CITY OF PROSPECT

Roads

AssetManagementPlan

Document Control	Asset Management Plan

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V1.10	May 2020	Initial draft	SW (AE)		
V2	Aug 2021	Review to maintenance budget	SW (AE)		
V3	Feb 2022	Valuation figures amended & final document	SW (AE)		

Contents

1.0 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

This Asset Management Plan (AM Plan) details information about infrastructure assets with actions required to provide an agreed level of service in the most cost-effective manner while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required to provide over the 10year planning period. The AM Plan will link to a Long-Term Financial Plan which typically considers a 10-year planning period.

1.2 Development of the Plan

City of Prospect has challenged its asset management practice and purpose to ensure it is being driven from a pure asset perspective that in the first instance and is supported by industry best practice in relation to service standards and levels. This has necessitated returning to first principles to ensure that Council is not being contained by our Long Term Financial Plan as an asset planning tool.

This process has included reviewing historical data held by Council in:

- Conquest software
- Separate data capture that is being held externally in Assetic
- Data that was manually collected in 2020

In reviewing assets and defining a way forward, a conservative approach has been taken to ensure that Council is setting a realistic financial target to keep assets in a functional and workable condition, but not at a level that is not financially supportable by the community.

The Draft Renewal Program for road seal and pavements have been compiled from data within Council's Asset Management System 'Conquest' through the following:

- Revision to useful/ remaining lives to reflect industry standards with a view to minimising lifecycle costs.
- Amendment to unit rates to reflect Council's actual construction costs.
- Amendment to treatment types to increase service levels through shape correction and roughness reduction i.e. greater use of asphaltic concrete.
- An allowance has been made to undertake deep lift patching on roads that are to be resealed.
- An annual allowance has been made for pavement reconstruction – individual projects have been defined but not allocated to direct delivery periods as it is proposed to match key undertakings to grant programs that may present. This will also maximise linkage to drainage works programs and opportunities around capacity increases.
- An allowance for 61% kerb replacement on each road segment to be resealed.
- The works programs at this stage are being re-created based on Council Member engagement and commitment to sustainable funding. This means that our programs at this point are:
    - Defined for Year 1
    - Good for Years 2 to 4, subject to optimisation
    - Reasonable from Years 5 to 6
    - Roughly prioritised from Years 7 to 10

1.3 Asset Description

The Road network comprises:

- 89 km of seals and pavement
- 195 km of kerbing

The above infrastructure assets have replacement value estimated at $85m.

1.4 Levels of Service

The planned budget (draft long term financial plan) has been developed from interrogation of available data to deliver improved service levels for the road assets distinctly in the areas of road roughness and kerb improvement.

As such the proposed service levels have informed the development of the draft long term financial plan (LTFP) rather than the LTFP dictating the levels of service that Council provides.

1.5 Future Demand

The factors influencing future demand and the impacts they have on service delivery are principally those by the community requesting an increase in service levels that the Council provides. These 'demands' are delivered in this plan through an increase in capital expenditure on infrastructure renewal.

It should be noted that the service level increase will be gradual and will be met over a period of approximately 30 years as roads become due for renewal.

1.6 Lifecycle Management Plan

1.6.1 What does it Cost?

The forecast lifecycle costs necessary to provide the services covered by this AM Plan includes operation, maintenance, renewal, acquisition, and disposal of assets. A summary output from the AM Plan is the forecast of 10 year total outlays, which is estimated as $28,501,384or $285,013on average per year

1.6.2 What we will do

Estimated available funding for the 10 year period is $27,975,908or $2,797,591on average per year as per the Long-Term Financial plan or Planned Budget. This is 98.16% of the cost to sustain the current level of service at the lowest lifecycle cost.

The anticipated Planned Budget for [Enter Asset Group] leaves a nominal shortfall of only $-52,548 on average per year of the forecast lifecycle costs required to provide services in the AM Plan compared with the Planned Budget currently included in the Long-Term Financial Plan. This is shown in the figure below.

Forecast Lifecycle Costs and Planned Budgets

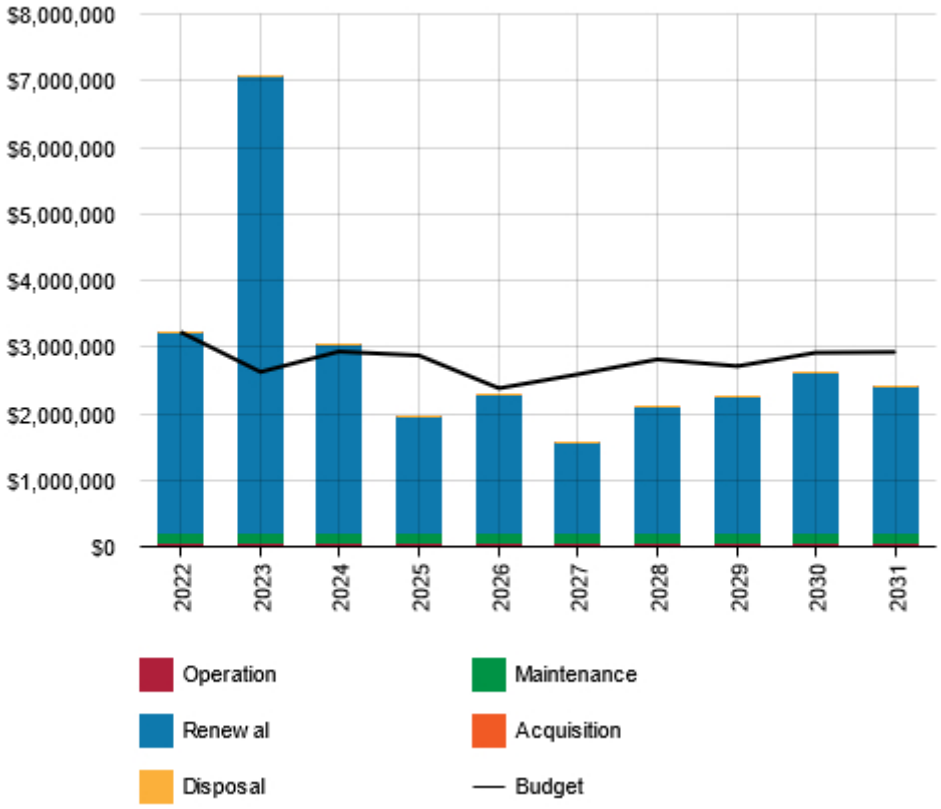


Figure Values are in current dollars.

1.6.3 Managing the Risks

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

The main risk consequences are:

- Renewal projects are not optimised.

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

- Undertaking a field-based inspection of the road network with the aim of developing an optimised rolling works program over the period of at least 5 years.

1.7 Monitoring and Improvement Program

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

- Develop optimised 5 year rolling works program.
- Develop pro-active maintenance program.
- Review maintenance budget
- Review traffic control devices via a field audit and incorporate in revision of the plan in 12-month time.

2.0 Introduction

2.1 Background

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

The AM Plan is to be read with the City of Prospects following planning documents.

- Our Community Plan – Towards 2040
- Annual Business Plan & Budget 2021/22

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

The infrastructure assets included in this plan have a total replacement value of insert $85m.

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:

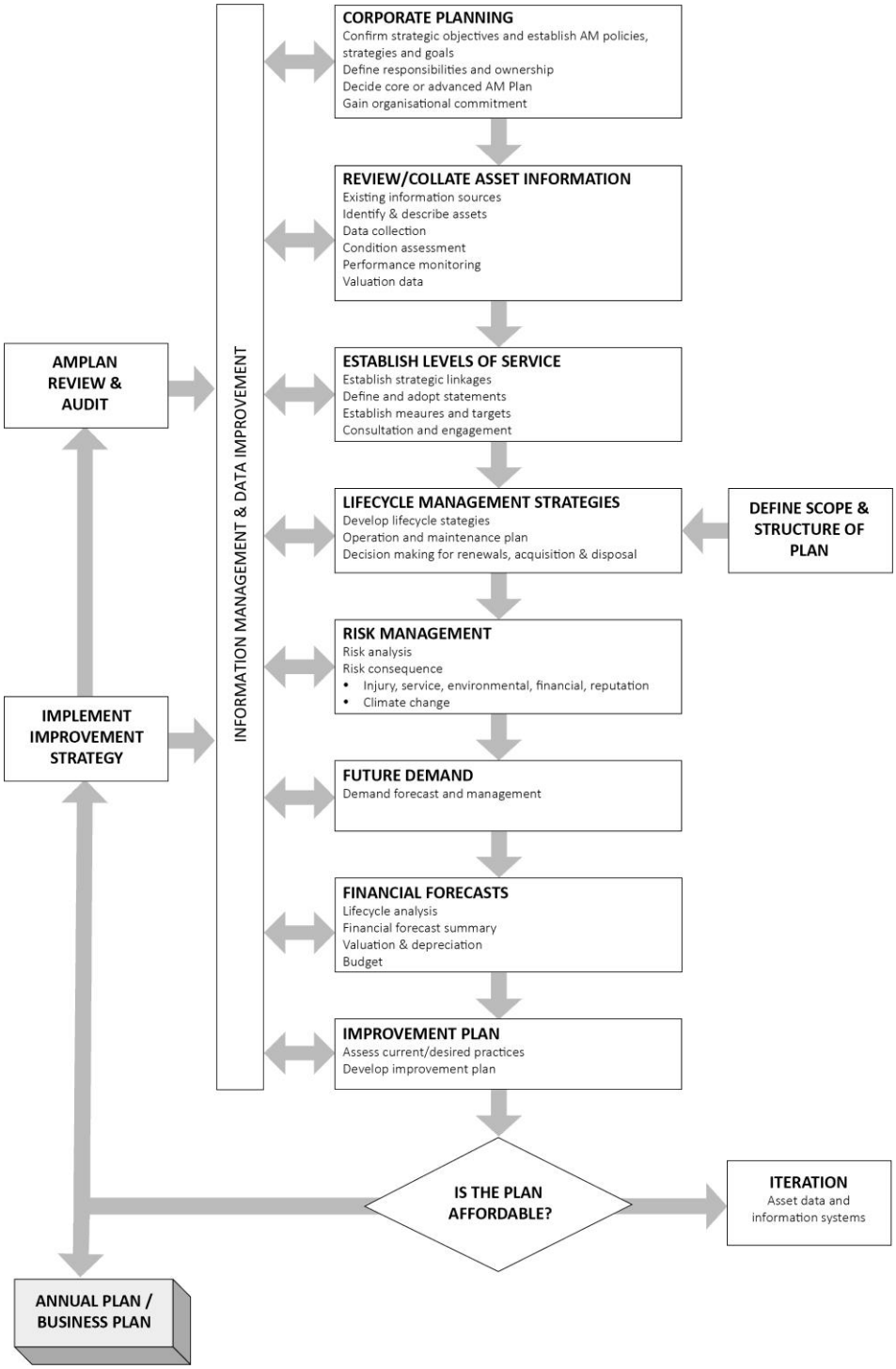
- International Infrastructure Management Manual 2015 [1]
- ISO 55000[2]

[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 AM Plan is shown below.

Road Map for preparing an Asset Management Plan

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



3.0 LEVELS OF SERVICE

3.1 Customer Research and Expectations

Council has recently undertaken a customer satisfaction survey (November 2020). Respondents to the survey were asked to rank 'projects' that Council should concentrate on. The highest ranking was given to:

Asset Management and Renewal

To deliver on key priorities for the renewal of city infrastructure focusing on local roads and laneways, footpaths and streetscapes, as well as improvement's to stormwater infrastructure and street lighting.

As part of the survey respondents were also asked to rank the importance and satisfaction with a number of the services that are provided by Council. The analysis of this survey has indicated that Council should concentrate on improvement in the area of;

Street / road maintenance and kerbing

In response to this survey Council has undertaken a shift in its priorities with a view to increasing the level of service delivered by infrastructure and in particular roads, kerbing and footpaths which has resulted in a significant increase in infrastructure capital renewal as reflected in Councils current draft long term financial plan which has been driven by the development of this AMP.

3.2 Customer Values

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

Customer Values indicate:

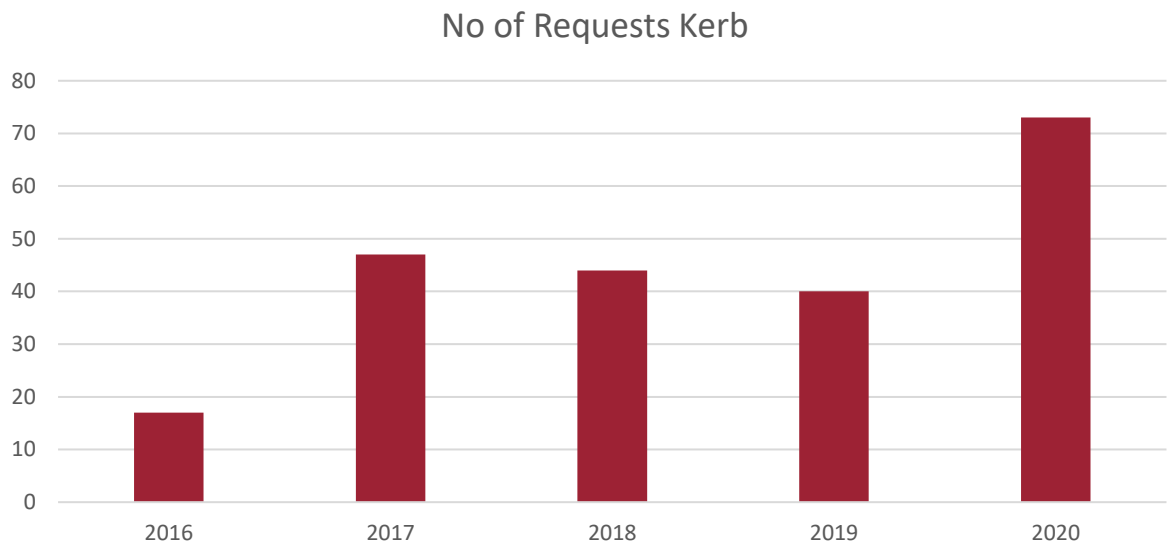
- what aspects of the service is important to the customer,
- whether they see value in what is currently provided and
- the likely trend over time based on the current budget provision

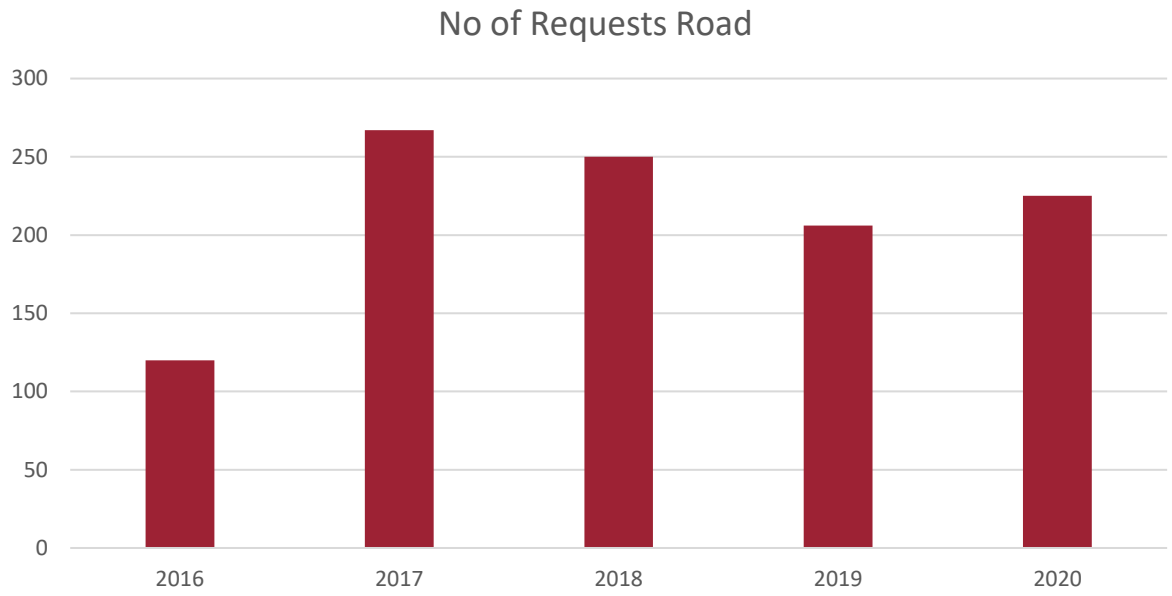
Table 3.4: Customer Values

Customer Values	Customer Satisfaction Measure	Current Feedback	Expected Trend Based on Planned Budget
Smooth roads	Customer Service Requests relating to potholes / road hazards	214 requests average per annum	Reduction in requests over the term of the long-term financial plan following increase in capital expenditure
No water ponding / Kerb Hazards	Customer Service Requests relating to water ponding / tree lifts / kerb hazards	44 requests average per annum	Reduction in requests over the term of the long-term financial plan following increase in capital expenditure

Council has been tracking customer service requests since 2016 over which time it has been noted that the requests have generally been increasing on an annual basis. In response to this, the funding directed to infrastructure renewal has been increased substantially in the current draft LTFP to reflect an increase in the levels of service provided to the community and accordingly an anticipated reduction in customer service requests over time.

The graphs below track customer service requests that have been received by Council since 2016 relating to roads and kerbing:





3.3 Customer Levels of Service

The Customer Levels of Service are considered in terms of:

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

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

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

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

These are measures of fact related to the service delivery outcome (e.g. number of occasions when service is not available or proportion of replacement value by condition %'s) to provide a balance in comparison to the customer perception that may be more subjective.

Table 3.5: Customer Level of Service Measures

Type of Measure	Level of Service	Performance Measure	Current Performance	Expected Trend Based on Planned Budget
Condition	Average remaining life	**All surfaces** Average remaining life as a percentage of useful life for all road surfaces Condition assessment – 50 % is the aim which indicates a sustainable renewal profile	46%	48%
	Average remaining life	**Spray seal surface**: Average remaining life as a percentage of useful life	24%	0% Spray seals to be renewed with AC
	Average remaining life	**Slurry seal surface**: Average remaining life as a percentage of useful life Condition assessment	18%	0% Slurry seals to be renewed with AC
	Average remaining life	**Asphalt seal surface**: Average remaining life as a percentage of useful life Condition assessment	53%	48%
	Confidence levels		Medium - High	Medium - High
Function	Roughness of road	Percentage of road network **not** surfaced by asphaltic concrete	35%	14% AC provides a 'smoother' surface
	Confidence levels		Medium - High	Medium - High
Capacity	Kerb replacement at the same time as reseal	Replacing kerb of low height (and capacity) at the same time as reseal is undertaken	Prior to 2016 kerb was patched only prior to spray sealing of road	Renewal estimates have assumed that 60% of the kerb (on average) will require replacement prior to asphalt overlay
	Confidence levels		Medium	Medium

3.4 Technical Levels of Service

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

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

- **Acquisition** – the activities to provide a higher level of service (e.g. widening a road, sealing an unsealed road, replacing a pipeline with a larger size) or a new service that did not exist previously (e.g. a new library).

- **Operation** – the regular activities to provide services (e.g. opening hours, cleansing, mowing grass, energy, inspections, etc.
- **Maintenance** – the activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life (e.g. road patching, unsealed road grading, building and structure repairs),
- **Renewal** – the activities that return the service capability of an asset up to that which it had originally provided (e.g. road resurfacing and pavement reconstruction, pipeline replacement and building component replacement),

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

Table 3.6 shows the activities expected to be provided under the current 10 year Planned Budget allocation, and the Forecast activity requirements being recommended in this AM Plan.

Table 3.6: Technical Levels of Service

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
TECHNICAL LEVELS OF SERVICE				
Acquisition	No acquisitions are planned over the course of the plan			
		Budget	$0	$0
Operation	Line marking and signage	Line marking and signage work being undertaken by contractors	Proactive and reactive operations undertaken against line marking and signage	Maintain existing works against line marking and signage pending review
		Budget	$67,000	$67,000
Maintenance	Maintain road seal, pavement, kerbing	Seal, pavement and kerb maintenance works being undertaken	Proactive and reactive maintenance undertaken against seal, pavement, and kerbing	Retain existing expenditure and service levels pending review
		Budget	$155,500	$155,500
Renewal	Resealing of roads	Resealing undertaken as per program	Prior to current draft LTFP approximately half of roads resealed as currently proposed	Renewals being undertaken based on when roads become due for renewal based on lifecycle estimation using a useful life of 25 years
	Pavement reconstruction	Reconstructions being undertaken based on sustainable program	Prior to current draft LTFP approximately half of roads reconstructed as currently proposed	Pavement reconstruction estimated by using the average pavement reconstruction cost divided by the estimated useful life of the pavement

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

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
	Kerb replacement associated with roads to be resealed	Proactive kerb replacement associated with resealing program	Prior to current draft LTFP approximately half of kerb replacement as currently proposed	Approximately 60% of kerb replaced when undertaking a reseal
		Budget	$2,575,091	$2,627,639
Disposal	No disposals are planned over the course of the plan			
		Budget	$0	$0

Note: * Current activities related to Planned Budget.

** Expected performance related to forecast lifecycle costs.

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.

4.0 FUTURE DEMAND

4.1 Demand Drivers

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

4.2 Demand Forecasts

The present position and projections for demand drivers that may impact future service delivery and use of assets have been identified and documented.

4.3 Demand Impact and Demand Management Plan

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

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

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

Table 4.3: Demand Management Plan

Demand driver	Current position	Projection	Impact on services	Demand Management Plan
Increase in service levels for roads	35% of roads currently have a spray seal surface	14% of roads with a spray seal surface	Increase in service levels through a reduction in road roughness	Draft LTFP has been prepared with the objective of increasing service levels to 'industry standards' which results in an effective doubling of renewal expenditure
Increase in service levels for kerbing	Kerb generally is 'old' and is characterised by ponding and low height	Increase on kerb renewal	Increase in service level for roads that are resealed	Draft LTFP has been prepared based on replacing approximately 60% (on average) of kerb on each road that is planned for resealing

4.4 Asset Programs to meet Demand

The Council is full established with no new infrastructure expected to be vested with Council. The demand from the community relates to an increase in service levels above that which Council currently provides. Accordingly, this demand can be satisfied through and increase in renewal expenditure.

5.0 LIFECYCLE MANAGEMENT PLAN

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

5.1 Background Data

5.1.1 Physical parameters

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

Table 5.1.1: Assets covered by this Plan

Asset Category	Dimension	Est. Renewal Cost ($)	Valuation Replacement Value ($)
Road seals	89km	19.8m	12.87m
Road Pavements	89km	52.82m	52.82m
Kerbing	195km	48.48m	48.48m
TOTAL			**$114.17m**

All figure values are shown in current day dollars.

The development of this plan has predominantly focussed on developing a sustainable capital renewal profile for the seal, pavement, and kerb assets; accordingly, rates have been used that replicate Councils actual renewal costs in estimating the renewal requirements.

5.2 Operations and Maintenance Plan

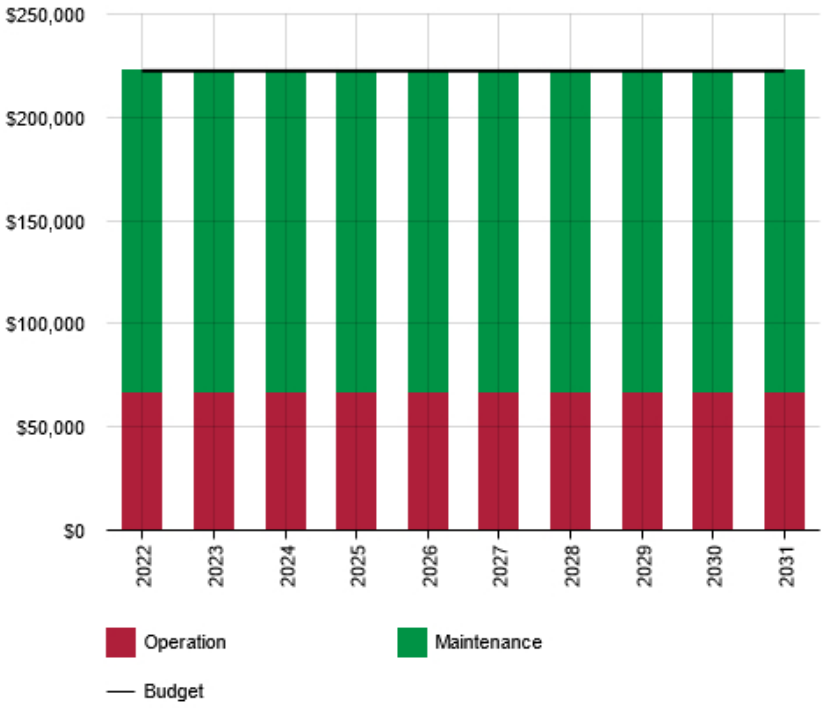
Operations include regular activities to provide services. Examples of typical operational activities include cleaning, street sweeping, asset inspection, and utility costs.

Maintenance includes all actions necessary for retaining an asset as near as practicable to an appropriate service condition including regular ongoing day-to-day work necessary to keep assets operating. Examples of typical maintenance activities include asphalt patching and minor replacement of kerbing.

Summary of forecast operations and maintenance costs

Forecast operations and maintenance costs are expected to vary in relation to the total value of the asset stock. If additional assets are acquired, the future operations and maintenance costs are forecast to increase. If assets are disposed of the forecast operation and maintenance costs are expected to decrease. Figure 5.2 shows the forecast operations and maintenance costs relative to the proposed operations and maintenance Planned Budget.

Figure 5.2: Operations and Maintenance Summary



All figure values are shown in current day dollars.

The operations and maintenance budget only represents approximately 0.18% of the renewal costs of the assets. It is generally accepted that a sustainable expenditure for maintenance and operations is 2% of the renewal cost pa. This represents a shortfall of approximately $1.5m pa. There are however many factors that will affect the split between what is recognised as capital and maintenance expenditure. It is proposed to conduct a review of maintenance and capital expenditure.

5.3 Renewal Plan

Renewal is major capital work which does not significantly alter the original service provided by the asset, but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is considered to be an acquisition resulting in additional future operations and maintenance costs.

The typical useful lives of assets used to develop projected asset renewal forecasts are shown in Table 5.3.

Table 5.3: Useful Lives of Assets

Asset (Sub)Category	Renewal Planning Useful life (yrs)
Seal: asphalt	25
Seal: slurry	15
Seal: spray	15
Pavement	89

As documented in section 5.1.1 the development of this plan has predominantly focussed on developing a sustainable capital renewal profile for the seal, pavement, and kerb assets. Lives have been used that replicate industry least lifecycle cost standards (Renewal Planning Useful life in table 5.3).

The estimates for renewals in this AM Plan were calculated as follows:

Seals:

The estimated remaining life of seals has been developed using a condition survey undertaken in 2015 which has been adjusted for the useful lives and unit rates documented in tables 5.1.1 and 5.3. This has provided a draft program of renewals for 2022/33 onwards. The renewals in the first year of the plan have been developed from detailed asset inspections.

Proposed improvements: undertake detailed project level inspections of all seals and hence develop a detailed rolling works program over the period of 5 years/

Pavements:

Councils' road network is aging and as such it is expected that road reconstructions will become more predominant over the 10 years of this plan. On average it should be expected that Council will need to fund pavement reconstructions in a sustainable manner by taking the total renewal cost amortised over the predicted useful life of the asset. This forms the basis for the renewal estimates for 2022/33 onwards. The renewals in the first year of the plan have been developed from detailed asset inspections.

Proposed improvements: in association with the detailed project level inspection proposed for seals estimate pavements requiring reconstruction using visual techniques which are to be verified using follow up structural testing.

Kerbing:

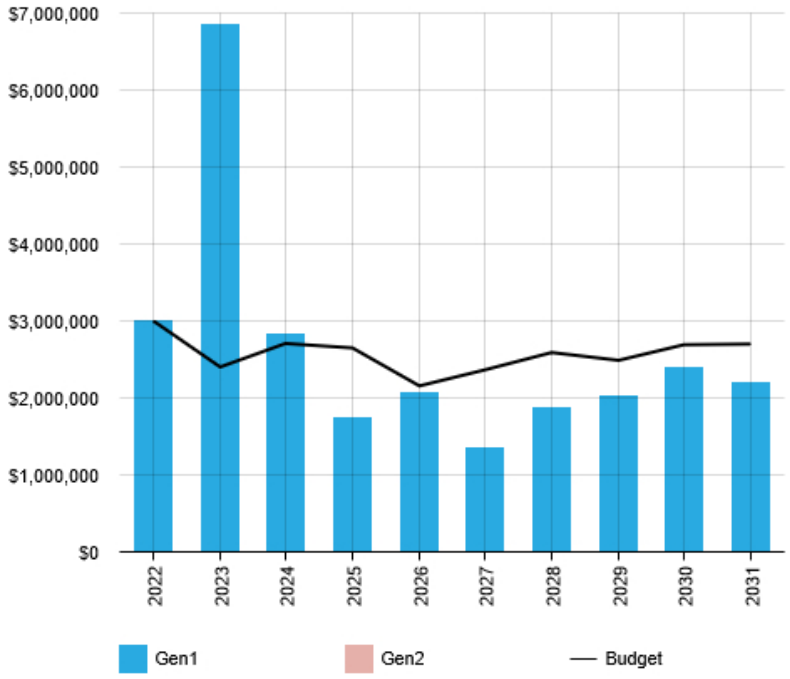
Kerb renewal is mostly undertaken on road segments the year prior to reseal. It is estimated that on average 61% of the kerb will require renewal on each segment prior to reseal. The draft kerb renewal program has been prepared on this basis.

Proposed improvements: In association with the detailed project level inspection for seals undertake a survey of kerbing and estimate the length of kerbing that does not meet established service levels on a road segment by segment basis.

5.4 Summary of future renewal costs

The forecast costs associated with renewals are shown relative to the proposed renewal budget in Figure 5.4.1. A detailed summary of the forecast renewal costs is shown in Appendix D.

Figure 5.4.1: Forecast Renewal Costs



All figure values are shown in current day dollars.

Analysis of the 2015 condition data as briefly described in section 5.3 has revealed a peak of assets that do not meet minimum service levels (2023 renewal peak). This is quantified as those renewals that cannot be undertaken in 2022 given current budget constraints.

The draft LTFP is shown as the budget in figure 5.4.1 and has been developed from an initial review of the condition data. This represents an almost doubling of expenditure compared to previous years. The shortfall between estimated renewals and the draft LTFP over the 10 years of the plan is $445k.

5.5 Acquisition Plan

Acquisition reflects are new assets that did not previously exist or works which will upgrade or improve an existing asset beyond its existing capacity. They may result from growth, demand, social or environmental needs.

The City f Prospect is a fully developed Council and accordingly no acquisitions are expected over the course of this plan.

5.6 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation.

No disposal of road / kerb assets is proposed over the course of the plan.

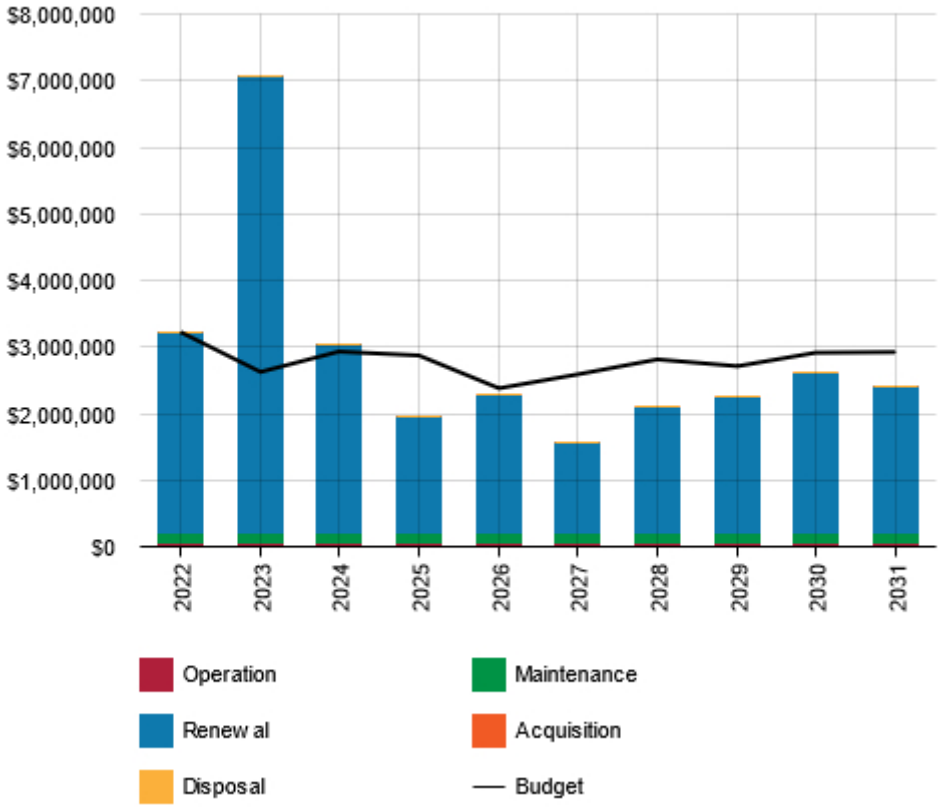
5.7 Summary of Asset Forecast Costs

The financial projections from this asset plan are shown in Figure 5.4.3. These projections include forecast costs for operation, maintenance and renewal. These forecast costs are shown relative to the proposed budget.

The bars in the graphs represent the forecast costs needed to minimise the life cycle costs associated with the service provision. The proposed budget line indicates the estimate of available funding. The gap between the

forecast work and the proposed budget is the basis of the discussion on achieving balance between costs, levels of service and risk to achieve the best value outcome.

Figure 5.5.3: Lifecycle Summary



All figure values are shown in current day dollars.

The Budget (draft LTFP) in fig 5.5.3 has been developed from an initial review of the condition data associated with road assets and as such comes close to matching the required expenditure over the term of the plan. The budget represents a doubling of previous capital expenditure and is a good starting point pending an infield review of data and the development of a long-term project based rolling program of works. It is anticipated that this review will necessitate an update to this plan in the 2022/23 financial year.

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

Critical Asset(s)	Failure Mode	Impact
Road Seals	Increase in lifecycle costs through underfunding renewal program	High lifecycle costs
Kerb	Kerb renewal does not track with seal and pavement renewal	Reduction in service level
Road Pavement	Premature seal failure through weak pavement	High lifecycle costs

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.

[4] ISO 31000:2009, p 2

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

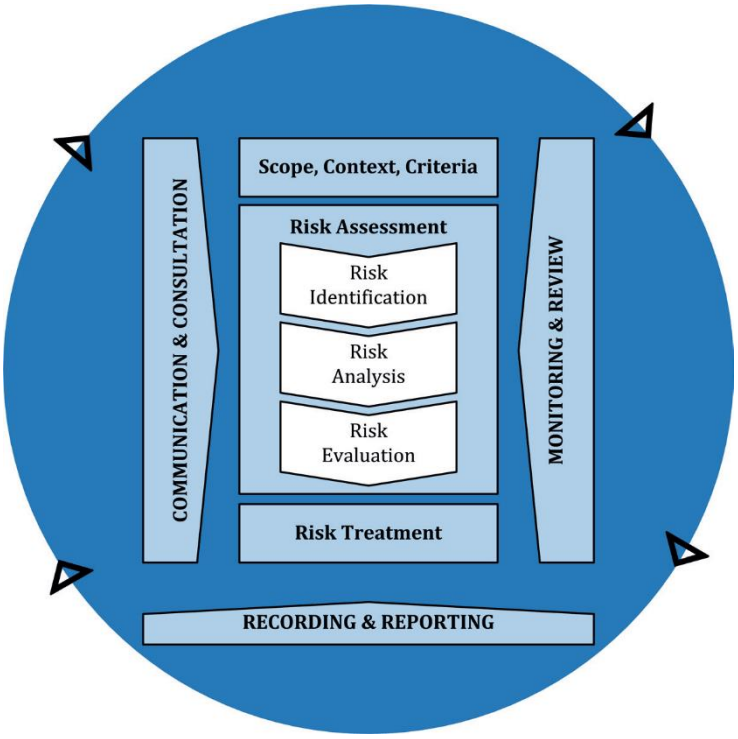


Fig 6.2 Risk Management Process – Abridged
Source: ISO 31000:2018, Figure 1, p9

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[6] associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock', reputational impacts, or other consequences.

Critical risks are those assessed with 'Very High' (requiring immediate corrective action) and 'High' (requiring corrective action) risk ratings identified in the Infrastructure Risk Management Plan. The residual risk and treatment costs of implementing the selected treatment plan is shown in Table 6.2.

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

Table 6.2: Risks and Treatment Plans

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Road Pavements	Increase in life cycle costs (premature asset failure) due to project level planning not identifying pavement renewal and deep lift patching requirements.	H	Undertake development of a 5-year project level rolling works program, (incorporating kerb replacement) derived from a detailed inspection of the road network	L	$40,000
Road Seals	Seal treatments not optimized across road network leading to an increase in lifecycle costs	H			
Kerbing	Adequate kerb replacement not identified to support reseal / reconstruction program	H			

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

6.3 Service and Risk Trade-Offs

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

6.3.1 What we cannot do

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

- Lift the service level of all infrastructure (seals, pavements & kerbs) within the 10 years of the AMP & LTFP
- Increase the maintenance budget to 'industry standard' levels

-

6.3.2 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:

- Maintenance not undertaken in a timely manner.
- Extended life of spray seal surfaces whilst next treatment is programmed.

6.3.3 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:

- Potential for greater exposure to hazards due to 'low' maintenance funding
- Potential for additional costs associated with pavement repair pending reseal 'catchup'

These actions and expenditures are considered and included in the forecast costs, and where developed, the Risk Management Plan.

7.0 FINANCIAL SUMMARY

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

7.1 Financial Sustainability and Projections

7.1.1 Sustainability of service delivery

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

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

Asset Renewal Funding Ratio

Asset Renewal Funding Ratio[7] 98.0%

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years we expect to have 98.0% of the funds required for the optimal renewal of assets.

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

Medium term – 10 year financial planning period

This AM Plan identifies the forecast operations, maintenance and renewal costs required to provide an agreed level of service to the community over a 10 year period. This provides input into 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

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

The forecast operations, maintenance and renewal costs over the 10 year planning period is $2740139 average per year.

The proposed (budget) operations, maintenance and renewal funding is $2,797,591 on average per year giving a 10 year funding shortfall of $52,548 per year. This indicates that 98.16% of the forecast costs needed to provide the services documented in this AM Plan are accommodated in the proposed budget. Note, these calculations exclude acquired assets.

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

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

Table 7.1.3 shows the forecast costs (outlays) used in the development of the current 10 year long-term financial plan.

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

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

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 AM Plan (including possibly revising the long-term financial plan).

There is only a nominal gap that has been identified between the draft LTFP and the estimated renewals & operations / maintenance costs idented in the development of this plan. It is proposed to review this plan and LTFP following the detailed field audit proposed for the 2021/22 financial year.

We will manage the 'gap' by developing this AM Plan to provide guidance on future service levels and

Forecast costs are shown in 2020/21 dollar values.

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

Year	Acquisition	Operation	Maintenance	Renewal	Disposal
2022	0	67,000	155,500	3,001,844	0
2023	0	67,000	155,500	6,854,023	0
2024	0	67,000	155,500	2,819,123	0
2025	0	67,000	155,500	1,735,145	0
2026	0	67,000	155,500	2,055,170	0
2027	0	67,000	155,500	1,338,858	0
2028	0	67,000	155,500	1,869,997	0
2029	0	67,000	155,500	2,026,673	0
2030	0	67,000	155,500	2,388,292	0
2031	0	67,000	155,500	2,187,259	0

7.2 Funding Strategy

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

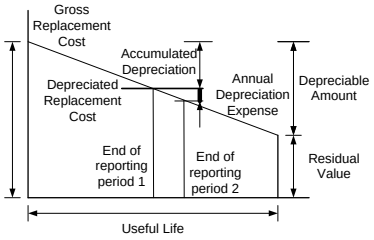
The financial strategy of the entity determines how funding will be provided, whereas the AM Plan communicates how and when this will be spent, along with the service and risk consequences of various service alternatives.

7.3 Valuation Forecasts

7.3.1 Asset valuations

The best available estimate of the value of assets included in this AM Plan are shown below:

Replacement Cost (Current/Gross)	$114,167,142
Depreciable Amount	$114,167,142
Depreciated Replacement Cost[8]	$76,116,010
Depreciation	$1,851,100



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

7.4 Key Assumptions Made in Financial Forecasts

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

Key assumptions made in this AM Plan are:

- Seal renewals developed based on best information at hand (2015 condition & valuation data) that has been amended to reflect industry standards for renewals.
- Pavement renewals based on consideration of network useful lives and rates rather than individual projects (other than 2021/22)
- Kerb renewals based on average kerb percentage renewals associated with resealing program.

7.5 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this AM Plan are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is classified on a C 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.

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

8.0 PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices[10]

8.1.1 Accounting and financial data sources

This AM Plan utilises accounting and financial data. The source of the data is Council June 2020 valuations.

8.1.2 Asset management data sources

This AM Plan also utilises asset management data. The source of the data is revised condition data in Councils Asset Management System 'Conquest'.

8.2 Improvement Plan

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

Table 8.2: Improvement Plan

Task	Task	Responsibility	Resources Required	Timeline
1	Undertake a field audit of all assets to establish a detailed 5-year project based costed rolling works program	Mgr. Infrastructure & Assets	40,000	21/22
2	Review this plan based on defined project based rolling works program and revised valuations	Mgr. Infrastructure & Assets	15,000	21/22
3	Undertake structural testing on road pavements where defined from the field audit to establish whether road reconstruction is required or not.	Mgr. Infrastructure & Assets	20,000	21/22
4	Development of proactive maintenance program from the field audit defined above	Mgr. Infrastructure & Assets	Incl above	21/22
5	Review budget allocations for maintenance and operations	Mgr. Infrastructure & Assets	10,000	21/22
6	Incorporation of traffic control devices into plan	Mgr. Infrastructure & Assets	20,000	21/22

[10] ISO 55000 Refers to this as the Asset Management System

9.0 REFERENCES

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- 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
- Our Community Plan, towards 2040
- Annual Plan & Budget 2020/21.

10.0 APPENDICES

Appendix A Acquisition Forecast

No acquisitions (new assets) are planned during the term of this Asset Management Plan.

Appendix B Operation Forecast

B.1 – Operation Forecast Assumptions and Source

Operations expenditure is taken from Councils existing budget and since there are no new assets planned the forecast remains the same as the budget over the term of the plan. It is proposed to review the operations and maintenance requirements over the course of the next year due to the expenditure being quite low.

B.2 – Operation Forecast Summary

Table B2 - Operation Forecast Summary

Year	Operation Forecast	Additional Operation Forecast	Total Operation Forecast
2022	67,000	0	67,000
2023	67,000	0	67,000
2024	67,000	0	67,000
2025	67,000	0	67,000
2026	67,000	0	67,000
2027	67,000	0	67,000
2028	67,000	0	67,000
2029	67,000	0	67,000
2030	67,000	0	67,000
2031	67,000	0	67,000

Appendix C Maintenance Forecast

C.1 – Maintenance Forecast Assumptions and Source

Maintenance expenditure is taken from Councils existing budget and since there are no new assets planned the forecast remains the same as the budget over the term of the plan. It is proposed to review the operations and maintenance requirements over the course of the next year due to the expenditure being quite low.

C.2 – Maintenance Forecast Summary

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Table C2 - Maintenance Forecast Summary

Year	Maintenance Forecast	Additional Maintenance Forecast	Total Maintenance Forecast
2022	155,000	0	45,500
2023	155,000	0	45,500
2024	155,000	0	45,500
2025	155,000	0	45,500
2026	155,000	0	45,500
2027	155,000	0	45,500
2028	155,000	0	45,500
2029	155,000	0	45,500
2030	155,000	0	45,500
2031	155,000	0	45,500

Appendix D Renewal Forecast Summary

D.1 – Renewal Forecast Assumptions and Source

The estimates for renewals in this AM Plan were calculated as follows:

Seals:

The estimated remaining life of seals has been developed using a condition survey undertaken in 2015 which has been adjusted for the useful lives and unit rates documented in tables 5.1.1 and 5.3. This has provided a draft program of renewals for 2022/33 onwards. The renewals in the first year of the plan have been developed from detailed asset inspections.

Proposed improvements: undertake detailed project level inspections of all seals and hence develop a detailed rolling works program over the period of 5 years/

Pavements:

Councils' road network is aging and as such it is expected that road reconstructions will become more predominant over the 10 years of this plan. On average it should be expected that Council will need to fund pavement reconstructions in a sustainable manner by taking the total renewal cost amortised over the predicted useful life of the asset. This forms the basis for the renewal estimates for 2022/33 onwards. The renewals in the first year of the plan have been developed from detailed asset inspections.

Proposed improvements: in association with the detailed project level inspection proposed for seals estimate pavements requiring reconstruction using visual techniques which are to be verified using follow up structural testing.

Kerbing:

Kerb renewal is mostly undertaken on road segments the year prior to reseal. It is estimated that on average 61% of the kerb will require renewal on each segment prior to reseal. The draft kerb renewal program has been prepared on this basis.

Proposed improvements: In association with the detailed project level inspection for seals undertake a survey of kerbing and estimate the length of kerbing that does not meet established service levels on a road segment by segment basis.

D.2 – Renewal Forecast Summary

Table D3 - Renewal Forecast Summary

Year	Renewal Forecast	Renewal Budget
2022	3,001,844	3,001,844
2023	6,854,023	2,401,851
2024	2,819,123	2,707,363
2025	1,735,145	2,649,761
2026	2,055,170	2,156,389
2027	1,338,858	2,364,063
2028	1,869,997	2,589,914
2029	2,026,673	2,488,558
2030	2,388,292	2,691,164
2031	2,187,259	2,700,000

D.4 –Renewal Plan

Appendix 10 Year Report

Appendix E Disposal Summary

No acquisitions (new assets) are planned during the term of this Asset Management Plan.

Appendix F Budget Summary by Lifecycle Activity

Table F1 – Budget Summary by Lifecycle Activity

Year	Acquisition	Operation	Maintenance	Renewal	Disposal	Total
2022	0	67,000	155,000	3,001,844	0	3,114,344
2023	0	67,000	155,000	2,401,851	0	2,514,351
2024	0	67,000	155,000	2,707,363	0	2,819,863
2025	0	67,000	155,000	2,649,761	0	2,762,261
2026	0	67,000	155,000	2,156,389	0	2,268,889
2027	0	67,000	155,000	2,364,063	0	2,476,563
2028	0	67,000	155,000	2,589,914	0	2,702,414
2029	0	67,000	155,000	2,488,558	0	2,601,058
2030	0	67,000	155,000	2,691,164	0	2,803,664
2031	0	67,000	155,000	2,700,000	0	2,812,500