West Coast Council

Transport

Asset Management Plan

Version S2

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1	July 2017	First Draft	G.Boyd	B.Perera	
2	May 2018	2018 Update– AMP rewritten to include updated valuations, asset conditions and asset quantities	G.Boyd	B.Perera	

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1 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

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

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

This plan covers the infrastructure assets that provide Transport services to the West Coast Municipality and its visitors.

1.2 Asset Description

These assets include:

Asset Category	Measure	Replacement Cost
Footpaths	70 km	$6,271,686
Kerb & Channel	65 km	$9,306,585
Road Formations	191 km	$14,569,752
Road Pavements	191 km	$42,409,717
Road Surfaces (Sealed)	122 km	$8,022,223
	Total	**$80,579,962**

1.3 Levels of Service

Our present funding levels are on average sufficient to continue to provide existing services at current levels over the next 10 years.

The main services consequences are:

- Some deferral of asset renewals will be required (medium term) and will marginally increase the risks associated with providing a transport network
- It is projected that there will no population growth within the Municipality over the planning period. This will mean no future Rates Income growth, leaving minimal funding for upgrade works and new assets.

1.4 Future Demand

The main demands for new services are created by:

- The prospects of the Mining industry will play a key in the revitalisation of the community and its infrastructure assets
- The growth of Tourism with in the Municipality leading to an increase in visitors and use of transport services
- Population stagnation and potential decline leading to no 'real' rates income growth

This 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 include non-asset solutions, insuring against risks and managing failures.

- Continued focus on the maintenance and upgrade of pedestrian facilities where substandard designs and conditions exist
- Consider review of safety features in highly trafficked areas to ensure vehicular and pedestrian safety
- Encourage a 'renew' before 'new' culture throughout Council - with little to no additional future income expected, 'new' assets 'should' be restricted to essential works for reasons such as safety

1.5 Lifecycle Management Plan

What does it Cost?

The projected outlays necessary to provide the services covered by this Asset Management Plan (AM Plan) includes operations, maintenance, renewal and upgrade of existing assets over the 10-year planning period is $ 35,298,000 or $3,529,800 on average per year.

1.6 Financial Summary

What we will do

Estimated available funding for this period is $35,780,000 or $3,578,000 on average per year as per the long term financial plan or budget forecast. This is 101% of the cost to sustain the current level of service at the lowest lifecycle cost.

The infrastructure reality is that only what is funded in the long term financial plan can be provided. The emphasis of the Asset Management Plan is to communicate the consequences that this will have on

the service provided and risks, so that decision making is “informed”.

The allocated funding leaves (on average) a small surplus of $48,000 per year of the projected expenditure required to provide services in the AM Plan compared with planned expenditure. However, there will be peaks and troughs in relation to required asset renewal expenditure over the planning period, so therefore there may be a need for some minor deferral of asset renewals. This is shown in the figure below.

Projected Operating and Capital Expenditure

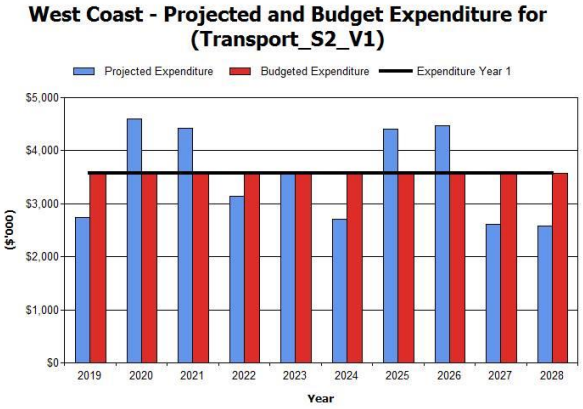


Figure Values are in current (real) dollars.

We plan to provide Transport services for the following:

- Operation, maintenance, renewal and upgrade of footpaths, kerbs, road pavements, road surfaces to meet service levels set by in annual budgets.

Managing the Risks

Our present funding levels are sufficient to continue to manage risks in the long term (20 years), however there will be some asset renewal deferrals over the planning period.

The main risk consequences are:

- Some asset renewal deferral over the next 20 years will lead to an increase in risk in relation to assets awaiting renewal
- Damage to West Coast transport assets due to flooding and poor drainage will cause safety hazards and will require emergency funding for urgent asset repair and replacement

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

- Prioritising asset renewals based on road hierarchy (currently being developed)
- Considering the increase of the frequency of maintenance inspections for roads prone to flooding

1.7 Asset Management Practices

Our systems to manage assets include:

- Mapinfo
- Microsoft Dynamics Navision

1.8 Monitoring and Improvement Program

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

- Use the recently completed condition survey of Council’s footpaths to aid in the development of a Footpath Network Strategy
- Investigate and implement new asset systems to securely record asset data and aid in future asset planning
- Implement a system to aid in the review of asset useful lives annually in line with Australian Accounting Standards
- Develop a detailed 5 year renewal plan for Transport assets

2. INTRODUCTION

2.1 Background

This asset management plan communicates the actions required for the responsive management of assets (and services provided from assets), compliance with regulatory requirements, and funding needed to provide the required levels of service over a 20-year planning period.

The asset management plan is to be read with other current West Coast Council planning documents. This should include the Asset Management Policy and Asset Management Strategy.

The infrastructure assets covered by this asset management plan are shown in Table 2.1. These assets are used to provide Transport services.

Table 2.1: Assets covered by this Plan

Asset category	Dimension	Replacement Value
Footpaths	70 km	$6,271,686
Kerb & Channel	65 km	$9,306,585
Road Formations	191 km	$14,569,752
Road Pavements	191 km	$42,409,717
Road Surfaces (Sealed)	122 km	$8,022,223
TOTAL		**$80,579,962**

2.2 Goals and Objectives of Asset Ownership

Our goal in managing infrastructure assets is to meet the defined level of service (as amended from time to time) in the most cost effective manner for present and future consumers. The key elements of infrastructure asset management are:

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

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

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

2.3 Core and Advanced Asset Management

This asset management plan is prepared as a 'core' asset management plan over a 20 year planning period in accordance with the International Infrastructure Management Manual[3]. Core asset management is a 'top down' approach where analysis is applied at the system or network level. An 'advanced' asset management approach uses a 'bottom up' approach for gathering detailed asset information for individual assets.

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

3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

This 'core' asset management plan is prepared to facilitate consultation prior to adoption by the West Coast Council. Council currently has minimal research data on customer expectations. The merits of increasing community research and consultation will be investigated for future updates of the asset management plan.

3.2 Strategic and Corporate Goals

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

Council has adopted a Vision for the future in the Council Strategic Plan – the West Coast Community Plan 2025.

Council's vision is:

- *We are a proud community. One that is connected, enjoys our lifestyle surrounded by our unique natural heritage and works together for the benefit of the residents, business owners and visitors to our stunning Region.*

Council's purpose or reason for existence is set out in the adopted mission statement.

- *We will work together in partnership to provide and continually improve the facilities, services and infrastructure that will serve the needs of our communities.*

The Strategic Plan sets goals and objectives to be achieved in the planning period. The goals set out where the organisation wants to be. The objectives are the steps needed to get there. Goals and objectives relating to the delivery of services from infrastructure are shown in Table 3.2.

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

Goal	How Goal and Objectives are addressed in AM Plan
Ensure that communities are accessible and safe for residents and visitors to the region	• Create and maintain community spaces and infrastructure • Investigate the case for developing and expanding major airport infrastructure for Strahan Airport
Aid in the development of a resilient and strong tourism sector	• Plan and provide appropriate infrastructure and services to support tourism.
Provide well planned and resourced assets and Infrastructure.	• Coordinate and sequence plan for provision of new infrastructure in the region with long-term strategic perspective. • Create and continually improve Council asset management (AM) plans and systems to manage and maintain all assets in a sustainable manner. • Plan accordingly for Council buildings and facilities to meet community needs.
Provide a safe and reliable transport system to and around the Region.	• The rural road network meets the economic and social needs of the community. • Identify and protect investment in existing and planned major infrastructure corridors and sites against encroachment and threat to operation from other land uses and from natural hazards.
Provide environmentally sensitive development to achieve sustainability in water and waste management.	• Development of a Waste Management Strategy for the Region and implemented for domestic recycling, greenwaste collection, processing and industry waste reduction plans. • Waste depots comply with standards and regulations relating to pollution control and climate change.

The West Coast Council will exercise its duty of care to ensure public safety in accordance with the infrastructure risk management plan prepared in conjunction with this AM Plan. Management of infrastructure risks is covered in Section 6.

3.3 Legislative Requirements

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

Table 3.3: Legislative Requirements

Legislation	Requirement
Local Government Act	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by asset management plans for sustainable service delivery.
Roads and Jetties Act 1935	Sets out role, purpose, responsibilities and powers for state roads including local government roads.
Local Government (Highways) Act	Set out role, purpose, responsibility and powers for local government's control of highways.
Highways and Stormwater by Laws 2012	Set out the purpose of regulating and controlling conduct on the highways and stormwater infrastructure.

3.4 Customer Levels of Service

Service levels are defined service levels in two terms, customer levels of service and technical levels of service. These are supplemented by organisational measures.

Customer Levels of Service measure how the customer receives the service and whether value to the customer is provided.

Customer levels of service measures used in the asset management plan are:

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

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

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

The current and expected customer service levels are detailed in Tables 3.4 and 3.5. Table 3.4 shows the expected levels of service based on resource levels in the current long-term financial plan.

Organisational measures are measures of fact related to the service delivery outcome e.g. number of occasions when service is not available, condition %'s of Very Poor, Poor/Average/Good, Very good.

These Organisational measures provide a balance in comparison to the customer perception that may be more subjective.

Table 3.4: Customer Level of Service

Key Performance Measure	Level of Service Objective	Performance Measure Process	Current Level of Service	Optimal Level of Service
COMMUNITY LEVELS OF SERVICE				
Quality	Smooth well-maintained transport network.	Number of customer complaints related to transport asset faults.	Current level of customer request is low.	Reduction in customer requests.
Function	Provide access to facilities and dwellings.	Number of customer requests related to access issues.	Current level of customer request is low.	Reduction in customer requests.
Capacity/ Utilisation	Provide good traffic flow with minimal delays.	Number of customer requests related to traffic flow issues.	Current level of customer request is low.	Reduction in customer requests.
TECHNICAL LEVELS OF SERVICE				
Operations	Inspected regularly for defects.	Number of new defects reported by public that have not already been recorded.	TBD	Reduction in number of NEW defects reported by public.
Renewal	Renew Transport assets with appropriate timing to avoid highly deteriorated asset condition and improve overall asset longevity	Average condition of assets	TBD	TBD
Maintenance	Defects are repaired within allotted timeframe.	Percentage of defects repaired before due date.	TBD	Reduction in the percentage of defects that are not fixed by due date.
Upgrade/New	Lack of capacity or unfit for heavy traffic. Network extension.	Number of customer requests relating to substandard road widths in the network. Number of dwellings without adequate access.	TBD	Reduction in customer requests relating to substandard road widths. Reduction of dwellings without adequate access.

3.5 Technical Levels of Service

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

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

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

Service and asset managers plan, implement and control technical service levels to influence the customer service levels.[4]

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

Table 3.5: Technical Levels of Service

Service Attribute	Service Activity Objective	Activity Measure Process	Current Performance *	Desired for Optimum Lifecycle Cost **
TECHNICAL LEVELS OF SERVICE				
Operations	Inspected regularly for defects.	Number of new defects reported by public that have not already been recorded.	TBD	Reduction in number of new defects reported by public.
Renewal	Renew Transport assets with appropriate timing to avoid highly deteriorated asset condition and improve overall asset longevity	Average condition of assets	TBD	TBD
Maintenance	Defects are repaired within allotted timeframe.	Percentage of defects repaired before due date.	TBD	Reduction in the percentage of defects that are not fixed by due date.
Upgrade/New	Identification of lack of capacity or unfit for heavy traffic sections of network.	Number of customer requests relating to substandard road widths in the network. Number of dwellings without adequate access.	TBD	Reduction in customer requests relating to substandard road widths. Reduction of dwellings without adequate access.

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

4. FUTURE DEMAND

4.1 Demand Drivers

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

4.2 Demand Forecasts

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

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

4.3 Demand Impact on Assets

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

Table 4.3: Demand Drivers, Projections and Impact on Services

Demand drivers	Present position	Projection	Impact on services
Mining Industry	Approximately 30% of the population employed in the Mining Industry	Heavy reliance on a cyclical industry, could lead to population decline	Potential for less ratal income in the future for current services
Population	4,707	Population is expected to remain the same or decline	Potential for less ratal income in the future for current services
Increased Tourism	Approximately 15% of the population employed in Tourism with the industry growing at approximately 5% per annum	Continued growth in Tourism will lead to higher West Coast road use	Stagnant rate income in combination with higher road use could lead to deteriorating assets.

4.4 Demand Management Plan

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 4.4. Further opportunities will be developed in future revisions of this asset management plan.

Table 4.4: Demand Management Plan Summary

Demand Driver	Impact on Services	Demand Management Plan
Stagnant population growth coupled with increased visitors to the Region	Little to no population growth means stagnant Rates Income for Council. Greater visitor numbers mean higher road use and therefore increased deterioration of assets.	Renewal expenditure should be prioritised over any 'New' spending. Because, with little to no projected growth and therefore no increase in ratal income, Council will essentially only have enough funding to maintain and renew its current road network. As discussed throughout this document; new/additional assets will result in increased costs to Council in relation to the ongoing maintenance and depreciation expense of these additional assets. Encourage a culture of 'Renewal' before 'New throughout Council Continue to lobby State and Federal Government for increased funding for assets.

4.5 Asset Programs to meet Demand

The new assets required to meet demand can be acquired, donated or constructed. Additional assets are discussed in Section 5.5. The summary of the cumulative value of additional asset is shown in Figure 1.

Figure 1: Upgrade and New Assets to meet Demand – (Cumulative)

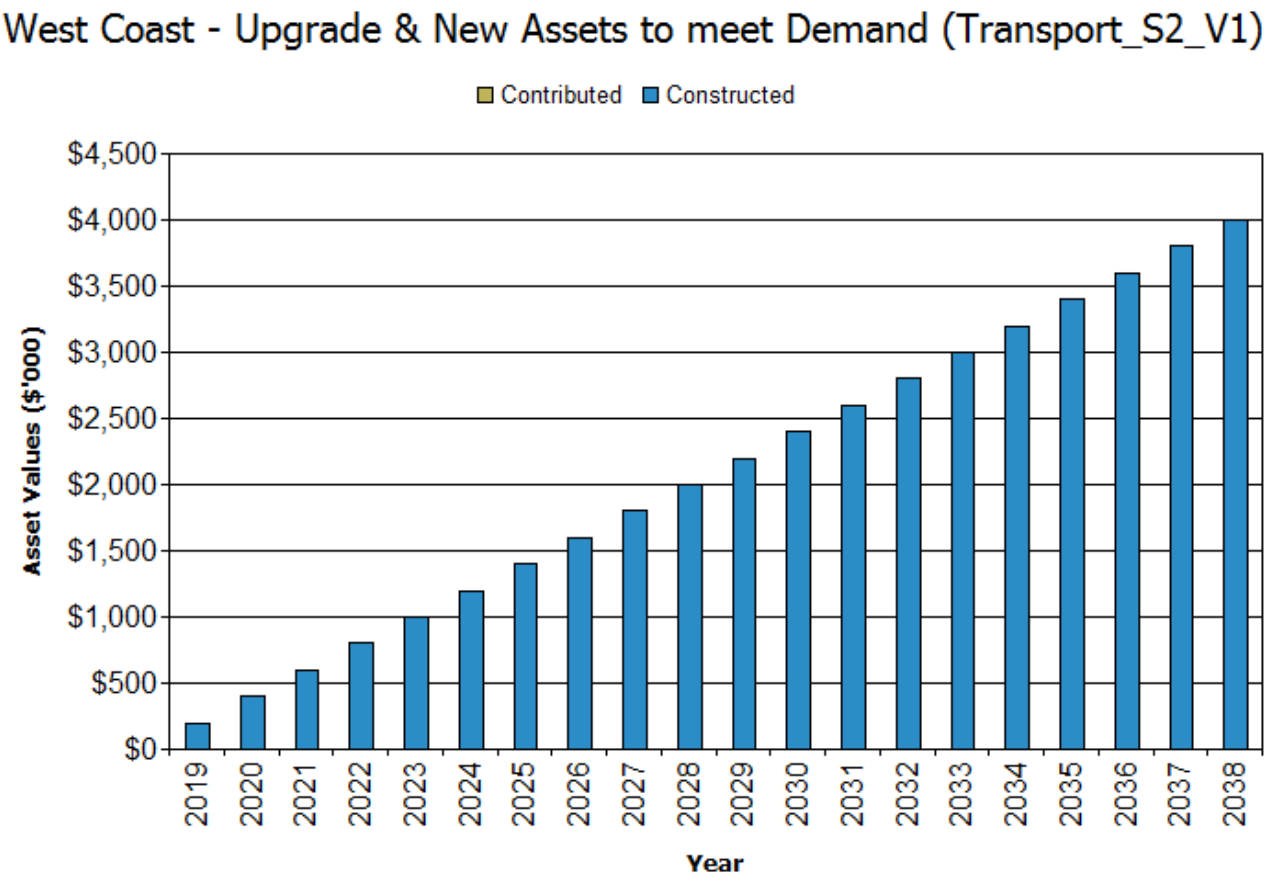


Figure Values are in current (real) dollars.

The population of West Coast Council is projected to remain at the current level or decline over the planning period. Therefore, for the purposes of this plan no additional assets have been projected in relation to land development. It is estimated that Council will spend approximately $200,000 per year on new/upgrade transport assets such as additional traffic islands, guard rails, pedestrian/pram ramps and new footpaths (for example). This investment in 'new' assets will add approximately $4,400,000 in additional assets to Council's asset holdings over the planning period (20 years).

Acquiring these additional assets will commit Council to ongoing operations, maintenance and renewal costs.These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the long term financial plan further in Section 5.

5. LIFECYCLE MANAGEMENT PLAN

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

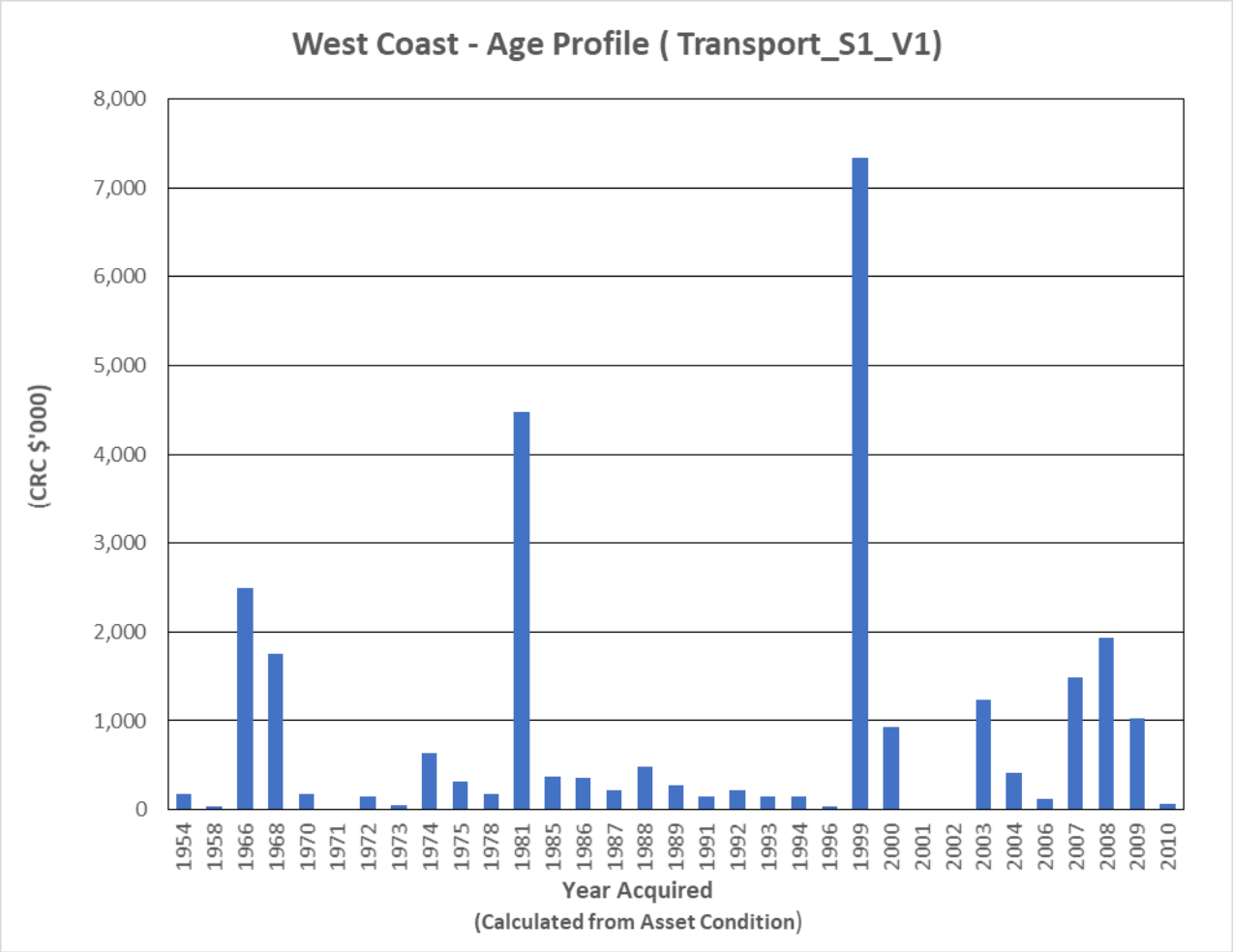
5.1 Background Data

5.1.1 Physical parameters

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

The age profile of the assets included in this AM Plan are shown in Figure 2. Figure Values are in current (real 2017/18) dollars.

Figure 2: Asset Age Profile



The exact age of West Coast Council Transport assets is generally unknown. The age of infrastructure assets becomes less relevant when updated condition data is acquired through a condition survey. A survey was conducted in March 2017 to determine the condition of Council's sealed pavement and surface assets, which make up 63% of the value of Council's Transport infrastructure assets. This condition survey and other less recent surveys conducted for Transport asset categories have been used to calculate the Year Acquired data shown in the chart above.

5.1.2 Asset capacity and performance

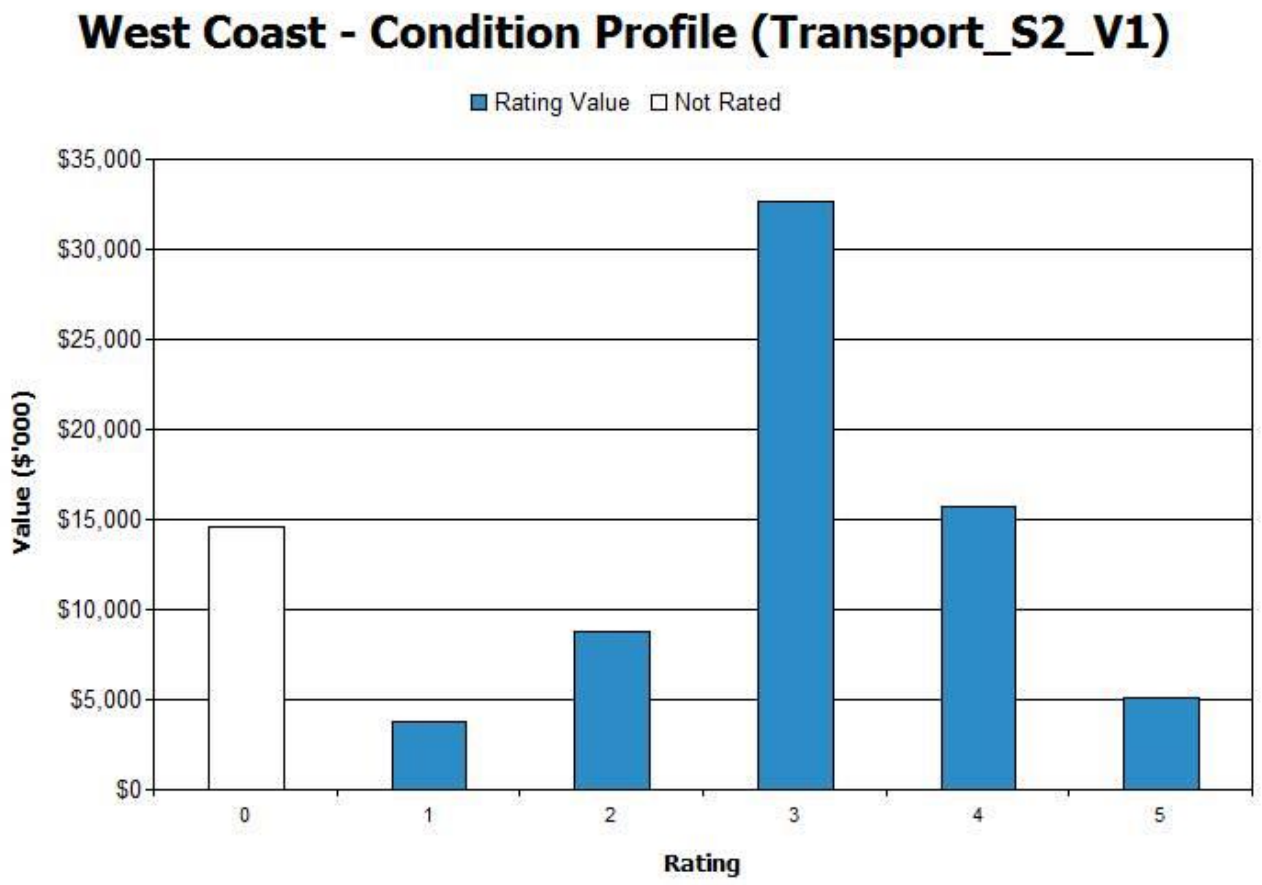
Council assets are generally provided to meet design standards where these are available.

5.1.3 Asset condition

Council recently contracted the Australian Road Research Board (ARRB) to conduct a condition assessment of its sealed road network. The survey was completed in March 2017 and involved visual and automated laser measurement of the condition of Council's sealed road assets. Almost two thirds of the value of Council's Transport Asset Register is contained within the sealed road network. Therefore, the results shown in Fig 3 below are believed to be at least 63% accurate. Other Transport asset categories are due for an updated condition assessment which will be conducted within the next two years.

The condition profile of our assets is shown in Figure 3.

Fig 3: Asset Condition Profile



Condition is measured using a 1 – 5 grading system[5] as detailed in Table 5.1.3.

Table 5.1.3: Simple Condition Grading Model

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

5.2 Operations and Maintenance Plan

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

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

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

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

Maintenance expenditure is shown in Table 5.2.1.

Table 5.2.1: Maintenance and Operations Expenditure Trends

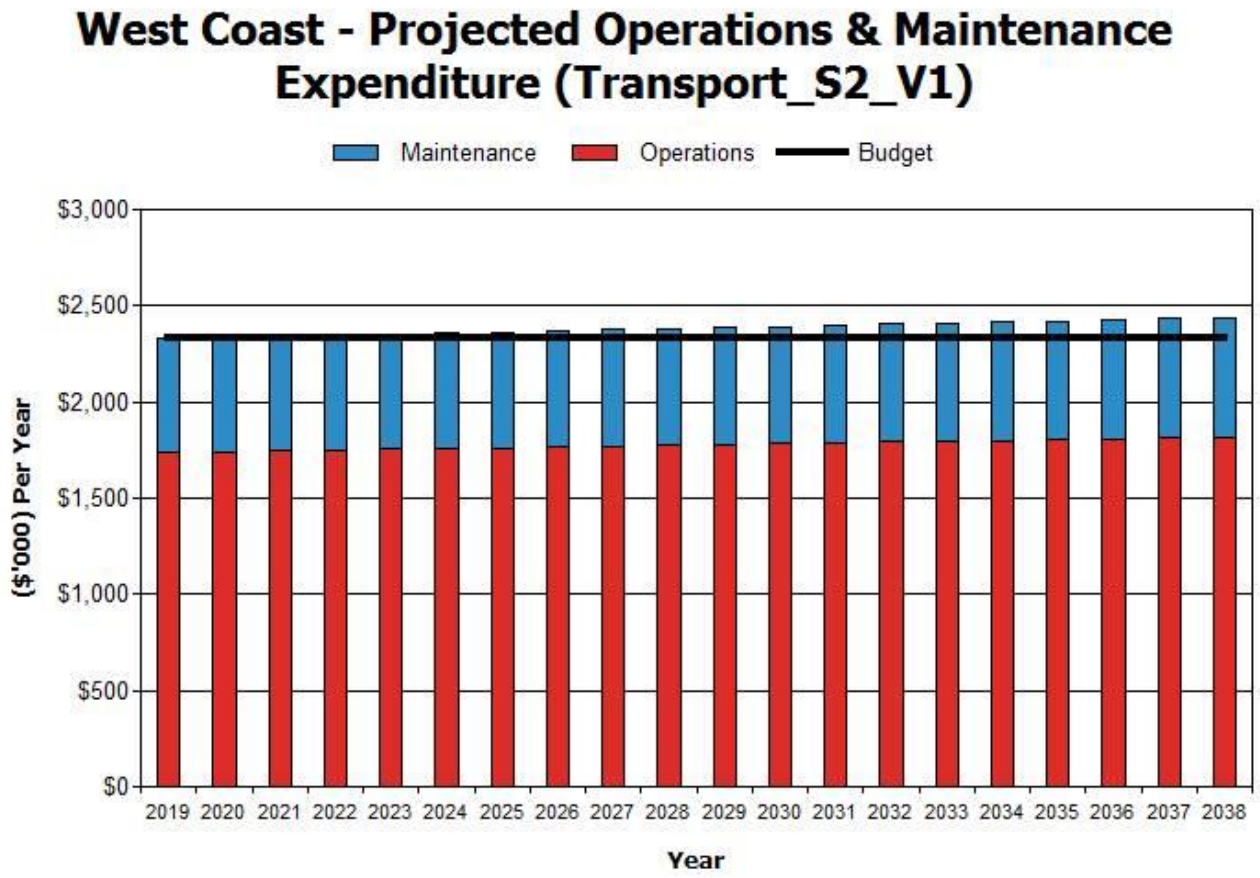
Year	Maintenance & Pperations Budget
2017/18	$2,328,000 (approx.)

Maintenance expenditure levels are considered to be adequate to meet projected service levels, which should be less than or equal to current service levels. Where maintenance expenditure levels are such that they will result in a lesser level of service, the service consequences and service risks have been identified and highlighted in this AM Plan and service risks considered in the Infrastructure Risk Management Plan.

Summary of future operations and maintenance expenditures

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

Figure 4: Projected Operations and Maintenance Expenditure



Maintenance and operational expenditure will increase by approximately $90,000 over the planning period (20 years) due to the addition of new constructed assets to the current asset stock.

Deferred maintenance, i.e. works that are identified for maintenance and unable to be funded are to be included in the risk assessment and analysis in the infrastructure risk management plan.

Maintenance is funded from the operating budget where available. This is further discussed in Section 7.

5.3 Renewal/Replacement Plan

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

5.3.1 Renewal ranking criteria

Asset renewal and replacement is typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (e.g. replacing a bridge that has a 5 t load limit), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. roughness of a road).[6]

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

- Have a high consequence of failure,
- Have high use and subsequent impact on users would be greatest,
- Have a total value representing the greatest net value,
- Have the highest average age relative to their expected lives,
- Are identified in the AM Plan as key cost factors,
- Have high operational or maintenance costs, and
- Have replacement with a modern equivalent asset that would provide the equivalent service at a savings.[7]

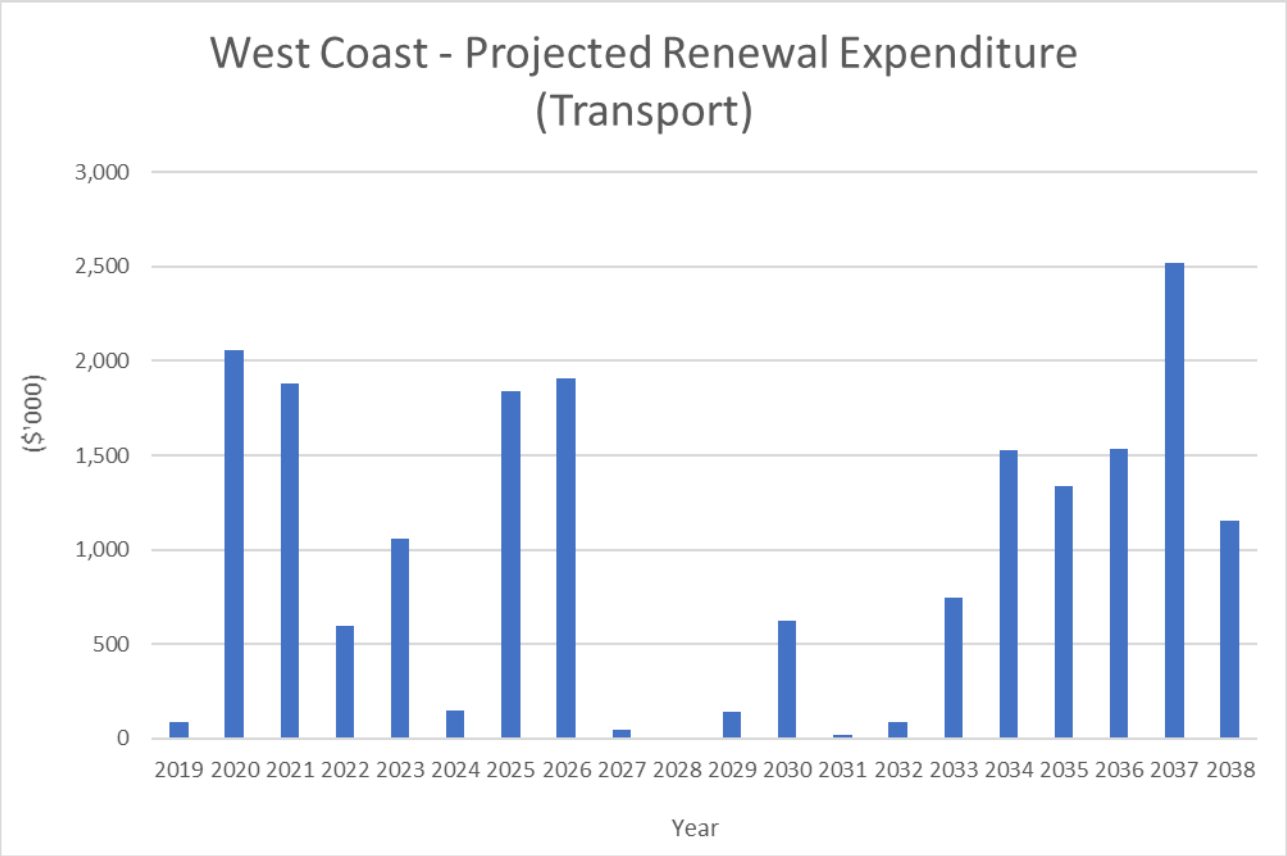
5.3.2 Summary of future renewal and replacement expenditure

Projected future renewal and replacement expenditures are forecast to increase over time when the asset stock increases. The expenditure is required is shown in Fig 5. Note that all amounts are shown in current (real) dollars.

The projected capital renewal and replacement program is shown in Appendix B.

[6] IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.
[7] Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

Fig 5: Projected Capital Renewal and Replacement Expenditure



Projected asset renewals over the planning period (20 years) will peak and trough due to similar conditions between asset groups, similar historic construction dates and common localised issues leading to service deficiencies. The large number of renewals that are projected to fall due in 2034 - 2038 are sealed pavement and surface assets which are currently in an acceptable condition, but will deteriorate to a point at which renewal will need to occur to maintain an acceptable service level. The large number of renewals seen in the period 2020 - 2026 is due to a number of assets reaching, or nearing, end of useful life during this period. A bulk of renewal work occurring within a short period means that renewals may to be deferred temporarily to ensure that renewal budgets remain consistent.

Deferred renewal and replacement, i.e. those assets identified for renewal and/or replacement and not scheduled in capital works programs are to be included in the risk analysis process in the risk management plan.

Renewals and replacement expenditure in the capital works program will be accommodated in the long term financial plan. This is further discussed in Section 7.

5.4 Creation/Acquisition/Upgrade Plan

New works are those that create a new asset that did not previously exist, or works which will upgrade or improve an existing asset beyond its existing capacity. They may result from growth, social or environmental needs. Assets may also be acquired at no cost. These additional assets are considered in Section 4.4.

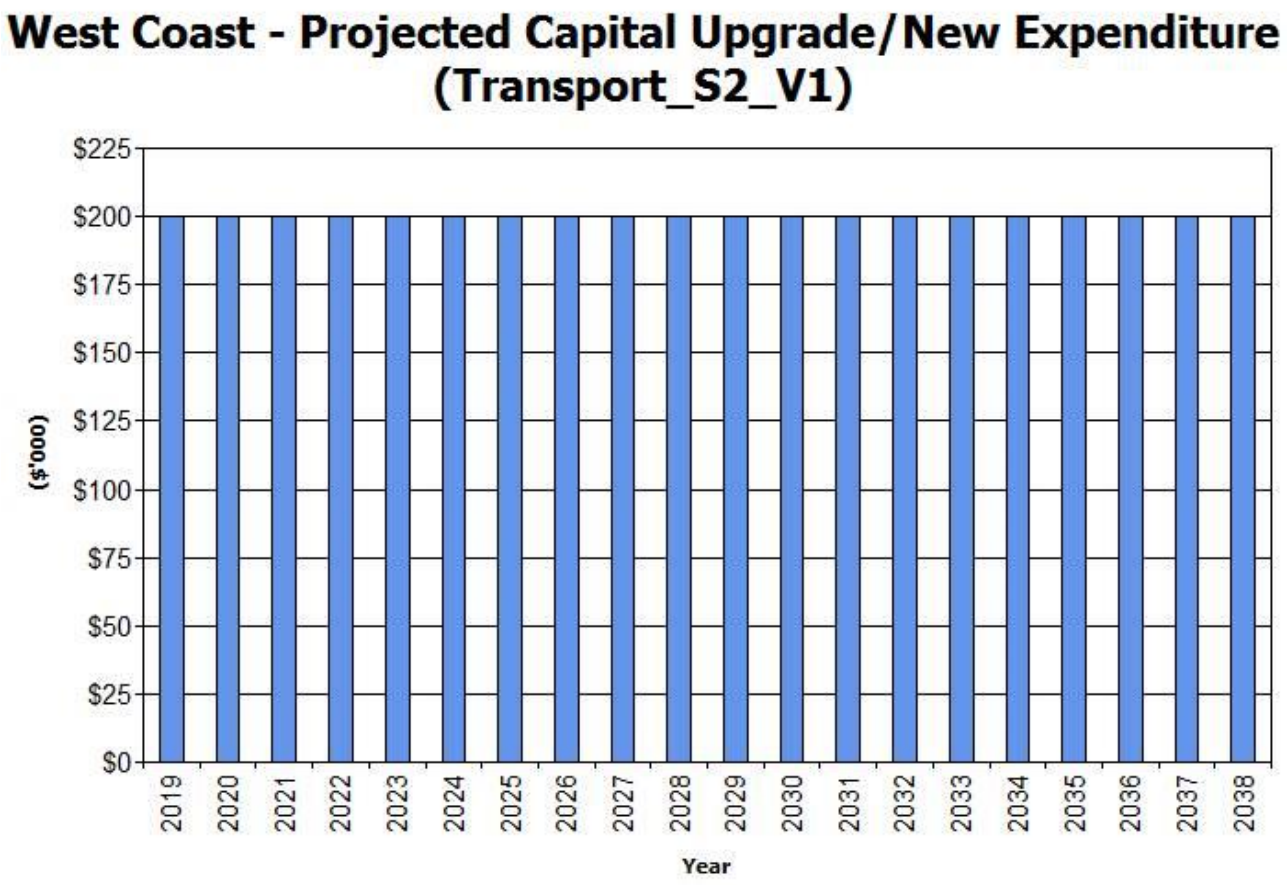
5.4.1 Selection criteria

New assets and upgrade/expansion of existing assets are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Candidate proposals are inspected to verify need and to develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds and scheduled in future works programmes.

5.4.2 Summary of future upgrade/new assets expenditure

Projected upgrade/new asset expenditures are summarised in Fig 6. The projected upgrade/new capital works program is shown in Appendix C. All amounts are shown in real values.

Fig 6: Projected Capital Upgrade/New Asset Expenditure



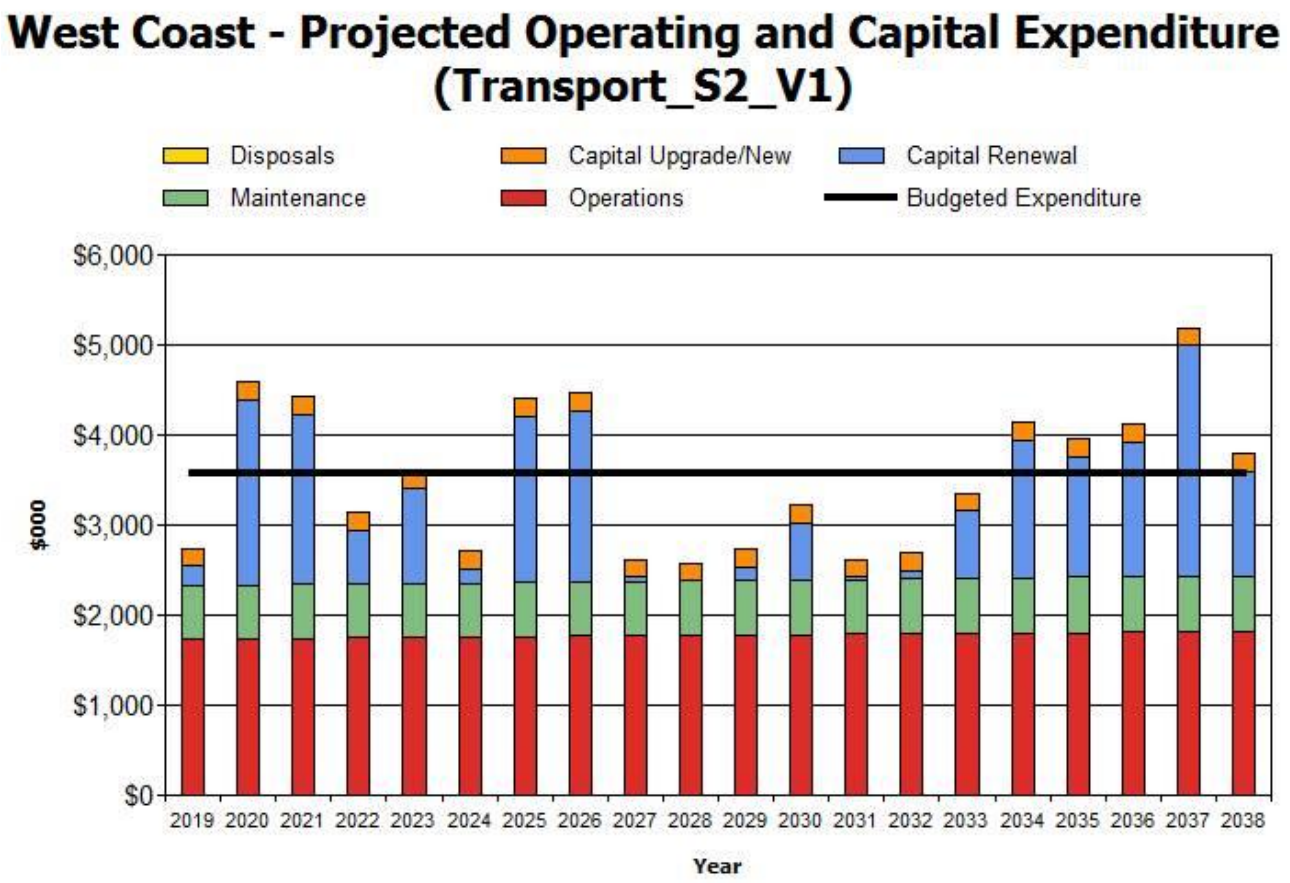
Expenditure on new assets and services in the capital works program will be accommodated in the long term financial plan but only to the extent of the available funds

5.4.3 Summary of asset expenditure requirements

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

The bars in the graphs represent the anticipated budget needs required to achieve lowest lifecycle costs, the budget line indicates what is currently available. The gap between these informs the discussion on achieving the balance between services, costs and risk to achieve the best value outcome.

Fig 7: Projected Operating and Capital Expenditure



As can be seen in Fig 7, Council is able to adequately fund all expenditure requirements over the next 20 years. Projected expenditure required is forecast to peak and trough over the planning period, as can be seen by the coloured bars in Fig 7. However, on average, the projected budget (solid black horizontal line) is expected to adequately cover all expenditure requirements for the panning period. The peaks and troughs in expenditure requirements will be managed by deferring asset renewals, which will marginally increase the risk to Council (discussed in section 6.2).

6. RISK MANAGEMENT PLAN

The purpose of infrastructure risk management is to document the results 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 31000:2009 Risk management – Principles and guidelines.

Risk Management is defined in ISO 31000:2009 as: 'coordinated activities to direct and control with regard to risk'[8].

An assessment of risks associated with service delivery from infrastructure assets has identified critical risks that will result in loss or reduction in service from infrastructure assets or a 'financial shock'. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

6.1 Critical Assets

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

[8] ISO 31000:2009, p 2

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

Table 6.1 Critical Assets

Critical Asset(s)	Failure Mode	Impact
Arterial Roads	Flood damage	Service restrictions and possible road closures to arterial links into and out of the Municipality. Post flood inspections to identify debris and damage - Prioritise remedial works.

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

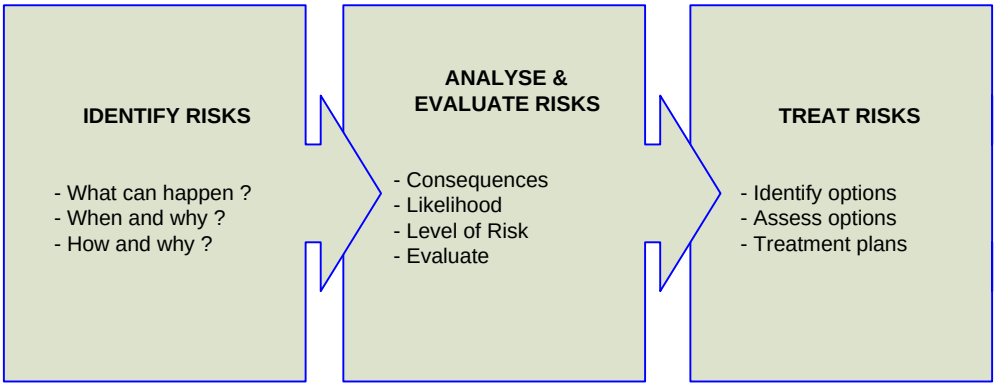
6.2 Risk Assessment

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

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

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

Fig 6.2 Risk Management Process – Abridged



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

An assessment of risks associated with service delivery from infrastructure assets has identified the critical risks that will result in significant loss, 'financial shock' or a reduction in service.

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 cost after the selected treatment plan is implemented is shown in Table 6.2. These risks and costs are reported to management.

Table 6.2: Critical Risks and Treatment Plans

Service or Asset at Risk	What can Happen	Risk Rating	Risk Treatment Plan	Residual Risk *	Treatment Costs
Sealed Roads – Deferral of asset renewal	Asset condition deteriorates below service level contributing to a vehicular accident	High	Prioritise asset renewals based on road hierarchy (currently being developed) to ensure that roads with higher traffic volumes and higher-speed limits are renewed before roads with lower volumes and speed limits	Low - Deferred renewals will occur in relation to low volume and low speed limited roads	
Roads	Damage from increased heavy vehicles causing safety hazards	High	Consider reviewing the current heavy vehicle routes and permitting system analysing the benefits of Increased frequency of maintenance inspections of heavy vehicle routes	Low - Hazards will exist between identification and maintenance response times	
Roads	Damage due to flooding causing safety hazards	High	Consider increased frequency of maintenance inspections for roads prone to flooding	Low – Hazards will exist between identification and maintenance response times	

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7. FINANCIAL SUMMARY

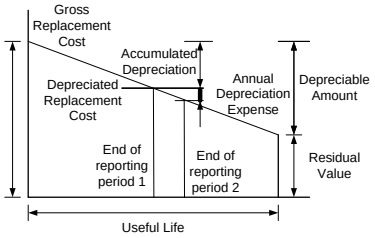
This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset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

7.1 Financial Statements and Projections

7.1.1 Asset valuations

The best available estimate of the value of assets included in this Asset Management Plan are shown below. Assets are valued at fair value (modern equivalent replacement cost).

Gross Replacement Cost	$80,579,962
Depreciable Amount	$80,579,962
Depreciated Replacement Cost[9]	$45,938,037
Projected Asset Consumption	$1,243,390



7.1.1 Sustainability of service delivery

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

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

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

Asset Renewal Funding Ratio

Asset Renewal Funding Ratio[10] 105%

The Asset Renewal Funding Ratio is the most important indicator and indicates that over the next 10 years of the forecasting that we expect to have 105% of the funds required for the optimal renewal and replacement of assets.

Medium term – 10 year financial planning period

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

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

The projected operations, maintenance and capital renewal expenditure required over the 10 year planning period is $3,330,000 on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is $3,378,000 on average per year giving a 10 year a small funding surplus of 48,000 per year. This indicates that 101% of the projected expenditures needed to provide the services documented in the asset management plan. This excludes upgrade/new assets.

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

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

7.1.2 Projected expenditures for long term financial plan

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

Expenditure projections are in 2017/18 real values.

Table 7.1.2: Projected Expenditures for Long Term Financial Plan ($000)

Year	Operations ($000)	Maintenance ($000)	Projected Capital Renewal ($000)	Capital Upgrade/ New ($000)	Disposals ($000)
2019	$1,736	$592	$215	$200	$0
2020	$1,740	$593	$2,060	$200	$0
2021	$1,745	$595	$1,881	$200	$0
2022	$1,749	$596	$595	$200	$0
2023	$1,753	$598	$1,062	$200	$0
2024	$1,758	$599	$152	$200	$0
2025	$1,762	$601	$1,842	$200	$0
2026	$1,766	$602	$1,907	$200	$0
2027	$1,770	$604	$45	$200	$0
2028	$1,775	$605	$0	$200	$0
2029	$1,779	$607	$141	$200	$0
2030	$1,783	$608	$624	$200	$0
2031	$1,788	$610	$22	$200	$0
2032	$1,792	$611	$89	$200	$0
2033	$1,796	$613	$747	$200	$0
2034	$1,801	$614	$1,525	$200	$0
2035	$1,805	$616	$1,338	$200	$0
2036	$1,809	$617	$1,499	$200	$0
2037	$1,814	$618	$2,560	$200	$0
2038	$1,818	$620	$1,154	$200	$0

7.2 Funding Strategy

Funding for assets is provided from the 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 differing options.

7.3 Valuation Forecasts

Asset values are forecast to increase as additional assets are added to Council's asset stock.

Additional assets will generally add to the operations and maintenance needs in the longer term, as well as the need for future renewal. Additional assets will also add to future depreciation forecasts.

7.4 Key Assumptions Made in Financial Forecasts

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

Key assumptions made in this asset management plan are:4.

Table 7.4: Key Assumptions made in AM Plan and Risks of Change

- Asset condition data which is used to predict the remaining useful lives of assets is correct

A condition survey was conducted in March 2017 to determine the condition of Council's sealed pavement and surface assets, which make up 63% of the value of Council's Transport infrastructure assets. This ensures that approximately two thirds of Council's Transport asset register is accurately conditionally assessed and that current remaining useful lives and renewal projections are up to date. The remaining asset categories will be conditionally assessed over the next two years.

- Transport asset unit rates are current and accurate

A revaluation of all Transport assets was conducted in June 2017. This means that all figures reported in this plan are up to date and represent the current costs of construction and asset replacement.

- Transport asset useful lives are current and accurate

Transport asset useful lives were reviewed in June 2017. It is believed that asset useful lives are now correct, however the deterioration of Transport assets will be monitored and useful lives reviewed annually. There is some concern that local circumstances such as high rainfall may eventuate in shorter asset useful lives, however more data on the rate of asset deterioration must be obtained before asset lives are adjusted.

7.5 Forecast Reliability and Confidence

The expenditure and valuations projections in this AM Plan are based on best available data. Currency and accuracy of data is critical to effective asset and financial management. Data confidence is classified on a 5 level scale[11] in accordance with Table 7.5.

Table 7.5: Data Confidence Grading System

Confidence Grade	Description
A Highly reliable	Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete and estimated to be accurate ± 2%
B Reliable	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate ± 10%
C Uncertain	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated ± 25%
D Very Uncertain	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete and most data is estimated or extrapolated. Accuracy ± 40%
E Unknown	None or very little data held.

The estimated confidence level for and reliability of data used in this AM Plan is considered to be at a reliable level (B). The dataset is believed to be complete with only some minor assets such as traffic safety features to be added to the Asset Register. Asset Unit Rates are correct and are current as at 30/6/2017, Asset Useful Lives have been reviewed and are in line with the current knowledge available on asset deterioration rates. Asset Condition Scores are correct for approximately two thirds of the Transport Asset Register.

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

8. PLAN IMPROVEMENT AND MONITORING

8.1 Improvement Plan

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

Table 8.1: Improvement Plan

Task No	Task	Responsibility	Resources Required	Timeline
1	Use the recently completed condition survey of Council's footpaths to aid in the development of a Footpath Network Strategy	G.Boyd / WCC Staff		
2	Investigate and implement new asset systems to securely record asset data and aid in future asset planning	G.Boyd / WCC Staff		
3	Implement a system to aid in the review of asset useful lives annually in line with Australian Accounting Standards	G.Boyd / WCC Staff		
4	Develop a detailed 5 year renewal plan for Transport assets	G.Boyd / WCC Staff		
5				
6				
7				
8				
9				
10				

8.3 Monitoring and Review Procedures

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

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

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

8.4 Performance Measures

The effectiveness of the asset management plan can be measured in the following ways:

- The degree to which the required projected expenditures identified in this asset management plan are incorporated into the long term financial plan,
- The degree to which 1-5 year detailed works programs, budgets, business plans and corporate structures take into account the 'global' works program trends provided by the asset management plan,
- The degree to which the existing and projected service levels and service consequences (what we cannot do), risks and residual risks are incorporated into the Strategic Plan and associated plans,
- The Asset Renewal Funding Ratio achieving the target of 1.0.

9. REFERENCES

- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
- IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/namsplus.
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- IPWEA, 2012 LTFP Practice Note 6 PN Long Term Financial Plan, Institute of Public Works Engineering Australasia, Sydney

10. APPENDICES

Appendix A Projected 10 year Capital Renewal and Replacement Works Program

Appendix B Projected 10 year Capital Upgrade/New Works Program

Appendix C LTFP Budgeted Expenditures Accommodated in AM Plan

Appendix A Projected 10-year Capital Renewal and Replacement Works Program

Project Details	Year	Road Renewal Capex
Road Pavement Reconstructions: $450,000 Road Surface Resealing: $100,000 Footpath Renewals: $500,000	2019	$1,050,000
Road Pavement Reconstructions: $450,000 Road Surface Resealing: $100,000 Footpath Renewals: $500,000	2020	$1,050,000
Road Pavement Reconstructions: $450,000 Road Surface Resealing: $100,000 Footpath Renewals: $500,000	2021	$1,050,000
Road Pavement Reconstructions: $500,000 Road Surface Resealing: $150,000 Footpath Renewals: $400,000	2022	$1,050,000
Road Pavement Reconstructions: $500,000 Road Surface Resealing: $150,000 Footpath Renewals: $400,000	2023	$1,050,000
Road Pavement Reconstructions: $500,000 Road Surface Resealing: $150,000 Footpath Renewals: $400,000	2024	$1,050,000
Road Pavement Reconstructions: $500,000 Road Surface Resealing: $150,000 Footpath Renewals: $400,000	2025	$1,050,000
Road Pavement Reconstructions: $500,000 Road Surface Resealing: $150,000 Footpath Renewals: $400,000	2026	$1,050,000
Road Pavement Reconstructions: $500,000 Road Surface Resealing: $150,000 Footpath Renewals: $400,000	2027	$1,050,000
Road Pavement Reconstructions: $500,000 Road Surface Resealing: $150,000 Footpath Renewals: $400,000	2028	$1,050,000

Appendix B Projected Upgrade/Exp/New 10-year Capital Works Program

Project Name	Year	Estimated New Capex
New & Upgrade Projects	2019	$200,000
New & Upgrade Projects	2020	$200,000
New & Upgrade Projects	2021	$200,000
New & Upgrade Projects	2022	$200,000
New & Upgrade Projects	2023	$200,000
New & Upgrade Projects	2024	$200,000
New & Upgrade Projects	2025	$200,000
New & Upgrade Projects	2026	$200,000
New & Upgrade Projects	2027	$200,000
New & Upgrade Projects	2027	$200,000

Appendix C Budgeted Expenditures Accommodated in LTFP

NAMS.PLUS3 Asset Management **West Coast**

Transport_S2_V1 **Asset Management Plan**

IPWEA INSTITUTE OF PUBLIC WORKS ENGINEERING AUSTRALASIA JRA

First year of expenditure projections **2018** (financial yr ending)

Transport

Asset values at start of planning period

Current replacement cost	$78,854 (000)	Calc CRC from Asset Register	$78,854 (000)
Depreciable amount	$78,854 (000)	This is a check for you.	
Depreciated replacement cost	$42,653 (000)		
Annual depreciation expense	$1,263 (000)		

Operations and Maintenance Costs for New Assets

	% of asset value
Additional operations costs	2.20%
Additional maintenance	0.75%
Additional depreciation	1.60%

Planned renewal budget (information only)

You may use these values calculated from your data or overwrite the links.

Planned Expenditures from LTFP

20 Year Expenditure Projections Note: Enter all values in current **2018** values

Financial year ending	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
Expenditure Outlays included in Long Term Financial Plan (in current $ values)										
Operations										
Operations **budget**	$1,736	$1,736	$1,736	$1,736	$1,736	$1,736	$1,736	$1,736	$1,736	$1,736
Management **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AM systems **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total operations	$1,736	$1,736	$1,736	$1,736	$1,736	$1,736	$1,736	$1,736	$1,736	$1,736
Maintenance										
Reactive maintenance **budget**	$592	$592	$592	$592	$592	$592	$592	$592	$592	$592
Planned maintenance **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Specific maintenance items **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total maintenance	$592	$592	$592	$592	$592	$592	$592	$592	$592	$592
Capital										
Planned renewal **budget**	$925	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100
Planned upgrade/new **budget**	$373	$200	$200	$200	$200	$200	$200	$200	$200	$200
Non-growth contributed asset value	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Asset Disposals										
Est Cost to dispose of assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Carrying value (DRC) of disposed assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0