



Port Augusta

CITY COUNCIL



PORT AUGUSTA CITY COUNCIL
**TRANSPORT
ASSET MANAGEMENT PLAN**

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1.0 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

This Asset Management Plan (AM Plan) 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 provide over the 20 year planning period. The AM Plan will link to a Long-Term Financial Plan which typically considers a 10 year planning period.

1.2 Asset Description

This plan covers the infrastructure assets that provide transport services for vehicular and pedestrian users through the provision of a safe and effective road and footpath networks.

The transport network comprises:

- Road pavement assets
- Unsealed and sealed surfaces
- Kerb and watertable assets
- Pedestrian footpath assets

The above infrastructure assets have replacement value estimated at \$154,394,000.

This AM Plan does not include renewal of unsealed (gravel or crusher dust) footpath assets and assets assessed as formed roads. Maintaining the service level requirements for these assets are considered through maintenance expenditure rather than capital renewal.

1.3 Levels of Service

The allocation in the planned budget is sufficient to continue providing existing services at current levels for the planning period.

The main service consequences of the Planned Budget are:

- Adequate funding to maintain the defined level of service for this asset category
- Adequate renewal of assets as they reach the end of their useful life.

1.4 Future Demand

The factors influencing future demand and the impacts they have on service delivery are created by:

- Population, demographics and mobility expectations of elderly and young
- One-off events (planned and unplanned outages, accidents or roadworks)
- Tourism
- Climate Change
- Environment
- Changes in regulations, codes and best practice

These demands will be approached using a combination of managing existing assets, upgrading 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.

1.5 Lifecycle Management Plan

1.5.1 What does it Cost?

The forecast lifecycle costs necessary to provide the services covered by this AM Plan includes operation, maintenance, renewal, acquisition, and disposal of assets. Although the AM Plan may be prepared for a range of time periods, it typically informs a Long-Term Financial Planning period of 10 years. Therefore, a summary output from the AM Plan is the forecast of 10 year total outlays, which for transport assets is estimated as \$37,890,828 or \$3,789,083 on average per year.

1.6 Financial Summary

1.6.1 What we will do

Estimated available funding for the 10 year period is \$39,588,000 or \$3,958,800 on average per year as per the Long-Term Financial plan or Planned Budget. This is 104.5% 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 AM Plan emphasising the consequences of Planned Budgets on the service levels provided and risks.

The anticipated Planned Budget for transport assets leaves a shortfall of \$169,717 on average per year of the forecast lifecycle costs required to provide services in the AM Plan 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

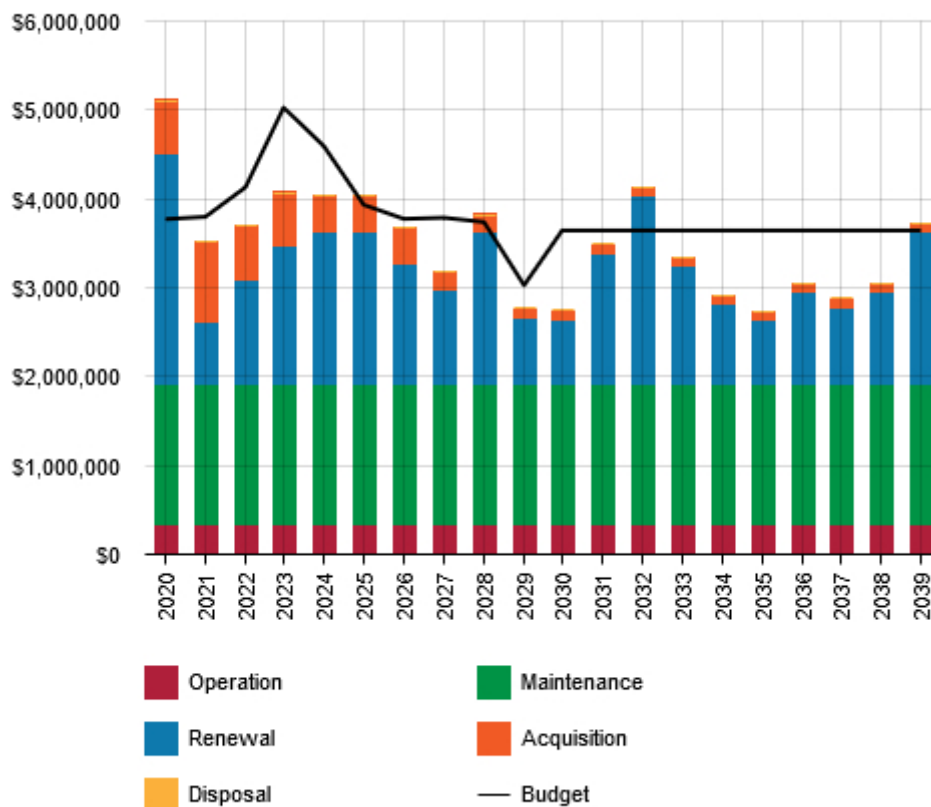


Figure Values are in current dollars.

We plan to provide transport services for the following:

- Operation, maintenance, renewal and acquisition of transport assets to meet service levels set by Port Augusta City Council in annual budgets.
- Upgrade of unformed roads within Port Augusta West to the sheeted standard and the development of a strategy to inform further upgrades subject to final costing.
- Upgrade of Zerna Road to accommodate vehicles travelling along the Heavy Vehicle network.
- Continuation of footpath connectivity to link services within the City through a suitably constructed DDA compliant networks of pedestrian paths.

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:

- Footpath renewal outside of the Connectivity Plan that require like for like replacement. It may be necessary to replace existing footpaths with crusher dust where they are not deemed critical and due to their condition present risks to Council and pedestrian users. Council will consider these options through the development of a Streetscape Strategy.

1.6.3 Managing the Risks

Our present budget levels are sufficient to continue to manage risks in the medium term.

Identified risks are:

- Limitation of data and discrepancies within information held
- Maintenance processes and a reliance on reactive maintenance
- Compliance with legislation, codes and best practice on limited resources, particularly availability of adequate materials for unsealed network applications.
- Asset Management maturity

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

- Ensuring continuous improvement of Council's Asset Management System.
- Development of Operational Plans to drive asset management objectives.
- Engagement of external resources in line with Council Procurement Policies
- Inspect, repair and close Customer Service Requests (CRM's) and Skytrust Actions/Hazards within required timeframes.

1.7 Asset Management Planning Practices

Assets requiring renewal are identified from either the asset register or an alternative method.

- The timing of capital renewals based on the asset register is applied by adding the useful life to the year of acquisition or year of last renewal,
- Alternatively, an estimate of renewal lifecycle costs is projected from external condition modelling systems and may be supplemented with, or based on, expert knowledge.

The Asset Register was used to forecast the renewal lifecycle costs for this AM Plan.

This AM Plan is based on a highly reliable level of confidence information.

1.8 Monitoring and Improvement Program

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

- Development of Operational Plans to include and validate levels of service and cyclic maintenance requirements, asset functionality and 'fit for purpose' considerations and inspection regimes.

- Investigate data integration and 'in-field' inspection and maintenance processes supported by a Graphical Information System (GIS).
- Engage with the community around expectations and current community satisfaction levels.
- Annual review utilising latest condition and valuation data at the time of the review.
- Asset Maturity Assessment

2.0 Introduction

2.1 Background

This AM Plan communicates the requirements for the sustainable delivery of services through management of assets, compliance with regulatory requirements, and required funding to provide the appropriate levels of service over the planning period.

The AM Plan is to be read with the Port Augusta City Council planning documents. This should include the Asset Management Policy and Asset Management Strategy, where developed, along with other key planning documents:

- Strategic Directions Plan 2019-2029
- Four-Year Priority Action Plan
- Long Term Financial Plan (LTFP)

The infrastructure assets covered by this AM Plan include road surfaces and pavements, kerb and footpath infrastructure. For a detailed summary of the assets covered in this AM Plan refer to Table in Section 5.

The infrastructure assets included in this plan have a total replacement value of \$154,394,086.

Key stakeholders in the preparation and implementation of this AM Plan are shown in Table 2.1.

Table 2.1: Key Stakeholders in the AM Plan

Key Stakeholder	Role in Asset Management Plan
Mayor and Elected Members	<ul style="list-style-type: none"> ■ Represent needs of community/shareholders, ■ Ensure service sustainable.
Chief Executive Officer	<ul style="list-style-type: none"> ■ Allocate resources to meet planning objectives in providing services while managing risks ■ Ensure service sustainable.
Director Infrastructure	<ul style="list-style-type: none"> ■ Overall responsibility for Infrastructure Department. ■ Ensuring compliance with Strategic Plans and Objectives.
Manager Regulatory Services	<ul style="list-style-type: none"> ■ Ensuring development approval meets required compliance standards where impacts on infrastructure are likely or works will result in contributed assets.
Manager Infrastructure	<ul style="list-style-type: none"> ■ Ensuring compliance of Strategic Plan Objectives. ■ Guidance and leadership to Asset Team
Asset Management Officer	<ul style="list-style-type: none"> ■ Responsibility to ensure asset management tasks and improvement plan are undertaken in line with objectives within AM Plan. ■ Drafting of Asset Management Plans for approval.
Technical Officers/Contract Administrator and Property Officer	<ul style="list-style-type: none"> ■ Capital works projects and contractor engagement ■ Report of any asset defects or deficiencies noted during inspections.
Manager Operations	<ul style="list-style-type: none"> ■ Capital works projects ■ Reactive and planned maintenance schedules ■ Completion of CRM and Skytrust Actions ■ Report of any asset defects or deficiencies noted during inspections
Community (residents, businesses, property owners)	<ul style="list-style-type: none"> ■ Provide feedback on level of service and the implications on revenue and budget expenditure ■ Reporting of any asset defects or deficiencies through Council CRM system
Federal and State Governments	<ul style="list-style-type: none"> ■ Liaise for funding opportunities through various Government Agencies ■ Reporting body for any issues or service deficiencies for DIT infrastructure

2.2 Goals and Objectives of Asset Ownership

Our goal for 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,
- Risk Management,
- 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 55000²

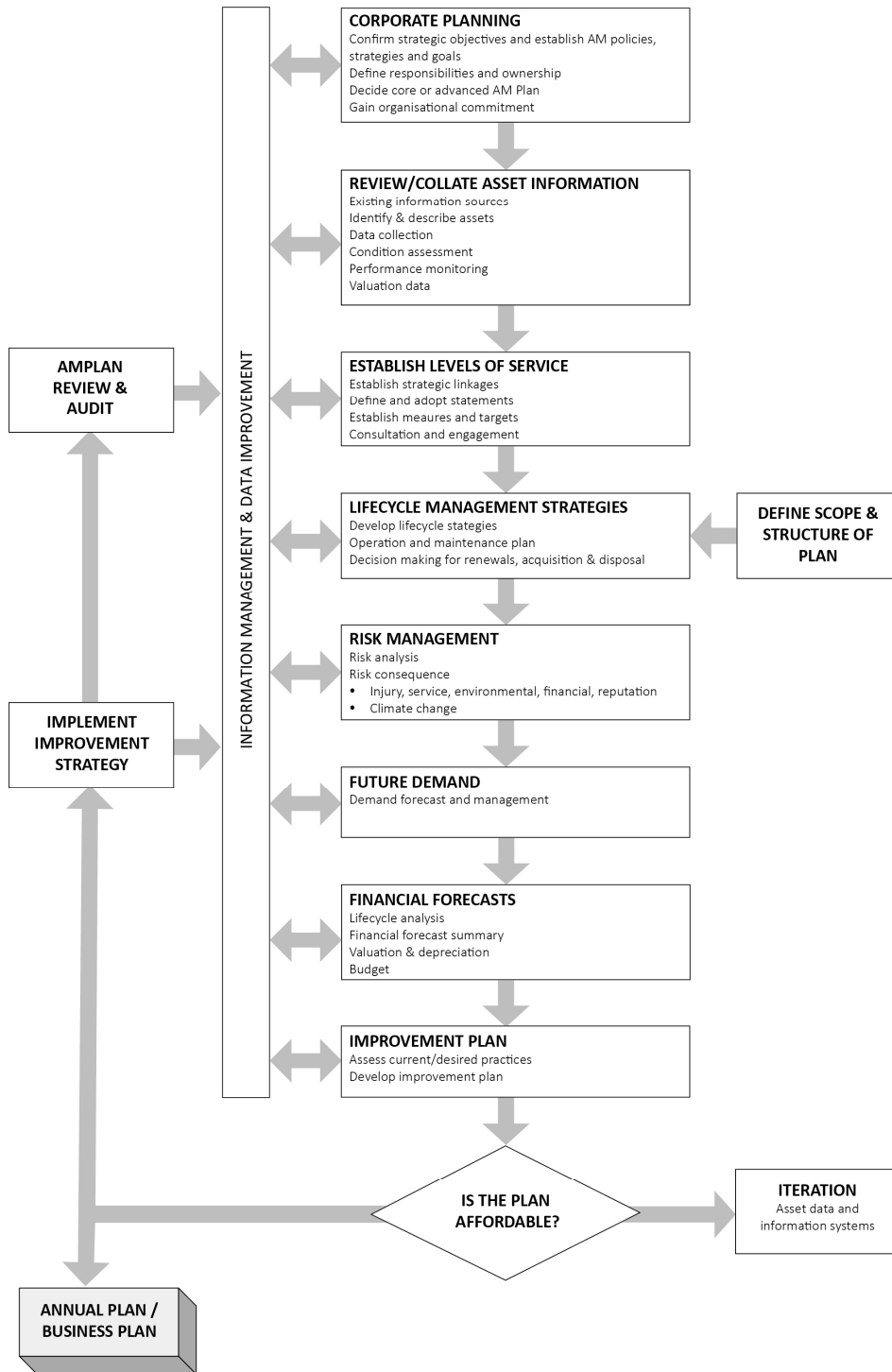
A road map for preparing an AM Plan is shown below.

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 AM Plan is prepared to facilitate consultation prior to adoption of levels of service by the Port Augusta City Council. Future revisions of the AM Plan will incorporate customer consultation on service levels and costs of providing the service. This will assist 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.

3.2 Strategic and Corporate Goals

This AM Plan is prepared under the direction of the Port Augusta City Strategic Directions 2019-2029.

Strategic goals have been set by the Port Augusta City Council. The relevant goals and objectives and how these are addressed in this AM Plan are summarised in Table 3.2.

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

Goal	Objective	How Goal and Objectives are addressed in the AM Plan
We provide and advocate for fit for purposed infrastructure that improves the economic, environmental and social wellbeing of our City.	<ul style="list-style-type: none"> • Our physical infrastructure meets our community needs. • We have safe, accessible and well-utilised CBD, public spaces and built environments that reflect the priorities of our community. • Our City develops and evolves in a planned way, improving the appearance of our City and making efficient use of infrastructure. 	<ul style="list-style-type: none"> • Continuous improvement in asset management practices • Determining a defined level of service and monitoring performance using a lifecycle approach.
We conduct our Council business ethically and transparently and seek financial sustainability and legislative compliance to allow the Council to provide the infrastructure and services required to achieve our 2029 aspirations.	<ul style="list-style-type: none"> • Investigate and implement a contingency approach for planning for growth or decline. 	<ul style="list-style-type: none"> • Managing the impact of growth through demand management and infrastructure investment • Having a long-term financial plan which identifies required, affordable expenditure and how it will be financed (Based on IPWEA, 2011, IIMM, Sec 1.2 p1/7)

3.3 Legislative Requirements

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

Table 3.3: Legislative Requirements

Legislation	Requirement
Local Government Act 1999	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by asset management plans for sustainable service delivery.
Road Traffic Act	Sets out the requirements for public consultation and notification requirements for road events, road closures etc.
Work Health and Safety Act 2012 & Regulations	Set out roles and responsibilities to secure the health, safety and welfare of persons at work.
Native Vegetation Act	Sets out the requirements under the Act to protect and preserve native vegetation.
Highways Act	A reference for legislation relating to state roads
AS 1742 Manual of uniform traffic control devices	Standards in relation to traffic control devices for general use and works on roads, speed control, street names, service and tourist signs, railways crossings, freeways, bicycle facilities, pedestrian controls, parking controls, bus transit and truck lanes and local area traffic management
Australian Road Rules	Ensure that Transport facilities satisfy the requirements of Road rules for example road marking to be consistent with legal requirements
AS/NZS 2890 Parking Facilities	Sets out parking requirements in various forms (Off-street parking, on-street parking, etc)
AS1428 Design for access and mobility	Reference for access requirements relating to transport(ie ramps, parking, pedestrian ways, etc)
Austroroads Design Guidelines	Ensure that transport facilities satisfy the requirements of guidelines.
Development Act 1993	Sets out parameters for Developments, including what developments required Development Approval (Planning Consent/Building Rules Consent) and the process required to obtain such consents.
Disability Discrimination Act 1993	Set outs requirements for equality of access to services and facilities

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

Future revisions of the AM Plan will incorporate customer values once fully researched through community engagement and satisfaction surveys.

3.5 Customer Levels of Service

The Customer Levels of Service are considered in terms of:

Condition 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 (Condition, Function, Capacity/Use) there is a summary of the performance measure being used, the current performance, and the expected performance based on the current budget allocation.

These are measures of fact related to the service delivery outcome (e.g. number of occasions when service is not available or proportion of replacement value by condition %'s) to 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	Service Target
Condition	Maintain a trafficable road network with consideration to road function. Provide adequate road drainage and collection by kerbing. Provide level and wheelchair accessible (DDA compliant) footpath surface.	Customer feedback and community satisfaction.	Zero complaints per year
Function/Capacity	Meet user requirements (fit for purpose).	Customer feedback and requests.	Assess and respond to requests within 30 days.
Safety	Provides safe road networks. Provide road users with a network free of tyre damage by kerbing. Provide a footpath network free of trip hazards and wide enough for wheelchair access (1.2m).	No successful claim increase against Council.	Zero claims against Council.

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 10 year Planned Budget allocation, and the Forecast activity requirements being recommended in this AM Plan.

Table 3.6: Technical Levels of Service

Lifecycle Activity	Level of Service Objective	Performance Measure Process	Service Target
TECHNICAL LEVELS OF SERVICE			
Operation	Efficiently utilise assets which will consume resources such as manpower, energy and materials (IIMM).	Regular condition assessments including road surface, kerbing and footpaths (every 3-5 years). Adherence to 20 year modelled renewal works program. Improvement of current standards of construction. Street tree planting policy to support accessibility, footpath width to be 1.2m with tactile perambulator ramps.	Reinspection program linked to maintenance/renewal programs and registered customer complaints. Standards of construction linked to lower lifecycle costs.
Maintenance	Retain assets as near as practicable to its original condition, but excluding rehabilitation or renewal (IIMM).	Proactive approach to maintenance (potholes, crack sealing and edge treatment) Adhere to grading frequency for unsealed roads. Patching program to be developed for kerbing. Proactive approach to trip hazards, street tree damage and top up of crusher dust on footpaths	Maintenance linked to reinspection program and footpath connectivity.
Renewal	Replace existing assets with assets of equivalent capacity or performance capability (IIMM).	Renewal program developed and managed for surfaces and pavements. Kerbing renewal program linked to most current condition assessment. Footpath renewal linked to connectivity and DDA compliance.	Meet and maintain planned renewal expenditures.

It is important to monitor the service levels regularly as circumstances can and do change. Current performance is based on existing resource provision and work efficiencies. It is acknowledged changing circumstances such as technology and customer priorities will change over time.

³ IPWEA, 2015, IIMM, p 2|28.

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 AM Plan.

Table 4.3: Demand Management Plan

Demand driver	Current position	Projection	Impact on services	Demand Management Plan
Population	13,474 (2001 Census) 13,874 (2006 Census) 13,985 (2011 Census) 14,102 (2018 ABS) Population continuing to grow, albeit slowing.	An increase in working age population however, young people remaining in the city is at risk	Limited impact based on current trends	Utilisation of most up to date condition assessment to continue footpath connectivity and assess deficiencies. Collection of asset data to identify and schedule planned maintenance rather than purely reactive maintenance.
Changing demographics	Inconsistent construction and connectivity of footpath infrastructure. Lack of pram ramp infrastructure for prams and mobility aids.	Dissatisfaction with current level of service	Increased complaints	Collection of asset data on localised defects recording pram ramp deficiencies, tree impacted infrastructure etc and developing a priority maintenance schedule.
Tourism and Freight	Road infrastructure provides safe passage in and through the Council region.	Council identifies tourism as key for long term viability for the City and neighbouring communities. Increased freight and heavy vehicles movements requiring an increased level of service	Ongoing increase in traffic and demand for sealed roads to support RAV and RV vehicles and access to visitor services and public amenities	
Environment	Street trees	Increase in	Ongoing increase	

	impacting on infrastructure.	complaints and long term maintenance costs if not addressed.	in damage to infrastructure and creation of hazards for vehicular and pedestrian traffic	
Disability Discrimination Act (DDA) compliance	Inconsistent existing footpath infrastructure non-compliant with current standards.	Ongoing increase in prioritising non-compliant footpaths for renewal.	Continued roll out of footpath connectivity program to address deficiencies	

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 Port Augusta 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 Adaptation

The impacts of climate change may 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 impacts on assets will vary depending on the location and the type of services provided, as will the way in which we respond and manage those impacts.⁴

As a minimum we consider how to manage our existing assets given potential climate change impacts for our region.

Risk and opportunities identified to date are shown in Table 4.5.1

Table 4.5.1 Managing the Impact of Climate Change on Assets and Services

Climate Change Description	Projected Change	Potential Impact on Assets and Services	Management
Increased Rain Events	Capacity issued with stormwater drainage	Increased maintenance to offset potential damage to infrastructure from ponding and low level flooding	Monitor and consider infrastructure upgrade, increased maintenance services as necessary
Warmer Climate	Performance of seals and surface treatments from excessive heat	Bleeding of bitumen surfaces and expansion of footpath segments	Monitor impact and where possible trial new innovations or products

⁴ IPWEA Practice Note 12.1 Climate Change Impacts on the Useful Life of Infrastructure

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

- Assets will withstand the impacts of climate change;
- Services can be sustained; and
- 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
Road Surface Assets	Surface Bleeding	Reserve new technologies with higher softening points that perform better in warmer climates
Footpath Paving	Raised footpaths due to expansion creating hazard	Modification of specification to incorporate a greater frequency of expansion joints.

The impact of climate change on assets is a new and complex discussion and further opportunities will be developed in future revisions of this AM Plan.

5.0 LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how the Port Augusta 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

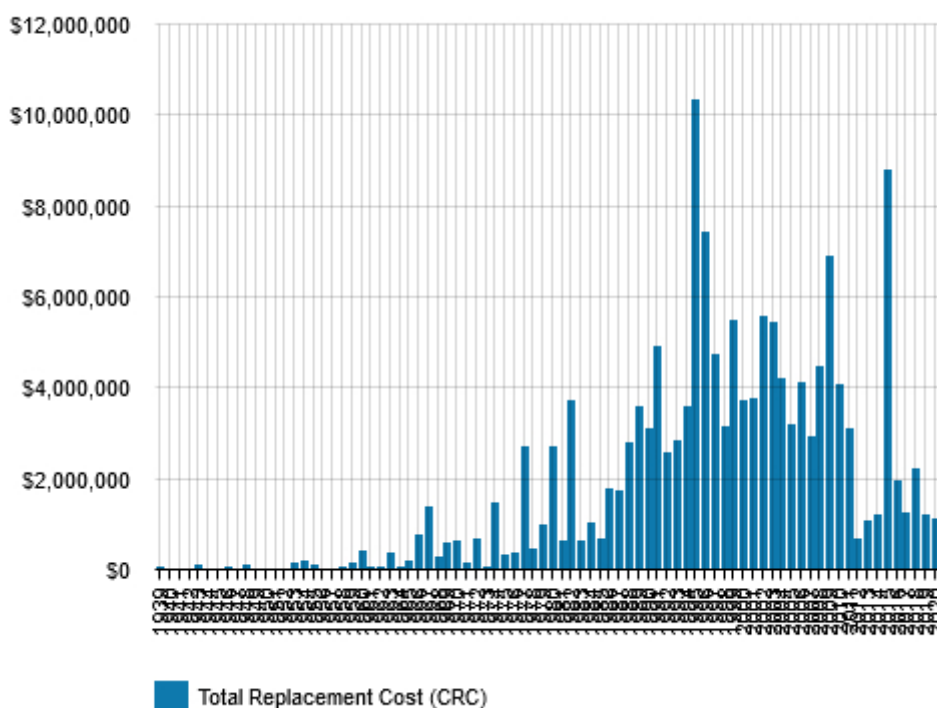
5.1.1 Physical parameters

The assets covered by this AM Plan are shown in Table 5.1.1.

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

Table 5.1.1: Assets covered by this Plan

Asset Category	Dimension	Replacement Value ('\$')
Road Surface	194km sealed roads 41km unsealed roads	24,662,000
Road Pavement	235km pavements	67,888,000
Footpaths	122km footpath surfaces	15,817,000
Kerb and Water Table	254km kerb	42,327,000
Gravel footpaths and unformed roads	Gravel footpaths – unspecified 1km formed roads	3,700,000
TOTAL		154,394,000



All figure values are shown in current day dollars.

Add discussion about the age asset profile. Outline how past peaks of investment that may require peaks in renewals in the future. Comment on the overall age versus useful lives of the assets.

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

Table 5.1.2: Known Service Performance Deficiencies

Location	Service Deficiency
Pedestrian and bicycle friendly infrastructure	Inconsistent surface type, width and connectivity of footpaths. Additional funding is continuing to be provided through the Footpath Reconstruction Program.
Kerbing & footpaths	Significant damage caused by street trees, development of a proactive maintenance program required to repair damage.

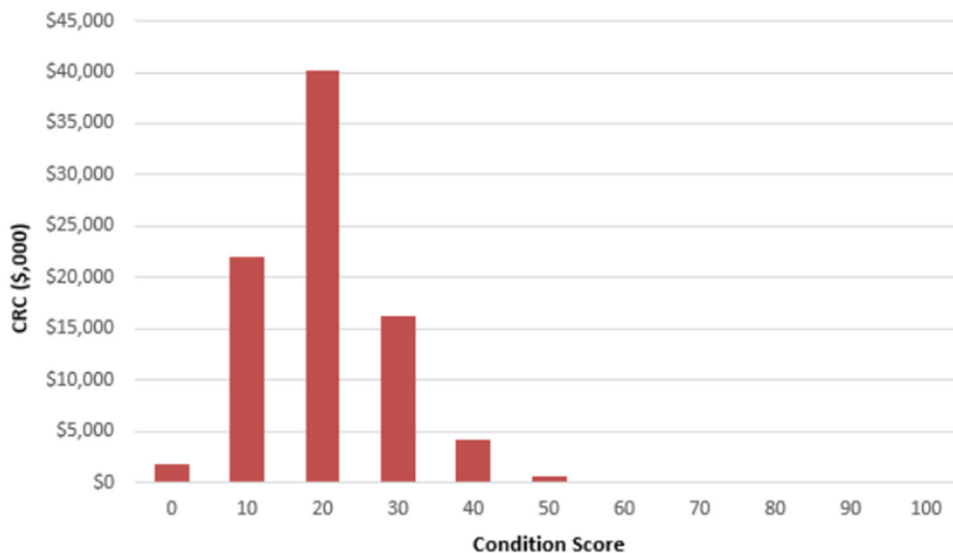
The above service deficiencies were identified from the previous Infrastructure Asset Management Plan October 2016.

5.1.3 Asset condition

Transport Assets are condition assessed on a five (5) year cyclic inspection program. Data is currently being compiled from the most recent inspection undertaken during 2020 and will be included within a future review of this AM Plan.

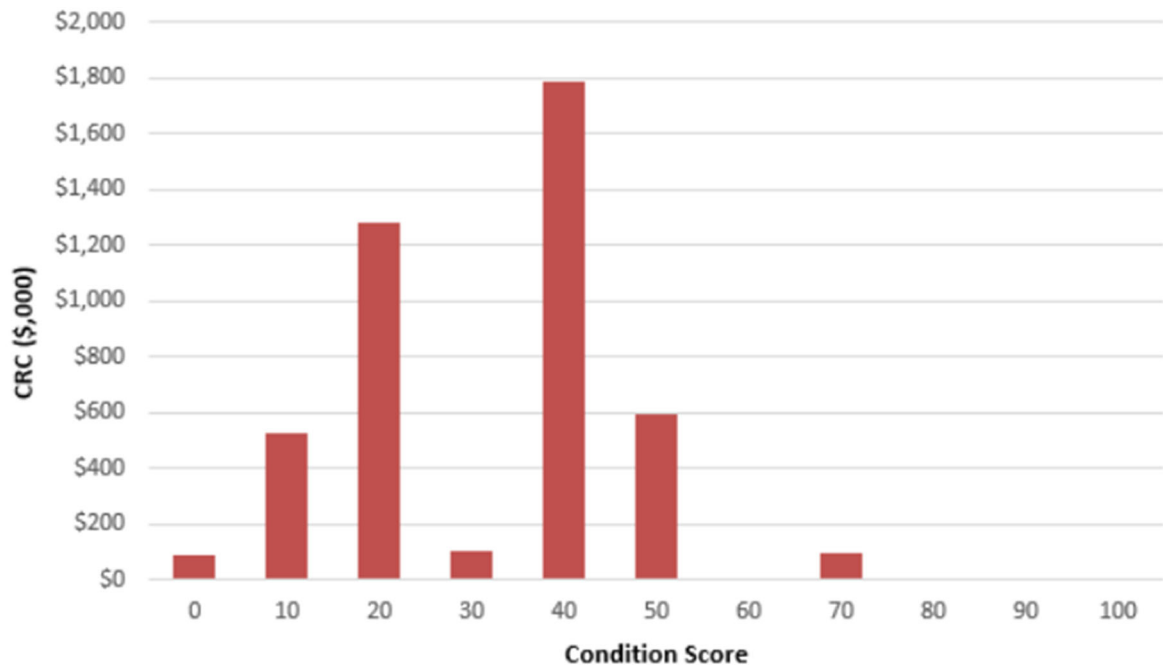
Condition profiling from the 2015 condition inspection is provided. A condition rating is applied based on a score from 1-100, where 1 is as new and 100 is completely consumed.

Figure 5.1.3.1: Asset Condition Profile (Sealed Road)



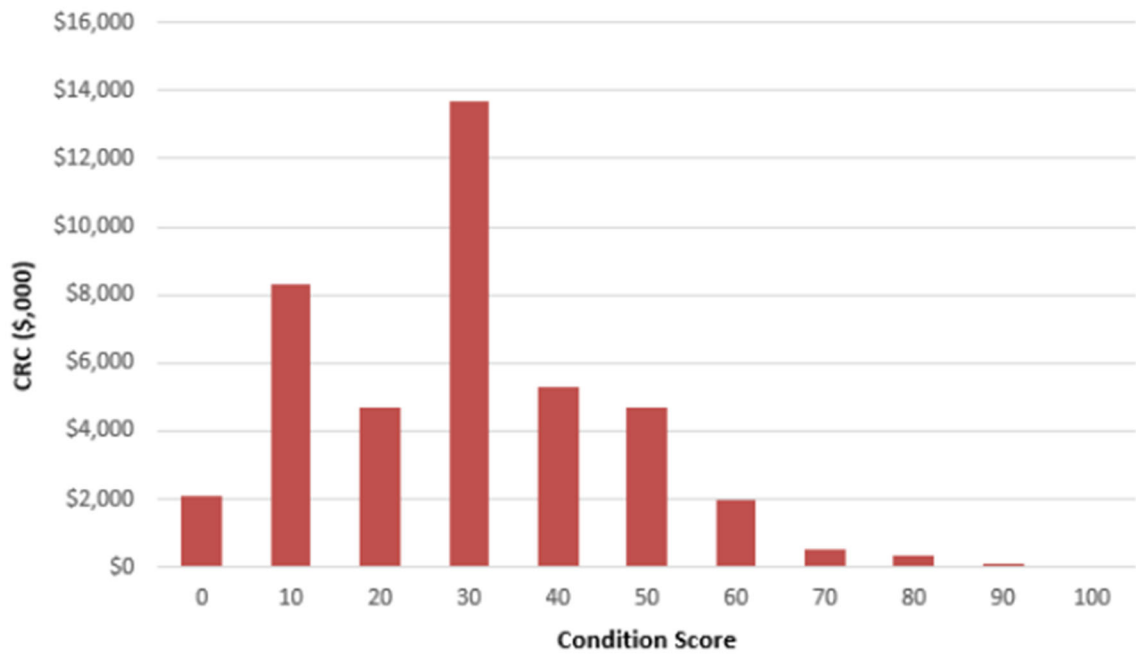
Sealed surfaces reach the end of their useful life at a condition score between 25-60.

Figure 5.1.3.2: Asset Condition Profile (Unsealed Road)



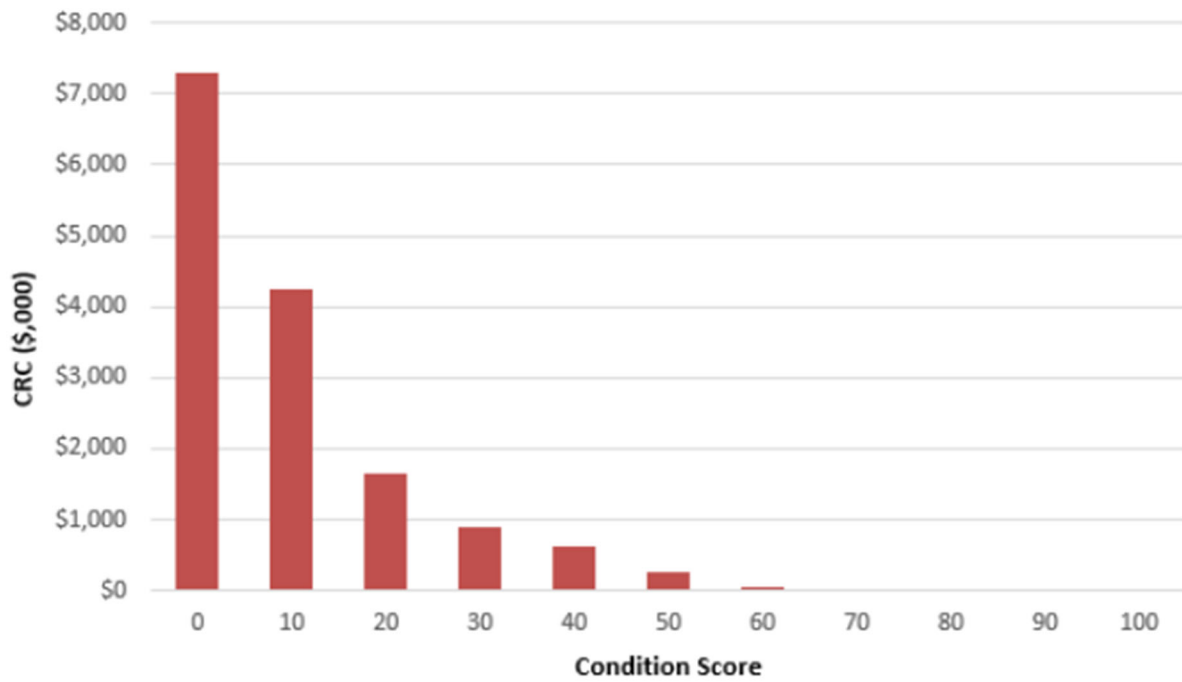
Unsealed surfaces reach the end of their useful life at a condition score between 50-85.

Figure 5.1.3.3: Asset Condition Profile (Kerbing)



Kerbing assets reach the end of their useful life at a condition score of 80.

Figure 5.1.3.4: Asset Condition Profile (Footpath)



Footpath assets reach the end of their useful life at a condition score between 70-75.

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 utility costs.

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 pipe repairs, asphalt patching, and equipment repairs.

The trend in maintenance budgets are shown in Table 5.2.1.

Table 5.2.1: Maintenance Budget Trends

Year	Maintenance Budget \$
2019/2020	1,596,498
2018/2019	1,665,587
2017/2018	1,489,088

Maintenance budget levels are considered to be adequate 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 AM Plan and service risks considered in the Infrastructure Risk Management Plan.

Assessment and priority of reactive maintenance is undertaken by staff using experience and judgement.

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.

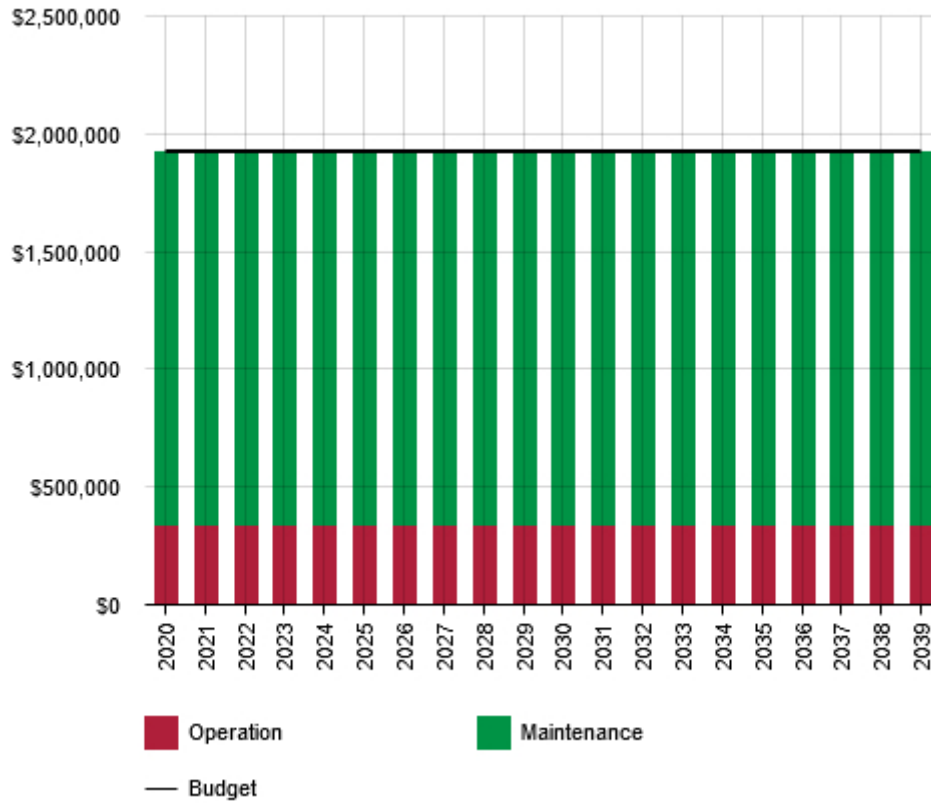
Table 5.2.2: Asset Service Hierarchy

Service Hierarchy	Service Level Objective
Township and Rural Roads High Use Spray Seal Upper Surface Medium Use Spray Seal Upper Surface Low Use Spray Seal Upper Surface High and Medium Use Sheeted Surface Low Use Sheeted Surface Existing Pavement Renewal New Construct Pavement	14/7mm Two coat spray seal 10/5mm Two coat spray seal 10/5mm Two coat spray seal 200mm sheeting depth 150mm sheeting depth 200mm pavement depth 300mm pavement depth
Township CBD CBD High Use Spray Seal (Future Hotmix) Upper Surface CBD Medium Use Spray Seal (Future Hotmix) Upper Surface CBD Low Use Spray Seal (Future Hotmix) Upper Surface	AC10 50mm Hotmix AC10 30mm Hotmix AC10 30mm Hotmix
Township Concrete Block Surface Concrete Block Paved Surface - 50	80mm concrete paver
Footpath Connectivity New constructed footpaths	1.2m wide concrete paver

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.

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

Assets requiring renewal are identified from one of two approaches in the Lifecycle Model.

- The first method uses Asset Register data to project the renewal costs (current replacement cost) and renewal timing (acquisition year plus updated useful life to determine the renewal year), or
- The second method uses an alternative approach to estimate the timing and cost of forecast renewal work (i.e. condition modelling system, staff judgement, average network renewals, or other).

The typical useful lives of assets used to develop projected asset renewal forecasts are shown in Table 5.3. Asset useful lives are currently being validated, this AM Plan is based on useful life assumptions from the 2016 valuation.⁵

Table 5.3: Useful Lives of Assets

Asset (Sub)Category	Useful life
Township Spray Seal Upper Surfaces	20 – 25 years
Township Spray Seal Lower Surfaces	60 – 75 years

⁵ Enter Reference to Report documenting Review of Useful Life of Assets

Township Hotmix Bitumen Upper Surfaces	25 – 70 years
Township Hotmix Bitumen Lower Surfaces	75 – 105 years
Township Slurry Seal / Cold Overlay Surfaces	15 – 22 years
Township Concrete Block Surface	50 years
Rural Spray Seal Upper Surfaces	10 – 28 years
Rural Spray Seal Lower Surfaces	60 – 84 years
Rural Hotmix Bitumen Surfaces	25 years
Township Unsealed Surfaces	10 – 14 years
Rural Unsealed Wearing Surfaces	15 – 25 years
Rural Unsealed Lower Base & Earthworks	45 – 60 years
Township Pavement and Upper Bases	50 – 100 years
Township Pavement Lower Bases	150 – 300 years
Rural Pavements	50 – 80 years
Standard Footpaths	10 – 45 years
Footpath Base	95 years
Kerb & Watertable Type	60 – 65 years

The estimates for renewals in this AM Plan were based on 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).⁶

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.⁷

The ranking criteria used to determine priority of identified renewal proposals is to be formally developed.

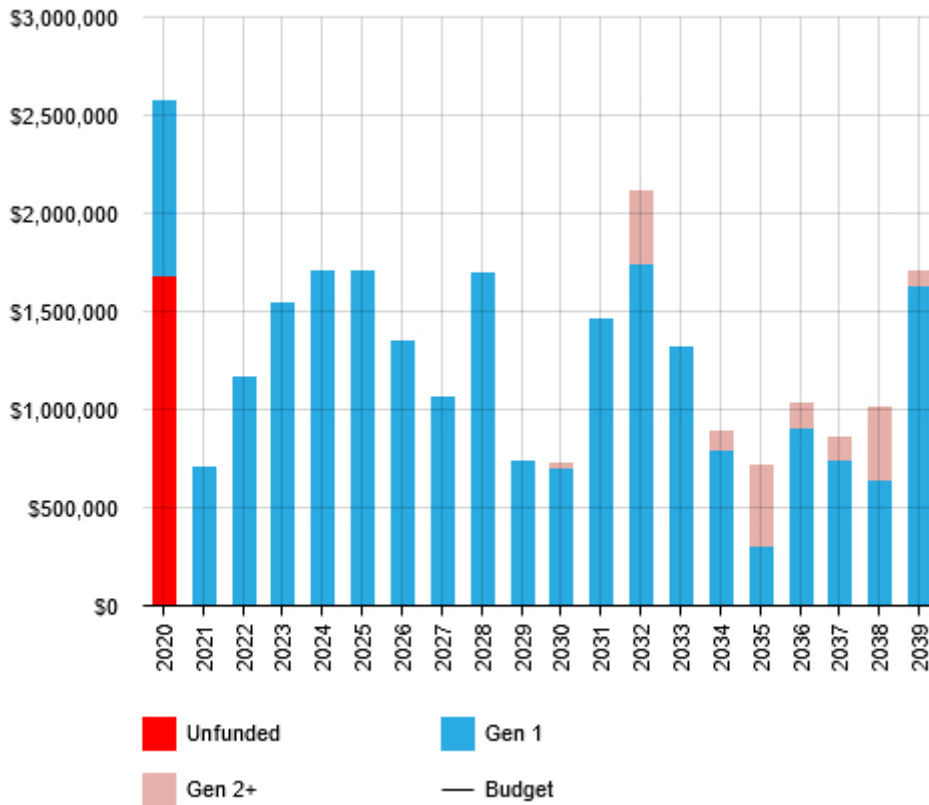
⁶ IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.

⁷ Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

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 D.

Figure 5.4.1: Forecast Renewal Costs



All figure values are shown in current day dollars.

Deferred renewal (assets identified for renewal and not scheduled in capital works programs) should be included in the risk analysis process in the risk management plan. A risk profile is to be developed to address impact of unfunded renewals along with the development of a strategy to address those assets where renewal has been deferred.

5.5 Acquisition Plan

Acquisition reflects are 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 donated to the Port Augusta City Council.

5.5.1 Selection criteria

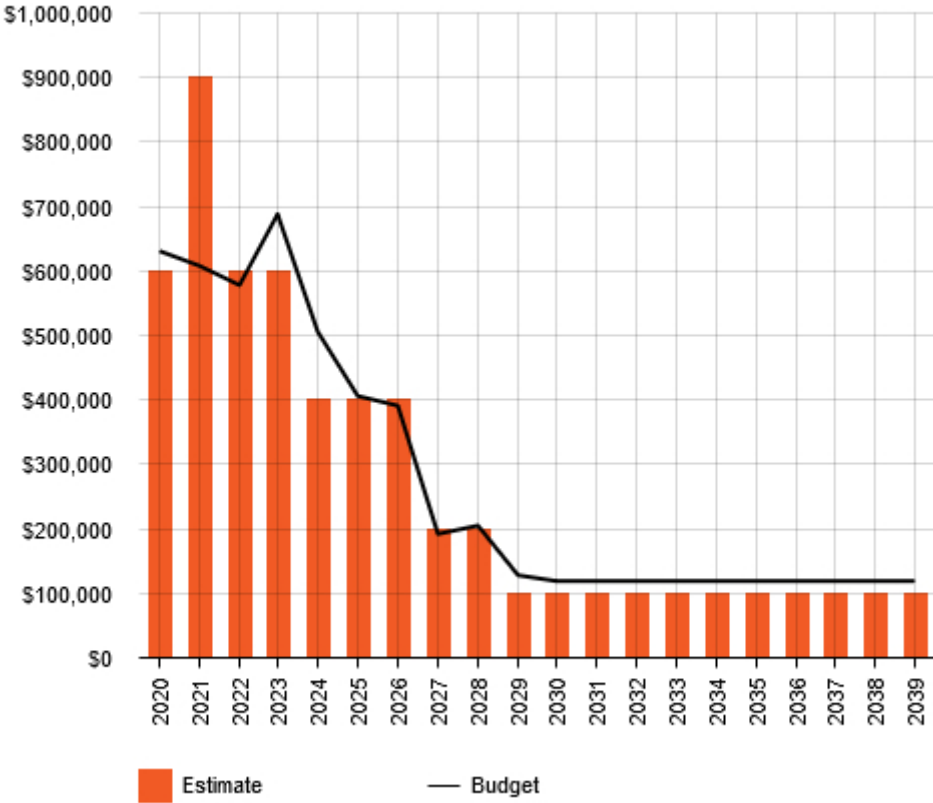
Proposed acquisition of new assets, and upgrade of existing assets, are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Potential upgrade and new works should be reviewed to verify that they are essential to the Entities 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. Formal priority ranking criteria is to be developed and included within future reviews of this AM Plan.

Summary of future asset acquisition costs

Forecast acquisition asset costs are summarised / summarized in Figure 5.4.1 and shown relative to the proposed acquisition budget. The forecast acquisition capital works program is shown in Appendix A.

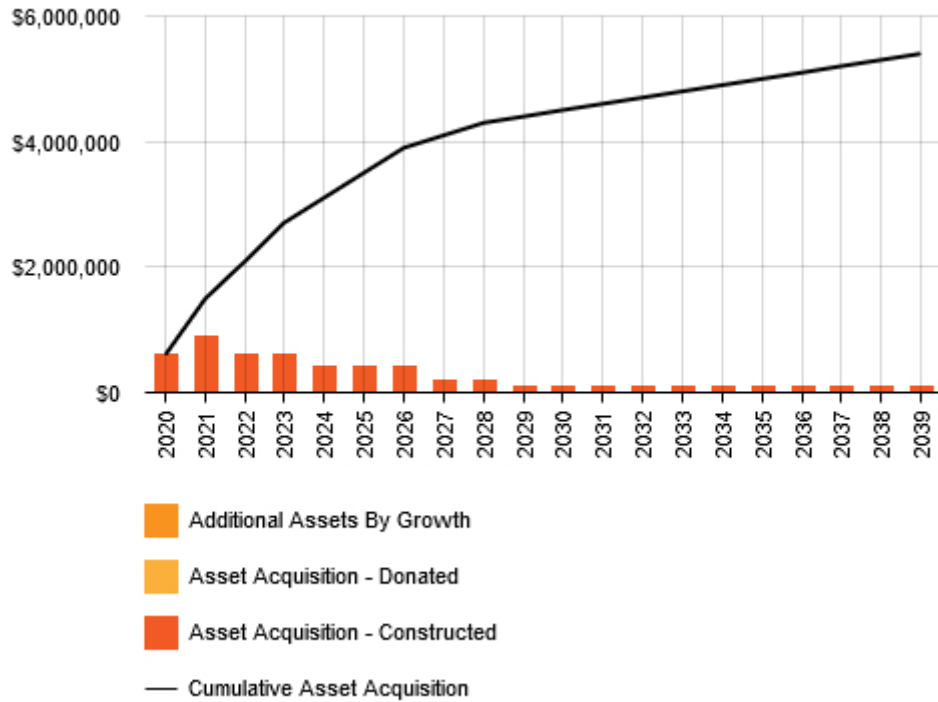
Figure 5.5.1: Acquisition (Constructed) Summary



All figure values are shown in current day dollars.

When an Entity 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 the Entity. The cumulative value of all acquisition work, including assets that are constructed and contributed shown in Figure 5.4.2.

Figure 5.5.2: Acquisition Summary



All figure values are shown in current dollars.

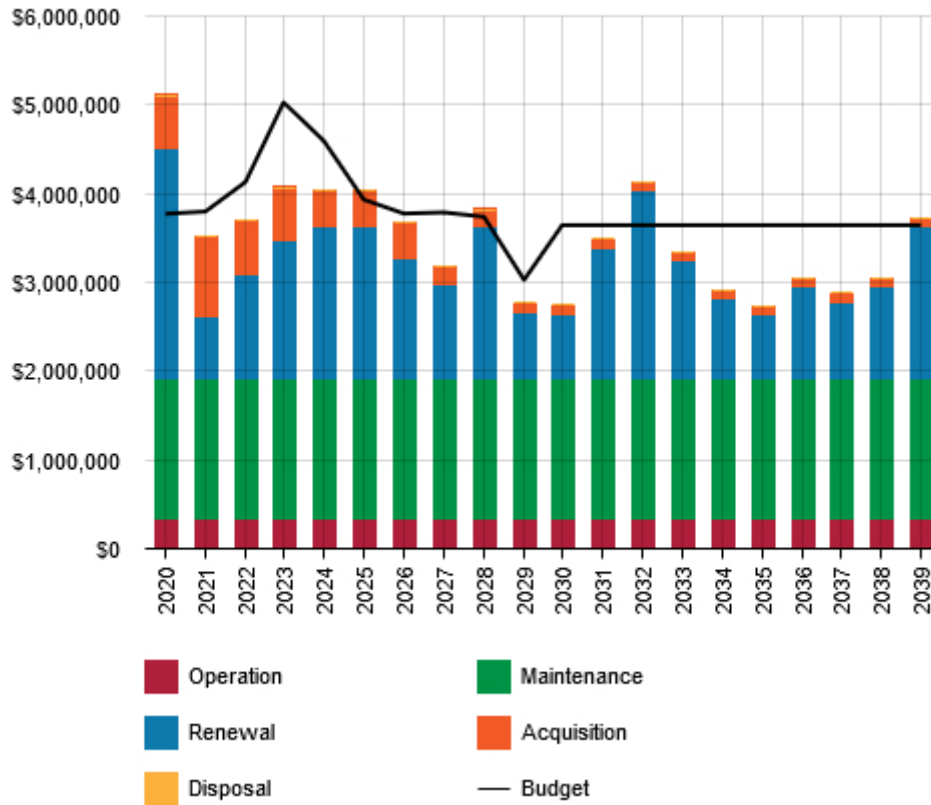
Expenditure on new assets and services in the capital works program will be accommodated in the long-term financial plan, but only to the extent that there is available funding.

Summary of asset forecast costs

The financial projections from this asset plan are shown in Figure 5.4.3. 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.

Figure 5.5.3 indicated that there is a funding shortfall within year one (2020), however, there is capacity to fund all capital, maintenance and operational requirements over the life of the plan.

5.6 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. The AM Plan does not identify any assets for decommissioning.

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’⁸.

An assessment of risks⁹ 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 Risk Assessment

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

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

The process is based on the fundamentals of International Standard ISO 31000:2018.

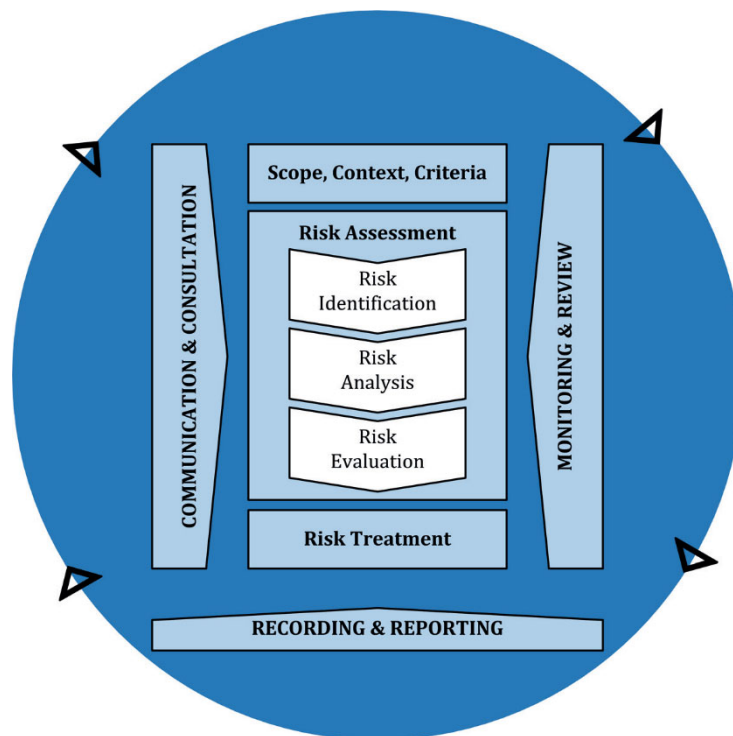


Fig 6.2 Risk Management Process – Abridged

Source: ISO 31000:2018, Figure 1, p9

⁸ ISO 31000:2009, p 2

⁹ REPLACE with Reference to the Corporate or Infrastructure Risk Management Plan as the footnote

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 risks¹⁰ 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.

Critical risks are those assessed with ‘Very High’ (requiring immediate corrective action) and ‘High’ (requiring corrective action) risk ratings identified in the Infrastructure Risk Management Plan. The residual risk and treatment costs of implementing the selected treatment plan is shown in Table 6.2. It is essential that these critical risks and costs are reported to management and the Port Augusta City Council.

Table 6.2: Risks and Treatment Plans

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Road network	Inaccessibility due to planned or non-planned events such as storm damage or flooding, road works or accidents	H	Monitor asset condition and develop strategies to mitigate access limitations such as an Unsealed road strategy	M	TBA
All road infrastructure	Localised defects due to impact of street trees	VH	Defect inspections undertaken on all road assets to inform a maintenance schedule. Implement periodic follow up inspections.	M	TBA

Note * The residual risk is the risk remaining after the selected risk treatment plan is implemented.

6.2 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 recovery planning, financial capacity, climate change risk assessment and crisis leadership and measurement tools for resilience in service delivery are to be identified and included within future revisions of this AM Plan.

6.3 Service and Risk Trade-Offs

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

¹⁰ REPLACE with Reference to the Corporate or Infrastructure Risk Management Plan as the footnote

7.0 FINANCIAL SUMMARY

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

7.1 Financial Sustainability and Projections

7.1.1 Sustainability of service delivery

There are two key indicators of sustainable service delivery that are considered in the AM Plan for this service area. The two indicators are the:

- asset renewal funding ratio (proposed renewal budget for the next 10 years / forecast renewal costs for next 10 years), and
- medium term forecast costs/proposed budget (over 10 years of the planning period).

Asset Renewal Funding Ratio

Asset Renewal Funding Ratio¹¹ 112.4%

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years we expect to have 112.4% of the funds required for the optimal renewal of assets.

The forecast renewal work along with the proposed renewal budget, and the cumulative shortfall, is illustrated in Appendix D.

Medium term – 10 year financial planning period

This AM Plan identifies the forecast operations, maintenance and renewal costs 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.

This forecast work can be compared to the proposed budget over the first 10 years of the planning period to identify any funding shortfall.

The forecast operations, maintenance and renewal costs over the 10 year planning period is \$3,349,083 average per year.

The proposed (budget) operations, maintenance and renewal funding is \$3,525,500 on average per year giving a 10 year funding excess of \$176,417 per year. This indicates that 105.27% of the forecast costs needed to provide the services documented in this AM Plan are accommodated in the proposed budget. Note, these calculations exclude acquired assets.

Providing sustainable services from infrastructure requires the management of service levels, risks, forecast outlays and financing to achieve a financial indicator of approximately 1.0 for the first years of the AM Plan and ideally over the 10 year life of the Long-Term Financial Plan.

7.1.2 Forecast Costs (outlays) for the long-term financial plan

Table 7.1.3 shows the forecast costs (outlays) required for consideration in the 10 year long-term financial plan.

Providing services in a financially sustainable manner requires a balance between the forecast outlays required to deliver the agreed service levels with the planned budget allocations in the long-term financial plan.

Forecast costs are shown in 2020/21 dollar values.

Table 7.1.2: Forecast Costs (Outlays) for the Long-Term Financial Plan

¹¹ AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

Year	Acquisition	Operation	Maintenance	Renewal	Disposal
2020	600000	342000	1584000	2575683	0
2021	900000	342000	1584000	701922	0
2022	600000	342000	1584000	1162791	0
2023	600000	342000	1584000	1540787	0
2024	400000	342000	1584000	1701101	0
2025	400000	342000	1584000	1707271	0
2026	400000	342000	1584000	1349771	0
2027	200000	342000	1584000	1058664	0
2028	200000	342000	1584000	1695064	0
2029	100000	342000	1584000	737775	0
2030	100000	342000	1584000	717328	0
2031	100000	342000	1584000	1463004	0
2032	100000	342000	1584000	2105084	0
2033	100000	342000	1584000	1316813	0
2034	100000	342000	1584000	895146	0
2035	100000	342000	1584000	712603	0
2036	100000	342000	1584000	1028518	0
2037	100000	342000	1584000	856708	0
2038	100000	342000	1584000	1018111	0
2039	100000	342000	1584000	1704783	0

7.2 Funding Strategy

The proposed funding for assets is outlined in the Entity’s budget and Long-Term financial plan.

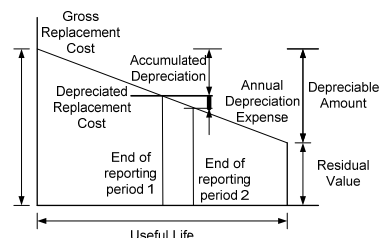
The financial strategy of the entity determines how funding will be provided, whereas the AM Plan communicates how and when this will be spent, along with the service and risk consequences of various service alternatives.

7.3 Valuation Forecasts

7.3.1 Asset valuations

The best available estimate of the value of assets included in this AM Plan are shown below. The assets are valued at fair value at cost to replace service capacity,

Replacement Cost (Current/Gross)	\$150394086
Depreciable Amount	\$150394086
Depreciated Replacement Cost ¹²	\$93845533
Depreciation	\$2881047.0



7.3.2 Valuation forecast

Asset values are forecast to increase as additional assets are added to the service.

¹² Also reported as Written Down Value, Carrying or Net Book Value.

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.

7.4 Key Assumptions Made in Financial Forecasts

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

Key assumptions made in this AM Plan are:

- All financial information for the whole of the 2 year plan is presented in present day values
- Asset data available is accurate
- Asset useful life assumptions are correct
- Unexpected changes in asset condition may result in unplanned and unbudgeted maintenance and renewal requirements.

7.5 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this AM Plan 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 scale¹³ in accordance with Table 7.5.1.

Table 7.5.1: Data Confidence Grading System

Confidence Grade	Description
A. Very High	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 $\pm 2\%$
B. High	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 $\pm 10\%$
C. Medium	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 $\pm 25\%$
D. Low	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 $\pm 40\%$
E. Very Low	None or very little data held.

¹³ IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.

The estimated confidence level for and reliability of data used in this AM Plan is shown in Table 7.5.2.

Table 7.5.2: Data Confidence Assessment for Data used in AM Plan

Data	Confidence Assessment	Comment
Demand drivers	B	Demand drivers are based on historic trends
Growth projections	N/a	All figures are based on present day values
Acquisition forecast	B	Current growth trends would suggest negligible impact
Operation forecast	B	Based on historic data
Maintenance forecast	B	Based on historic data
Renewal forecast		Renewal forecast values are informed from the current valuation data
- Asset values	B	
- Asset useful lives	C	There are some concerns around useful life of unsealed roads and kerbing infrastructure. These figures are to be validated.
- Condition modelling	C	Condition data has been recently collected and will be included within the future review of the document.
Disposal forecast	C	Useful lives impact accumulated depreciation and therefore may be under or overstated if useful lives are not reflective of actual asset performance.

The estimated confidence level for and reliability of data used in this AM Plan is considered to be at a high level.

8.0 PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices¹⁴

8.1.1 Accounting and financial data sources

This AM Plan utilises accounting and financial data. Financial records are maintained within Authority Finance System.

8.1.2 Asset management data sources

This AM Plan also utilises asset management data. The source of the data is managed through Conquest Asset Management System.

8.2 Improvement Plan

It is important that an entity recognise areas of their AM Plan and planning process that require future improvements to ensure effective asset management and informed decision making. The improvement plan generated from this AM Plan is shown in Table 8.2.

Table 8.2: Improvement Plan

Task	Task	Responsibility	Resources Required	Timeline
1	Develop Operation Plan for maintenance and operational functions to address hierarchy and cyclic actions based on a defined level of service	DI/MI/AMO	Internal	Dec 21
2	Develop strategy for unsealed road network management	MI/MO	Internal	Dec 21
3	Community satisfaction survey and desired level of service identification	DI	Internal/Consultant	Jul 21
4	Identify gaps within data and gather information for upload into Conquest (Asset Classification review)	MI/AMO	Internal/Consultant	Dec 21
5	Development of 5-10 year rolling program for infrastructure asset renewal	MI	Internal	Jul 21
6	Review AM Plan and update to keep document live	AMO	Internal	March Annually
7	Conduct an Asset Maturity Assessment to monitor progress	AMO	Internal	Jun Annually
8	Investigate integrated systems for capture of in-field data and implement a system/improvement plan for reporting, capture and closure of actions against assets.	DI/MI/AMO/MO	Internal/Consultant	Dec 22
9	Development of a Streetscape Strategy to aid decision making	DI/MI/PM/MO	Internal	Dec 22
10	Development of GIS to support Asset Management	MI/AMO/MIS	Internal/Consultant	Jun 22

¹⁴ ISO 55000 Refers to this as the Asset Management System

8.3 Monitoring and Review Procedures

This AM 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 AM Plan will be reviewed and updated annually to ensure it represents the current service level, asset values, forecast operations, maintenance, renewals, acquisition and asset disposal costs and planned budgets. These forecast costs and proposed budget are incorporated into the Long-Term Financial Plan or will be incorporated into the Long-Term Financial Plan once completed.

The AM Plan has a maximum life of 4 years and is due for complete revision and updating within 2 years of each Council election.

8.4 Performance Measures

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

- The degree to which the required forecast costs identified in this AM 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 consider the 'global' works program trends provided by the AM Plan,
- The degree to which the existing and projected service levels and service consequences, risks and residual risks are incorporated into the Strategic Planning documents and associated plans,
- The Asset Renewal Funding Ratio achieving the Organisational target (this target is often 90 – 100%).

9.0 REFERENCES

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10.0 APPENDICES

Appendix A Acquisition Forecast

A.1 – Acquisition Project Summary

The project titles included in the lifecycle forecast are included here.

- Footpath Connectivity - \$1,300,000 over the life of the plan or an average of \$155,000 per year
- Upgrade network - \$2,000,000 over the life of the plan or an average of \$100,000 per year
- Zerna Road Upgrade (RAV route) - \$300,000 within year two of the plan

A.2 – Acquisition Forecast Summary

Table A2 - Acquisition Forecast Summary

Year	Constructed	Donated	Growth
2020	600000	0	0
2021	900000	0	0
2022	600000	0	0
2023	600000	0	0
2024	400000	0	0
2025	400000	0	0
2026	400000	0	0
2027	200000	0	0
2028	200000	0	0
2029	100000	0	0
2030	100000	0	0
2031	100000	0	0
2032	100000	0	0
2033	100000	0	0
2034	100000	0	0
2035	100000	0	0
2036	100000	0	0
2037	100000	0	0
2038	100000	0	0
2039	100000	0	0

Appendix B Operation Forecast

Table B2 - Operation Forecast Summary

Year	Operation Forecast	Additional Operation Forecast	Total Operation Forecast
2020	342000	0	342000
2021	342000	0	342000
2022	342000	0	342000
2023	342000	0	342000
2024	342000	0	342000
2025	342000	0	342000
2026	342000	0	342000
2027	342000	0	342000
2028	342000	0	342000
2029	342000	0	342000
2030	342000	0	342000
2031	342000	0	342000
2032	342000	0	342000
2033	342000	0	342000
2034	342000	0	342000
2035	342000	0	342000
2036	342000	0	342000
2037	342000	0	342000
2038	342000	0	342000
2039	342000	0	342000

Appendix C Maintenance Forecast

Table C2 - Maintenance Forecast Summary

Year	Maintenance Forecast	Additional Maintenance Forecast	Total Maintenance Forecast
2020	1584000	0	1584000
2021	1584000	0	1584000
2022	1584000	0	1584000
2023	1584000	0	1584000
2024	1584000	0	1584000
2025	1584000	0	1584000
2026	1584000	0	1584000
2027	1584000	0	1584000
2028	1584000	0	1584000
2029	1584000	0	1584000
2030	1584000	0	1584000
2031	1584000	0	1584000
2032	1584000	0	1584000
2033	1584000	0	1584000
2034	1584000	0	1584000
2035	1584000	0	1584000
2036	1584000	0	1584000
2037	1584000	0	1584000
2038	1584000	0	1584000
2039	1584000	0	1584000

Appendix D Renewal Forecast Summary

Table D3 - Renewal Forecast Summary

Year	Renewal Forecast	Renewal Budget
2020	2575683	1215000
2021	701922	1264000
2022	1162791	1627000
2023	1540787	2413000
2024	1701101	2165000
2025	1707271	1601000
2026	1349771	1458000
2027	1058664	1670000
2028	1695064	1608000
2029	737775	974000
2030	717328	1599500
2031	1463004	1599500
2032	2105084	1599500
2033	1316813	1599500
2034	895146	1599500
2035	712603	1599500
2036	1028518	1599500
2037	856708	1599500
2038	1018111	1599500
2039	1704783	1599500

Appendix E Budget Summary by Lifecycle Activity

Table F1 – Budget Summary by Lifecycle Activity

Year	Acquisition	Operation	Maintenance	Renewal	Disposal	Total
2020	631000	342000	1584000	1215000	0	3772000
2021	608000	342000	1584000	1264000	0	3798000
2022	578000	342000	1584000	1627000	0	4131000
2023	688000	342000	1584000	2413000	0	5027000
2024	506000	342000	1584000	2165000	0	4597000
2025	406000	342000	1584000	1601000	0	3933000
2026	391000	342000	1584000	1458000	0	3775000
2027	192000	342000	1584000	1670000	0	3788000
2028	205000	342000	1584000	1608000	0	3739000
2029	128000	342000	1584000	974000	0	3028000
2030	119000	342000	1584000	1599500	0	3644500
2031	119000	342000	1584000	1599500	0	3644500
2032	119000	342000	1584000	1599500	0	3644500
2033	119000	342000	1584000	1599500	0	3644500
2034	119000	342000	1584000	1599500	0	3644500
2035	119000	342000	1584000	1599500	0	3644500
2036	119000	342000	1584000	1599500	0	3644500
2037	119000	342000	1584000	1599500	0	3644500
2038	119000	342000	1584000	1599500	0	3644500
2039	119000	342000	1584000	1599500	0	3644500