Transport Asset Management Plan

CITY OF ADELAIDE

Contents

1	EXECUTIVE SUMMARY	4
2	INTRODUCTION	16
3	LEVELS OF SERVICE	22
4	FUTURE DEMAND	42
5	LIFECYCLE MANAGEMENT PLAN	47
6	RISK MANAGEMENT PLANNING	69
7	FINANCIAL SUMMARY	76
8	PLAN IMPROVEMENT AND MONITORING	81
9	REFERENCES	84
10	APPENDICES	85

1.0 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

The City of Adelaide is responsible for an extensive and diverse asset portfolio valued at more than $2 billion, which represents a significant investment made over multiple generations. These assets play a vital role in providing essential services to our community and it is critical to ensure these assets continue to be effectively managed to enable ongoing service provision and benefits for both current and future generations.

Under South Australia's *Local Government Act 1999*, we are required to develop Asset Management Plans for a period of at least 10 years, which includes information about the operation, maintenance, renewal, acquisition, expansion, upgrade and disposal for each infrastructure asset class under our care and control. The City of Adelaide has six Asset Management Plans, which includes Transport, Park Lands & Open Space, Buildings, Water Infrastructure, Lighting & Electrical and Urban Elements.

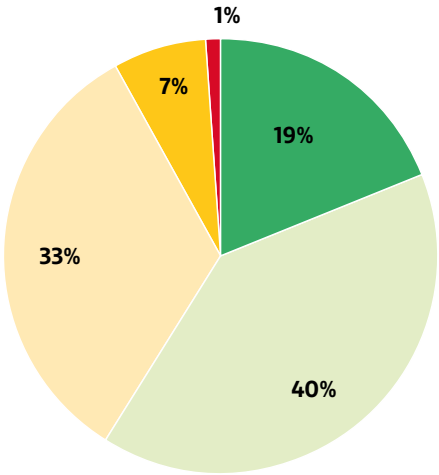
The fundamental purpose of this Transport Asset Management Plan is to outline the Council's high-level asset management priorities for the operation, maintenance and renewal of our assets over the next 10 years. Additionally, it aims to improve the long-term strategic management of our transport assets, to cater for the community's required levels of service both now and into the future.

The plan defines the current state of our $1.14 billion transport asset portfolio, as well as the asset management activities and associated funding requirements recommended for inclusion into the Long-Term Financial Plan to achieve our asset performance targets.

1.2 Our Transport Assets

The City of Adelaide's transport network is valued at approximately $1.14 billion and provides vital services that support pedestrians, cyclists, motorists, and public transport users to move into and around the city and Park Lands. These assets include roads, kerb and watertable, footpaths, bridges and traffic signals.

To monitor the performance of our transport assets, we undertake regular condition audits (typically every 4 years). Asset condition information is analysed with respect to technical intervention criteria to inform our maintenance and renewal programs. The current condition of our transport network is rated in a good to fair condition, with an overall condition index rating of 2.3. 92% of assets are rated in a very good to fair condition and 8% of assets are rated in poor or very poor condition, which form the general basis of our future renewal program priorities.



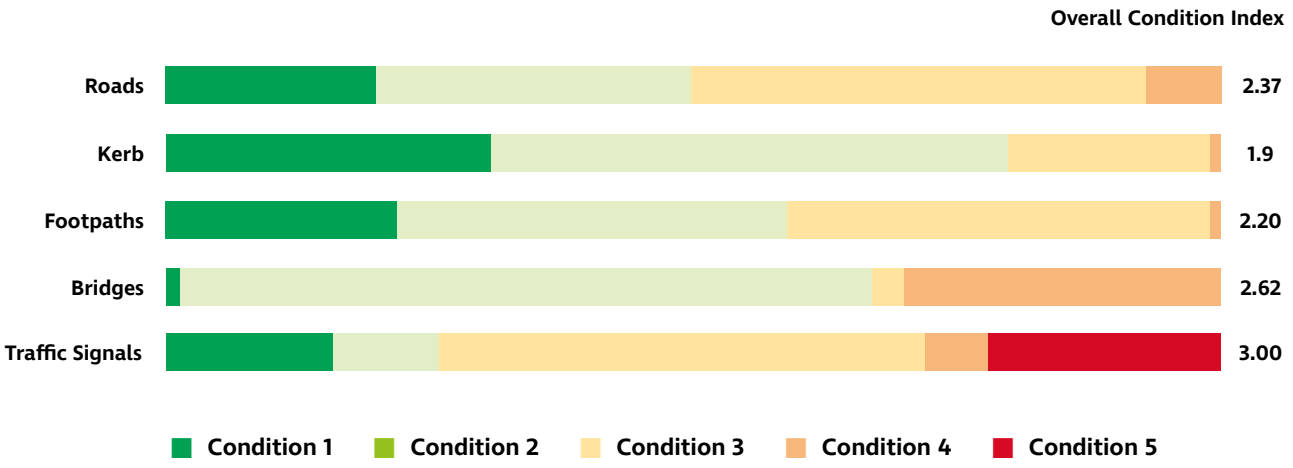
Condition Grading	Description of Condition
1	**Very Good:** free of defects, only planned and/or routine maintenance required
2	**Good:** minor defects, increasing maintenance required plus planned maintenance
3	**Fair:** defects requiring regular and/or significant maintenance to reinstate service
4	**Poor:** significant defects, higher order cost intervention likely
5	**Very Poor:** physically unsound and/or beyond rehabilitation, immediate action required

Typical examples of each condition state for our transport assets are shown in Appendix E.

Overall, the majority of our road, kerb and footpath assets are rated in a very good to fair condition with only a small proportion of assets rated in poor and very poor condition. This is considered a healthy condition distribution, however ongoing investment will be required to ensure levels of service are maintained.

Our bridges are generally rated in a good overall condition, with the exception of Adelaide Bridge, an aging asset constructed in 1931 that is approaching the end of it's useful life. Adelaide Bridge primarily accounts for the significant proportion of the bridge network currently rated in poor condition, with the bridge requiring significant rehabilitation or replacement within this Asset Management Plan's 10-year planning period.

Our traffic signal network has a significant number of assets rated in a poor to very poor condition. While this does not present any immediate operational risks due to effective proactive maintenance programs, accelerated renewal investment will be proposed within the first 5 years of this Asset Management Plan, with priorities informed by a comprehensive condition audit scheduled for 2024.



1.3 Community Engagement & Customer Satisfaction

In November 2021, we undertook an engagement process with city residents and visitors to better understand and measure levels of customer satisfaction for the services provided by our transport assets. A summary of the responses is shown below.

Category	Average Score	Very Poor (<40%)	Poor (40-54%)	Average (55-69%)	Good (70-84%)	Excellent (>85%)
City Street Roads	87 %					●
City Street Footpaths	77 %				●	
City Street Cycle Lanes	52 %		●			
Park Lands Footpaths	88 %					●
Park Lands Cycle Paths	87 %					●

The overall feedback confirmed appropriate levels of customer satisfaction for all transport assets, with the exception of city street cycle lanes. It is evident that there is a significant gap between current service provisions and the expectations of the community with respect to city street cycling facilities. The community's view was that on-road cycling infrastructure needs to be more accessible, easier to navigate and safer, in order to better meet their needs. It is anticipated that the completion of the Integrated Transport Strategy in 2024 and the subsequent initiation, funding and delivery of key upgrade/new cycling infrastructure projects will over time incrementally bridge the gap between customer expectations and service provisions.

A Recommended Levels of Service Report was presented to Council, with the recommendations approved in June 2022. This report noted the community consultation undertaken and the associated benchmarking of current user satisfaction. Additionally, Council also approved the development of the Transport Asset Management Plan based on the planning principles and recommended management strategies presented within the report and its attachments.

1.4 Current and Future Demands

It is anticipated that the City of Adelaide will be subject to considerable change over the next ten years. This will result in our transport assets being subject to new demands that have the potential to impact future service delivery and the requirements of our assets.

Key demand drivers and future challenges will include:

- City growth
- Changing demographic
- Tourism & event growth
- Climate change and carbon neutrality
- Emerging technology
- Legislation & regulation

Demand for new services will be managed through a combination of managing existing assets, upgrading existing assets, providing new assets and demand management. Demand management practices can include non-asset solutions, such as educating the community around alternative options, which facilitates service provision without the need to invest in new or upgraded infrastructure.

Demand management will include:

- Continuing to engage with our community through annual City User Profile surveys
- Finalising the Integrated Transport Strategy (2024)
- Delivering priority upgrade/new projects identified within the Strategic Plan and strategic documents
- Ensuring climate risk mitigation and adaptation is a key focus for strategic planning, asset management and project delivery
- Continuing to review and update design standards and technical specifications to ensure our assets transition towards having a lower carbon footprint with improved circular economy outcomes through increased usage of recycled materials
- Continuing to partner with industry, to monitor and evaluate new and emerging technologies, with trials of new materials, approaches, and methodologies to inform appropriate changes to standards and practices
- Continuing to monitor changes to legislation and ensure appropriate adaptation into asset management practices

1.5 Strategic Planning

Under the *Local Government Act (SA) 1999*, we are legislatively required to establish a suite of Strategic Management Plans, which guide Council's future planning, asset management and financial sustainability. An overview of these strategic management plans are shown below:

Strategic Plan *Community*	Long term with a four year delivery focus. *Planning for the vision and aspirations of the Adelaide Capital City.*
Long-Term Financial Plan *Financial*	Ten year Plan, revised annually to ensure a ten year view is maintained. Planning for the long-term financial sustainability of the City of Adelaide.
Asset Management Plans *Infrastructure*	Suite of ten year Plans. *Planning for the sustainable renewal and maintenance of Council assets.*
City Plan *Development / Built Form*	Ten year Spatial Plan. *Planning for the future land uses and built form of the Adelaide Capital City.*

Through the City of Adelaide Draft Strategic Plan 2024 – 2028, Council's vision is:

Our Adelaide. Bold. Aspirational. Innovative.

Achieving our vision for the future will be guided by our long term aspirations:

Our Community: Vibrant, connected and inclusive
Our Environment: Resilient, protected and sustainable
Our Economy: Growing, innovative and responsive
Our Places: Interesting, purposeful and safe
Our Corporation: High performing, customer-centric and bold

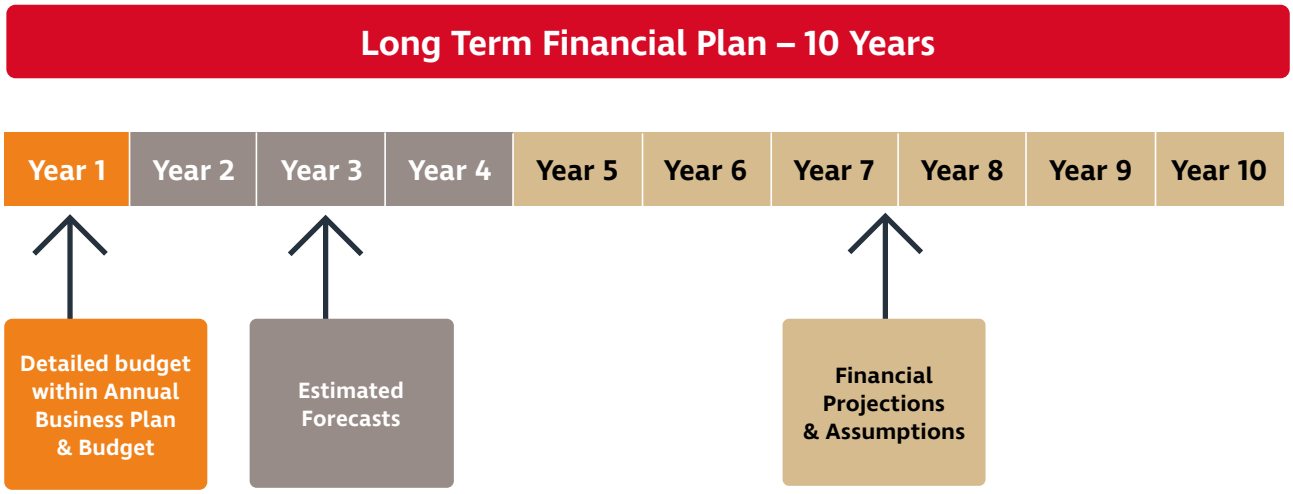
As Adelaide grows, we will need to consider economic vitality, social connectivity and wellbeing, distinctive precincts, environmental and financial sustainability, asset management and service delivery. To ensure we maintain our liveability and to support growth, these principles will underpin everything we do:

- Exceptional Amenity – Be bold and courageous in our pursuit of excellence for our city
- Quality Housing – Strive for liveability and affordability to attract and retain residents
- Community Connection – Strengthen connection, accessibility, diversity and inclusivity by putting people first
- Unique Experiences – Create interesting experiences for our residents, workers and visitors
- Climate Resilience – Embed climate resilience in all that we do
- Economic Growth – Encourage innovation, investment and development in current and emerging sectors
- Budget Repair – Provide quality services and ensure long-term financial sustainability

The Strategic Plan is supported by a suite of long and short-term strategies and action plans as well as a Resource Plan. The Resource Plan provides a four-year view of new and upgrade projects, resources, and budget requirements to deliver our Strategic Plan aspirations and objectives.

Integrated Delivery Planning ensures that prudent and efficient decisions are made, with line-of-sight between Council's Strategic Plan objectives and the major infrastructure projects we deliver. While this Asset Management Plan does not identify financial forecasts associated with new and upgrade projects, it does ensure required asset renewals are aligned (where practical) with key new and upgrade projects specified within the Resource Plan.

Each year our annual business plan and budget formalises funding allocations to continue providing services and progress new projects. It enables existing projects to move from one delivery stage to the next (e.g. progress concept design to detailed design and detailed design to construction) as well as consider emerging risks and opportunities that may result from Council decisions, community requests or other external factors.



1.6 Lifecycle Management

In order to effectively manage our assets, it is important to understand the relationship between all stages of the asset lifecycle. Effective asset management and sustainable financial planning requires a balance between the maintenance, renewal and disposal of existing assets and the delivery of new and upgraded assets.

Our goal is to provide assets that service the needs of the community, providing the agreed levels of service at the lowest lifecycle cost. To enable this, it is important to understand:

- How our assets are performing
- How our assets should be operated and maintained
- When our assets should be renewed
- When we should consider upgrading existing assets or constructing new assets
- How funding for new and upgraded assets is prioritised
- When we should consider disposing underperforming or underutilised assets

This Asset Management Plan's renewal strategy aims to minimise the number of assets that deteriorate into a poor condition and prohibit assets reaching a very poor condition. This strategy ensures we can continue to provide services in line with the community's expectations, appropriately manage risk and optimise whole-of-life costs. Renewal requirements have been identified through a combination of condition audits, engineering recommendations and predictive modelling.

Operational and Maintenance activities are generally evaluated and prioritised with respect to budget provisions within the Long-Term Financial Plan and Annual Business Plan and Budget. Following the completion of this Asset Management Plan, we will be reviewing operations and maintenance standards for transport assets, with a view to develop more structured and proactive maintenance regimes which provide an acceptable balance between cost, risk, and customer expectations. The associated financial impacts will need to be further considered in future revisions of this Asset Management Plan and the Long-Term Financial Plan.

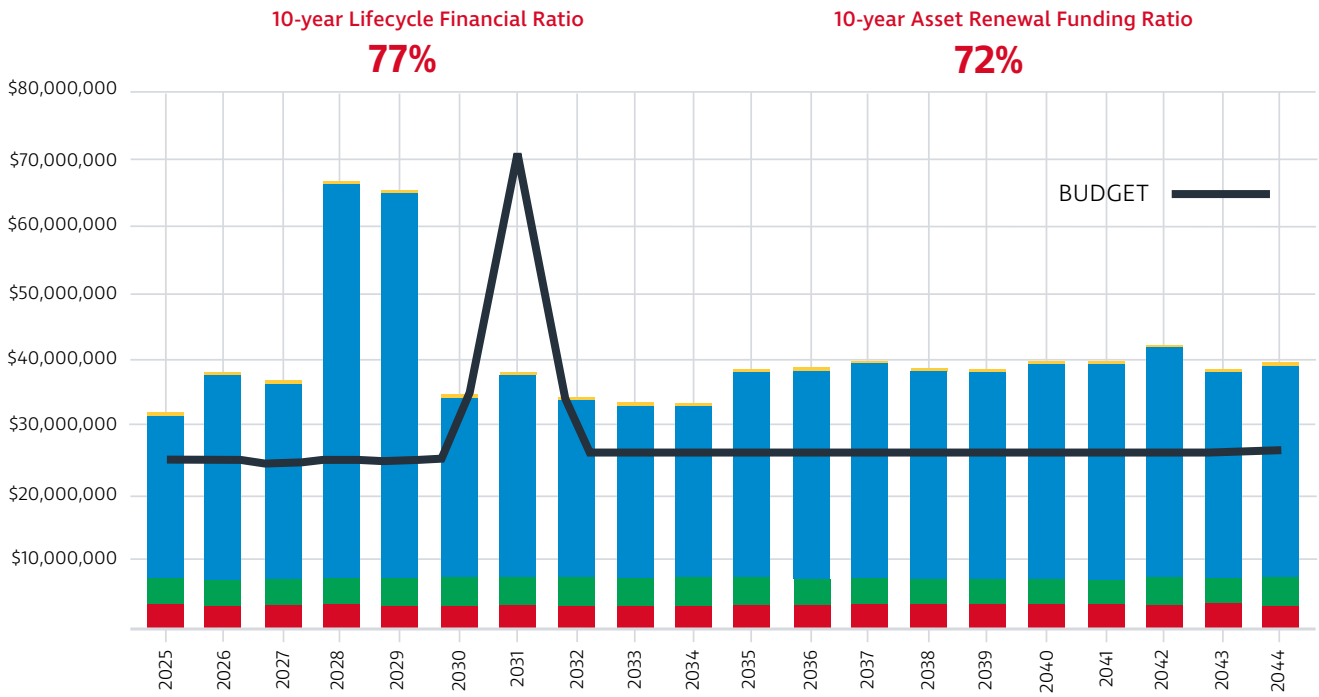
This Asset Management Plan does not identify financial forecasts associated with asset disposal, however where recommended, significant assets will be identified for decommissioning and disposal through Council Reports, to then be considered within the Long-Term Financial Plan and Business Plan and Budget.

1.7 Financial Summary

This Asset Management Plan defines the asset management activities and associated funding requirements recommended for inclusion into the Long-Term Financial Plan to achieve our asset performance targets. The lifecycle costs necessary to operate, maintain and renew our assets as outlined within this Asset Management Plan is approximately $41.23 million on average each year across the 10-year planning period. The associated 10-year annual average financial forecasts for renewal, maintenance and operation are presented below for each asset class.

Roads	Kerbs	Footpaths	Bridges	Traffic Signals	Total
$9.57 M Renewal Cost	$3.08 M Renewal Cost	$9.85 M Renewal Cost	$7.26 M Renewal Cost	$3.86 M Renewal Cost	$33.62 M Renewal Cost
$1.04 M Maintenance Cost	$0.47 M Maintenance Cost	$1.64 M Maintenance Cost	$0.23 M Maintenance Cost	$0.50 M Maintenance Cost	$3.87 M Maintenance Cost
$1.56 M Operation Cost	$0.03 M Operation Cost	$1.50 M Operation Cost	$0.06 M Operation Cost	$0.59 M Operation Cost	$3.73 M Operation Cost
$12.17 M Lifecycle Cost	$3.58 M Lifecycle Cost	$12.99 M Lifecycle Cost	$7.55 M Lifecycle Cost	$4.95 M Lifecycle Cost	$41.23 M Lifecycle Cost

Currently, the lifecycle budget allocation within the Long-Term Financial Plan is only $31.74 million on average each year. This leaves a funding shortfall of $9.49 million on average each year and means we currently only have 77% of the costs (Lifecycle Financial Ratio) to deliver the required activities to sustain current levels of service.



LIFECYCLE SUMMARY
Annual Average first 10 years

Lifecycle Forecast	$41,255,000
Planned Budget	$31,738,330
Shortfall	-$9,486,670

MAINTENANCE
Annual Average first 10 years

Maintenance Forecast	$3,871,000
Planned Budget	$3,871,000

OPERATION
Annual Average first 10 years

Operation Forecast	$3,733,500
Planned Budget	$3,733,500

RENEWAL
Annual Average first 10 years

Renewal Forecast	$33,620,500
Planned Budget	$24,133,830

Noting that this Asset Management Plan has not forecast any additional operational and maintenance requirements, the identified lifecycle funding shortfall is associated with the revised asset renewal forecasting. Each transport asset class generally requires additional renewal funding across the 10-year planning period.

The Asset Renewal Funding Ratio indicates that over the next 10 years our current budgets within the Long-Term Financial Plan account for 72% of the forecast funding required for the optimal renewal of our transport assets. Contributing factors for the gap between the forecast renewal costs and current budgets within the Long-Term Financial Plan include:

- Not achieving our Asset Renewal Funding Ratio targets over the past 4 financial years as a result of covid-19 resourcing impacts and project delays associated with post-pandemic market saturation.
- Utilising advanced predictive modelling within this Asset Management Plan, that analyses asset condition information to better recognise the changing asset investment needs over time to maintain service levels.
- Ensuring we accurately recognise asset replacement costs, utilising current unit rates that take into consideration increasing costs associated with inflation and industry escalations (we have experienced significant increases in project unit rates, noting that the Local Government Association (LGA) have indicated that costs and materials have increased up to 25% post pandemic).

Only what is funded within the Long-Term Financial Plan and approved through the Annual Business Plan and Budget can be delivered. Should the Long-Term Financial Plan be unable to accommodate the revised asset renewal forecasts recommended within this Asset Management Plan, there will be associated service and risk impacts.

Continuing to leverage off external funding opportunities will allow us to maintain and enhance the quality of the service we provide, while reducing financial pressures through the efficiencies in an increased revenue. We will continue to work in partnership with both the State and Federal Governments to pursue these opportunities for both renewal and significant new and upgrade projects.

1.8 Potential Service and Risk Impacts

If the forecast activities outlined within this Asset Management Plan (operations, maintenance, renewal) are unable to be accommodated into the Long-Term Financial Plan, there will be potential service consequences for users. These service consequences include:

- Reduced levels of service for the transport network (maintenance and renewal backlog)
- Reduced customer satisfaction levels associated with the management of our existing assets
- Intergenerational inequity (burdening future generations)

The associated risk consequences include:

- Increased safety risks associated with assets deteriorating beyond recommended intervention levels
- Increased reputational risks associated with services not aligning with community expectations
- Increased financial risks associated with additional maintenance requirements that cannot be accommodated within existing budgets
- Increased financial risks associated with higher renewal and/or rehabilitation treatments as asset renewals are not funded at the optimal point in time
- Increased economic risk associated with reduced business activity, events and tourism
- Intergenerational inequity (passing on costs and risk to future generations)

If the forecast activities outlined within this Asset Management Plan are unable to be accommodated into the Long-Term Financial Plan, we will endeavour to manage these risks within available funding by:

- Continuing to undertake regular asset condition and maintenance inspections
- Prioritising all asset renewal and maintenance activities with respect to available budget
- Revising our levels of service to establish an acceptable balance between cost, level of service and risk
- Developing a communication strategy to manage expectations and educate the community around affordable levels of service
- Continuing to seek out external funding opportunities
- Prioritisation of the delivery of key actions from the Improvement Plan

1.9 Monitoring and Improvement Program

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

	Improvement Plan Actions
1	Finalise a 4-year Resource Plan to identify key upgrade/new projects to deliver Council's Strategic Plan objectives. Once key projects are recognised within the Long Term Financial Plan, Asset Management Plans will be updated to ensure associated acquisition costs (upgrade/new) and ongoing operational and maintenance costs are appropriately recognised, in conjunction with any scheduling adjustments required for asset renewal programs.
2	Finalise Integrated Transport Strategy in 2024 and identify key priority projects for inclusion within the Resource Plan. Asset Management Plans to be reviewed and updated where required, considering any impacts to planned asset renewal programs.
3	Revise asset renewal forecasts for Adelaide Bridge following the completion of Options Analysis (currently underway).
4	Continue to work in partnership with both the State and Federal Governments to pursue external funding opportunities for both renewal and significant upgrade/new transport projects.
5	Review and update operations and maintenance standards, to develop more structured and proactive maintenance regimes which provide an acceptable balance between cost, risk, and customer expectations. Include changes into future revisions of this Asset Management Plan and Long Term Financial Plan.
6	Continue to undertake regular condition audits and revaluation for all our transport assets within the nominated 4-year cycles, including regular review of asset useful lives.
7	Continue to review our technical standards and their application across the transport network with respect to climate resilience, circular economy, recycled materials, durability and performance, whole-of-life cost, amenity, and heritage requirements.
8	Continue to monitor forecast climate change impacts to ensure we remain resilient through proactively implementing appropriate mitigation and adaptation controls.
9	Improve the capture of carbon emission data for technical standards and project procurement to support lower carbon decision making.
10	Review of corporate performance measure targets for customer satisfaction, to assist with performance gap analysis.
11	Review and standardise asset hierarchies for all asset classes within Streets and Park Lands.
12	Review customer service requests codes to better align with Level of Service reporting and operational and maintenance sub-activities.
13	Further develop processes to ensure asset data is updated following the completion of contracted maintenance work and emergency asset replacement resulting from vandalism or knockdowns.
14	Based on community engagement feedback, review the feasibility of establishing a distinct asset class for Cycleways for the next revision of this Asset Management Plan

2.0 INTRODUCTION

2.1 Background

First shaped by the Kaurna People of the Adelaide Plains, then by Colonel William Light, Adelaide is a dynamic, accessible and safe city, that offers an enviable quality of life. The physical layout of the city enhances the attributes that make Adelaide unique. From the Nationally Heritage Listed Park Lands that surround our city, to the compact layout that makes the city walkable and cyclable, to our unique neighbourhoods and precincts, all these factors place Adelaide on the path to being one of the most liveable cities in the world. Despite our small footprint, the City of Adelaide is home to over 26,000 residents, 12,000 businesses and accommodates over 300,000 visitors daily, contributing close to 18% of the State's economic value.

The City of Adelaide's transport network is valued at approximately $1.14 billion and supports pedestrians, cyclists, motorists, and public transport users to move into and around the City and Park Lands. These transport assets are vital to the health and wellbeing of the community and have been developed over time through major investment across multiple generations.

With projected City and metropolitan growth, a changing climate, and advancements in technology, it is anticipated that higher demand will be placed on our existing assets and there will be increasing requirements for new and upgraded infrastructure.

With Council's strategic objectives to create a City that is welcoming, inclusive, and accessible to all, it is critical to ensure that our transport network continues to be appropriately managed, ensuring we provide appropriate services and benefits for both current and future generations.

This Transport Asset Management 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 infrastructure assets covered by this Asset Management Plan, including their quantities and replacement costs are shown in Table 2.1 below.

Table 2.1: Infrastructure Assets covered by Transport Asset Management Plan

Asset Class	Quantity/Dimension	Replacement Value
Roads	129 kilometres	$296.5 million
Kerb and Watertable	292 kilometres	$119.7 million
Bridges	37 sites	$178.6 million
Footpaths	292 kilometres	$486.4 million
Traffic Signals	138 sites	$59.4 million
Total		$1.14 billion

This Asset Management Plan is to be read in conjunction with the Asset Management Policy, Strategic Asset Management Plan and the following key Corporate planning documents:

- City of Adelaide Strategic Plan (2024-2028)
- Active City Strategy (2013-2023)
- Adelaide Park Lands Management Strategy (2014-2025)
- Carbon Neutral Strategy (2015-2025)
- Climate Change Risk Adaptation Action Plan (2021-2026)
- Community Land Management Plans
- Disability Access and Inclusion Plan (2019-2022)
- Heritage Strategy and Action Plan (2021-2036)
- Park Land and Precinct Master Plans

- Public Art Action Plan (2019-2022)
- Public Health and Wellbeing Plan (2020-2025)
- Smart Move Transport and Movement Strategy (2012-2022)
- The 30-Year Plan for Greater Adelaide (2017) - State Government
- Integrated Transport and Land Use Plan for Greater Adelaide - State Government
- South Australian Walking Strategy (2022-2032) – State Government
- South Australia's Road Safety Strategy (to 2031) – State Government

As existing planning documents are updated and new planning documents are approved by Council, Asset Management Plans will be reviewed and updated as required.

Infrastructure projects will reference the Adelaide Design Manual for transformational projects supported by upgrade/new funding allocated with the Business Plan and Budget and Long-Term Financial Plan.

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:

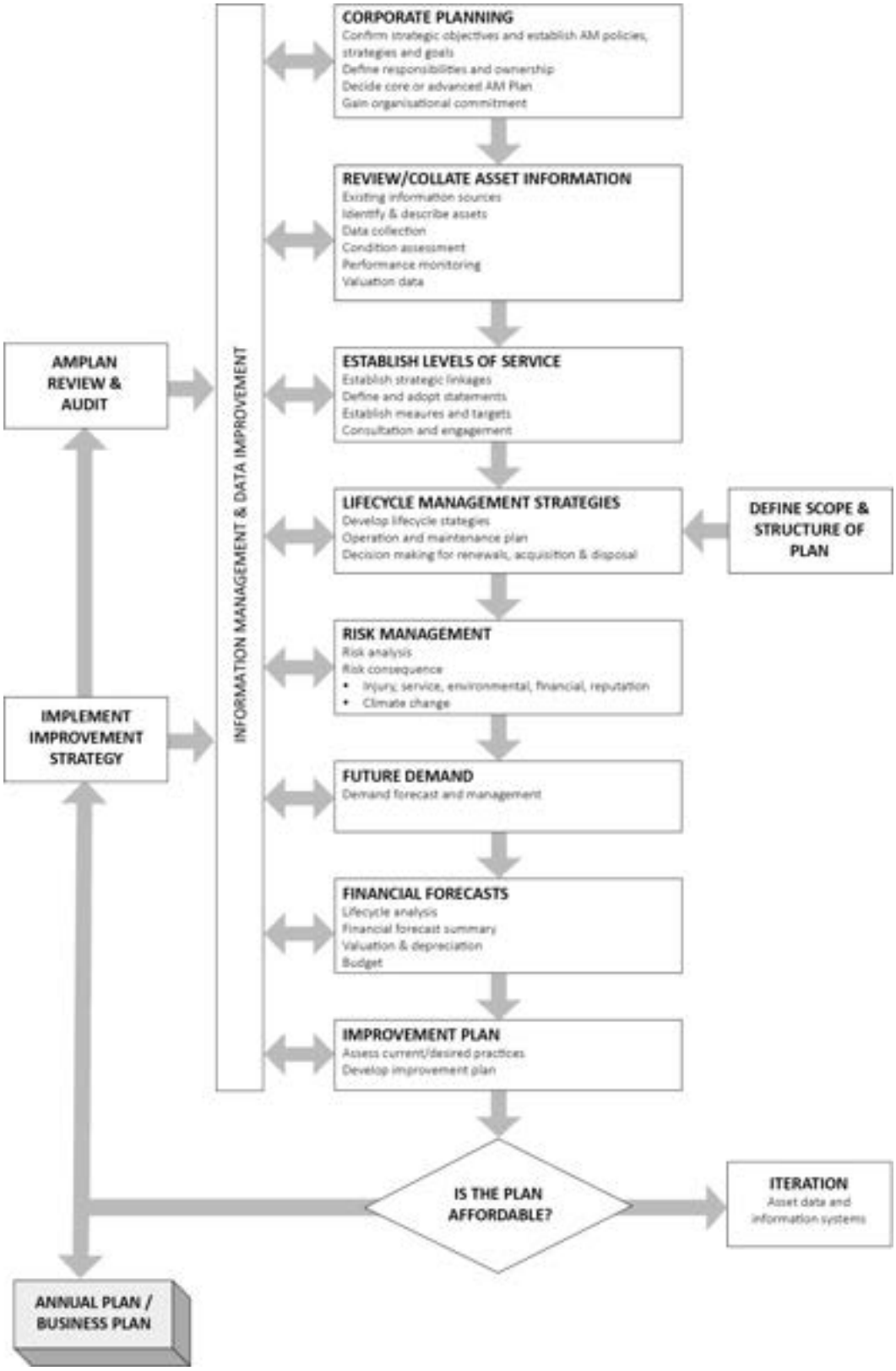
- International Infrastructure Management Manual 2015 [1]
- ISO 550002

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

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

Figure 2.2: Road Map for preparing an Asset Management Plan

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



2.3 Key Stakeholders & Organisational Responsibilities

Key stakeholders in the preparation and implementation of this Asset Management Plan are shown in Table 2.3.

Table 2.3: Key Stakeholders in the Asset Management Plan

Key Stakeholder	Role in Asset Management Plan
Residents, Ratepayers & Businesses	Provide feedback on current and desired levels of service, which is considered in the development of Asset Management Plans.
Workers, Visitors, Tourists and Students	
Capital City Committee (CCC)	Intergovernmental body established under the City of Adelaide Act (1998) which initiates new projects to enhance and promote the development of the City of Adelaide as the capital city of the state.
Lord Mayor & Elected Members	Represent and advocate for the needs of the community and set high level direction through the development of asset management principles in the Strategic Plan. Approve the Asset Management Plan and Long-Term Financial Plan, to ensure the organisation maintains financial sustainability over the short, medium, and long terms, with consideration of community needs/expectations and corporate risk management requirements.
Chief Executive Officer & Executive Leadership Team	Responsible for the allocation of resources and development of sound asset management practice across the organisation as well as ensuring that all asset management activities are consistent with the objectives of Council's Strategic Plan, the Business Plan and Budget process and the Long-Term Financial Plan. Responsible for ensuring the financial projections in the adopted Asset Management Plans are reflected in the Long-Term Financial Planning and include sustainable maintenance, operations, renewal, and upgrade costs of current and future assets.
Associate Director Infrastructure	Responsible for providing leadership and direction for Council's Asset Management Framework and Project Delivery.
Infrastructure Planning	Responsible for the lifecycle management of Council's Infrastructure Assets and the development of Asset Management Plans, ensuring alignment with the Strategic Management Framework and principles and objectives outlined in the Strategic Plan and other relevant corporate planning documents.
Park Lands & Sustainability	Responsible for developing the Adelaide Park Lands Management Strategy, Park Lands and Square Master Plans and initiating priority Park Lands & Open Space upgrade/new project initiatives. Responsible for facilitating the identification of climate change risks and potential impacts to infrastructure assets.

Key Stakeholder	Role in Asset Management Plan
Low Carbon & Circular Economy	Responsible for facilitating the identification of opportunities to improve circular economy outcomes within infrastructure standards and specifications.
Traffic & Transport	Responsible for developing the Integrated Transport Strategy, Corridor Planning Studies and initiating priority transport upgrade/new project initiatives as well as providing technical traffic advice for capital works projects and operational issues.
Strategy & Insights	Responsible for the Strategic Management Framework, including the development of the Strategic Plan in consultation with the Executive Leadership Team, Elected Members, and key strategic stakeholders.
Technical Services	Responsible for technical design documentation to facilitate construction of infrastructure projects, review, and update infrastructure technical standards to ensure they are fit-for-purpose as well as the provision of general engineering and technical advice.
Infrastructure Delivery	Responsible for delivering Capital Works Projects identified in the Asset Management Plan and Annual Business Plan and Budget.
Financial Planning & Reporting	Responsible for the development and currency of the Asset Accounting Policy, Fixed Asset Guideline, as well as the preparation of asset sustainability and financial reports, which incorporate depreciation and asset revaluations in compliance with Australian accounting standards.
Procurement & Contract Management	Responsible for ensuring appropriate procedures are in place to enable efficient and effective procurement and contract management that demonstrates value for money and ensure public money is appropriately spent in accordance with the Local Government Act.
City Operations	Responsible for delivering day-to-day maintenance and operational activities, ensuring works are prioritised, planned and delivered consistently with operational and maintenance plans.
Regulatory Services	Responsible for issuing permits with conditions to enable external parties to undertake works on Council Infrastructure as well as enforcing rectification for works that are not compliant with CoA construction standards.
Department of Infrastructure and Transport (DIT)	Collaborative partner for major projects.
Service Authorities (e.g. SA Water, South Australian Power Networks)	Service authorities will continue to be consulted to coordinate any works planned by either Council or the service authority, so asset investment is not compromised.

Our organisational structure for service delivery associated with infrastructure assets is shown in Figure 2.3.

Figure 2.3: Organisational Structure

3.0 LEVELS OF SERVICE

3.1 Customer Research and Expectations

In November 2021, the City of Adelaide undertook an engagement process with City residents and visitors to better understand and measure levels of customer satisfaction for users who utilise the services provided by our transport infrastructure. The engagement was advertised on signage in City Streets as well as through the City of Adelaide's social media platforms.

The insights from the Survey are intended to be used to identify where current levels of service are not meeting the community's expectation. This will enable recommendations to be made to Council regarding future resourcing requirements for specific services.

The engagement process was primarily undertaken through questionnaire surveys (113 total respondents), where information was collected online using the YourSay platform (61 respondents), as well as through on street intercepts at various locations across the City (52 respondents). Additional information and feedback relating to CoA's infrastructure assets was also collected through the 2021 Resident Survey (318 comments) and engagement with the Disability Access and Inclusion Panel (44 comments).

The demographic distribution of respondents who provided feedback is presented across Figures 3.1-1 to 3.1-3 There were significantly more survey responses received from City visitors compared to residents and an even balance across genders.

Figure 3.1-1: Respondent distribution

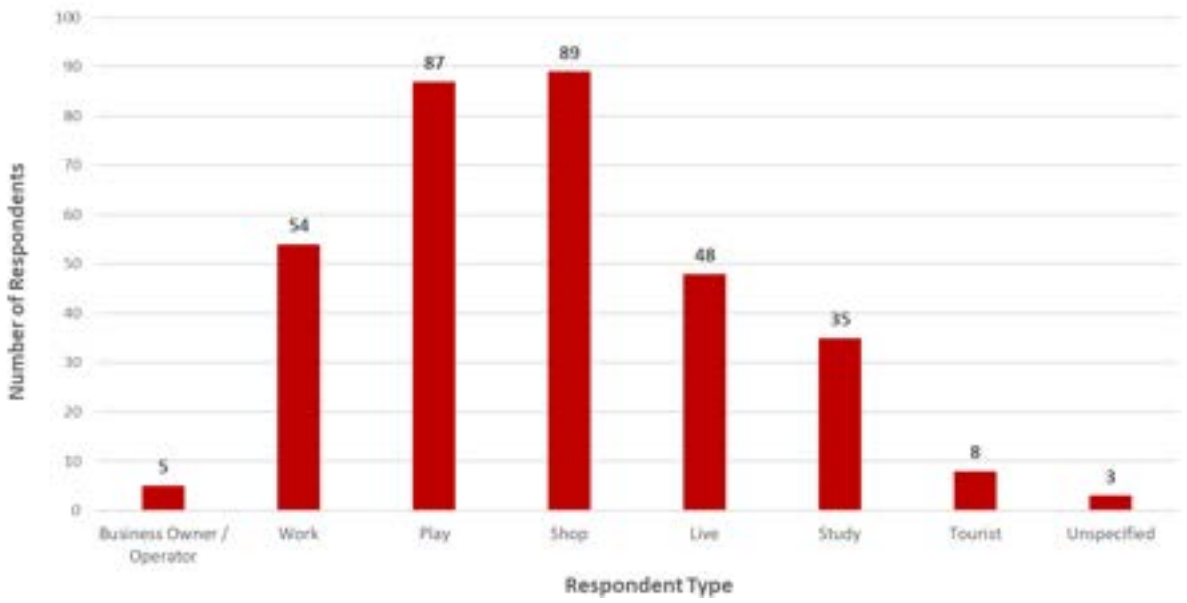


Figure 3.1-2: Respondent Distribution (Residents v Visitors)

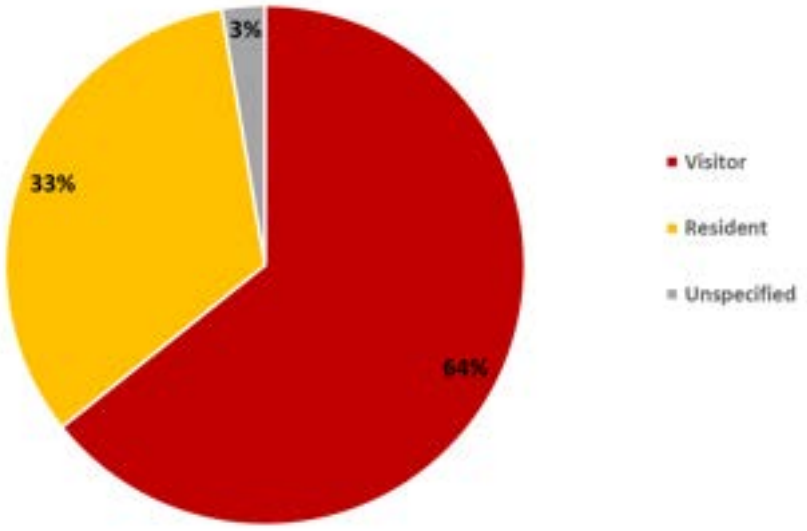
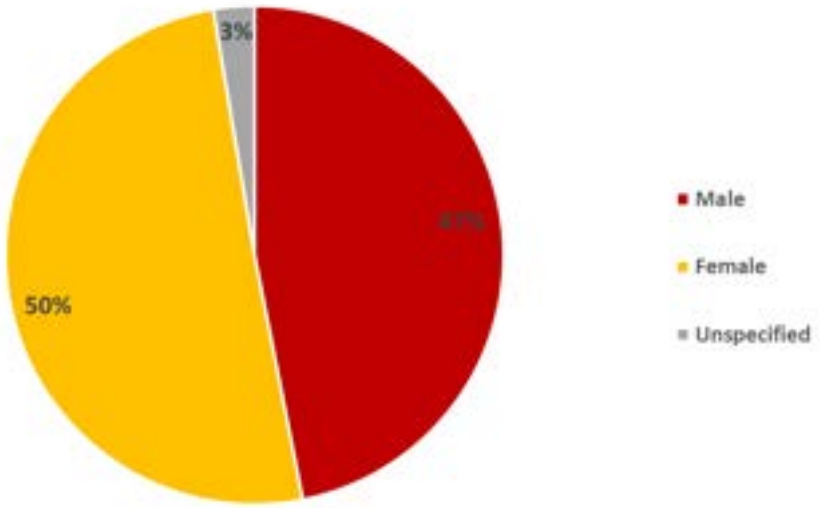


Figure 3.1-3: Respondent Distribution (Gender)



To ensure that data was collected to enable a clear line of sight for decision making purposes, the questionnaire was structured to differentiate responses received from the various user groups who utilise the transport network (i.e. cyclists, pedestrians and motorists) as well as differentiate responses relating to the City's Streets and the Park Lands.

Figure 3.1-4 and 3.1-5, provides a high level overview of the survey respondents perception of how well City Streets and Park Lands are maintained. Respondents were predominatly satisfied with the overall performance in maintaining the City's Streets and Park Lands, with 74% responding as Good or Excellent for City Streets and 84% responding as Good or Excellent for the Park Lands.

Figure 3.1-4: Overall Performance in Maintaining the City's Streets

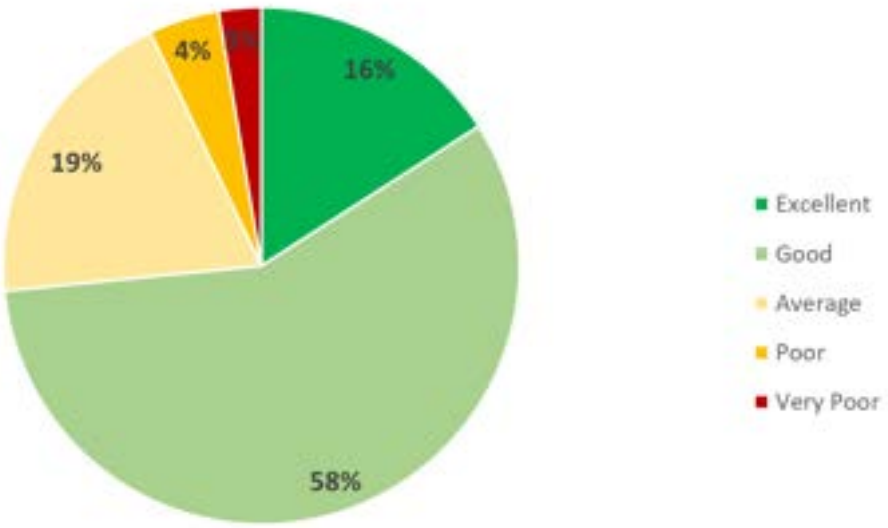
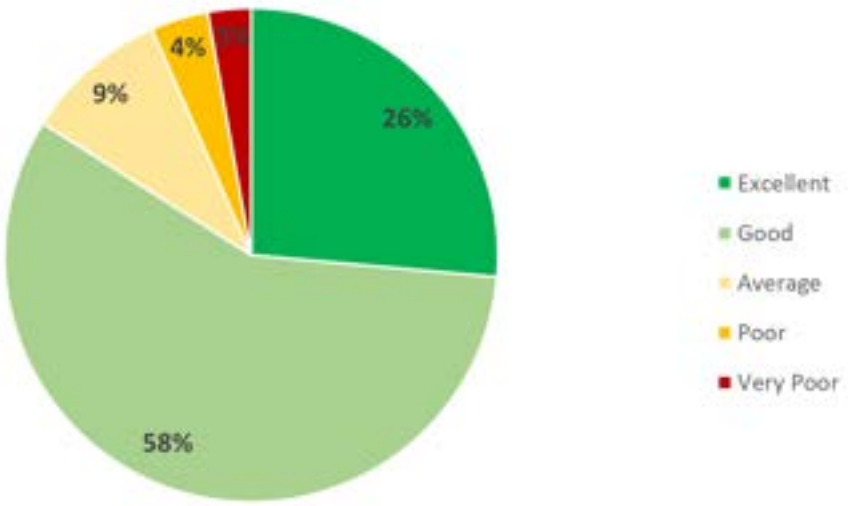


Figure 3.1-5: Overall Performance in Maintaining the Park Lands



More targeted questions were also asked with respect to the different user groups who utilise the transport network (i.e. cyclists, pedestrians and motorists).

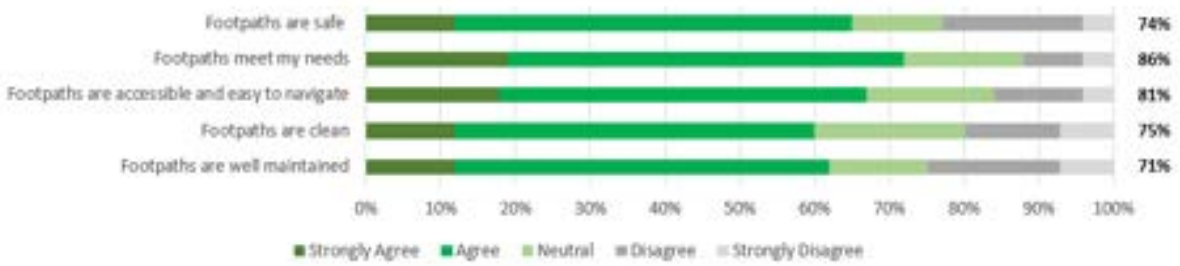
For each performance measure, a customer satisfaction indicator was calculated which represents the percentage of respondents who were satisfied with the service (neutral responses were omitted from the calculation). These figures can then be compared against CoA's organisation scorecard target of 70% satisfaction to identify where our services are not being delivered in line with community expectations.

The results for City Streets and Park Lands for pedestrian, cycling and motorist user groups are presented and discussed below.

City Streets – Pedestrian User Group

Generally, pedestrians were satisfied with the overall performance of the City's footpaths, where each of the-performance measures had satisfaction indicators exceeding CoA's 70% target, as shown in Figure 3.1-6 below.

Figure 3.1-6: City Streets - Pedestrian User Group Results



Where respondents stated they were not satisfied, general themes of the written feedback received included:

- More priority should be given to pedestrians at traffic lights to improve safety and reduce wait times
- Not all footpaths are accessible for those who have mobility aids
- More of the overall road reserve should be allocated to pedestrians (vehicle dominated)
- Some paved areas become slippery after significant rainfall events

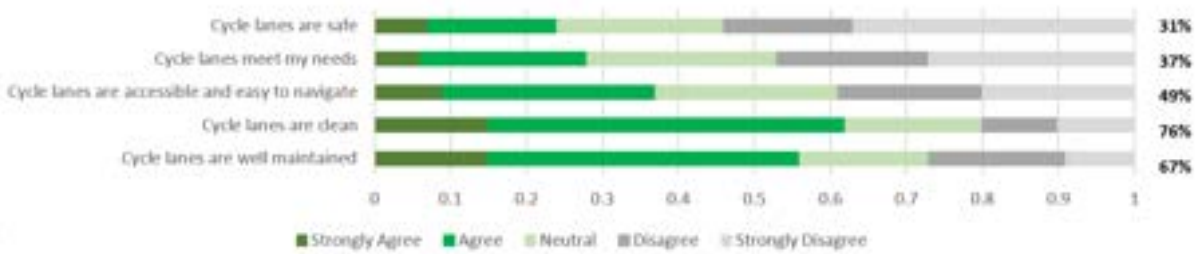
General themes in the feedback received from the Disability Access and Inclusion Panel included:

- A higher level of service is required for footpath maintenance and renewal programs to ensure footpaths are safe and accessible
- Undulating footpaths and steep crossfalls significantly limit accessibility
- Objects and clutter on footpaths significantly limit accessibility
- Footpath materials should consider surface temperature during hot weather for guide dogs
- Importance of pram ramp alignment and warning tactiles at intersections to ensure safe path of travel
- Some paved areas become slippery after significant rainfall events

City Streets – Cyclist User Group

Generally, cyclists were not satisfied with the performance/provision of cycling infrastructure in the City. Results identify that where cycling infrastructure exists, it is generally considered clean and well maintained. However, most satisfaction indicators were below CoA's 70% target, highlighting that the City's cycling infrastructure needs to be more accessible, easier to navigate, and safer to meet the needs of the community. The survey results are summarised in Figure 3.1-7 below.

Figure 3.1-7: City Streets - Cyclist User Group Results



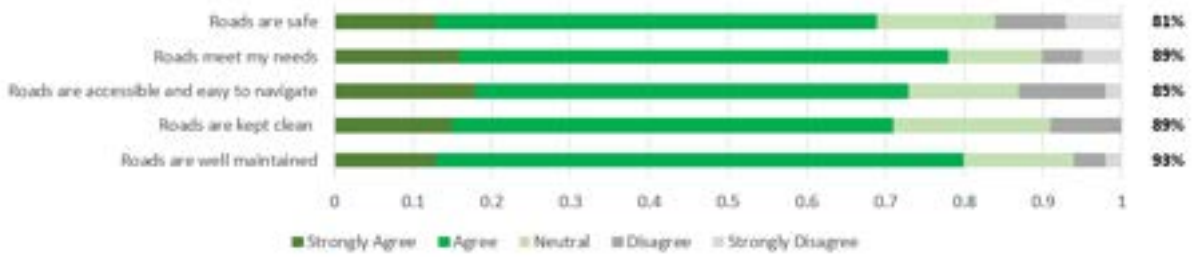
Where respondents stated they were not satisfied, general themes of the written feedback received included:

- There are currently not enough dedicated cycling lanes
- The cycling network is not well connected and often bike lanes end without warning
- Cycling lanes are often obstructed by trade and delivery vehicles
- Cycling lanes feel too close to parked cars
- There is a nervousness to cycle on roads due to the danger of cars
- Cyclists would feel safer riding in the City if there were more separated bike lanes

City Streets – Motorist User Group

Predominantly, motorists were satisfied with the overall performance of the City's roads, where each of the 5-performance measure had satisfaction indicators exceeding CoA's 70% target, as shown in Figure 3.1-8 below.

Figure 3.1-8: City Streets – Motorist User Group Results



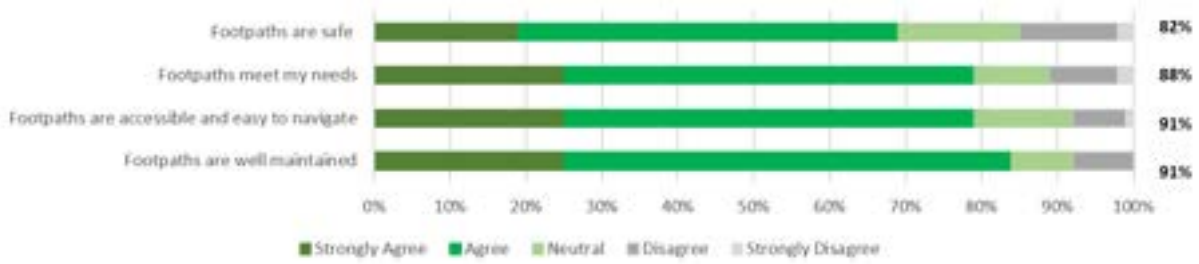
Where respondents stated they were not satisfied, general themes of the written feedback received included:

- Traffic congestion on specific main roads
- Difficultly in seeing linemarking when it rains
- Deterioration of bus lanes, particularly the Currie-Grenfell corridor (which has since been addressed through a capital works project in 2023)

Park Lands - Pedestrian User Group

Predominantly, pedestrians were satisfied with the overall performance of the Park Lands footpaths, where each of the performance measures had satisfaction indicators exceeding CoA's 70% target, as shown in Figure 3.1-9 below.

Figure 3.1-9: Park Lands - Pedestrian User Group



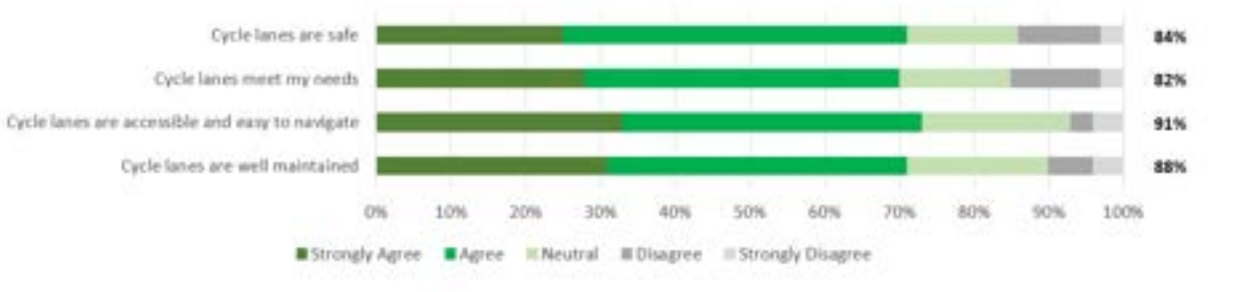
Where respondents stated they were not satisfied, general themes of the written feedback received included:

- Lighting is insufficient in certain locations leading to feeling unsafe at night
- Signage and wayfinding could be improved
- Wider shared use paths would facilitate a higher level of comfort

Park Lands - Cyclist User Group

Predominantly, cyclists were satisfied with the performance/provision of cycling infrastructure in the Park Lands, where each of the performance measures had satisfaction indicators exceeding CoA's 70% target, as shown in Figure 3.1-10 below.

Figure 3.1-10: Park Lands - Cyclist User Group



Where respondents stated they were not satisfied, general themes of the written feedback received were consistent with the pedestrian user group, which included:

- Lighting is insufficient in certain locations leading to feeling unsafe at night
- Signage and wayfinding could be improved
- Wider shared use paths would facilitate a higher level of comfort

Summary

The individual satisfaction indicators calculated for each user group have been grouped, averaged, and presented in Table 3.1 below to provide a high-level summary of the community's feedback with respect to our transport assets. Feedback was not sought for bridge, traffic signal and kerb assets as experience has shown that the community typically generalise feedback against road, footpath and cycling infrastructure, and not against these ancillary assets. Additionally, traffic signals and bridges are managed through more technical intervention levels to ensure asset risk and service continuity are effectively managed.

Table 3.1: Consultation Summary Table

Category	Average Score	Very Poor (<40%)	Poor (40-54%)	Average (55-69%)	Good (70-85%)	Excellent (>85%)
City Street Roads	87 %					●
City Street Footpaths	77 %				●	
City Street Cycle Lanes	52 %		●			
Park Lands Footpaths	88 %					●
Park Lands Cycle Paths	87 %					●

The overall feedback confirmed appropriate levels of customer satisfaction for all transport assets, with the exception of City Street Cycle Lanes. It is evident that there is a significant gap between current service provisions and the expectations of the community with respect to City Street cycling facilities. The community's view was that on-road cycling infrastructure needs to be more accessible, easier to navigate and safer, in order to better meet their needs.

It is anticipated that the completion of the Integrated Transport Strategy (currently under development) and the subsequent initiation, funding and delivery of key upgrade/new cycling infrastructure projects will over time incrementally bridge the gap between customer expectations and service provisions.

It is critical that the Transport Asset Management Plan appropriately recognises the strategic direction set by the Integrated Transport Strategy, and a key action has been included within this Asset Management Plan's Improvement Plan (Section 8.2) to ensure it is reviewed and updated where required following Council adoption of the Integrated Transport Strategy.

A Recommended Levels of Service Report was presented to Council, with the recommendations approved in June 2022. This report noted the community consultation undertaken and the associated benchmarking of current user satisfaction. Additionally, Council also approved the development of the Transport Asset Management Plan based on the planning principles and recommended management strategies presented within the report and its attachments.

3.2 Strategic Planning

Under the Local Government Act (SA) 1999, we are legislatively required to establish a suite of Strategic Management Plans, which guide Council's future planning, asset management and financial sustainability. An overview of these strategic management plans are shown below in Table 3.2-1:

Table 3.2-1: Strategic Management Documents

Strategic Plan Community	Long term with a four year delivery focus. Planning for the vision and aspirations of the Adelaide Capital City.
Long-Term Financial Plan Financial	Ten year Plan, revised annually to ensure a ten year view is maintained. Planning for the long-term financial sustainability of the City of Adelaide.
Asset Management Plans Infrastructure	Suite of ten year Plans. Planning for the sustainable renewal and maintenance of Council assets.
City Plan Development / Built Form	Ten year Spatial Plan. Planning for the future land uses and built form of the Adelaide Capital City.

Through the City of Adelaide Strategic Plan 2024-2028, Council's vision is:

Our Adelaide. Bold. Aspirational. Innovative.

Achieving our vision for the future will be guided by our long term aspirations:

Our Community: Vibrant, connected and inclusive
Our Environment: Resilient, protected and sustainable
Our Economy: Growing, innovative and responsive
Our Places: Interesting, purposeful and safe
Our Corporation: High performing, customer-centric and bold

As Adelaide grows, we will need to consider economic vitality, social connectivity and wellbeing, distinctive precincts, environmental and financial sustainability, asset management and service delivery. To ensure we maintain our liveability and to support growth, these principles will underpin everything we do:

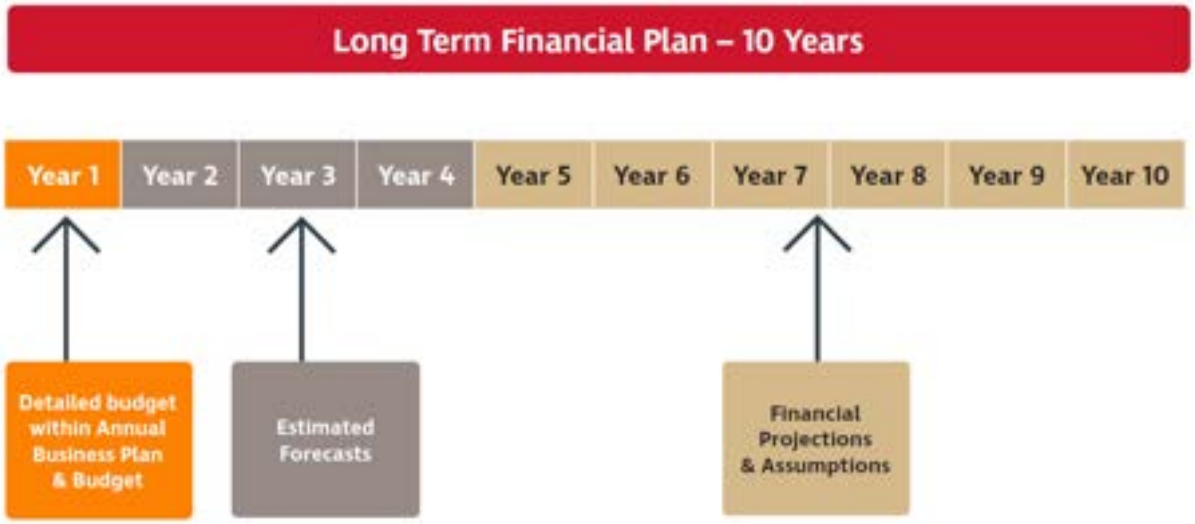
- Exceptional Amenity - Be bold and courageous in our pursuit of excellence for our city.
- Quality Housing - Strive for liveability and affordability to attract and retain residents.
- Community Connection - Strengthen connection, accessibility, diversity and inclusivity by putting people first.
- Unique Experiences - Create interesting experiences for our residents, workers and visitors.
- Climate Resilience - Embed climate resilience in all that we do.
- Economic Growth - Encourage innovation, investment and development in current and emerging sectors.
- Budget Repair - Provide quality services and ensure long-term financial sustainability

The Strategic Plan is supported by a suite of long and short-term strategies and action plans as well as a Resource Plan. The Resource Plan will provide a 4-year view of the projects, resources, and budgets required to deliver our Strategic Plan objectives. It informs the Long-Term Financial Plan (as shown in Figure 3.2) and acts as the key link between the Strategic Plan and Annual Business Plan & Budget, providing transparency between our vision and the key projects we deliver.

Integrated Delivery Planning ensures that prudent and efficient decisions are made, with line-of-sight between Council's Strategic Plan objectives and the major infrastructure projects we deliver. While this Asset Management Plan does not identify financial forecasts associated with new and upgrade projects, it does ensure required asset renewals are aligned (where practical) with key new and upgrade projects specified within the Resource Plan. Infrastructure projects will reference the Adelaide Design Manual for transformational projects supported by upgrade/new funding allocated with the Resource Plan and Long-Term Financial Plan.

Each year our annual business plan and budget formalises funding allocations to continue providing services and progress new projects. It enables existing projects to move from one delivery stage to the next (e.g. progress concept design to detailed design and detailed design to construction) as well as consider emerging risks and opportunities that may result from Council decisions, community requests or other external factors.

Figure 3.2: Long-Term Financial Plan



The relevant aspirations and objectives of the City of Adelaide 2024-2028 Strategic Plan and how they are considered within this Asset Management Plan are summarised in Table 3.2-2.

Table 3.2-2: Strategic aspirations, objectives and outcomes and how these are considered in this Plan

Aspirations	Objectives	Outcomes	Asset Management Alignment
Our Communities *Vibrant, connected and inclusive*	Support our communities thrive Create fun, lively and interesting experiences Celebrate and honour community and cultures	Drive affordable, safe and quality housing outcomes that attract and retain residents in our city An interesting and engaging place to live, learn and visit An inclusive, equitable and welcoming community where people feel a sense of belonging	• Create welcoming civic infrastructure that enables City growth and fosters community connections through the adoption of universal and sustainable design principles • Create enabling infrastructure to support world class events, festivals and activation • Support the development of new cultural and civic infrastructure • Deliver key infrastructure projects and programs outlined within the Disability Access and Inclusion Plan • Deliver asset renewal and asset maintenance programs to ensure our assets are safe for people of all ages and abilities
Our Environment *Resilient, protected and sustainable*	Protect, enhance, and activate our Park Lands and open space Be climate conscious and resilient Prioritise sustainability in our decisions for the future	Lead as a Low Carbon Emissions City A sustainable city where climate resilience is embedded in all that we do The status, attributes and character of our green spaces and the Park Lands are protected and strengthened	• Increase the use of recycled or sustainable materials • Implement sustainable, renewable and green systems, infrastructure, practices and materials in our projects and services • Adapt to climate change and enhancing our climate resilience through upgrading our existing assets and creating new assets • Ensure all asset investment (design, construct and maintenance) considers and embeds appropriate climate resilience measures • Enhance the environmental value, productivity, quality and biodiversity of the Park Lands, squares, open space and streetscapes • Protect and restore native habitat in our city • Increase in tree canopy cover and green spaces
Our Economy *Growing, innovative and responsive*	Continue to grow our economy in alignment with the Community Support existing businesses to be agile and responsive to change Create strong skilled workforces	Adelaide's unique experiences and opportunities attract visitors to our city Achieve a critical mass of jobs and investment and attract and retain businesses by growing a dynamic, holistic economy Council is driving development opportunities for our community via diverse commercial activities	• Deliver infrastructure upgrade projects to attract increased visitation into the City and promote business development and economic growth • Explore project partnership opportunities with State Government, developers and other third-parties
Our Places *Interesting, purposeful and safe*	Manage assets to meet the needs of our community Encourage bold, interesting and purposeful development Facilitate and activate our places in a safe and accessible way for our community	Community assets are adaptable and responsibly maintained Encourage bold, interesting and purposeful development that supports the changing needs of our community and city Create safe, inclusive and healthy places for our community	• Deliver asset renewal and asset maintenance programs to ensure our assets are safe for people of all ages and abilities • Ongoing review of asset management strategies and technical standards to optimise whole-of-life costs • Continue to undertake regular condition audits and revaluation for all our transport assets within the nominated 4-year cycles, including regular review of asset useful lives • Deliver quality street and laneway upgrades, main streets, precincts and neighbourhood revitalisation and improvements that make Adelaide well-designed, safe and unique • Support the creation of multi-use green spaces such as open space, community gardens and pocket parks that enable shared use and community connection • Deliver Park Land and Streetscape improvements to cater for emerging community needs • Improve accessibility and connectivity for pedestrians, cyclists, and public transport users through delivering key projects from the integrated transport strategy (under development) • Preserve and promote heritage assets • Maintain and improve disability access and inclusion

3.3 Legislative Requirements

There are many legislative requirements relating to the management of infrastructure assets including Australian Legislation, State Legislation and State Regulations. Legislative requirements relevant to the Transport Asset Management Plan are outlined in Table 3.3.

Table 3.3: Legislative Requirements

Legislation	Requirement
Aboriginal Heritage Act 1988	An Act to provide for the protection and preservation of the Aboriginal heritage
Adelaide Park Lands Act 2005	An Act and Framework that promotes the special status, attributes, and character of the Adelaide Park Lands; to provide for the protection of those Park Lands and their management as a world class asset to be preserved as an urban park for the benefit of present and future generations
Australian Accounting Standards	Standards that set out the financial reporting standards relating to the revaluation and depreciation of assets
Australian Standards	All of Council's infrastructure projects are undertaken in accordance with Australian Standards, or in the absence of, best practice guidelines
Australian Road Rules 1999	The Australian Road Rules have been made into regulations under the Road Traffic Act (South Australia) and came into operation throughout Australia on 1 December 1999
City of Adelaide Act 1998	An Act to establish mechanisms to enhance the role of the city of Adelaide as the capital city of South Australia; to make special provision in relation to the local governance of the city of Adelaide; and for other purposes
Civil Liability Act 1936	An Act to outline liability of road authorities under Section 42
Code of Technical Requirements (Part 2)	Outlines the design and construction parameters to which traffic management devices must comply.
Development Act 1993	An Act to provide for planning and regulate development in the state; to regulate the use of management of land and building; and for other purposes
Disability Discrimination Act 1992	An Act to provide protection for everyone in Australia 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 the economy that flow from participation by the widest range of people
Environmental Protection Act 1993	An Act to provide for the protection of the environment: to establish the Environmental Protection Authority and define functions and powers and for other purposes

Highways Act 1926	An Act to provide for the appointment of a Commissioner of Highways and to make further and better provisions for the construction and maintenance of roads and works and for other purposes
Linear Parks Act 2006	An Act to provide the protection of the River Torrens Linear Park, as world-class assets to be preserved as public parks for the benefit of present and future generations
Local Government Act 1999	An Act to set out the role, purpose, responsibilities, and powers of local governments including the preparation of a Long-Term Financial Plan supported by asset management plans for sustainable service delivery
Roads (Opening and Closing) Act 1991	An Act to provide for the opening and closing of roads and allows for formalisation of roadway status
Road Traffic Act 1961	An Act to prescribe the duties of road users; to provide for nationally consistent road rules; to provide for vehicle standards, mass, and loading requirements; to provide for the installation, use, and maintenance of traffic control devices; to provide for the closing of roads for traffic management and other purposes
State Records Act 1997	An Act to ensure Local Government's record and store all relevant information as set out by the State Government of South Australia
Work Health and Safety Act 2012	Provides minimum standards for health and safety of individuals performing works

3.4 Customer Levels of Service

Customer Levels of Service measure how the community receives a service and whether the organisation is providing community value. Levels of service are monitored and adjusted from the public consultation process, customer satisfaction surveys and customer service centre feedback.

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

In Tables 3.4 under each of the service measures types (Quality, Function, Capacity) 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 3.4.a-b: Customer Level of Service Measures (Roads, includes Kerb and Watertable)

Type of Measure	Level of Service	Performance Measure	Current Performance	Expected Trend Based on Current Budget
Quality	Condition - Roads are free from hazards and are in a condition appropriate for use	Customer service requests relating to reported road hazards	2022 - 105 requests Past 4 years – average 124/year	Customer service requests are expected to increase as the road network deteriorates
		Customer service requests relating to reported kerbing defects	2022 - 18 requests Past 4 years – average 14/year	Customer service requests are expected to increase as the kerb network deteriorates
		Customer satisfaction rating from survey results relating to road maintenance	Cyclists - 67% Motorists – 93%	Customer satisfaction ratings are expected to decrease as the road network deteriorates
	Confidence levels		**Medium**	**Medium**
	Amenity - Roads are clean and free of debris and rubbish	Customer service requests relating to reported road cleanliness issues	2022 - 165 requests Past 4 years – average 163/year	Customer service requests are expected to stay the same
		Customer satisfaction survey results relating to road cleanliness	Cyclists - 76% Motorists - 89%	Customer satisfaction ratings are expected to stay the same
	Confidence levels		**Medium**	**Medium**
Function	Accessibility - Road network is well connected and accessible allowing for efficient movements	Customer satisfaction surveys relating to road accessibility	Cyclists – 49% Motorists – 85%	Subject to Council adoption of upgrade/new projects through Business Plan and Budget
	Confidence levels		**Medium**	**Medium**
	Fit for Purpose - Road network provides adequate facilities to enable multi-modal transport options (buses, cyclists)	Customer service requests relating to unsatisfactory on-road cycling facilities	2022 - 27 requests Past 4 Years – average 23/year	Subject to Council adoption of upgrade/new projects through Business Plan and Budget
		Customer satisfaction surveys relating to road infrastructure meeting user needs	Cyclists – 37% Motorists – 89%	Subject to Council adoption of upgrade/new projects through Business Plan and Budget
	Confidence levels		**Medium**	**Medium**
	Safety – Road network accommodates safe movements of vehicles and cyclists	Number of incidents and casualties reported in road crash data within City of Adelaide (Casualties: treated injuries and fatalities)	2022 – 549 incidents (182 casualties) Past 4 Years - average 607incidents /year (average 230.25 casualties/year)	Subject to Council adoption of upgrade/new projects through Business Plan and Budget
		Customer satisfaction surveys relating to road safety	Cyclists – 31% Motorists –81%	Subject to Council adoption of upgrade/new projects through Business Plan and Budget
	Confidence levels		**Medium**	**Medium**
Capacity	Capacity – Roads network has adequate capacity to minimise traffic congestion and delays	Customer service requests relating to congestion and delays.	2022 - 151 requests Past 4 years – average 186/year	Subject to Council adoption of upgrade/new projects through Business Plan and Budget
	Confidence levels		**Medium**	**Medium**

Table 3.4.c: Customer Level of Service Measures (Footpaths)

Type of Measure	Level of Service	Performance Measure	Current Performance	Expected Trend Based on Current Budget
Quality	Condition – Footpaths are free from hazards and are in a condition appropriate for use	Customer service requests relating to reported footpath and cycle path hazards	2022 – 164 requests Past 4 years – average 181/year	Customer service requests are expected to increase as the footpath network deteriorates
		Customer satisfaction survey results relating to footpath and cycle path maintenance	Pedestrians – 81% * Cyclists – 88% ^	Customer satisfaction ratings are expected to decrease as the footpath network deteriorates
	Confidence levels		**Medium**	**Medium**
	Amenity - Footpaths are clean and free of debris and rubbish	Customer service requests relating to reported footpath cleanliness	2022 – 181 requests Past 4 years – average 265/year	Customer service requests are expected to stay the same
		Customer satisfaction survey results relating to footpath cleanliness	Pedestrians - 76%	Customer satisfaction ratings are expected to stay the same
	Confidence levels		**Medium**	**Medium**
Function	Accessibility - Footpath network is well connected and accessible to users allowing for efficient movements	Customer satisfaction surveys relating to footpath accessibility	Pedestrians - 86% * Cyclists – 91% ^	Subject to Council adoption of upgrade/new projects through Business Plan and Budget
	Confidence levels		**Medium**	**Medium**
	Fit for Purpose - Footpath network provides adequate facilities to enable multi-modal transport options (pedestrians, cyclists, public transport interchange)	Customer satisfaction surveys relating to footpath infrastructure meet user needs	Pedestrians – 87% * Cyclists – 82% ^	Subject to Council adoption of upgrade/new projects through Business Plan and Budget
	Confidence levels		**Medium**	**Medium**
	Safety – Footpath network accommodates safe movements of pedestrians and cyclists	Customer satisfaction surveys relating to footpath and cycle path safety	Pedestrians - 78% * Cyclists – 84% ^	Subject to Council adoption of upgrade/new projects through Business Plan and Budget
	Confidence levels		**Medium**	**Medium**
Capacity	Capacity – Footpath network has adequate capacity to minimise congestion and delays	Customer service requests relating to congestion	2022 – 12 requests Past 4 years average – 20 per year	Subject to Council adoption of upgrade/new projects through Business Plan and Budget
	Confidence levels		**Medium**	**Medium**

* Customer satisfaction index represents average scores from City Streets and Park Lands indices
^ Customer satisfaction index represents scores from Park Lands only

Table 3.4.d: Customer Level of Service Measures (Bridges)

Type of Measure	Level of Service	Performance Measure	Current Performance	Expected Trend Based on Current Budget
Quality	Condition - Bridges are free from hazards and are in a condition appropriate for use	Customer service requests relating to reported bridge hazards and maintenance	2022 - 3 requests Past 4 years – average 6/year	Customer service requests are expected to increase as the bridge network deteriorates
	Confidence levels		**Medium**	**Medium**
	Amenity - Bridges are clean and free of debris, rubbish, and graffiti	Customer service requests relating to reported bridge cleanliness issues, including graffiti	2022 - 34 requests Past 4 years – average 20/year	Customer service requests are expected to remain the same
	Confidence levels		**Medium**	**Medium**
Function	Accessibility - Bridge network enables access to provide for efficient movements	Customer service requests relating to bridge accessibility	2022 - 0 requests Past 4 years – average 3/year	Subject to Council adoption of upgrade/new projects through Business Plan and Budget
	Confidence levels		**Medium**	**Medium**
	Safety – Bridge network accommodates safe movements of vehicles and cyclists	Customer service requests relating to reported bridge safety incidents	2022 - 0 requests Past 4 years – average 1/year	Subject to Council adoption of upgrade/new projects through Business Plan and Budget
	Confidence levels		**Medium**	**Medium**
Capacity	Structural Capacity – Bridge assets have adequate load capacity to cater for demand	Customer service requests relating to incompatible loadings with signed load limits	2022 - 2 requests Past 4 years – average 2/year	Customer service requests are expected to remain the same
	Confidence levels		**Medium**	**Medium**

Table 3.4.e: Customer Level of Service Measures (Traffic Signals)

Type of Measure	Level of Service	Performance Measure	Current Performance	Expected Trend Based on Current Budget
Quality	Condition – Traffic Signals are operational and are in a condition appropriate for use	Customer service requests relating to traffic signal faults and maintenance issue	2022 – 55 requests Past 4 years average - 54/year	Customer service requests are expected to increase as the traffic signal network deteriorates
	Confidence levels		**Medium**	**Medium**
Function	Fit for Purpose – Signalised Intersections have the functionality to enable efficient movements for all modes of transport (e.g. pedestrians, cyclists, public transport, private vehicles)	Customer service requests relating to signal optimisation and timing/sequencings issues	2022 – 59 requests Past 4 years average - 21/year	Expected to gradually decrease over time as system optimisation improvements are implemented
		Percentage of signalised intersection connected to SCATS Network, to enable optimised sequencing based off demand	94%	Subject to Council adoption of upgrade/new projects through Business Plan and Budget
	Confidence levels		**High**	**High**
Capacity	Capacity – Appropriate number of signalised intersection/crossing sites to meet demand	Customer service requests relating to new signalised intersection and crossing locations	2022 – 8 requests Previous 4 years average – 2/year	Subject to Council adoption of upgrade/new projects through Business Plan and Budget
	Confidence levels		**Medium**	**Medium**

3.5 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 stormwater pipe 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, stormwater pipe replacement and building component replacement)
- **Disposal** – the activities to remove and/or dispose of an asset that may be considered as underperforming, underutilised or obsolete

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

Table 3.5 shows the activities expected to be provided under the current 10 year Planned Budget allocation, and the Forecast activity requirements being recommended in this Asset Management Plan.

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.

Table 3.5.a-b: Technical Levels of Service (Roads, includes Kerb and Watertable)

Lifecycle Category	Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance	Recommended Performance
Acquisition (upgrade/new)	Upgrade / New Projects	To upgrade and further develop the road network to ensure it safe, fit-for-purpose and meets the needs of the community	Delivery of key upgrade/new projects	Upgrade/new projects aligned to Strategic Plan objectives are initiated through the Business Plan and Budget process on an annual basis, where projects are evaluated and prioritised based on strategic alignment and financial capacity.	Upgrade/new projects aligned to Strategic Plan objectives are informed by City Plan, with financial requirements accommodated into the Long-Term Financial Plan. Initiatives are confirmed to proceed annually through the Business Plan and budget process.
			Budget:	As adopted annually in BP&B	To be developed
Operation	Condition Audits	To collect asset condition data to inform capital renewal planning and revaluation	Frequency of full condition audit of road network	Every 4 years	Every 4 years
	Street Sweeping	To ensure roads are clean and free of debris	Street sweeping frequency	Category 1 – Swept Daily Category 2 – Swept Weekly Category 3 – As required based on inspection	To be reviewed with planned updates to operations and maintenance standards
	Line Marking Reapplication	To ensure road markings are visible and enable safe travel movements	Completion of line marking reapplication works	Line marking works are completed following performance-based inspections	To be reviewed with planned updates to operations and maintenance standards
			Budget	Condition Audits –$300,000 (every 4 years) Street Sweeping – $980,000 Line Marking – $530,000	To be reviewed with planned updates to operations and maintenance standards
Maintenance	Maintenance Audits	To ensure road defects are proactively identified and prioritised	Frequency of road network maintenance audits	Category 1 – 6 Monthly Category 2 – 12 Monthly Category 3 – 18 Monthly	To be reviewed with planned updates to operations and maintenance standards
	Maintenance Activities	To ensure roads are maintained in a serviceable condition free of hazards	Completion of planned and reactive maintenance	Maintenance works are delivered based on priority (location and severity) with consideration of available budget	To be reviewed with planned updates to operations and maintenance standards
			Budget	Road Maintenance - $1,040,000 Kerb Maintenance - $465,000	To be reviewed with planned updates to operations and maintenance standards
Renewal	Renewal Projects	To ensure assets are renewed, providing service in line with community expectations at lowest lifecycle costs	% road and kerb assets in condition 4 & 5	Condition 4 - 7% Condition 5 - 0%	Condition 4 – less than 5% Condition 5 – 0%
			Asset renewal funding ratio	90% (existing Asset Management Plan)	100% (assuming budget is adopted)
			Budget	Roads - $5,850,000 Kerb -$1,846,000	Roads - $9,500,000 (10 Year Average) Kerb - $3,078,500 (10 Year Average)
Disposal	Disposals Projects	To ensure that assets that may be underperforming, underutilised or obsolete are removed from service.	Disposal of assets	Major assets are recommended for disposal through Council decision, with financial requirements identified and incorporated through the Business Plan and Budget	Major assets are recommended for disposal through Council decision, with financial requirements identified and incorporated through the Business Plan and Budget
			Budget	As adopted annually in BP&B	As adopted annually in BP&B

Table 3.5.c: Technical Levels of Service (Footpaths)

Lifecycle Category	Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance	Recommended Performance
Acquisition (upgrade/new)	Upgrade / New Projects	To upgrade and further develop the footpath and cycleway network to ensure it safe, fit-for-purpose and meets the needs of the community	Delivery of key upgrade/new projects	Upgrade/new projects aligned to Strategic Plan objectives are initiated through the Business Plan and Budget process on an annual basis, where projects are evaluated and prioritised based on strategic alignment and financial capacity.	Upgrade/new projects aligned to Strategic Plan objectives are informed by City Plan, with financial requirements accommodated into the Long-Term Financial Plan. Initiatives are confirmed to proceed annually through the Business Plan and budget process.
			Budget:	As adopted annually in BP&B	To be developed
Operation	Condition Audits	To collect asset condition data to inform capital renewal planning and revaluation	Condition audit frequency of entire footpath network	Every 4 years	Every 4 years
	Footpath Sweeping	To ensure footpaths are clean and free of debris	Footpath sweeping frequency	Category 1 – Swept Daily Category 2 - Swept Weekly Category 3 – Informed by daily inspections	To be reviewed with planned updates to operations and maintenance standards
	Footpath Scrubbing	To ensure footpaths are clean and free of debris	Footpath scrubbing frequency	Category 1 - Scrubbed daily Category 2 – Scrubbed twice a week Category 3 – Scrubbed once a week Category 4 – Scrubbed once a fortnight Category 5 – Informed by daily inspections	To be reviewed with planned updates to operations and maintenance standards
			Budget	Condition Audits – $150k (every 4 years) Footpath Scrubbing - $480,000 Footpath Sweeping - $980,000	To be reviewed with planned updates to operations and maintenance standards
Maintenance	Maintenance Audits	To ensure footpath defects and line marking requirements are proactively identified and prioritised.	Frequency of footpath network maintenance audits	Category 1 – 6 Monthly Category 2 – 12 Monthly Category 3 – 18 Monthly	To be reviewed with planned updates to operations and maintenance standards
	Maintenance Activities	To ensure footpaths are maintained in a serviceable condition free of hazards	Completion of planned and reactive maintenance	Maintenance works are delivered based on priority (location and severity) with consideration of available budget	To be reviewed with planned updates to operations and maintenance standards
			Budget	Footpath Maintenance - $1,640,000	To be reviewed with planned updates to operations and maintenance standards
Renewal	Renewal Projects	To ensure assets are renewed, providing service in line with community expectations at lowest lifecycle costs	% paths in condition 4 & 5	Condition 4 - 1 % Condition 5 - 0 %	Condition 4 – less than 5% Condition 5 - 0 %
			Asset renewal funding ratio	90% (existing Asset Management Plan)	100% (assuming budget is adopted)
			Budget	$5,174,000	$9,850,000 (10 Year Average)
Disposal	Disposals Projects	To ensure that assets that may be underperforming, underutilised or obsolete are removed from service.	Disposal of assets	Major assets are recommended for disposal through Council decision, with financial requirements identified and incorporated through the Business Plan and Budget	Major assets are recommended for disposal through Council decision, with financial requirements identified and incorporated through the Business Plan and Budget
			Budget	As adopted annually in BP&B	As adopted annually in BP&B

Table 3.5.d: Technical Levels of Service (Bridges)

Lifecycle Category	Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance	Recommended Performance
Acquisition (upgrade/new)	Upgrade / New Projects	To upgrade and further develop the bridge network to ensure it safe, fit-for-purpose and meets the needs of the community	Delivery of key upgrade/new projects	Upgrade/new projects aligned to Strategic Plan objectives are initiated through the Business Plan and Budget process on an annual basis, where projects are evaluated and prioritised based on strategic alignment and financial capacity.	Upgrade/new projects aligned to Strategic Plan objectives are informed by City Plan, with financial requirements accommodated into the Long-Term Financial Plan. Initiatives are confirmed to proceed annually through the Business Plan and budget process.
			Budget:	As adopted annually in BP&B	To be developed
Operation	Condition Audits	To collect asset condition data to inform capital renewal planning and revaluation	Condition audit frequency of all bridges	Level 2 Inspection: - Every 4 years Level 1 Inspection – Every Year Increased frequency for assets approaching end of serviceable life	Level 2 Inspection: - Every 4 years Level 1 Inspection – Every Year Increased frequency for assets approaching end of serviceable life
			Budget	Condition Audits – $250,000 (every 4 years)	Condition Audits – $250,000 (every 4 years)
Maintenance	Maintenance Audits	To ensure bridge defects are proactively identified and prioritised	% of bridge network audited on an annual basis	100%	100%
	Maintenance Activities	To ensure bridges are maintained in a serviceable condition free of hazards	Completion of planned and reactive maintenance	Maintenance works are delivered based on recommendations from engineering inspections	Maintenance works are delivered based on recommendations from engineering inspections
			Budget	$230k	Determined on an annual basis
Renewal	Renewal Projects	To ensure assets are renewed, providing service in line with community expectations at lowest lifecycle costs	% of bridges in condition 4 & 5	Condition 4 - 30% Condition 5 - 0 %	Condition 4 – 0% Condition 5 – 0%
			Asset renewal funding ratio	90% (existing Asset Management Plan)	100% (assuming budget is adopted)
			Budget	$2,159,000	$7,262,000 (10 Year Average)
Disposal	Disposals Projects	To ensure that assets that may be underperforming, underutilised or obsolete are removed from service.	Disposal of assets	Major assets are recommended for disposal through Council decision, with financial requirements identified and incorporated through the Business Plan and Budget	Major assets are recommended for disposal through Council decision, with financial requirements identified and incorporated through the Business Plan and Budget
			Budget	As adopted annually in BP&B	As adopted annually in BP&B

Table 3.5.e: Technical Levels of Service (Traffic Signals)

Lifecycle Category	Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance	Recommended Performance
Acquisition (upgrade/new)	Upgrade / New Projects	To upgrade and further develop the traffic signal network to ensure it safe, fit-for-purpose and meets the needs of the community	Delivery of key upgrade/new projects	Upgrade/new projects aligned to Strategic Plan objectives are initiated through the Business Plan and Budget process on an annual basis, where projects are evaluated and prioritised based on strategic alignment and financial capacity.	Upgrade/new projects aligned to Strategic Plan objectives are informed by City Plan, with financial requirements accommodated into the Long-Term Financial Plan. Initiatives are confirmed to proceed annually through the Business Plan and budget process.
			Budget:	As adopted annually in BP&B	To be developed
Operation	Condition Audits	To collect asset condition data to inform capital renewal planning and revaluation	Full condition audit of traffic signal network	Every 4 years	Every 4 years
	SCATS Management Service	Ongoing management service with DIT to manage traffic signals operations through SCATS	Managed service is provided by DIT in accordance with agreement.	Managed service is provided by DIT in accordance with agreement.	Managed service is provided by DIT in accordance with agreement.
	Power Supply	Utility costs associated with providing power to operate signalised intersections	Ongoing power supply to operate traffic signals	Ongoing power supply to operate traffic signals	Ongoing power supply to operate traffic signals
			Budget	Condition Audits: $250,000/4yrs SCATS Fee: $422,000/Year Power Supply : $104,000/Year	Condition Audits: $250,000/4yrs SCATS Fee: $422,000/Year Power Supply : $104,000/Year
Maintenance	Maintenance Audits	To ensure Traffic Signal Network defects are proactively identified prior to faults occurring.	Maintenance inspections of traffic signal network	Each site inspected every 6 months	To be reviewed with planned updates to operations and maintenance standards
	Maintenance Activities	To ensure traffic signals are maintained in a serviceable condition free of hazards to enable reliable and ongoing service provision	Planned and reactive maintenance works are complete within contracted KPI timeframes	Priority 1 – make safe within 1 hour Priority 2 – rectify within 1 working day Priority 3a – rectify within 5 working days Priority 3b – rectify within 10 working days	To be reviewed with planned updates to operations and maintenance standards
			Budget	$496,000	To be reviewed with planned updates to operations and maintenance standards
Renewal	Renewal Projects	To ensure assets are renewed, providing service in line with community expectations at lowest lifecycle costs	% of traffic signal network in condition 5	22%	Less than 5 %
			Asset renewal funding ratio	90% (existing Asset Management Plan)	100% (assuming budget is adopted)
			Budget	$2,255,000	*$3,860,00 (10 Year Average)*
Disposal	Disposals Projects	To ensure that assets that may be underperforming, underutilised or obsolete are removed from service.	Disposal of assets	Major assets are recommended for disposal through Council decision, with financial requirements identified and incorporated through the Business Plan and Budget	Major assets are recommended for disposal through Council decision, with financial requirements identified and incorporated through the Business Plan and Budget
			Budget	As adopted annually in BP&B	As adopted annually in BP&B

4.0 FUTURE DEMAND

4.1 Demand Drivers

The drivers affecting demand on assets include population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, and environmental impacts.

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 also include non-asset solutions with a focus on providing the required service without the need for the organisation to invest in new or upgraded infrastructure. Management actions could include reducing the demand for the service or educating users around alternative options. It is important to ensure that these strategies consider the associated risks and consequences.

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
City Growth	2021 Statistics: Residents - 25,551 Businesses – 11,519 Daily Visitors – 321,500	2041 Forecast: 46,000 residents 2036 Target: 50,000 residents Anticipated ongoing business growth in line with residential city growth and South Australian State growth projections Anticipated daily visitor growth in line with South Australian State growth projections	City growth will place increasing demands on transport infrastructure, with growing volumes of pedestrians, motorists, cyclists, and public transport users using the network to get into and around the City. This will result in increased level of service expectations as well as competing demands for the services provided by our transport assets (e.g. off street parking, pedestrian, cycling and public transport infrastructure).	Delivery of prioritised upgrade/new projects identified in the Strategic Plan and key Corporate planning documents (referenced in Section 2.1) to enhance the transport network and accommodate city growth through upgrading existing assets and creating new assets to align service provision with the evolving needs of the community. This Asset Management Plan will ensure asset renewals will consider and align where practical with these key upgrade/new initiatives.
Changing Demographic	2021 Statistics 0 to 11 Years 1,246 (5%) 12 to 17 Years 587 (2%) 18 to 34 Years 12,117 (51%) 35 to 49 Years 4,409 (19%) 50 to 59 Years 2,281 (10%) 60 to 69 Years 2,233 (10%) 70 Years & Above 2,633 (3%)	2041 Forecast 0 to 11 Years 2,633 (6%) 12 to 17 Years 1,501 (3%) 18 to 34 Years 21,771 (47%) 35 to 49 Years 8,933 (19%) 50 to 59 Years 4,272 (9%) 60 to 69 Years 3,274 (7%) 70 Years & Above 4,175 (9%)	Changing expectations from a culturally and demographically diverse customer base will result in our transport network being subject to new demands. This will result in competing demands for the services provided by our transport assets (e.g. parking, cycling, public transport) and with a forecast aging population, there will be increasing demands for higher levels of service to ensure transport infrastructure is safe, accessible and well connected for people of all ages and abilities.	Ongoing engagement with city users through annual City User Profile surveys, and ensuring that Strategic Documents are updated on a cyclic basis to reflect changes with community expectations. Delivery of prioritised upgrade/new projects identified in the Strategic Plan and key Corporate planning documents (referenced in Section 2.1) to align service provision with the evolving needs of the community. This Asset Management Plan will ensure asset renewals will consider and align where practical with these key upgrade/new initiatives.
Tourism & Event Growth	A key objective in Council's 2023-24 Business Plan and Budget was to provide 'year round' events that attract people to visit the City. Investment in public infrastructure has also been identified as part of the South Australian Tourism Plan (2020) and the SA Visitor Economy Sector Plan 2030. In 2020 annual tourism expenditure in Adelaide was estimated to be approximately $3.9 billion	Cultural and event infrastructure will be an ongoing and increasing priority for both the City of Adelaide and South Australian State Government. It is projected that annual tourism expenditure will continue to grow and it is estimated to be $7.7 billion/year by 2030.	Increasing demands on transport infrastructure to facilitate tourism and event growth by supporting new cultural, civic and event infrastructure in the City and connecting city users to place through curated city experiences.	Delivery of prioritised upgrade/new projects identified in the Strategic Plan and key Corporate planning documents (referenced in Section 2.1) to support tourism and event growth. This Asset Management Plan will ensure asset renewals will be consider and align where practical with these key upgrade/new initiatives.

Demand driver	Current position	Projection	Impact on services	Demand Management Plan
Environmental Sustainability & Carbon Neutrality	Changes to the global climate (climate change) are clear. There are documented increases in the average air and ocean temperature, widespread melting of snow and ice, and rising average sea levels. City of Adelaide's 2020-2024 Strategic Plan has an objective to become one of the world's first carbon neutral cities by 2025. Additionally, a Climate Action Plan (2022-2025) has been developed to ensure we continue to drive down our carbon footprint and mitigate climate impacts for our residents and visitors. Currently City of Adelaide include recycled materials in transport projects, where there is demonstrated environmental benefits that also consider cost and performance.	Inaction to climate change and climate risk will result in negative health impacts to our community and potentially impact to our businesses and economy. Reduced water availability and increasing heat will result in increased stress and resources required for maintaining and operating our assets. To effectively manage climate change and climate risk Council will need to continue to respond through substantial reductions in greenhouse gases (mitigation controls) and helping to prepare for and respond to the changing climate (adaptation controls).	There will be an increased demand to ensure we utilise more environmentally sustainable materials and construction techniques for transport projects, with lower carbon footprint and improved circular economy outcomes. Additionally, there will also be increasing community demand for improved public transport services and cycling infrastructure to support active modes of transport with reduced carbon emissions. The increasing uptake in electric vehicle usage for both public transport and private commuter vehicles, will place additional demand on the structural capacity of our pavements and bridges, due to increased vehicle loadings associated with more substantial battery mass.	Our Strategic Planning, Asset Management and Project Delivery (including design and procurement) will continue to focus on ensuring that climate risk mitigation and adaption is a key focus. Ongoing reviews and updates to our design standards and technical specifications to ensure our assets transition towards having a lower carbon footprint with improved circular economy outcomes, as well as ensure they are more resilient to withstand extreme weather events. Delivery of prioritised upgrade/new projects identified in the Strategic Plan and key corporate planning documents (referenced in Section 2.1), which support environmental sustainability and climate risk mitigation and adaptation. This Asset Management Plan will ensure asset renewals will consider and align where practical with these key upgrade/new initiatives.
Emerging Technology	Asset construction techniques and associated materials are currently undertaken in line with industry standards	Alternative construction techniques and materials with durability and sustainability benefits will continue to become more readily available and standardised.	Improvements in construction techniques and materials could result in improved asset durability, increased asset lifespans, reduced whole-of-life costs and improved environmental outcomes.	Continue to partner with industry, to monitor and evaluate new and emerging technologies, with trials of new materials, approaches, and methodologies to inform appropriate changes to standards and practices.
	Asset management systems and condition audit methodologies are in line with industry standards and best practice.	Asset management systems and technology will continue to evolve over time, particularly with respect to the collection of condition data and monitoring of asset deterioration over time.	Improved asset information and systems will enable improved decision making and efficiencies with respect to optimising whole-of-life-costs and managing asset risks.	
	Intelligent transport systems are currently used to control traffic signals and manage traffic flow to enhance the efficiency of our transport network.	Intelligent transport systems are continually being developed and enhanced. It is anticipated they will provide further opportunities to optimise communications and connections between transport and people through artificial intelligence, smart technologies, mobility solutions and driverless vehicles.	Enhancements to intelligent transport systems will introduce efficiencies into the transport network, and potentially result in new and enhanced services being provided through emerging technologies.	
Legislation & Regulation	Legislation exists which outlines requirements for how Council's must manage infrastructure assets.	There is potential for future changes to legislation will influence how Council's infrastructure is managed.	New legislation may impose or require changes to asset management planning principles and activities. They may include requirements that have a financial and/or service level impact that must be met.	Continue to monitor changes to legislation and ensure appropriate adaptation into asset management practices. Any material impacts would be considered as part of the Annual Business Plan and Budget process and included in the next revision of the Asset Management Plan.

4.4 Asset Programs to meet Demand

The new assets required to meet demand will be acquired, donated or constructed. Additional assets are discussed in Section 5.5.

Acquiring new assets will commit City of Adelaide 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.

All upgrade/new projects responding to demand will involve developing business cases, cost estimates and facilitating decision making to integrate upgrade/new project initiatives with operational asset management planning and the Long-Term Financial Plan. This process will be facilitated with Council and the Community through the Annual Business Plan & Budget Process.

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. 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

Table 4.5 Managing the Impact of Climate Change on Transport Assets and Services

Climate Change Description	Projected Change	Potential Impact on Assets and Services	Management
Increasing temperatures and more frequent, long-running and intense heatwaves	The number of days over 40°C to double by 2050 Average temperatures to increase across all seasons by between 1.5°C and 2°C by 2050	Increased heat related damage to assets including bitumen softening, accelerated asphalt oxidisation and concrete cracking. Reduced lifespan of transport assets Increased costs to provide the same level of service Premature obsolescence as functionality is not met	Strategic Planning, Asset Management and Project Delivery (including design and procurement) will continue to focus on ensuring that climate risk mitigation and adaption is a key focus. Mitigation and adaptation measures will include: • Ongoing reviews and updates to our design standards and technical specifications to ensure our assets transition towards having a lower carbon footprint with improved circular economy outcomes as well as ensure they are more resilient to withstand extreme heat events • Proactively reviewing our asset management strategies with respect to the impacts of climate change, to ensure we continue to provide the agreed level of service at the lowest lifecycle cost • Reducing the impacts of heat through increasing canopy cover and providing additional rest and refuge areas for the community
Less rain overall but more intense storms and flooding	Average annual rainfall to decrease by 7% by 2050 Intensity of heavy rainfall events to increase by at least 10% by 2050	Increased stormwater related damage to assets including earth, rubble and concrete erosion resulting in a loss of structural integrity/strength Reduced lifespan of transport assets Increased costs to provide the same level of service Premature obsolescence as functionality is not met (e.g. bridge inundated by open channel flows)	Strategic Planning, Asset Management and Project Delivery (including design and procurement) will continue to focus on ensuring that climate risk mitigation and adaption is a key focus. Mitigation and adaptation measures will consider: • Ongoing reviews and updates to our design standards and technical specifications to ensure our assets transition towards having a lower carbon footprint with improved circular economy outcomes as well as ensure they are more resilient to increased flood risk and inundation • Proactively reviewing our asset management strategies with respect to the impacts of climate change, to ensure we continue to provide the agreed level of service at the lowest lifecycle cost • Developing stormwater management plans to identify assets at risk and priority mitigation controls such as upgrading existing underground assets and creating new assets such as wetlands and detention basins to increase water storage capacity • Continue to explore new sustainable water supply opportunities to irrigate and maintain amenity for our streetscapes and Park Lands

The impact of climate change on assets is a new and complex discussion and further impacts and management strategies will considered and developed in future revisions of this Asset Management Plan. It is recommended to continue monitoring the impacts of climate conditions and associated cost implications as further investigation is undertaken and more data becomes available. This is included as a key action within this Asset Management Plans Improvement Plan.

5.0 LIFECYCLE MANAGEMENT PLAN

5.1 Lifecycle Management Overview

In order to effectively manage our assets, it is important to understand the relationship between all stages of the asset lifecycle. Effective asset management and sustainable financial planning requires a balance between the maintenance, renewal and disposal of existing assets and the delivery of new and upgraded assets.

Our goal is to provide assets that service the needs of the community, providing the agreed levels of service at the lowest lifecycle cost. To enable this, it is important to understand:

- How our assets are performing
- How our assets should be operated and maintained
- When our assets should be renewed
- When we should consider upgrading existing assets or constructing new assets
- How funding for new and upgraded assets is prioritised
- When we should consider disposing underperforming or underutilised assets

An overview of the asset lifecycle is shown in Figure 5.1 below:

Figure 5.1: Asset Lifecycle Overview

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

5.2 Background Data

5.2.1 Physical parameters

The assets covered by this Asset Management Plan are shown in Table 5.2.1 and all figure values are shown in current day dollars.

Table 5.2.1: Assets Covered by this Plan

Asset Class	Quantity/Dimension	Replacement Value
Roads	129 kilometres	$296.5 million
Kerb and Watertable	292 kilometres	$119.7 million
Bridges	37 sites	$178.4 million
Footpaths	292 kilometres	$486.4 million
Traffic Signals	138 sites	$59.4 million
Total		$1.14 billion

5.2.2 Asset capacity and performance

Assets are generally provided to meet design standards where these are available. However, there are insufficient resources to address all known deficiencies. Locations where deficiencies in service performance are known are detailed in Table 5.2.2.

Table 5.2.2: Known Service Performance Deficiencies

Asset / Location	Service Deficiency
On-Road Cycling Network	User engagement and ongoing customer service requests have identified that the City's on-road cycling infrastructure needs to be more accessible, easier to navigate and safer to meet the needs of the community.
Residential Street Footpath Functionality	There are a number of small residential streets within the City of Adelaide where footpath widths prohibit inclusive and accessible access for people of all ages and abilities. A number of these streets were built over 50 years ago and often renewal programs alone cannot address functionality deficiencies and supporting upgrade funding may be required.
Street Network Functionality and Safety	With a historic reliance on motorised vehicles to get into and around the City in conjunction with city growth, the risk to road users has increased since a number of our roads were last redeveloped (often over 50 years ago). Asset renewal programs alone will not necessarily be able to make our streets more people-friendly and achieve targets for road safety and supporting upgrade funding may be required. It is anticipated that the Citywide Speed Limit Review will identify opportunities to reduce exposure to these risks and the Integrated Transport Strategy will identify priority upgrade projects to further enhance our transport network.

Access Ramp Compliance	There are a significant number of access ramps within the City of Adelaide that are not compliant with current Australian Standards and Disability Discrimination Act requirements. These are a result of historic constructions and changes to standards over time. These sites are incrementally being addressed through CoA's footpath renewal program, access ramp renewal program and streetscape upgrade projects. In specific circumstance, supporting upgrade funding may be required to upgrade and re-configure intersections to provide access ramps and crossing points in accordance with Australia Standards.
Traffic Signal Functionality	There are a number of traffic signal sites within the City of Adelaide where opportunities to enhance safety, efficiency and reliability have been identified. These sites are incrementally being improved through CoA's renewal program and the Federal Government's Blackspot Program.
Currie-Grenfell Corridor	The Currie-Grenfell corridor serves as the City's primary bus transit link and interchange. The existing road corridor is not considered to be fit-for-purpose, due to the lack of pedestrian and interchange facilities, and overall streetscape amenity.
Adelaide Bridge	Adelaide Bridge was originally constructed in 1931 and is approaching the end of its design life, with increasing and ongoing maintenance requirements. The bridge is planned for renewal/rehabilitation within this Asset Management Plan with the existing structure currently having a 26T load limit which restricts access to heavy vehicle traffic.

5.2.3 Asset condition

Condition is measured using a 1 - 5 grading system as detailed in Table 5.2.3. It is important that a consistent approach is used in reporting asset performance enabling effective decision support. A finer grading system may be used at a more specific level, however, for reporting in the Asset Management plan results are translated to a 1 – 5 grading scale for ease of communication.

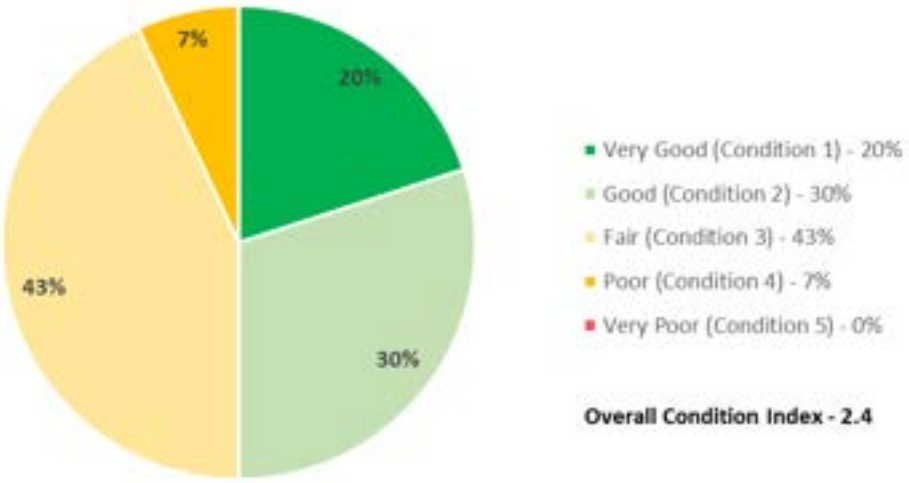
Table 5.2.3: Condition Grading System

Condition Grading	Description of Condition
1	**Very Good**: free of defects, only planned and/or routine maintenance required
2	**Good**: minor defects, increasing maintenance required plus planned maintenance
3	**Fair**: defects requiring regular and/or significant maintenance to reinstate service
4	**Poor**: significant defects, higher order cost intervention likely
5	**Very Poor**: physically unsound and/or beyond rehabilitation, immediate action required

Roads

The road network is typically condition audited every 4 years, with the most recent audit undertaken in 2019. Figure 5.2.3.a presents the predicted road network condition distribution as of September 2023. Overall, the majority of the road network is in a very good to fair condition (93%), with a small proportion of assets rated in poor condition (7%). Ongoing investment will be required to resurface and rehabilitate road assets to ensure levels of service are maintained in conjunction with minimising whole-of-life costs (i.e. prevent increased maintenance and renewal costs from not renewing assets at the appropriate time).

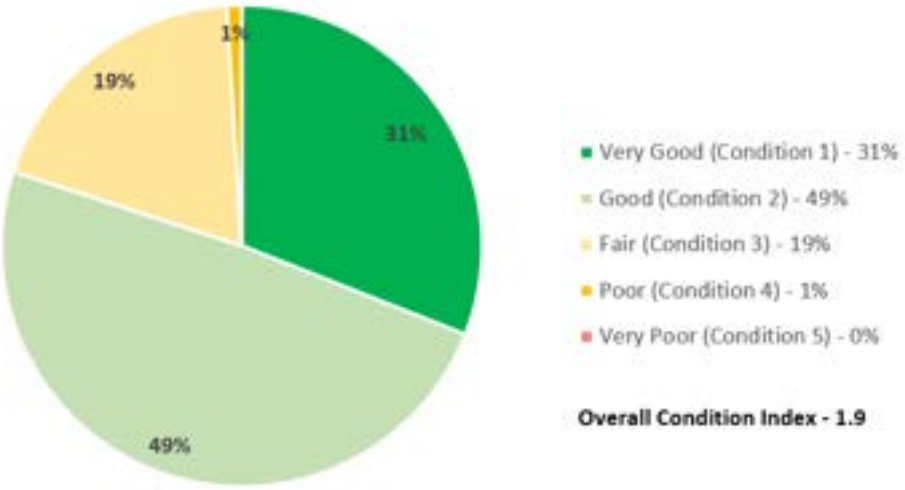
Figure 5.2.3.a: Condition Profile (Roads)



Kerb and Watertable

The kerb and watertable network is typically condition audited every 4 years, with the most recent audit undertaken in 2019. Figure 5.2.3.b presents the predicted kerb and watertable network condition distribution as of September 2023. Overall, the majority of the kerb and watertable network is rated in a very good to fair condition (99%) with only 1% of the network rated in poor condition. Ongoing renewal investment will be required to ensure sustainable management of the Kerb asset.

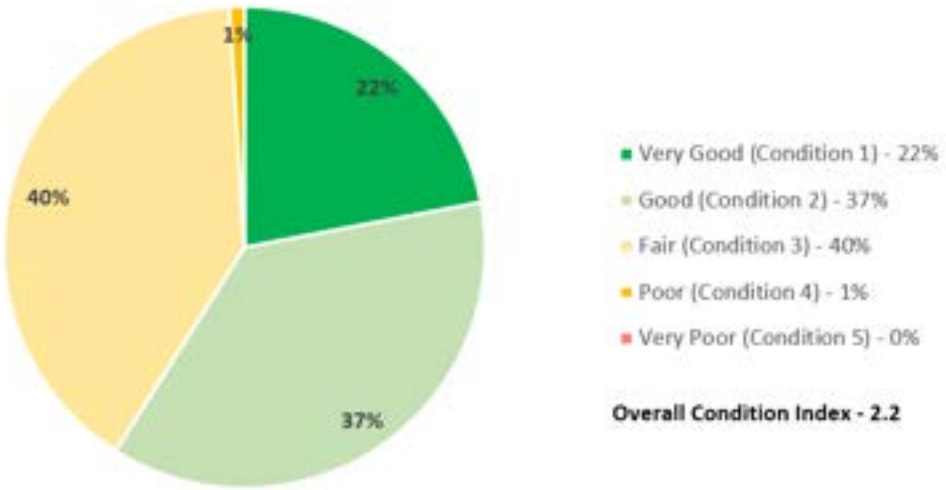
Figure 5.2.3.b: Condition Profile (Kerb and Watertable)



Footpaths

The footpath network is typically condition audited every 4 years, with the most recent audit undertaken in 2021. Figure 5.2.3.c presents the predicted footpath network condition distribution as of September 2023. Overall, the majority of the footpath network is rated in a very good to fair condition (99%) with a very small proportion of assets rated in poor and very poor condition (1%). It is important to note that a significant quantity of the footpath network is currently rated in a fair condition (40%), which will result in significant renewal requirements in the medium term. Ongoing investment will be required to renew and rehabilitate footpath assets to ensure levels of service are maintained in conjunction with minimising whole-of-life costs.

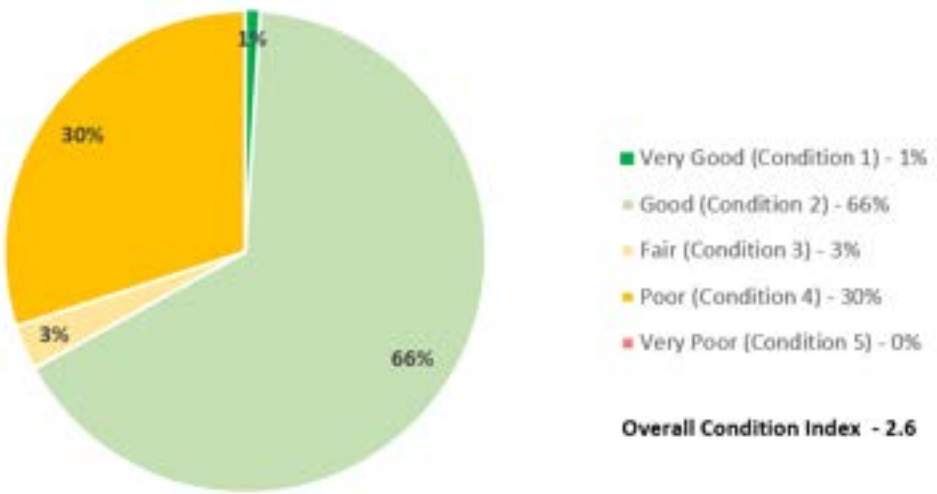
Figure 5.2.3.c: Condition Profile (Footpaths)



Bridges

The bridge network is typically condition audited every 4 years, with the most recent audit of the full bridge network undertaken in 2019. Several road bridges have been audited in 2023, including Adelaide Bridge which has more frequent audits undertaken due to the age of the asset. Figure 5.2.3.d presents the predicted bridge network condition distribution as of September 2023. Overall majority of the bridge network is in a very good to fair condition (70%), with Adelaide Bridge being the major contributor for 30% of the network being rated in poor condition. Renewal or rehabilitation of Adelaide Bridge will be a critical investment requirement within this Asset Management Plan, that will be further discussed in Chapter 5.

Figure 5.2.3.d: Condition Profile (Bridges)

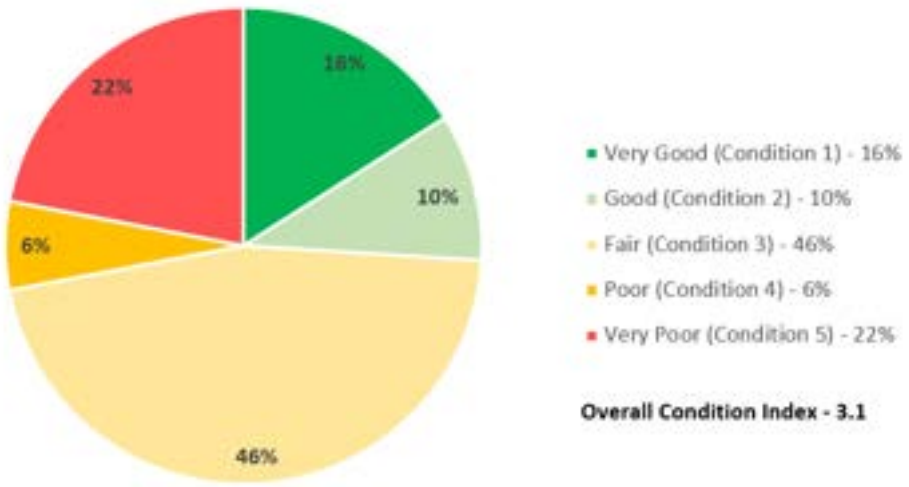


Traffic Signals

The traffic signal network is typically condition audited every 4 years, with the most recent audit undertaken in 2019. Figure 5.2.3.e presents the predicted traffic signal network condition distribution as of September 2023. Overall the majority of the traffic signal network is rated in very good to fair condition (72%). However, 28% of the traffic signal network is rated in a poor to very poor condition. Accelerated renewal investment will be required over the short term to address these deficiencies.

It is important to note that the previous condition audit methodology assigned a very poor condition score rating (condition 5) to older installation that are not compliant with current standards. However, these assets are considered safe and manageable within the short term through proactive maintenance inspections and works programming.

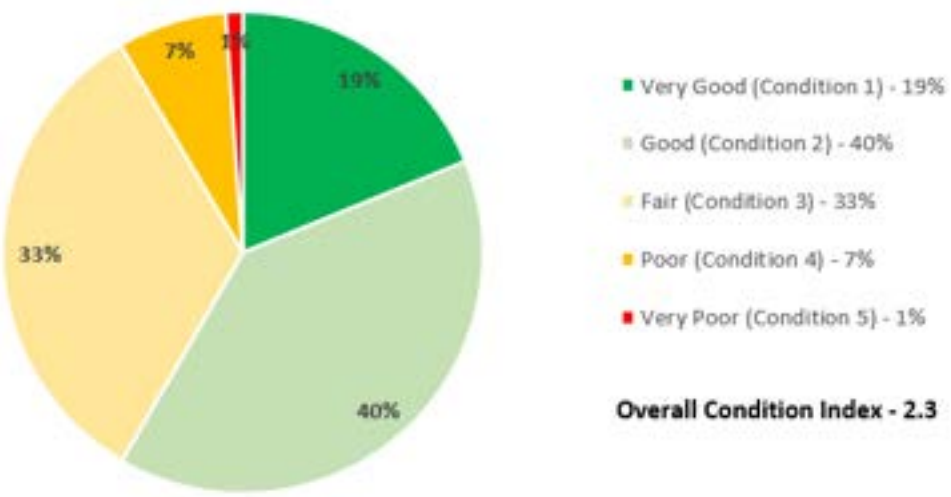
Figure 5.2.3.e: Network Condition Profile (Traffic Signals)



Summary

Overall, the current condition of our transport network is rated in a good to fair condition, with a combined overall condition index rating of 2.3. 91% of assets are rated in a very good to fair condition and 9% of assets are rated in poor or very poor condition, which will form the general basis of our renewal program priorities.

Figure 5.2.3.f: Transport Network Condition Profile



5.3 Operations and Maintenance Plan

Operations include regular activities to provide services. Examples of typical operational activities include cleaning, street sweeping, line marking re-application, 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 footpath repairs, asphalt patching, and equipment repairs. Requirements are informed by both customer service requests and proactive maintenance inspections.

Currently, maintenance activities are generally evaluated and prioritised with respect to annual budgets. This process is undertaken by experienced staff, where risk-based assessment and resource allocation considers the severity of the defect as well as its location. Any critical maintenance requirements that cannot be accommodated within exiting budgets are assessed and considered through regular budget reviews to ensure resources are appropriately re-allocated.

Following the completion of this Asset Management Plan, we will be reviewing operations and maintenance standards for transport assets, with a view to develop more structured and proactive maintenance regimes which provide an acceptable balance between cost, risk, and customer expectations. This activity has been recognised as an action within the Improvement Plan of this Asset Management Plan (Section 8.2), where the associated financial impacts will need to be further considered in future revisions of this Asset Management Plan and the Long-Term Financial Plan.

Updated standards will document both maintenance intervention levels and response times. Intervention levels will document the criteria for actioning maintenance defects and response times will set targets that we aim to work within to repair defects. Typically, both of these elements will vary depending on the severity of the defect as well as its position/location within the asset hierarchy.

Monitoring whether maintenance activities are being delivered in accordance with the specified intervention levels and response times, will enable us to understand whether resourcing levels are sufficient. Where resourcing levels are identified as insufficient, additional budget requirements can be considered through the business plan and budget process, or intervention levels and response times can be adjusted with respect to budget constraints.

5.3.1 Maintenance Budget Trends

The trend in maintenance budgets for all transport assets over the past 4 years is shown in Table 5.3.1.

Table 5.3.1: Maintenance Budget Trends

Year	Roads	Kerbing	Footpaths	Bridges	Traffic Signals
2020-21	$572,787	$77,714	$903,034	$27,788	$460,755
2021-22	$918,727	$287,114	$1,283,404	$29,216	$431,584
2022-23	$1,113,857	$382,269	$2,534,640	$28,341	$600,165
2023-24	$1,040,564	$461,628	$1,642,929	$228,619	$495,537

5.3.2 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 hierarchy for each transport asset class is shown is Table 5.3.2.

Table 5.3.2: Asset Service Hierarchy

Asset Class	Asset Hierarchy
Roads and Kerb and Watertable	Major Arterial Roads (e.g. West Terrace)
	Minor Arterial Roads (e.g. Port Road)
	Primary Collector (e.g. King William Street)
	Local Collector (e.g. Melbourne Street)
	Local Access and Car Parks (e.g. Archer Street)
Footpaths	City Streets (e.g. North Terrace)
	Residential Streets (e.g. Archer Street)
	Park Lands (e.g. Rymill Park Footpaths)
Bridges	Road Bridges (e.g. Adelaide Bridge)
	Major Footbridges (e.g. University Footbridge)
	Minor Footbridges (e.g. Parklands Bridges)
Traffic Signals	Signalised Intersections (e.g. King William Street / Pirie Street intersection)
	Pedestrian Actuated Crossings (e.g. Victoria Drive adjacent University)
	Koala Crossings (e.g. East Terrace adjacent Glover Playground)

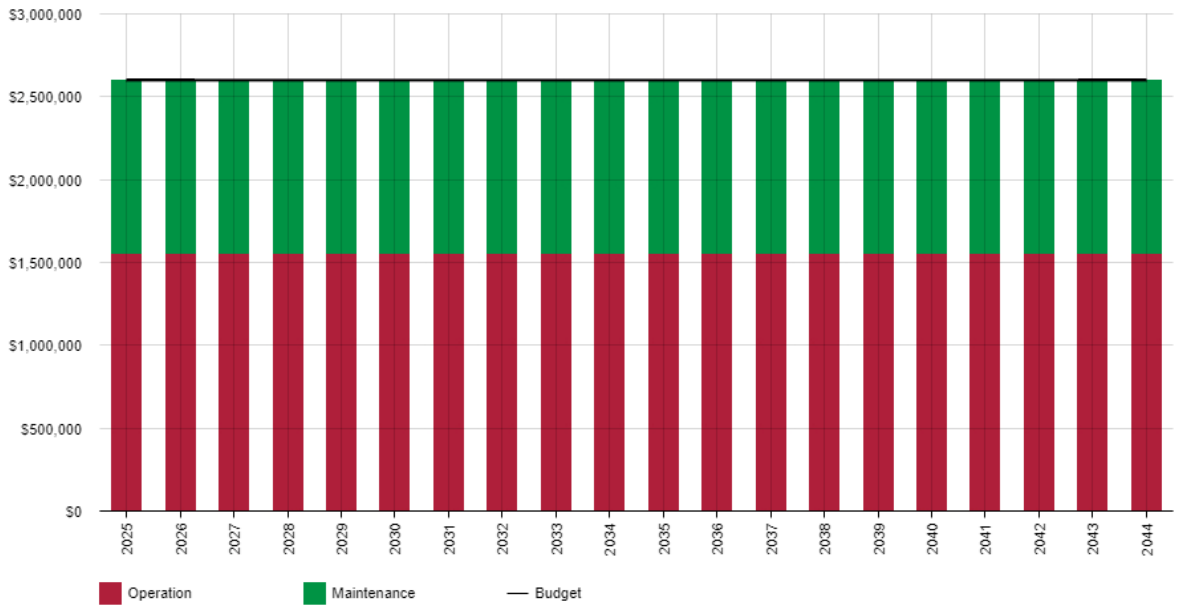
5.3.3 Summary of future operations and maintenance costs

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.

Roads

The forecast operations and maintenance costs for the road network, relative to the proposed operations and maintenance budgets are shown in Figure 5.3.3.a. Future revisions of this Asset Management Plan will further review forecast requirements based on updated operations and maintenance standards and acquired assets. All values are shown in current day dollars.

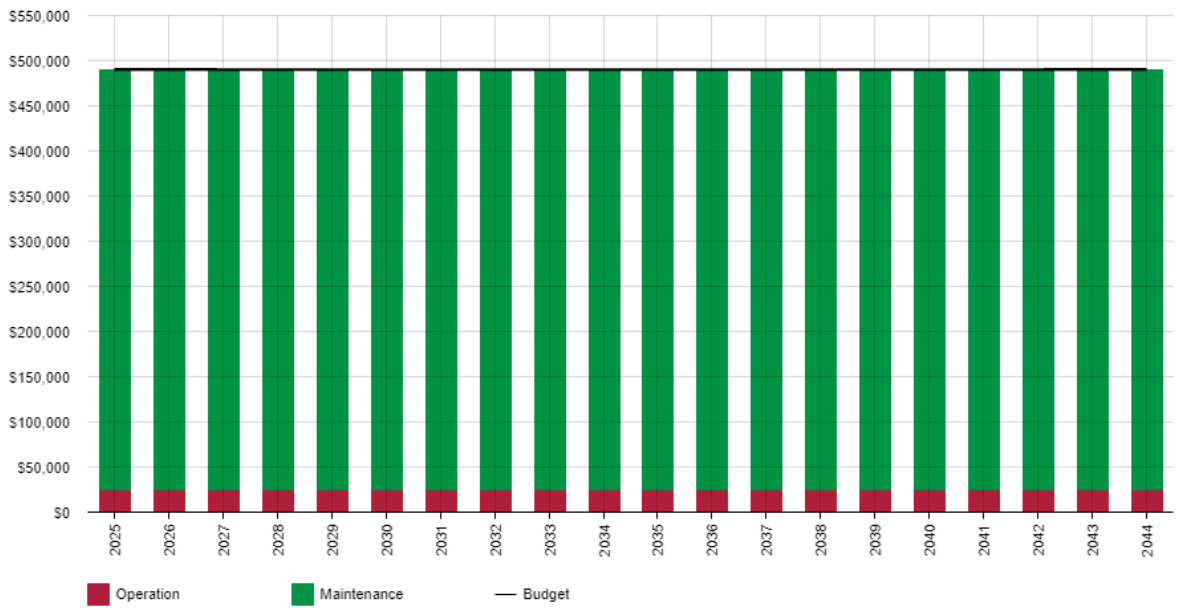
Figure 5.3.3.a: Operations and Maintenance Summary (Roads)



Kerb and Watertable

The forecast operations and maintenance costs for the kerb and watertable network, relative to the proposed operations and maintenance budgets are shown in Figure 5.3.3.b. Future revisions of this Asset Management Plan will further review forecast requirements based on updated operations and maintenance standards. All values are shown in current day dollars.

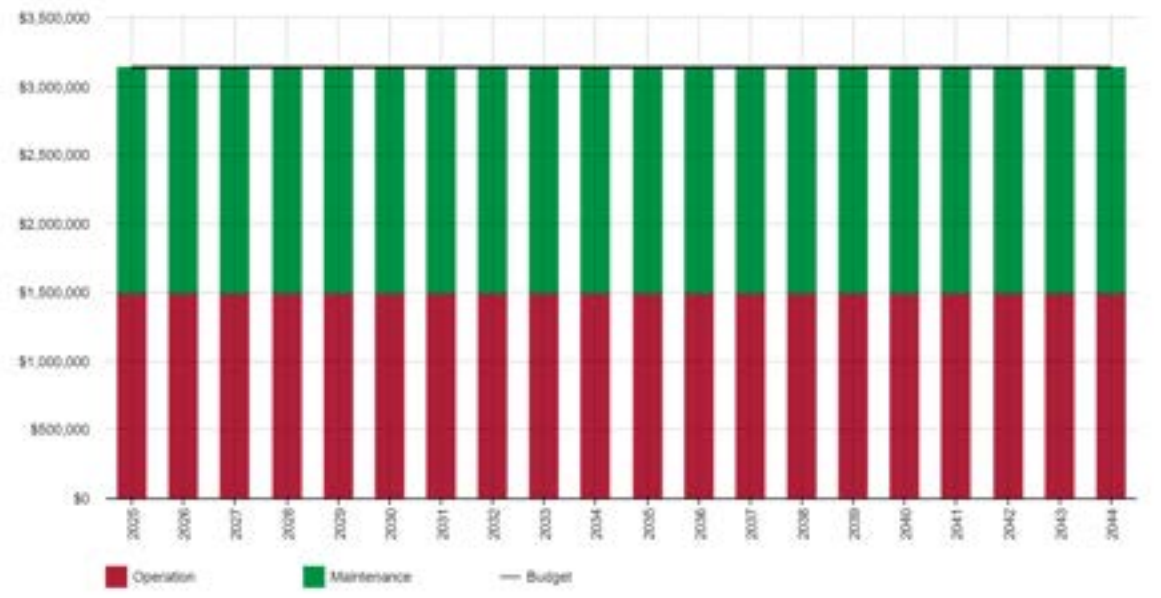
Figure 5.3.3.b: Operations and Maintenance Summary (Kerb and Watertable)



Footpaths

The forecast operations and maintenance costs for the footpath network, relative to the proposed operations and maintenance budgets are shown in Figure 5.3.3.c. Future revisions of this Asset Management Plan will further review forecast requirements based on updated operations and maintenance standards. All values are shown in current day dollars.

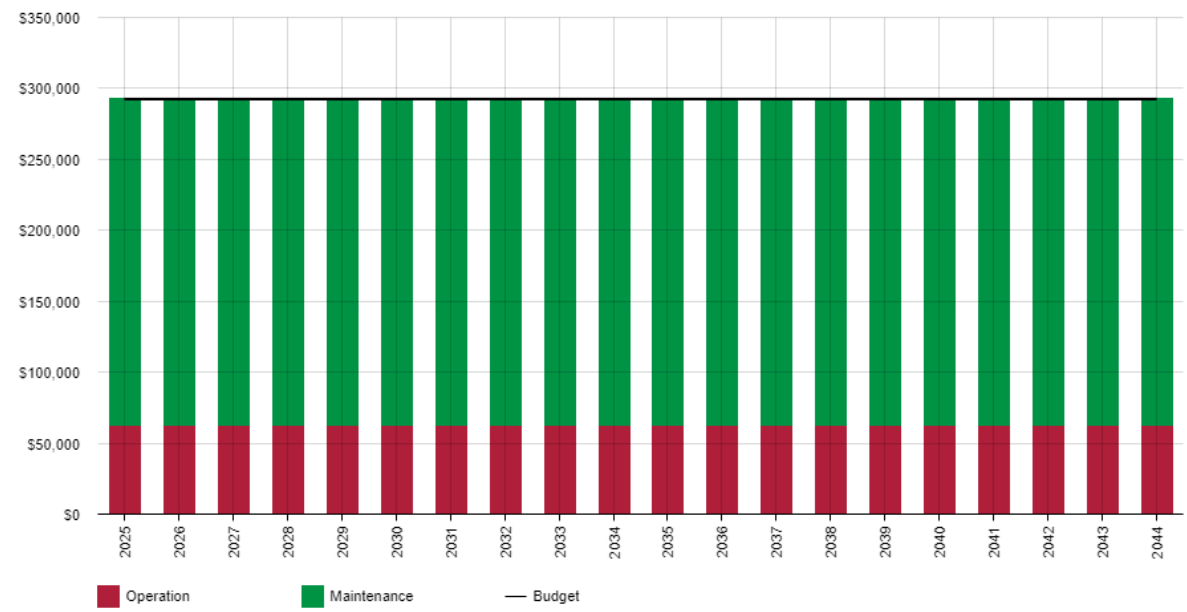
Figure 5.3.3.c: Operations and Maintenance Summary (Footpaths)



Bridges

The forecast operations and maintenance costs for the bridge network, relative to the proposed operations and maintenance budgets are shown in Figure 5.3.3.d. Future revisions of this Asset Management Plan will further review forecast requirements based on updated operations and maintenance standards. All values are shown in current day dollars.

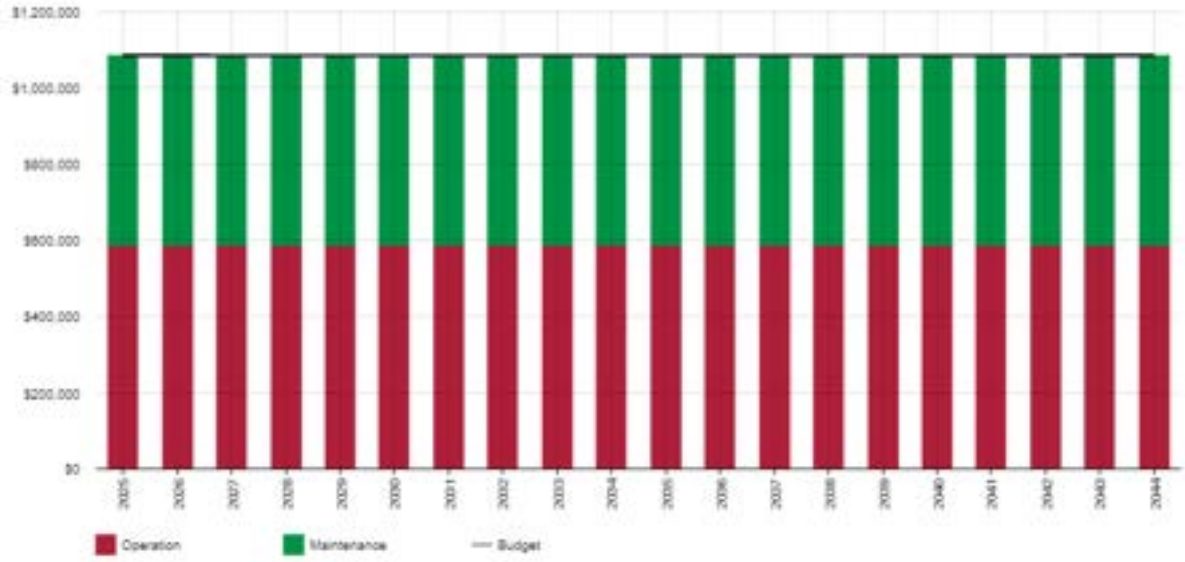
Figure 5.3.3.d:Operations and Maintenance Summary (Bridges)



Traffic Signals

The forecast operations and maintenance costs for the traffic signal network, relative to the proposed operations and maintenance budgets are shown in Figure 5.3.3.e. Future revisions of this Asset Management Plan will further review forecast requirements based on updated operations and maintenance standards. All values are shown in current day dollars.

Figure 5.3.3.e: Operations and Maintenance Summary (Traffic Signals)



5.4 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 (new/upgrade) resulting in additional future operations and maintenance costs.

Asset renewal is typically undertaken to:

- Ensure ongoing reliability of existing infrastructure to deliver the service it was constructed to facilitate
- Ensure infrastructure is of sufficient quality to meet the service requirements
- Optimise whole-of-life costs, when maintenance activities are no longer economical

Within this Asset Management Plan, asset renewal requirements have been identified by utilising replacement costs and remaining useful life estimates that have been derived through a combination of condition audits, engineering recommendations and predictive modelling.

Predictive modelling provides a basis for evidence-based decision making, where the financial requirements for different level of service scenarios can be estimated across the short, medium, and long-term. Additionally, it allows us to understand the relationship between cost, level of service and risk and can effectively demonstrate the consequences of not appropriately funding asset renewal. An overview of the predictive modelling utilised in this Asset Management Plan is shown in Figure 5.4.1 and is discussed further for each asset class in Section 5.4.1.

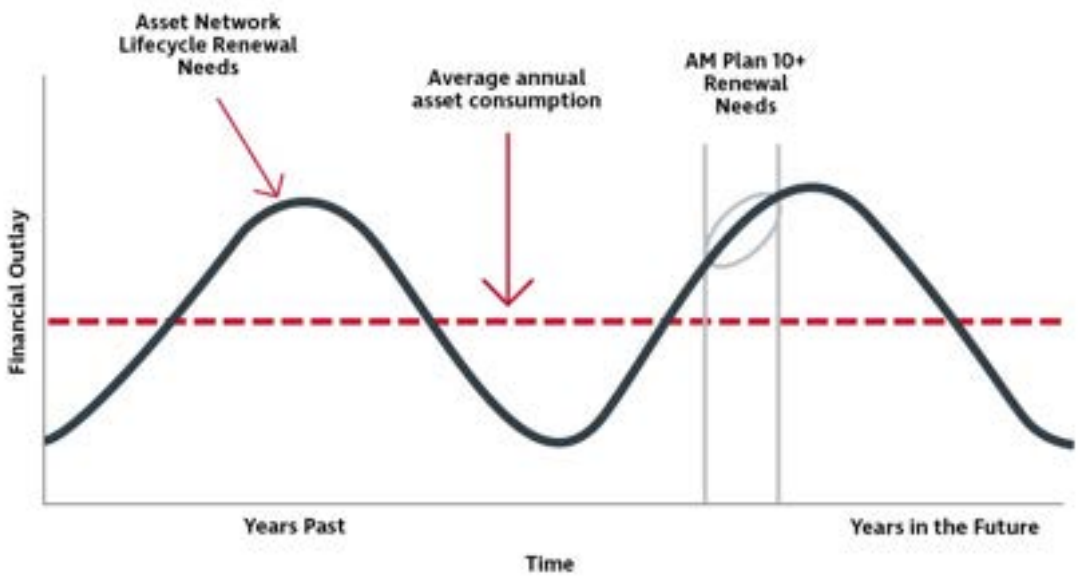
Figure 5.4.1: Predictive Modelling Overview

This Asset Management Plan's renewal strategy aims to minimise the number of assets that deteriorate into a poor condition and prohibit assets reaching a very poor condition. Assets can generally be cost effectively maintained and provide appropriate levels of service up to a fair condition, however assets in poor and very poor condition have higher risk profiles and maintenance treatments are generally not economical. This strategy ensures we can continue to provide services in line with the community's expectations, appropriately manage risk and optimise whole-of-life costs.

Asset renewal planning is undertaken with a holistic and integrated approach, to ensure consideration is given to asset functionality, adjacent assets and Council's higher-level strategic objectives (e.g. new and upgrade requirements). This allows capital works programming to be optimised through the development of logical works packages, that provide value to the community and minimise disruption.

It is important to understand that infrastructure networks are comprised of assets with varying age profiles and different useful lives and replacement costs. This results in having to replace more assets in some periods when compared with others and means that it's very unlikely that asset renewal needs will be consistent over time. Figure 5.4.2 highlights a typical scenario of varying asset renewal expenditure requirements over the asset lifecycle.

Figure 5.4.2: Asset Network Lifecycle Renewal Needs



To account for fluctuations in asset lifecycle renewal needs and enable efficient resourcing planning, often there will be a need to smooth out expenditure requirements over multiple years through a combination of deferring renewal (where appropriate) and bringing scheduled works forward.

At times, this may result in a small number of assets exceeding prescribed renewal intervention criteria, requiring projects to be prioritised with respect to available budget. It is possible to prioritise renewals by identifying assets or asset groups that:

- Have a higher consequence of failure
- Have higher usage and the subsequent impact on users would be more significant
- Have higher than expected operational and maintenance costs

Prioritisation criteria used to inform the renewal forecasts within this Asset Management Plan include:

- Compliance with current legislative requirements
- Asset condition
- Asset hierarchy and criticality
- Cost effectiveness of maintenance investment
- Alignment with Strategic Plan objectives and corporate strategies
- Financial capacity and sustainable financial management principles
- Council decisions
- Asset functionality deficiencies
- Community interest

The typical useful lives of assets used to develop projected asset renewal forecasts are shown in Table 5.4. Asset useful lives were last reviewed in 2023.

Table 5.4: Useful Lives of Assets

Asset Class	Asset Sub Class	Useful life *
Roads	Road Surface	15-25 years
	Road Pavement	30-80 years
Kerb and Water table	Concrete	60-80 years
	Bluestone	120 years
	Granite	120 years
Footpath	Asphalt	30 years
	Concrete Flagstone	40-50 years
	Granite & Slate	40-50 years
	Interlocking Pavers	40-50 years
	Small Format Concrete Pavers	40-50 years
	In-Situ Concrete	40-50 years
	Rubble	10-20 years
Traffic Signals	Poles	25 years
	Lanterns	10 years
	Controllers	10 years
	UPS	10 years
	Target Board	15 years
	Push Button	10 years
	Audio Tactile	10 years
	Top Box	10 years
	Conduits	40 years
	Pits	40 years
	CCTV	5 years
Bridges	Road Bridges	20-100 years
	Major Footbridges	40-100 years
	Minor Footbridges	20-80 years

* useful life will vary dependant on asset hierarchy/material/component

5.4.1 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 Figures 5.4.1a to 5.4.1e. A detailed summary of the forecast renewal costs is shown in Appendix C.

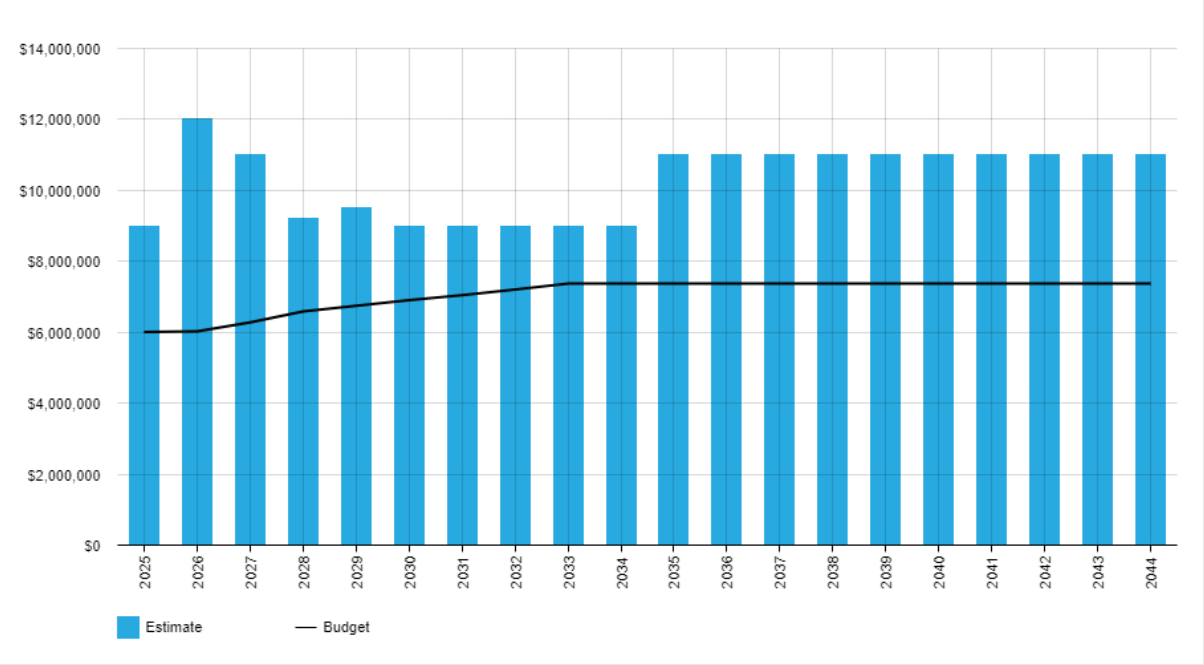
Roads

Predictive modelling identified that the existing budget allocations within the Long-Term Financial Plan were insufficient to maintain current service levels, resulting in the health of the road network steadily declining over time. Various renewal strategies were considered for the road network utilising predictive scenario modelling, which are presented and further discussed in Appendix F.

The recommended asset renewal strategy aims to reduce the number of assets that deteriorate into condition 4 (target less than 5%) and prohibit assets reaching condition 5 (target 0%). To enable this, increased renewal funding of $9m, $12m, $11m, $9.2m, and $9.5m is required over the first five years to address the initial renewal backlog, with investment requirements then reducing to $9m per year between years 6 and 10 to maintain service levels. From 2035 renewal funding is required to increase moderately to $11m per year to address the forecast medium to long term renewal requirements. Specific renewal intervention levels for different road hierarchies as well as typical images of each condition state are documented in Appendix E.

The projected 20-year renewal forecast compared against the current Long-Term Financial Plan budget allocation for the road network is shown in Figure 5.4.1.a below (note: all figure values are shown in current day dollars). When comparing the forecast renewal costs against the existing budget allocation (black line), it is evident that there is a funding shortfall and additional funding is required to address the renewal backlog and maintain current levels of service. Not funding the shortfall will result in the health of the road network to continue steadily decreasing over time, resulting in increased whole-of-life costs and risks of asset failure that cannot be rectified through maintenance resources.

Figure 5.4.1a: Forecast Renewal Costs (Roads)



Kerb and Watertable

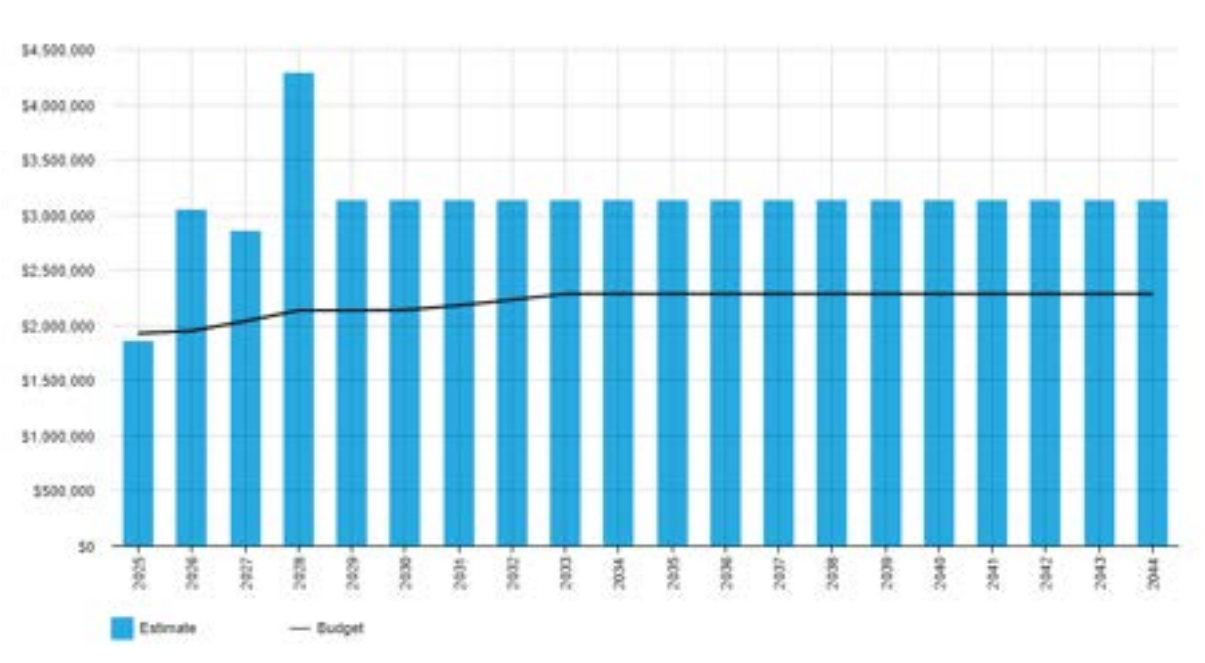
Predictive modelling identified that the existing budget allocations within the Long-Term Financial Plan were insufficient to maintain current service levels, resulting in the health of the kerb and watertable network steadily declining over time. Various renewal strategies were considered for the kerb and watertable network utilising predictive scenario modelling, which are presented and further discussed in Appendix F.

The recommended asset renewal strategy aims to reduce the number of assets that deteriorate into condition 4 (< 5%), prohibit assets reaching condition 5 (target of 0%) and ensure aging assets in a fair condition showing signs of deterioration are renewed concurrently with adjacent road and footpath renewal projects.

To enable this, increased renewal funding of $1.85m, $3.05m, $2.85m, and $4.29m is required over the first 4 years, with investment requirements then reducing to $3.125m each year to maintain service levels. Specific renewal intervention levels as well as typical images of each condition state are documented in Appendix E.

The projected 20-year renewal forecast compared against the current Long-Term Financial Plan budget allocation for the kerb and watertable network is shown in Figure 5.4.1.b below (note: all figure values are shown in current day dollars). When comparing the forecast renewal costs against the existing budget allocation (black line), it is evident that there is a funding shortfall and additional funding is required to address the renewal backlog and maintain current levels of service. Not funding the shortfall will result in the health of the kerb and watertable network to continue steadily decreasing over time, resulting in increased whole-of-life costs and risks of asset failure that cannot be rectified through maintenance resources.

Figure 5.4.1.b: Forecast Renewal Costs (Kerb and Watertable)



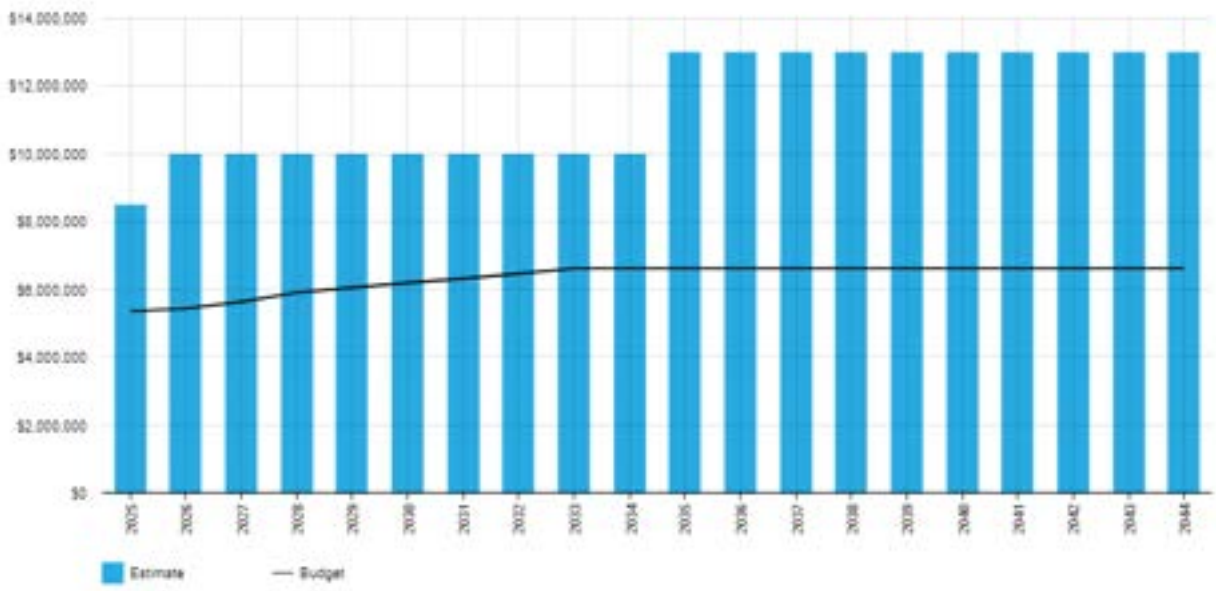
Footpaths

Predictive modelling identified that the existing budget allocations within the Long-Term Financial Plan were insufficient to maintain current service levels, resulting in the health of the footpath network steadily declining over time. Various renewal strategies were considered for the footpath network utilising predictive scenario modelling, which are presented and further discussed in Appendix F.

The recommended asset renewal strategy aims to reduce the number of assets that deteriorate into condition 4 (target < 5%) and prohibit assets reaching condition 5 (target 0%). To enable this, $10m is required each year for the first 10 years, with a further increase to funding up to $13m each year between years 11 and 20. This significant investment is required to address the substantial number of assets currently rated in a fair condition (40% of the network) that have forecast renewals across the 20-year planning period. Specific renewal intervention levels for different footpath hierarchies and material types, as well as typical images of each condition state are documented in Appendix E.

The projected 20-year renewal forecast compared against the current Long-Term Financial Plan budget allocation for Footpaths is shown in Figure 5.4.1.c below (note: all figure values are shown in current day dollars). When comparing the forecast renewal costs against the existing budget allocation (black line), it is evident that there is a funding shortfall and additional funding is required to address the backlog of asset renewals and maintain service levels. Not funding the shortfall will result in the health of the footpath network to continue steadily decreasing over time, resulting in significant risks of asset failure and service disruption that cannot be rectified through maintenance resources.

Figure 5.4.1.c: Forecast Renewal Costs (Footpaths)



Bridges

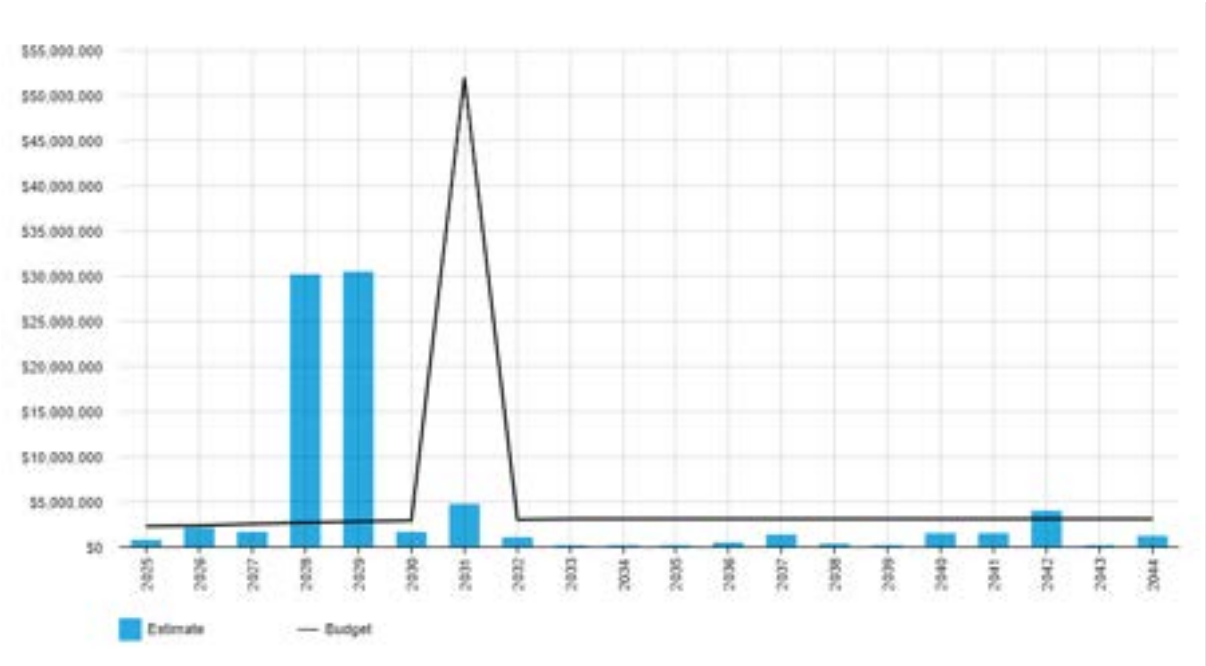
Renewal requirements for our bridge assets are informed by regular engineering inspections. Each inspection monitors any change in condition for individual bridge components and re-forecasts an associated remaining useful life estimate. The recommended asset renewal strategy for the bridge portfolio aims to reduce the number of assets that deteriorate beyond condition 3 and prohibit assets reaching condition 4 or 5 (target 0%). Due to the high value and long life of individual bridge components, forecast replacement and/or rehabilitation requirements vary substantially over the 20-year period, and can generally not be “smoothed” for budgeting purposes.

Adelaide Bridge (located on King William Road, crossing the Torrens) will be a key priority within this Asset Management Plan, as condition monitoring has identified the aging bridge (constructed in 1931) is approaching the end of its useful life. Within the next 5 years significant capital works will be required to either rehabilitate or replace the bridge, as it is becoming uneconomical to continue maintaining the bridge. Recent engineering inspections and preliminary project planning has recognised that the renewal/ rehabilitation of Adelaide Bridge requires scheduling and budgeting adjustments within the Asset Management Plan and Long Term Financial Plan, bringing works forward and spreading forecast costs over two financial years.

For preliminary planning purposes, renewal forecasts have assumed the full replacement of Adelaide Bridge, however an options analysis is currently being undertaken to inform recommendations to finalise the scope, cost and timing of capital works moving forward. The options analysis will consider capital costs, intended lifespan and durability, operational and maintenance costs, heritage retention and current and future loading requirements. Revision of asset renewal forecasts following the completion of the options analysis has been recognised as a key action within the Improvement Plan (Chapter 8).

The projected 20-year renewal forecast compared against the current Long-Term Financial Plan budget allocation for Bridges is shown in Figure 5.4.1.d below (note: all figure values are shown in current day dollars).

Figure 5.4.1.d: Forecast Renewal Costs (Bridges)

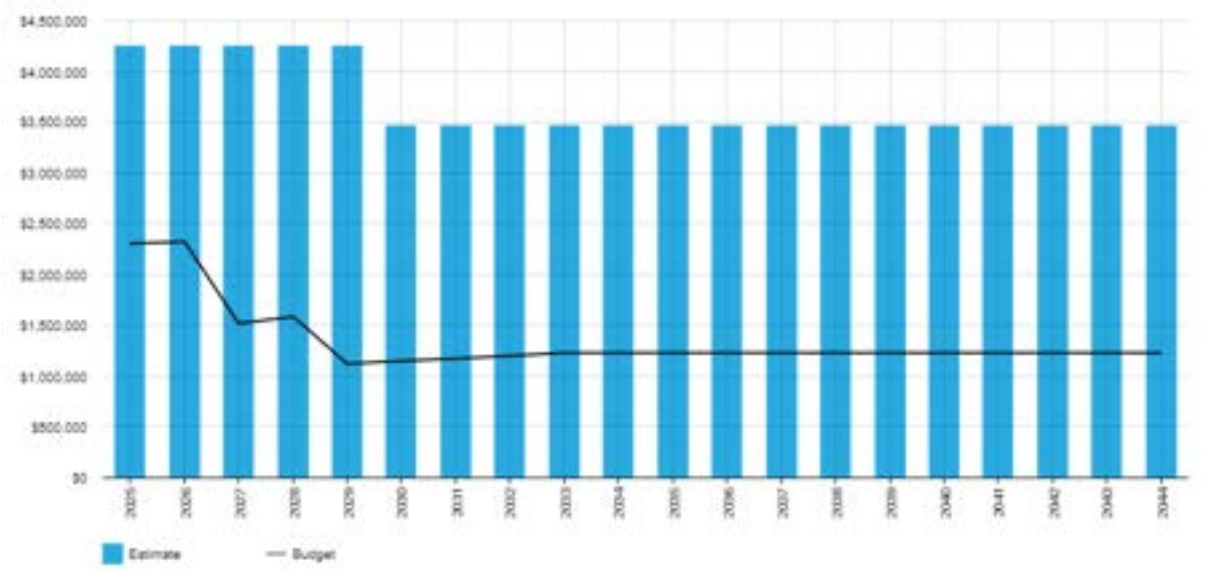


Traffic Signals

The projected 20-year renewal forecast compared against the current Long-Term Financial Plan budget allocation for Traffic Signals is shown in Figure 5.4.1.e below. The asset renewal strategy aims to reduce the number of assets that deteriorate into condition 4 and 5. To enable this, increased renewal funding of $4,25M is required over the first five years to address the current asset renewal backlog (assets in condition 4 and 5), however following this investment reduces to $3.47M per year, to maintain service levels.

When comparing the forecast renewal costs against the existing budget allocation (black line), it is evident that there is a funding shortfall and additional funding is required to address the backlog of asset renewals and maintain service levels. Not funding the shortfall will result in the health of the traffic signal network to continue steadily decreasing over time, resulting in significant risks of asset failure and service disruption that cannot be rectified through maintenance resources.

Figure 5.4.1.e: Forecast Renewal Costs (Traffic Signals)



5.5 Acquisition of Assets (New & Upgrade)

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 donated to the City of Adelaide.

Opportunities for acquisition of new assets, and upgrade of existing assets, are identified from various sources such as community requests, initiatives identified within strategic plans and corporate strategies as well as partnerships with third parties (e.g. State Government and Developers).

Potential new and upgrade works should be reviewed to verify that they are essential to City of Adelaide's needs and include analysis to understand ongoing operations, maintenance and renewal requirements to ensure that the services are sustainable over the longer term.

While this Asset Management Plan does not identify financial forecasts associated with new and upgrade projects, it does ensure required renewal scheduling is aligned (where practical) with key new and upgrade initiatives linked to our Strategic Plan through Integrated Delivery Planning.

Prioritisation and scheduling of new and upgrade works is currently undertaken on an annual basis through the business plan and budget process, where key prioritisation criteria include:

- Alignment with Strategic Plan objectives and corporate strategies
- Financial capacity and sustainable financial management principles
- Council decisions
- Asset functionality deficiencies
- Asset condition
- Compliance with current legislative requirements
- Community interest

The Resource Plan will provide a 4-year view of new and upgrade projects, resources, and budgets required to deliver our Strategic Plan objectives. It will inform the Long-Term Financial Plan and act as the key link between the Strategic Plan and Annual Business Plan & Budget.

Transformational new and upgrade projects will reference the Adelaide Design Manual that have allocated funding within the Resource Plan and Long-Term Financial Plan.

5.6 Disposal of Assets

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. Disposal can be considered when an asset has been identified as underperforming, underutilised, or obsolete and does not provide value to the community.

This Asset Management Plan does not identify financial forecasts associated with asset disposal, however where recommended, significant assets will be identified for decommissioning and disposal through Council Reports. To enable informed decision making, reports will include any anticipated impacts to service provision as well as financial impacts including disposal costs, revenue gained and estimated reductions in annual operations and maintenance expenditure that will be included into the Business Plan and Budget and Long-Term Financial Plan.

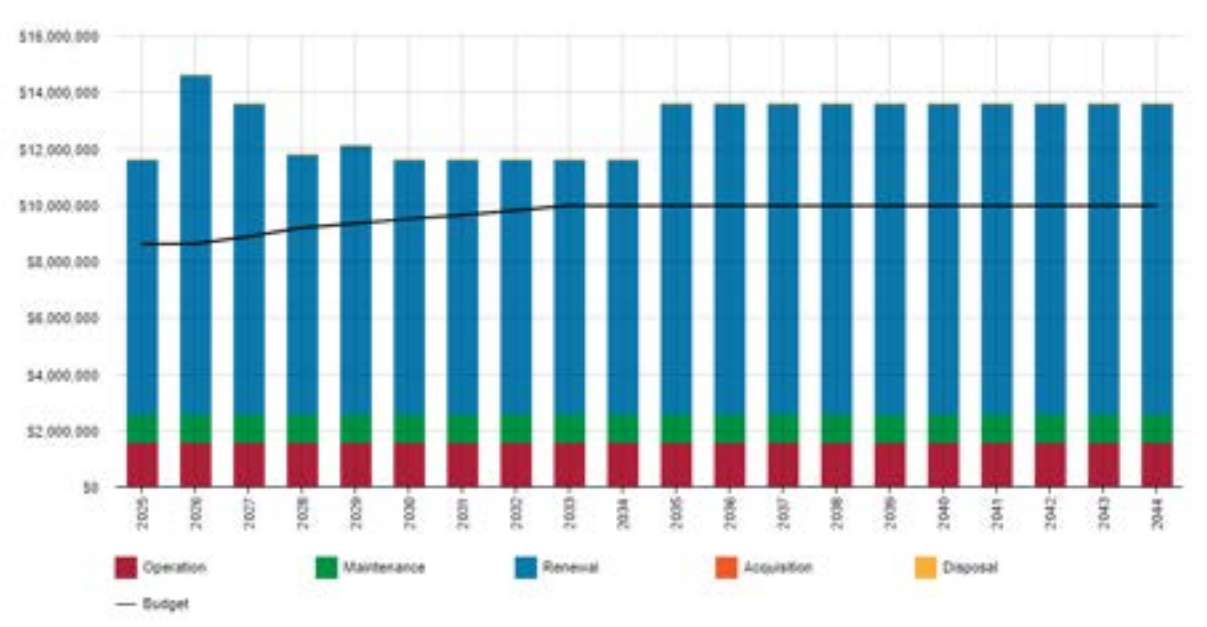
5.7 Summary of Asset Forecast Costs

The total financial projections from this Asset Management Plan are shown in Figures 5.7 below for each asset class. 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 discussed in detail within sections 5.3 and 5.4.

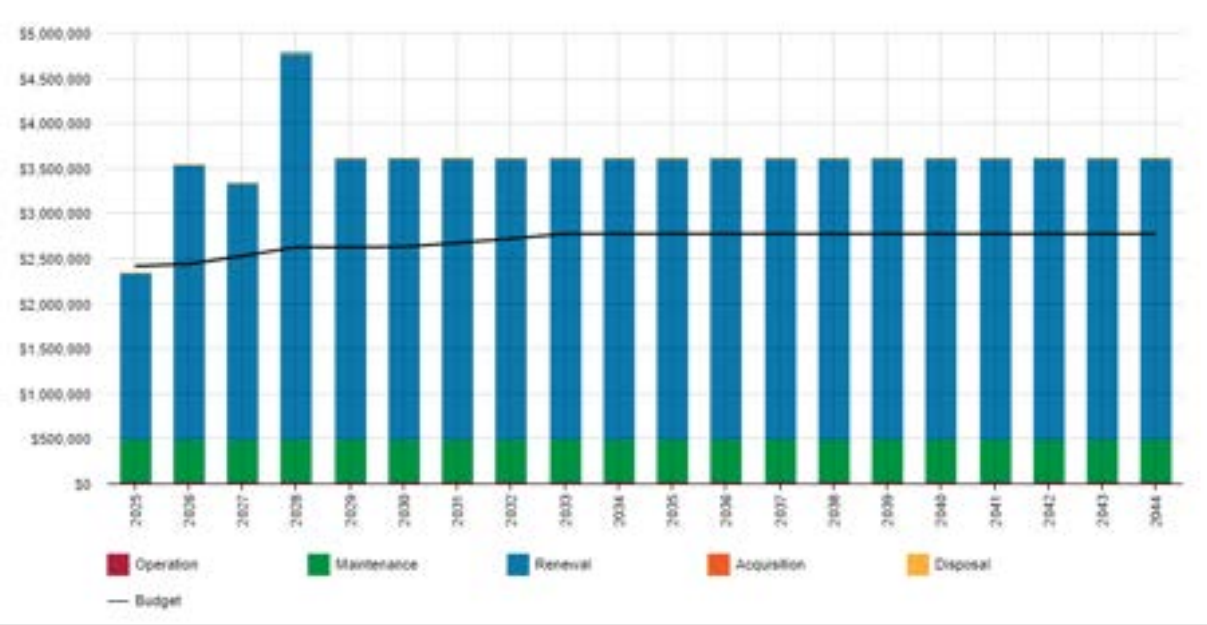
Roads

Figure 5.7.a: Lifecycle Summary (Roads)



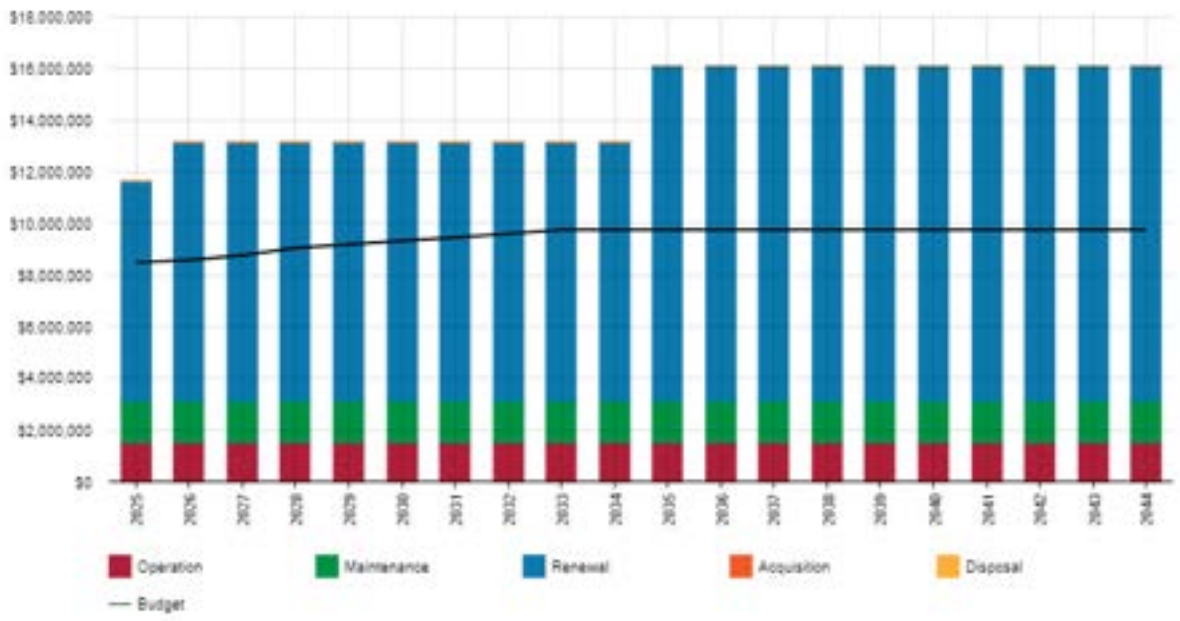
Kerb and Watertable

Figure 5.7.b: Lifecycle Summary (Kerb and Watertable)



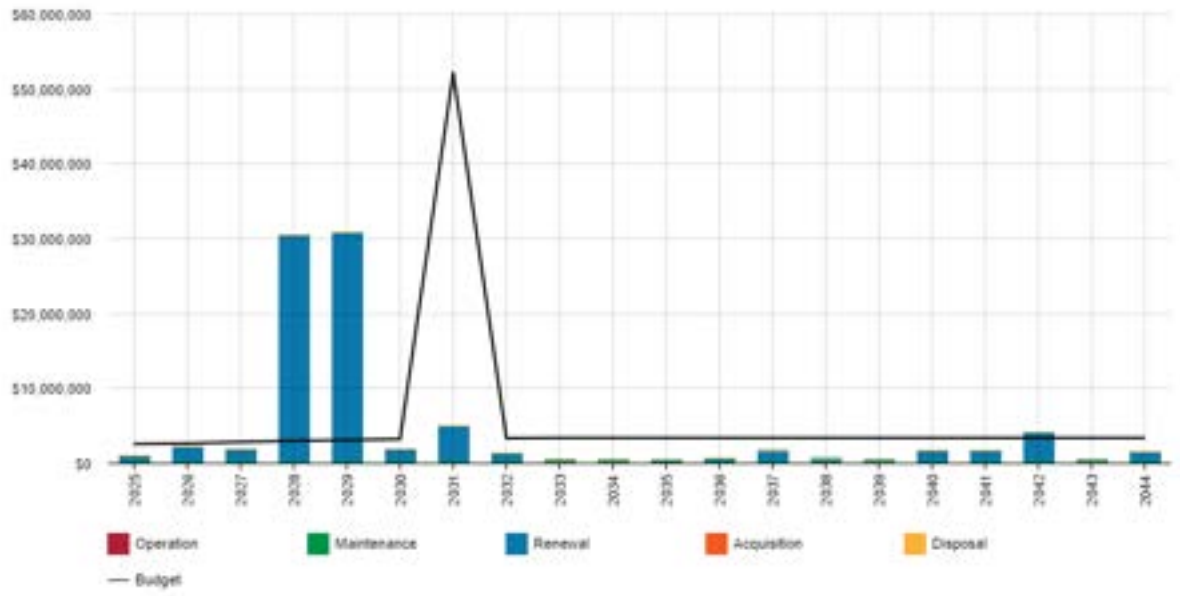
Footpaths

Figure 5.7.c: Lifecycle Summary (Footpaths)



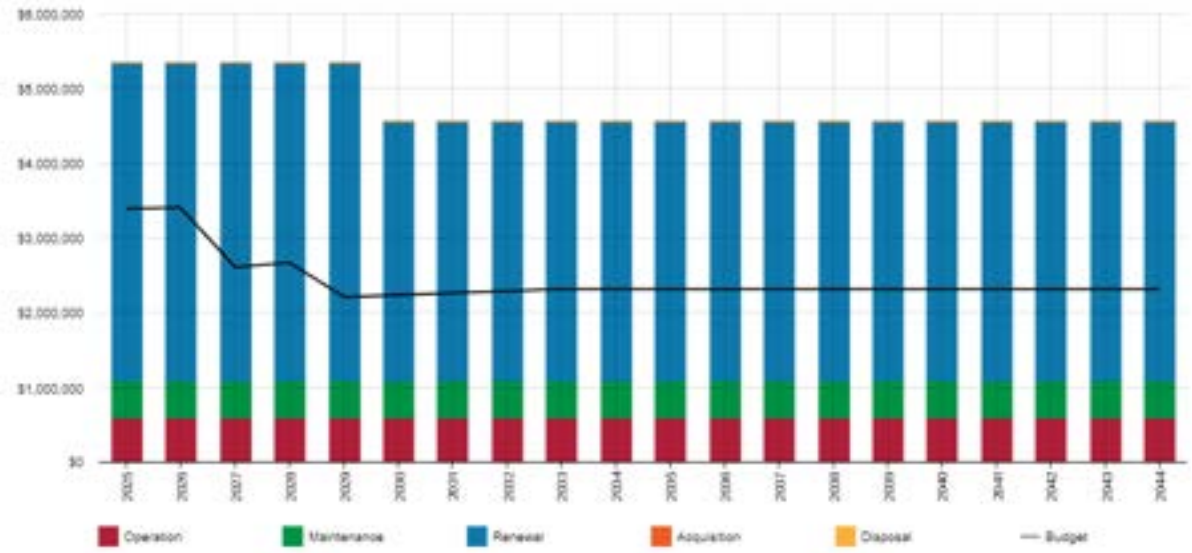
Bridges

Figure 5.7.d: Lifecycle Summary (Bridges)



Traffic Signals

Figure 5.7.e: Lifecycle Summary (Traffic Signals)



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'[4].

An assessment of risks[5] 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. Critical assets have been identified and along with their typical failure mode, and the impact on service delivery, are summarised in Table 6.1. Failure modes may include physical failure, collapse or essential service interruption.

Table 6.1 Critical Assets

Asset Class	Critical Asset(s)	Failure Mode	Impact
Bridges	All Road Bridges	Structural deterioration resulting in bridge restrictions or physical collapse.	Reduced capacity and accessibility, resulting in significant disruption to the transport network or fatality as a result of collapse
Roads	Arterial and Primary Collector Network	Structural deterioration of road pavement, resulting in cracking, deformation, and potholes. Road damage due to service authority incidents such as water main bursts.	Public safety risks association with dangerous road defects and disruption to the transport network
Footpaths	City Street Footpaths (High Volume)	Structural and environmental deterioration of footpaths resulting in trip hazards, depressions, and loose pavers. Footpath damaged by service authorities and development.	Public safety risks associated with dangerous footpath defects and disruption to the transport network
Traffic Signals	All Signalised Intersections	Electrical fault and/or equipment failure	Public safety risks associated with inoperative traffic control devices and disruption to the transport network

[4] ISO 31000:2009, p 2

[5] REPLACE with Reference to the Corporate or Infrastructure Risk Management Plan as the footnote

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.

6.2 Risk Assessment

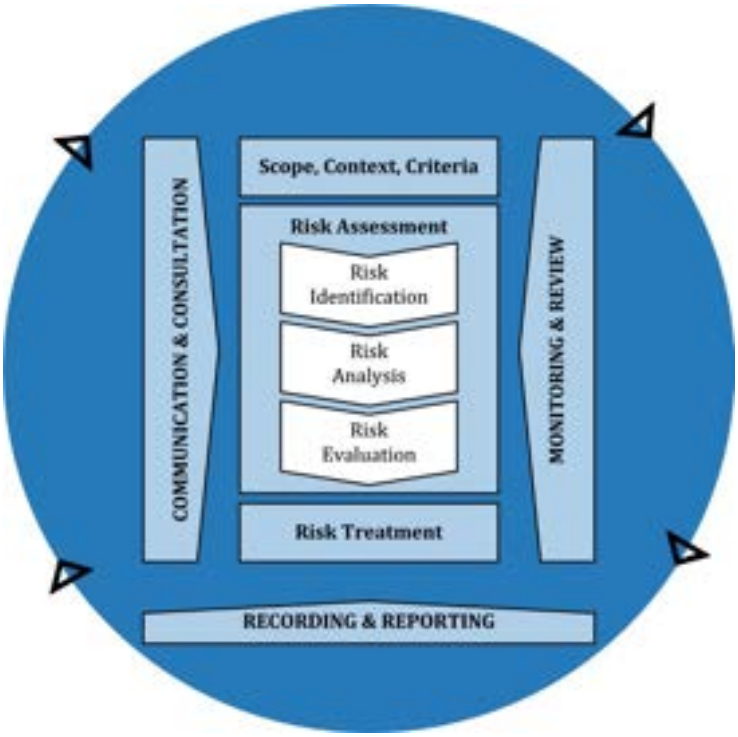
The risk management process used is shown in Figure 6.2 below.

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)



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 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 'Extreme' (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 Strategic Risk and Internal Audit Group (SRIA).

Table 6.2: Risks and Treatment Plans

Asset at Risk	What can Happen	Risk Rating	Risk Treatment Plan	Residual Risk	Treatment Cost
All Transport Assets	Renewal, maintenance, and operational budgets are not adopted as recommended in Asset Management Plan, resulting in increased asset risk, reduced levels of service and increased whole of life costs	High	Reduce levels of service, to better align asset management activities with financial constraints. This will result in renewal and maintenance activities being prioritised, with respect to available budgets.	Medium	Within existing resources / budgets
	Recommended road safety initiatives and/or infrastructure upgrade budgets are not approved to enable Safe System speeds and Safe System aligned layouts. This may result in failure to meet targets set in South Australia's Road Safety Strategy and deliver upon Council's Strategic Plan objectives to decarbonise transport and provide more inclusive, healthy streets.	High	Implement Safe System speed limits and treatments, pending Council and DIT approval of recommendations from the City Wide Speed Limit Review. Delivery of prioritised upgrade/new projects with Safe System aligned outcomes identified within the Transport Strategy to enhance road user safety. Monitor road related statistics to identify if additional prioritisation criteria and funding are needed	Medium	Upgrade/new projects are considered as part of the Annual Business Plan & Budget
	Increasing demands placed on the transport network, with growing volumes of pedestrians, motorists, cyclists, and public transport users using the network to get into and around the City. This will result in increased level of service expectations as well as competing demands for the services provided by our transport assets (e.g. off street parking, pedestrian, cycling and public transport infrastructure).	High	Engage with the community and develop an Integrated Transport Strategy to establish a long-term vision for the transport network. Delivery of prioritised upgrade/new projects identified within the Transport Strategy to enhance the transport network and accommodate city growth through upgrading existing assets and creating new assets to align service provision with the evolving needs of the community.	Medium	Within existing resources / budgets Upgrade/new projects are considered as part of the Annual Business Plan & Budget
	CoA do not have the financial capacity to undertake all recommended upgrades in conjunction with asset renewal projects to address functionality deficiencies and strategic objectives.	High	Upgrade opportunities associated with significant renewal projects are discussed with Council on an annual basis through the Business Plan and Budget Process. Prior to allocating resources to detailed design and construction activities, concept design options are developed with cost estimates and presented to CoA's Senior Leadership Team, to confirm project priority in conjunction with the recommended scope and timing of works.	Medium	Upgrade/new projects are considered as part of the Annual Business Plan & Budget
	Compromised decision making caused by insufficient asset information	High	Continue to regularly collect and update asset condition and financial information in our asset management system, to inform sound decision making. Undertake predictive scenario modelling to effectively communicate the relationship between cost, level of service and risk to inform asset management strategies.	Medium	Within existing resources / budgets
	Accelerated asset deterioration and technical obsolescence, resulting in assets requiring renewal earlier than scheduled within Asset Management Plan.	High	Undertake regular condition audits and routine maintenance inspections to understand asset deterioration trends. Review emerging renewal priorities on a regular basis and update the 4-year renewal plan through the business plan and budget process on an annual basis as required.	Medium	Within existing resources / budgets

Asset at Risk	What can Happen	Risk Rating	Risk Treatment Plan	Residual Risk	Treatment Cost
All Transport Assets	Increasing operational and maintenance requirements and costs	High	Undertake routine maintenance inspections and maintenance planning to proactively identify financial risks associated with maintenance requirements to provide the agreed level of service. Review and update maintenance standards, intervention levels and response times following adoption of Asset Management Plan. Utilise established processes through the annual business plan and budget to submit a business case to re-forecast additional operational and maintenance costs.	Medium	Within existing resources / budgets
	Third party works (e.g. utility trenching) are not constructed in accordance with CoA standards, resulting in potential hazards to public and/or premature asset failure and reduced useful life.	High	All third-party works require City Works Permits, to ensure works are delivered in accordance with City Works Guidelines and CoA standards. Defects and omission inspections are undertaken following the completion of works to ensure compliance with CoA standards. Where defects are identified the third-party is instructed to undertake required rectifications works.	Medium	Within existing resources / budgets
	Gifted assets associated with developments are not constructed in accordance with CoA standards, resulting in potential hazards to public and/or premature asset failure and reduced useful life.	High	All third-party works require City Works Permits, to ensure works are delivered in accordance with City Works Guidelines and CoA standards. Additionally, where appropriate, infrastructure agreements are established with developers to ensure proposed works are designed and constructed in accordance with CoA standards. Defects and omission inspections are undertaken following the completion of works to ensure compliance with CoA standards and/or infrastructure agreement. Where defects are identified the developer is instructed to undertake required rectifications works.	Medium	Within existing resources / budgets
Roads	Occurrence of significant road defects, such as potholes and deformations, resulting in hazards to road users.	High	Cyclic condition audits and routine maintenance inspections to monitor the condition of the road network. Delivery of planned and reactive maintenance programs with annual reviews of the capital works program to re-prioritise and incorporate emerging risks.	Medium	Within existing resources / budgets
Footpaths	Occurrence of significant footpath defects, such as vertical displacements/trip hazards or loose/missing pavers, resulting in hazards to cyclists and pedestrians.	High	Cyclic condition audits and routine maintenance inspections to monitor the condition of the footpath network. Delivery of planned and reactive maintenance programs with annual reviews of the capital works program to re-prioritise and incorporate emerging risks.	Medium	Within existing resources / budgets
Traffic Signals	Occurrence of significant traffic signal defects, causing electrical faults and/or equipment failure, resulting in major disruption to the transport network.	High	Cyclic condition audits and routine maintenance inspections to monitor the condition of the traffic signal network. Delivery of planned and reactive maintenance programs with annual reviews of the capital works program to re-prioritise and incorporate emerging risks.	Medium	Within existing resources / budgets

Asset at Risk	What can Happen	Risk Rating	Risk Treatment Plan	Residual Risk	Treatment Cost
Bridges	Structural failure of bridge assets as a result of lifecycle deterioration, resulting in catastrophic events, including death.	Very High	The condition of all bridge assets is monitored on a regular basis through Level 2 condition inspections which are undertaken every 2-4 years (based of asset age and risk profile) in conjunction with Level 1 maintenance inspections which are undertaken annually. Level 2 inspections are undertaken by structural engineering consultants in accordance with the Department of Infrastructure and Transports Road Structures Inspection Manual. Significant renewal and rehabilitation requirements identified are incorporated into renewal forecasting of asset management plans and essential maintenance requirements that are identified through inspections are considered through the Business Plan and Budget process annually.	Medium	Inspections are funded within existing resources / budgets Additional maintenance budget requirements are considered where required annually

6.3 Infrastructure Resilience Approach

The resilience of our 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.

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.

Ensuring we remain resilient to the impacts of projected future climate will require ongoing investigation, monitoring and adaption within future revisions of this Asset Management Plan. This has been recognised as a key action within the Improvement Plan (Chapter 8).

Table 6.3: Resilience Assessment

Threat / Hazard	Assessment Method	Current Resilience Approach
Increasing temperatures and more frequent, long-running and intense heatwaves	Data SA Climate Projections for South Australia Climate change modelling scenarios based on weather station data	Implementation key actions from the Climate Change Risk Adaptation Action Plan, which include: • Continuing to work with industry to identify new/superior products (or new applications) for application in CoA • Developing an Urban Greening Strategy to guide future investment for improved canopy cover and natural cooling
Less rain overall but more intense storms and flooding	Data SA Climate Projections for South Australia Climate change modelling scenarios based on weather station data	Implementation of key actions from the Climate Change Risk Adaptation Action Plan, which include: • Undertaking a full underground audit of our stormwater network and developing a Stormwater Management Plan to understand current and future upgrade priorities to manage flood risk • Development of flexible spatial flood modelling layers in GIS

6.4 Service and Risk Trade-Offs

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

6.4.1 What we cannot do

Based on our current Long-Term Financial Plan budgets, there are some operations and maintenance activities and capital projects that are unable to be undertaken within the next 10 years.

Maintenance & Operations

Currently, maintenance activities are evaluated and prioritised with respect to available budgets. While make-safe treatments are always undertaken as soon practical (generally within 24 hours), we are currently unable to undertake all permanent repairs within the timeframes aligned with community expectations. Following the completion of this Asset Management Plan, we will be updating maintenance standards to formalise maintenance intervention levels and response times, with the objective of establishing an acceptable balance between cost, risk, and customer expectations.

This activity has been recognised as an action within the Improvement Plan of this Asset Management Plan (Chapter 8), where the associated financial impacts will need to be further considered in future revisions of this Asset Management Plan and the Long-Term Financial Plan.

Renewal

There is an estimated $9.49 million renewal funding shortfall on average per year over the next 10 years, to continue to provide services in line with community expectations and reduce whole-of-life costs. This is further summarised for each transport asset class in Table 6.4.1 below.

Table 6.4.1: Renewal funding shortfall

Asset Class	Forecast renewal costs over next 10 years (annual average)	Current budget allocation over next 10 years (annual average)	Renewal funding shortfall over next 10 years (annual average)
Roads	$9,570,000	$6,756,660	-$2,813,340
Kerb and Watertable	$3,078,500	$2,621,077	-$947,423
Footpaths	$9,850,000	$6,061,640	-$3,788,360
Bridges	$7,262,000	$7,699,644	$437,644
Traffic Signals	$3,860,000	$1,484,810	-$2,375,190
Total	$33,620,500	$24,133,830	-$9,486,670

Acquisition (New & Upgrade)

It will not be possible to deliver all new and upgrade initiatives identified within corporate strategies and action plans within the 10-year planning period. New and upgrade initiatives will be prioritised and assessed against key criteria (see section 5.5) and considered with respect to available budgets. This process will be undertaken in consultation with the community through the business plan and budget process and the development of the Resource Plan.

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:

- Reduced levels of service for the transport network (maintenance and renewal backlog)
- Reduced customer satisfaction levels associated with the management of our existing assets
- Intergenerational inequity (burdening future generations)

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 public safety risks associated with assets deteriorating beyond recommended intervention levels
- Increased reputational risks associated with service provisions not aligning with community expectations
- Increased financial risks associated with surplus maintenance requirements that cannot be accommodated within existing budgets
- Increased financial risks associated with higher renewal and/or rehabilitation treatments as asset renewals are not funded at the optimal point in time
- Increased economic risk associated with reduced business activity, events and tourism
- Intergenerational inequity (burdening future generations)

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 Sustainability and Projections

7.1.1 Sustainability of service delivery

There are two key indicators of sustainable service delivery that are considered in the Asset Management 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)
- Medium term forecast costs/proposed budget (over 10 years of the planning period)

Asset Renewal Funding Ratio

The forecast renewal costs along with the proposed renewal budget, and the cumulative shortfall, is detailed in Appendix C and summarised in Table 7.1.1-1 with an overall Asset Renewal Funding Ratio[6] of 72%.

Table 7.1.1-1: Asset Renewal Funding Ratio

Roads	Kerbing	Footpaths	Bridges	Traffic Signals	Total
71%	69%	62%	106%	38%	72%

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years we expect to have 72% of the funds required for the optimal renewal of assets.

Contributing factors for the gap between the forecast renewal costs and current budgets include:

- Not achieving our Asset Renewal Funding Ratio targets over the past 4 financial years as a result of covid-19 resourcing impacts and project delays associated with post-pandemic market saturation.
- Utilising advanced predictive modelling within this Asset Management Plan, that analyses asset condition information to better recognise the changing asset investment needs over time to maintain service levels.
- Ensuring we accurately recognise asset replacement costs, utilising current unit rates that take into consideration increasing costs associated with inflation and industry escalations (We have experienced significant increases in project unit rates, noting that the Local Government Association (LGA) have indicated that costs and materials have increased up to 25% post pandemic).

Medium Term – 10 Year Financial Planning Period

This Asset Management 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 for the transport network over the 10 year planning period is approximately $41.23 million on average per year.

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

The current (budgeted) operations, maintenance and renewal funding is approximately $31.74 million on average per year giving a 10 year funding shortfall of approximately $9.49 million on average per year.

This indicates that 77% of the forecast costs needed to provide the services documented in this Asset Management Plan are accommodated in the proposed budget. Note, these calculations exclude acquired assets.

This information is presented in further detail for each asset class in Table 7.1.1-2 below.

Table 7.1.1-2: 10-Year Financial Indicator

Asset Class	Forecast operations, maintenance, and renewal costs (10-year average)	Current operations, maintenance, and renewal funding (10-year average)	Funding Shortfall/ Surplus (10-year average)	10 Year Financial Indicator
Roads	$12,170,000	$9,356,660	-$2,813,340	77%
Kerb and Watertable	$3,568,500	$2,621,077	-$947,423	73%
Footpaths	$12,987,500	$9,199,140	-$3,788,360	71%
Bridges	$7,554,500	$7,992,144	$437,644	106%
Traffic Signals	$4,944,500	$2,569,310	-$2,375,190	52%
Total	$41,225,000	$31,738,330	-$9,486,670	77%

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 Asset Management 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

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.

A gap between the forecast outlays and the amounts allocated in the financial plan indicates further work is required on reviewing service levels in the Asset Management Plan or revising the Long-Term Financial Plan.

The forecast costs (outlays) required for consideration in the 10 year Long-Term Financial Plan are provided in Appendix F. These costs include renewal, maintenance, and operations of our existing assets. For the next revision of this Asset Management Plan, it is recommended to include the acquisition costs (upgrade/new) that are specified within the Resource Plan and are accommodated within the Long-Term Financial Plan. This has been recognised as an action within the Improvement Plan (Chapter 8). Costs associated with asset disposal, will continue to be identified through Council Reports and accommodated within the annual Business Plan and Budget and Long-Term Financial Plan as required.

7.2 Funding Strategy

The proposed funding for assets is outlined in the City of Adelaide Annual Business Plan and Budget and Long-Term Financial Plan.

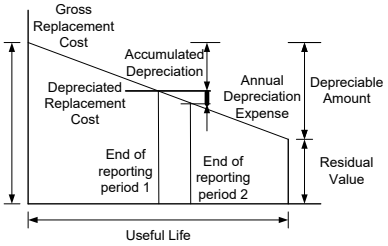
The financial strategy of the entity determines how funding will be provided, whereas the Asset Management Plan communicates how and when this will be spent, along with the service and risk consequences of various service alternatives.

7.3 Valuation Forecasts

7.3.1 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 fair value cost to replace service capacity in accordance with Australian Accounting Standards.

Gross Replacement Cost	$1,141 million
Depreciable Amount	$991 million
Depreciated Replacement Cost[7]	$630 million
Depreciation	$21.6 million



A more comprehensive breakdown for each asset class is shown in Table 7.3.1.

Table 7.3.1: Asset Valuations

Financial Figure	Roads	Kerbs	Footpaths	Traffic Signals	Bridges
Gross Replacement Cost	$296,523,651	$119,743,095	$486,356,980	$59,352,017	$178,560,278
Depreciable Amount	$245,814,270	$119,743,095	$386,975,659	$59,352,017	$178,560,278
Depreciated Replacement Cost[8]	$201,261,941	$71,147,657	$280,119,321	$19,835,336	$57,534,949
Annual Depreciation	$7,196,174	$1,443,182	$7,782,769	$3,041,692	$2,088,132

7.3.2 Valuation Forecast

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

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.

Increases to asset valuation are formally recognised through asset revaluations in conjunction with updates to Asset Management Plans, which are both typically undertaken every 4 years.

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

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 Asset Management plan and provides 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 current assets will remain within the organisation's ownership throughout the planning period
- Renewal forecasts associated with Adelaide Bridge assume the full replacement of the existing structure. The scope, costs and timing of the recommended capital works will be better understood following the completion of the Options Analysis (currently underway and scheduled for completion in 2024). Outcomes will be revised into this Asset Management Plan and Long Term Financial Plan in the future as soon as practical
- Renewal forecasts are based on costs associated with like for like or modern equivalent replacement and are based off current design standards and any legislated requirements. They do not account for additional costs to upgrade assets or install new ancillary assets
- Renewal forecast have been derived from treatment rates established from quantity surveyor estimates or contract rates, applied to asset dimensions recognised within the Asset Management System
- Renewal forecasts have been escalated into FY24/25 dollars (based on historic and forecast inflation)
- Renewal forecasts account for external design requirements, where costs are allocated within each FY of the Asset Management Plan as a "Design Program" where applicable (typically between 5-10% of annual construction costs, depending on asset class)
- Renewal forecasts consider asset condition, asset functionality and integrated planning principles
- Renewal forecasts have been aligned where appropriate with upgrade projects approved by Council and recognised in the Long-Term Financial Plan (e.g. Main Streets)
- Renewal forecasts do not account for internal staff resourcing. These resources are to be allocated through a capital resource overhead and accommodated into the Long-Term Financial Plan separately
- Asset useful lives align with current levels of service and are based on the judgment and experience of internal staff
- Asset remaining useful life estimates are based off asset condition data, renewal intervention levels aligned with current levels of service and technical asset deterioration profiles which are based on the judgement and experience of internal staff and available industry standards
- Asset useful life and remaining useful life estimates assume existing maintenance resourcing levels are continued
- Acquisition (upgrade/new) costs are not recognised within this Asset Management Plan. These costs will be recognised in the Resource Plan and incorporated into Long-Term Financial Plan separately
- Operations and maintenance forecasts are prioritised and delivered with respect to existing budget (standards to be reviewed and associated cost impacts to be incorporated into a future revision of this Asset Management Plan)
- Operations and maintenance forecasts do not currently account for the future acquisition of new assets through upgrade/new projects or gifted assets (to be considered through the annual business plan and budget and incorporated into future revisions of this Asset Management Plan)
- The Long-Term Financial Plan will appropriately escalate financial outlays communicated within this Asset Management Plan

7.5 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this Asset Management 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 scale[9] 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 ± 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 ± 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 ± 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 ± 40%
E. Very Low	None or very little data held.

The estimated confidence level for and reliability of data used in this Asset Management Plan is shown in Table 7.5-2. This Asset Management Plan's Improvement Plan (Chapter 8) outlines further steps recommended to be undertaken to continue to increase the maturity and confidence in asset management and financial forecasts.

Table 7.5-2: Data Confidence Assessment for Data used in Asset Management Plan

Roads	Kerbs	Footpaths	Bridges	Traffic Signals
Medium - High	Medium - High	Medium - High	Medium - High	Medium

Further information to support this assessment at a more granular level is provided in Appendix G.

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

8.0 PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices

8.1.1 Accounting and financial data sources

This Asset Management Plan utilises accounting and financial data. The source of the data is from the accounting module of CoA's Asset Management System (Assetic).

8.1.2 Asset management data sources

This Asset Management Plan also utilises asset management data. The source of the data is from CoA's Asset Management System (Assetic).

8.2 Improvement Plan

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

Table 8.2: Improvement Plan

Task	Task	Responsibility	Resources Required	Timeline
1	Finalise a 4-year Resource Plan to identify key upgrade/new projects to deliver Council's Strategic Plan objectives. Once key projects are recognised within the Long Term Financial Plan, Asset Management Plans will be updated to ensure associated acquisition costs (upgrade/new) and ongoing operational and maintenance costs are appropriately recognised, in conjunction with any scheduling adjustments required for asset renewal programs.	Strategy, Insights & Performance, with organisational support Infrastructure Planning	Within existing resource allocations	2024-25
2	Finalise Integrated Transport Strategy and identify key priority projects for inclusions within the Resource Plan. Review any key impacts to existing asset renewal programs.	Infrastructure Planning	Within existing resource allocations	2025-26
3	Revise asset renewal forecasts for Adelaide Bridge following the completion of Options Analysis (currently underway).	Infrastructure Planning	Within existing resource allocations	2024-25
4	Continue to work in partnership with both the State and Federal Governments to pursue external funding opportunities for both renewal and significant upgrade/new transport projects.	City Services Executive	Within existing resource allocations	2024-25 2025-26
5	Review and update operations and maintenance standards, to develop more structured and proactive maintenance regimes which provide an acceptable balance between cost, risk, and customer expectations. Include changes into future revisions of this Asset Management Plan and Long-Term Financial Plan.	Infrastructure Planning, City Operations	Within existing resource allocations	2024-25 2025-26

6	Continue to undertake regular condition audits and revaluation for all our transport assets within the nominated 4-year cycles, including regular review of asset useful lives.	Infrastructure Planning	Within existing resource allocations	Ongoing
7	Continue to review our technical standards and their application across the transport network with respect to climate resilience, performance, whole-of-life cost, amenity, and heritage requirements.	Infrastructure Planning, Technical Services	Within existing resource allocations	Ongoing
8	Continue to monitor forecast climate change impacts to ensure we remain resilient through proactively implementing appropriate mitigation and adaptation controls.	Sustainability, Infrastructure Planning	Within existing resource allocations	Ongoing
9	Improve the capture of carbon emission data for technical standards to support lower carbon decision making	Low Carbon & Circular Economy, Infrastructure Planning, Technical Services	Led by existing resources, with external support identified through the Business Plan and Budget	Ongoing
10	Improve the capture of carbon emission data for project procurement to support lower carbon decision making	Low Carbon & Circular Economy, Procurement, Infrastructure Delivery	Led by existing resources, with external support identified through the Business Plan and Budget	Ongoing
11	Review of corporate performance measure targets for customer satisfaction, to assist with performance gap analysis	Strategy, Insights & Performance, Infrastructure Planning	Within existing resource allocations	2024-25
12	Review and standardise asset hierarchies for all asset classes within Streets, Park Lands and Buildings Categories.	Infrastructure Planning, City Operations	Within existing resource allocations	2024-25
13	Review customer service requests codes to better align with Level of Service reporting and operational and maintenance sub-activities.	Infrastructure Planning, City Operations, Customer Centre	Within existing resource allocations	2024-25
14	Further develop processes to ensure asset data is updated following the completion of contracted maintenance work and emergency asset replacement resulting from vandalism or knockdowns	Infrastructure Planning, City Operations,	Within existing resource allocations	2024-25
15	Based on community engagement feedback, review the feasibility of establishing a distinct asset class for Cycleways for the next revision of this Asset Management Plan	Infrastructure Planning	Within existing resource allocations	2026-27

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 Asset Management 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 budgets will be incorporated into the Long-Term Financial Plan once completed.

The Asset Management Plan has a maximum life of 4 years and is due for complete revision and updating within two years of a general Council election, pursuant to section 122 of the Local Government Act 1999 (SA).

8.4 Performance Measures

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

- 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 consider 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 Planning documents and associated plans
- The Asset Renewal Funding Ratio achieving the Organisational target (90-110%)
- Achieving Technical Level of Service objectives
- Reviewing changes to customer service request numbers and customer satisfactory surveys
- Progressing with the implementation of Improvement Actions identified in Table 8.2
- Reviewing and update of the Plan at minimum every four years

9.0 REFERENCES

- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
- IPWEA, 2015, 3rd edn., 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
- IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/namsplus.
- IPWEA, 2015, 2nd edn., 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/AIFMM.
- IPWEA, 2020 'International Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney
- IPWEA, 2018, Practice Note 12.1, 'Climate Change Impacts on the Useful Life of Assets', Institute of Public Works Engineering Australasia, Sydney
- IPWEA, 2012, Practice Note 6 Long-Term Financial Planning, Institute of Public Works Engineering Australasia, Sydney, https://www.ipwea.org/publications/ipweabookshop/practicenotes/pn6
- IPWEA, 2014, Practice Note 8 – Levels of Service & Community Engagement, Institute of Public Works Engineering Australasia, Sydney, https://www.ipwea.org/publications/ipweabookshop/practicenotes/pn8
- ISO, 2014, ISO 55000:2014, Overview, principles and terminology
- ISO, 2018, ISO 31000:2018, Risk management – Guidelines
- City of Adelaide 2020-2024 Strategic Plan, https://www.cityofadelaide.com.au/about-council/plans-reporting/strategic-planning/

10.0 APPENDICES

Appendix A Operation Forecast

The forecast operational costs for the transport network are shown below. Future revisions of this Asset Management Plan will further review forecast requirements based on updated operations and maintenance standards. All values are shown in current day dollars.

Roads

Table A1 - Operation Forecast Summary (Roads)

Year	Operation Forecast	Additional Operation Forecast	Total Operation Forecast
2024-25	$1,560,000	$0	$1,560,000
2025-26	$1,560,000	$0	$1,560,000
2026-27	$1,560,000	$0	$1,560,000
2027-28	$1,560,000	$0	$1,560,000
2028-29	$1,560,000	$0	$1,560,000
2029-30	$1,560,000	$0	$1,560,000
2030-31	$1,560,000	$0	$1,560,000
2031-32	$1,560,000	$0	$1,560,000
2032-33	$1,560,000	$0	$1,560,000
2033-34	$1,560,000	$0	$1,560,000

Kerb and Watertable

Table A2 - Operation Forecast Summary (Kerb and Watertable)

Year	Operation Forecast	Additional Operation Forecast	Total Operation Forecast
2024-25	$25,000	$0	$25,000
2025-26	$25,000	$0	$25,000
2026-27	$25,000	$0	$25,000
2027-28	$25,000	$0	$25,000
2028-29	$25,000	$0	$25,000
2029-30	$25,000	$0	$25,000
2030-31	$25,000	$0	$25,000
2031-32	$25,000	$0	$25,000
2032-33	$25,000	$0	$25,000
2033-34	$25,000	$0	$25,000

Footpaths

Table A3 - Operation Forecast Summary (Footpaths)

Year	Operation Forecast	Additional Operation Forecast	Total Operation Forecast
2024-25	$1,497,500	$0	$1,497,500
2025-26	$1,497,500	$0	$1,497,500
2026-27	$1,497,500	$0	$1,497,500
2027-28	$1,497,500	$0	$1,497,500
2028-29	$1,497,500	$0	$1,497,500
2029-30	$1,497,500	$0	$1,497,500
2030-31	$1,497,500	$0	$1,497,500
2031-32	$1,497,500	$0	$1,497,500
2032-33	$1,497,500	$0	$1,497,500
2033-34	$1,497,500	$0	$1,497,500

Bridges

Table A4 - Operation Forecast Summary (Bridges)

Year	Operation Forecast	Additional Operation Forecast	Total Operation Forecast
2024-25	$62,500	$0	$62,500
2025-26	$62,500	$0	$62,500
2026-27	$62,500	$0	$62,500
2027-28	$62,500	$0	$62,500
2028-29	$62,500	$0	$62,500
2029-30	$62,500	$0	$62,500
2030-31	$62,500	$0	$62,500
2031-32	$62,500	$0	$62,500
2032-33	$62,500	$0	$62,500
2033-34	$62,500	$0	$62,500

Traffic Signals

Table A5 - Operation Forecast Summary (Traffic Signals)

Year	Operation Forecast	Additional Operation Forecast	Total Operation Forecast
2024-25	$588,500	$0	$588,500
2025-26	$588,500	$0	$588,500
2026-27	$588,500	$0	$588,500
2027-28	$588,500	$0	$588,500
2028-29	$588,500	$0	$588,500
2029-30	$588,500	$0	$588,500
2030-31	$588,500	$0	$588,500
2031-32	$588,500	$0	$588,500
2032-33	$588,500	$0	$588,500
2033-34	$588,500	$0	$588,500

Appendix B Maintenance Forecast

The forecast maintenance costs for the transport network are shown below. Future revisions of this Asset Management Plan will further review forecast requirements based on updated operations and maintenance standards. All values are shown in current day dollars.

Roads

Table B1 - Maintenance Forecast Summary (Roads)

Year	Maintenance Forecast	Additional Maintenance Forecast	Total Maintenance Forecast
2024-25	$1,040,000	$0	$1,040,000
2025-26	$1,040,000	$0	$1,040,000
2026-27	$1,040,000	$0	$1,040,000
2027-28	$1,040,000	$0	$1,040,000
2028-29	$1,040,000	$0	$1,040,000
2029-30	$1,040,000	$0	$1,040,000
2030-31	$1,040,000	$0	$1,040,000
2031-32	$1,040,000	$0	$1,040,000
2032-33	$1,040,000	$0	$1,040,000
2033-34	$1,040,000	$0	$1,040,000

Kerb and Watertable

Table B2 - Maintenance Forecast Summary (Kerb and Watertable)

Year	Maintenance Forecast	Additional Maintenance Forecast	Total Maintenance Forecast
2024-25	$465,000	$0	$465,000
2025-26	$465,000	$0	$465,000
2026-27	$465,000	$0	$465,000
2027-28	$465,000	$0	$465,000
2028-29	$465,000	$0	$465,000
2029-30	$465,000	$0	$465,000
2030-31	$465,000	$0	$465,000
2031-32	$465,000	$0	$465,000
2032-33	$465,000	$0	$465,000
2033-34	$465,000	$0	$465,000

Footpaths

Table B3 - Maintenance Forecast Summary (Footpaths)

Year	Maintenance Forecast	Additional Maintenance Forecast	Total Maintenance Forecast
2024-25	$1,640,000	$0	$1,640,000
2025-26	$1,640,000	$0	$1,640,000
2026-27	$1,640,000	$0	$1,640,000
2027-28	$1,640,000	$0	$1,640,000
2028-29	$1,640,000	$0	$1,640,000
2029-30	$1,640,000	$0	$1,640,000
2030-31	$1,640,000	$0	$1,640,000
2031-32	$1,640,000	$0	$1,640,000
2032-33	$1,640,000	$0	$1,640,000
2033-34	$1,640,000	$0	$1,640,000

Bridges

Table B4 - Maintenance Forecast Summary (Bridges)

Year	Maintenance Forecast	Additional Maintenance Forecast	Total Maintenance Forecast
2024-25	$230,000	$0	$230,000
2025-26	$230,000	$0	$230,000
2026-27	$230,000	$0	$230,000
2027-28	$230,000	$0	$230,000
2028-29	$230,000	$0	$230,000
2029-30	$230,000	$0	$230,000
2030-31	$230,000	$0	$230,000
2031-32	$230,000	$0	$230,000
2032-33	$230,000	$0	$230,000
2033-34	$230,000	$0	$230,000

Traffic Signals

Table B5 - Maintenance Forecast Summary (Traffic Signals)

Year	Maintenance Forecast	Additional Maintenance Forecast	Total Maintenance Forecast
2024-25	$496,000	$0	$496,000
2025-26	$496,000	$0	$496,000
2026-27	$496,000	$0	$496,000
2027-28	$496,000	$0	$496,000
2028-29	$496,000	$0	$496,000
2029-30	$496,000	$0	$496,000
2030-31	$496,000	$0	$496,000
2031-32	$496,000	$0	$496,000
2032-33	$496,000	$0	$496,000
2033-34	$496,000	$0	$496,000

Appendix C Renewal Forecast Summary

The forecast renewal costs for the transport network, relative to current renewal budgets are shown below, in conjunction with the annual renewal budget shortfall and the cumulative budget shortfall over the 10-year planning period. All Forecast costs are shown in 2024-25 dollar values.

Roads

Table C1 - Renewal Forecast Summary (Roads)

Year	Renewal Forecast	Renewal Budget	Annual Budget Shortfall	Cumulative Budget Shortfall
2024-25	$9,000,000	$6,012,500	-$2,987,500	-$2,987,500
2025-26	$12,000,000	$6,024,915	-$5,975,085	-$8,962,585
2026-27	$11,000,000	$6,278,253	-$4,721,747	-$13,684,332
2027-28	$9,200,000	$6,587,336	-$2,612,664	-$16,296,996
2028-29	$9,500,000	$6,744,541	-$2,755,459	-$19,052,456
2029-30	$9,000,000	$6,908,797	-$2,091,203	-$21,143,658
2030-31	$9,000,000	$7,047,140	-$1,952,860	-$23,096,518
2031-32	$9,000,000	$7,207,274	-$1,792,726	-$24,889,244
2032-33	$9,000,000	$7,377,920	-$1,622,080	-$26,511,324
2033-34	$9,000,000	$7,377,920	-$1,622,080	-$28,133,404

Across the 10-year planning period, the forecast renewal costs are $9.06m, with a current budget allocation of $67.6 m, resulting in a cumulative budget shortfall of -$28.1 m. This equates to an asset renewal funding ratio of 71%.

Kerb and Watertable

Table C2 - Renewal Forecast Summary (Kerb and Watertable)

Year	Renewal Forecast	Renewal Budget	Annual Budget Shortfall	Cumulative Budget Shortfall
2024-25	$1,850,000	$1,927,263	$77,263	$77,263
2025-26	$3,050,000	$1,949,323	-$1,100,677	-$1,023,414
2026-27	$2,850,000	$2,040,522	-$809,478	-$1,832,892
2027-28	$4,285,000	$2,134,700	-$2,150,300	-$3,983,192
2028-29	$3,125,000	$2,136,504	-$988,496	-$4,971,688
2029-30	$3,125,000	$2,139,332	-$985,668	-$5,957,356
2030-31	$3,125,000	$2,182,170	-$942,830	-$6,900,186
2031-32	$3,125,000	$2,231,756	-$893,244	-$7,793,430
2032-33	$3,125,000	$2,284,598	-$840,402	-$8,633,832
2033-34	$3,125,000	$2,284,598	-$840,402	-$9,474,234

Across the 10-year planning period, the forecast renewal costs are $30.8 m, with a current budget allocation of $21.3 m, resulting in a cumulative budget shortfall of -$9.5 m. This equates to an asset renewal funding ratio of 69%.

Footpaths

Table C3 - Renewal Forecast Summary (Footpaths)

Year	Renewal Forecast	Renewal Budget	Annual Budget Shortfall	Cumulative Budget Shortfall
2024-25	$8,500,000	$5,358,068	-$3,141,932	-$3,141,932
2025-26	$10,000,000	$5,438,504	-$4,561,496	-$7,703,428
2026-27	$10,000,000	$5,632,741	-$4,367,259	-$12,070,687
2027-28	$10,000,000	$5,910,045	-$4,089,955	-$16,160,642
2028-29	$10,000,000	$6,051,086	-$3,948,914	-$20,109,556
2029-30	$10,000,000	$6,198,454	-$3,801,546	-$23,911,102
2030-31	$10,000,000	$6,322,573	-$3,677,427	-$27,588,528
2031-32	$10,000,000	$6,466,242	-$3,533,758	-$31,122,288
2032-33	$10,000,000	$6,619,343	-$3,380,657	-$34,502,944
2033-34	$10,000,000	$6,619,343	-$3,380,657	-$37,883,600

Across the 10-year planning period, the forecast renewal costs are $98.5 m, with a current budget allocation of $60.6 m, resulting in a cumulative budget shortfall of -$37.8 m. This equates to an asset renewal funding ratio of 62%.

Bridges

Table C4 - Renewal Forecast Summary (Bridges)

Year	Renewal Forecast	Renewal Budget	Annual Budget Shortfall	Cumulative Budget Shortfall
2024-25	$750,000	$2,304,447	$1,554,447	$1,554,447
2025-26	$1,995,000	$2,398,110	$403,110	$1,957,557
2026-27	$1,600,000	$2,555,835	$955,835	$2,913,392
2027-28	$30,150,000	$2,722,292	-$27,427,708	-$24,514,316
2028-29	$30,500,000	$2,829,490	-$27,670,510	-$52,184,824
2029-30	$1,550,000	$2,942,315	$1,392,315	-$50,792,512
2030-31	$4,750,000	$51,890,316	$47,140,316	-$3,652,195
2031-32	$1,100,000	$3,069,429	$1,969,429	-$1,682,766
2032-33	$100,000	$3,142,104	$3,042,104	$1,359,338
2033-34	$125,000	$3,142,104	$3,017,104	$4,376,442

Across the 10-year planning period, the forecast renewal costs are $72.6 m, with a current budget allocation of $77.0 m, resulting in a cumulative budget surplus of $4.4 m. This equates to an asset renewal funding ration of 106%.

Traffic Signals

Table C5 - Renewal Forecast Summary (Traffic Signals)

Year	Renewal Forecast	Renewal Budget	Annual Budget Shortfall	Cumulative Budget Shortfall
2024-25	$4,250,000	$2,306,950	-$1,943,050	-$1,943,050
2025-26	$4,250,000	$2,322,837	-$1,927,163	-$3,870,213
2026-27	$4,250,000	$1,522,001	-$2,727,999	-$6,598,212
2027-28	$4,250,000	$1,585,710	-$2,664,290	-$9,262,502
2028-29	$4,250,000	$1,124,090	-$3,125,910	-$12,388,412
2029-30	$3,470,000	$1,151,466	-$2,318,534	-$14,706,946
2030-31	$3,470,000	$1,174,523	-$2,295,477	-$17,002,423
2031-32	$3,470,000	$1,201,212	-$2,268,788	-$19,271,211
2032-33	$3,470,000	$1,229,653	-$2,240,347	-$21,511,558
2033-34	$3,470,000	$1,229,653	-$2,240,347	-$23,751,905

Across the 10-year planning period, the forecast renewal costs are $38.6m, with a current budget allocation of $14.85m, resulting in a cumulative budget shortfall of -$23.7m. This equates to an asset renewal funding ratio of 38%.

Appendix D Budget Summary by Lifecycle Activity

The forecast costs (outlays) required for consideration in the 10 year Long-Term Financial Plan are provided in shown below. These costs include renewal, maintenance, and operations of our existing assets. For the next revision of this Asset Management Plan, it is recommended to include the acquisition costs (upgrade/new) that are specified within the Resource Plan and are accommodated within the Long-Term Financial Plan. This has been recognised as an action within the Improvement Plan (Chapter 8). Costs associated with asset disposal, will continue to be identified through Council Reports and accommodated within the annual Business Plan and Budget and Long-Term Financial Plan as required. All forecast renewal costs are shown in 2024/25 dollar values and operations/maintenance costs are shown in 2023/24 dollar values.

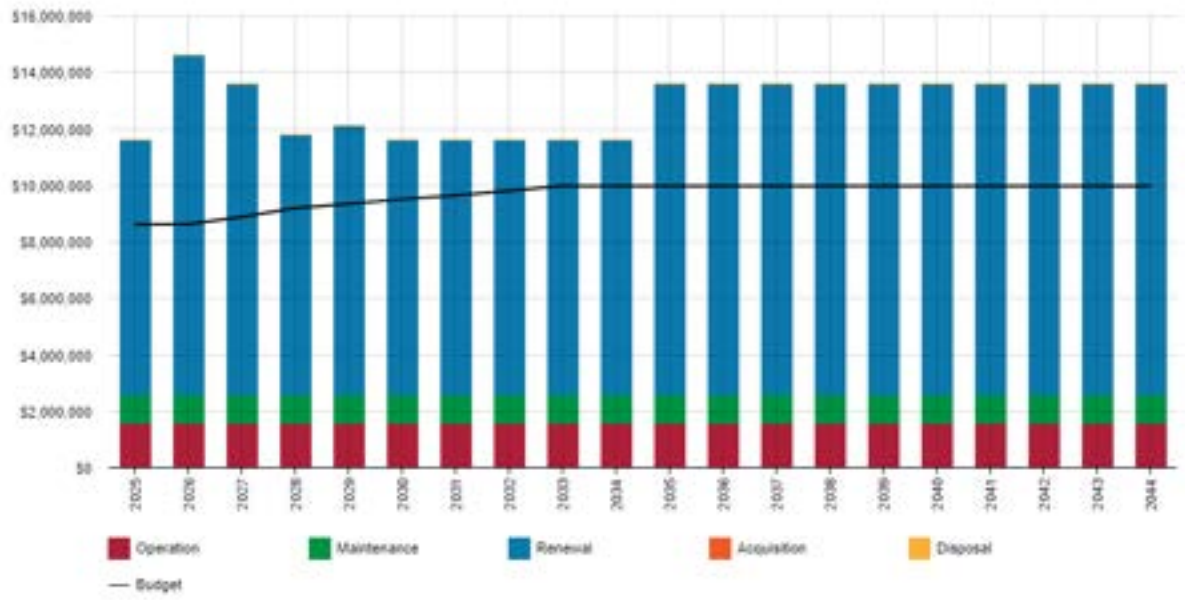
Roads

Table D1 – Budget Summary by Lifecycle Activity (Roads)

Year	Acquisition *	Operation	Maintenance	Renewal	Disposal
2024-25	$0	$1,560,0000	$1,040,0000	$9,000,000	$0
2025-26	$0	$1,560,0000	$1,040,0000	$12,000,000	$0
2026-27	$0	$1,560,0000	$1,040,0000	$11,000,000	$0
2027-28	$0	$1,560,0000	$1,040,0000	$9,200,000	$0
2028-29	$0	$1,560,0000	$1,040,0000	$9,500,000	$0
2029-30	$0	$1,560,0000	$1,040,0000	$9,000,000	$0
2030-31	$0	$1,560,0000	$1,040,0000	$9,000,000	$0
2031-32	$0	$1,560,0000	$1,040,0000	$9,000,000	$0
2032-33	$0	$1,560,0000	$1,040,0000	$9,000,000	$0
2033-34	$0	$1,560,0000	$1,040,0000	$9,000,000	$0

*Costs accounted for within the Resource Plan and incorporated into Long-Term Financial Plan separately (i.e. not through the Asset Management Plan)

Figure D1: Budget Summary by Lifecycle Activity (Roads)



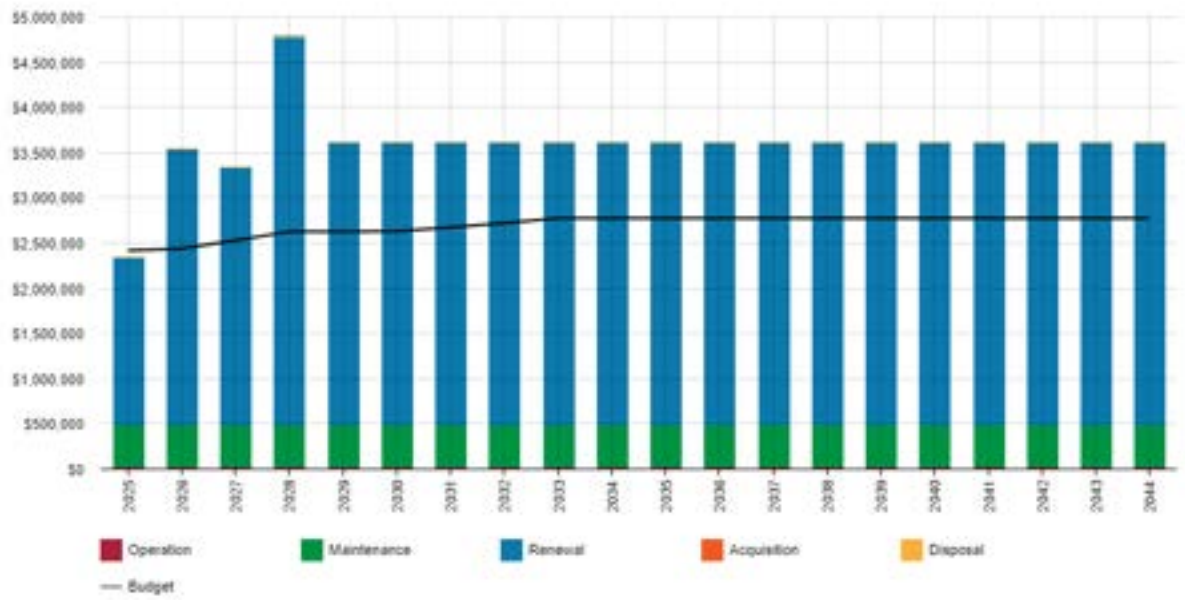
Kerb and Watertable

Table D2 – Budget Summary by Lifecycle Activity (Kerb and Watertable)

Year	Acquisition*	Operation	Maintenance	Renewal	Disposal
2024-25	$0	$25,000	$465,000	$1,850,000	$0
2025-26	$0	$25,000	$465,000	$3,050,000	$0
2026-27	$0	$25,000	$465,000	$2,850,000	$0
2027-28	$0	$25,000	$465,000	$4,285,000	$0
2028-29	$0	$25,000	$465,000	$3,125,000	$0
2029-30	$0	$25,000	$465,000	$3,125,000	$0
2030-31	$0	$25,000	$465,000	$3,125,000	$0
2031-32	$0	$25,000	$465,000	$3,125,000	$0
2032-33	$0	$25,000	$465,000	$3,125,000	$0
2033-34	$0	$25,000	$465,000	$3,125,000	$0

*Costs accounted for within the Resource Plan and incorporated into Long-Term Financial Plan separately (i.e. not through the Asset Management Plan)

Figure D2 – Budget Summary by Lifecycle Activity (Kerb and Watertable)



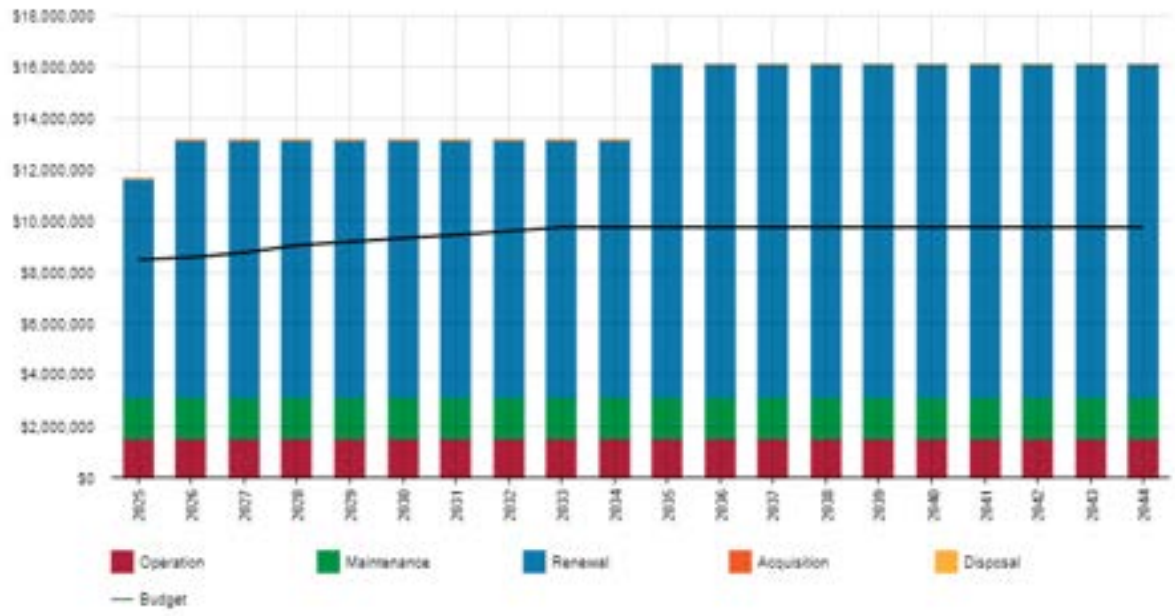
Footpaths

Table D3 – Budget Summary by Lifecycle Activity (Footpaths)

Year	Acquisition*	Operation	Maintenance	Renewal	Disposal
2024-25	$0	$1,497,000	$1,640,000	$8,500,000	$0
2025-26	$0	$1,497,000	$1,640,000	$10,000,000	$0
2026-27	$0	$1,497,000	$1,640,000	$10,000,000	$0
2027-28	$0	$1,497,000	$1,640,000	$10,000,000	$0
2028-29	$0	$1,497,000	$1,640,000	$10,000,000	$0
2029-30	$0	$1,497,000	$1,640,000	$10,000,000	$0
2030-31	$0	$1,497,000	$1,640,000	$10,000,000	$0
2031-32	$0	$1,497,000	$1,640,000	$10,000,000	$0
2032-33	$0	$1,497,000	$1,640,000	$10,000,000	$0
2033-34	$0	$1,497,000	$1,640,000	$10,000,000	$0

*Costs accounted for within the Resource Plan and incorporated into Long-Term Financial Plan separately (i.e. not through the Asset Management Plan)

Figure D3 – Budget Summary by Lifecycle Activity (Footpaths)



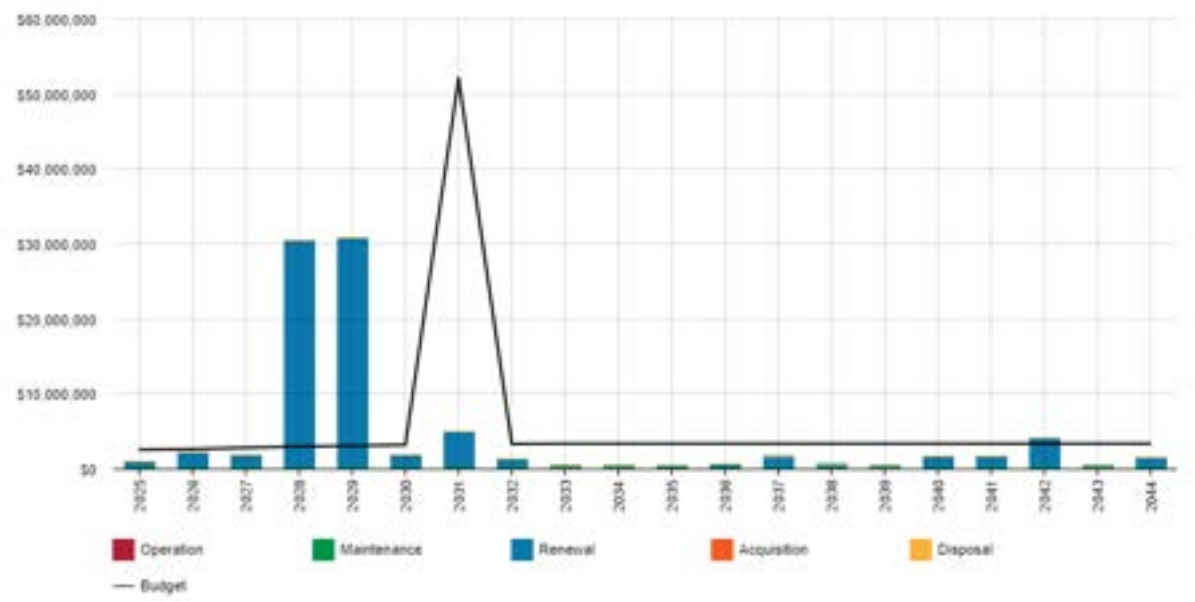
Bridges

Table D4 – Budget Summary by Lifecycle Activity (Bridges)

Year	Acquisition	Operation	Maintenance	Renewal	Disposal
2024-25	$0	$62,500	$230,000	$750,000	$0
2025-26	$0	$62,500	$230,000	$1,995,000	$0
2026-27	$0	$62,500	$230,000	$1,600,000	$0
2027-28	$0	$62,500	$230,000	$30,150,000	$0
2028-29	$0	$62,500	$230,000	$30,500,000	$0
2029-30	$0	$62,500	$230,000	$1,550,000	$0
2030-31	$0	$62,500	$230,000	$4,750,000	$0
2031-32	$0	$62,500	$230,000	$1,100,000	$0
2032-33	$0	$62,500	$230,000	$100,000	$0
2033-34	$0	$62,500	$230,000	$125,000	$0

*Costs accounted for within the Resource Plan and incorporated into Long-Term Financial Plan separately (i.e. not through the Asset Management Plan)

Figure D4 – Budget Summary by Lifecycle Activity (Bridges)



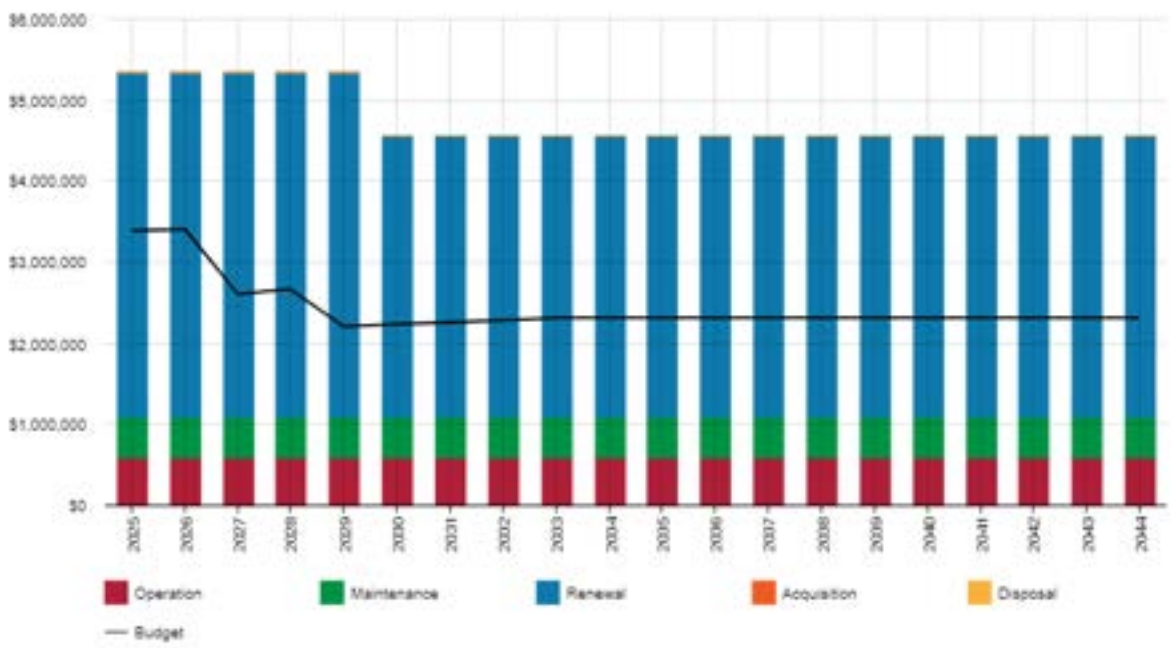
Traffic Signals

Table D5 – Budget Summary by Lifecycle Activity (Traffic Signals)

Year	Acquisition *	Operation	Maintenance	Renewal	Disposal
2024-25	$0	$588,500	$496,0000	$4,250,000	$0
2025-26	$0	$588,500	$496,0000	$4,250,000	$0
2026-27	$0	$588,500	$496,0000	$4,250,000	$0
2027-28	$0	$588,500	$496,0000	$4,250,000	$0
2028-29	$0	$588,500	$496,0000	$4,250,000	$0
2029-30	$0	$588,500	$496,0000	$3,470,000	$0
2030-31	$0	$588,500	$496,0000	$3,470,000	$0
2031-32	$0	$588,500	$496,0000	$3,470,000	$0
2032-33	$0	$588,500	$496,0000	$3,470,000	$0
2033-34	$0	$588,500	$496,0000	$3,470,000	$0

*Costs accounted for within the Resource Plan and incorporated into Long-Term Financial Plan separately (i.e. not through the Asset Management Plan)

Figure D5 – Budget Summary by Lifecycle Activity (Traffic Signals)



Appendix E Asset Condition State Overview & Renewal Intervention Levels

Roads

Table E1.1: Renewal Condition Intervention Levels (Roads)

	Road Surface		Road Pavement	
Hierarchy	Intervention Level	Useful Life	Intervention Level	Useful Life*
Major Arterial Roads	4	15 years	4	40-80 years
Minor Arterial Roads	4	15 years	4	40-80 years
Primary Collector	4	15 years	4	30-80 years
Local Collector	4.5	20 years	4	50-80 years
Local Access and Car Parks	4.5	25 years	4.5	50-80 years

*Useful Life will be dependent on specific rehabilitation treatment selected following pavement investigation and options analysis.

Table E1.2: Asset Condition Examples (Roads)

Condition	Example
Condition 1 Very Good: Free of defects, only planned and/or routine maintenance required	
Condition 2 Good: Minor defects, increasing maintenance required plus planned maintenance	

Condition 3 Fair: Defects requiring regular and/or significant maintenance to reinstate service	
Condition 4 Poor: Significant defects, higher order cost intervention likely	
Condition 5 Very Poor: Physically unsound and/or beyond rehabilitation, immediate action required	

Table E1.3: Capital Intervention Matrix (Road – Major Arterial, Minor Arterial, and Primary Collector)

PCI	SCI				
	1	2	3	4	5
1	-	-	-	50mm P&R + LP	50mm P&R + LP
2	-	-	-	50mm P&R + LP	50mm P&R + LP
3	-	-	-	50mm P&R + HP	50mm P&R + HP
4	Rehabilitation	Rehabilitation	Rehabilitation	Rehabilitation	Rehabilitation
5	Reconstruction	Reconstruction	Reconstruction	Reconstruction	Reconstruction

Table E1.4: Capital Intervention Matrix (Road – Local Collector)

PCI	SCI				
	1	2	3	4	4.5-5
1	-	-	-	-	40mm P&R + LP
2	-	-	-	-	40mm P&R + LP
3	-	-	-	-	40mm P&R + HP
4	Rehabilitation	Rehabilitation	Rehabilitation	Rehabilitation	Rehabilitation
4.5-5	Reconstruction	Reconstruction	Reconstruction	Reconstruction	Reconstruction

Table E1.5: Capital Intervention Matrix (Road – Local Access and Car Parks)

PCI	SCI				
	1	2	3	4	4.5-5
1	-	-	-	-	40mm P&R + LP
2	-	-	-	-	40mm P&R + LP
3	-	-	-	-	40mm P&R + HP
4	-	-	-	-	40mm P&R + HP
4.5-5	Reconstruction	Reconstruction	Reconstruction	Reconstruction	Reconstruction

PCI= Pavement Condition Index

SCI = Surface Condition Index

50mm P&R + LP refers to Planing and Reinstating (P&R) the top 50mm of asphalt with Light Patching (LP)

40mm P&R + HP refers to Planing and Reinstating (P&R) the top 40mm of asphalt with Heavy Patching (HP)

Kerb and Watertable

Table E2.1: Renewal Condition Intervention Levels (Kerb and Watertable)

	Concrete		Bluestone		Granite	
Hierarchy	Intervention Level	Useful Life (Years)	Intervention Level	Useful Life (Years)	Intervention Level	Useful Life (Years)
Major Arterial Roads	4	60-80	4	120	4	120
Minor Arterial Roads	4	60-80	4	120	4	120
Primary Collector	4	60-80	4	120	4	120
Local Collector	4	60-80	4	120	4	120
Local Access and Car Parks	4	60-80	4	120	4	120

Table E2.2: Asset Condition Examples (Kerb and Watertable)

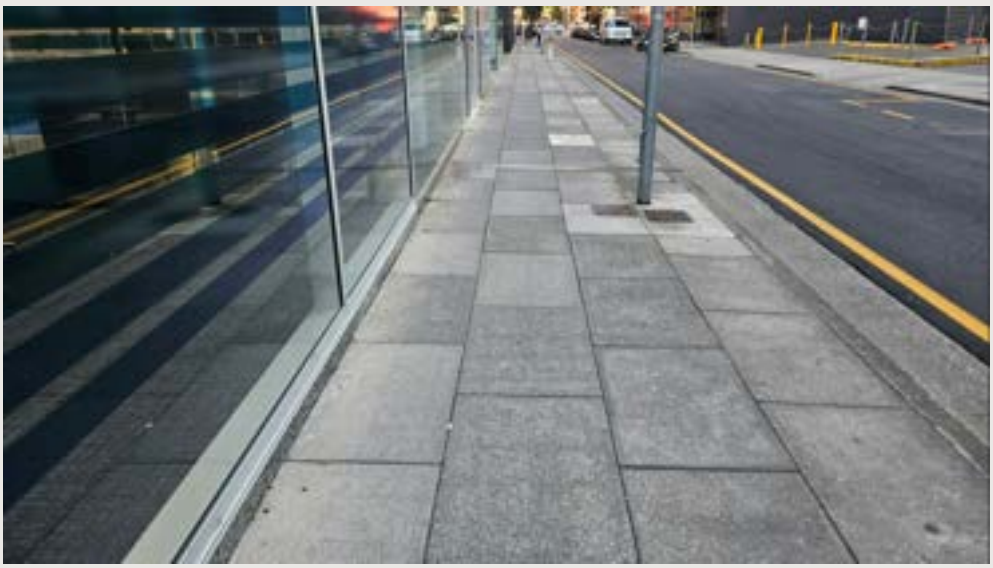
Condition	Example
Condition 1 Very Good: Free of defects, only planned and/or routine maintenance required	
Condition 2 Good: Minor defects, increasing maintenance required plus planned maintenance	

Condition 3 Fair: Defects requiring regular and/or significant maintenance to reinstate service	
Condition 4 Poor: Significant defects, higher order cost intervention likely	
Condition 5 Very Poor: Physically unsound and/or beyond rehabilitation, immediate action required	

Table E3.1: Renewal Condition Intervention Levels (Footpaths)

Surface Type	Hierarchy 1 Intervention Level	Hierarchy 2 Intervention Level	Hierarchy 3 Intervention Level	Hierarchy 4 Intervention Level	Parklands Intervention Level
Asphalt	4	4	4	4	4.25
Concrete Flagstone	4	4	4	4	4
Granite	4	4	4	4	4
In-situ Concrete	4	4	4	4	4
Interlocking Pavers	4	4	4	4	4
Polished Concrete	4	4	4	4	4
Rubble	4	4	4	4	4.25
Slate	4	4	4	4	4

Table E1.2: Asset Condition Examples (Footpaths)

Condition	Example
Condition 1 Very Good: Free of defects, only planned and/or routine maintenance required	
Condition 2 Good: Minor defects, increasing maintenance required plus planned maintenance	

Condition 3 Fair: Defects requiring regular and/or significant maintenance to reinstate service	
Condition 4 Poor: Significant defects, higher order cost intervention likely	
Condition 5 Very Poor: Physically unsound and/or beyond rehabilitation, immediate action required	

Bridges

Table E4.1: Renewal Condition Intervention Levels (Bridges)

Bridge Component	Intervention Level	Useful Life (Years)
Abutment	4	50-80
Apron	4	50
Apron Protection	4	50
Arch	4	80
Batter Protection	4	20-50
Culvert	4	80
Deck - Slab	4	20-80
Deck - Wearing Surface	4	20-80
Handrails	4	30-75
Headwall	4	80
Kerb	4	30
Outlet Protection	4	80
Piers	4	50
Primary Beams or Trusses	4	30-80
Secondary Beams or Joists	4	30-75
Solid Weir Substructure and Footings	4	50
Wingwall	4	50-80

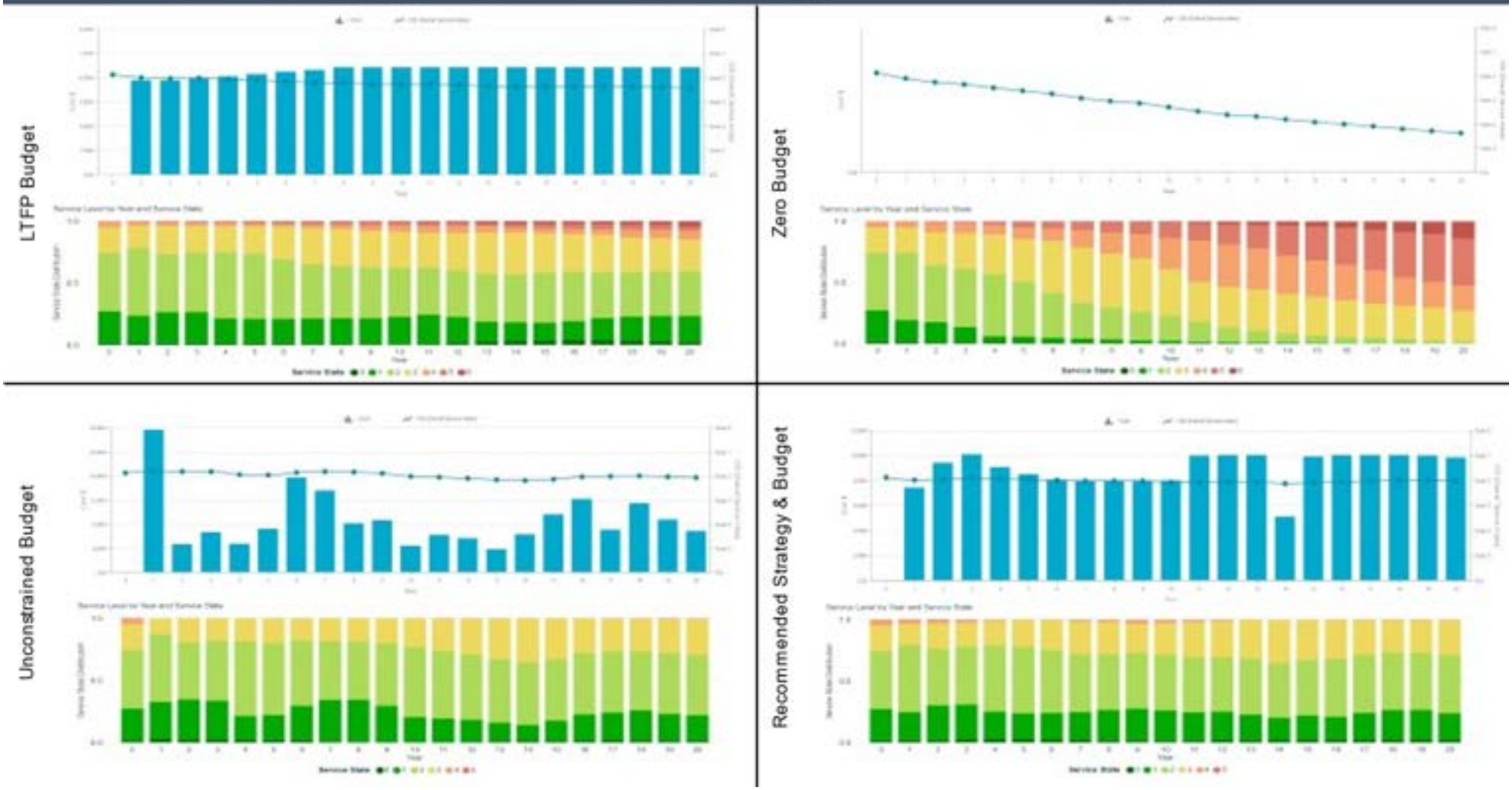
Traffic Signals

Table E5.1: Renewal Condition Intervention Levels (Traffic Signals)

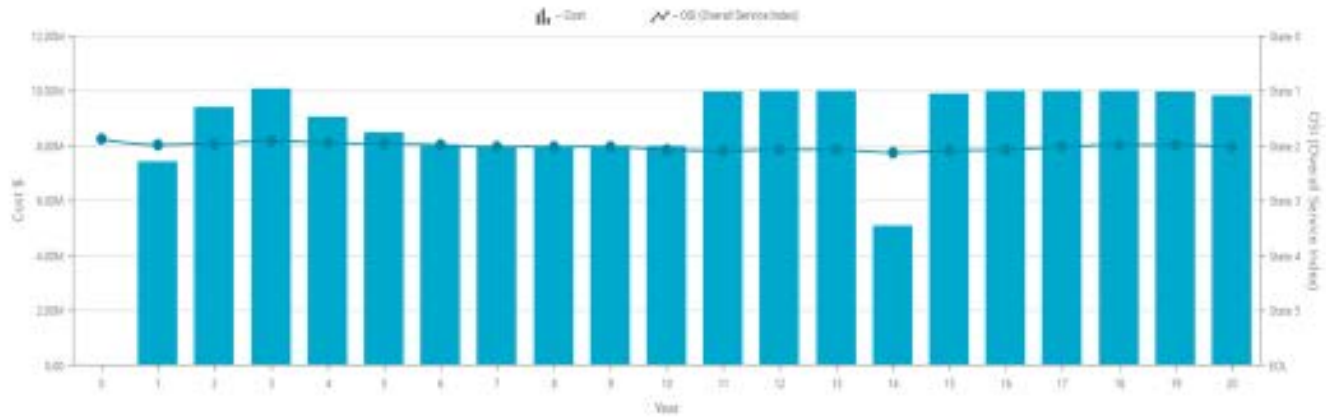
Traffic Signals Component	Intervention Level	Useful Life (Years)
Audio Tactile Renewal	4	10
Detector Loop Renewal	4	10
Lantern Renewal	4	10
Target Board Renewal	4	15
Pit Renewal	4	40
Pole Renewal	4	25
Push Button Renewal	4	10
Controller Renewal	4	10
Top Box Renewal	4	10
UPS Renewal	4	10
Conduit Renewal	4	40
CCTV Renewal	4	5

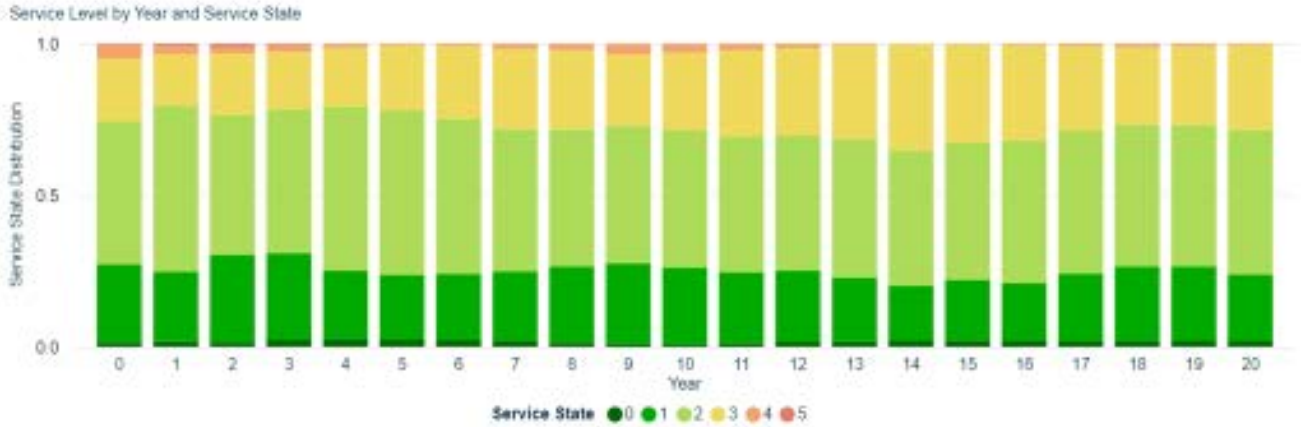
Appendix F Asset Renewal Scenario Modelling

Road Network – Predictive Scenario Modelling



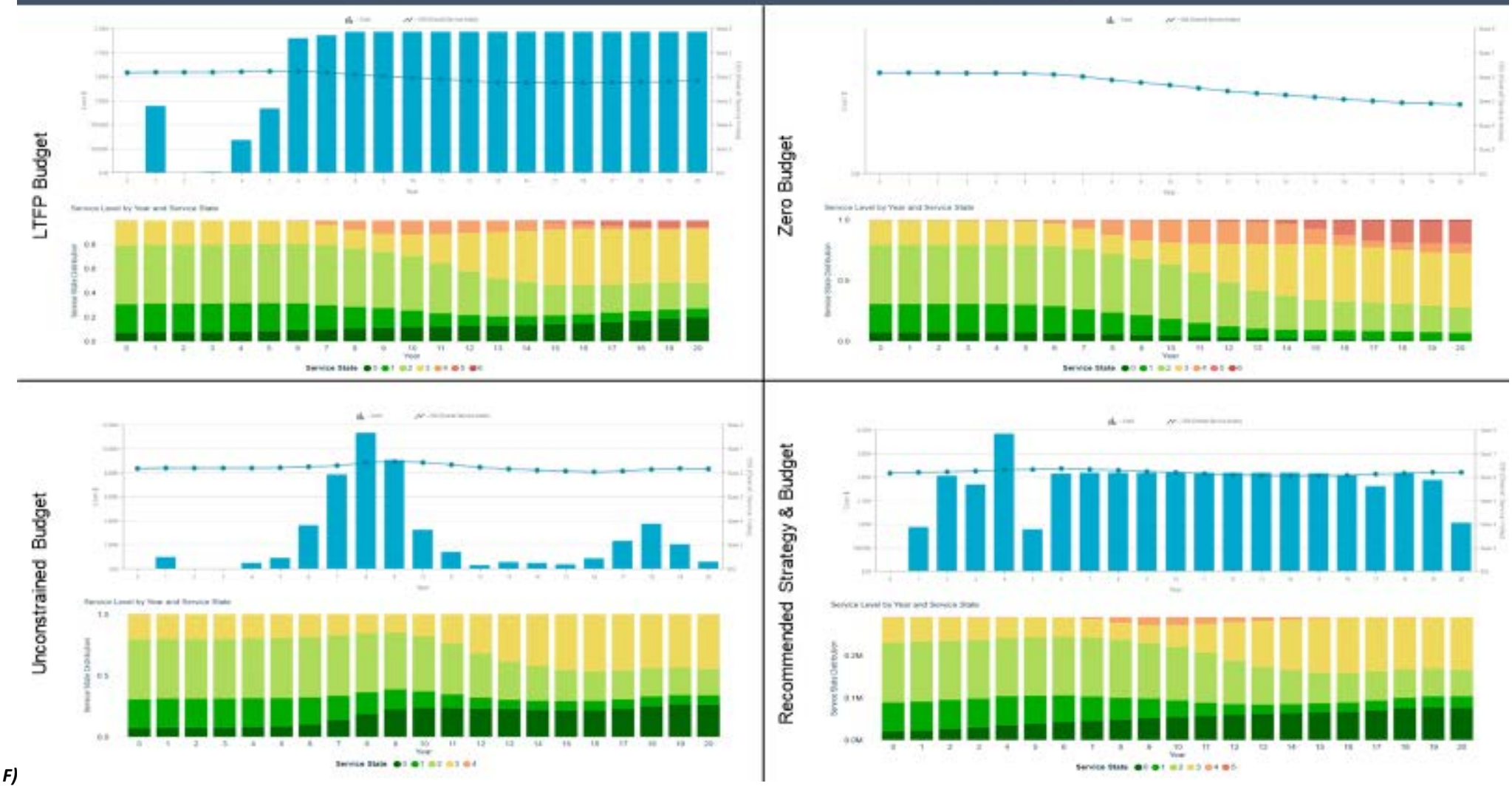
Road Network – Recommended Strategy





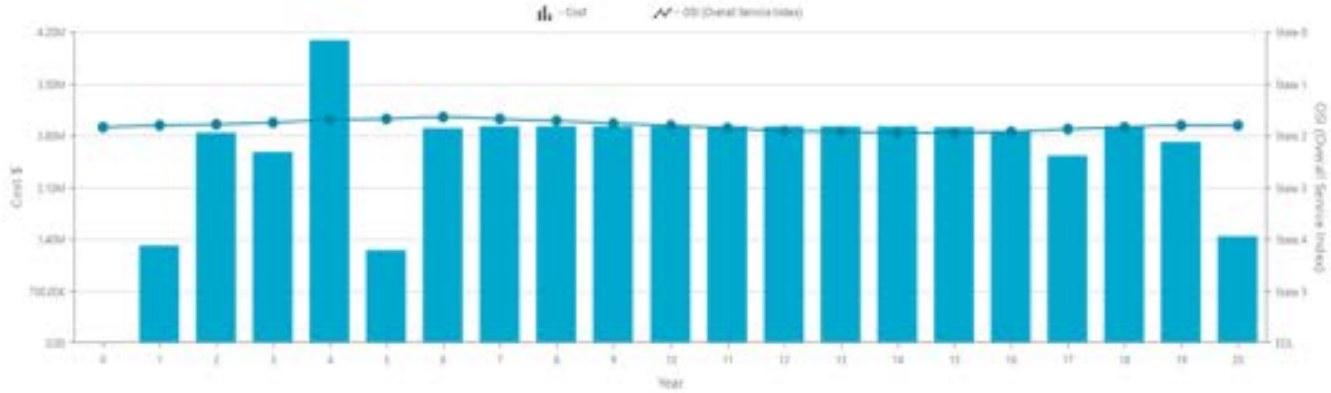
- The LTFP budget is insufficient to maintain service levels and would result in the road network slowly deteriorating over time.
- The unconstrained model projects the financial requirements to renew assets in accordance with specified renewal intervention criteria (Appendix E),which results in significant spikes of investment in specific years.
- The recommended strategy takes a more balanced approach, finding an acceptable equilibrium between budget requirements and service state outcomes, to smoothen out the unconstrained model.
- The overall service index of the network is maintained around condition state 2. Small quantities of assets fall into condition state 4 (<5%) and no assets fall into condition state 5 (with exceptions in years 2 and 3, as the initial renewal backlog is managed)
- This is considered acceptable from a risk management perspective noting that isolated service deficiencies can be managed through maintenance programs.
- Note: annual design programs ($600k) and a heavy patching program ($400k) have been included in addition to these figures for inclusion into the AM Plan.

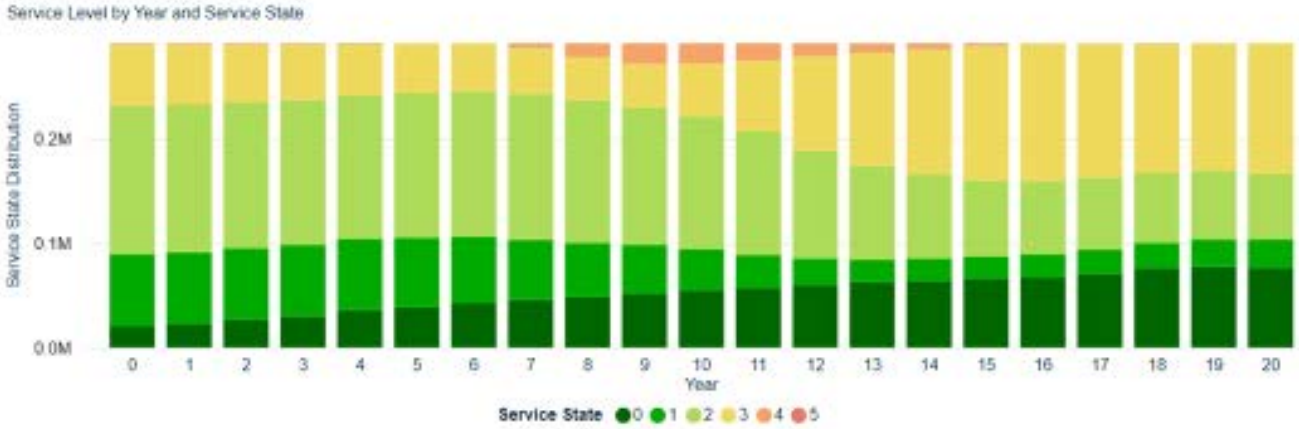
Kerb and Watertable Network – Predictive Scenario Modelling



F)

Kerb and Watertable Network – Recommended Strategy

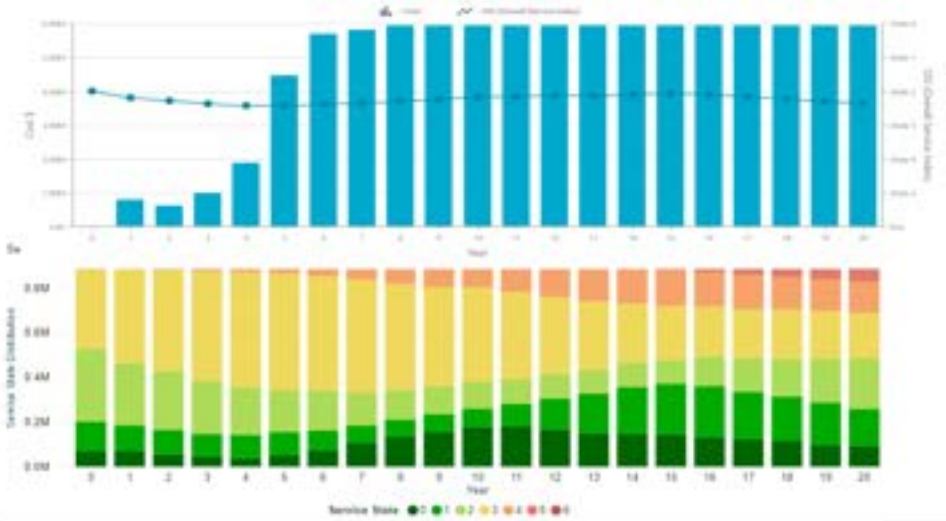




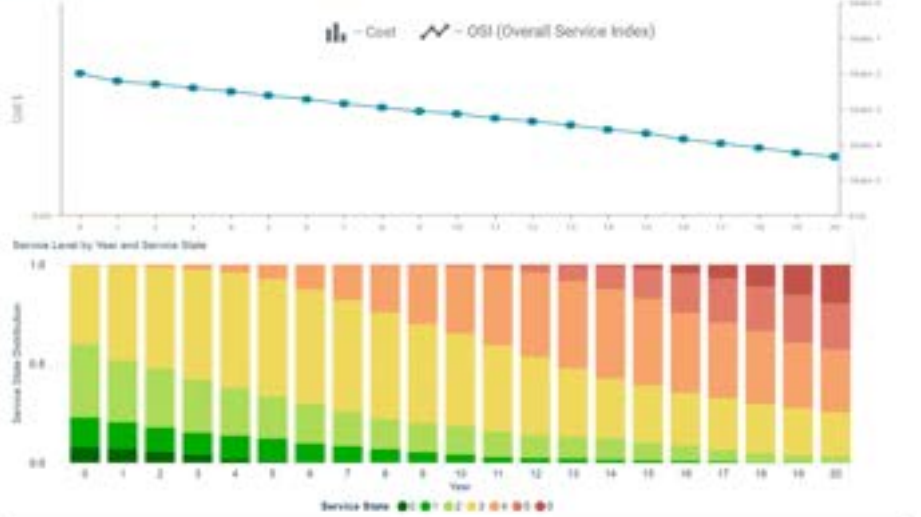
- The LTFP budget is insufficient to maintain service levels and would result in the road network slowly deteriorating over time.
- The unconstrained model projects the financial requirements to renew assets in accordance with specified renewal intervention criteria (Appendix E),which results in significant spikes of investment in specific years.
- The recommended strategy takes a more balanced approach, finding an acceptable equilibrium between budget requirements and service state outcomes, to smoothen out the unconstrained model.
- The overall service index of the network is maintained around condition state 2. Small quantities of assets fall into condition state 4 (<5%) and no assets fall into condition state 5 (with exceptions in years 9, 10, and 11, as the significant spike seen in the unconstrained model is managed)
- This is considered acceptable from a risk management perspective noting that isolated service deficiencies can be managed through maintenance programs.
- Note: annual design programs ($200k) have been included in addition to these figures for inclusion into the AM Plan.

Footpath Network – Predictive Scenario Modelling

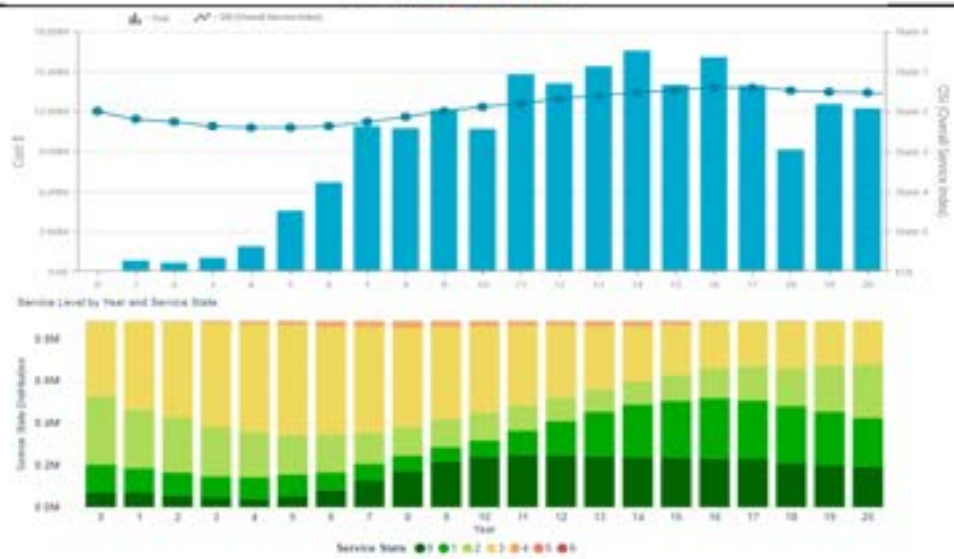
LTFP Budget



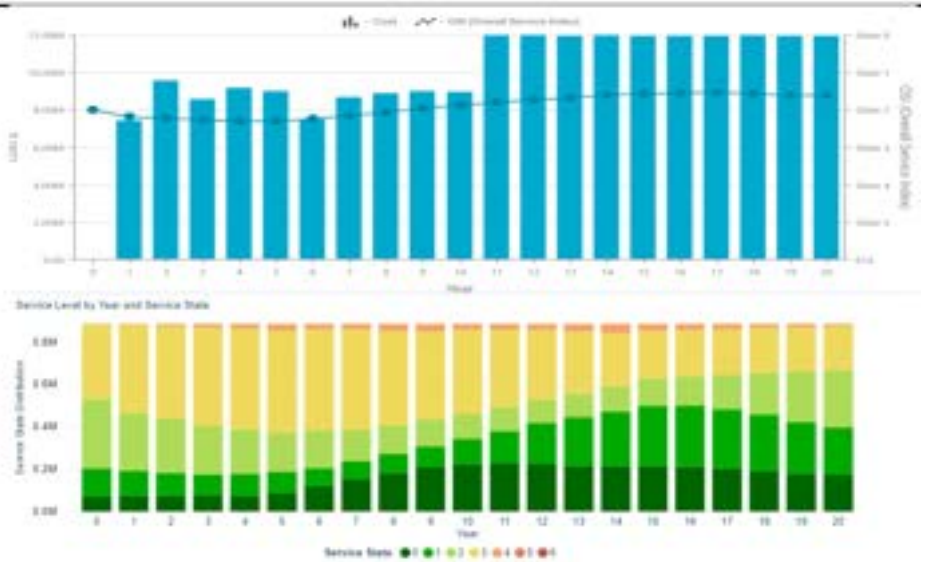
Zero Budget



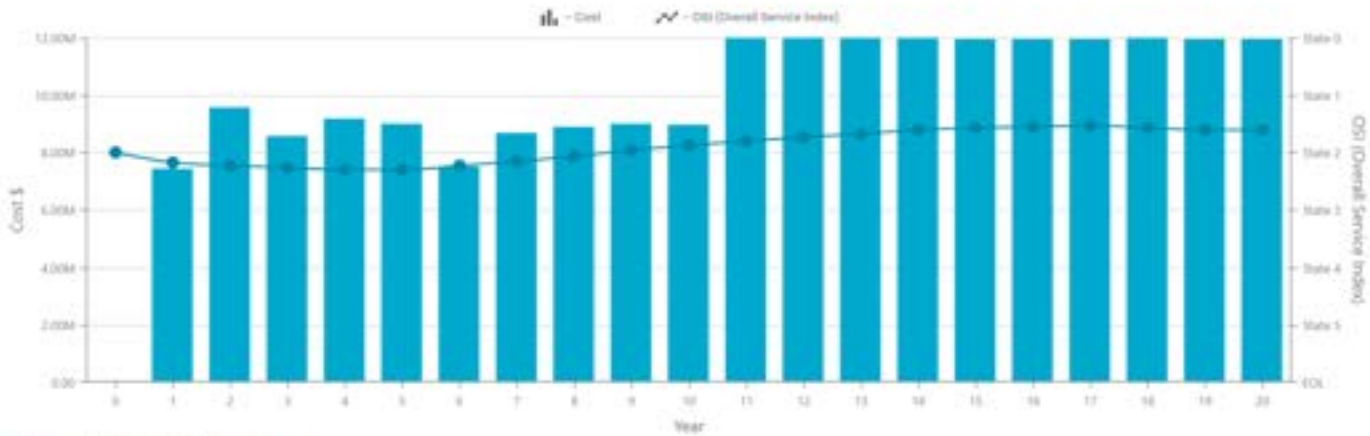
Unconstrained Budget

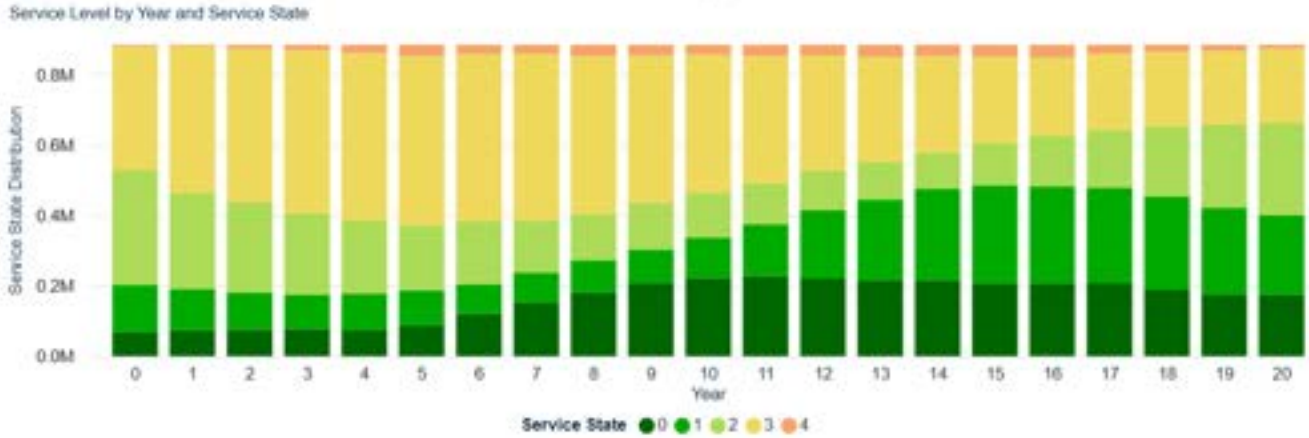


Recommended Strategy & Budget



Footpath Network – Recommended Strategy





- The LTFP budget is insufficient to maintain service levels and would result in the footpath network slowly deteriorating over time.
- The unconstrained model projects the financial requirements to renew assets in accordance with specified renewal intervention criteria (Appendix E),which results in significant spikes of investment in specific years.
- The recommended strategy takes a more balanced approach, finding an acceptable equilibrium between budget requirements and service state outcomes, to smoothen out the unconstrained model.
- The overall service index of the network is maintained around condition state 2. Small quantities of assets fall into condition state 4 (<5%) and no assets fall into condition state 5
- Note: annual design programs ($450k) , footpath refurbishment program ($450k) and access ramp renewal program ($100k) have been included in addition to these figures for inclusion into the AM Plan.

Appendix G Data Confidence Assessment for Data Used in Asset Management Plan

The estimated confidence level for and reliability of data used in this Asset Management Plan is shown in the tables below.

Roads

Table G1: Data Confidence Assessment for Data used in Asset Management Plan (Roads)

Data	Confidence Assessment	Comment
Demand drivers	High	Based off corporate planning documents and strategies
Growth projections	High	Based off State government projections and industry research and analysis
Acquisition forecast	Low	Not accommodated within this Asset Management Plan
Operation forecast	Medium	Based off known requirements and known costs for condition audits
Maintenance forecast	Low	Maintenance requirements are not forecasted, currently just aligned to existing budget allocations
Asset values	High	Asset valuations have been inflated for 2024/25 period
Asset useful lives	High	In line with industry standards with regular review
Condition modelling	High	Road condition audit was undertaken in 2019 and has been validated by internal staff to be of reliable quality. Predictive modelling was undertaken with Brightly's Predictor software package to estimate remaining useful life of assets
Disposal forecast	Low	Not accommodated within this Asset Management Plan

Kerb and Watertable

Table G2: Data Confidence Assessment for Data used in Asset Management Plan (Kerb and Watertable)

Data	Confidence Assessment	Comment
Demand drivers	High	Based off corporate planning documents and strategies
Growth projections	High	Based off State government projections and industry research and analysis
Acquisition forecast	Low	Not accommodated within this Asset Management Plan
Operation forecast	Medium	Based off known requirements and known costs for condition audits
Maintenance forecast	Low	Maintenance requirements are not forecasted, currently just aligned to existing budget allocations
Asset values	High	Asset valuations have been inflated for 2024/25 period
Asset useful lives	High	In line with industry standards with regular review
Condition modelling	Medium	Kerb condition audit was undertaken in 2019 and has been validated by internal staff to be of reliable quality. Predictive modelling was undertaken with Brightly's Predictor software package to estimate remaining useful life of assets
Disposal forecast	Low	Not accommodated within this Asset Management Plan

Footpaths

Table G3: Data Confidence Assessment for Data used in Asset Management Plan (Footpaths)

Data	Confidence Assessment	Comment
Demand drivers	High	Based off corporate planning documents and strategies
Growth projections	High	Based off State government projections and industry research and analysis
Acquisition forecast	Low	Not accommodated within this Asset Management Plan
Operation forecast	Medium	Based off known requirements and known costs for condition audits
Maintenance forecast	Low	Maintenance requirements are not forecasted, currently just aligned to existing budget allocations
Asset values	High	Asset valuations have been inflated for 2024/25 period
Asset useful lives	High	In line with industry standards with regular review
Condition modelling	Medium	Footpath condition audit was undertaken in 2021 and has been validated by internal staff to be of reliable quality. Predictive modelling was undertaken with Brightly's Predictor software package to estimate remaining useful life of assets
Disposal forecast	Low	Not accommodated within this Asset Management Plan

Bridges

Table G4: Data Confidence Assessment for Data used in Asset Management Plan (Bridges)

Data	Confidence Assessment	Comment
Demand drivers	High	Based off corporate planning documents and strategies
Growth projections	High	Based off State government projections and industry research and analysis
Acquisition forecast	Low	Not accommodated within this Asset Management Plan
Operation forecast	Medium	Based off known requirements and known costs for condition audits
Maintenance forecast	Low	Maintenance requirements are not forecasted, currently just aligned to existing budget allocations, with additional budget bids put forward annually as required
Asset values	High	Asset valuations have been inflated for 2024/25 period
Asset useful lives	High	In line with industry standards with regular review
Condition modelling	Medium	Condition audit of bridge network was undertaken in 2019, with several road bridges having more recent audits in 2023. Remaining life estimates are made based from engineering inspections and recommendations.
Disposal forecast	Low	Not accommodated within this Asset Management Plan

Traffic Signals

Table G5: Data Confidence Assessment for Data used in Asset Management Plan (Traffic Signals)

Data	Confidence Assessment	Comment
Demand drivers	High	Based off corporate planning documents and strategies
Growth projections	High	Based off State government projections and industry research and analysis
Acquisition forecast	Low	Not accommodated within this Asset Management Plan
Operation forecast	High	Based off ongoing costs for the provision of a SCATS fee, power supply charges and condition audits.
Maintenance forecast	Medium	Maintenance requirements are based off contracted standards for inspections; planned/reactive maintenance works, with associated KPI's
Asset values	High	Asset valuations have been inflated for 2024/25 period
Asset useful lives	High	In line with industry standards with regular review
Condition modelling	Low	Condition audit of traffic signal network was undertaken in 2019, however audit methodology has deficiencies for underground assets to inform remaining useful life estimates
Disposal forecast	Low	Not accommodated within this Asset Management Plan

CITY OF
ADELAIDE