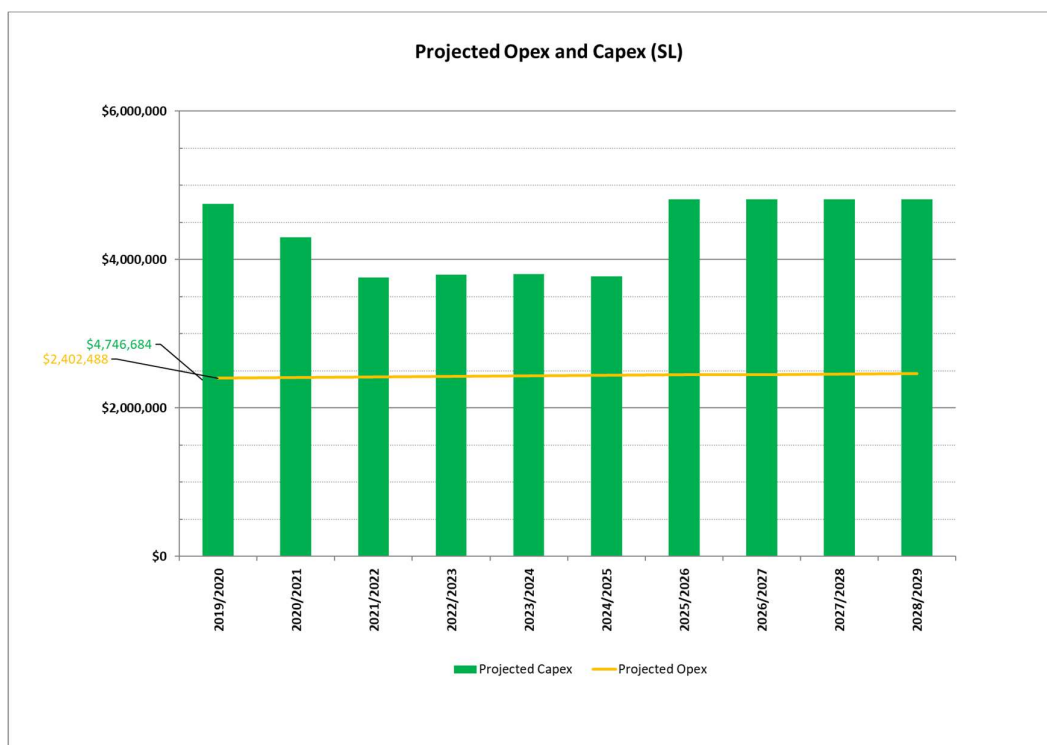
FIGURE 5.3.2.A ASSET SUSTAINABILITY RATIOS - PLANNED AND PROJECTED RENEWALS



6.0 FINANCIAL SUMMARY

6.1 SUMMARY FINANCIAL PROJECTIONS

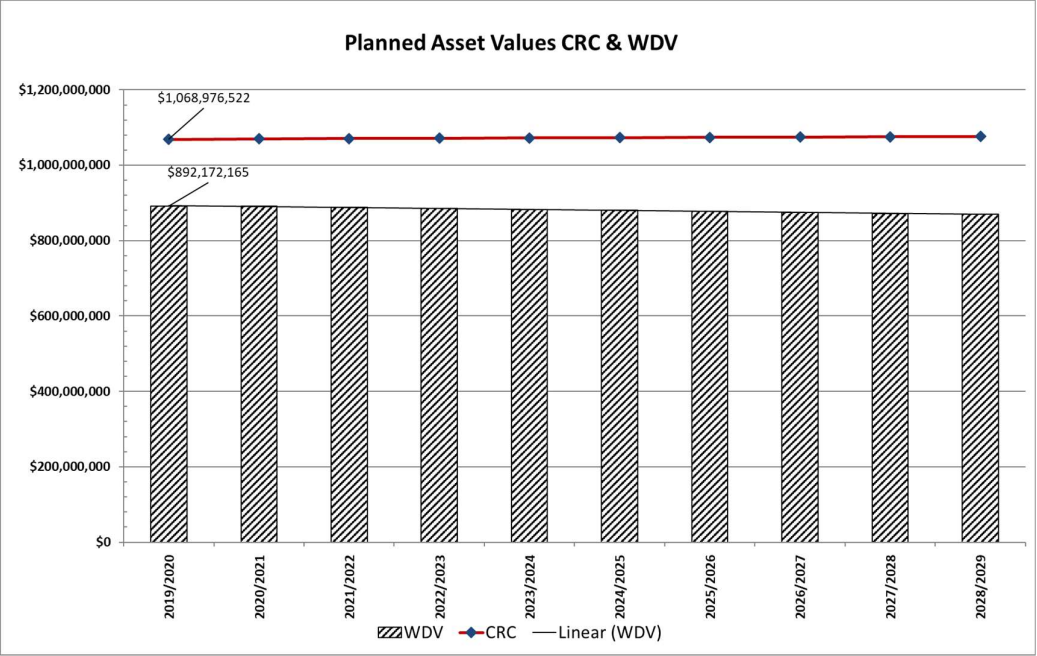
FIGURE 6.1.A SUMMARY GROSS AND FAIR VALUES



6.2 FUTURE VALUATIONS

Over the next 10-years Council adding approximately \$8.2 million of asset value and will increase the current replacement cost to approximately \$1.075 billion (1.74% increase) as shown in Figure 6.2.a. The written down value is forecast to decrease by approximately \$22 million compared to current \$892m (22.8% increase).

FIGURE 6.2.A ASSET VALUES FROM PLANNED CAPEX



7.0 IMPROVEMENT PROGRAM AND MONITORING

7.1 ASSET MANAGEMENT PRACTICES

This section outlines the nature of current practices for Asset Management decision making and details an improvement program to enhance them to provide ongoing improvement to management of the region's assets.

Several areas that are vital to managing the Assets include:

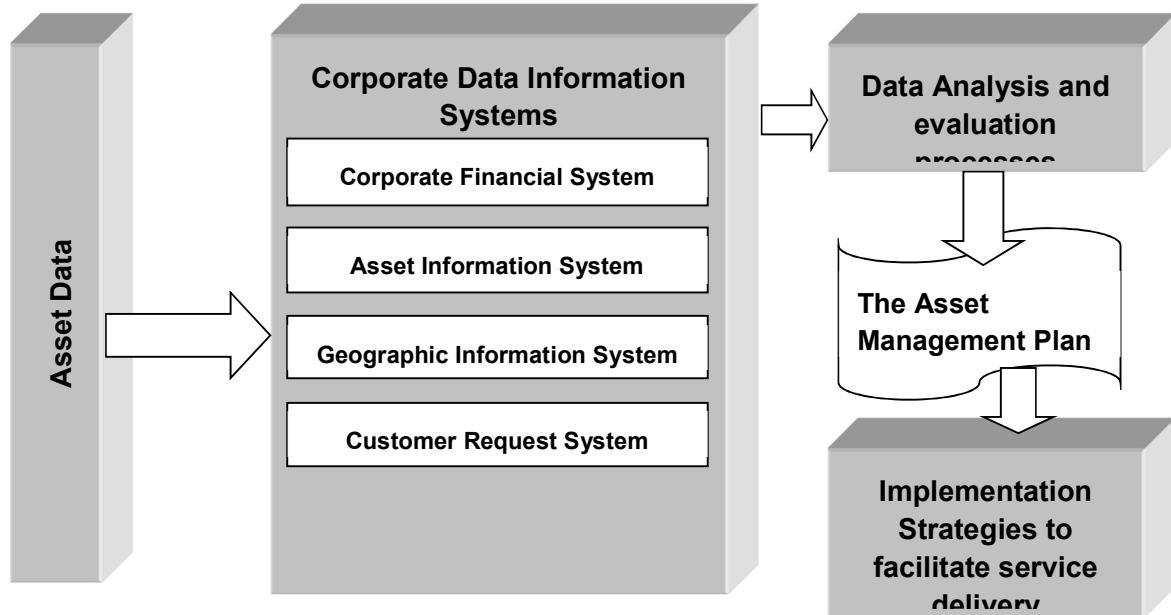
Asset Data: Information on the actual physical details of the assets including quantity, dimensions, age, condition, cost to provide, replacement cost, useful life span, etc. The asset must be appropriate for the required purpose, reliable and accessible.

Information Systems: This includes all the data information systems necessary to competently manage the asset. Key systems include the corporate accounting system, asset information system, geographic information system and customer request system. Ideally, data should be input once only into one of these systems and be accessible through other systems through interfacing.

Processes: This involves the various processes to analyse and evaluate the data from the above systems to produce relevant management reports and works programs.

Strategies: Implementation strategies for organisational management, including contractual, people and resource issues, are essential to ensure that the asset management process overall is conducted in an affordable and competent manner.

The following chart illustrates the relationship:



7.2 DATA INFORMATION SYSTEMS

7.2.1 CORPORATE ACCOUNTING SYSTEM

Council uses a corporate Financial Management system known as MagiQ Enterprise and Performance. MagiQ records and stores and reports on all financial and business operations. MagiQ is used for the entire spectrum of financial activity. Data is either entered or collected into the system from source documentation, for example staff timesheets for payroll transactions or official orders for goods and services.

MagiQ also generates all financial reports that are available to all levels of staff and to elected representatives.

MagiQ is integrated to the Assetic Asset Register that links to the financial reports generated as part of Council's Annual Financial Statements. The Asset Register module is used and kept updated with details of the assets of council each quarter.

7.2.2 CUSTOMER SERVICE SYSTEM

Council records all incoming Customer Requests or complaints using its Records management system MagiQ Documents. The process is as follows:

- A request is entered MagiQ Docs by the staff member receiving the request
- The MagiQ Docs request is allocated a unique number within the system;
- It is recorded by name, description of request and date.
- The “actioning officer” is allocated, and a target timeframe is set by the Business policy associated with that category/sub category or request is set in consultation with the responsible department)
- Where requested or required, the customer is notified of action taken
- Compliance with the business policy, MagiQ Docs tasks are reported to the Managers to monitor staff performance.

7.2.3 GEOGRAPHIC INFORMATION SYSTEM (GIS)

MapInfo is the corporate Geographical Information System used by Council

The GIS is predominantly used to show information such as cadastral, topographic and aerial information. It is a computer mapping system that graphically represents the geographic component of data that can be sourced from various datasets such as Excel, access and other GIS applications (such as mobile mapping applications).

Users are able to view patterns and relationships and make determinations without having to scrutinise each individual database. The user is also able to interrogate the data of many databases to solve many of their day to day issues. The GIS is also being used with mobile mapping for managing the programmed inspections and generation of high priority lists for work orders.

7.2.3 ASSET MANAGEMENT INFORMATION SYSTEM

Council uses *Assetic* as its strategic asset management system. *Assetic* is hosted locally with processing conducted by Council staff, in conjunction with external asset engineering consultants.

7.3 SYSTEMS FUNCTIONALITY

The main functional requirements of these data management systems are summarised as follows:

- Record and store attributes to identify individual asset clearly;
- Define relationship (components) within and between assets;
- Enable customisation including description fields;
- Capital, maintenance and condition-based reports (either customised or delivered by manipulating the database);
- Export selected data; and
- Allows for a range of accounting treatments.

This will assist in determining asset information for long-term capital and maintenance funding requirements to ensure that assets do not fall below their nominated minimum asset condition rating.

7.4 DATA MANAGEMENT

Electronically stored data is vital to sound management of assets. It is used for several purposes and for development of rolling works programs based on priority of needs. These programs are then used for strategic financial modelling for the organisation.

7.4.1 DATA COLLECTION

A key issue with collecting and storing this information is the recognition that it must be kept up-to date. Obsolete data can produce meaningless information when efforts are made to use it for works programming and financial modelling.

As there is a prohibitive cost to data collection it is essential that consideration be given to collecting and storing only that data which will be useful to management needs.

A vast array of asset data is contained within various data systems. The minimum requirements have been to ensure sufficient detail is collected for each asset to quantify and value the asset base.

The manager of the asset will determine the extent of additional information required in order to manage, maintain and report on infrastructure assets to ensure optimal asset function and asset lifecycle as well as management.

7.4.2 DATA MAINTENANCE

Officers of the Asset Section are responsible for ensuring the updating and maintaining of the asset data to meet the organisational operational and financial requirements in delivering efficient and effective asset management.

This means ensuring that inspection data and information from Works Orders, is entered into the system when appropriate. Assistance may well be required for undertaking data installation into the system however the Asset Officers are responsible to ensure its integrity.

It should be noted that procedures for Works Orders are still in development and there is no formal system currently in place. However, it is an aim to have a functioning Works Order system to support sound asset management.

7.5 FINANCIAL MANAGEMENT REQUIREMENTS

7.5.1 ASSET VALUATIONS

In accordance with Accounting Standard AASB1041, Council is required to account for all of its Assets, including the value of current and non-current assets in financial reports thereby identifying to the community the level of investment in assets. These assets are then depreciated on an annual basis with the aim of reflecting the community usage of its infrastructure assets.

Council does not have an Asset Valuation Procedure. Council uses external providers to generate and provide council with an independent valuation of the assets of council.

Council splits its Assets into classes for valuation purposes. Council asset classes include the categories of Land, Buildings, Plant & Equipment, Roads, Drainage & Bridges, Water, Sewerage and Other Infrastructure. Each class is valued in its entirety to reflect its fair value. Council uses independent external valuers to undertake the valuation process. Verification of the completeness of Council's Asset Register will be undertaken as part of the development of the Individual Asset Plans.

7.5.2 ASSET DEPRECIATION

Council's infrastructure assets are non-current assets and their depreciation will be treated as follows:

Buildings, plant and equipment, infrastructure, and other assets which have limited useful lives are systematically depreciated over their useful lives to the Council in a manner which reflects consumption of the service potential embodied in those assets. Estimates of remaining useful lives and residual values are made on a regular basis. Depreciation rates and methods are reviewed annually.

Where infrastructure assets have separate identifiable components that are subject to regular replacement, these components are assigned distinct useful lives and residual values and a separate depreciation rate is determined for each component.

Road earthworks (formation) are not depreciated.

7.5.3 CAPITALISATION OF ASSETS

Each class of assets have been recognised in accordance with Council's Asset Management Policy – Main Plan, the threshold limits detailed have applied when recognising assets within an applicable asset class and unless otherwise stated are consistent with the prior year.

Council does not capitalise street trees and street furniture as individually they are low-value items which fall well below Council's capitalisation threshold for infrastructure assets.

7.5.4 IDENTIFICATION OF MAINTENANCE COST BY HIERARCHY

With the introduction of the hierarchy classification of assets, particularly with road assets, the general Ledger's Chart of Accounts ideally should be structured as soon as practicable to allocate funds to specific key maintenance activities in order to monitor expenditure.

These allocations can be monitored by Council through the budget process and management reporting to ensure the community is getting the best from its assets.

Any work undertaken needs to be fully costed against these allocations.

7.6 WORK CATEGORY DEFINITIONS

The standard terminology used to distinguish between Capital and other expenditure is defined below:

Maintenance Recurrent expenditure, periodically or regularly required as part of the anticipated schedule of works required keeping assets operating, edge road patching.	
Operations Recurrent expenditure or regular activities to provide public health, safety and amenity, e.g. street sweeping, grass mowing, street lighting, cost of supply from utilities, such as water, electricity etc.	
Capital refurbishment/Renewal Expenditure on an existing asset, which, restores, rehabilitates, replaces existing asset to its original capacity, e.g. resurfacing of road.	
Capital Upgrade Expenditure, which enhances an existing asset to provide a higher level of service, e.g. widening of road seal.	
New Capital/Expansion Expenditure, which create a new asset to meet additional service level requirements, e.g. new building, road, etc.	

7.7 IMPROVEMENT PROGRAM

A three year program is included in Table 8.1.A for implementing the improvement actions identified in preparing this initial plan.

TABLE 7.7.A IMPROVEMENT PROGRAM

Improvement Task	Timeframe
Undertake regular (3-year maximum interval) road condition assessments (using RACAS) and analyse using VRACAS. Surface and Pavement Defects.	2021/22
Review planned renewals and associated budgets based on results tabled in this AMP for other asset types (from valuation condition renewals).	Jun-19
Pathway and Kerb electronic condition assessment using RACAS	Jun-20
Measure performance against assigned service levels using the service tables in AMP	Jun-20
Complete Verification of the Assetic Register with GIS to ensure council maintain a comprehensive register of all assets and required attributes for management - Undertake audit of road components. - Complete analysis of map data and audit asset date. Utilise RACAS data for initial review. - Ensure all infrastructure is captured. - Complete Hardcopy Register Book for Workforce as an outcome.	Prior to next Comprehensive valuation. 2021/22
Further develop collection forms to capture defects and condition/failure data for assets as required.	Ongoing
Undertake review of road network against the standardised Road Hierarchy. Identify the gaps in the network and costs for the future.	Ongoing
During project identification stage include financial impacts of new work, i.e. asset write-offs, depreciation impact and possible maintenance implications of doing the work (increase in maintenance expected or same?). Whole of Life Costing.	2020/21
Annual review to identify opportunities for available grant funding for road projects to narrow the funding gaps	Ongoing
Complete planned inspections – Major culverts / bridges (5-year program), Load limits on bridges if required.	Ongoing
Develop “state of the assets” reporting tools to show the service level trends eg: asset condition, function and capacity.	2020/21
Implement RACAS Inspections to drive the unsealed roads maintenance programming	Jun-19
Benchmarking Referencing for Funding Models. i.e. maintenance, renewals and upgrades	2020/21
Unsealed road IRI condition data recorded before grading works	Ongoing
Unsealed road works records i.e. grading lengths	Ongoing

7.8 MONITORING & REVIEW PROCEDURES

7.7.1 ASSET MANAGEMENT REVIEW

To ensure that this Asset Management Plan remains a useful document and relevant to the ongoing management of the asset, the following review activities will be undertaken:

- It is to be formally adopted by Council

- The periodic review, request and review for different service levels need to be addressed by a dedicated procedure with guidelines and template forms.
- After the current financial and service status of the asset is properly established following a period of operating experience under the Asset Management Plan, Council is to undertake a review of service levels through a process of community consultation to determine both current and future needs of the community outlining in the process the likely financial impact of any changes;
- Once any new levels of service have been determined and can be funded, they are to be formally adopted by Council;
- Subsequent to this formal adoption, any significant changes to levels of service are to be reported to and endorsed by Council to ensure that Councillors are fully aware of the consequences of their decision making which may have an impact of financial strategy and budget;
- The Asset Management Plan is to be reviewed bi-annually and revised as necessary to incorporate changes as a result of any levels of service review as well any changes arising from Asset Management improvement program.
- The Asset Management Plan is to be reviewed and refined in conjunction with the development and implementation of the Long-Term Financial Plan

7.7.2 INDIVIDUAL ASSET PLAN REVIEWS

Each individual plan is a document prepared to ensure that Council complies with its obligations as defined by section 104 of the *Local Government Act 2009*, dealing with financial management systems. It is important that these plans be reviewed bi-annually. This review shall include, but not limited to:

- Condition and performance of assets:
 - Changes in overall condition;
 - Levels of service achieved;
 - Financial forecasts;
 - Validation of estimated costs for asset works.
- Progress on Capital Works Development Program;
- Recommendations for amendments;
- The performance and appropriateness of asset documents including:
 - Asset Management Policy;
 - Asset Management Strategy;
 - Individual Asset Management Plans;
 - Individual Asset class Specifications.

7.7.3 AUDIT REVIEW PROCESS

Council will implement an audit process to ensure:

- Assets are recorded accurately within Council's asset management system;
- Condition assessments and maintenance inspections are conducted in accordance with Council's Individual Asset Class Specifications frequency, methodology and criteria;
- Works programs are developed according to relevant criteria;
- Works are completed in accordance with Council's Individual Asset Specifications;
- Completed works are recorded in the asset management system; and
- Expenditure is correctly allocated between capital and maintenance in accordance with Council's guidelines.

7.7.4 REVIEWING MAINTENANCE MANAGEMENT PERFORMANCE

Part of the annual budget process is to review asset performance following delivery of the maintenance program. Actual expenditures are compared to those budgeted and any significant variances are analysed with any necessary remedial action accounted for in the new budget.

Effectiveness of the various maintenance activities is reviewed to ensure that they are delivering what is required to keep the asset performing at the required level of service.

Part of this process is to determine whether it is effective to continue funding maintenance or in fact that the particular asset or asset component requires rehabilitation, renewal or upgrading or even being downgraded.

7.7.5 REPORTING ASSET ACHIEVEMENTS

Council's Annual Report is the vehicle that is used by Council to report asset management achievements of maintenance and refurbishment and renewal strategies against planned targets and programs to the community.

8.0 REFERENCES

- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
- IPWEA, 2009, 'Australian Infrastructure Financial Management Guidelines', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/AIFMG.
- IPWEA, 2011, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
- ISO 55000 Asset Management Standards, Australian Standards Board
- Accounting Standards, Australian Accounting Standards Board
- AS:NZS ISO 31000:2018 Risk Management – Principles and guidelines, International Standards Board
- Local Government Act 2009, Department of Local Government QLD
- North Burnett Regional Council, Asset Management Policy, Doc ID 357562
- North Burnett Regional Council, Risk Management Policy, Doc ID 33169
- North Burnett Regional Council, Risk Management Plan, Doc ID 876247
- North Burnett Regional Council, Corporate Plan 2017-2022
- North Burnett Regional Council Operational Plan 2017-18

9.0 APPENDICES

Appendix A – Definitions

Appendix B – Summary of Forecast Lifecycle Costings for 10-Years

Appendix C – Historical Expenditure

Appendix D – Summary of Forecast Lifecycle Costings for 10-Years

Appendix E – Priority Sealed Road Surface Resealing

Appendix F – Priority Sealed Pavement Renewals

Appendix G – Unsealed Pavement Renewals

Appendix H – Forward Works Program

Appendix I – Population and Housing Profile

APPENDIX A – DEFINITIONS

Asset Condition Assessment	The process of continuous or periodic inspection, assessment, measurement and interpretation of the resultant data to indicate the condition of a specific asset so as to determine the need for some preventative or remedial action.
Asset Management	The combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost effective manner.
Asset Management Plan	A plan developed for the management of one or more infrastructure assets that combines multi-disciplinary management techniques (including technical and financial) over the lifecycle of the asset in the most cost effective manner to provide specified level of service. A significant component of the plan is a long term cash flow projection for the activities.
Asset Renewal	Replacement or rehabilitation to original size and capacity of a road or drainage asset or the component of the asset. Renewals are “capitalised”, so that the cost can be depreciated over the future life of the asset.
Core Asset Management	Asset management which relies primarily on the use of an asset register, maintenance management systems, job/resource management, condition assessment and defined levels of service, in order to establish alternate treatment options and long term cash flow predictions. Priorities are usually established on the basis of financial return gained by carrying out the work (rather than risk analysis and optimised renewal decision making).
Infrastructure Assets	Physical assets of the entity or of another entity that contribute to meeting the public's need for access to major economic and social facilities and services, e.g. roads, drainage, footpaths and cycle ways. These are typically large, interconnected networks or portfolios of composite assets. The components of these assets may be separately maintained, renewed or replaced individually so that the required level and standard of service from the network of assets is continuously sustained. Generally, the components and hence the assets have long lives. They are fixed in place and are often have no market value.
Level of Service	The defined service quality for a particular service against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental, acceptability and cost).
Life Cycle Cost	The life cycle cost (LCC) is average cost to provide the service over the longest asset life cycle. It comprises annual maintenance and asset consumption expense, represented by depreciation expense. The Life Cycle Cost does not indicate the funds required to provide the service in a particular year.
Life Cycle Expenditure	The Life Cycle Expenditure (LCE) is the actual or planned annual maintenance and capital renewal expenditure incurred in providing the service in a particular year. Life Cycle Expenditure may be compared to Life Cycle Cost to give an initial indicator of life cycle sustainability.
Maintenance and Renewal Sustainability Index	Ratio of estimated budget to projected expenditure for maintenance and renewal of assets over a defined time (e.g. 5, 10 and 15-years).
Performance Measure	A qualitative or quantitative measure of a service or activity used to compare actual performance against a standard or other target. Performance indicators commonly relate to statutory limits, safety, responsiveness, cost, comfort, asset performance, reliability, efficiency, environmental protection and customer satisfaction.

Reactive Maintenance	Unplanned repair work carried out in response to service requests and management/supervisory directions.
Scheduled Maintenance	Maintenance carried out in accordance with a routine maintenance schedule e.g. scheduled maintenance grading.
Planned Maintenance	Repair work that is identified and managed through the customer requests system (Dataworks). These activities include inspections, 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.
Rate of Annual Asset Renewal	A measure of the rate at which assets are being renewed per annum expressed as a percentage of depreciable amount (capital renewal expenditure/ depreciable amount).
Reactive Maintenance	Unplanned repair work carried out in response to service requests & management / supervisory directions.
Recurrent Expenditure	Relatively small (immaterial) expenditure or that which has benefits expected to last less than 12 months. Recurrent expenditure includes operating and maintenance expenditure.
Remaining Life	The time remaining until an asset ceases to provide the required service level or economic usefulness. Age plus remaining life is economic life (also useful life).
Renewal Expenditure	Major works which do not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential.
Upgrade/Expansion Expenditure	Work over and above restoring an asset to original service potential.
Useful Life (also economic life)	Either:(a) the period over which an asset is expected to be available for use by an entity, or (b) the number of production or similar units expected to be obtained from the asset by the entity. It is estimated or expected time between placing the asset into service and removing it from service, or the estimated period of time over which the future economic benefits embodied in a depreciable asset, are expected to be consumed by the Council.
New Assets	Activities that create a road or drainage asset that did not exist previously or extend an asset beyond its original size or capacity. New assets are also "capitalised", but they increase the asset base rather than restore its capacity to perform.

APPENDIX B: SUMMARY OF FORECAST LIFECYCLE COSTINGS FOR 10-YEARS

	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Renewal Capex (FWP) Existing assets only	\$6,782,075	\$6,343,831	\$4,433,011	\$4,473,283	\$4,476,220	\$4,691,735	\$4,691,735	\$4,691,735	\$4,691,735	\$4,691,735
Renewal Capex (SL)	\$4,746,684	\$4,302,939	\$3,758,011	\$3,798,283	\$3,801,220	\$3,771,595	\$4,813,996	\$4,815,211	\$4,813,996	\$4,813,996
Accumulative Gap (FWP-SL) Positive is a short fall in funding. Negative is overspend (before condition or service requires).	-\$2,035,391	-\$4,076,283	-\$4,751,283	-\$5,426,283	-\$6,101,283	-\$7,021,423	-\$6,899,162	-\$6,775,686	-\$6,653,425	-\$6,531,164
Maintenance (FWP)	\$2,395,483	\$2,395,483	\$2,395,483	\$2,395,483	\$2,395,483	\$2,395,483	\$2,395,483	\$2,395,483	\$2,395,483	\$2,395,483
Maintenance (SL)	\$2,402,488	\$2,409,821	\$2,419,485	\$2,427,127	\$2,429,954	\$2,437,315	\$2,444,676	\$2,452,037	\$2,459,398	\$2,466,760
New Capex (FWP)	\$310,000	\$220,790	\$524,789	\$17,370	\$0	\$268,237	\$268,237	\$268,237	\$268,237	\$268,237
Upgrade Capex (FWP)	\$495,125	\$622,161	\$586,000	\$861,000	\$325,000	\$577,857	\$577,857	\$577,857	\$577,857	\$577,857
Maintenance (New Capex)	\$7,005	\$7,334	\$9,664	\$7,642	\$2,828	\$7,361	\$7,361	\$7,361	\$7,361	\$7,361

APPENDIX C – HISTORICAL EXPENDITURE

	2013/14	2014/15	2015/16	2016/17	2017/18	Average
Capital - Gravel Resheet	\$ 1,640,694	\$ 1,106,461	\$ 1,040,535	\$ 2,025,780	967,910	1,356,276
Capital - Pavement Rehab	\$ -	\$ -	\$ 173,571	\$ 156,707	93,473	141,250
Capital - Reseals	\$ 905,148	\$ 1,143,224	\$ 1,261,639	\$ 127,511	1,268,602	941,225
						2,438,751
Maintenance - Grading (10+15)	\$ 1,314,707	\$ 1,473,033	\$ 1,597,138	\$ 1,732,361	1,876,365	1,598,721
Maintenance - Patch Gravel (20+25)	\$ 368,538	\$ 334,971	\$ 168,705	\$ 123,266	92,145	217,525
Maintenance - Drainage (30+35)	\$ 193,366	\$ 181,923	\$ 85,751	\$ 82,948	100,646	128,927
Maintenance - Sealed Road (40+45+55)	\$ 254,335	\$ 176,645	\$ 192,324	\$ 257,774	294,699	235,155
	\$ 4,676,788	\$ 4,416,257	\$ 4,519,663	\$ 4,506,347	4,693,840	
Maintenance - Other (50+80)	\$ 424	\$ 11,963	\$ 199,194	\$ 173,530	219,240	120,870
Maintenance - Storm Damage (60+105)		\$ 53,416	\$ 135,100	\$ 79,485	109,138	94,285
	\$ 4,676,788	\$ 4,416,257	\$ 4,519,663	\$ 4,506,347	\$ 4,693,840	\$ 2,630,638

APPENDIX E – PRIORITY SEALED ROADS SURFACE RESEALING

Refer Attached Spreadsheet

APPENDIX F – PRIORITY SEALED ROADS PAVEMENT RENEWALS

Refer Attached Spreadsheet

APPENDIX G – PRIORITY UNSEALED ROADS PAVEMENT RENEWALS

Refer Attached Spreadsheet

APPENDIX H – FORWARD WORKS PROGRAM

Refer Attached Spreadsheet

APPENDIX I – POPULATION AND HOUSING PROFILE

TABLE 10.1 REFLECTS THE TREND FROM 2012 TO 2017

Population Trends		Annual Growth Rate	
Year at 30 June	Population persons	North Burnett	Queensland
		-----per cent-----	
2012	10,404	0.3	2.1
2013	10,478	0.7	1.9
2014	10,539	0.6	1.5
2015	10,597	0.6	1.3
2016	10,623	0.2	1.3
2017	10,632	0.2	1.3

As at 30 June 2017, the estimated resident population for North Burnett LGA was 10,632 persons. The annual growth rate between 2016 and 2017 was 0.1 percent.

TABLE 10.2 REFLECTS THE POPULATION PROJECTIONS FROM 2016 TO 2036

Projected Population				Average Annual Change	
	Low Series	Medium Series	High Series	(medium series)	
				Number	Per Cent
2011	10,374	10,374	10,374		
2016	10,125	10,160	10,195	-214	-2.1%
2021	9,891	9,998	10,107	-162	-1.6%
2026	9,767	9,915	10,066	-83	-0.8%
2031	9,642	9,825	10,014	-90	-0.9%
2036	9,499	9,726	9,960	-99	-1.0%

The 2015 edition of population projections indicate that by 2021 the expected population of North Burnett (R) LGA will be 9,998 persons (medium series). By 2036, it is expected to be 9,726 persons.

TABLE 10.3 REFLECTS THE LOW POPULATION PROJECTIONS FROM 2011 TO 2031

Area	Actual	Population Projections				
	2006	2011	2016	2021	2026	2031
Biggenden	1,610	1,651	1,668	1,676	1,678	1,682
Eidsvold	906	867	823	785	751	726
Gayndah	2,947	2,949	2,930	2,917	2,902	2,897
Monto	2,577	2,580	2,567	2,551	2,531	2,510
Mundubbera	2,261	2,172	2,141	2,104	2,066	2,029
Perry	455	464	474	487	495	501

TABLE 10.4 LIKELY DISTRIBUTION OF THE INCREASE IN POPULATION 2011-2031

Area		Infill			Broad hectare			Rural Living			Rural			Total			Annually
		Dwellings	Population	Percent	Dwellings	Population	Percent	Dwellings	Population	Percent	Dwellings	Population	Percent	Dwellings	Population	Percent	Dwellings p.a.
Biggenden	Year 2031	30	220	8%	280	245	35%	90	115	17%	40	70	21%	440	650	23%	16.5
	Year 2021	15	10		140	122.5		45	57.5		20	35		220	325		
Eidsvold	Year 2031	20	175	5%	20	50	3%	35	90	7%	10	30	5%	85	345	4%	7.0
	Year 2021	10	87.5		10	25		17.5	45		5	15		42.5	172.5		
Gayndah	Year 2031	190	690	50%	210	370	27%	150	285	28%	65	145	33%	615	1490	32%	27.5
	Year 2021	95	345		105	185		75	142.5		32.5	72.5		307.5	745		
Monto	Year 2031	20	65	5%	150	270	19%	110	150	21%	50	70	26%	330	555	17%	15.0
	Year 2021	10	32.5		75	135		55	75		25	35		165	277.5		
Mount Perry	Year 2031	90	130	24%	20	50	3%	80	60	15%	10	10	5%	200	250	11%	5.5
	Year 2021	45	65		10	25		40	30		5	5		100	125		
Mundubbera	Year 2031	30	225	8%	110	415	14%	70	190	13%	20	100	10%	230	930	12%	23.5
	Year 2021	15	112.50		55	207.50		35	95		10	50		115	465		
Total	Year 2031	380	1505	20%	790	1400	42%	535	890	28%	195	425	10%	1900	4400	100%	95.0
	Year 2021	190	753		395	700		268	445		98	213		950	2110		

Table 10.4 reflects the distribution of growth in population and dwelling projections from 2011 to 2031.

TABLE 10.5 – COMMENTARY TO SUPPORT THE GROWTH ASSUMPTIONS IN TABLE 10.4

The commentary in Table 10.5 is the basis for determining the likely distribution of the increase in population up to the year 2031. It provides the assumptions used to estimate the distribution of the growth within North Burnett Regional Council. The assumptions provide brief commentary about likely constraints along with the possible reasons why areas are likely to attract an increase in population. Most constraints can be considered and overcome if Council so determines.

Area	Location	Positives	Constraints
Biggenden	Biggenden Town	<ul style="list-style-type: none"> • 90 new dwellings/units since 2008 • Close to Coast • Cheap land – Central West Coast • Lifestyle • Close to recreation facilities – Paradise Dam and Mingo Crossing • Commuter to larger cities • Land available within town • School to year 10 • New hospital • • Option for rural blocks near Paradise Dam and Mingo Crossing • Options for water from Paradise Dam • One of the largest stock sale yards in Queensland 	<ul style="list-style-type: none"> • Lack of reliable water • Question on sewerage treatment
	Dallarnil	<ul style="list-style-type: none"> • Same as Biggenden but 20 kilometres closer to Coast • Land cheaper again • Could cater for 40 houses 	<ul style="list-style-type: none"> • No water or sewerage • No stormwater • Basic services • No road infrastructure to a lot of blocks
	Degilbo	<ul style="list-style-type: none"> • Cheaper land • Close to Biggenden • Close to Paradise Dam • Lifestyle • Potential for development 	<ul style="list-style-type: none"> • No water or sewerage • No school or services • No potential for infill
Eidsvold		<ul style="list-style-type: none"> • Cheaper land than Biggenden • School – Prep to Year 12 • Hospital • Rural and urban land available • 22 New dwellings/units since 2008 • Cattle sales facility 	<ul style="list-style-type: none"> • Lack of work opportunities • Distance to major centres • Grass airstrip • Sewerage treatment is nearing capacity • Any increase in population will trigger increases in water and sewerage • No economical drivers to attract residents

Area	Location	Positives	Constraints
Gayndah		<ul style="list-style-type: none"> • Largest of towns • Education to gr 12 including private to gr 7 • Government Services + Magistrates Court, Brian Pastures Research Facility • Regional Ctrs for QAS, Rural Allied & Community Health, QFES training. • Key Service Centre (regional hub) for Wide Bay Burnett Sport & Rec. • SES Regional headquarters • Large CBD – banks, building societies, Hotels (3), Community Radio, etc. • Regional Centre for Indigenous Wellbeing Services • 102 new dwellings/units since 2008 (highest) • Citrus and Agriculture is strong - regional base for NAB Agribusiness • Demand for labour is strong – seasonal (high seasonal population) • Opportunities for non-seasonal worker employment – 3 employment agencies • Strong tourist/backpackers caravan parks, bush camping, motels (4), etc. • Water security • Available flood free Urban & Rural residential land. Potential uptake from Mining flow on's • All weather airport – CASA registered • Daily air service – freight • Commercial aviation fuel facility • Tourism – Mingo Crossing, Racecourse, fishing etc. • Large Aged Care facility • Designated Public Office of NBRC • Regional Centre for NBRC's Disaster Management Coordination 	<ul style="list-style-type: none"> • Some existing residential land is flood prone • Sewerage treatment is nearing capacity • Single supply of water over the Bridge • Water pressure in the industrial area is low

Area	Location	Positives	Constraints
Monto	Monto town	<ul style="list-style-type: none"> • 61 dwellings/units since 2008 • Airstrip but no air service and can be flood isolated • Highest list of registered Business – 2006 • Tourism – fishing, caravan parks Cania Dam and racecourse • Available infill 20 • Available development • Sewerage treatment has capacity for twice the population • Availability of existing housing stock (vacant) to house population • Potential will come from Mines • Hospital • Large Aged Care facility • Cattle sales facility • Educations to yr 12 including private to yr 7 	<ul style="list-style-type: none"> • Black soil – reactive • Gravel road to Gladstone and Bruce Highway • Reliant on piggery, grazing and rural production • Liability to service Stuart/Archer Streets subdivisions (Council owned) • Reliability of water bore water is a concern • Population has declined
Mulgildie		<ul style="list-style-type: none"> • Close to Monto • Cheaper land • Lifestyle • Education to year 7 • Town water reticulation • Rodeo/Campdraft arena 	<ul style="list-style-type: none"> • Restricted for future development
Mount Perry		<ul style="list-style-type: none"> • Similar to Biggenden but school to Primary • Reliant on two major employers – Council and mines • Sports centre • Hospital • Sealed access to Gin • Infill house supply • 74 new dwellings/units since 2008 	<ul style="list-style-type: none"> • No CBD • No secondary school • No sewerage • Single source of water supply from bore (site for bore has been identified from same aquifer) • No pool or water hole
Mundubbera		<ul style="list-style-type: none"> • Highest agricultural production in the region with the potential to cater for a diverse range of produce • 59 new dwellings/units since 2008 • CBD • Hospital • School Prep to year 10 • Junction to two major roads • Large itinerant workforce • Caravan parks – tourism • National park • Seasonal works is 52 weeks per year and increasing • Water security • All weather airport – no freight 	<ul style="list-style-type: none"> • Existing residential area is prone to flooding • Lack of demand for existing land • Year 10 to 12 have to go elsewhere

Area	Location	Positives	Constraints
		<ul style="list-style-type: none">• Water and sewerage has capacity but needs higher sewerage treatment• Flow on from mines	