MITCHELL SHIRE.
ROAD ASSET MANAGEMENT PLAN
- Part B

MITCHELL SHIRE COUNCIL

Document Control	Asset Management Plan

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1	June 2018	Draft prepared by Adam Leihman	AL	MF	NM
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NAMS.PLUS Asset Management Plan Templates

NAMS.Plus offers two Asset Management Plan templates – 'Concise' and 'Comprehensive'.

The Concise template is appropriate for those entities who wish to present their data and information clearly and in as few words as possible whilst complying with the ISO 55000 Standards approach and guidance contained in the International Infrastructure Management Manual.

The Comprehensive template is appropriate for those entities who wish to present their asset management plan and information in a more detailed manner.

The entity can choose either template to write/update their plan regardless of their level of asset management maturity and in some cases may even choose to use only the Executive Summary.

The illustrated content is suggested only and users should feel free to omit content as preferred (e.g. where info not currently available).

The concise Asset Management Plan may be used as a supporting document to inform an overarching Strategic Asset Management Plan.

This is the **Concise** Asset Management Plan template.

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1 EXECUTIVE SUMMARY

The Purpose of the Plan

Asset management planning is a comprehensive process to ensure delivery of services from infrastructure is provided in a financially sustainable manner.

This asset management plan details information about infrastructure assets including actions required to provide an agreed level of service in the most cost-effective manner while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required to provide the services over a 20-year planning period.

This plan covers Council's sealed road pavements, Sealed surfaces and Unsealed Road Pavements, footpaths, cycleways and Kerb and Channel structures. These assets contribute to the community by:

- Allowing people to move safely and conveniently around and through the municipality
- Enabling the transport of goods and services
- Connecting people to service centres and other key destinations.
- Assist drainage of stormwater from the roadway.

Asset Description

The Council's network of public roads, including footpaths, is provided to the community to facilitate a safe, convenient and defined means for transporting people and goods around and through the municipal area.

The road network infrastructure of the Mitchell Shire for which Council is responsible includes;

- 1,408 Km of roads (689 km sealed and 718 km unsealed), 214 km of footpaths and walking tracks, and 427 km of kerb and channel.

Asset Description	Asset Quantity	Units
Pavement (Sealed)	4,367,222	sqm
Pavement (Unsealed)	3,436,580	sqm
All Sealed Surfaces	4,337,159	sqm
All Footpaths	326,623	sqm
All Kerbs	427,295	metre

These infrastructure assets have significant renewal value estimated at ***$294.7M***.

Levels of Service

Mitchell Shire has not yet defined its current levels of service for road assets. The Council's road classification structure has been determined, but as yet the customer and technical levels of service relating to the road classifications have not been stipulated.

The current funding levels are insufficient to preserve the current levels of service based on an analysis of Councils current investment against the value of the asset portfolio. Actual funding requirements can only be understood once service levels have been documented and costed.

Overall community satisfaction with sealed and unsealed roads is low with the Local Government Victoria Community Satisfaction survey describing these services as being most in need of Council attention.

The main service consequences are:

- Council will provide reduced levels of service
- As service level's decline customer satisfaction will decline.
- Council's renewal gap will increase, impacting future generations of Shire residents.
- A reduction of Council's overall level of sustainability.
- Roads will become less safe

Future Demand

Mitchell Shire Council is experiencing significant growth which is likely to be sustained over the next 15 years. The Shire population is expected to double from the current 45,000 to 90,000 in this time.

With more service users, this will create demand for new assets (largely funded by developers), and will impact the capacity of existing assets and their useful lives (shorter renewal times and more maintenance).

A larger transport network will require more capital and operational investment than what is currently provided.

To address future demand Council will require a strategic approach to ensure it can stay ahead of demand.

Demand management practices include non-asset solutions, insuring against risks and managing failures.

- Restriction of types of vehicles accessing road network
- Plan network improvements to coincide with major land use changes
- Work with others to delineate a priority freight network to meet the needs of the increased freight task and to guide future investment in network upgrades

Lifecycle Management Plan

1.1.1 What does it Cost?

The projected outlays necessary to provide the services covered by this Asset Management Plan (AM Plan) includes operations, maintenance, renewal, upgrade and new assets over the 10-year planning period is ***$104M*** or ***$10.4M*** on average per year.

Financial Summary

1.1.2 What we will do

Estimated available funding for this period is ***$57M*** or ***$5.7M*** on average per year as per the long term financial plan or budget forecast. This is ***55%*** of the cost to sustain the current level of service at the lowest lifecycle cost.

The infrastructure reality is that only what is funded in the long term financial plan can be provided. The emphasis of the Asset Management Plan is to communicate the consequences that this will have on the service provided and risks, so that decision making is “informed”.

The allocated funding leaves a shortfall of ***$4.6M*** on average per year of the projected expenditure required to provide services in the AM Plan compared with planned expenditure currently included in the Long Term Financial Plan. This is shown in the figure below.

Projected Operating and Capital Expenditure

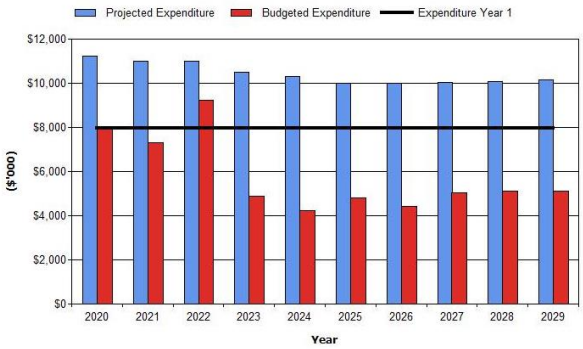


Figure Values are in current (real) dollars.

Mitchell Shire will continue to provide a road network that achieves access and continuity of services for the community. This will be achieved through ongoing maintenance and capital renewal projects of the existing network.

1.1.3 What we cannot do

We currently do **not** allocate enough funding to sustain existing services at the desired standard or to provide all new services being sought.

1.1.4 Managing the Risks

Our present funding levels are insufficient to continue to manage risks in the medium term.

The main risk consequences are:

- Roads deteriorate to a lesser service standard and higher risk situation,
- Damage to roads because of major storm events, and
- Road asset lives not being maximised due to a lack of maintenance funding.

We will endeavour to manage these risks within available funding by:

- Undertaking a more strategic approach to management of road assets through better planning and programming of works and capital selection criteria informed by risk consequences.

Asset Management Practices

Our systems to manage assets include:

- Finance and accounting - Technology One
- Asset management system - Conquest III
- GIS systems – MapInfo/Exponare

Assets requiring renewal/replacement are identified using a combination of an analysis of the long term financial needs at a network level and Council's asset information, as well as network inspections performed by internal staff to identify specific assets requiring renewal.

Monitoring and Improvement Program

The next steps resulting from this asset management plan to improve asset management practices include, but is not limited to the folllowing:

- Develop levels of service to clearly define agreed service objectives and standards including a review of road alignment to the hierarchy classifications.
- Continue to improve the applied useful lives of assets based on local environmental conditions.
- Investigate tools to improve strategic asset management for road pavements, namely a Pavement Management System.
- Work to increase the number of traffic counts performed each year to better understand service utilisation.
- Review and implement processes to measure the community's level of satisfaction with Council's roads on at least annual basis.
- Conduct a review of the road network to identify and record critical infrastructure through consultation with key stakeholders
- Review current funding allocations made to road maintenance to ensure that it is sufficient to deliver current levels of service.
- Investigate and implement a maintenance management system for electronic capture, storage and management of maintenance data, and maintenance treatments.

2 INTRODUCTION

Background

This asset management plan communicates the actions required for the responsive management of assets (and services provided from assets), compliance with regulatory requirements, and funding needed to ensure the existing condition profile of assets is maintained or improved over a 10-year planning period.

Mitchell Shire Council's structure for its asset management plans is sectioned into separate parts based on our asset groups. This structure is as follows:

- Part 'A' – General Asset Management Plan
- **Part 'B' – Roads Asset Management Plan**
- Part 'C' – Bridges Asset Management Plan
- Part 'D' - Buildings Asset Management Plan
- Part 'E' – Open Space Asset Management Plan
- Part 'F' – Drainage Asset Management Plan

Part 'B' – Roads Asset Management Plan has been developed in accordance with our Asset Management Policy and principles of the Asset Management Strategy. The infrastructure assets covered by this asset management plan are shown in Table 2.1. These assets are used to:

- Allow people to move safely and conveniently around and through the municipality,
- Enabling the transport of goods and services,
- Connecting people to service centres and other key destinations, and
- Assist drainage of stormwater from the roadway.

Other key planning documents used in the development of the Asset Management Plan include;

- Mitchell Shire Council Plan
- Road Management Plan
- Township Structure Plans
- Council Budget Report 17/18
- Council Budget 18/19

Table 2.1: Assets covered by this Plan

Asset Category	Asset Sub Category	Quantity	Unit	Current Replacement Value	Depreciated Replacement Cost	A
Footpath	Asphalt footpath	14,738	sqm	$748,837	$423,581	
	Concrete footpath	287,298	sqm	$26,937,991	$19,086,994	
	Gravel footpath	20,141	sqm	$379,768	$132,319	
	Spray sealed footpath	4,446	sqm	$109,371	$28,287	
	Footpath Total	*326,623*	*sqm*	*$28,175,967*	*$13,876,181*	
Kerb and channel	Bluestone kerb + channel	1,439	m	$188,448	$319,314	
	Concrete kerb + channel	425,856	m	$37,159,909	$28,802,176	
	Kerb and channel Total	*427,295*	*m*	*$37,348,357*	$18,557,415	
Public road	Asphalt surface	723,805	sqm	$15,508,512	$12,836,102	
	Formation	7,905,784	sqm	$61,334,598	$36,609,391	
	Sealed pavement	4,367,222	sqm	$109,945,886	$111,000,965	
	Spray sealed surface	3,613,354	sqm	$16,689,493	$7,031,739	
	Unsealed pavement	3,436,580	sqm	$19,350,342	$5,786,707	

	Land under roads	1,258,492	sqm	$5,033,969	$5,007,698	
	Public road Total		*sqm*	*$225,488,997*	*$178,272,601*	
Traffic furniture	Guardrail	2,373	m	$494,845	$445,854	
	LATM	38	No.	$164,391	$143,387	
	Other			*$649,193*	*505,344*	
	Traffic furniture Total			*$1,308,429*	*$589,241*	
	Total			**$294,695,553**	**$228,373,702**	

Note: The Replacement Valuation in the above Table is "Greenfield" and used for valuation purposes.

The road asset management plan has utilised Council current available asset data. There are limitations to this information which make estimating Council's future investment requirements to meet service requirements of the community more difficult.

Some of the important information, not currently available to Council includes:

- Council currently only has traffic counts on 3% of its road network. Traffic counts are essential to understanding network utilisation. Utilisation should drive road classification, and subsequent levels of service for capital and operational investment. Without this information it will be difficult to target roads strategically.

- Council has a uniform useful life for road pavements of 80 years without having all the information regarding those pavements. There are many variables that can impact a pavement useful life including, pavement depth and quality of sub-grades, water, traffic volume, and freight movements. That all roads across the Shire will behave in a uniform fashion and last 80 years is highly unlikely.

- Council is currently not depreciating its road formation, nor does it capitalise table drains which are essentially part of the road formation. By definition, formation is created to facilitate pavement drainage. A system will need to be established to ensure works done to maintain road formation is capitalised and formation is depreciated.

- Council is not componentising road shoulders. Road shoulders should be treated as an asset as they have different life cycles to pavements. Shoulders are a common sight of failure including edge breaks, depressions, crocodile cracking. Rehabilitation of shoulders should be managed separate from the pavement.

- Council does not currently test or monitor gravels purchased for resheeting unsealed roads. A specification for gravels in line with road hierarchy is required and suppliers must then meet these specifications to ensure consistency and measurability of gravel performance.

- Minor culverts have not been included in this road asset management plan as Council does not have a complete inventory set of this asset type.

Key Stakeholders

A stakeholder represents any group(s) or individuals having an interest, in this case, in the service provided by our assets.

The stakeholders in the management of our roads and other related assets are many and often their needs are wide-ranging.

The relevant key stakeholders are:

- The community in general (for recreation, sport, leisure and business);
- Residents and businesses adjoining the road network;
- Pedestrians (including the very young, those with disabilities, and the elderly with somewhat limited mobility);

- Users of a range of miscellaneous smaller and lightweight vehicles such as pedal cyclists, motorised buggies, wheel chairs, prams, etc;
- Vehicle users using motorised vehicles such as trucks, buses, commercial vehicles, cars and motor cycles;
- Farmers and commercial business people for haulage of grain, livestock, fruit, vegetables, grapes, fire-wood, general produce, etc.;
- Tourists and visitors to the area;
- Emergency agencies (Police, Fire, Ambulance, VICSES);
- Military (special use in times of conflict and emergency);
- Traffic and Transportation managers;
- Managers of the road network;
- Construction and maintenance personnel who build and maintain asset components;
- Utility agencies that utilise the road reserve for their infrastructure (water, sewerage, gas, electricity, telecommunications);
- Council as custodian of the asset;
- State and Federal Government that periodically provide support funding to assist with management of the network; and
- Council's Insurers.

The community's needs and expectations are subject to change and are becoming more demanding manifested by demands for services that provide better quality, value for money, environmental awareness and relevant value adding.

Goals and Objectives of Asset Ownership

Our goal in managing infrastructure assets is to meet level of service (as amended from time to time) in the most cost-effective manner for present and future consumers. At present levels of service linked to Council road hierarchy have not been well defined. A level of service document will allow for more targeted strategic decisions to be made about individual roads, relating to their importance in the network from a strategic, and road user perspective.

The key elements of infrastructure asset management are:

- Providing a defined level of service and monitoring performance,
- Managing the impact of growth through demand management and infrastructure investment,
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service,
- Identifying, assessing and appropriately controlling risks, and
- Linking to a long-term financial plan which identifies required, affordable expenditure and how it will be allocated.

Other references to the benefits, fundamentals principles and objectives of asset management are:

- International Infrastructure Management Manual 2015 [1]
- ISO 55000[2]

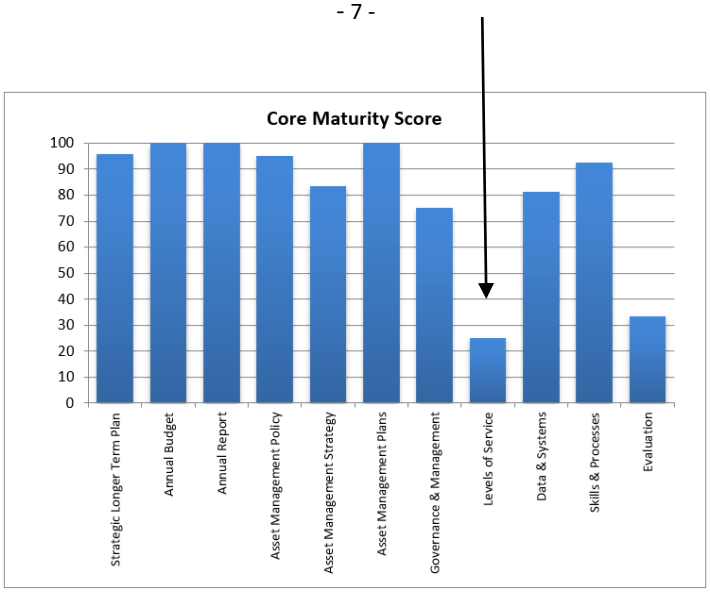
Core and Advanced Asset Management

Asset Management at Mitchell Shire Council is guided by the National Asset Management Strategy (NAMS) framework, which is provided by the Institute of Public Works Engineering Australasia (IPWEA).

This asset management plan is prepared as a 'core' asset management plan in accordance with the International Infrastructure Management Manual (IIMM).

At present Mitchell Shire Council has not achieve core asset management status. The below score card demonstrates that levels of service, which are critical to informing asset management, are in need of significant attention in the short term.

[1] Based on IPWEA 2015 IIMM, Sec 2.1.3, p 2| 13
[2] ISO 55000 Overview, principles and terminology



3 LEVELS OF SERVICE

This section defines the level of service or performance criteria that are required and the basis of the decision behind their adoption. The levels of service support Council's strategic goals and are based on customer expectation and statutory requirements.

3.1 Strategic and Corporate Goals

This asset management plan is prepared under the direction of Council's vision, mission, goals and objectives.

Our vision is:

Together with the community, creating a sustainable future.

Our mission is:

Working with our communities to build a great quality of life.

Relevant Council goals and objectives and how these are addressed are:

Table 3.2: Link to Council Objectives

Strategic Objective	Key Strategy	Action	Measure
Strong Communities - To build and nurture strong and vibrant communities where people are proud to live	Establish and maintain high quality roads, footpaths, parks, recreation facilities, streetscapes, bike paths and public open spaces	Continue to improve road infrastructure across the Shire.	Improved community satisfaction with roads in the Shire.
		Review service standards for road maintenance across the Shire.	Service Standard Reviews are completed and changes implemented.
		Deliver the annual prioritised height and width clearance program on	Program delivered annually.

		Council managed roads, in accordance with the agreed budget, to ensure the safe passage of vehicles.	
		Continue to improve pedestrian and bike path connectivity across the Shire	Kilometres of footpath missing-links completed. Bicycle path improvements implemented in line with Township Structure Plans.
		Develop and prioritise streetscape and public space improvements for townships across the Shire.	Streetscape improvements implemented.
Financial and Organisational Management – To be leaders in Financial and organisational management	Deliver high quality projects that benefit our community	Strengthen project management and decision making frameworks to ensure Council's project delivery reflects identified service priorities	Projects are delivered effectively in line with agreed strategies and budgets.
Responsible Planning - To demand best practice outcomes when planning for future growth	Plan for growth and change through best practice designed services, infrastructure, open space and recreation facilities	Regular engagement occurs with Planning Authorities and developers about plans for transport links.*	Active transport networks are prioritised in the preparation of PSPs, Township Structure Plans and Subdivision layouts*
	Improve the accessibility and connectivity of pedestrian and cycle paths within and between our towns	Ensure pedestrian and bicycle connectivity is a key priority of planning and development in the Shire	Precinct structure plans, township structure plans and new developments incorporate planning for improved pedestrian and bicycle pathways

- * Taken from the year 2 action plan

3.2 Functional Hierarchy

All roads and footpaths within the municipal road network are classified according to a hierarchy in terms of their specific function, types of users, user numbers and potential risk. This hierarchy is documented in Council's Road Management Plan. The hierarchy classification is used to assist in prioritising works programs and intervention responses to remedy defects.

Council's road and footpath hierarchies are detailed below.

Table 3.2 – Asset Functional Hierarchy

Roads

Classification	Definition
Freeway/ Highway	Freeways are the principle routes for the movement of goods and people. These roads are a VicRoads responsibility, and are not managed by Council.
Arterial Road	Arterial roads are the principle routes for the movement of goods and people. They are designed to take into consideration abutting land uses. These roads are a VicRoads responsibility, and are not managed by Council.
Link	Provides linkages between collector roads and the arterial road network and between significant

Classification	Definition
	locations. • Links significant towns, locations and industries; • High percentage of through traffic; • Includes access to abutting properties; • Caters generally for higher traffic volumes and traffic speeds, and for a higher percentage of heavy vehicles.
Collector	Collects and distributes traffic from access roads to the wider road network. • Provides property access in both urban and rural areas; • Provides access to minor locations and industries; • Moderate percentage of through traffic; • Caters for moderate traffic volumes and speeds
Access	Provides predominantly for direct access to properties and industries. • Caters for low traffic volumes and generally for low traffic speeds; • Low percentage of through traffic; Access roads are divided further into sub-types. These sub-types are constructed, formed and unformed <u>Unformed Access Roads:</u> Has the same functional definition as Access Road – but has a lower construction standard. • Has poor road formation, often narrow and with poor alignment. • Often has little or no formal drainage; • Caters for emergency vehicles
Laneways	Laneways are generally situated at the rear of properties. Their original purpose was to provide for night soil collection and rear property access. Laneways may or may not be accessible to vehicular traffic or pedestrian movement.
Fire Access	A Fire Access Track is a physical track, typically unconstructed (i.e. no road building material) with little or no formation or drainage. They are typically natural earth tracks. A track has the 'status' of a Fire Access Track by virtue of its inclusion in Attachment 12 of the Mitchell Municipal Fire Management Plan, however a Fire Access Track has no formal 'status' with regard to the Road Management Act or Councils Road Management Plan by virtue of the fact that they are not registered on Council's Public Road Register. Section 40 of the Road Management Act does not apply to Fire Access Tracks. Fire Access Tracks are acknowledged for the specific role they serve in providing access for CFA firefighting appliances into remote areas. These tracks are not intended for general day to day or public use and are only maintained at the explicit request of the Regional CFA during planning for the upcoming fire season. • Caters for 4x4 fire fighting vehicles, often at low speed • May not be passable to traffic during winter • Often narrow and with poor road formation and alignment.

Note: Bridges, culverts, traffic facilities and kerb and channel have their hierarchies determined by the relevant road hierarchy.

Footpaths

The footpath hierarchy is divided into three categories, with Category 1 being the highest ranked as it has the highest user profile. For the footpath hierarchy, pedestrian traffic is the basis of usage volume. Table 3.1.2 defines the footpath hierarchy

Classification	Definition
<u>Category 1</u> High and Commercial Use Areas	These are footpaths within town and village centres where public footpaths have been constructed. Primarily included in this category is any footpath specifically constructed as access to the central business

	areas (CBD).
Category 2 **Strategic and Intermediate Use Areas**	Primarily included in this category is any footpath specifically constructed as access to Hospitals, Churches, Schools, Aged Hostels, and strategic routes to areas of significance. They generally have less use than Category 1 footpaths.
Category 3 **Infrequently Used**	Primarily included in this category is any footpath specifically constructed as access to residential areas and have less use than Category 2 footpaths.

3.3 Levels of Service

Council does not have existing levels of service to inform how it invests in the network to meet community expectations at this point in time. The following section refers to the construction standards and associated assets built within the road reserve to deliver a "provision" (where we plan to provide roads) and "development"(what type of roads we will build) level of service, not a maintenance level of service which is outlined in Council's Road Management Plan.

Levels of service are generally broken down into Customer levels of service and Technical levels of service. These are explained further below. As Council is yet to define its levels of service, examples of target levels of services have been included which will facilitate future planning of levels of service for roads.

3.3.1 Customer Levels of Service

Customer levels of service will relate to what the customer expects of the service. For instance, they will expect a Link road to be smooth, have a safe lane width for travelling at 100km, be confident of the safety provisions on the road, and trust that the road will be well signed for providing directions. They will expect any defects identified in their travels are repaired in short time frames. If they are travelling on an access road, they should (but not necessarily will) have lower expectations of service as they accept this is a road used infrequently by the public.

Example customer service levels are detailed in Tables 3.4.

Table 3.4: Customer Level of Service

	Expectation	**Performance Measure Used**	**Current Performance**	**Expected Position in 10 Years based on the current budget.**
Roads				
Service Objective: Provide safe and comfortable roads to drive on				
Quality	Sealed roads provide safe and smooth travel	Improvement in Council's Community Satisfaction Survey score	Current score 43/100	50/100
	Sealed roads provide the perception of safety and are well maintained		Not currently measured	
	Sealed roads standards reflect the amount of vehicles travelling on the road		Not currently measured	

	Signage is adequate for the standard of road to assist with directions		Not currently measured	
	Unsealed Roads are safe and can be driven at the marked speed limit		Current score 41/100	50/100
	Road connectivity is well planned		Not currently measured	
	Organisational measure	Percentage of sealed roads in condition levels 1-5	1 – 28% 2 - 31% 3 – 35% 4 – 5% 5 – 1%	1 – 30% 2 - 35% 3 – 33% 4 – 2% 5 – 0%
	Organisational Measure	Number of customer complaints	>600 per annum	<300 per annum
	Confidence levels		Low	Medium

3.3.2 Technical Levels of Service

Technical Levels of Service - Supporting the customer service levels are operational or technical measures of performance. These technical measures relate to the allocation of resources to service activities to best achieve the desired customer outcomes and demonstrate effective performance.

Technical levels will aim to match the customer level of service by building the road and associated infrastructure to ensure safe, smooth travel, to ensure resistance to defects, and to accommodate use patterns, for example heavy vehicle transport. The levels of service should also correspond to Councils road hierarchy classification.

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

- Operations – the regular activities to provide services (e.g. opening hours, cleansing, mowing grass, energy, inspections, etc).
- Maintenance – the activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life (e.g. road patching, unsealed road grading, building and structure repairs),
- Renewal – the activities that return the service capability of an asset up to that which it had originally (e.g. road resurfacing and pavement reconstruction, pipeline replacement and building component replacement),
- Upgrade/New – the activities to provide a higher level of service (e.g. widening a road, sealing an unsealed road, replacing a pipeline with a larger size) or a new service that did not exist previously (e.g. a new library).

Service and asset managers plan, implement and control technical service levels to influence the customer service levels.[3]

Table 3.5 shows the technical levels of service expected to be provided under this AM Plan. The 'Desired' position in the table documents the position being recommended in this AM Plan.

[3] IPWEA, 2015, IIMM, p 2|28.

Table 3.5: Technical Levels of Service

Key Performance Measure	Level of Service Objective	Performance Measure Process	Current Performance	Desired for optimum lifecycle cost
Operations and Maintenance	To maintain function and serviceability of the road network.	Proactive maintenance	Maintenance undertaken in accordance with RMP	Maintenance undertaken in accordance with RMP
		Reactive maintenance	Requests responded to in accordance with RMP	Requests responded to in accordance with RMP
		Inspections	Inspections completed in accordance with RMP	Inspections completed in accordance with RMP
		Annual maintenance budget	100% of maintenance budget expended	100% of maintenance budget expended
Asset Renewal	To renew transport assets in poor condition or at risk of failure	Percentage of wearing course and pavement outside renewal intervention levels	Currently 9% of sealed surfaces outside intervention 3.5% of sealed pavements outside intervention	Sealed Surfaces not greater than 3% Sealed Pavements not greater than 1%
		Design specification for renewal meets the road classification and utilisation patterns • Depth of pavement • Construction width • Supplied Road furniture	Unknown	
		Percentage of unsealed roads outside renewal intervention levels	0%	No greater than 2%
Upgrade/New				
	Road capacity and function matches utilisation of road assets	Percentage correct – function and capacity against utilisation (heavy vehicles and traffic volumes	% unknown	100% of roads meet road hierarchy classification

It is important to monitor the service levels provided regularly as these will change. The current performance is influenced by work efficiencies and technology, and customer priorities will change over time. Review and establishment of the agreed position which achieves the best balance between service, risk and cost is essential.

3.3.3 Actual Levels of Service

Council recognises the importance that levels of service play in optimising the lifecycle management of infrastructure assets. The development and monitoring of actual service level will be one of the foundations of future improvement through the asset management planning process.

3.4 Customer Research and Expectations

Wherever practicable, community input will be sought on appropriate aspects of planning our road network by way of consultation. However, consultation will be governed by the ability to accommodate changes for reasons that include existing physical constraints as well as the affordability of resources to effect possible changes.

By seeking community input into its service delivery, it is vital that Council does not create a false sense of expectation by the community that suggested changes will be implemented that simply cannot be achieved for reasons such as the affordability factor.

It is important that any decisions made are on the basis of what are deemed to be in the best interest of the community overall while ideally not seriously disadvantaging any specific interest groups.

In the event that there is a group that is disadvantaged, efforts will be made to recognise and address the deficiencies wherever practicable.

During any future consultation process Council will test the following assumptions to make sure that they are correct or amend them accordingly. The assumptions are that the road network will provide for:

- Reasonably direct traffic routes between important centres of community interest;
- Ease of access to major traffic routes;
- Rehabilitation of failed pavements;
- Widening of a number of sub-standard narrow roads;
- Rehabilitation and improvement of road shoulders;
- Maintenance of seal edges and road shoulders/drainage;
- Use of quality road-making materials;
- Frequent and detailed road inspection schedule;
- Improved maintenance techniques/methods – greater efficiency;
- Frequent grading and resheeting of gravel roads;
- Generally heavy vehicle traffic to be limited to Arterial Roads managed by VicRoads;
- Access to the Shire's local road network by heavy vehicles to be limited to those specifically required to use the Shire's roads, and then for them to use only Link and Collector Roads other than when immediately accessing properties.
- Limited through access directed along residential streets;
- Minimal conflict between various road user groups/vehicle types (e.g. cars, trucks, motor cyclists, bicyclists, pedestrians, children and people with disabilities);
- Provision of suitable traffic control devices in dangerous locations especially where there is potential conflict between user groups (e.g. pedestrian crossings, road and street intersections);
- Adequate provision for people with disabilities, the aged, mothers with children, etc. in relation to potential hazards and obstructions such as road crossings, location of street furniture, light poles, sign posts, etc;
- Street lighting in urban areas provides good visibility at night;
- All road structures (e.g. pavement base, surface, bridges, and traffic devices) to be maintained in a safe, workable condition;
- Street and roadside trees to be selected to maximise aesthetic benefit but with minimal ongoing problems with hazards caused by root movement and droppings (e.g. berries); and
- Adequate provision of street signing to facilitate easy access for non-locals.

3.4.1 Community Satisfaction

Council participates in the Department of Victorian Communities annual constituents' satisfaction survey. This survey is conducted during March each year, involving a minimum of 350 interviews for each municipality. The survey measures residents' perceptions about the performance of the Council in relation to the appearance of Local Roads and Footpaths. The results of this survey are detailed in the following table:

Performance Measure	Satisfaction Level (percentage)					
	Very Good	Good	Average	Poor	Very Poor	Can't Say
Unsealed Roads	5	19	28	27	17	5
Sealed Local Roads	5	22	30	27	16	0

Performance Indicator	Actual 2014/15	Actual 2015/16	Actual 2016/17	Actual 2017/18	Large Rural Avg. 2017	State Wide Avg. 2017
Community Satisfaction Index in the key service area of *Sealed Local Roads*	43	37	38	43	45	53
Community Satisfaction Index in the key service area of *Unsealed Roads*	na	na	na	41	41	43
Community Satisfaction Index in the key service area of *Streets and Footpaths*	Not measured	Not measured	38	41	53	57

The survey also scales community attitudes of importance against community opinions of performance. Unsealed Roads and Sealed Local Roads are regarded by the community as the services of greatest importance, however they are worst performing services with the largest differential gap between importance and performance.

	Importance	Performance	Net Differential
Unsealed Roads	81	41	(-40)
Sealed Local Roads	81	43	(-38)

As well as roads services, footpath services were identified on page 36 and 37 of the survey as an area for improvement with footpaths and walking tracks having scored lower in community opinion of performance from the 2017 survey.

Results from each of these community satisfaction surveys indicates that there is an increasing level of dissatisfaction within the community regarding the condition and quality of Council's road network and associated assets. Further consultation is required to understand the nature of the community's low level of acceptance of the service standards presently delivered by Council. To assist in understanding the community's expectations, Council should implement a process to measure the level of satisfaction associated with the management of its roads and footpaths.

3.5 Legislative Requirements

There are many legislative requirements relating to the management of assets. These include:

Table 3.3: Legislative Requirements

Legislation	Requirement
Local Government Act 1989	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.
Road Management Act 2004 **and associated Regulations**	Purpose is to establish a coordinated management system for public roads that will promote safe and efficient State and local public road networks and the responsible use of road reserves for other legitimate purposes, such as the provision of utility services. Defines the responsible authorities for all roads within the state. It makes Council the controlling authority for Public Local Roads, Boundary Roads and parts of Declared Roads within the municipal area and it is therefore responsible for managing the infrastructure assets within them.
Local Government (Best Value Principles) Act 1999;	
Transport Act 1983	Relates to the operation of the road network
Road Safety Act 1986	Safety requirements relating to the use and operation of the road network.
Environment Protection and Biodiversity Conservation Act 1999	Applicable due to roadside conservation areas
Occupational Health and Safety Act 2004	Applicable to working within the road reserve.
All other relevant State and federal Acts and Regulations	Where applicable, including the *Disability Discrimination Act (1992)* including the *Disability Standards for Accessible Public Transport (2002)*.
AustRoads Road Design Guidelines	Provides guidelines for design of roads, pedestrian and cyclist areas, drainage structures, ancillary areas and structures.
Australian Rainfall and Runoff	Provides the guidelines for flood estimation in design.

4 FUTURE DEMAND

4.1 Demand Drivers

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

4.2 Demand Forecasts

The present position and projections for demand drivers that may impact future service delivery and use of assets were identified and are documented in Table 4.3.

Population growth within the Mitchell Shire is around 4% per annum over a sustained period.

Over the past 8-year period of sustained growth Council has increased its road asset base by an annual average of 7.6 kilometres per year. This has occurred mainly in the southern part of the municipality in the towns of Wallan, Beveridge and Kilmore.

In terms of asset capacity, namely the ability for the road network to carry the volumes of traffic expected of it, there are areas of concern which are currently arising. These issues range from insufficient carriageway widths, and pavement strengths to cater for increasing traffic volumes. The Urban Growth Boundary has recently been moved out to include the towns of Beveridge and Wallan South. This movement could further increase the prevalence of these issues arising.

There are various heavy vehicle usage patterns emerging that may well have an impact on the road network. This includes vehicular traffic relating to quarries, grain storage, and forest harvesting.

4.3 Demand Impact on Assets

The impact of demand drivers that may affect future service delivery and use of assets are shown in Table 4.3.

Table 4.3: Demand Drivers, Projections and Impact on Services

<table>
<tr><th>Demand Drivers</th><th>Present Position</th><th>Projection</th><th>Impact on services</th></tr>
<tr><td>Population change</td><td>The total population of the Shire in 2016 was 41,635.</td><td>Projected population in 2036 is 91,830. This is an increase of 50,195 persons (120.56% growth). This equates to an average annual growth rate over this period of 4.03%.</td><td>• An increased need for new roads, Kerbs, footpaths (and other road network assets) in subdivisional development.
• Additional traffic associated with population growth will lead to the need to upgrade existing assets.</td></tr>
<tr><td>Demographic change</td><td><table><tr><th>Age group (years)</th><th>Number</th></tr><tr><td>Babies and pre-schoolers (0 to 4)</td><td>3,057</td></tr><tr><td>Primary schoolers (5 to 11)</td><td>4,114</td></tr><tr><td>Secondary schoolers (12 to 17)</td><td>3,499</td></tr><tr><td>Tertiary education (18 to 24)</td><td>3,736</td></tr><tr><td>Young workforce (25 to 34)</td><td>5,534</td></tr><tr><td>Parents and homebuilders (35 to 49)</td><td>8,180</td></tr><tr><td>Older workers/pre-retirees (50 to 59)</td><td>5,505</td></tr><tr><td>Empty nesters and retirees (60 to 69)</td><td>4,398</td></tr><tr><td>Seniors (70 to 84)</td><td>3,042</td></tr><tr><td>Elderly aged (85 and over)</td><td>571</td></tr><tr><td>Total persons</td><td>41,635</td></tr></table></td><td>Between 2016 and 2026, the age structure forecasts for Mitchell Shire indicate a 65.6% increase in population under working age, a 62.0% increase in population of retirement age, and a 46.2% increase in population of working age.</td><td>• Increased demand upon the pathway network may be expected.
• In addition, increases in working age group may produce increases in demand on the road network.</td></tr>
<tr><td>Design</td><td>Roads provided, constructed and maintained</td><td>Roads and other related</td><td>• Potential for increased costs</td></tr>
</table>

Demand Drivers	Present Position	Projection	Impact on services
standards	according to current standards.	infrastructure provided, constructed (and possibly) maintained according to future standards.	to meet more rigorous standards
Council financial sustainability	Councils Long Term Financial Plan is not able to meet the required budgets to deliver key components to manage the road assets.	Reduced size of grants from other tiers of government not matching required asset expenditures.	• Decreased ability to fund timely renewal and upgrade of poor/very poor condition asset • Increased need for maintenance and repairs.
Council operational and services priority changes	Local government is inheriting services from State and Federal governments and taking up new operations and services in response to community demand.	This trend may accelerate, but there is limited revenue growth to fund them placing pressure on all operations and services including asset provision and maintenance.	• Decreased ability to fund timely renewal and upgrade of poor/very poor condition asset • Increased need for maintenance and repairs
Climate change	Australia's current climates are variable and prone to extremes - droughts, heatwaves, fires, intense rainfall and floods. These extremes can have a significant impact on communities, natural environments and regional economies.	Variable climate Increased frequency and intensity of extreme rainfall and storm events is likely to cause significant damage to roads or create access issues.	• Roads may experience an increase in flood damage, increased pavement and formation damage due to ground movement, and more generally an accelerated degradation of materials through increased temperature and solar radiation.
Ageing infrastructure	A large proportion of Council's road network and associated infrastructure was developed and constructed many years ago.	Council has a legacy whereby road assets, based on their age profile, will require renewal or rehabilitation in the near term in order to maintain basic service levels.	• Without adequate funding the declining condition of Council's roads due to age will result in reduced levels of service and increased risk by putting pressure on the ability to meet RMP compliance requirements. • Load limits may be required to prolong useful life and to manage risk. This may increase transport costs.
Increasing freight	High Productivity Freight Vehicles (HPFVs), such as B-Doubles and Higher Mass Limit Vehicles, are important to the efficiency of the freight task within Mitchell Shire. The larger capacity of these vehicles reduces the number of vehicles required for a given amount of freight.	Freight volume across all transport modes is expected to grow by around 100 per cent by 2030 from current levels. Having a local road network which supports the use of HPFVs is vital enhancing efficiencies and maintaining industry competitiveness.	• Road infrastructure will be exposed to greater volumes of heavy vehicle traffic in proportion to the increase of the freight task which can be expected to cause accelerated pavement deterioration.

4.4 Demand Management Strategy

Demand management is not intended to reduce the scope or standard of services provided by an asset, but rather, it is concerned with aligning demand or expectation of service provided by an asset with the available resources to ensure that genuine needs are met and community benefit is maximised.

Demand management components may include:

Table 4.2: Demand Management Strategies

Component	Applicable Strategy(s)
Operation ***(modification of access to an asset)***	• Design guidelines which consider future demand factors and good design principles
Regulation ***(restriction on the type of use of an asset)***	• Restriction of types of vehicles accessing road network • Introduction of load limits to prolong the useful life of roads and to maintain public safety
Incentives ***(Influence the use of an asset)***	• Plan network improvements to coincide with major land use changes • Work with others to delineate a priority freight network to meet the needs of the increased freight task and to guide future investment in road upgrades
Education ***(promotion of alternatives)***	• Involve industry in determining alternative routes to inform the future investment in road upgrades • Monitor trends in traffic movements alongside continuing to develop works programs with consideration of land use change and population growth

4.5 Strategic Direction

There are a number of existing strategies and plans which have been developed to provide a strategic response to the demands, challenges and opportunities which the ongoing management of the assets covered by this asset management plan present. These documents include:

- Council Plan
- Road Management Plan
- Environment Strategy
- Economic Development Strategy
- Plan Melbourne 2017 – 2050
- Hume Regional Growth Plan
- Precinct Structure Plans
- Township Structure Plans
- Infrastructure Contributions Plan

4.5.1 Climate Change Adaptation Strategies

It is important that we ensure that our assets are planned and developed to incorporate climate resiliency and to also mitigate our impact on the environment.

From a Council infrastructure perspective, where alterations, upgrading, renewal or replacement of elements of structures and even new roads, pathways, bridges and drainage structures are proposed, a preliminary risk assessment needs to be undertaken to measure the potential impacts of future climate variability. Mitigation or response measures may then be incorporated into the design process to consider factors such as prolonged drought or high intensity storm events.

4.5.2 Technological Change Response Strategies

Technological change will be monitored to establish when changes occur that may bring benefits to Council. Monitoring can be by way of media coverage, industry journals, workshops and conferences.

We will seek to be innovative in the way that we manage our assets from collecting, storing and analysing data to methods of construction and maintenance and the materials that we use.

We will also seek to form partnerships with other local council's or other organisations where it is appropriate to develop and implement systems, tools, and processes in response to technological change.

5 LIFECYCLE MANAGEMENT PLAN

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

5.1 Background Data

5.1.1 Physical Parameters

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

In general, the road asset class comprises of a number of different elements including:

- Road formation;
- Road pavement;
- Seal or wearing course;
- Roadside drainage;
- Footpaths;
- Kerb and channel;
- Signs and markings;
- Traffic facilities such as guideposts, guard rail, safety fences;
- Lighting and street furniture; and
- Land comprising the road reserve

The road network infrastructure of the Mitchell Shire for which Council is responsible includes 1,408 Km of roads (689 km sealed and 718 km unsealed), 214 km of footpaths and walking tracks, and 427 km of kerb and channel. Replacement value of Council's roads asset class as at June 2018 for the road network is $294.7 million.

5.1.2 Asset Capacity and Performance

Assets are generally provided to meet design standards where these are available. The Infrastructure Design Manual (IDM) and Engineering Design and Construction Manual for Subdivision in Growth Areas provide the standards in this regard.

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

Table 5.1.2: Known Service Performance Deficiencies

Asset Category Issue	Service Deficiency
Budget	Maintenance budget allocations are not increasing in line with expansion of network resulting from subdivision development
Budget	Council is presently underfunding the renewal of its road and footpaths assets which, if unaddressed, will result in declining asset condition and service levels.
Levels of Service	Without clearly defined levels of service it is not possible to understand extent of performance deficiencies.
Road Shoulders	For narrow sealed roads, there is currently no program for resheeting/sealing shoulders to preserve pavement formation
Gravel Specifications	To ensure consistency and reliability of products, specifications supported by quarry testing should be in place. This will allow performance of gravels to

	be measured over time.
Minor Culverts	Asset inventory is not complete

5.1.3 Asset Condition

Condition inspections of Council's sealed and unsealed roads are undertaken every four (4) years. Footpaths and kerb and channel are inspected every five (5) years. The last condition survey of Council's roads was completed in 2018 and footpaths were inspected in 2017. Council officers have developed condition assessment briefs which are contracted out for assessment. This method ensures that Council has a consistent method of measurement and data capture.

The condition data collected is then entered into Council's asset management system, and in turn is used for the financial renewal modelling.

The condition profiles of the various asset types within the Road asset Class is shown in a series of Figures 3 – 3(f). To simplify the overview, this covers the Major asset types (e.g. sealed and unsealed roads, footpaths, kerb and channel, etc) but not the Minor Asset Types (i.e. traffic and street furniture) as they make up a very small percentage of the road asset class and are not material. Typically, the condition profiles should be reasonably normally distributed into a classic "bell-shape" curve .

Commentary is provided for each of the following profiles.

Fig 3: Asset Condition Profile – All Major Road Assets

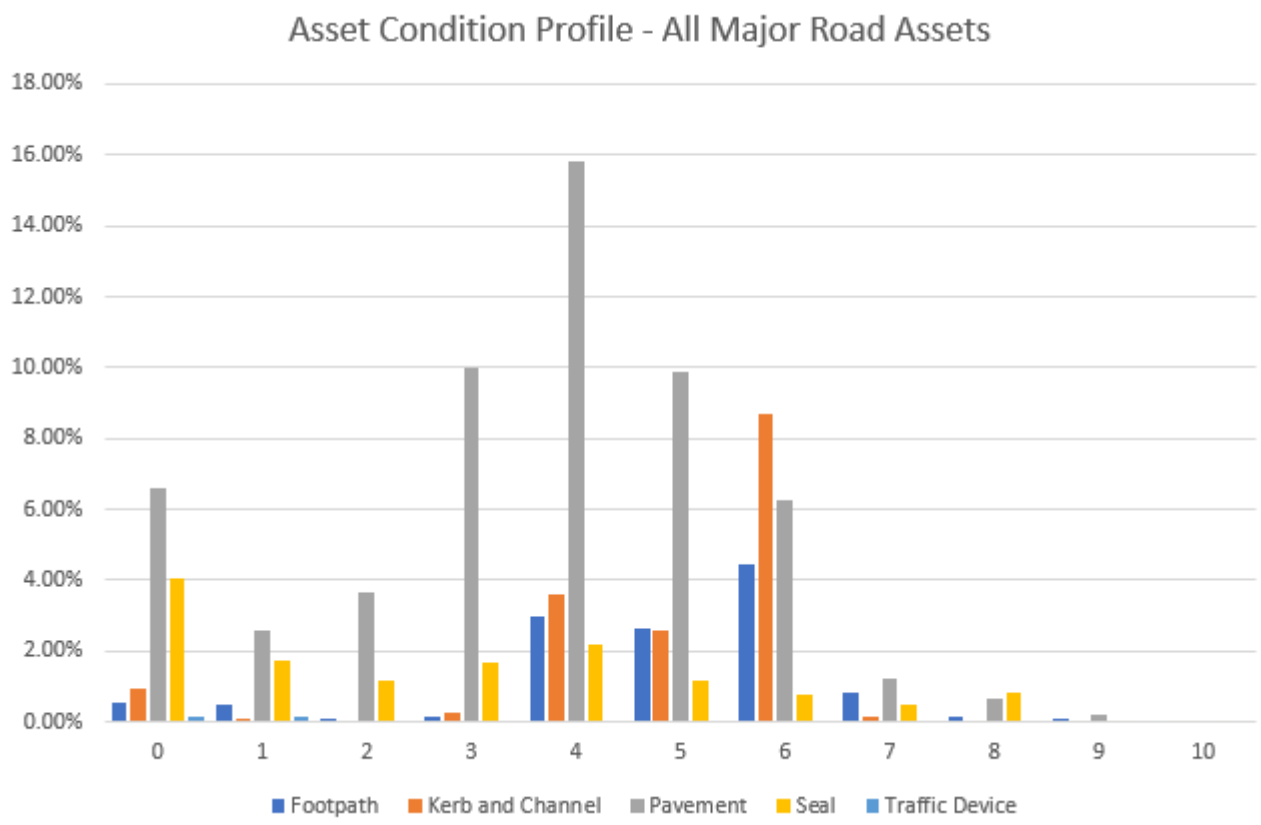


Figure 3 provides a wholistic view of road asset condition across all asset groups. The profiles are driven by value of assets within each condition score. For example pavement makes up 44% of the total replacement cost of road assets and therfore stands out within the overall condition profile. The pavement, kerb and footpath assets at condition six is concerning and what is driving future demand predictions over the next decade.

Fig 3(a): Asset Condition Profile – All Major Road Assets

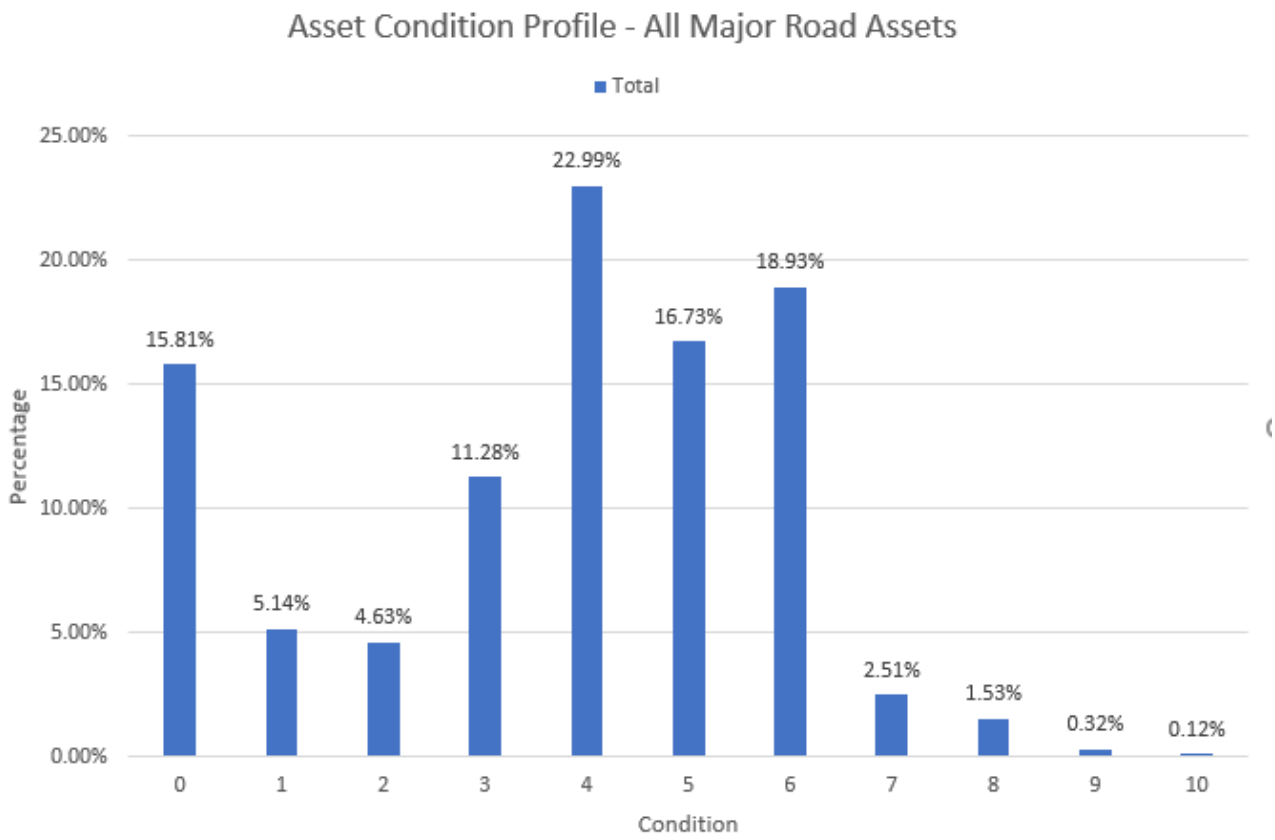


Table 3(a) combines all the asset groups from the above figure 3. It demonstrates that 4.5% of assets are at or nearing end of life. When the 4.5% figure is considered as a backlog of renewal work, it stands at around $12.9M required to clear all outside intervention assets. The percentage of assets at condition 6 is high and as mentioned above, as these assets are nearing intervention, the prediction models assume a portion will fall into condition 7 over the coming decade, driving a high renewal demand.

Since 2010 Council has increased its new road assets by almost 9% with 50% of this amount acquired in the last three years. These assets should still be in very good condition and coupled with renewal works undertaken over this time it is pushing up Councils number of assets in the condition range 0-2.

The following figures are provided to demonstrate condition profiles for the major components of the Road Asset Network being;

- Pavement – fig 3b
- Unsealed Roads - 3c
- Seals – 3d
- Footpath and Cycleways – 3e
- Kerb and Channel – 3f

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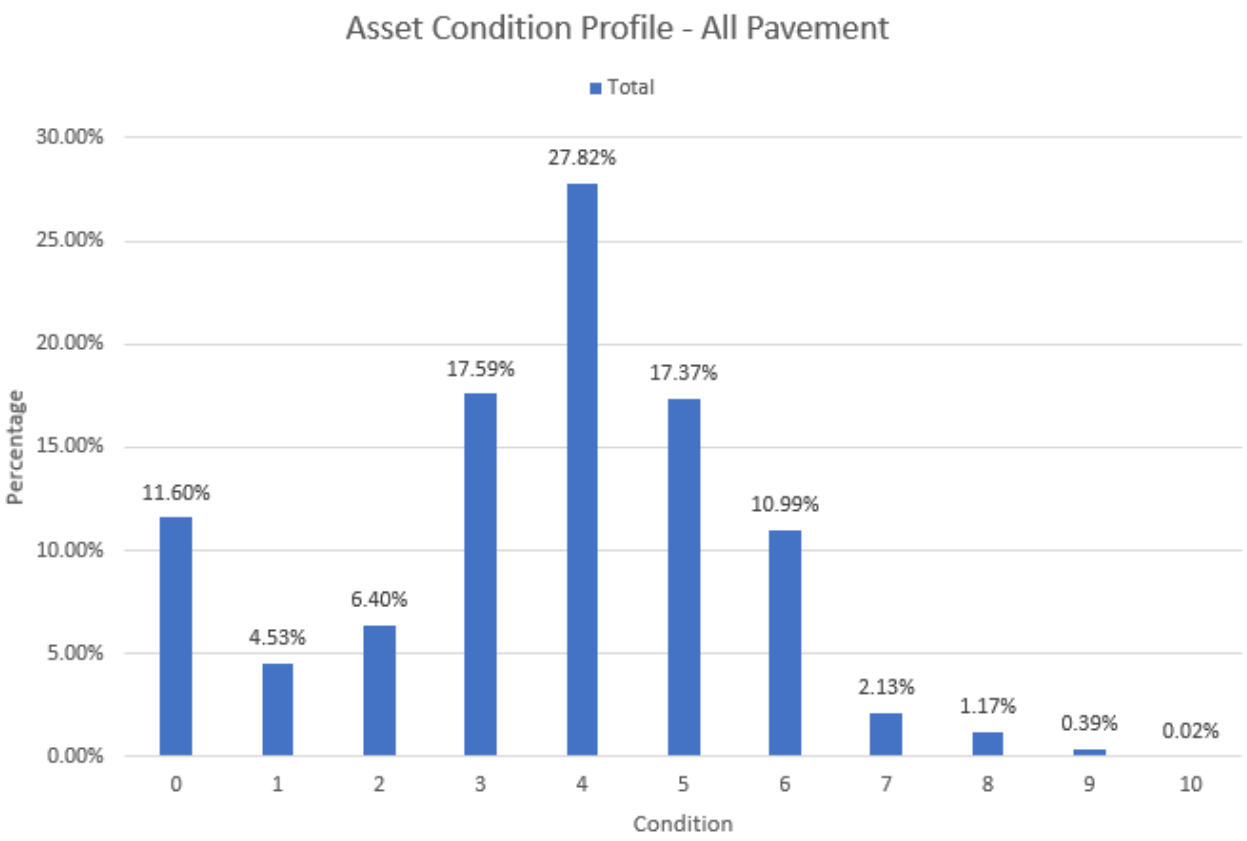
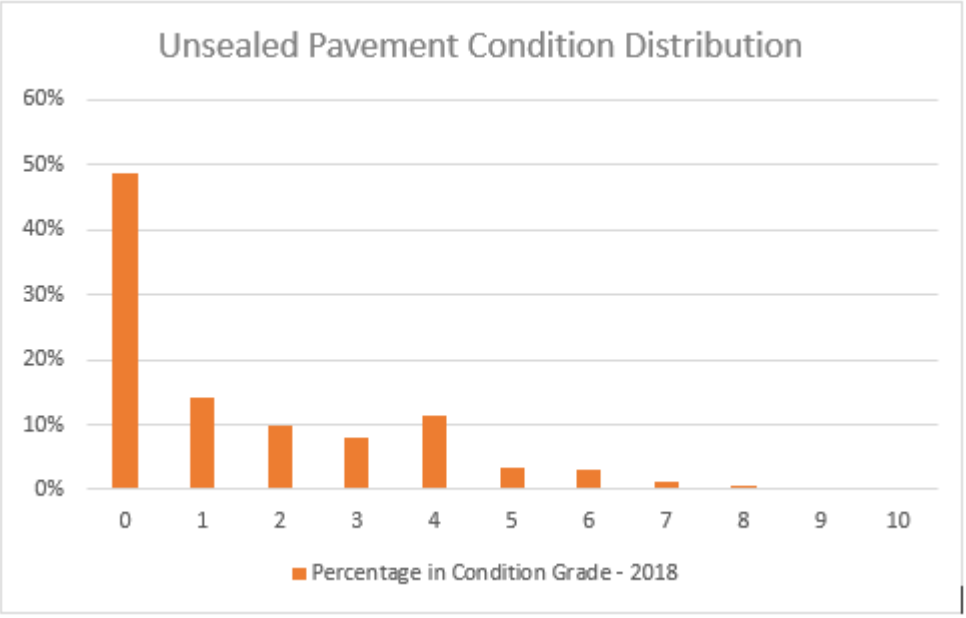
Fig 3b: Asset Condition Profile – All Pavements



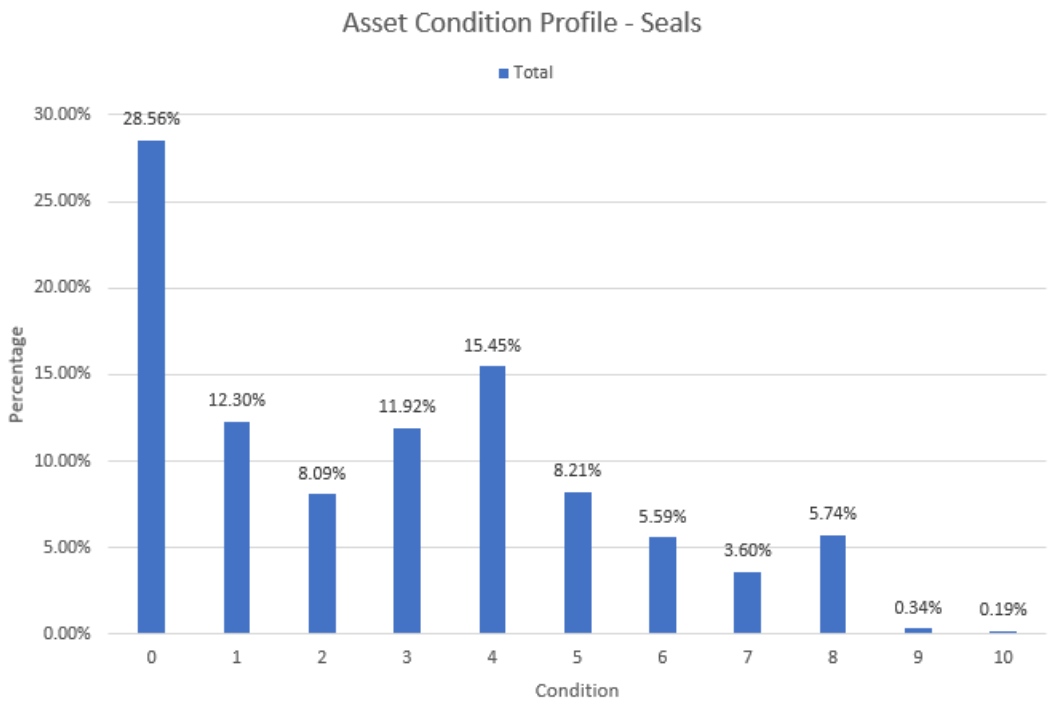
The above fig 3b shows a good distribution profile with around 70% of pavements in the condition 3 to 5 range. The figure includes both sealed and unsealed pavements.

Fig 3c: Asset Condition Profile – Unsealed Roads



The unsealed pavement condition profile is based on the recent external review undertaken by Moloney's in 2018. The profile suggests a very good unsealed road service but this does stand in contrast to feedback from the community who rate this service as Council's worst. It is expected, that by the end of the 2018/19 resheeting program Council will have no unsealed roads above a condition level 6. As it stands it appears Council is in fact over servicing unsealed roads, but to make any changes in the future will require significant public consultation.

Fig 3d: Asset Condition Profile – Sealed Road Surfaces



This “Surface” condition profile is shown as a combination of both Spray Seals and Asphalt Seals rather than documenting the six separate Asset Types that are stored in Conquest. With a common Condition Intervention of 7, this indicates that 9% of the road network requires renewal. This warrants close attention in future year renewal allocations.

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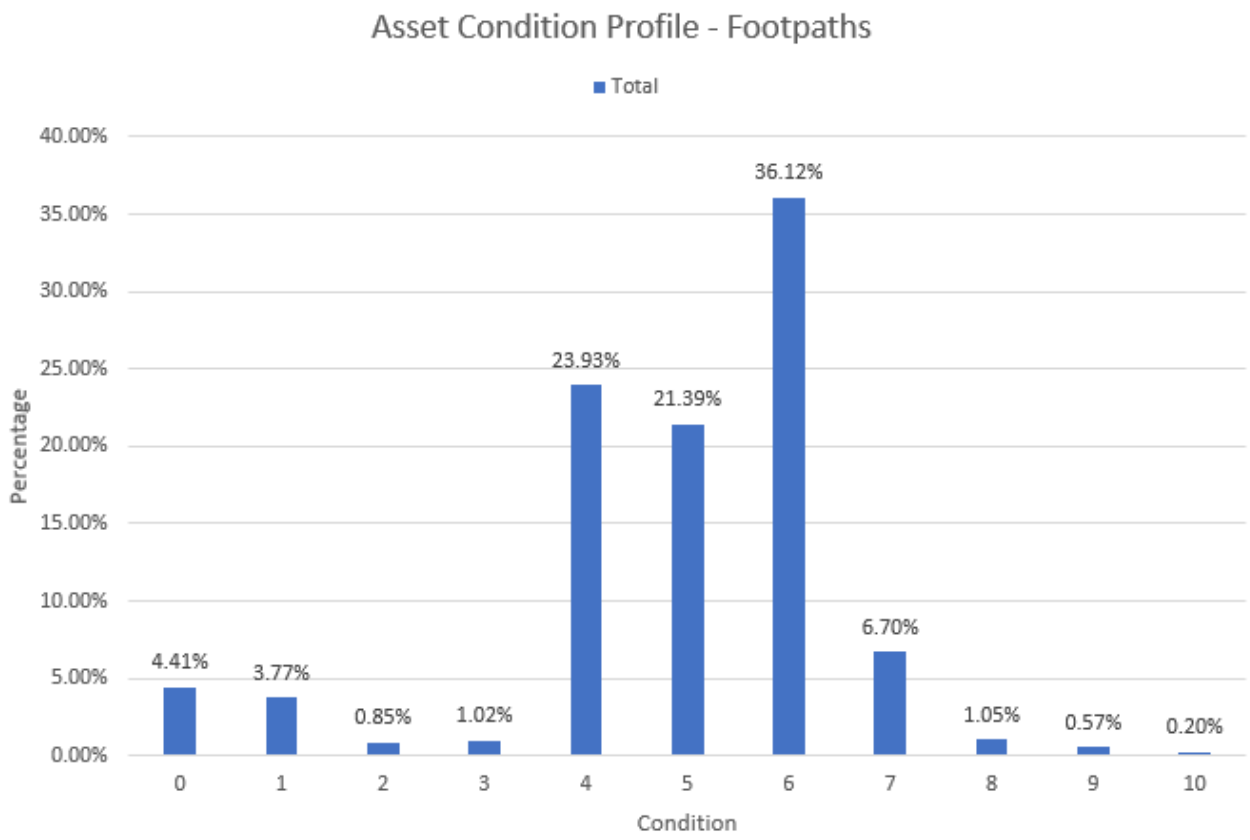
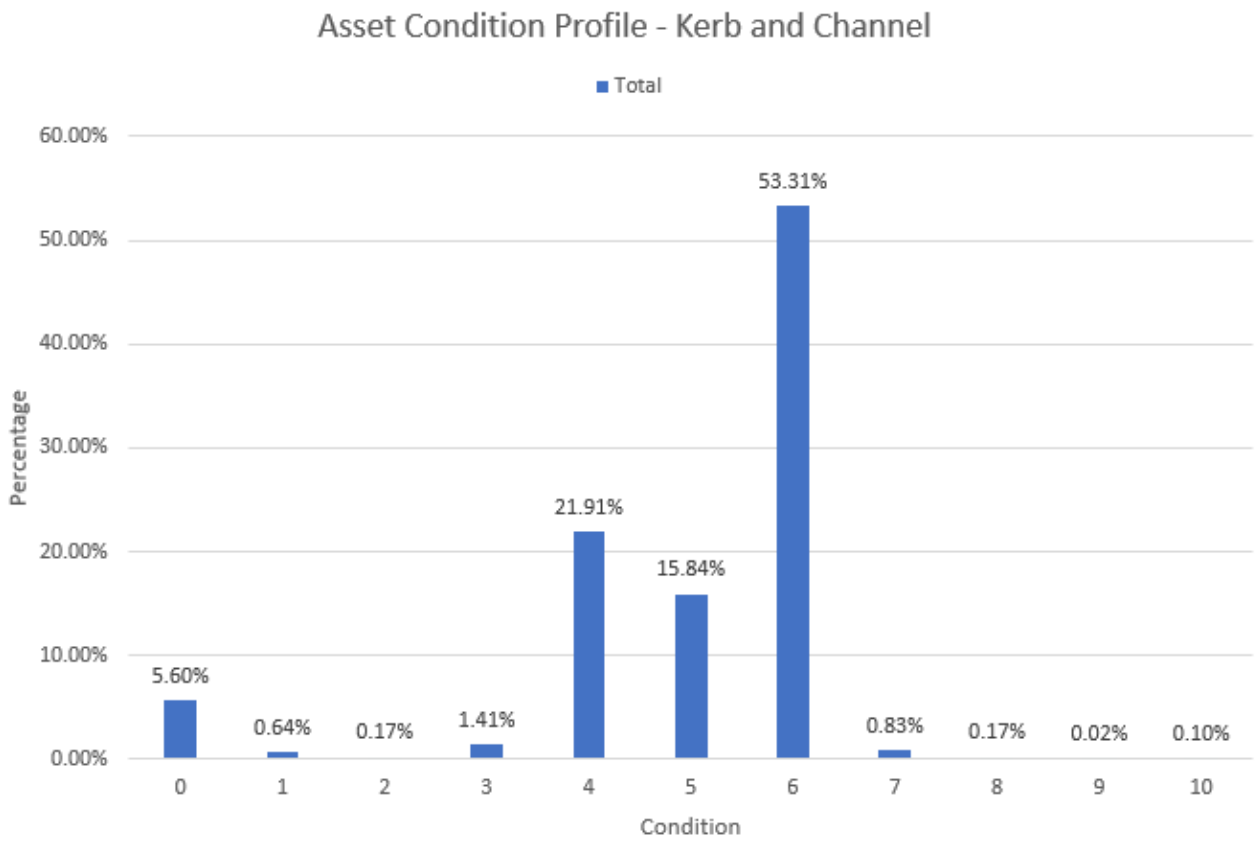
Fig 3e: Asset Condition Profile – Footpaths



The condition profile for footpaths indicates that 8.4% of the entire footpath network requires renewal as it has reached the condition 7 intervention point. A very significant amount of renewal is pending as the Condition 6 pathways transition to the intervention level of 7 in coming years. The impacts of poor footpaths will begin to be noticed over the next decade and warrants close management attention.

Fig 3e: Asset Condition Profile – Kerb and Channel



The condition profile for kerb is concerning given the high percentage of assets in condition 6. This graph suggests there will be high demand for kerb and channel renewal starting imminently and continuing over the coming decade as assets will shift into condition 7 triggering a renewal requirement. The replacement value of assets at condition 6 is just over $20M of replacement value.

Condition is measured using a 0 – 10 Moloney grading system as detailed in Table 5.1.3.

Table 5.1.3: Simple Condition Grading Model

Rating	Description	
0	New	New or an asset recently rehabilitated back to new condition.
1	Near New	No visible signs of deterioration often based upon the time since construction rather than observed condition decline.
2	Excellent	Very slight condition decline obvious no longer in new condition.
3	Very Good	Early stages of deterioration minor no serviceability problems.
4	Good	Some obvious deterioration evident slightly impaired serviceability.
5	Fair	Obvious deterioration some serviceability loss.
6	Fair to Poor	Quite obvious deterioration serviceability would be affected and rising maintenance cost.
7	Poor	Severe deterioration serviceability limited high Maintenance cost

Rating	Description	
8	Very Poor	Serviceability heavily impacted. very high Maintenance cost needed to be rehabilitated.
9	Extremely Poor	Severe serviceability problems needing rehabilitation immediately. Could also be a risk to remain in service
10	Failed	No longer serviceable and should not remain in service extreme risk

5.2 Operations and Maintenance Plan

Operations include regular activities to provide services such as public health, safety and amenity, e.g. cleaning, street sweeping, utilities costs and street lighting.

Routine maintenance is the regular on-going work that is necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make the asset operational again, e.g. road patching.

Maintenance includes all actions necessary for retaining an asset as near as practicable to an appropriate service condition including regular ongoing day-to-day work necessary to keep assets operating.

Effective maintenance strategies are essential to ensure that an asset performs at the desired service level on a day-to-day basis.

5.2.1 Road Management Plan

Council's Road Management Plan identifies the standards of maintenance applicable to those local roads, bridges, pathways, and associated infrastructure listed in the Register of Public Roads for which Council is the responsible 'Road Authority'.

5.2.2 Maintenance Service Agreement

Road maintenance services are delivered by Council's own road maintenance team. Works are funded through the annual maintenance budgets. There are a number of contracts in place for materials and services which support Council's own in-house resources. Road renewal and upgrade projects are managed by Council's Engineering and Major Projects Team

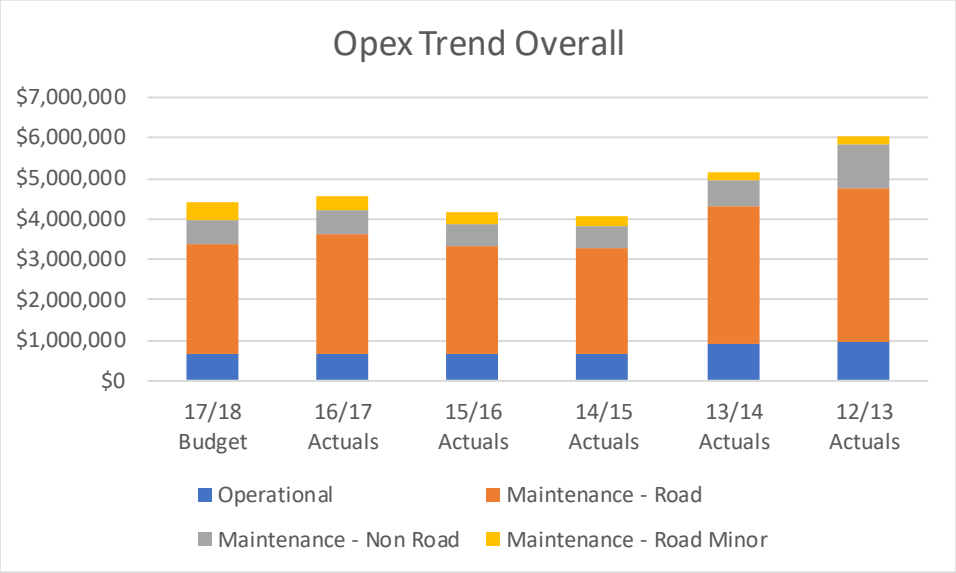
5.2.3 Maintenance and Operations Costs

Analysis of information provided by finance from the Tech One system included coding the information into the following expenditure categories:

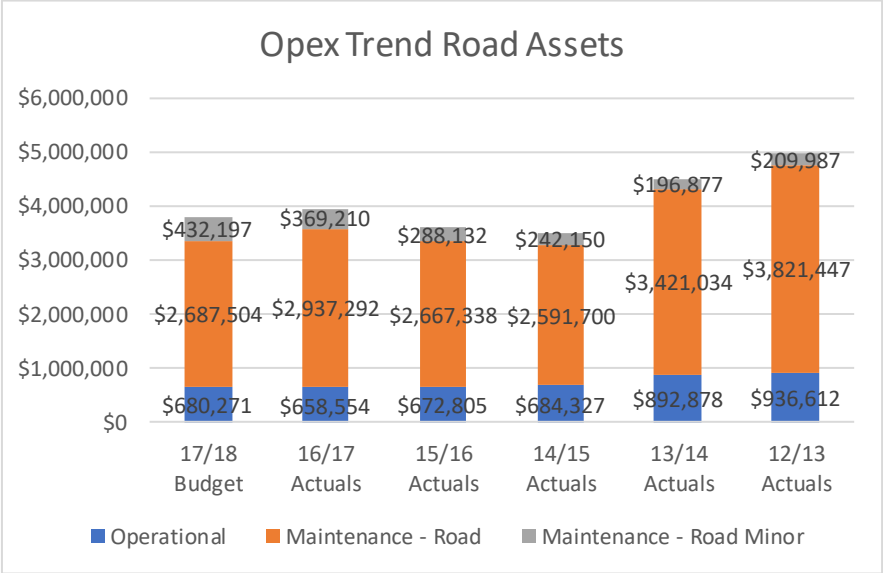
- Operational
- Maintenance – Road
- Maintenance – Road Minor
- Maintenance – Non-Road

The following table summarises maintenance and operations costs for the assets covered by this asset management plan:

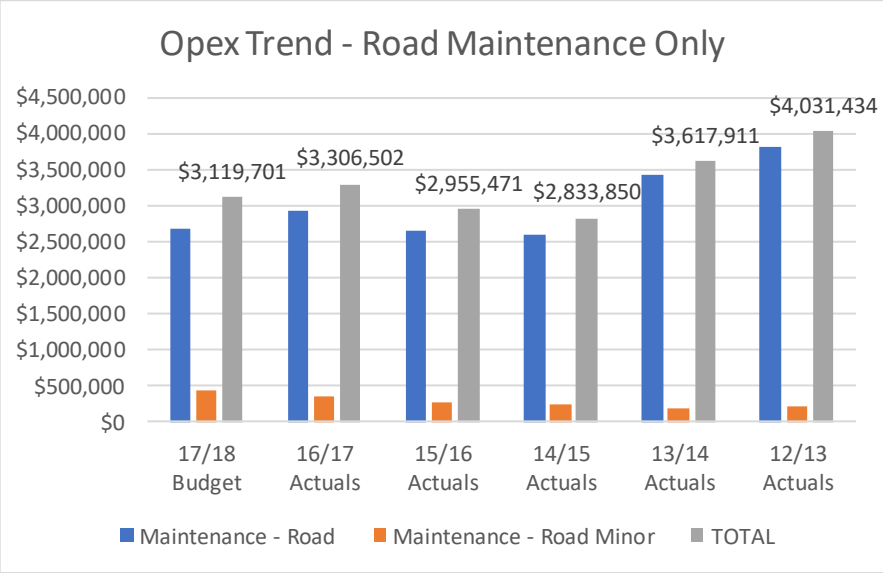
Table 5.2.1: Maintenance Expenditure Trends



This graph shows the apportionment of recurrent expenditure on roads. The Maintenance – Non-Road category covers items such as drainage maintenance and standpipes not directly related to road assets. It shows that total expenditure has dropped about $1.5M over the past six years.



This graph shows the breakdown of recurrent expenditure as best as can be determined that are associated with Road assets.



This graph shows the recurrent expenditure associated with Road maintenance only, which averages $3.3 Million / annum over the past 6 years. It also shows a declining trend in the level of road maintenance over the past six years.

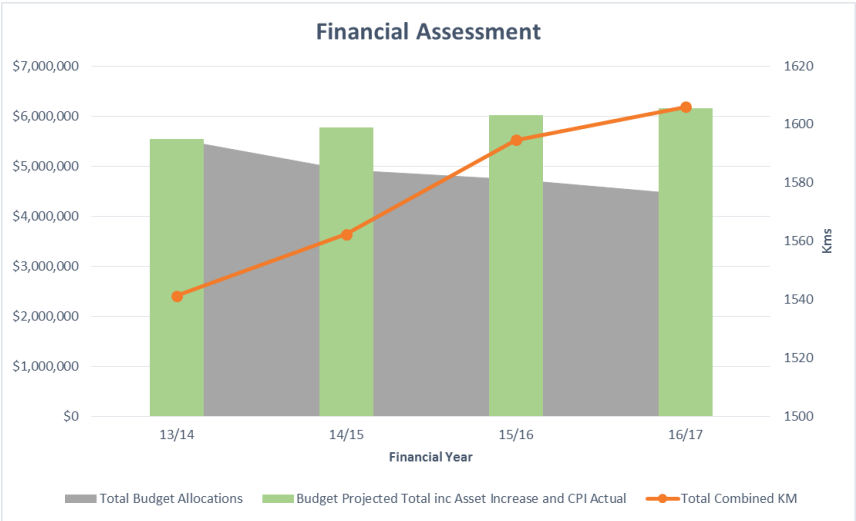
It should be noted that the average expenditure of $3.3 million per year on roads exceeds the average capital renewal expenditure on roads by $1 million per year.

It would be worth some further analysis of the value of increased capital renewal expenditure on roads with a view of reducing the operational cost in maintaining deteriorating Road assets.

A statistic which would add value to this report, but was not available, is the ratio of reactive to proactive Road maintenance.

A discussion was held with Paul Simpson - Acting Manager Operations and Parks and a subsequent analysis provided in relation to the maintenance funding trends and contributed assets.

The results are displayed in the following graph:



This shows that whilst the total number of kilometres of Roads and Footpaths is increasing due to gifted assets from subdivisions, the level of funding is decreasing and diverging away from the Projected Budget Trend (based on an increasing asset base to be maintained) and CPI cost increases.

This trend will result in the road assets deteriorating more rapidly than expected and customer requests for maintenance intervention. This also impacts on the renewal demand due to the assets not reaching their nominated useful lives.

5.2.4 Future Operations and Maintenance Expenditures

Future operations and maintenance expenditure is forecast to trend in line with the value of the asset stock as shown in Figure 4. Note that all costs are shown in current 2017/18-dollar values (i.e. real values).

Figure 4: Projected Operations and Maintenance Expenditure

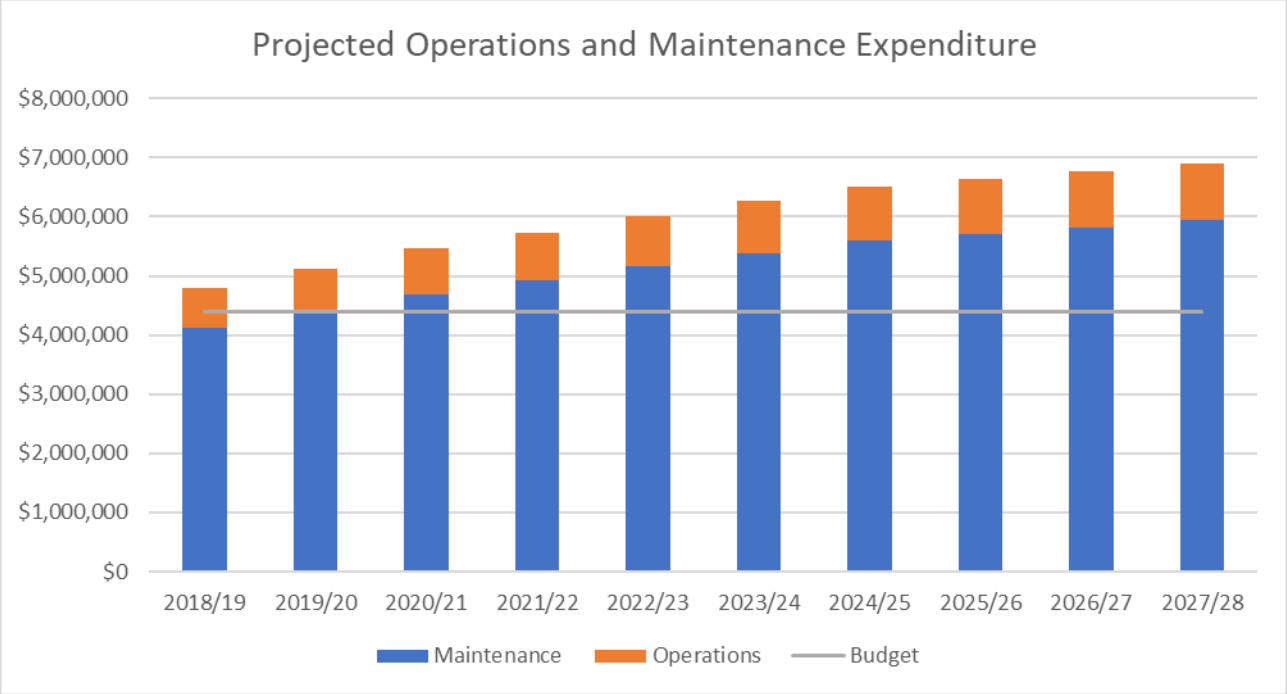


Figure Values are in current (real) dollars.

The increase in operations and maintenance requirements is indicative of the need to fund operations and maintenance associated with the creation of new assets acquired over the forecast period. The vast majority of these new assets are received as donated assets resulting from the development of new subdivisions. Council will need to budget for the maintenance of these assets within its Long Term Financial Plan to ensure that reasonable levels of service is delivered.

5.2.5 Staffing Resources

In order to meet its ongoing obligations to manage the road network in a sound and competent manner, Council needs to ensure that resources are made available to undertake the inspections, maintenance and capital renewal work.

Mitchell Shire has been an active participant in the Municipal Association of Victoria's STEP Program which aims to improve asset management knowledge and practices across all Victorian municipalities. Specifically, for the development of asset management plans and the identification of resources required for best practice asset management.

5.2.6 Maintenance Strategy

Road maintenance is the work performed during the service life of an asset to:

- Maintain capacity, other functional capability and serviceability,
- Protect the investment in assets by ensuring that the structure reaches its designed service life at the most efficient cost, and
- Ensure safety of the public.

5.2.7 Prioritising Maintenance

Maintenance activities are objectively planned in order to achieve cost and operational efficiencies. The works program and schedule are based on seasonal/annual events and routine servicing.

The most effective maintenance is based on forecasting a need and scheduling the available and proper resources and corrective actions at the appropriate time to achieve best results.

The following factors will be considered in preparing programs and scheduling of maintenance activities:

- Distance of work sites from the base of operations and time and expense to transport personnel, materials and equipment to sites,
- Weather conditions,
- Availability of suitable personnel, materials and equipment to handle intended jobs,
- Size and grouping of each work package and relationship to other works required on that area of the network,
- Response time requirements and defect ranking for prioritising the correction of defects that are either identified through customer requests or routine inspections, and
- Unplanned incidents and other emergencies that generally require immediate action by maintenance staff.

5.2.8 Inspections

Survey and inspection processes are required for effective management of our road network assets. A three-tier regime covering proactive, reactive and condition-based inspections has been implemented to make sure that we understand the performance and safety of our roads.

The Road Management Plan details the inspection requirements and their frequencies. This has been developed taking into account, among other things:

- The type of road infrastructure, volume and nature of public road use.
- The scope of inspection.
- Community expectations.
- Relevant risk factors.
- The resources available and the competing demands for them.

The inspection program not only identifies safety hazards and facilitates timely repairs, it also feeds into and guides the development of maintenance and capital works programs.

5.2.9 Maintenance Standards

All materials used in the maintenance and repair of Council's roads and footpaths will comply with all relevant technical standards. All maintenance work undertaken will be in accordance with Council's standard design guides, standard drawings, and specifications, or if not covered by these technical guides, in accordance with standard industry practices.

5.2.10 Road Management Responsibilities

Council

Council has a number of key missions in the delivery of its road and bridge network assets, including:

- Ensuring cost-effective lifecycle management of assets; and
- Providing levels of service that satisfy users and meet demand needs.

Meeting all of these responsibilities effectively requires the availability and allocation of asset management resources. Key current issues in relation to these functions include:

- The satisfactory control of works on or in the vicinity of bridges and major Culverts by utility operators and contractors; and

- Management systems for controlling access to the network by over-weight/over-dimensional vehicles.

Vic Roads

VicRoads is the responsible authority for managing the arterial road network within the Shire. This includes all roads and associated bridge infrastructure previously classified as highways and main roads.

Adjoining Municipalities

The Shires' boundaries as defined in the Victorian Government Gazette, have associated bridges and major culverts and historically have been maintained with a formal or informal agreement between municipalities.

The *Road Management Act 2004* requires clarification of the responsibilities for these roads. Further, it is more efficient and economical for certain Councils to maintain roads due to their isolation from the rest of a neighbouring Shire's road network. The *Road Management Act 2004* allows road authorities to transfer responsibility for maintenance to another entity.

Mitchell Shire Council has roads, bridges and major culverts in all three categories – shared roads, Mitchell Shire Roads maintained by others, and roads of other Councils which are maintained by Mitchell Shire Council.

In an endeavour to define a responsible road authority in relation to the road infrastructure assets, Council needs to negotiate with neighbouring Councils over the maintenance of these road infrastructure assets.

Adjoining municipalities with Mitchell Shire are the City of Greater Bendigo, Hume City Council, Macedon Ranges Shire Council, Mount Alexander Shire Council, Murrindindi Shire Council, Strathbogie Shire Council, and Whittlesea City Council.

Department of Environment, Land, Water and Planning (DELWP)

A number of roads exist on Crown Land, other than road reserves, for which DELWP has management responsibility. These roads are not included in Council's Public Roads Register.

VicTrack

VicTrack is responsible for maintaining railway level crossings throughout the Mitchell Shire, in the immediate vicinity of the railway line. They are also responsible for pedestrian crossings and footbridges. The exception to this rule is the pedestrian overpass located in Wandong.

Council is responsible for maintaining the approaches to the rail line and approach signage on the municipal road network. A Council GIS database identifies the locations of these railway crossings.

Subdivisional Roads

"Subdivisional Roads" (including the 'road reserve' and the physical constructed road) come into existence as a result of the subdivision of private land. In accordance with a Planning / Development Permit, where a road is constructed to the standards required by Council, Council will maintain the road and associated bridges or major culverts to the standards detailed in this plan.

Utility Assets

Utility assets on the road reserve are provided and maintained by the authority listed in the table below. In some instances, these utility assets may be incorporated in or attached to the bridge and major culvert infrastructure.

Table 5.2.10: Utility Assets Maintenance Responsibilities

Asset Type	Responsible Authority
Town Water supply and sewerage – Beveridge, Broadford, Heathcote Junction, Kilmore, Pyalong, Seymour, Tallarook, Tooborac, Wallan and Wandong	Goulburn Valley Water Yarra Valley Water
Rural Water Supply	Goulburn-Murray Water
Rural Drainage (channels and associated structures)	Goulburn-Murray Water Melbourne Water

Asset Type	Responsible Authority
Telecommunications	Telstra
Electricity	SP Ausnet
Street Lights	SP Ausnet – Council pays a charge for operations, maintenance and repair of standard street lights

Council is the co-ordinating authority under the *Road Management Act 2004* and is required to co-ordinate the use of the road reserve including the installation of various road and utility infrastructures so as to:

- Ensure the safety of road users and the community;
- Minimise disruption and inconvenience to road users;
- Protect the environment; and
- Protect the physical integrity of the road and infrastructure in the road reserve.

Country Fire Authority

The Country Fire Authority (CFA) in conjunction with Council review the status and standard of the various nominated Fire Access Tracks and related infrastructure each year. CFA provide a list of assets to be maintained and formally request Council to provide the maintenance on their behalf.

Department of Defence

There is Department of Defence crown land located with the Shire. The Department of Defence is the responsible authority for managing the road network within this area, which includes all roads and associated bridge infrastructure.

5.3 Renewal/Replacement Plan

Renewal and replacement expenditure is major work which does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is considered to be an upgrade/expansion or new work expenditure resulting in additional future operations and maintenance costs.

Assets requiring renewal/replacement are identified using a combination of an analysis of the long term financial needs at a network level and Council's asset information to identify specific assets requiring renewal at a project level.

Renewal works fall into the following categories:

Rehabilitation: In the case of roads, this involves the repair of a short length of road that has prematurely failed or is close to doing so. This rehabilitation work does not provide for a planned increase in the operating capacity or design loading. It is intended to enable the road to meet the current standards of service. This section will be replaced when the road is eventually replaced.

Renovation: Involves work that increases the strength of the existing asset such as a road base course by a stabilisation process (such as use of a bitumen, cement or lime stabiliser) then re-compaction of the base course material. As is also the case for rehabilitation, renovation does not provide for a planned increase in the operating capacity or design loading, simply enabling the asset to meet the current standards of service.

Reconstruction: Involves reconstructing the asset to provide a new asset with the equivalent size or capacity (ie does not provide for a planned increase to the operating capacity or design loading). Some minor increase in capacity may result from the process of renewal, but a substantial improvement is needed before system development is considered to have occurred.

5.3.1 Renewal Strategy

Council will plan capital renewal and replacement projects to ~~meet level of service objectives and~~ minimise infrastructure service risks by:

- Undertaking project scoping for all capital renewal and replacement projects to identify:

  - The service delivery 'deficiency', present risk and optimum time for renewal/replacement,
  - The project objectives to rectify the deficiency,
  - The range of options, estimated capital and life cycle costs for each option that could address the service deficiency,
  - And evaluate the options against evaluation criteria adopted by the organisation, and
  - Select the best option to be included in capital renewal programs,
- Using 'low cost' renewal methods (cost of renewal is less than replacement) wherever possible,
- Maintain a current infrastructure risk register for assets and service risks associated with providing services from infrastructure assets and reporting Very High and High risks and residual risks after treatment to management and Council/Board,
- Review current and required skills base and implement workforce training and development to meet required construction and renewal needs,
- Maintain a current hierarchy of critical assets and capital renewal treatments and timings required,
- Review management of capital renewal and replacement activities to ensure Council is obtaining best value for resources used.
- Renewal ranking criteria
- Asset renewal and replacement is typically undertaken to either:
  - Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (e.g. replacing a bridge that has a 5-tonne load limit), or
  - To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. roughness of a road).

5.3.2 Renewal Standards

Council's construction standards are based on various standards necessary to accommodate the demands and technical requirements placed on our various transportation networks.
These standards take into consideration the extensive work previously undertaken by the various professional and industry bodies such as:

- Infrastructure Design Manual
- Australian Standards
- Austroads Design Guidelines
- VicRoads Road Design Guidelines
- VicRoads Road Design Manual
- VicRoads Traffic Engineering Manual Vol 1
- VicRoads Traffic Engineering Manual Vol 2

All renewal works shall comply with Council's engineering standards and specifications for road design and construction which apply at the time.

The design of road renewal works should in all cases be undertaken by suitably qualified and experienced practitioners.

5.3.3 Renewal Ranking Criteria

In general, renewal works are prioritised and planned by assessing the following considerations:

- Safety issues,
- Physical condition,
- Risk and asset criticality,
- Community/user feedback, and
- Location and use type and patterns.

It is possible to get some indication of capital renewal and replacement priorities by identifying assets or asset groups that:

- Have a high consequence of failure,
- Have high use and subsequent impact on users would be greatest,

- Have a total value representing the greatest net value,
- Have the highest average age relative to their expected lives,
- Are identified in the AM Plan as key cost factors,
- Have high operational or maintenance costs, and
- Have replacement with a modern equivalent asset that would provide the equivalent service at a savings.[4]

The ranking criteria used to determine priority of identified renewal and replacement proposals is detailed in Table 5.3.1.

Table 5.3.1: Renewal and Replacement Priority Ranking Criteria

Criteria	Weighting
Condition	No assigned weighting. Criteria scored on a 1 to 5 rating scale
Economic Impact on Business	
Fit for purpose	
Risk	
Level of maintenance investment	
Community complaints	
Changed Traffic Counts/Utilisation	
Future strategic use	

Infrastructure renewal demand forecasts for Mitchell Shire are developed using the Moloney Asset Management System Renewal Gap Module. These forecasts are annually reviewed and updated as new information (e.g. condition assessments) held in the Conquest Asset information system becomes available. The Renewal Gap Module has the capability to assess the predicted asset renewal requirements versus the forecast renewal expenditure on a network basis over a 20-year planning horizon.

These forecasts and the underlying assumptions are further reviewed to factor in specific projects and any upgrade projects that include a renewal component to provide the best available guide to renewal requirements, based on current knowledge. Council is working toward the development of its four year capital works plan to be reflected in the Strategic Resource Plan as well as development of the 10 year Long Term Financial Plan (LTFP) which will provide a specific allocation for the renewal of assets for each year of the Plan once it has been established.

The process used for formulation of the schedule of road renewal works submitted for budget consideration is as follows:

- The Conquest Asset Management System is used to prepare preliminary priority listings of roads indicating, by modelling, that they require renewal;
- This schedule is then forwarded to the Design and Works Program Delivery Co-ordinator who arranges for field inspections to be undertaken of the listed roads to ascertain if the listing is appropriate and then recommends changes to be made where necessary;
- In addition the Co-ordinator lists additional roads that may not been highlighted by the modelling but which do in fact require attention;
- Finally, the schedule may also be subject to change when presented to Council for review and adoption.

The final schedule of works forms the ongoing rolling capital roadwork's renewal program.

5.3.4 Future Renewal and Replacement Expenditure

Renewal demand and expenditure forecasts for the assets covered by this plan are summarised in the following figures. These forecasts have been extrapolated from existing finance data and are presented as long-term projections to provide input into Council's Long Term Financial Plan.

[4] Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

The following graph shows a comparison between the:

- Level of funding required to renew Council's roads and footpaths to achieve its service level objectives; and
- The amount of funding which Council is projected to commit to renewing these assets.

Fig 5: Projected Capital Renewal and Replacement Expenditure

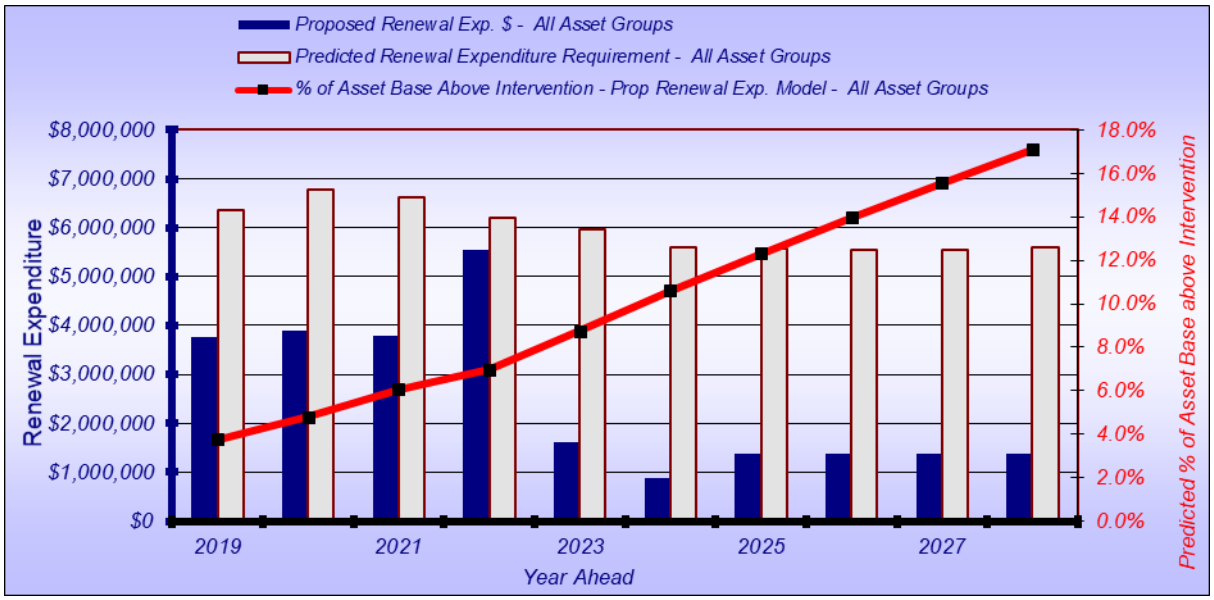


Figure Values are in current (real) dollars.

Per Annum Over the next 10 years:	
Average renewal demand	***$5.9M***
Average renewal funding	***$2.5M***
Average renewal gap	***$3.4M***

This forecast indicates that Council is presently significantly under funding the renewal of its roads assets.

Council has allocated within the 2017/18 budget approximately $2.89M towards the renewal and rehabilitation of its road assets. The amount of funding set aside for road renewal which is included in Council's Strategic Resource Plan 2017-21 and Long Term Financial Plan has been used as a basis for calculating the long-term projection of Council's renewal position.

Over the next ten (10) years, the predicted average annual renewal demand associated with Council's road and footpath networks is $5.9M. According to Council's current Long Term Financial Plan, it is projected to allocate approximately $2.0M on average per year for the renewal of these assets. This indicates that there is an average renewal funding gap of approximately $3.4M (average) per annum. It is imperative that Council consider significantly increasing the funding amounts which are allocated to the renewal of its road assets.

Council will need to develop a prudent Long Term Financial Plan to responsibly manage its future asset renewal demands. Failure to invest appropriate amounts in renewing the assets on which the community relies on may lead to ongoing community dissatisfaction with service delivery, higher risk of the failure of critical assets, and exposure to increased risk of liability claims arising from poorly maintained infrastructure.

The analysis to determine Council's future asset renewal requirements is based on the best available information held at this time. The future funding forecasts will be revised and refined to best represent the performance of the asset base as the maturity of Council's asset management practices improves.

These renewal funding projections are based on the following assumptions:

- The renewal costs are based on the asset data register as at 30 June 2017.
- Asset quantities within the asset register are assumed to be correct.

- Modelled outcomes are derived using the Moloney Renewal Model and are therefore subject to the limitations of that model and data used in it, which includes assumed performance of the asset types and trigger intervention levels.
- Useful Service Lives derived from the asset register are assumed to be a reasonable estimate of the life of the assets.
- Condition data has been derived from Council's asset register.
- Service levels are based on a technical assessment and may not reflect community expectations or the organisations goals and objectives.
- All projections are in present dollar value.
- No growth in asset base.
- Renewal funding is based on current renewal expenditure levels contained in Council's 2017/18 Budget, Strategic Resource Plan 2017-21 and Long Term Financial Plan.

5.4 Creation/Acquisition/Upgrade Plan

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

Asset or upgrade creation includes:

- Those works that create a new asset that did not exist in any shape or form, i.e. new roads typically resulting from land development.
- Works which improve an existing asset beyond its existing capacity or performance.
  - Pavement strengthening
  - Bridge widening or strengthening
  - Safety improvement projects
  - Traffic calming works
  - Road or footpath widening

Council recognises that it is difficult to increase funding for the existing road network asset, for both maintenance and renewals, therefore is very cautious about undertaking creation of new assets outside of development proposalsProvision of new or upgraded works fall into the following categories depending upon the extent and type of works:

- Developer funded as part of subdivisional development, or
- Contribution to the cost by either the developer and/or Council, or
- Council funded, or
- Special Charge Schemes where the adjoining landholders as beneficiaries contribute towards the cost of upgrading their road.

New Subdivision Developments

Where possible, developers of new subdivisions are required, as part of the development approvals process, to provide the basic road infrastructure to the standard appropriate for that development.

As Council acquires new assets through subdivision development it is important that the consequential costs are established and allowed for in future budgets. Costs of maintaining these works is covered by rate income from the properties within the development. It is not reasonable to expect that these costs will be absorbed into existing budgets without an increase. To do so is to effectively reduce the current levels of service to some or all of the rest of the municipal area.

New or Upgrading of Council Road Assets

There are occasions when Council is required to upgrade an asset because of changing demand or use requirements. In such instances, the project is scrutinised closely by officers and is considered as part of the annual budget planning process.

In accordance with Council's budget development framework, when Council considers its discretionary capital expenditures for new or upgraded assets it is essential to establish the consequential recurring operational and

maintenance costs that will occur once the new or upgraded asset becomes operational. For instance, new urban streets may well require immediate costs for street sweeping.

This consequential additional cost is "non-discretionary" as it will be incurred if the new asset is provided.

As new projects are brought forward for consideration with the annual budget, they will also have an assessment of these ongoing operational (recurrent) costs presented to Council as part of the overall project cost projections.

Special Charge Schemes

The Council will use special charge schemes under the provisions of the Local Government Act 1989, to construct streets which are presently Unconstructed.

Construction standards will be as set out in this Agreement, with particular reference to the standards for rural residential and urban development.

Low cost treatments will be considered for all projects. Low cost treatments comprise construction work where not all elements of a full construction project are included. For example, a low cost treatment of a residential street may comprise simply pavement and seal construction, without kerb and channel and underground drainage. Where existing geometry and conditions allow, both low cost and full construction options will be prepared and provided to the affected community for comment.

The term "low cost treatment" does not involve a lessening of construction standard of individual elements; pavements and seals would be constructed to normal engineering standards. "Low cost treatment" means a reduction in the number of elements constructed rather than the standard of elements constructed.

Council has an adopted special charge scheme policy which is utilised in the development of such schemes.

5.4.1 Selection Criteria

New assets and upgrade/expansion of existing assets are identified from various sources such as councillor/director or community requests, proposals identified by strategic plans or partnerships with other organisations. Verified proposals are ranked by priority and available funds are scheduled in future works programmes.

The Mitchell Shire does not generally create new roads at present, as the road network is well developed and stable. All new roads within the Shire are received as contributed assets created through new subdivisions. Council does undertake upgrades to its road network to improve safety and enhance capacity.

A well-planned road capital works program will contribute to Council's efforts to achieve its objective to provide a safe, efficient and effective transport network. Such a program will also improve the efficiency of the transport industry and thereby reduce the total transport cost to the community, as well as, provide continued efficient access to fire prone areas by emergency services.

The prioritisation of asset improvement works is undertaken in accordance with the following criteria to ensure alignment with Council's strategic direction and to deliver maximum and affordable community benefits.

Table 5.4.1: Asset Improvement Priority Ranking Criteria

Criteria	Weighting
Council Plan and Social Impact	No assigned weighting. Criteria scored on a 1 to 5 rating scale
Economic Impact on Business	
Risks if not undertaken	
Project Complexity	
Environmental Impact	

A ranking process is used for assisting in determining the priority of new capital works. This process enables key criteria for each type of asset to be assessed in an objective manner, ranked, and a composite "need" score to be

assigned to each project. This enables a number of projects of the same asset type to be objectively ranked against each other and prioritised.

Council carries out a capital works planning process each year prior to commencing its overall budget process.

Council determines the capital works program for the coming financial year based upon the objective rankings provided from Council's asset management system and Council's own priorities. In the process a 'rolling' 4-year capital works program is developed.

5.4.2 Standards and Specifications

As with replacements where new assets are created they will be designed using all relevant design codes and Australian Standards and by using materials to achieve the greatest asset life while trying to minimise maintenance costs. Summary of Future Upgrade/New Assets Expenditure

Projected upgrade/new asset expenditures are summarised in Fig 6. All amounts are shown in real values.

Fig 6: Projected Capital Upgrade/New Asset Expenditure

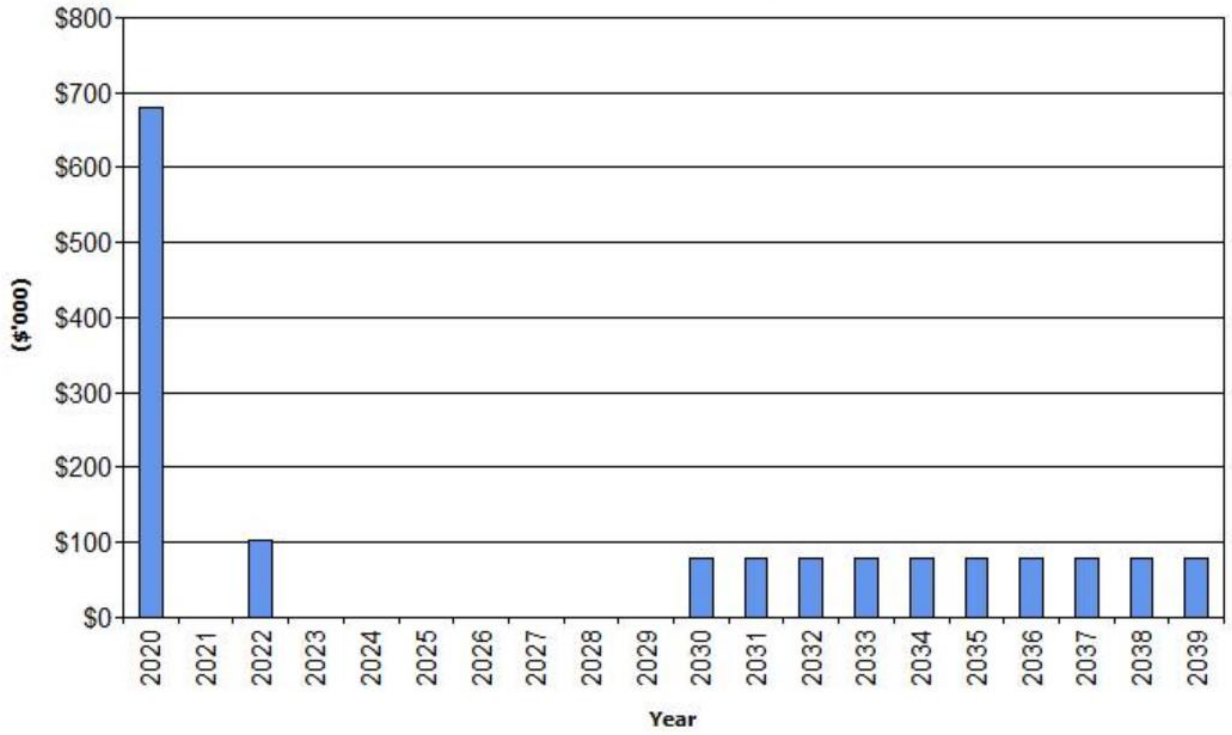


Figure Values are in current (real) dollars. Years 2030 to 2039 represent an overall average from the previous ten years.

Expenditure on new assets in the capital works program will be accommodated in the long term financial plan. The provision of new and upgraded road assets is important in a growing municipality to maintain services to the community.

It is important to note that when new assets are constructed and/or gifted to Council the whole of life costs must be included in the Long Term Financial Plan. This includes the operational, maintenance, management, financial and eventual renewal costs.

In a rate capped environment, it is necessary to assess whether the increased rate income derived from growth can accommodate not only the new and upgraded assets but also the whole of life costs associated with these assets.

5.4.3 Summary of Asset Expenditure Requirements

The financial projections from this asset plan are shown in Fig 7 for projected capital expenditure (renewal and upgrade/expansion/new assets). Note that all costs are shown in real values.

Fig 7: Projected Capital Renewal Expenditure

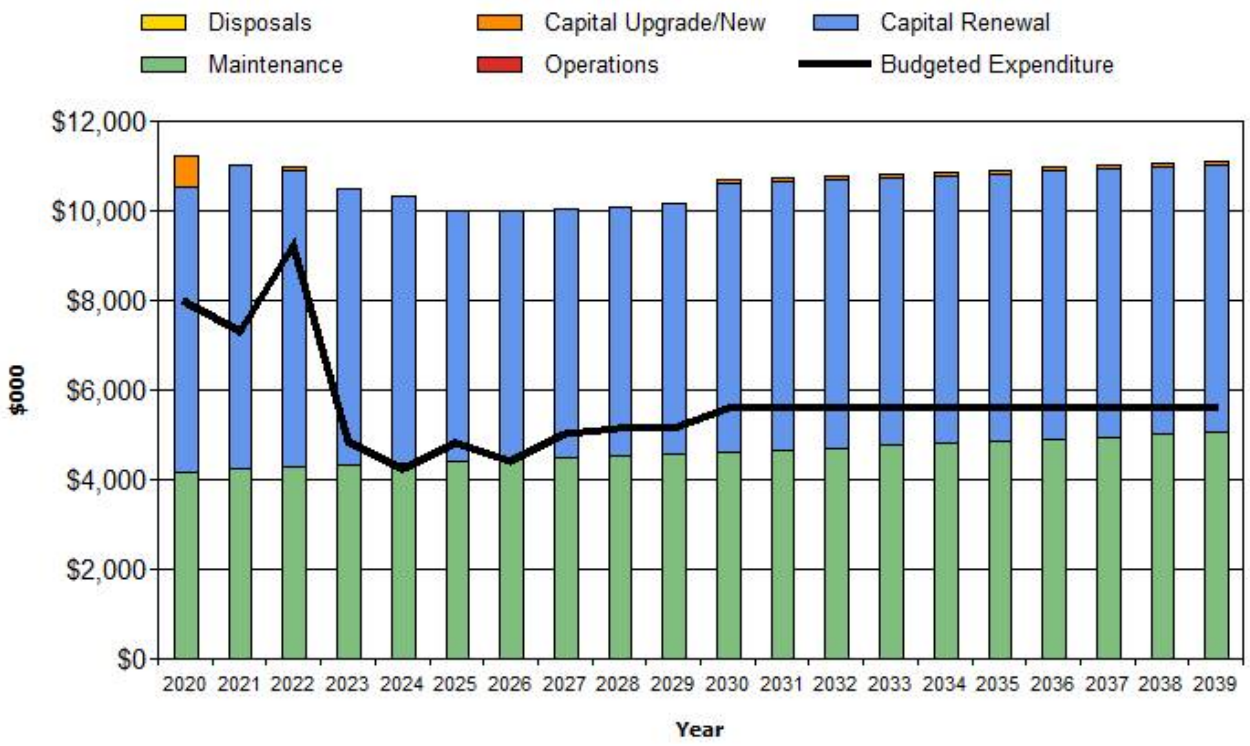


Figure Values are in current (real) dollars.

There is a significant shortfall in capital and operational funding when compared to the level of funding which is required. This indicates that further work is required to define service levels and allocate funding to responsibly manage this gap. We will manage the funding gap by developing this asset management plan to inform and provide guidance on future service levels and their costs with the community.

5.5 Disposal Plan

At present there are no road, footpath or kerb and channel assets within the municipal area under Council jurisdiction that are proposed for disposal without replacement.

Disposal of roads could occur where they are:

- Requested by residents and approved by Council;
- Handed over or back to a private interest of other authority; or
- Where utilisation studies specifically demonstrate that insufficient or no use is occurring, and the continuing existence of the asset is not justified.

6 RISK MANAGEMENT PLAN

The purpose of this section is to describe the basis of Council's strategic risk and investment policies and the manner in which it will manage risk associated with its road network and associated infrastructure.

6.1 Risk Management Process

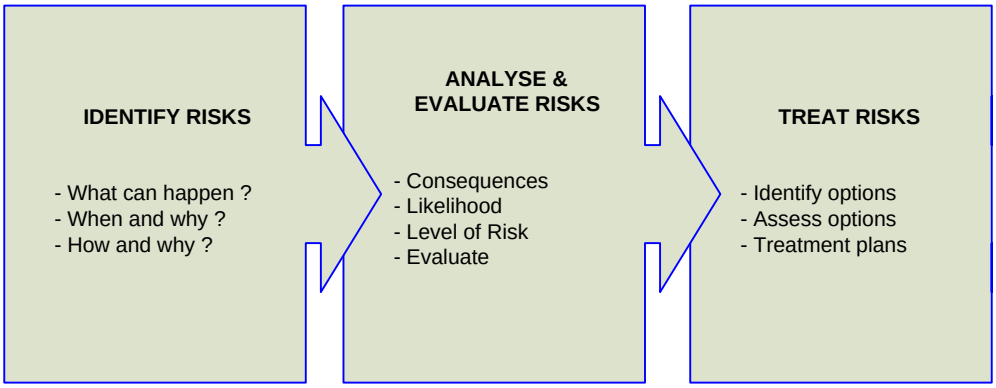
A risk management process which is consistent with Council's Risk Management Framework and International Standard ISO 31000:2009 Risk Management – Principles and Guidelines is used to identify specific risks associated with the assets covered by this plan. This process also enables the operational strategies and activities that will be considered to reduce the recognised risks.

The risk management process used in this project is shown in Figure 6.2 below.

It is an analysis and problem-solving technique designed to provide a logical process for the selection of treatment plans and management actions to protect the community against unacceptable risks.

The process is based on the fundamentals of the ISO risk assessment standard ISO 31000:2009.

Fig 6.2 Risk Management Process – Abridged



6.2 Risk Assessment

Critical risks, being those assessed as 'Very High' - requiring immediate corrective action and 'High' – requiring prioritised corrective action identified in the Infrastructure Risk Management Plan, are summarised in the Table 6.1.

Table 6.1 Infrastructure Risk Register

Risk Event	Cause	Risk Rating (VH, H)	Risk Treatment Plan	Residual* Risk
Roads deteriorate to a lesser service standard and higher risk situation	• Rudimentary asset management practices do not support effective decision making	High	▪ Update data for roads ▪ Develop service strategy to inform objectives and outcomes ▪ Implement asset management systems improvements	Low

Risk Event	Cause	Risk Rating (VH, H)	Risk Treatment Plan	Residual* Risk
Damage to roads as a result of major storm events	• Extreme weather events	High	• Continue to refine asset data • Develop Climate Adaptation Strategy • Climate resilience considered at project planning stage • Implement targeted infrastructure improvements to mitigate impacts from storm events	Low
Road management systems (i.e. asset inspections and maintenance response) not in compliance with standards defined by Council's Road Management Plan	• Standards documented in Road Management Plan not complied with (e.g. inspections and response times)	High	• Road Management Plan performance reporting	Low
Road asset lives not being maximised	• Due to lack of renewal and maintenance funding	High	• Review funding allocations made to the maintenance and renewal of local roads • Address any funding shortfalls through an appropriate financial strategy	Low

6.3 Critical Assets

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Similarly, critical failure modes are those which have the highest consequences.

Critical assets have been identified and their typical failure mode and the impact on service delivery are as follows:

Table 6.1 Critical Assets

Critical Asset(s)	Failure Mode	Impact
Nil identified at this time		

By identifying critical assets and failure modes investigative activities, condition inspection programs, maintenance and capital expenditure plans can be targeted at the critical areas.

Council needs to conduct a road network review to identify and record critical infrastructure. This review should involve operational and technical staff.

7 FINANCIAL SUMMARY

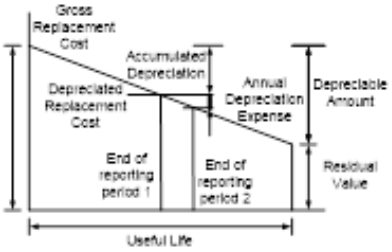
This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset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

7.1 Financial Statements and Projections

7.1.1 Asset Valuations

The best available estimate of the value of assets included in this Asset Management Plan are shown below.

Gross Replacement Cost	***$294,686,350***
Depreciable Amount	***$294,686,350***
Depreciated Replacement Cost[5]	***$183,984,964***
Annual Average Asset Consumption	***$4,987,483***



The value of assets recorded in the asset register as at 30 June 2017 covered by this asset management plan are shown.

Assets were last revalued in 2017/18. Assets are valued at fair value based on depreciated replacement cost. Quantities represent those assets whose replacement cost meets Council's capitalisation threshold.

Roads_S3_V2	
Asset Renewal Funding Ratio	
Asset Renewal Funding Ratio	**39%**
Long Term - Life Cycle Costs	
Life Cycle Cost [average 10 years projected ops, maint exp and deprn.]	**$9,074**
Life Cycle Exp [average 10 years LTFP budget ops, maint & capital renewal exp]	**$5,604**
Life Cycle Gap [life cycle expenditure – life cycle cost (-ve = gap)]	**$-3,470**
Life Cycle Indicator [life cycle expenditure / life cycle cost]	**62%**
Medium Term - 10 year financial planning period	
10 yr Ops, Maint & Renewal Projected Expenditure	**$10,354**
10 yr Ops, Maint & Renewal LTFP Budget Exp	**$5,604**
10 year financing shortfall [10 yr proj exp - LTFP Budget exp]	**$-4,750**
10 year financing indicator [LTFP Budget exp / 10 yr proj exp]	**54%**
Medium Term – 5 year financial planning period	
5 yr Ops, Maint & Renewal Projected Expenditure	**$10,649**
5 yr Ops, Maint & Renewal LTFP Budget Exp	**$6,302**
5 year financing shortfall [5 yr proj exp - LTFP Budget exp]	**$-4,348**
5 year financing indicator [LTFP Budget exp / 5 yr proj exp]	**59%**

7.1.2 Sustainability of Service Delivery

Two key indicators for service delivery sustainability that have been considered in the analysis of the services provided by this asset category, these being the:

- Asset renewal funding ratio, and
- Medium term budgeted expenditures/projected expenditure (over 10 years of the planning period).

[5] Also reported as Written Down Value, Carrying or Net Book Value.

7.1.3 Asset Renewal Funding Ratio

Asset Renewal Funding Ratio[6] ***39%***

The Asset Renewal Funding Ratio is the most important indicator and indicates that over the next 10 years of the forecasting that we expect to have ***39%*** of the funds required for the optimal renewal and replacement of assets.

7.1.4 Medium Term – 10-year Financial Planning Period

This asset management plan identifies the projected operations, maintenance and capital renewal expenditures required to provide an agreed level of service to the community over a 10-year period. This provides input into 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

These projected expenditures may be compared to budgeted expenditures in the 10-year period to identify any funding shortfall. In a core asset management plan, a gap is generally due to increasing asset renewals for ageing assets.

The projected operations, maintenance and capital renewal expenditure required over the 10-year planning period is ***$10.3M*** on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is ***$5.6M*** on average per year giving a 10-year funding shortfall of ***$4.7M*** per year. This indicates that Council is projected to significantly underfund the maintenance and renewal of its road and footpath assets.

If this gap is left unaddressed in the short to mid-term Council will be faced with significant risks relating to:

- Continued deterioration of its road network,
- Poor performing assets,
- Asset failure,
- Public health and safety liability,
- Loss of financial and economic viability,
- Reputational and political impacts, and
- Ultimately, declining community satisfaction and public confidence.

Providing services from infrastructure in a sustainable manner requires the matching and managing of service levels, risks, projected expenditures and financing to achieve a financial indicator of approximately 1.0 for the first years of the asset management plan and ideally over the 10-year life of the Long Term Financial Plan.

7.1.5 Projected Expenditures for Long Term Financial Plan

Table 7.1.2 shows the projected expenditures for the 10-year, long term financial plan.

Expenditure projections are in2017/18 real values.

Table 7.1.2: Projected Expenditures for Long Term Financial Plan

Year	Operations	Maintenance	Projected Capital Renewal	Capital Upgrade/New	Disposals
2020	$0	$4,181	$6,356	$681	$0
2021	$0	$4,230	$6,783	$0	$0
2022	$0	$4,271	$6,610	$102	$0
2023	$0	$4,314	$6,192	$0	$0
2024	$0	$4,353	$5,958	$0	$0
2025	$0	$4,399	$5,601	$0	$0

[6] AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

2026	$0	$4,442	$5,572	$0	$0
2027	$0	$4,485	$5,547	$0	$0
2028	$0	$4,529	$5,554	$0	$0
2029	$0	$4,573	$5,593	$0	$0

7.2 Funding Strategy

Funding for assets is provided from the budget and long term financial plan.

The financial strategy of the Mitchell Shire determines how funding will be provided, whereas the asset management plan communicates how and when this will be spent, along with the service and risk consequences of differing options.

7.3 Key Assumptions Made in Financial Forecasts

This section details the key assumptions made in presenting the information contained in this asset management plan. It is presented to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts.

Key assumptions made in this asset management plan are:

- Forecasted on present day dollars
- Staffing needs are resourced adequately
- No significant changes in legislation
- Average growth in asset base of 4.4% per annum over the period of this AM Plan
- Increases in maintenance and operational budgets are consistent with the Strategic Resource Plan and Long Term Financial Plan
- Funding for future upgrades has not been included past the life of the current Strategic Resource Plan
- A factor of 1.5% of capital value has been factored into maintenance projections for the future

7.4 Forecast Reliability and Confidence

The expenditure and valuations projections in this AM Plan are based on best available data. Currency and accuracy of data is critical to effective asset and financial management. Data confidence is classified on a 5 level scale[7] in accordance with Table 7.5.

Table 7.5: Data Confidence Grading System

Confidence Grade	Description
A Highly reliable	Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete and estimated to be accurate ± 2%
B Reliable	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate ± 10%
C Uncertain	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated ± 25%
D Very Uncertain	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset

[7] IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.

Confidence Grade	Description
	may not be fully complete and most data is estimated or extrapolated. Accuracy ± 40%
E Unknown	None or very little data held.

The estimated confidence level for and reliability of data used in this AM Plan is ***C - Uncertain*** at this stage. The identified improvement actions which should be addressed by September 2018 will allow the data to be re-run through this plan and the update should move the confidence level upward.

Data	Confidence Assessment	Comment
Demand Drivers	Reliable	Demand drivers identified are correct but may not represent all demand drivers. It is uncertain what impact the identified demand drivers will have on future investment requirements.
Change in road use by heavy freight	Uncertain	It is expected there will be an increase in heavy freight, however it is very uncertain which roads will be affected. Engagement with industry will help map out future roads required to service heavy freight.
Growth Projections	Reliable	MSC contains major growth areas to the north of Melbourne
Maintenance Expenditure	Uncertain	Once service planning is implemented, unlikely there will be consistent maintenance expenditure. Funding based on previous years does not reflect true need or requirement.
Projected Renewal Expense	Uncertain	Renewal expense is based on programs developed by Council staff only in the short term, providing little indication of what will happen outside the current SRP
Network Renewals	Uncertain	Limited data available to determine what treatments are the best application across the network in order to optimise renewal expenditure.
Upgrade/New Expenditure	Very Uncertain	Unlikely there will be no network upgrades/new over the 10 year period – organisation does not have multiple year capital funding program. The only indicator of future commitment is the SRP at this stage

8 PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices

Council currently uses the following corporate information systems for recording relevant asset data and information:

Table 8.2: Overview of Corporate Systems

Module	System
Customer Request Management	Hewlett Packard Content Manager (Current) CRM Technology One (Implementing) Conquest III (Old)
Financial/Accounting	Technology One (Main) Conquest III (Journaled into T1)
Records Management	Hewlett Packard Content Manager Grace Records
Mapping (GIS)	Exponare MapInfo Crest – Rapid Maps Intra Maps (Conquest to be implemented)
Asset Management	Conquest III Technology One (plant, equipment, furniture, Technology, land)
Renewal Modelling	Moloney Asset Management Systems
Works Management	Conquest III Crest – Rapid Maps Manual / spreadsheets

8.2 Improvement Plan

The asset management improvement plan generated from this asset management plan is shown in Table 8.1.

Table 8.1: Improvement Plan

Task No	Task	Responsibility	Resources Required	Timeline
1	Develop comprehensive levels of service for all road assets which align with road hierarchy. Commence this process by documenting existing service levels being provided	Director Infrastructure	Internal Staff, External Consultants	Dec 2019
2	Perform an analysis on road network to understand the length of roads that do not currently meet the allocated hierarchy classification. Using a strategic network model, determine if road requires upgrade, or can be reclassified, or can be treated differently throughout chainage of the road.	Coordinator Assets	Assets Team	Jun 19
3	Significantly increase the effort to collect traffic counts on roads to inform levels of service.	Manager Engineering and Major Projects	Contractor	Ongoing
4	Allow for the inclusion of multiple useful lives within asset categories to reflect the environment where assets are established.	Coordinator Assets	Internal Staff/Consultant	Dec 2019

Task No	Task	Responsibility	Resources Required	Timeline
5	Review all steps in the scoping, procuring, delivery and evaluation of externally delivered condition data. Condition data is expensive to obtain so must add value to the asset management process. Ensure Council has verified the data prior to signing off any contract payments	Coordinator Assets		Mar 2019
6	Consider the implementation of a pavement management system to allow for strategic management of the road network	-Coordinator Assets -Manager Engineering and Major Projects -Manager Operations and Parks		Dec 2018
7	Commence the development of a 10 year capital works plan for road transport assets. Clearly identify renewal, upgrade, new and expansion projects within the plan.	-Coordinator Assets -Manager Engineering and Major Projects -Manager Operations and Parks		Mar 2019
8	Work with Developers to ensure A-Spec data is provided to Council as part of certification process and asset hand over	Manager Engineering and Major Projects		
9	Continue to monitor road seal condition and ensure reseals are undertaken at timed intervals (15 yrs) to avoid rapid seal failure as bitumen oxidises and becomes brittle	-Coordinator Assets -Manager Engineering and Major Projects -Manager Operations and Parks	Internal Staff/Contractors	Ongoing
10	Review asset rates for all road asset types	Coordinator Assets	Internal Staff	Dec 2018
10	Engage with industry to develop better planning processes for heavy freight routes with regard to future upgrade and maintenance requirements.	Manager Engineering and Major Projects	Internal Staff/Consultants	Dec 2019
11	Document the methodology for the management of table drains, and question the process of not depreciating this asset when it is highly likely that works are undertaken regularly to improve/renew road drainage	Coordinator Assets	Internal Staff	Jun 2019
12	Establish Road Shoulders as an asset component with its own attributes for renewal management.	Coordinator Assets	Internal Staff	Dec 2019
13	Establish minor culverts as an asset component of the road. A full inventory is required complete with asset attributes to	Coordinator Assets		

Task No	Task	Responsibility	Resources Required	Timeline
	help monitor condition.			
14	Implement a maintenance management system to ensure maintenance data is collected against each asset, and is used to inform renewal programs, or, is used to divert maintenance where assets are earmarked for renewal in the short term.	-Coordinator Assets -Manager Operations and Parks		Dec 2019
15	Review and update of depreciation and expiry dates in Conquest	Coordinator Assets	Internal Staff	Dec 2018
16	Review all existing and outstanding strategies, master plans, improvement plans for currency, status, completeness and incorporate all road and bridge related actions, initiatives and intentions into service plans such that summary information can populate this Road AMP.	Coordinator Assets	Internal Staff	May 2019
17	Review and implement processes to measure the community's level of satisfaction with Council's roads on at least annual basis.	-Manager Operations and Parks	Internal Staff/Consultants	Dec 2019
18	Conduct a review of the road network to identify and record critical infrastructure through consultation with key stakeholders	Manager Engineering and Major Projects	$40,000 p.a	Jun 2020
19	Review current funding allocations made to road maintenance to ensure that it is sufficient to deliver current levels of service.	Manager Operations and Parks	Internal Staff	Ongoing
20	Annually review modelling of long term financial forecasts based on updated asset data. Revised forecasts should be provided as an input in the Long Term Financial Plan, Strategic Resource Plan, and annual budget.	Coordinator Assets	Internal Staff	Ongoing
21	Closely monitor and set in place a program to address 11 pillars of asset management to assist Mitchell achieve core asset management competency	Coordinator Assets	Internal Staff	Dec 2020

Council's Strategic Asset Management Working Group will be responsible for determining the priority of the actions in this improvement plan and also to allocate a responsible officer and to identify resource needs. This is to ensure that the implementation of these improvement actions align with Council's overall asset program.

8.3 Monitoring and Review Procedures

This asset management plan will be reviewed during annual budget planning processes and amended to show any material changes in service levels and/or resources available to provide those services as a result of budget decisions.

The AM Plan will be updated annually to ensure it represents the current service level, asset values, projected operations, maintenance, capital renewal and replacement, capital upgrade/new and asset disposal expenditures and projected expenditure values incorporated into the long term financial plan.

The AM Plan will have a life of four (4) years and will be completely reviewed and updated in order to inform the development of the Council Plan which follows the election of a new Council.

8.4 Performance Measures

The performance of the AM Plan shall be monitored against the following criteria in accordance with the process detailed below.

- Maintenance and renewal programs - to confirm that allocated budget projects were delivered on time, within budget and to the specified level of service (see following item on delivery performance).
- Inspection programs - to confirm that they were undertaken as specified in the road management plan
- Scheduled condition surveys – to confirm that they were undertaken as required.
- Maintenance of asset information systems - to ensure that stored data is current and accurate.
- The degree to which the required projected expenditures identified in this asset management plan are incorporated into the long term financial plan,
- The degree to which 1-5 year detailed works programs, budgets, business plans and corporate structures take into account the 'global' works program trends provided by the asset management plan,
- The degree to which the existing and projected service levels and service consequences (what we cannot do), risks and residual risks are incorporated into the Strategic Plan and associated plans,
- The Asset Renewal Funding Ratio achieving the target of 1.0.
- External factors - including legislative requirements, ongoing development of Council policies, plans, and other major system implementations, that may affect the contents of the asset management plan.

9 REFERENCES

- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
- IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/namsplus.
- IPWEA, 2015, 2nd edn., 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/AIFMM.
- IPWEA, 2015, 3rd edn., 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
- IPWEA, 2012 LTFP Practice Note 6 PN Long Term Financial Plan, Institute of Public Works Engineering Australasia, Sydney
- Council Plan 2017 - 2021
- Long Term Financial Plan
- Strategic Resource Plan
- Annual Budget
- Asset Management Policy
- Asset Management Strategy