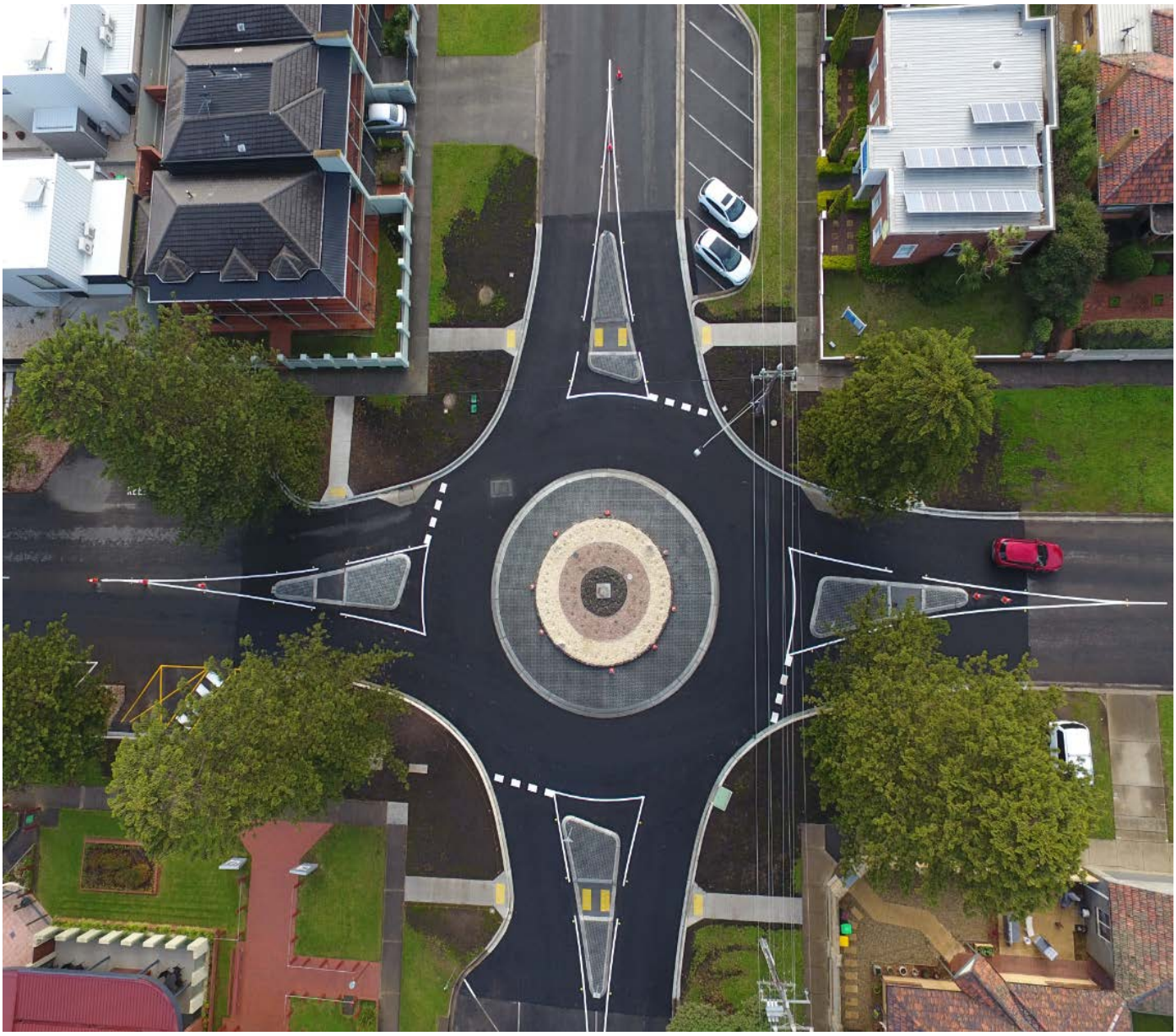
WARRNAMBOOL
CITY COUNCIL

Roads Asset Management Plan



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Contents

1.0 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

Roads Asset Management Planning is a comprehensive process ensuring delivery of services from Warrnambool City Council's road infrastructure is provided in a financially sustainable manner.

This Asset Management Plan (AMP) details information about infrastructure assets with 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 meet these needs over a 15 year planning period. The Asset Management Plan will link to Council's Long-Term Financial Plan (LTFP) which typically covers a 10 year period.

This plan covers the infrastructure assets that provide the road network. The primary objective for managing road infrastructure is to facilitate the movement of vehicular traffic for the local community, businesses, industries, and visitors, both within the Council region and to neighbouring areas, and to provide parking facilities to the community.

1.2 Asset Description

The road network comprises:

- Sealed Road Pavements → 2,550,937 m2
- Unsealed Road Pavements → 193,637 m2
- Road Surfaces – Spray Seal → 1,865,229 m2
- Road Surfaces – Asphalt → 740,880 m2
- Road Surfaces – Concrete/Other → 7,619 m2
- Kerb and Channel (incl. traffic islands; pedestrian refuge; roundabout centres) → 465km
- Parking meter – Ticket Machines → 92 No.
- Signalised crossings → 6 No.
- Speed humps/ wombat crossings → 27 No.
- Guard rails/ Safety rails → 615m
- Shoulders
- Reflectors
- Traffic signs
- Fire hydrants
- CBD Street Name Plates

The above infrastructure assets have a total replacement value estimated at **$274,829,850**.

1.3 Levels of Service

Our present funding levels are insufficient to continue to provide existing services at current service levels in the medium term.

The main service consequences of the Planned Budget are:

- Deferred delivery of new and upgraded road infrastructure
- Delayed renewal and replacement of existing road infrastructure assets

- Increased maintenance costs due to unfunded preventative practices
- Reduced road quality from deferred renewal activities
- Shortened asset lives due to Climate Change impacts (refer to Section 4.5).
- On-road bicycle paths not meeting cyclists' needs
- All-accessibility parking not meeting community expectations

Operational budgets will be managed as to not impact the frequency of street sweeping.

1.4 Future Demand

The main demands for new services are created by:

- Population Growth
- Future developments and redevelopments in the municipality
- Change of vehicle types utilising local roads, especially heavy vehicles
- Increased number of cyclists on roads
- Demand for increased levels of service
- Tourism

These demands will be approached using a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand. Demand management practices may also include a combination of non-asset solutions, insuring against risks and managing failures.

- Regular monitoring using traffic counts
- Implementation of the Road Hierarchy Review
- Implementation of the Sustainable Transport Strategy
- Monitor increase in tourist numbers
- Investigate funding options
- Monitor community expectations on levels of service

1.5 Lifecycle Management Plan

1.5.1 What does it Cost?

The forecast lifecycle costs necessary to provide the services covered by this AMP includes operation, maintenance, renewal, acquisition, and disposal of assets. This AMP is prepared for a 15 year period so that it can inform the Long-Term Financial Planning period of 10 years.

Over the 15 years of this plan, **$7.5M** on average must be spent each year to meet the stated levels of service. Another **$12.3M** of capital improvements is also flagged, but not yet scheduled as these could be contributed by other authorities and developments.

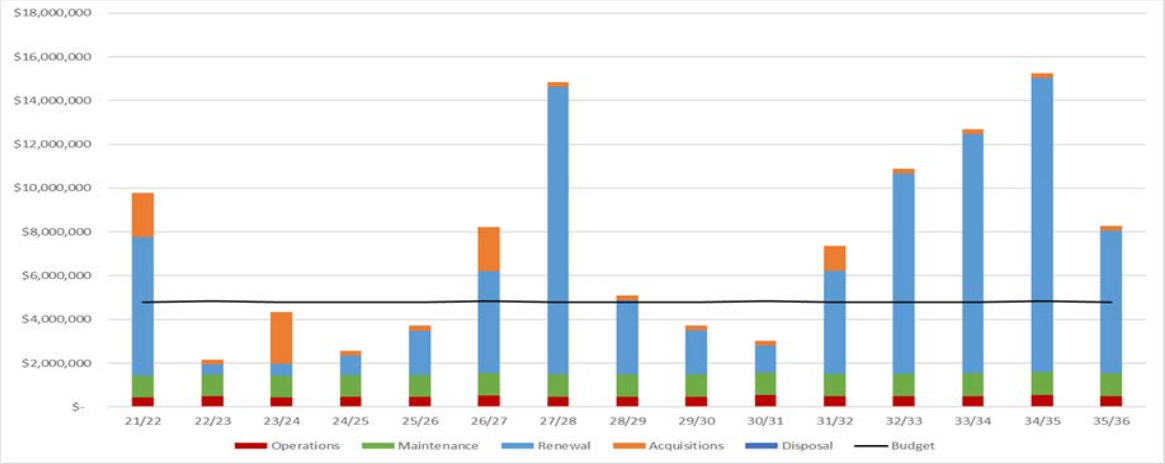
1.6 Financial Summary

1.6.1 What we will do

The planned budget for the 10 year LTFP period is **$4.79M** on average per year. This is **83%** 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 Informed decision making depends on the AMP emphasising the consequences of Planned Budgets on the service levels provided and risks.

The anticipated Planned Budget for Roads leaves a shortfall of **$0.96M** on average per year of the forecast lifecycle costs required to provide services in the AMP compared with the Planned Budget currently included in the Long-Term Financial Plan. This is shown in the figure below.



Forecast Lifecycle Costs and Planned Budgets

We plan to provide road services for the following:

- Operation, maintenance, renewal and upgrade of road infrastructure assets as detailed in Table 2.1a to meet service levels set in annual budgets.
- Major renewals and upgrades as identified in Appendix A and Appendix B within the 10 year planning period

1.6.2 What we cannot do

We currently do **not** allocate enough budget to sustain these services at the proposed standard or to provide all new services being sought. Works and services that cannot be provided under present funding levels are:

- Provide a road infrastructure network which meets Victoria's Infrastructure Design Manual standards for functionality and capacity
- Assess and improve all road safety concerns
- Implement all prioritised upgrades of unsealed roads
- Implement all recommended upgrades and expansions to parking facilities
- Improve the connectivity of the on-road bicycle path network throughout the municipality
- Address and mitigate impacts of Climate Change on roads
- Complete condition assessments for all road infrastructure assets

1.6.3 Managing the Risks

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

The main risk consequences are:

- Increased accidents and vehicle damage due to poor quality roads
- Lack of connectivity and traffic delays
- Not meeting community expectations on cleanliness of roads and availability of parking

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

- Operating in accordance with the Municipal Road Management Plan
- Maintenance inspections and works plan
- Road Safety Audits and Road Safety Strategy
- Implementation of Road Hierarchy Review
- Customer Request Process
- Compliance with design standards for roads
- Undertake a regular review of this Asset Management Plan to ensure alignment with Council's strategic planning cycle and to inform the investment need through the Long Term Financial Plan

1.7 Asset Management Practices

Council is using a systemised approach to monitor and manage the Council's Road Infrastructure which has helped to improve the productivity and efficiency in Asset Management and are as follows:

- **Technology One**: Council's financial management information system
- **Conquest**: Council's asset management information system that contains the asset register, asset data, description and hierarchy, condition inspection and defects and spatial data
- **Assetic Predictor:** Used to model asset degradation and produce renewal programs.

The method used to generate the capital renewal plan for roads is to import the road condition data into Assetic Predictor to model the renewal costs and timing of all assets. Non-network assets from Conquest are then also reviewed and added to the capital works plan.

The degradation of road condition is modelled by Assetic Predictor to determine the renewal requirements of each asset.

1.8 Monitoring and Improvement Program

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

- Identify whether Retaining Walls should be listed in the Roads AMP or in the Buildings AMP
- Measure gaps in the connectivity of the on-road bicycle path network
- Determine how many additional parking spaces are required and the associated costs
- Determine percentage of population that currently use bicycles to travel on roads
- Align re-sheeting of unsealed roads (depreciating) with investment type (renewal)
- The impact of climate change on assets is a new and complex discussion and further opportunities will be developed in future revisions of this AMP.

2.0 Introduction

2.1 Background

This Roads Asset Management Plan communicates the actions required for the responsive management of assets, compliance with regulatory requirements, and funding needed to provide the required levels of service over a 15 year planning period. The plan combines management, financial, engineering and technical practices to ensure that the required levels of service for roads infrastructure are met by the most efficient means with consideration for Council's fiscal and resource limitations.

The Roads Asset Management Plan is to be read in conjunction with relevant Warrnambool City Council planning documents. This should include the Asset Management Policy and Asset Management Strategy, where developed, along with other key planning documents:

- Municipal Road Management Plan 2017
- Council Plan 2021-2025
- Warrnambool Municipal Road Hierarchy Review and Traffic Management Plan 2017
- Warrnambool City Council – Safe Systems Road Infrastructure Program - Road Safety Infrastructure Projects 2020
- Street Tree Planting and Management Policy 2021
- Street Tree Planting and Management Guidelines 2021
- Nature Strip Landscaping Policy 2017
- Nature Strip Landscaping Guidelines 2017
- Warrnambool City Centre Parking Strategy 2015
- Warrnambool City Centre Revitalisation Structure Plan
- Warrnambool 2040
- Road Users Plan 2018-2026
- Sustainable Transport Strategy 2010-2020
- Roads and Drainage Maintenance Levels of Service 2014
- Various Growth Area Structure Plans

Council has over $830 million in assets under its management. These assets are predominantly used to provide services and amenity to the Warrnambool community and visitors. The standard to which these assets are maintained, and the extent of expansion and improvement, are key considerations in setting and delivering our Council Plan.

The infrastructure assets covered by this Asset Management Plan include sealed and unsealed roads; kerb and channel; assets in street reserve; parking amenities; traffic calming/ traffic signal devices; and roadside assets within the Warrnambool City Council area.

These road infrastructure assets are used to facilitate the movement of vehicular traffic for the local community, businesses, industries, and visitors, both within the Council region and to neighbouring areas, and to provide parking facilities to the community.

Table 2.1a - Assets Covered by this Plan

Asset Category	Asset Component
Sealed roads	Sealed Pavement
	Surface (Spray Seal; Asphalt; Concrete)
	Kerb & Channel
	Formation/Earthworks
	Shoulders
Unsealed roads	Unsealed Pavement
	Formation
	Shoulders
Parking amenities	Car parks (on-road and off-street)
	Parking meters
Traffic calming devices	Line-marking (incl. pedestrian crossings; on-road cycling lanes; stat cons)
	Pedestrian refuges/traffic islands
	Roundabout centres
	Reflectors
Signalised crossings	Traffic lights (incl. pedestrian lights)
	Traffic detector loops
Traffic safety devices	Traffic signs
	Safety rails
	Safety fences
	Guard rails
	Speed humps/ wombat crossings
Roadside assets	CBD Street Name Plates
	Fire hydrants

Note: Shared boundary roads are included in this plan

The following assets are NOT INCLUDED in this plan:

- Arterial Roads (Raglan Pde, Caramut Rd, Bridge Rd, Hopkins Hwy, which are owned by VicRoads)
- Port of Warrnambool assets – access roads, carparks, traffic signs, lighting etc.
- Street Furniture – bollards, seats, bicycle racks, bins (Open Space AMP)
- Bus Stops & Shelters (PTV Assets – unless there is an agreement with WCC)
- Reserve Lighting (Open Space AMP)
- Street Lighting (Powercor Assets)
- Table Drains (Drainage AMP)
- Retaining Walls
- Nature Strips/ Verges

Improvement Action 1: *Identify whether Retaining Walls should be listed in the Roads AMP or in the Buildings AMP*

For a detailed summary of the assets covered in this Asset Management Plan refer to Table 5.1.1 in Section 5.

The infrastructure assets included in this plan have a total replacement value of **$274,829,850**.

Key external stakeholders in the preparation and implementation of this Asset Management Plan are shown in Table 2.1b.

Table 2.1b: Key External Stakeholders in the AMP

Key Stakeholder	Role in Asset Management Plan
Road Authorities (VicRoads / DOT)	Interested party re allocation of resources to meet planning objectives in providing services while managing risks, Ensure service sustainable.
Community in general	Customer
Road users – Motorists, Cyclists and Pedestrians (including all abilities and age groups)	Customer
Tourists and visitors to the area	Customer
Commercial and Industrial transport operators	Customer
Public transport services including school buses	Customer
Emergency Agencies	Customer
Utilities (Water, sewerage, gas, electricity, telecommunications)	Interested party re location of services
Land Developers	Interested party re accessibility
Contractors and suppliers	Interested party re supply of goods and resources to provide services
State and Federal Government	Interested party re governance of road services
Council's Insurer	Interested party to ensure auditing, maintenance and reporting are undertaken
Road Safety organisations	Interested party re safety considerations for road users

Key internal stakeholders in the preparation and implementation of this Asset Management Plan are shown in Table 2.1c.

Table 2.1c: Key Internal Stakeholders in the AMP

Key Stakeholder	Role in Asset Management Plan
Asset Custodian	Regulatory authority responsible for the care and control of the road infrastructure network to service community service needs
Asset Management	Responsible for development of the Roads Asset Management Plan and renewal modelling
Executive Management Team	Management – responsible for corporate review, resourcing and ensuring implementation of the Roads Asset Management Plan
Councillors	Council authority – Approval of the Roads Asset Management Plan and approval of annual budgets and long term financial planning

Roles and Responsibilities for asset management of the portfolio of roads infrastructure within Warrnambool City Council is described as follows:

Service Managers are responsible for acquiring, planning, controlling, directing and delivering Council services, and developing Service Plans for the future provision of assets. The primary service manager for roads assets is the Manager Infrastructure Services, who is responsible for the oversight of the acquisition, planning, design, operations, maintenance and delivery of works. The table below lists the breakdown of the roles and responsibilities vested with each service manager.

Designation	Responsibility
Manager Infrastructure Services	Emergency Management
	Engaging internal project management, assets and procurement support for roads construction and acquisition
	Overseeing the preparation of Roads Service Plans (short and long term)
	Community Engagement/Consultation
Coordinator Infrastructure Management	Improve/enhance the quality, capacity and functionality of the roads network
	Providing input for required levels of service such as performance and safety
	Directing the delivery of renewal and new/upgrade programs
	Engaging internal procurement support for the design of road infrastructure assets
Coordinator Municipal Operations	Ensure the performance of road infrastructure assets with periodic maintenance and operational activities
	Develop and monitor operating and maintenance budgets and maintenance plans
Coordinator Strategic Assets	Implementation and management of the Asset Management System for road infrastructure assets
	Conducting asset condition audits and data collection
	Co-ordinating renewal planning and long-term capital works priorities
Manager Finance	Development of Long-Term Financial Plan, Strategic Resource Plan, and annual budget
	Prepare Financial reports on assets based on accounting standards and Financial reporting regulations

2.2 Goals and Objectives of Asset Ownership

Our goal in managing infrastructure assets is to meet the defined level of service (as amended from time to time) in the most cost effective manner for present and future consumers. 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 forecast costs and how it will be allocated.

Key elements of the planning framework are

- Levels of service – specifies the services and levels of service to be provided,
- Future demand – how this will impact on future service delivery and how this is to be met,
- Lifecycle management – how to manage its existing and future assets to provide defined levels of service,
- Financial summary – what funds are required to provide the defined services,
- Asset management practices – how we manage provision of the services,
- Monitoring – how the plan will be monitored to ensure objectives are met,
- Asset management improvement plan – how we increase asset management maturity.

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

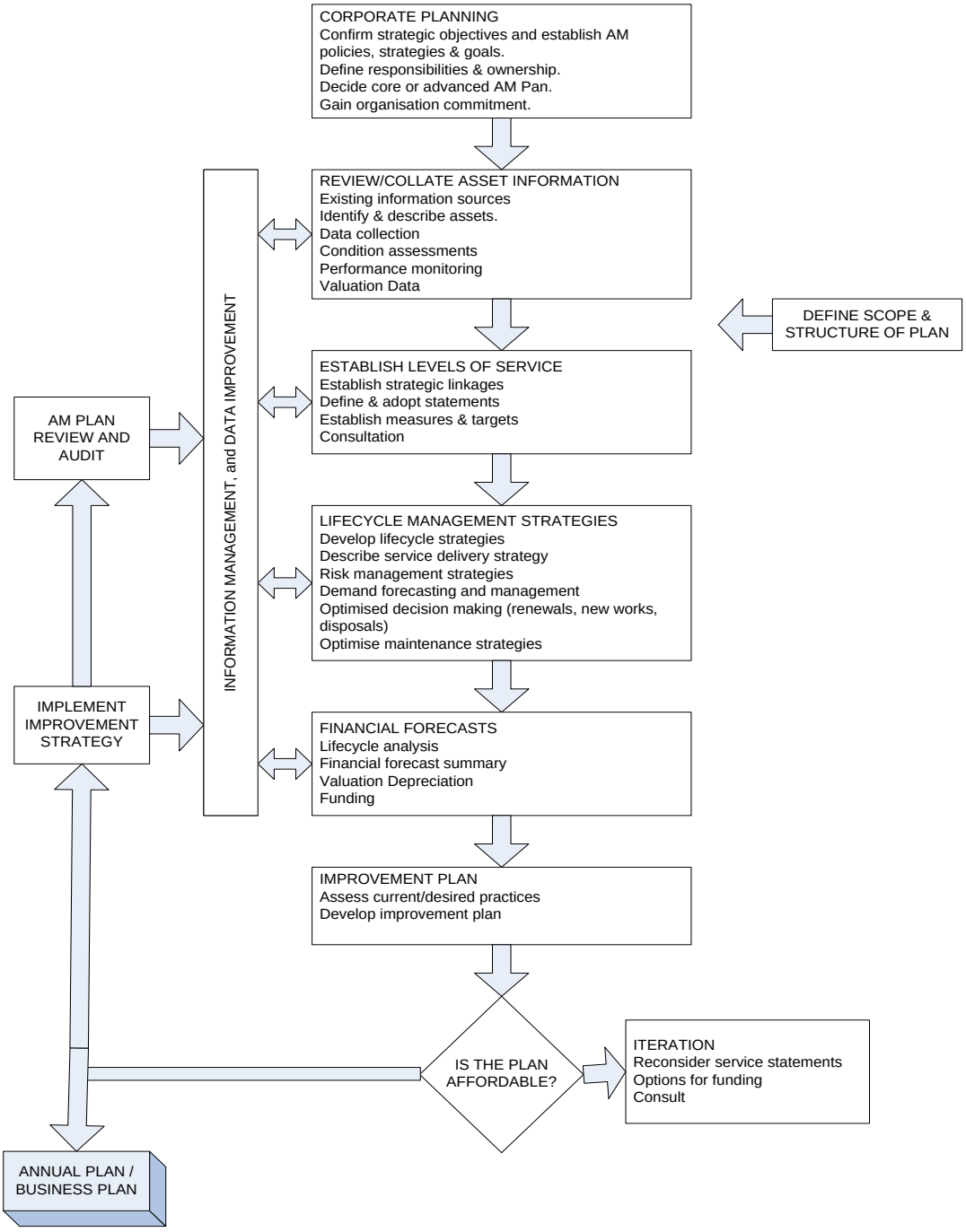
- International Infrastructure Management Manual 2015 [1]
- ISO 55000[2]

A road map for preparing an Asset Management Plan is shown below.

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

Road Map for preparing an Asset Management Plan

Source: IPWEA, 2006, IIMM, Fig 1.5.1, p 1.11



3.0 LEVELS OF SERVICE

3.1 Customer Research and Expectations

This Asset Management Plan is prepared to facilitate consultation prior to adoption of levels of service by the Warrnambool City Council. Future revisions of the Asset Management Plan will incorporate customer consultation on service levels and costs of providing the service. This will assist the Warrnambool City Council and stakeholders in matching the level of service required, service risks and consequences with the customer's ability and willingness to pay for the service.

Table 3.1a summarises the results from our Customer Satisfaction Survey. Table 3.1b summarises the results from the Warrnambool City Centre Parking Strategy.

Table 3.1a: Customer Satisfaction Survey Levels

Performance Measure	Satisfaction Level (%)
Condition of sealed local roads	48 (2020) ↓ 58 (2019) ↑ 53 (2018)
Condition of local streets and footpaths	56 (2020) ↓ 64 (2019) ↑ 58 (2018)
Traffic management	50 (2020) ↓ 59 (2019) ↑ 52 (2018)
Parking facilities	38 (2020) ↓ 45 (2019) ↑ 39 (2018)

Table 3.1b: Warrnambool City Centre Parking Strategy – Customer Survey Outcomes

Survey/Audience	Result/Outcome
Warrnambool City Centre Parking Strategy 2015 (Customer survey)	54% customers are satisfied with the availability of parking in on-street areas 54% have not experienced difficulty parking in off-street areas Weekday long-term parking is in high demand in mid-west to south sections of the City Centre. Increased parking supply in the area will assist

3.2 Strategic and Corporate Goals

This Asset Management Plan is prepared under the direction of the Warrnambool City Council vision, mission, goals and objectives.

Our vision for Warrnambool is:

A thriving city at the heart of coast and country

Our missions are:

Warrnambool will be a city where all people thrive

Warrnambool will be Australia's most liveable regional city

Warrnambool will be Australia's most sustainable city

Warrnambool will be Australia's most resilient & thriving regional economy

Strategic goals and objectives have been set in the Warrnambool City Council Plan. The relevant goals and objectives and how these are addressed in this Asset Management Plan are summarised in Table 3.2.

Table 3.2: Council Plan Goals and Objectives and how these are addressed in this Plan

Goal	Objective	How Goals and Objectives are addressed in the AMP
An effective Council	Leadership and governance: Council will be a high-functioning team committed to respectful relationships, collaboration and ongoing engagement. It will provide strong, effective leadership, sound governance and informed decision-making	Improve asset management practices for Council's road infrastructure. The preparation, adoption and regular updates of this asset management plan for the roads asset class.
	Engaged and informed community: Council will ensure ongoing community engagement to identify changing needs and priorities when developing and delivering services and programs.	Identifies service demand drivers to determine upgrades to roads and expansion of parking areas that are necessary to meet future community needs. Communicates when and where to allocate funding for road safety projects.
	Customer-focused services: Council will continue to develop a program of Council services that are delivered to the community's satisfaction.	Identify asset maintenance requirements to continue to provide current levels of service and maintain safe and reliable road infrastructure.
	Organisational and financial sustainability: Council will ensure organisational and financial sustainability through the effective and efficient use of Council's resources and assets.	Identifies current levels of investment against need to inform Council's LTFP and reports the asset renewal funding ratio Utilise asset condition modelling to determine renewal funding requirements. Highlights the benefits of improved data confidence and knowledge in refining future funding requirements.
	Risk mitigation: Council will mitigate and manage organisational risks through sound management systems and processes.	The preparation, adoption and updates of this asset management plan adheres to Councils risk management framework and processes in ensuring key strategic and operational decision making considers risk factors.
A healthy community	An accessible city: Council will improve physical and social accessibility to community services, facilities, places and precincts.	Identifies service demand drivers to determine upgrades and expansion of all-accessibility parking areas that are necessary to meet future community needs.
A connected, inclusive place	A connected community: Council will enhance Warrnambool's connectivity through the delivery of, or advocacy for, improvement to roads, public	Identifies upgrades necessary to improve the connectivity of the road network within Warrnambool and surrounding areas.

	transport, footpaths, trails and digital infrastructure.	Identifies service demand drivers to determine upgrades to roads and expansion of parking areas that are necessary to meet future community needs. Identifies service demand drivers to determine how to improve the connectivity of the on-road cycling network within Warrnambool.
	Sustainable practices: Council will promote and encourage the implementation of sustainable design across the municipality including the attractiveness, safety, accessibility and functionality of our built environment.	Identifies renewal requirements and upgrades needed to continue to provide roads that are designed to last longer, and meet the functionality, safety and reliability requirements of road infrastructure for the community.

3.3 Legislative Requirements

There are many legislative requirements relating to the management of assets. Legislative requirements that impact the delivery of the roads service are outlined in Table 3.3.

Table 3.3: Legislative Requirements

Legislation	Requirement
Local Government Act 2020	Sets out the role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by infrastructure and asset management plans for sustainable service delivery.
Road Management Act, 2004 Road Management Act 2004 Codes of Practice - Management of Road & Utility Infrastructure in Road Reserves Road Management Act 2004 Codes of Practice - Operational Responsibilities for Public Roads	Defines Council as the Responsible Authority in relation to the management of local roads. The Warrnambool Municipal Road Management Plan is a statutory document prepared under the Road Management Act 2004 to establish a management system for Council to inspect, maintain and repair its public roads based on policy and operational objectives having regard to available resources. These roads are listed on Council's Register of Public Roads. The Municipal Road Management Plan details the various legislative requirements, standards and codes of practice applicable to management of the road network.

Road Management (General) Regulations 2005	Sets out additional matters for the review and amendment of a Road Management Plan not contained in the 2004 Road Management Act for consultation with the community. The regulation also prescribes certain matters that must be recorded on a register of public roads and provides for the protection of roads and property. Provides for a coordinated management system for public roads including use of the road reserves for other legitimate purposes such as the provision of utility services and drainage. It defines the responsible authorities , and makes Council the controlling authority for public local roads, boundary roads and parts of declared roads within the municipal area, which also makes Council responsible for managing the infrastructure assets within them.
Road Safety Act 1986 (Amended 2004)	The purpose of this act in relation to this plan is to provide safe, efficient and equitable road use, set out general obligations for road users and ensure equitable distribution within the community of costs of road use.
Roads to Recovery Act 2000	An Act to provide funding to local governing bodies to supplement expenditure on roads.
Subdivisions Act 1988	The purpose of the Subdivision Act 1988 is to set out the procedure for the subdivision and consolidation of land, including buildings and airspace, and for the creation, variation or removal of easements or restrictions.
Transport Integration Act 2010	Integrates the legislation contained within: • Transport (Compliance and Miscellaneous) Act 1983; Road Management Act 2004; Road Safety Act 1986 Also outlines Council's responsibility to manage financial risk in relation to the management and maintenance of road assets. Requires land use authorities to provide a transport system that is integrated and sustainable with transport decisions made based on a triple bottom line assessment.
Environmental Protection Act 1970	The legislative framework for the protection of the environment in Victoria. Legal requirements in relation to stormwater runoff from roads into water ways.
Environment Protection & Biodiversity Conservation Act 1999	The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) is the Australian Government's environmental legislation. It covers environmental assessment and approvals, protects significant biodiversity and integrates the management of important natural and cultural places.
Council Local laws	Council is responsible for the implementation and enforcement of the Road Safety Act and Regulations.
Disability Discrimination Act 1992	Provides protection for Australians against discrimination based on disability. It encourages everyone to be involved in implementing the Act and to share in the overall benefits to the community and economic benefits that flow from participation by the widest range of people
Occupational Health and Safety Act 1985	Legal requirements for employers/employees in relation to workplace safety. Requirements on those who design, manufacture, import or supply any plant for use in the workplace.
No Go Zone	Energy Safe Victoria have developed a best practice approach for operating mechanical plant and equipment near overhead power lines.

Trades Practices Act 1974	The objective of the Act, as set out in the legislation, is to enhance the welfare of Australians through the promotion of competition and fair trading and providing for consumer protection
Emergency Management Act 2013	The objective of the Act is to establish new governance arrangements for emergency management in Victoria, including within municipalities
Heavy Vehicle National Law Application Act 2013	The main objectives of this Act are to provide for the application of a National Law to regulate the use of heavy vehicles on roads
Rail Safety Act 2006	The Act addresses: Safety interface assessment by relevant road manager of public roadway or pathway: • A relevant road manager in relation to a public roadway or public pathway must: − Identify and assess, so far as is reasonably practicable, risks to safety that may arise from the existence or use of any rail or road crossing that is part of the road infrastructure of that public roadway or that is a public pathway because of, or partly because of, rail infrastructure operations; − Determine measures to manage, so far as is reasonably practicable, any risks identified and assessed. • A relevant road manager must have regard to: − The principal object of road management; and − The works and infrastructure management principles; and − The functions, powers and duties of infrastructure managers under the Road Management Act 2004 - When determining measures to manage risks identified under subsection (1). • A relevant road manager must seek to enter into a safety interface agreement with any rail infrastructure manager whose rail infrastructure operations are identified as contributing to a risk identified under subsection (1) for the purposes of managing that risk.

3.4 Customer Values

Service levels are defined in three ways, customer values, customer levels of service and technical levels of service.

Customer Values indicate:

- what aspects of the service is important to the customer,
- whether they see value in what is currently provided and
- the likely trend over time based on the current budget provision

Table 3.4: Customer Values

Customer Values	Customer Satisfaction Measure	Current Feedback	Expected Trend Based on Planned Budget
Roads provide smooth path of travel	Number of customer requests for road maintenance	190 Total Requests for 2019/20	Council meets its requirement for reactive maintenance under the RMP. Funding shortfall for planned maintenance is likely to increase in line with asset growth leading to a greater number of reactive customer requests.
Streets are kept clean and clear	Customer Satisfaction Survey	2020 – 56% customers satisfied to very satisfied with the cleanliness of streets	Street sweeping frequency may decrease in future to meet the static operational budget
Minimal delay in commute	Customer Satisfaction Survey	2020 - 50% customers satisfied to very satisfied with traffic management	Increased delays due to population growth, works being carried out and unfunded road projects identified in the road hierarchy review.
Roads and supporting infrastructure are safe for users	Number of accidents	Total of 51 accidents in 2019 (VicRoads Crash Statistics)	Anticipated that the number of accidents will decrease due to Road Safety Strategy funding.
Sufficient parking facilities	Customer Satisfaction with the availability of parking	54% customers satisfied (2015 Parking Strategy Survey)	The proposed budget is not sufficient to improve the availability of parking facilities in line with the growth in population

3.5 Customer Levels of Service

The Customer Levels of Service are considered in terms of:

Quality How good is the service … what is the condition or quality of the service?

Function Is it suitable for its intended purpose …. Is it the right service?

Capacity/Use Is the service over or under used … do we need more or less of these assets?

In Table 3.5 under each of the service measures types (Quality, Function, Capacity/Use) there is a summary of the performance measure being used, the current performance, and the expected performance based on the current funding level.

These are measures of fact related to the service delivery outcome e.g. number of occasions when service is not available, condition %'s of Very Poor, Poor/Average/Good, Very Good and provide a balance in comparison to the customer perception that may be more subjective.

Table 3.5: Customer Level of Service Measures

Type of Measure	Level of Service	Performance Measure	Current Performance (2019/2020)	Expected Trend Based on Planned Budget
Condition	Roads provide smooth path of travel	Percentage of sealed roads in poor/very poor condition	4.6% of sealed road surfaces are in poor/very poor condition 6.7% of sealed road pavements are in poor/very poor condition	Percentage of sealed road pavements in poor/very poor condition will increase due to lack of budget to meet lifecycle costs and superficial 'band-aid' treatments of the surface.
	Confidence levels		High	Medium
Function	Road network is appropriate for users' needs	Unsealed roads assessed for upgrade.	Unsealed roads assessed on a needs basis under special charge schemes	The shortfall in budget is likely to result in more assets not meeting expectations or be upgraded in the shorter term.
	Roads are safe for user's needs	Number of Road Safety Strategy projects completed	On average, six road safety strategy projects are delivered per year via the following programs: - Safe Systems Road Infrastructure Program - TAC Community Road Safety Grant Federal Blackspot Program	Likely to remain unchanged
	All accessibility parking is provided where expected by the community	Number of customer requests about all accessibility parking facilities not meeting expectations	Total customer requests in: 2017/18 = 2 2018/19 = 1 2019/20 = 2 Number of customer complaints about accessibility issues regarding disabled parking has remained a low number	Likely to remain unchanged
	Road network has provision for cyclists	Number of gaps in the on-road bicycle path network throughout the municipality	Performance is yet to be measured (to be informed by STS)	No change in the connectivity of the bicycle path network

Type of Measure	Level of Service	Performance Measure	Current Performance (2019/2020)	Expected Trend Based on Planned Budget
	Confidence levels		Low	Low
Capacity	Road capacity is appropriate to service hierarchy (needs)	Road Hierarchy Review 2017 – Number of roads that are under-utilised or over-utilised	4 roads have average traffic volumes in a 24 hour period higher than the maximum limit based on collector/link/access hierarchy according to IDM guidelines 3 roads have average traffic volumes in a 24 hour period lower than the minimum value based on collector/link/access	Road utilisation will be site specific due to new growth precincts being developed and expected delays or congestion on some routes due to the lag time of DCP construction
	Availability of parking	Customer Satisfaction with the availability of parking	54% customers satisfied	The proposed budget is not sufficient to improve the availability of parking facilities in line with the growth in population
	Confidence levels		Medium	Low

Improvement Action 2*: Identify gaps in the connectivity of the on-road bicycle path network*

3.6 Technical Levels of Service

Technical Levels of Service – To deliver the customer values, and impact the achieved Customer Levels of Service, are operational or technical measures of performance. These technical measures relate to the activities and allocation of resources to best achieve the desired customer outcomes and demonstrate effective performance.

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

- **Acquisition** – 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).
- **Operation** – 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 provided (e.g. road resurfacing and pavement reconstruction, pipeline replacement and building component replacement),

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

Table 3.6 shows the activities expected to be provided under the current Planned Budget allocation, and the Forecast activity requirements being recommended in this AMP.

Table 3.6: Technical Levels of Service

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
Acquisition	Construction within new developments	Developer contribution	Developers constructing roads to meet structure plan requirements	Set design and materials standards that require less funding to operate, maintain and renew in the future.
	Delivery of projects identified in Road Hierarchy Review document	Budget allocated	Limited by the existing new/upgrade capital budget where $175,000 is allocated annually	Increase funding to meet the needs of the growing number of road users
	Expansion of parking facilities	Budget allocated	There is an existing new/upgrade capital budget of $50,000 allocated annually to the construction/expansion of parking facilities. However, it has not been determined how many additional parking spaces are required annually to improve parking capacity	To be determined
	On-road bicycle path creation	Budget allocated	There is no budget allocated	Bidding for funding allocation for recommended projects through the STS (Sustainable Transport Strategy)
	Delivery of Road Safety Strategy & Audit projects	Budget allocated	Limited by existing budget	Increase in funding to accelerate delivery of road safety projects
		Budget	*$175,000*	*$443,333*
Operation	Streets are clean and clear	Street sweeping frequency	All Council roads twice yearly. CBD including car parks on a daily basis. Raglan Parade once per month.	Maintain at current performance level

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

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
	Condition audits and performance monitoring	Frequency of audits	All sealed roads are condition assessed every 4 years	Suitable and in line with industry standards
		Budget	*$434,016*	*$486,016*
Maintenance	Grading of unsealed roads as planned	Alignment with the delivery of the service level agreement	Unsealed roads are graded in accordance with performance standards in the service level agreement	Maintain at current performance level
	Repair of potholes to ensure roads provide smooth path of travel	Alignment with the delivery of the service level agreement	Potholes to be repaired as per the ongoing inspection program in accordance with performance standards in the service level agreement	Slight budget increase required to maintain current performance level
	Line-marking to provide adequate and clear signage	Alignment with the delivery of the service level agreement	Annual inspection of road line-markings in accordance with performance standards in the service level agreement	Slight budget increase required to maintain current performance level
	Maintenance and replacement of traffic signs to provide adequate and clear signage	Alignment with the delivery of the service level agreement	Traffic signs are programmed to be repaired or replaced in accordance with performance standards in the service level agreements	Slight budget increase required to maintain current performance level
		Budget	*$980,688*	*$1,016,688*
Renewal	Renewal of unserviceable assets	Local Roads Rehabilitation Program, Reseal program	3.3% of network resealed annually 0.6% of pavement network rehabilitated annually	Additional funding required to fund renewal backlog
		Budget	*$3,133,558*	*$5,295,448*
Disposal	Rationalisation and removal of assets surplus to need	Budget Allocation	None	Remains the same
		Budget	*$0*	*$0*

Note: * Current activities related to Planned Budget 2020/21.

** Forecast required performance related to forecast lifecycle costs.

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.

Improvement Action 3: *Determine how many additional parking spaces are required and the associated costs*

4.0 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 have been identified and documented.

4.3 Demand Impact and Demand Management Plan

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

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

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

Table 4.3: Demand Management Plan

Demand driver	Current position	Projection	Impact on services	Demand Management Plan
Population growth	34,757 people in 2020 (ABS Census Data)	Increase to 46,210 people by 2036 (ABS Census Data)	Increased demand for improved and additional roads Increased demand for additional parking facilities	Implementation of the Road Hierarchy Review
Future developments and redevelopments in the municipality	Growth precincts outlined in Council structure plans	Additional infrastructure required for new developments	New road assets will be acquired which in turn will add to maintenance spend annually	0.25% increase in maintenance spend each year on acquisitions for the next ten years. Monitor.
Change of vehicle types utilising local roads especially heavy vehicles	Dairy and Forestry industries are expanding with both having high dependence on heavy commercial vehicles	Increased impact on road pavements on identified routes	Increased maintenance costs	Monitor with regular traffic counts and allocate funding accordingly

Demand driver	Current position	Projection	Impact on services	Demand Management Plan
Increased number of cyclists on roads	Percentage of population that currently use bicycles to travel on roads is yet to be determined	Increase in percentage of population that use bicycles to travel on roads	Construction of wider roads and safer roads for cyclists	Implementation of the STS will help Council identify where road upgrades are required for cyclists
Continual demand for increased level of service	Moderate expectations with increased road safety awareness, advances in technology and improved standards of living however well documented lack of resources for major upgrades	Increased expectations of safe, smooth travel Increased expectations on better parking facilities	Increased maintenance, operation, acquisition and renewal costs	Monitor community expectations on levels of services and allocate funding accordingly
Tourism	1,115 overnight visitors to Warrnambool per day in 2019 – an increase of 5% each year from 2013 – 2019 (Tourism Research Australia Statistics)	Increase to 2,555 overnight visitors to Warrnambool by 2036 – based on 5% increase each year (Tourism Research Australia Statistics)	Increased peak periods of traffic and duration on roads Impact on road user behaviour and knowledge of road rules Increased demand for additional parking facilities	Monitor increase in tourist numbers in Warrnambool through census data and traffic counts and use as input into developing future works programs.

Improvement Action 4: *Determine percentage of population that currently use bicycles to travel on roads*

4.4 Asset Programs to meet Demand

The new assets required to meet demand may be acquired, donated or constructed. Additional assets are discussed in Section 5.4.

Acquiring new assets will commit the Warrnambool City Council to ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the long-term financial plan (Refer to Section 5).

4.5 Climate Change and Adaption

The impacts of climate change can have a significant impact on the assets we manage and the services they provide. In the context of the Asset Management Planning process climate change can be considered as both a future demand and a risk.

How climate change will impact on assets can vary significantly depending on the location and the type of services provided, as will the way in which we respond and manage those impacts.

As a minimum we should consider both how to manage our existing assets given the potential climate change impacts, and then also how to create resilience to climate change in any new works or acquisitions.

Opportunities identified to date for management of climate change impacts on existing assets are shown in Table 4.5.1.

Table 4.5.1 Managing the Impact of Climate Change on Assets

Climate Change Description	Projected Change	Potential Impact on Assets and Services	Management
Storm intensity	More extreme weather events	Localised flooding	Ensure maintenance of kerb and channel and roadside drainage Floodplain Management Plans Ensure emergency response procedure is up to date Ensure insurance cover is adequate.
Rainfall	Drier climate or periods of drought	Cost of water could increase road construction costs	Include increased water costs in road management budgets Consider opportunities in IWM planning
	More heavy rainfall events	Inundations may reduce the life of the road pavement	Monitor with regular condition assessments
Temperatures and solar radiation	Increased temperatures and solar radiation	Will reduce the life of the road due to breakdown of materials and petrochemicals	Monitor with regular condition assessments
Hot weather / heat waves	More severe and sporadic	Issues with capital works (bleeding reseals)	Improve contract management to plan for and avoid delays in delivery of works Modify pavement design and improve design standards/ guidelines for road pavements. Monitor with regular condition assessments

Additionally, the way in which we construct new assets should recognise that there is opportunity to build in resilience to climate change impacts. Building resilience will have benefits:

- Assets will withstand the impacts of climate change
- Services can be sustained
- Assets that can endure may potentially lower the lifecycle cost and reduce their carbon footprint

Table 4.5.2 summarises some asset climate change resilience opportunities.

Table 4.5.2 Building Asset Resilience to Climate Change

New Asset Description	Climate Change impact these assets?	Build Resilience in New Works
Kerb & Channel	More extreme weather events and heavier rainfall	Any new kerb and channel works needs to accommodate increased flow from storm surges,
Road Pavement (incl. carparks)	More extreme weather events and heavier rainfall causing water over roads if it cannot get away	Consider permeable pavement designs
	Degradation of pavements due to hot weather	Material types considered for reducing the fatigue rates of pavements Modify pavement design and improve design standards/guidelines for road pavements
Signs	Severe storm damage can displace signs	Selecting products for new signs that have a higher strength rating (better footing, better strength in the poles, etc.) and are therefore, better resistant to handling extreme weather events like storms

Improvement Action 5: *The impact of climate change on assets is a new and complex discussion and further opportunities will be developed in future revisions of this Asset Management Plan.*

5.0 LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how the Warrnambool City Council plans to manage and operate the assets at the agreed levels of service (Refer to 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 5.1.1.

These include local roads and kerb and channel under the management of Warrnambool City Council.

The age profile of the assets included in this AMP are shown in Figure 5.1.1.

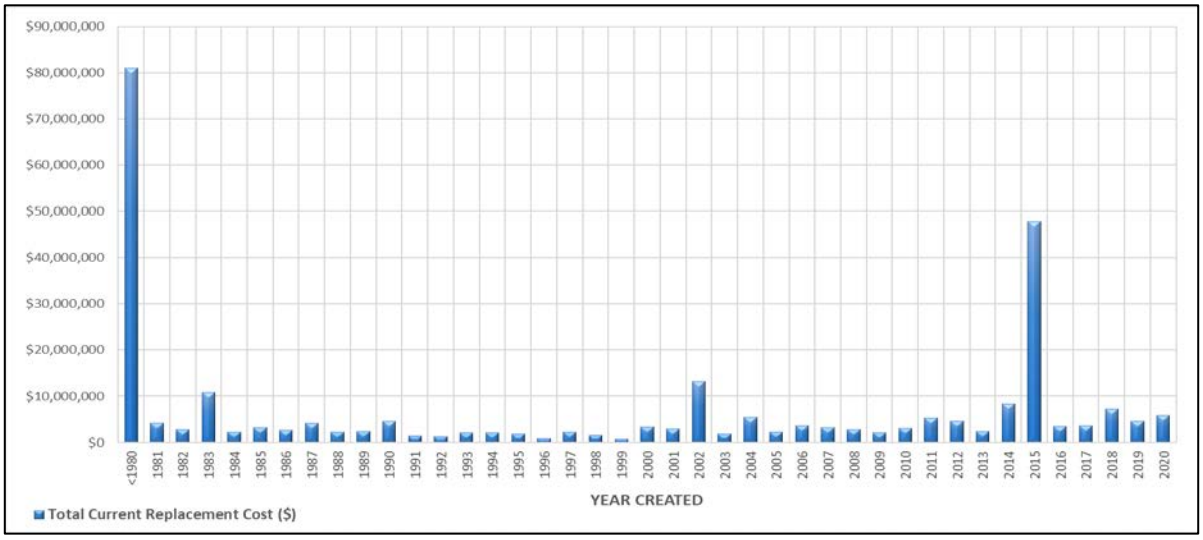
Table 5.1.1: Assets covered by this Plan

Asset Category	Dimensions	Replacement Value
Surface - Spray Seal (Sealed Road)	1,865,229m2	$12,466,656
Surface - Asphalt (Sealed Road)	740,880m2	$20,501,113
Surface - Concrete/Other (Sealed Road)	7,619m2	$681,587
Pavement - Sealed Road	2,550,937m2	$198,282,542
Pavement - Unsealed Road	193,637m2	$5,023,470
Kerb and Channel (incl. traffic islands; pedestrian refuges; roundabout centres)	465km	$34,828,867
Parking meters/Ticket machines	92 No.	$861,270
Signalised crossings	6 No.	$627,617
Speed humps/wombat crossings	27 No.	$1,527,616
Guard rails/ Safety rails	615m	$29,112
TOTAL		**$274,829,850**

***Values from Asset Information System (Conquest) as of 10 May 2021**

Note: There are additional assets Council is responsible for but these are minor costs and are covered by maintenance budgets.

Figure 5.1.1: Asset Age Profile



All figure values are shown in current day dollars.

Council's road assets hold a wide range of ages. There is high confidence in recently constructed road data, however there is less confidence in data for roads constructed prior to 1980. Roads of this era have been aggregated.

Most of the spend has come in the past twenty years with the large peak in 2015 possibly due to gaps in our asset register data which have been filled with an approximate year. There was also large peaks in investment prior to 1980 which may see significant spend required on renewal of road assets in the future.

5.1.2 Asset capacity and performance

Assets are generally provided to meet design standards where these are available. However, there is insufficient resources to address all known deficiencies. The Warrnambool Municipal Road Hierarchy Review and Traffic Management Plan 2017 (Road Hierarchy Review) has identified locations where roads are under capacity. Locations which need immediate upgrades due to current deficiencies in service performance are detailed in Table 5.1.2.

Table 5.1.2: Known Service Performance Deficiencies

Current Assets Under Capacity/Performance
Intersection of Wangoom Road/ Aberline Road
Intersection of Walsh Road/ Giffen Street

5.1.3 Asset condition

Warrnambool City Council undertakes condition assessments of its road infrastructure on a 4 yearly basis of the following asset categories:

- Pavement – for sealed and unsealed roads
- Seal – for sealed roads
- Kerb and Channel

These condition audits assist with the efficient collection of critical information used for the development of prioritised renewal and maintenance programs. The condition audits are also used to monitor the performance of the road network relating to agreed service levels; and to identify long-term condition trends which guide strategies for optimising the performance of the road network.

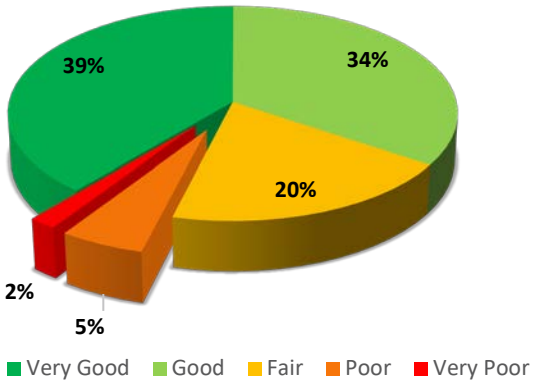
Condition is measured using a 1 – 5 grading system[4] as detailed in Table 5.1.3. It is important that consistent condition grades be used in reporting various assets across an organisation. This supports effective communication. At the detailed level assets may be measured utilising different condition scales, however, for reporting in the AMP they are all translated to the 1 – 5 grading scale.

Table 5.1.3: Simple Condition Grading Model

Condition Grading	Description of Condition
1	**Very Good**: only planned maintenance required
2	**Good**: minor maintenance required plus planned maintenance
3	**Fair**: significant maintenance required
4	**Poor**: significant renewal/rehabilitation required
5	**Very Poor**: physically unsound and/or beyond rehabilitation

The condition profile of our assets is shown in Figure 5.1.3. This chart shows the condition profile for all of Council's road pavements and surface only – excludes kerb and channel; and shoulders; and other road asset categories.

Figure 5.1.3: Asset Condition Profile



This chart indicates that the majority of Council's roads are in "very good" or "good" condition, and approximately 7% of Council's roads are in "poor" or "very poor" condition, which do not meet the desired levels of service and are hence above intervention level.

5.2 Operations and Maintenance Plan

Operations include regular activities to provide services. Examples of typical operational activities include cleaning, street sweeping, asset inspection, and vegetation control.

[4] IPWEA, 2015, IIMM, Sec 2.5.4, p 2|80.

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. Examples of typical maintenance activities include line-marking, asphalt patching, parking meter repairs and guard rail maintenance and installation.

The trend in maintenance budgets are shown in Table 5.2.1.

Table 5.2.1: Maintenance Budget Trends

Year	Maintenance Budget
2018/2019	$932,714
2019/2020	$948,767
2020/2021	$980,668
2021/2022 (projected)	$980,668

Maintenance budget levels are considered to be inadequate to meet projected service levels, which may be less than or equal to current service levels. Where maintenance budget allocations are such that they will result in a lesser level of service, the service consequences and service risks have been identified and are highlighted in this AMP and service risks considered in Appendix F - Road Infrastructure Risk Register.

Reactive maintenance is carried out in accordance with response levels of service detailed in Council's Roads and Drainage Maintenance Levels of Service 2014.

Asset hierarchy

An asset hierarchy provides a framework for structuring data in an information system to assist in collection of data, reporting information and making decisions. The hierarchy includes the asset class and component used for asset planning and financial reporting and service level hierarchy used for service planning and delivery.

The service hierarchy is shown in Table 5.2.2.

Table 5.2.2: Asset Service Hierarchy

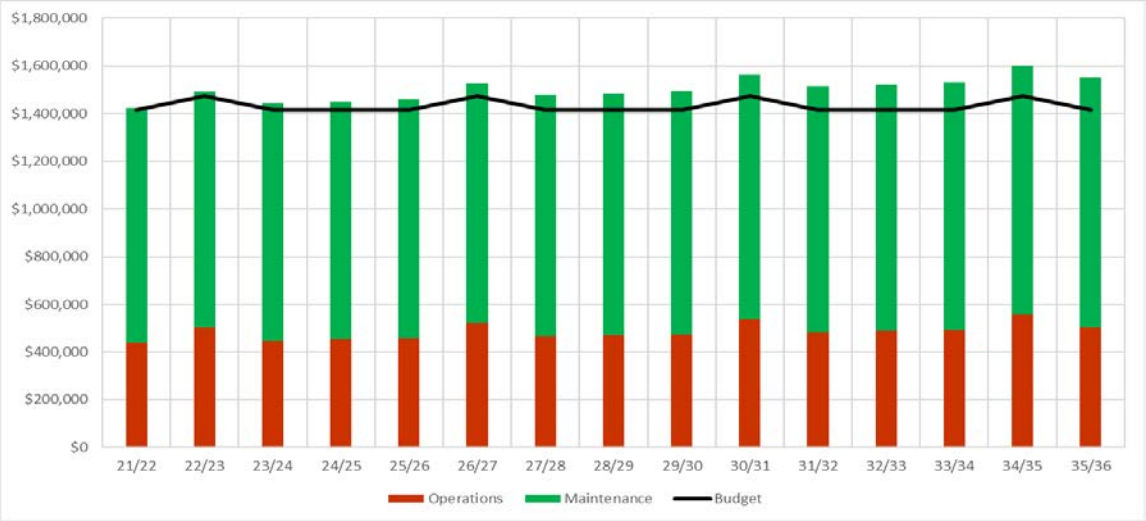
Service Hierarchy	Service Level Objective
Link	Carry the heaviest volumes of traffic including commercial vehicles and provide the principal routes for traffic flows in and around the municipality.
Collector	Carry significant volumes of traffic and provide access by connecting residential areas to the link roads. They also provide links between the various arterial roads.
Access	Carrying moderate volumes of traffic and primarily serve as property access roads for the local community.
Lane	Roads carrying local traffic, typically providing secondary access to properties with more than one road frontage

Summary of forecast operations and maintenance costs

Forecast operations and maintenance costs are expected to vary in relation to the total value of the asset stock. If additional assets are acquired, the future operations and maintenance costs are forecast to increase. If assets are disposed of, the forecast operation and

maintenance costs are expected to decrease. Figure 5.2 shows the forecast operations and maintenance costs relative to the proposed operations and maintenance Planned Budget.

Figure 5.2: Operations and Maintenance Summary



All figure values are shown in current day dollars.

This expenditure is in line with the levels of service outlined in Council's Roads and Drainage Maintenance Levels of Service 2014. The expenditure is also set to increase by 0.25% of $1.8M annually in line with the growth of the asset base due to gifted assets from new growth developments.

The proposed operations and maintenance budget will not be adequate to cover the increasing maintenance and operations costs due to acquiring new assets due to new growth developments and ageing infrastructure.

Deferred maintenance (i.e. works that are identified for maintenance activities but unable to be completed due to available resources) should be included in the risk assessment and analysis in Appendix F - Road Infrastructure Risk Register.

Maintenance is funded from the operations and maintenance budget where available. This is further discussed in Section 7.

5.3 Renewal Plan

Renewal is major capital work which does not significantly alter the original service provided by the asset, but restores, rehabilitates, replaces or renews an existing asset to its original service potential.

Typical renewal of road infrastructure includes the replacement of kerb and channel; resealing of road bitumen surfaces; road pavement rehabilitation using cement stabilisation works; or replacement of parking meter ticket machines.

Work over and above restoring an asset to original service potential is considered to be an upgrade or acquisition resulting in additional future operations and maintenance costs.

Road pavements and surfaces requiring renewal are identified using Assetic Predictor. Assetic Predictor is a predictive modelling software that simulates asset performance characteristics that will enable analysis of the future performance of the asset portfolio over its entire lifecycle.

The method used to generate the capital renewal plan for road pavements and surfaces is to import the road condition data into Assetic Predictor to model the renewal costs and renewal timing of all assets. Non-network assets (eg: signs, guardrails, traffic lights) are then also included from Conquest or maintenance teams' knowledge.

Road condition data, useful lives and asset degradation curves are used by Assetic Predictor to determine the renewal requirements of each asset. The condition at which an asset is proposed for renewal is called the intervention level. Typically, assets nearing the end of useful life or at "Very Poor" or "Poor" condition are deemed as at intervention level and are prioritised earlier for renewal.

The typical useful lives of assets used to develop projected asset renewal forecasts are shown in Table 5.3. Asset useful lives are reviewed on an annual basis.

Table 5.3: Useful Lives of Assets

Asset Category	Useful life
Sealed road pavements	60 years
Sealed road surface	
• *Surface – Spray Seal*	16 years
• *Surface – Asphalt*	40 years
• *Surface – Concrete/Other*	85 years
Unsealed road	25 years
Kerb and Channel (incl. traffic islands; pedestrian refuges; roundabout centres)	80 years
Parking meters/Ticket machines	10 years
Signalised crossings	20 years
Speed humps/wombat crossings	50 years
Guard rails/ Safety rails	40 years

The estimates for renewals in this Asset Management Plan were based on Asset Valuation and Renewal Calculations 2019/20 and associated data in Conquest that forms the asset register.

5.3.1 Renewal ranking criteria

Asset renewal 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 t load limit), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. condition of a playground).[5]

[5] IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.

It is possible to prioritise renewals by identifying assets or asset groups that:

- Have a high consequence of failure,
- Have high use and subsequent impact on users would be significant,
- Have higher than expected operational or maintenance costs, and
- Have potential to reduce life cycle costs by replacement with a modern equivalent asset that would provide the equivalent service.[6]

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

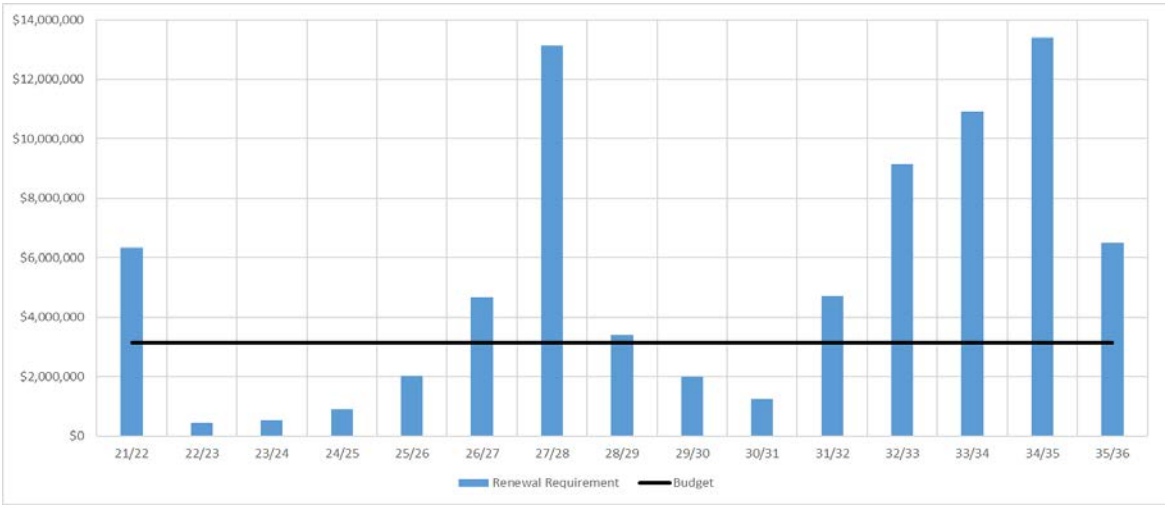
Table 5.3.1: Renewal Priority Ranking Criteria

Criteria	Priority Level
Condition	1 (High)
Road Hierarchy	1 (High)
Road Surface Type	2 (Medium)
Traffic Count	2 (Medium)
Bus Route	3 (Low)
Heavy Vehicle Count	3 (Low)

5.4 Summary of future renewal costs

Forecast renewal costs are projected to increase over time if the asset stock increases. The forecast costs associated with renewals are shown relative to the proposed renewal budget in Figure 5.4.1. A detailed summary of the forecast renewal costs is shown in Appendix B.

Figure 5.4.1: Forecast Renewal Costs



All figure values are shown in current day dollars.

The graph above shows that is it forecasted that there will be a significant backlog of renewals to address initially in the first year. Over the short term of the next five years, there is more

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

than adequate budget to meet the renewal requirements, with a budget surplus. However, over the long term projection of 15 years, there are significant peaks of renewal backlogs in 2027/28, and from year 2032 to year 2036. It is projected that the renewal budget is not adequate to cover these large peaks in investment that is required to meet these renewal backlogs.

The graph highlights that based on current information, the current backlog of unfunded, poor condition road infrastructure assets requiring replacement will increase from $2.7M to more than $25M over the next 15 years. Council is managing the backlog through short-lived band-aid road surface treatments to prolong the life of the road, where a full pavement rehabilitation needs to be delayed due to shortfalls in funding.

Over the next 15 years, there is an average annual budget shortfall of $2.2M. A reduction in service levels will be seen as a result of the budget shortfall, which will likely result in delayed renewal and replacement of existing road infrastructure assets. The delay in renewal of road assets may elevate the risk of increased accidents and vehicle damage due to poor quality roads.

5.5 Acquisition Plan

Acquisition reflects new assets that did not previously exist or works which will upgrade or improve an existing asset beyond its existing capacity. They may result from growth, demand, social or environmental needs. Assets may also be gifted to Warrnambool City Council at no cost.

Provision of new or upgrade works fall into the following categories depending upon the extent and type of works:

- Council funded, or
- Developer funded as part of subdivisional development, or
- Contribution to the cost by either the developer and/or Council through DCP (Development contributions plan) funding, or
- Contribution to the cost by property owners in accordance with special charge schemes

Where possible, developers of new subdivisions are required, as part of the development approvals process, to provide the road infrastructure to the standard appropriate for that development and to IDM (Infrastructure Design Manual) standards.

In addition, as Council acquires new assets through the subdivision development process, it is important the consequential costs (i.e. operations and maintenance works) are established and allowed for in future budgets. Alternatively, Council may decide to not allocate additional funds for the treatment of new assets and accept a reduction in levels of service.

5.5.1 Selection criteria

Proposed new and upgrade projects are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Potential upgrade and new works should be reviewed to verify that they are essential to Council's needs. Proposed upgrade and new work analysis should also include the development of a preliminary renewal estimate to ensure that the services are sustainable over the longer term. Verified proposals can then be ranked by priority and available funds and scheduled in future works programmes.

Through the implementation of the recommendations from the Warrnambool Municipal Road Hierarchy Review and Traffic Management Plan 2017 (Road Hierarchy Review) and Safe System Road Infrastructure Program (SSRIP), a total of approximately $20M of road infrastructure assets have been identified for new and upgrade projects to improve the overall connectivity of the road infrastructure network, reduce traffic delays and improve road safety. The timing of the construction of these projects was dependent on a number of factors including whether the project is subject to development and DCP funding; or whether VicRoads has joint ownership of the project; or subject to SSRIP funding. The projected upgrade/new capital works program is shown in Appendix A.

The priority ranking criteria for new/upgrade of assets is detailed in Table 5.5.1 and was developed during the implementation of the Road Hierarchy Review.

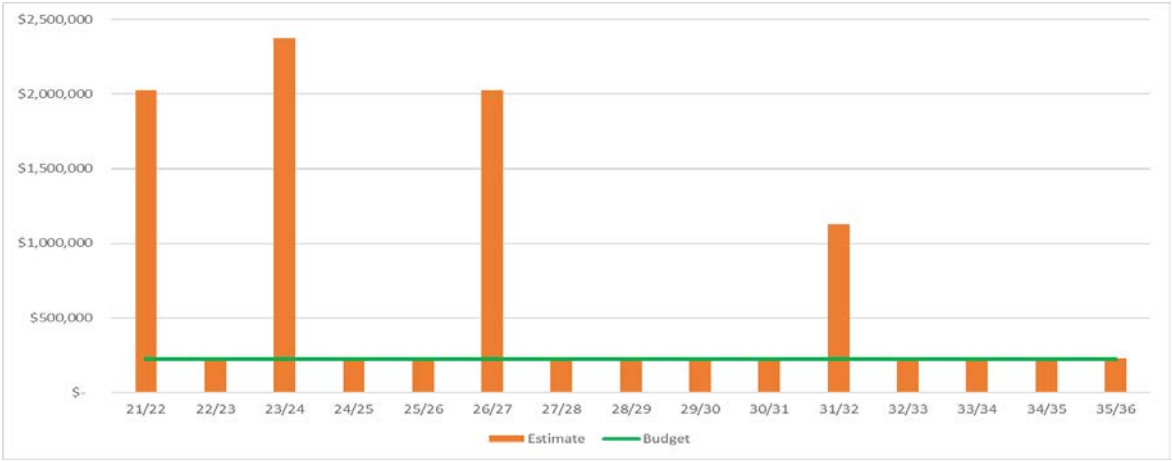
Table 5.5.1: Acquired Assets Priority Ranking Criteria

Criteria	Priority Level
Network connectivity	1 (High)
Crash statistics	1 (High)
External funding availability	1 (High)
Traffic volumes	2 (Medium)
Emergency vehicle access	2 (Medium)
Pedestrian and cyclist movements	2 (Medium)
Public transport access	2 (Medium)
Freight movements	3 (Low)

Summary of future asset acquisition costs

Forecast acquisition asset costs are summarised in Figure 5.5.1 and shown relative to the proposed acquisition budget. The forecast acquisition capital works program is shown in Appendix A.

Figure 5.5.1: Acquisition (Constructed) Summary



All figure values are shown in current day dollars. *Excludes gifted assets.

The above graph indicates that there is a significant shortfall in new/upgrade budget to deliver the acquisition requirements over the 15 year period. Over the next 15 years, there is a budget shortfall of approximately $443,000 each year. However, this budget shortfall is actually likely to be much higher as there are also other new/upgrade projects that may be delivered within the next 15 years, but have not yet been allocated a year of delivery (Appendix A). The timing for these projects is yet to be determined as the funding for these projects is yet to be finalised.

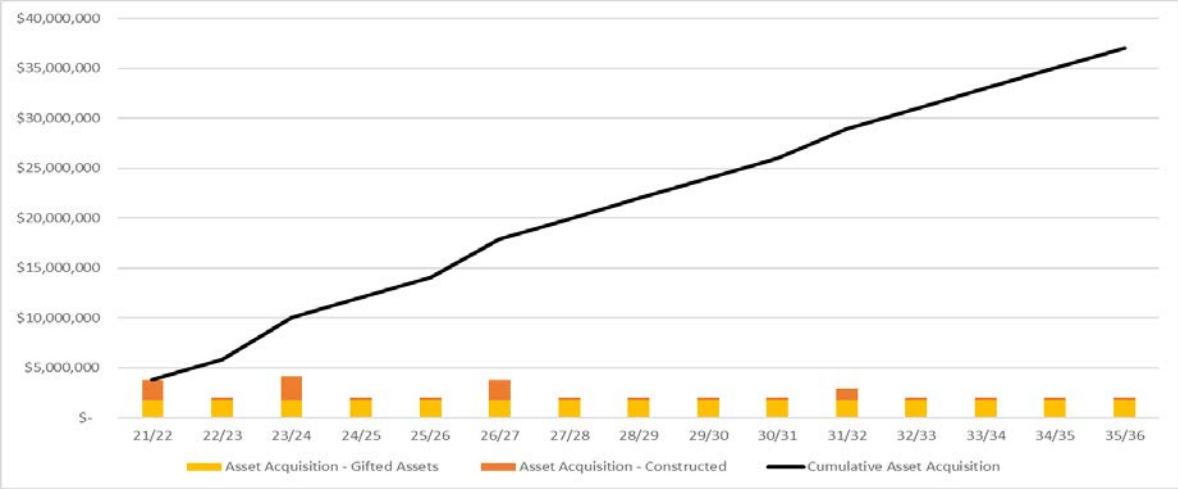
With a total expenditure of $12.3M over the 10-year Capital New/Upgrade Program, these projects rely on external funding or other resources to be completed in future. Namely, these projects rely on either DCP funding, or joint funding arrangements with VicRoads, or SSRIP funding.

Ultimately, a reduction in service levels will be seen as a result of the budget shortfall, which will likely result in a reduction of investment and provision of new and upgraded road infrastructure, as well as a reduction in provision of on-road bicycle paths for cyclists, and a reduction in provision of all accessibility parking to meet community expectations.

This may elevate the risk of a lack of connectivity of the road infrastructure network and traffic delays; as well as the risk of not meeting community expectations on the availability of all accessibility parking, and the provision of on-road cycling lanes for cyclists.

When Warrnambool City Council commits to new assets, they must be prepared to fund future operations, maintenance and renewal costs. They must also account for future depreciation when reviewing long term sustainability. When reviewing the long-term impacts of asset acquisition, it is useful to consider the cumulative value of the acquired assets being taken on by Warrnambool city Council. The cumulative value of all acquisition work, including assets that are constructed and contributed shown in Figure 5.5.2.

Figure 5.5.2: Acquisition Summary



All figure values are shown in current dollars.

Expenditure on new assets and services in the capital works program will be accommodated in the long-term financial plan, but only to the extent that there is available funding.

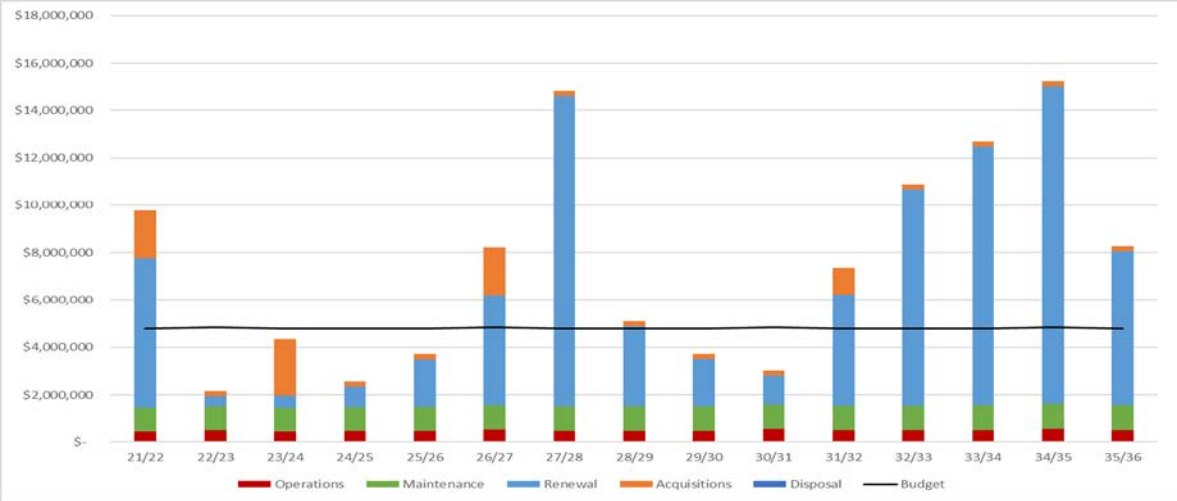
Due to projected population growth and new growth precincts in Warrnambool there will be a demand for new assets. Although the new assets will be constructed by a developer, Warrnambool City Council will need to factor ongoing operations, maintenance and renewal costs into the future. Road Safety Strategy costs especially new roads currently accounts for most of the acquisition costs per year and this will remain stable. Overall acquisition of new assets will remain minimal.

Summary of asset forecast costs

The financial projections from this asset plan are shown in Figure 5.5.3. These projections include forecast costs for acquisition, operation, maintenance, renewal, and disposal. These forecast costs are shown relative to the proposed budget.

The bars in the graphs represent the forecast costs needed to minimise the life cycle costs associated with the service provision. The proposed budget line indicates the estimate of available funding. The gap between the forecast work and the proposed budget is the basis of the discussion on achieving balance between costs, levels of service and risk to achieve the best value outcome.

Figure 5.5.3: Lifecycle Summary



All figure values are shown in current day dollars.

The short-term level of service over the next five years can be managed within the proposed budget. However, over the long-term, the proposed budget will not fund all the forecast costs.

The renewal backlog can be balanced over the short-term, but a spike in renewal requirement in the medium-term will need to be managed. Regular condition monitoring will ensure assets are replaced at the optimal time to balance treatment costs and community expectations.

If the renewal backlog is not addressed in these periods, this will increase asset risk and potentially decrease levels of service.

5.6 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. Assets identified for possible decommissioning and disposal are shown in Table 5.6. A summary of the disposal costs and estimated reductions in annual operations and maintenance of disposing of the assets are also outlined in Table 5.6. Any costs or revenue gained from asset disposals is included in the long-term financial plan.

Warrnambool City Council has not identified any road assets for disposal.

Table 5.6: Assets Identified for Disposal

Asset	Reason for Disposal	Timing	Disposal Costs	Operations & Maintenance Annual Savings
Nil				

6.0 RISK MANAGEMENT PLANNING

The purpose of infrastructure risk management is to document the findings and recommendations resulting from the periodic identification, assessment and treatment of risks associated with providing services from infrastructure, using the fundamentals of International Standard ISO 31000:2018 Risk management – Principles and guidelines.

Risk Management is defined in ISO 31000:2018 as: 'coordinated activities to direct and control with regard to risk'[7].

An assessment of risks[8] associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock', reputational impacts, or other consequences. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, and the consequences should the event occur. The risk assessment should also include the development of a risk rating, evaluation of the risks and development of a risk treatment plan for those risks that are deemed to be non-acceptable.

6.1 Critical Assets

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Failure modes may include physical failure, collapse or essential service interruption.

By identifying critical assets and failure modes an organisation can ensure that investigative activities, condition inspection programs, maintenance and capital expenditure plans are targeted at critical assets.

Through the risk management process, it has been identified that Warrnambool City Council does not have any critical road assets.

6.2 Risk Assessment

The risk management process used is shown in Figure 6.1 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 International Standard ISO 31000:2018.

[7] ISO 31000:2009, p 2
[8] Appendix F – Road Infrastructure Risk Register

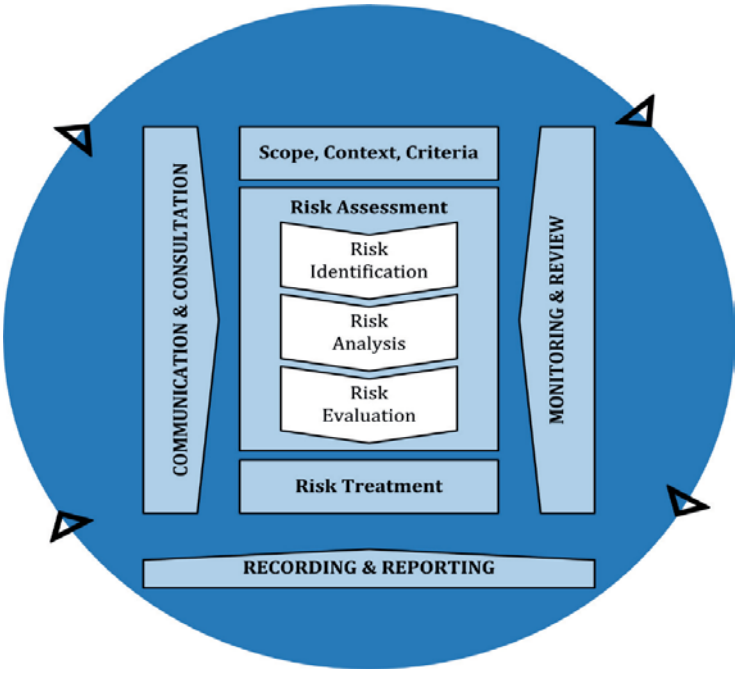


Fig 6.1 Risk Management Process – Abridged
Source: ISO 31000:2018, Figure 1, p9

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

An assessment of risks associated with service delivery has identified risks that will result in public disruption, personal injury, a 'financial shock' or reputational impacts. These risks are presented in Appendix F – Road Infrastructure Risk Register. The residual risk of implementing the selected treatment plan/control is also shown. Note that the residual risk is the risk remaining after the selected risk treatment plan is implemented.

Critical risks are those assessed with 'Very High' (requiring immediate corrective action) and 'High' (requiring corrective action) residual risk ratings. It is essential that any critical risks are reported to management and Director City Infrastructure.

Through the risk management process, all of the credible road infrastructure risks were assessed as having a residual risk ratings lower than 'High', therefore there are no critical risks. Warrnambool City Council manages all risks using proactive, efficient and systematic risk management procedures.

6.3 Infrastructure Resilience Approach

The resilience of our critical infrastructure is vital to the ongoing provision of services to customers. To adapt to changing conditions we need to understand our capacity to 'withstand a given level of stress or demand', and to respond to possible disruptions to ensure continuity of service.

Resilience is built on aspects such as response and recovery planning, financial capacity, climate change and crisis leadership.

Our current measure of resilience is shown in Table 6.3 which includes the type of threats and hazards and the current measures that the organisation takes to ensure service delivery resilience.

Table 6.3: Resilience

Threat / Hazard	Current Resilience Approach
Flooding	Floodplain Management Plan Emergency Response Procedure - On call staff to respond to flood emergency
Limited availability of contractors/plant and equipment/supply of road material	Continual communication with local and Metro contractors on their availability. Continual communication with suppliers on availability of plant and equipment, and material. Having a secondary source available if required.
Limited road material	Continual communication with suppliers on material availability. Having a secondary source available if required.
Climate Change impacts - increasing temperature and increased rainfall	Material types considered for reducing the fatigue rates of pavements due to increasing temperature and more rainfall.
Lengthy periods of dry summers/ drought can cause degradation of road pavements	Modify pavement design and improve design standards/guidelines for road pavements.
Reduced grant funding	High reliance on external R2R funding, continuously advocating for more internal investment.
Financial shock	Early intervention of high risk road assets.

6.4 Service and Risk Trade-Offs

The decisions made in adopting this AMP are based on the objective to achieve the optimum benefits from the available resources.

6.4.1 What we cannot do

There are some operations and maintenance activities and capital projects that are unable to be undertaken within the next 10 years. These include:

- Provide a fully compliant road infrastructure network to meet the safety, functionality and capacity requirements of Victoria's Infrastructure Design Manual standards
- Complete condition assessments for all road infrastructure assets
- Implement all recommended upgrades and expansions to parking facilities
- Implement all prioritised upgrades of unsealed roads
- Improve the connectivity of the on-road bicycle path network throughout the municipality
- Address and mitigate impacts of Climate Change on roads

6.4.2 Service trade-off

If there is forecast work (operations, maintenance, renewal, acquisition or disposal) that cannot be undertaken due to available resources, then this will result in service consequences for users. These service consequences include:

- Deferred delivery of new and upgraded road infrastructure
- Delayed renewal and replacement of existing road infrastructure assets
- Increased maintenance costs due to unfunded preventative practices
- Reduced road quality from deferred renewal activities
- Shortened asset lives due to Climate Change impacts, particularly caused by extreme weather degrading pavements.
- On-road bicycle paths not meeting cyclists' needs
- All-accessibility parking not meeting community expectations

Operational budgets will be managed as to not impact the frequency of street sweeping.

6.4.3 Risk trade-off

The operations and maintenance activities and capital projects that cannot be undertaken may sustain or create risk consequences. These risk consequences include:

- Increased accidents and vehicle damage due to poor quality roads
- Lack of connectivity and traffic delays
- Not meeting community expectations on cleanliness of roads and availability of parking

These actions and expenditures are considered and included in the forecast costs, and where developed are included in Appendix F - Road Infrastructure Risk Register.

7.0 FINANCIAL SUMMARY

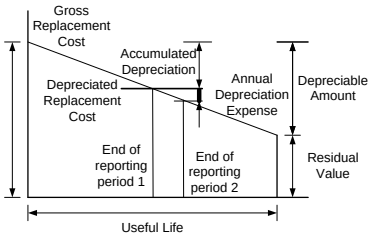
This section contains the financial requirements resulting from the information presented in the previous sections of this Asset Management Plan. The financial projections will be improved as the discussion on desired levels of service and asset performance matures.

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. The assets are valued at depreciated replacement cost.

Current (Gross) Replacement Cost	$281,708,562
Depreciable Amount	$281,708,562
Depreciated Replacement Cost[9]	$172,589,151
Annual Depreciation	$5,006,815



Through a budget review process it was identified that unsealed road re-sheeting is an operational activity, however unsealed roads are a depreciating asset without a capital renewal allocation.

Improvement Action 6*: Align re-sheeting of unsealed roads (depreciating) with investment type (renewal)*

7.1.2 Sustainability of service delivery

There are three key indicators of sustainable service delivery that are considered in the Asset Management Plan for this service area. These are:

- asset renewal funding ratio (proposed renewal budget for the next 15 years / forecast renewal costs for next 15 years);
- asset renewal funding ratio (proposed renewal budget for the next 10 years / forecast renewal costs for next 10 years) in line with LTFP; and
- medium term forecast calculated as all asset lifecycle costs / proposed budget (10 year forecast in line with LTFP).

Asset Renewal Funding Ratio[10] (15 year period)

Asset Renewal Funding Ratio for the 15 year period of this Plan is 59%

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 15 years we only expect to have 59% of the funds required for the optimal renewal of assets. This ratio indicates that we are only funding 59% of Council's renewal requirement over every 15 years on average. This shortfall adds to the renewal gap which has been growing over time.

[9] Also reported as Written Down Value, Carrying or Net Book Value.
[10] AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

Asset Renewal Funding Ratio[10] (10 year period – LTFP)

Asset Renewal Funding Ratio for the10 year period of the LTFP is 90%

For Council's Long Term Financial Plan (LTFP), the Asset Renewal Funding Ratio illustrates that over the next 10 years in alignment with the LTFP, we expect to have 90% of the funds required for the optimal renewal of assets.

This ratio indicates that over the next 10 years, Council's renewal requirement is slightly under-funded with 90% of the renewal requirement funding achieved.

Anything less than 100% funding will increase Council's renewal gap liability. There is currently a renewal gap to be managed over the next 10 years.

The forecast renewal work over the next 10 years is illustrated in Appendix B.

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 can be compared to the proposed budget over the 10 year period to identify any funding shortfall.

The projected operations, maintenance and renewal costs over the 10 year planning period is $4.95M on average per year.

The estimated (budget) operations, maintenance and renewal funding is $4.57M on average per year giving a 10 year funding shortfall of about $380,000 per year. This indicates that 92% of the projected expenditures needed to provide the services documented in this Asset Management Plan are accommodated in the proposed budget. As most of the new assets come from new development of which Council has little control in timing, upgrade/new assets have been excluded from this chapter.

Providing services from infrastructure in a sustainable manner requires the management 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.

7.1.3 Projected expenditures for the long-term financial plan

Table 7.1.3 shows the projected expenditures for the 10 year long-term financial plan.

Projected expenditures are shown in 2020/2021 dollar values.

Table 7.1.3: Projected Expenditures for the Long-Term Financial Plan

Year	Acquisition	Operations	Maintenance	Renewal	Disposal
21/22	$2,025,000	$438,516	$985,188	$6,338,318	$0
22/23	$225,000	$503,016	$989,688	$447,542	$0
23/24	$2,375,000	$447,516	$994,188	$534,669	$0
24/25	$225,000	$452,016	$998,688	$898,973	$0
25/26	$225,000	$456,516	$1,003,188	$2,031,460	$0
26/27	$2,025,000	$521,016	$1,007,688	$4,670,930	$0
27/28	$225,000	$465,516	$1,012,188	$13,144,732	$0

28/29	$225,000	$470,016	$1,016,688	$3,392,081	$0
29/30	$225,000	$474,516	$1,021,188	$2,011,740	$0
30/31	$225,000	$539,016	$1,025,688	$1,242,162	$0

7.2 Funding Strategy

The proposed funding for assets is outlined in Warrnambool City Council's annual budget and Long-Term Financial Plan.

For new/upgrade of road infrastructure assets, Warrnambool City Council is generally allocated some funding from state and federal grants, as well as capital from other funding streams like DCP Funding (Development Contributions Plan), SSRIP (Safe Systems Road Infrastructure Program) Funding and Special Charge Schemes.

Also, some new/upgrade of road assets are jointly funded by VicRoads in instances where upgrades are planned for both the adjoining road managed by Council and the arterial road managed by VicRoads.

Council may, as a result of this AMP, consider the funding or renewal treatment arrangements over the coming years to manage the discrepancies between available and required renewal funding amounts to ensure the existing service levels are maintained. If this cannot be achieved, Council may alternatively decide to achieve a lower level of service for road infrastructure and manage the associated additional risk.

7.3 Valuation Forecasts

Asset values are forecast to increase as additional assets are added to the service, as well as the increased construction costs in line with CPI.

Additional assets will generally add to the operations and maintenance needs in the longer term. Additional assets will also require additional costs due to future renewals. Any additional assets will also add to future depreciation forecasts.

Determination of future renewal demand in today's dollars is also likely to underestimate Council's future liability.

7.4 Key Assumptions Made in Financial Forecasts

In compiling this Asset Management Plan, it was necessary to make some assumptions. This section details the key assumptions made in the development of this AMP and should provide readers with an understanding of the level of confidence in the data behind the financial forecasts.

Key assumptions made in this Asset Management Plan are:

- All figures are in current day dollars and do not account for inflation
- Budgets remain the same amount each year for the 10 year period
- The contributed asset value from gifted assets (growth from new developments) remains unchanged at an additional $1.8M each year
- The operations and maintenance expenditure increases by 0.25% of $1.8M annually in line with growth due to gifted assets
- Growth of the asset base will continue with the previous 10 year average

7.5 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this AMP are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is classified on a A - E level scale[11] in accordance with Table 7.5.1.

Table 7.5.1: 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 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 AMP is shown in Table 7.5.2.

Table 7.5.2: Data Confidence Assessment for Data used in AMP

Data	Confidence Assessment	Comment
Demand drivers	B	Derived from Census data and some professional judgement used
Acquisition forecast	C	Averages of past acquisitions, this is largely dependent on developers of which Council has little control. The Road Hierarchy Review identifies additional new/upgrade asset requirements
Operation forecast	C	Operations expenditure is budget driven, not service driven, requirement to be confirmed
Maintenance forecast	C	Maintenance expenditure is budget driven, not service driven, requirement to be confirmed
Renewal forecast - Asset values	B	Based on actual invoices for road infrastructure projects, however replacement cost of some asset types are ballpark estimates only
- Asset useful lives	C	Useful lives for pavements and surfaces founded on industry benchmarks. However, useful lives have been estimated based on expert knowledge for other asset types like kerb and channel, guard rails, speed humps and signalised crossings

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

Condition modelling	B	All roads are condition assessed on a rolling program of every 4 years; advanced predictive modelling software Assetic Predictor used for modelling the deterioration of roads using road asset data within Conquest; however no condition assessment has been recorded for other asset types including guard rails and speed humps which are equal to less than 10% of total asset value.
Disposal forecast	NA	Not applicable

The estimated confidence level for and reliability of data used in this AMP is considered to be C.

Improvement Action 7*: To improve the Confidence Level from Uncertain (C) to Reliable (B) as a minimum*

8.0 PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices[12]

8.1.1 Accounting and financial data sources

This Asset Management Plan utilises accounting and financial data. All financial processes including budgets, forecasts, profiling and transactions are recorded in Council's corporate financial system Technology One.

8.1.2 Asset management data sources

Warrnambool City Council's road asset data is stored in Conquest, Council's Asset Management System Software. The accuracy and extent of data across the various asset categories varies significantly, however, the asset register attribute data includes the asset location, description, dimension, condition, function, replacement cost, written down value, useful life, construction date, inspection and maintenance histories, and more.

All data is stored and maintained solely within Conquest, providing confidence in having a single point of truth for asset data. Road infrastructure assets are represented spatially using Council's Corporate GIS, as well as being available via MapInfo and QGIS for analytical purposes.

Council also uses predictive modelling software Assetic Predictor to model road pavement and surface degradation and produce renewal programs.

8.2 Improvement Plan

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

Table 8.2: Improvement Plan

Task	Chapter Ref. No	Task	Responsibility	Timeline
1	2.1	Identify whether Retaining Walls should be listed in the Roads Asset Management Plan or in the Buildings Asset Management Plan	Coordinator Infrastructure Management	Immediate
2	3.5	Measure gaps in the connectivity of the on-road bicycle path network	Coordinator Strategic Asset Management	Medium Term
3	3.6	Determine how many additional parking spaces are required and the associated costs	Coordinator Infrastructure Management	Short Term
4	4.3	Determine percentage of population that currently use bicycles to travel on roads	Coordinator Infrastructure Management	Short Term
5	4.5	The impact of climate change on assets is a new and complex discussion and further opportunities will be developed in future revisions of this Asset Management Plan.	Infrastructure Services Unit	Long Term
6	7.1	Align re-sheeting of unsealed roads (depreciating) with investment type (renewal)	Manager Financial Services	Medium Term

[12] ISO 55000 Refers to this the Asset Management System

7	7.5	To improve the Confidence Level from Uncertain (C) to Reliable (B) as a minimum	Coordinator Strategic Asset Management	Medium Term

8.3 Monitoring and Review Procedures

This Asset Management Plan will be reviewed during the annual budget planning process and revised to show any material changes in service levels, risks, forecast costs and proposed budgets as a result of budget decisions.

The AMP will be reviewed and updated annually to ensure it represents the current service level, asset values, forecast operations, maintenance, renewals, upgrade/new and asset disposal costs and proposed budgets. These forecast costs and proposed budget will be incorporated into the Long-Term Financial Plan once completed.

The AMP has a maximum life of 4 years and is due for complete revision and updating every 4 years from the date of adoption.

8.4 Performance Measures

The effectiveness of this Asset Management Plan can be measured in the following ways:

- Progress with the implementation of the Improvement Actions as identified in Table 8.2
- The degree to which the required forecast costs identified in this Asset Management Plan are incorporated into the long-term financial plan,
- The degree to which the 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, risks and residual risks are incorporated into the Strategic Plan and associated plans,
- The Asset Renewal Funding Ratio achieving the target of 1.0

9.0 REFERENCES

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- Warrnambool City Council - Street Tree Planting and Management Policy 2021
- Warrnambool City Council - Street Tree Planting and Management Guidelines 2021
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- Warrnambool City Council - Nature Strip Landscaping Guidelines 2017
- Warrnambool City Centre Parking Strategy 2015
- Warrnambool City Centre Revitalisation Structure Plan
- Warrnambool 2040
- Warrnambool City Council - Road Users Plan 2018-2026
- Warrnambool City Council - Sustainable Transport Strategy 2010-2020
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- Infrastructure Design Manual
- Tourism Research Australia - https://www.tra.gov.au/
- ABS Census Data - https://www.abs.gov.au/census
- Victorian Legislation - https://www.legislation.vic.gov.au/

10.0 APPENDICES

Appendix A Projected New/Upgrade 10 year Capital Works Program

This is subject to funding and priority change. Refer to Road Hierarchy Review or Safe Systems Road Infrastructure Program for further details of the project.

Year	Project Description	Cost
2021/22	Intersection of Wangoom Rd/ Aberline Rd	$900,000
	Intersection of Walsh Rd/ Giffen St	$900,000
2023/24	Intersection of Wollaston Rd/ New Road (North)	$900,000
	Intersection of Wollaston Rd/ New Road (South)	$900,000
	Intersection of Caramut Rd/ Wollaston Rd	$350,000
2026/27	Intersection of Moore St/ Garden St	$900,000
	Intersection of Moore St/ Cramer St	$900,000

In addition to the above list, the following new/upgrade projects may be included in the 10 year capital works program, however, the timing for these projects is yet to be determined due to one of these contributing factors below:

i. Project timing is subject to DCP (Development Contributions Plan) funding;
ii. Project timing is subject to joint ownership arrangements with VicRoads;
iii. Project timing is subject to SSRIP (Safe Systems Road Infrastructure Program) funding.

	Project Description	Cost
Subject to DCP Funding	New North-South link	$2,000,000
	New East-West link	$2,000,000
	Intersection of Raglan Pde/ New Road (Central)	$600,000
	Intersection of Raglan Pde/ Horne Rd	$600,000
	Dales Rd	$400,000
	Intersection of Russell St/ Drummond St	$400,000
	Intersection of Caramut Rd/ Coghlans Rd	$300,000
	Intersection of Raglan Pde/ Drummond St/ Harrington St	$300,000
	Intersection of Raglan Pde/ Caramut Rd	$300,000
	Intersection of Raglan Pde/ Botanic Rd/ Fitzroy Rd	$600,000
Subject to Joint Ownership - VicRoads	Mortlake Rd is a highway/main road intersecting with Breton St which is a local road	$600,000
	Intersection of Banyan St/ Darling St	$600,000
	Intersection of Mortlake Rd/ Moore St	$600,000
	Intersection of Raglan Pde/ Foster St	$600,000
	Intersection of Raglan Pde/ Hider St	$600,000
	Intersection of Raglan Pde/ Banyan Street	$600,000
	Intersection of Raglan Pde/ Kelp Street	$600,000
	Timor St – midblock Banyan St/ Liebig St – Pedestrian Crossing - Wombat	$94,000
Subject to SSRIP Funding	Liebig St – midblock Timor St/ Smith Av – Pedestrian Crossing - Wombat	$94,000
	Flaherty Lane – Off-Street Car Park Access	$7,000
	Merrivale Drive – Cycling, Pedestrian and Reducing speed infrastructure	$406,345

Appendix B 10 year Capital Renewal Program

This is subject to our annual review as new works are identified or as budgets and priority change.

Year	Recommended Treatment for Road Projects	Cost
21/22	Cement Stabilisation	$4,143,601
	Deep Lift and Overlay	$103,580
	Foam Bitumen Stabilisation	$1,051,924
	Localised Deep Lift Patch	$489,235
	Rubber Crack Sealing	$1,079
	Spray Seal Overlay	$113,539
	Kerb and Channel Replacement	$435,361
	Total Renewal	**$6,338,318**
22/23	Rubber Crack Sealing	$5,680
	Spray Seal Overlay	$6,501
	Kerb and Channel Replacement	$435,361
	Total Renewal	**$447,542**
23/24	Rubber Crack Sealing	$19,654
	Spray Seal Overlay	$79,655
	Kerb and Channel Replacement	$435,361
	Total Renewal	**$534,669**
24/25	Deep Lift and Overlay	$10,228
	Double Spray Seal Overlay	$40,666
	Rubber Crack Sealing	$108,129
	Spray Seal Overlay	$304,590
	Kerb and Channel Replacement	$435,361
	Total Renewal	**$898,973**
25/26	Deep Lift and Overlay	$74,078
	Double Spray Seal Overlay	$127,063
	Rubber Crack Sealing	$322,367
	Spray Seal Overlay	$1,072,590
	Kerb and Channel Replacement	$435,361
	Total Renewal	**$2,031,460**
26/27	Deep Lift and Overlay	$1,436,258
	Double Spray Seal Overlay	$119,642
	Rubber Crack Sealing	$526,553
	Spray Seal Overlay	$2,153,116
	Kerb and Channel Replacement	$435,361
	Total Renewal	**$4,670,930**
27/28	Deep Lift and Overlay	$3,152,348
	Double Spray Seal Overlay	$404,836
	Rubber Crack Sealing	$1,569,457
	Spray Seal Overlay	$7,582,730
	Kerb and Channel Replacement	$435,361

	Total Renewal	**$13,144,732**
28/29	Cement Stabilisation	$303,970
	Deep Lift and Overlay	$732,931
	Double Spray Seal Overlay	$81,602
	Rubber Crack Sealing	$312,261
	Spray Seal Overlay	$1,525,956
	Kerb and Channel Replacement	$435,361
	Total Renewal	**$3,392,081**
29/30	Cement Stabilisation	$30,100
	Deep Lift and Overlay	$494,794
	Rubber Crack Sealing	$72,731
	Spray Seal Overlay	$242,754
	Kerb and Channel Replacement	$435,361
	Parking Meter – Ticket Machine Replacement	$736,000
	Total Renewal	**$2,011,740**
30/31	Asphalt Overlay	$68,458
	Cement Stabilisation	$105,272
	Deep Lift and Overlay	$373,162
	Foam Bitumen Stabilisation	$71,900
	Microsurfacing	$24,067
	Rubber Crack Sealing	$43,940
	Spray Seal Overlay	$120,002
	Kerb and Channel Replacement	$435,361
	Total Renewal	**$1,242,162**

Appendix C Operations Forecast

C.1 – Operations Forecast Assumptions and Source

Initial forecast based on 2020/2021 budget, plus additional 0.25% of $1.8M (average value of gifted assets each year) for assets contributed due to growth. Additional $60,000 is forecasted once every 4 years, in 22/23, 26/27 and 30/31 for Condition Audits.

C.2 – Operations Forecast Summary

Table B2 - Operations Forecast Summary

Year	Forecast	Additional Costs	Total Forecast
21/22	$438,516	$4,500	$438,516
22/23	$498,516	$9,000	$503,016
23/24	$438,516	$13,500	$447,516
24/25	$438,516	$18,000	$452,016
25/26	$438,516	$22,500	$456,516
26/27	$498,516	$27,000	$521,016
27/28	$438,516	$31,500	$465,516
28/29	$438,516	$36,000	$470,016
29/30	$438,516	$40,500	$474,516
30/31	$498,516	$45,000	$539,016

Appendix D Maintenance Forecast

D.1 – Maintenance Forecast Assumptions and Source

Initial forecast based on 2020/2021 budget, plus additional 0.25% of $1.8M (average value of gifted assets each year) for assets contributed due to growth.

D.2 – Maintenance Forecast Summary

Table C2 - Maintenance Forecast Summary

Year	Forecast	Additional Costs	Total Forecast
21/22	$985,188	$4,500	$985,188
22/23	$985,188	$9,000	$989,688
23/24	$985,188	$13,500	$994,188
24/25	$985,188	$18,000	$998,688
25/26	$985,188	$22,500	$1,003,188
26/27	$985,188	$27,000	$1,007,688
27/28	$985,188	$31,500	$1,012,188
28/29	$985,188	$36,000	$1,016,688
29/30	$985,188	$40,500	$1,021,188
30/31	$985,188	$45,000	$1,025,688

Appendix E Budget Summary by Lifecycle Activity

Figures based on New/Upgrade, Renewal, and Operations/Maintenance Budgets, and Long Term Financial Plan for Warrnambool City Council.

Table E1 – Budget Summary by Lifecycle Activity

Year	Acquisition	Operations	Maintenance	Renewal	Disposal	Total Budget
21/22	$225,000	$434,016	$985,188	$3,133,558	$0	$4,773,262
22/23	$225,000	$494,016	$985,188	$3,133,558	$0	$4,833,262
23/24	$225,000	$434,016	$985,188	$3,133,558	$0	$4,773,262
24/25	$225,000	$434,016	$985,188	$3,133,558	$0	$4,773,262
25/26	$225,000	$434,016	$985,188	$3,133,558	$0	$4,773,262
26/27	$225,000	$494,016	$985,188	$3,133,558	$0	$4,833,262
27/28	$225,000	$434,016	$985,188	$3,133,558	$0	$4,773,262
28/29	$225,000	$434,016	$985,188	$3,133,558	$0	$4,773,262
29/30	$225,000	$434,016	$985,188	$3,133,558	$0	$4,773,262
30/31	$225,000	$494,016	$985,188	$3,133,558	$0	$4,833,262

Appendix F Road Infrastructure Risk Register

Risk Identification			Risk Analysis			Risk Treatment	Residual Risk		
Risk Description	**Risk Type**	**Causes**	**Consequence**	**Likelihood**	**Risk Rating**	**Risk Treatment Plan**	**Consequence**	**Likelihood**	**Risk Rating**
On road accidents - vehicle on vehicle collision	Safety & People (Staff and Public)	• Driver behaviour • Inappropriate speed, priority or control (give way, stop) •Ineffective/missing signs/devices •Water across road •Straying stock •Falling limbs	Major	Possible	**High**	Road Safety Audits and Road Safety Strategy Maintenance inspections and works plan (Road Management Plan)	Major	Unlikely	**Medium**
Off road accident - vehicle leaving the road way	Safety & People (Staff and Public)	•Shoulder drop-off •Road roughness/corrugations • Road design • Slippery surface • Large stones/debris • Embankment •Ineffective/missing signs/devices •Potholes •Road flooding, water across road	Major	Possible	**High**	Road Safety Audits and Road Safety Strategy Maintenance inspections and works plan Risk assessment program of road side barriers Street Lighting Improvement Program	Moderate	Possible	**Medium**

Risk Identification			Risk Analysis			Risk Treatment	Residual Risk		
Risk Description	**Risk Type**	**Causes**	**Consequence**	**Likelihood**	**Risk Rating**	**Risk Treatment Plan**	**Consequence**	**Likelihood**	**Risk Rating**
Pedestrian crossing accident	Safety & People (Staff and Public)	• Failure to give way •Ineffective/missing signs/devices •Poor lighting •Poor sight lines	Major	Unlikely	**Medium**	Compliance with current design standards Risk assessment with crossing upgrade undertaken Sign maintenance inspections School crossing supervision	Major	Rare	**Medium**
Traffic congestion and delays	Public Disruption	• Population growth	Minor	Likely	**Medium**	Implementation of Road Hierarchy Review Allocation of capital budget for upgrades and widening of roads Monitoring traffic volumes with latest traffic count data Customer request process Media / communications	Minor	Possible	**Medium**

Risk Identification			Risk Analysis			Risk Treatment	Residual Risk		
Risk Description	**Risk Type**	**Causes**	**Consequence**	**Likelihood**	**Risk Rating**	**Risk Treatment Plan**	**Consequence**	**Likelihood**	**Risk Rating**
Road closures, delays and diversions	Public Disruption	• Road works • Flooding or water across the road • Fallen limbs • Land slippage	Minor	Possible	**Medium**	Roads and drainage maintenance programs Customer request process Media / communications On-call depot team	Minor	Unlikely	**Low**
		• Slow oversize vehicles	Insignificant	Possible	**Low**	Network planning for truck routes Overtaking lanes	Insignificant	Unlikely	**Low**
Defects hazardous to road users	Safety & People (Staff and Public)	• Edge drop off • Movement of kerb and channel • Potholes • Loose material	Moderate	Unlikely	**Medium**	Road Management Plan Recurrent budgets for maintenance	Moderate	Rare	**Low**
Bicycle or pedestrian hazard	Safety & People (Staff and Public)	• Edge drop off • Movement of kerb and channel • Potholes • Loose material	Moderate	Unlikely	**Medium**	Road Management Plan Recurrent budgets for maintenance	Moderate	Rare	**Low**
Not meeting community expectations / Customer complaints	Community/ Government Public Image and Reputation	• Maintenance issues • Road condition issues	Moderate	Possible	**Medium**	Managing customer expectations and meeting customer charter obligations	Insignificant	Possible	**Low**
Ill health - due to dust	Safety & People (Staff and Public)/ Legal/ Governance and Compliance	• Drifting dust • Dwelling location • Prevailing winds • Truck volumes	Minor	Possible	**Medium**	Risk assessment with dust suppression maintenance program	Minor	Unlikely	**Low**

Risk Identification			Risk Analysis			Risk Treatment	Residual Risk		
Risk Description	**Risk Type**	**Causes**	**Consequence**	**Likelihood**	**Risk Rating**	**Risk Treatment Plan**	**Consequence**	**Likelihood**	**Risk Rating**
Early road asset failures - bleeding, potholes	Financial/ Safety & People (Staff and Public)	• Unexpected hot weather • Lack of preventative maintenance (reseals, crack seals) • Flooding/water across road • Poor design (drainage/materials)	Minor	Possible	**Medium**	Improved timing and specification of works Allocation of recurrent budget for maintenance activities	Minor	Unlikely	**Low**
Degradation of road pavements due to Climate Change	Financial/ Safety & People (Staff and Public)	• Unexpected hot weather • Increased rainfall events	Minor	Possible	**Medium**	Material types considered for reducing the fatigue rates of pavements Modify pavement design and improve design standards/guidelines for road pavements.	Minor	Unlikely	**Low**
Poor Investment Decision Making	Financial/ Community/ Government Public Image and Reputation	• Reduction in funding • Reduction in staff resources	Moderate	Unlikely	**Medium**	Regular condition and defect inspections, performance audits, discussions with asset maintainers	Minor	Unlikely	**Low**

Risk Identification			Risk Analysis			Risk Treatment	Residual Risk		
Risk Description	**Risk Type**	**Causes**	**Consequence**	**Likelihood**	**Risk Rating**	**Risk Treatment Plan**	**Consequence**	**Likelihood**	**Risk Rating**
Emergency Services vehicle getting lost	Safety & People (Staff and Public)	• Ineffective, confusing, duplicated names, missing signs • Signs illegible	Moderate	Unlikely	**Medium**	Maintenance inspections Introduce road safety audit/review program VicMap Road Naming guidelines for new developments Use of ESTA markers for non-address sites	Moderate	Rare	**Low**
Vehicle damage	Financial	• Potholes • Corrugated or rough surface • Edges • Debris • Vegetation on road • Driveway entries • Endwalls • Speed humps	Insignificant	Possible	**Low**	Maintenance inspections and works plan Customer request process Compliance with design standards	Insignificant	Unlikely	**Low**