Cook Shire COUNCIL

Sewerage
Asset Management Plan

V1.0
June 2019

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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.

The Plan has been primarily formulated to document:

- The Sewerage assets Council owns
- Funding required to maintain the Sewerage network at current levels of service
- Future demand for renewal and improvements (upgrade/ new works) to the Sewerage network, and how to manage demand over the long term.

This plan covers Sewerage infrastructure assets associated with Sewerage services at Coen, Cooktown, and Laura.

1.2 Asset Description

The Sewerage asset network includes:

- Sewerage schemes with associated sewerage treatment plants at Coen, Cooktown, and Laura
- Over 37 km of sewerage mains pipe over the three sewerage schemes, and
- 700 plus manholes.

These infrastructure assets have a value estimated at $26 million.

1.3 Levels of Service

Sewerage services are largely governed and regulated by the State government. Statutory requirements set the framework for minimum levels of service required, which is complemented by Cook Shire Council's *Water & Wastewater Customer Service Standards*.

This Plan provides an outline of Customer and Technical levels of service. These levels of service are focused on maintaining regulatory standards and service response times.

Current levels of service are used as the baseline in developing the operational, maintenance, renewal and upgrade/ new funding requirements outlined in this Plan.

1.4 Future Demand

The main demands for new services are created by:

- Population increases
- Regulations changes
- Tourism numbers increasing.

With low rates of population growth and existing sewerage schemes operating well under equivalent person capacity, it is not anticipated that demand will necessitate any sewerage scheme expansion in the medium to long term.

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) including operations, maintenance, renewal, upgrade, and new assets over the 10-year planning period is $1,444,000 on average per year. This amount includes an average of $43,000 per annum for upgrade and new Sewerage assets

1.6 Financial Summary

What we will do

The estimated funding requirement for Sewerage services in the coming 10 years is $1,444,000 on average per year as per the projections outlined in this Plan. The available funding for the projected operational, maintenance, renewal/ replacement, and upgrade/ new requirements from this and other AM Plans will be considered within the long term financial forecasting for the entire Council organisation.

The infrastructure reality is that only what is funded in the long term financial forecasting can be provided. The purpose of this Asset Management Plan is to communicate the required funding to meet defined service levels, and the consequences and risks associated with not providing these funding requirements, so that decision making is "informed".

The projected funding requirement for Sewerage services is shown in Figure 1.6 below, noting that the 'budgeted expenditure' line shown is the average expenditure required to meet these requirements.

Figure 1.6: Projected Operating and Capital Expenditure

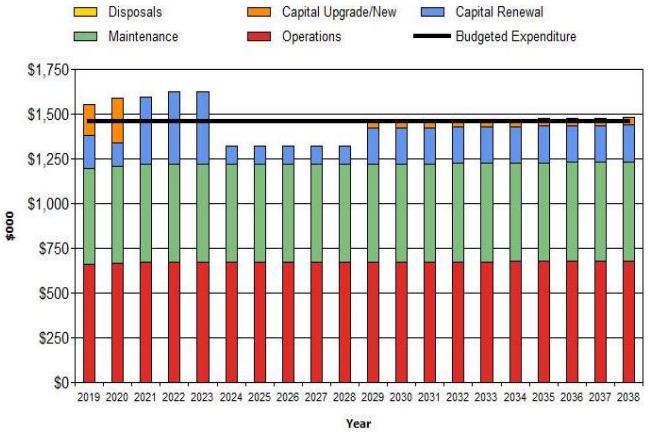


Figure Values are in current (real) dollars.

We plan to provide Sewerage services for the following:

- Operation, maintenance, renewal and upgrade of sewerage treatment plants and networks to meet required service levels.
- Significant renewals such as the Cooktown digester replacement, and new works such as the expansion of the Coen effluent irrigation area, all within the 10-year planning period.

The net lifecycle cost to Council per Sewerage connection is significantly higher than many other Councils due to Cook Shire's sewerage schemes being remote and widely separated, small in scale with limited connections (especially Coen and Laura), and impacted by cyclones and monsoonal rains. The schemes sit within a heavily regulated and compliance focussed environment with the smaller schemes in Coen and Laura not anticipated to ever provide a positive return i.e. they will always be a net cost to Cook Shire Council.

What we cannot do

What we cannot do will be outlined within Council's long term financial forecasting (LTFF) which uses a whole of organisation approach to prioritise funding. The LTFF will provide a 10 year financial plan for the Cook Shire Council organisation and will consider projected operational, maintenance, renewal/ replacement, and upgrade/ new funding requirements from this and other AM Plans.

It should be noted that renewal and new capital works projects remain dependent on:-

- Grant funding streams such as Works for Queensland,
- Successful targeted grant funding application for sewerage projects as required.

It is anticipated that service trade-offs may well be required within the Sewerage infrastructure area as a result of inadequate funds being available to meet the funding requirements outlined in this Plan.

Managing the Risks

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

The main risk consequences are:

- Non-compliance with EA/ licensing requirements leading to environmental harm and fines
- Stormwater infiltration into sewerage network impacting treatment capacity and the environment
- Sewerage treatment plant and equipment failures or electricity supply failure impacting treatment and/ or causing sewerage spillage.

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

- Keeping DES fully informed of non-compliances and working with DES to negotiate revised license parameters at Laura
- Rectifying infiltration issues at Cooktown and Coen over coming years using camera investigations and undertaking infiltration repairs
- Undertaking periodic inspection of critical treatment plant assets to plan replacements, and programmed maintenance and replacement of sewerage pumps.

1.7 Asset Management Practices

Our systems to manage assets include:

- Authority financial system
- Asset registers and GIS systems (MapInfo).

Assets requiring renewal/replacement are identified from one of three methods provided in the 'Expenditure Template':

• Method 1 uses Asset Register data to project the renewal costs using acquisition year and useful life to determine the renewal year, or

• Method 2 uses capital renewal expenditure projections from external condition modelling systems (such as Pavement Management Systems), and/ or forward works programs, and

• Method 3 uses a combination of average network renewals plus defect repairs in the Renewal Plan and Defect Repair Plan worksheets on the 'Expenditure template'.

Method 2 has been used for this asset management plan.

1.8 Monitoring and Improvement Program

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

- Review, update, and rationalise Council's sewerage GIS layer to ensure accuracy and completeness
- Formulate and implement a coordinated process to ensure sewerage renewals, additions and disposals are recorded and GIS/ registers updated
- Rectify service deficiencies due to stormwater infiltration and negotiate with DES to amend Laura EA to bring the Laura STP into compliance
- Review CRM systems and implement collection of customer service level data for specific sewerage items to better inform service level performance
- Review and revise *CSC Water & Wastewater Customer Service Standards 2014*
- Implement condition inspections for critical sewerage components
- Continue SWIM reporting to the State, with annual Feedback to Council after release of *Queensland's Urban Potable Water & Sewerage Benchmarking Report*
- Review and revise Community and Technical Levels of Service in this Plan in accord with specific data flows after CRM systems review
- Review and revise renewal and upgrade/ new; works programs in this Plan annually
- Annually compile and review Planned maintenance programs
- Provide an integrated approach to sewerage revaluations to ensure the Water & Wastewater team, Manager Assets and Manager Finance have input into the process.

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 Plan has been primarily formulated to document:

- The Sewerage assets Council owns
- Funding required to maintain the Sewerage network at current levels of service
- Future demand for renewal and improvements (upgrade/ new works) to the Sewerage network, and how to manage demand in the long term.

This asset management plan defines the forecast funding requirements for renewal/ replacement and upgrade/ new works by means of a projected 10 year forward works program. The Plan does not define the adequacy of Council funds to implement the program, with funding availability and financial planning dealt with within Council's Long term financial forecasting i.e. the funding demand from Council's asset management plans are used to provide the financial demand parameters within the long term financial forecasting process.

The asset management plan is to be read in conjunction with relevant Cook Shire Council planning documents. This should include the Asset Management Policy and Asset Management Strategy along with other key planning documents including:

- Corporate Plan 2017-2022
- Operational Plan
- Long term financial forecasting.

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

Table 2.1: Assets covered by this Plan (2016-17 Revaluation)

Asset Category	Dimension/ Number of Items	Replacement Value (to nearest $000)
Sewerage Treatment Plant (STP)	3 No.	11,257,000
Pump Stations	10 No.	2,911,000
Manholes	710 No.	2,381,000
Mains/ Pipes	36,944 m	9,135,000
TOTAL		**$25,683,000**

2.2 Goals and Objectives of Asset Ownership

Our goal in managing infrastructure assets is to meet the current or other ways defined level of service (as reviewed and/ or 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

Community consultation and feedback were key elements in the formulation of the Cook Shire Community Plan 2011-2021, Cook Shire Council Economic Development Plan 2016-2020 and the Cook Shire Council Corporate Plan 2016-2020. Council's Operational Plan 2018-2019 and subsequent Operational Plans are directly based on the relevant Cook Shire Council Corporate Plan.

Community consultation associated with formulation of these key documents has provided little direct feedback on Sewerage infrastructure and services. This indicates that Sewerage services are meeting customer expectations. This would generally be the case unless this service was required but not provided; or the service was inadequate resulting in sewer spills and/ or harm to health and the environment.

The **Cook Shire Community Plan 2011-2021** identified 10 priority issues across the Shire. The one Sewerage related priority issue was *Liveability of townships* (priority # 9). The Community Plan also includes under the theme of *Environmental Wellbeing* the strategy 'To manage water and waste responsibly and efficiently'.

Council completes Queensland's state Water Information Management (SWIM) reports each year which the State compiles into the annual *Queensland's Urban Potable Water & Sewerage Benchmarking Report*. This report provides significant data benchmarked against 70 other Queensland Councils, and includes the number of water and sewerage complaints per 1,000 properties serviced, and conformance with Council's *Water & Wastewater Customer Service Standards 2014*.

3.2 Strategic and Corporate Goals

This asset management plan is prepared in accord with Cook Shire Council's vision, mission, goals and objectives:

Vision: Building sustainable communities with respect for our unique natural environment, celebrating our diverse cultures and sharing our pride in Cape York.

Mission: Our Mission is to understand our communities' needs and provide consistent service to enable them to flourish in a safe, sustainable manner.

Relevant goals and objectives from the Corporate Plan 2017-2022 and how these are addressed in this asset management plan (AM Plan) are detailed in Table 3.2 following.

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

Goal	Objective	How Goal and Objectives are addressed in AM Plan
ECONOMY - Locality specific economic growth, appropriate to each community and the Shire as a whole.	*ECO 3. - Undertake the management of Council's assets in accordance with sound practice to ensure infrastructure networks are maintained, renewed and upgraded to maximise long term benefit to all.* **Eco 3b.** Asset management plans are completed for major infrastructure assets.	**Eco 3b. –** This and associated asset management plan(s) for major infrastructure assets now completed
GOVERNANCE – Accountable, responsible and appropriate governance and management, reflected in responsible long-term financial sustainability and clear strategic direction built around core local government business and affordable levels of service.	*GOV 2. Prepare management strategies to underpin asset sustainability.* **Gov 2a.** Condition assessments are undertaken for major asset classes. **Gov 2b.** Council's asset management plan is completed and informs Council's long term financial strategy.	**Gov 2a. –** Condition assessments have been completed (above ground assets) as part of the asset management plan(s) formulation. **Gov 2b. –**Asset management plan(s) now completed to inform Council's long term financial strategy.

Cook Shire Council's Risk Management Framework 2019 includes a risk reporting and review framework and a Council Risk Register that enables Council to document, manage, monitor, review and update strategic, corporate and operational risk information. Significant infrastructure risk items as outlined in Section 6 of the AM Plan will be considered for inclusion in Council's Risk Register.

3.3 Legislative Requirements

Statutory requirements set the framework for minimum levels of service that Sewerage services are required to meet. In the case of Sewerage and Water services, the Water Supply (Safety and Reliability) Act 2008 sets the required levels of service for Council which are in turn monitored by the State. Legislative requirements relating to the management of Sewerage assets are many with some of the more significant requirements outlined in Table 3.3 below.

Table 3.3: Legislative Requirements

Legislation	Details/ Requirement
Local Government Act 2009.	Adherence to local government principles, including: (a) transparent and effective processes, and decision-making in the public interest; and (b) sustainable development and management of assets and infrastructure, and delivery of effective services.
Local Government Regulation 2012 (168).	A local government's long-term AM plan must- (a) provide for strategies to ensure the sustainable management of the assets mentioned in the local government's asset register and the infrastructure of the local government; and (b) state the estimated capital expenditure for renewing, upgrading, and extending the assets for the period covered by the plan; and (c) be part of, and consistent with, the long term financial forecast.
Water Supply (Safety and Reliability) Act 2008.	1) The purpose of this Act is to provide for the safety and reliability of water supply. 2) The purpose is achieved primarily by – (a) Providing for – i. a regulatory framework for providing water and sewerage services in the State, including functions and powers of service providers; and ii. a regulatory framework for providing recycled water and drinking water quality, primarily for, - protecting public health; - regulation of referable dams; and - flood mitigation responsibilities and protecting interests of customers of service providers.
Environmental Protection Act 1994.	Provides for the granting of environmental authorities for sewage treatment activities (ERA 63). These activities must address the regulatory requirements set out in the Environmental Protection Regulation 2008 and the standard criteria contained in the EP Act.
Public health Act (2005).	The object of this Act is to protect and promote the health of the Queensland public.

3.4 Customer Levels of Service

Levels of service are defined in this asset management plan in two terms, Customer Levels of Service (this section 3.4) and Technical Levels of Service (following section 3.5).

Cook Shire Council's *Water & Wastewater Customer Service Standards 2014* and *Queensland's Urban Potable Water & Sewerage Benchmarking Report Feb 2019* (for the 2017-18 year) form the basis of the customer and technical levels of service outlined in Tables 3.4 and 3.5 following. Council completes state wide Water Information Management

(SWIM) reports each year that Queensland State compiles into the annual *Queensland's Urban Potable Water & Sewerage Benchmarking Report*.

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 this 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 Table 3.4 following. The expected level of service position in 10 years is based on the current budget/ actuals.

Table 3.4: Customer Level of Service

Key Performance Measure	Level of Service/ Expectation	Performance Measure Used	Current Performance	Expected Position in 10 Years based on the current Budget
Service Objective: Provide safe sewerage networks adequate to facilitate service demand.				
Quality	No issues experienced	(a) Customer service requests relating to issues such as sewer blockage, spillage, overflows, odour, outage, or malfunction (b) the number of water and sewerage complaints per 1,000 properties – refer *Queensland's Urban Potable Water & Sewerage Benchmarking Report Feb 2019*, and (c) Total water and sewerage complaints < 50 Shire wide - Refer CSC's *Water & Wastewater Customer Service Standards 2014*	TBC – source/ accuracy questionable but is outlined as 105 complaints/ 1000 properties in *Queensland's Urban Potable Water & Sewerage Benchmarking Report Feb 2019* (State median = 5.3 complaints per 1000 properties)	Significant decrease in complaints towards State median
	Good value	Typical annual residential water and sewerage bill is within 15% of State median (refer *Queensland's Urban Potable Water & Sewerage Benchmarking Report Feb 2019*)	Approx. $1,650 p.a. (State median = $1,394 p.a.)	Annual bill increases moderately
	Confidence levels		Medium	Medium
Function	Sewerage treatment system works	Customer service requests relating to sewerage causing damage to the environment	TBC	Little change
	Confidence levels		TBC	Medium
Capacity and Use	Service is available where required	Customer service requests requesting that sewerage service in a non-sewered area be made available at their residence/ business	TBC	Little Change
	Confidence levels		TBC	Medium

3.5 Technical Levels of Service

Technical Levels of Service - These are technical measures related to the allocation of resources to service activities that are aimed at best achieving the desired customer outcomes and demonstrating effective performance.

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

- Operations – the regular activities to provide services (e.g. treatment of sewer at the sewerage treatment plant);
- 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. servicing pumps at sewer pump stations);
- Renewal – the activities that return the service capability of an asset up to that which it had originally (e.g. replacing pumps at the sewer pump stations);
- Upgrade/New – the activities to provide a higher level of service (e.g. constructing a new sewerage scheme at Laura).

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 Sewerage Asset Management Plan. The 'Desired' position in the table documents the position being recommended in this Sewerage Asset Management Plan.

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

Table 3.5: Technical Levels of Service

Service Attribute	Level of Service/ Activity Objective	Performance Measure Process	Current Performance *	Desired Level of Service/ Optimum Lifecycle Cost **
TECHNICAL LEVELS OF SERVICE				
Operations				
	Sewerage service meet user needs	Average response time for sewerage incidents including mains breaks/ chokes: Cooktown: 95%< 1 hrs Coen: 95%< 2 hrs Laura: 95%< 6 hrs (Refer CSC's *Water & Wastewater Customer Service Standards 2014*)	Response Target met 100% of time (refer *Queensland's Urban Potable Water & Sewerage Benchmarking Report Feb 2019*)	Response Target met 100% of time
		Sewerage operating cost per property	Approx. $1,080/ property (refer *Queensland's Urban Potable Water & Sewerage Benchmarking Report Feb 2019*)	Reduction towards State median of $393/ property
		Budget	Total $660,000	Total $660,000 (TBC)

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

Table 3.5: Technical Levels of Service (Cont.)

Service Attribute	Level of Service/ Activity Objective	Performance Measure Process	Current Performance *	Desired Level of Service/ Optimum Lifecycle Cost **
Maintenance				
	Sewerage service is suitable for purpose	Total sewerage mains breaks and chokes: Cooktown: < 10 p.a. Coen: < 10 p.a. Laura: < 10 p.a. (Refer CSC's *Water & Wastewater Customer Service Standards 2014*)	3 or 4 breaks/ chokes p.a. (Equivalent to State median for breaks/ chokes per 100km main - refer *Queensland's Urban Potable Water & Sewerage Benchmarking Report Feb 2019*)	Maintain State median of 10.1 breaks/ chokes per 100km sewerage main
		Budget	React. Maint. TBC Planned Maint. TBC Total $538,000	React. Maint. TBC Planned Maint. TBC Total $538,000 (TBC)
Renewal				
	Sewerage service is suitable for purpose	Sewerage capital expenditure per property	Approx. $2,386/ property (refer *Queensland's Urban Potable Water & Sewerage Benchmarking Report Feb 2019*)	Reduction towards State median of $275/ property
		Economic Real Rate of Return	Approx. -0.4% (refer *Queensland's Urban Potable Water & Sewerage Benchmarking Report Feb 2019*)	Greater than 0% (State median is 2.1%)
		Budget	$645,000	$210,000 av.
Upgrade/New				
	Full SCADA monitoring/ control in Coen	Completed on time and within budget	New SCADA system at Coen operational by 2021	
		Budget	$195,000	$50,000 av.

Note: * Current activities and costs (currently funded).
** Desired activities and costs to sustain current service levels and achieve minimum life cycle costs (not currently funded)

The cost to

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, other.

4.2 Demand Forecasts

The present position and projections for demand drivers that may impact future service delivery and use of assets have been documented in Table 4.3 below.

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
Population	4226 (2016 Census) 4,445 (2018 ABS Est.)	5,157 in 2031 (medium series est. Qld Treasury and Trade)	Increased use of sewerage services and possible demand for new sewerage areas or schemes
Regulation Changes	Not all townships required to have sewerage services	Potential that Lakeland (for instance) may require sewerage service	New sewerage scheme required to meet regulatory requirements
Tourism numbers increasing	Tourism numbers to the Cape, Lakeland, Laura and Cooktown increasing year on year	Significantly increased tourists to the Cape as the PDR is sealed	Increasing demand for sewerage services, particularly in townships of Coen and Lakeland

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 may be developed in future revisions of this AM Plan.

Table 4.4: Demand Management Plan Summary

Demand Driver	Impact on Services	Demand Management Plan
Population	Increased use of sewerage services and possible demand for new sewerage areas or schemes	Monitor and review demand with any significant developments - note that population increasing by less than 1% p.a. with existing sewerage treatment plants adequate for larger populations and sewerage areas
Regulations Changes	New sewerage scheme required to meet regulatory requirements	Lobby/ advocate that Government fully construct any new scheme resulting from changed regulations and Government subsidise high operational costs associated with these remote/ small economy of scale services
Tourism numbers increasing	Increasing demand for sewerage services, particularly in townships of Coen and Lakeland	Expand effluent irrigation area in Coen to meet expected demand

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 assets is shown in Figure 1.

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

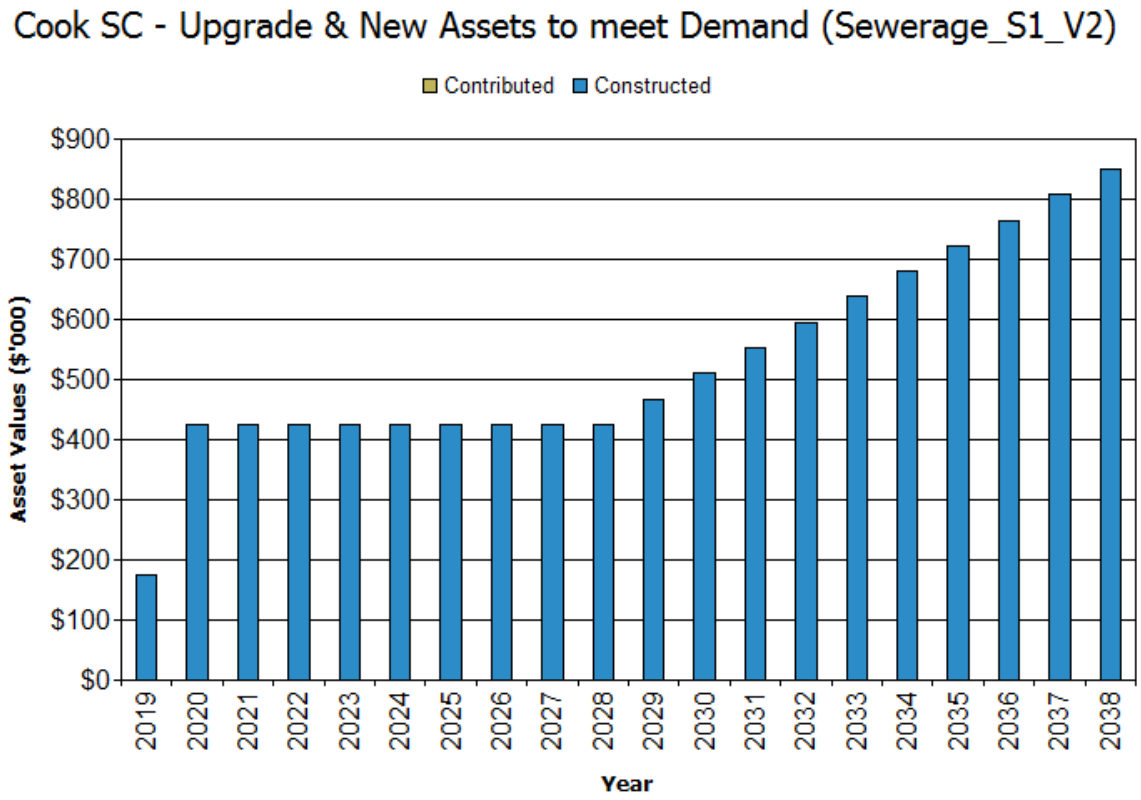


Figure values are in current (real) dollars.

The only significant additional asset planned for in the coming 10 years is the expansion of the Coen sewerage scheme irrigation area which is scheduled for 2019-21 at an estimated value of $280,000 including design and construction.

Acquiring these new assets will commit ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the long term financial forecasting as outlined further in Section 5.

5. LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how Cook Shire 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. Cook Shire Council has three sewerage schemes as follows:

1. Cooktown Sewerage Scheme – The original scheme was connected in 1987 to service central commercial premises, with extensions up to 1997 to connect almost all commercial premises. The scheme was upgraded in 2005 to cover most areas of the town and to replace the sewerage treatment plant (STP) with a new one designed for 5,000 EP (equivalent persons). The scheme includes 647 sewerage connections with approx. 34km of sewerage mains, 8 pump stations, and an STP.

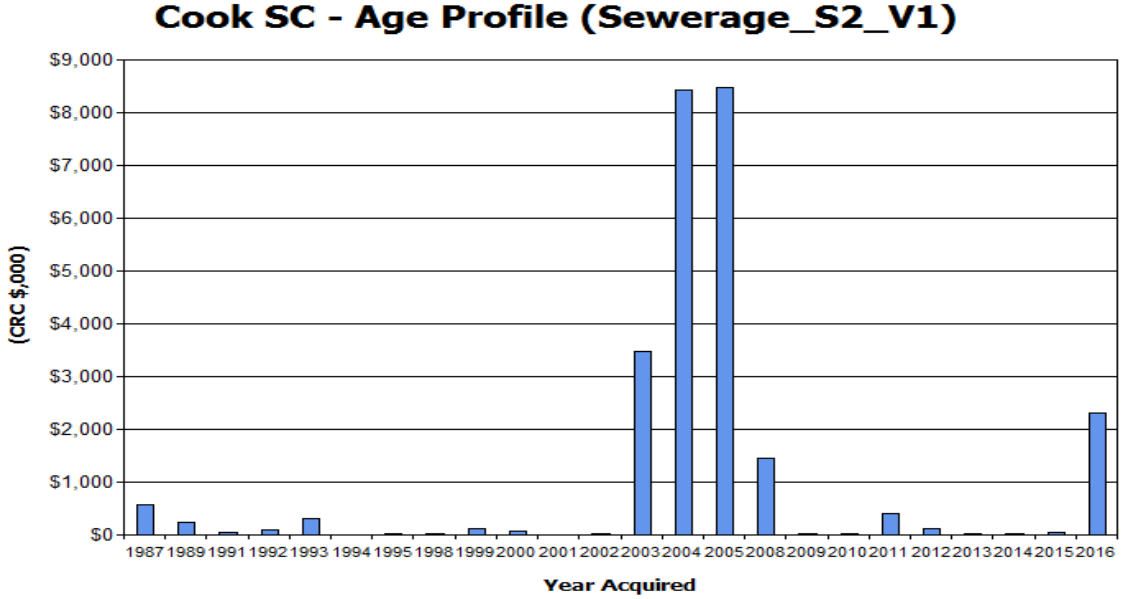
2. Coen Sewerage Scheme – The scheme was constructed during 2000-2002 to provide satisfactory effluent disposal during the wet season and to permit planned growth of Coen. The scheme has a design capacity of 800 EP, upgradeable to 1,500 EP, and currently has 94 sewerage connections. It consists of one major pump station, one lift station, approx. 5km of sewer main, and an STP. Effluent is irrigated on an area of 8 ha adjacent to the STP.

3. Laura Sewerage Scheme – The scheme was constructed by the Army under the Army Aboriginal Community assistance Program (AACAP) and connected in 2016. The scheme included upgrading the town's septic tank systems to feed into approx. 2km of gravity sewer reticulation network to convey sewerage to a lagoon treatment system. Effluent is then pumped to an irrigation area adjacent to the treatment ponds. The lagoon system has been designed with an ultimate capacity of 288 EP. The system has not met license parameters since construction, but with floating pond coverage installation to Pond 4 completed in 2018 both pH and TSS (total suspended solids) have reduced. It is hoped that license parameters can be effectively changed in 2019-20 to bring the STP into compliance with the environmental authority (EA). The scheme has 27 sewerage connections.

These three sewerage schemes include sewerage treatment plants (STPs) and pump stations, with associated buildings, sheds, and offices at each site. For revaluation and asset planning purposes these buildings form part of the Sewerage assets covered under this asset management plan, and are not included within the Building AM Plan.

The age profile of the assets included in this AM Plan are shown in Figure 2.

Figure 2: Asset Age Profile



The age profile is based on asset revaluation data and clearly shows bringing on new assets after construction of the Coen scheme in 2002, the Cooktown scheme in 2005, and the Laura sewerage scheme in 2016. Figure Values are in current (real) dollars.

5.1.2 Asset capacity and performance

Assets are generally provided to meet design standards where these are available. Locations where deficiencies in service performance are known are detailed in Table 5.1.2.

Table 5.1.2: Known Service Performance Deficiencies

Location	Service Deficiency
Laura	STP compliance with Environmental Authority
Cooktown	Stormwater infiltration into sewer mains
Coen	Stormwater infiltration into sewer mains

The above service deficiencies were identified from sewerage services staff and Department of Environment & Science (DES) correspondence/ interaction.

5.1.3 Asset condition

Condition is not currently monitored in a formal way. A large proportion of sewerage assets are hidden underground with the best indication of condition being the asset age. Informal sampling of asset age vs condition has shown an above expected deterioration of sewer manholes associated with the sub-optimum operation of certain pump stations (e.g. Peninsula Pump Station in Cooktown). The associated asset impairment has been rectified by relining the affected manholes in 2017-18.

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 Sewerage services such as cleaning out step screens at the sewerage treatment plant or trucking out bio-solid skips from the Coen STP for disposal.

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, for example servicing sewer pump station pumps or repairing a broken sewer pipe.

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. Maintenance expenditure is shown in Table 5.2.1

Table 5.2.1: Maintenance Expenditure Trends

Financial Year	Maintenance Budget (to nearest $000)
2017-18	$1,290,000 (Actual)
2018-19	$1,198,000 (Budget)

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

2019-20	$1,198,000 (Estimated)

Maintenance expenditure levels are considered to be adequate to meet projected service levels, which are considered as equivalent 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.

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 3.

Figure 3: Projected Operations and Maintenance Expenditure

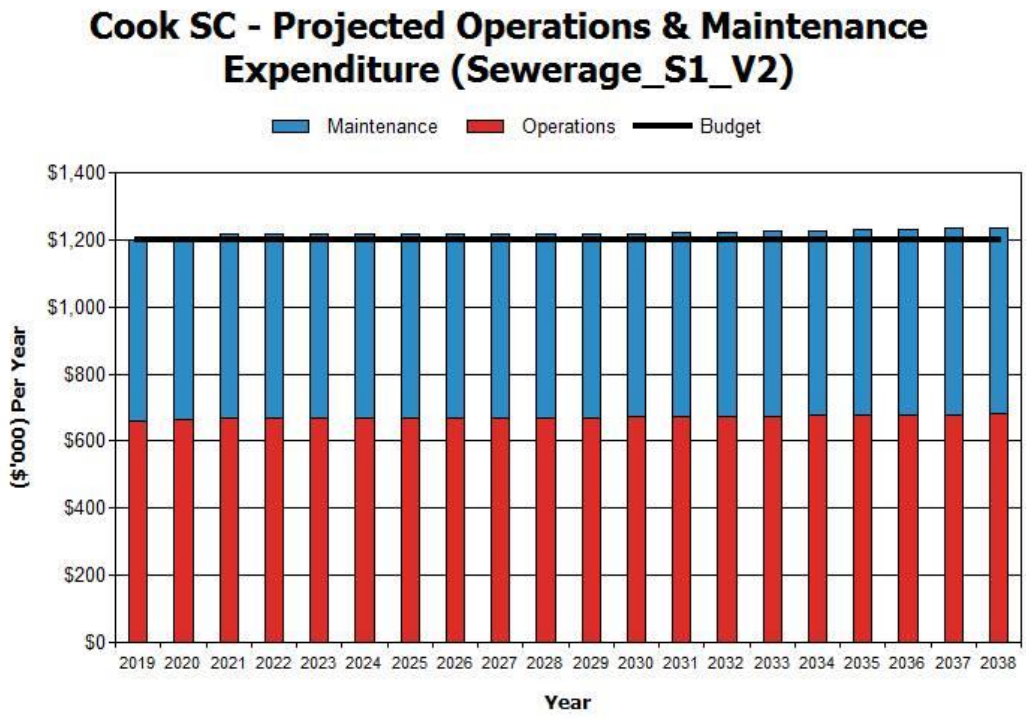


Figure Values are in current (real) dollars.

It should be noted that with little forecast upgrade and new works proposed, there is a negligible increase in projected Operations and Maintenance expense over the coming 10-20 years. This operations and maintenance expense will require funding consideration within the Long term financial forecasting (LTFF), with operations and maintenance requirements potentially requiring deferral if there is a funding shortfall in the next 10 year timeframe.

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.

Assets requiring renewal/replacement are identified from one of three methods provided in the 'Expenditure Template':

- Method 1 uses Asset Register data to project the renewal costs using acquisition year and useful life to determine the renewal year, or
- Method 2 uses capital renewal expenditure projections from external condition modelling systems (such as Pavement Management Systems) and/ or forward work programs, and

• Method 3 uses a combination of average network renewals plus defect repairs in the Renewal Plan and Defect Repair Plan worksheets on the 'Expenditure template'.

Method 2 has been used for this asset management plan.

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. relining sewer manholes that have deteriorated), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. replacing sewer pump station pumps that have reached end of life).[6]

Capital renewal and replacement priorities are determined by identifying assets or asset groups that:

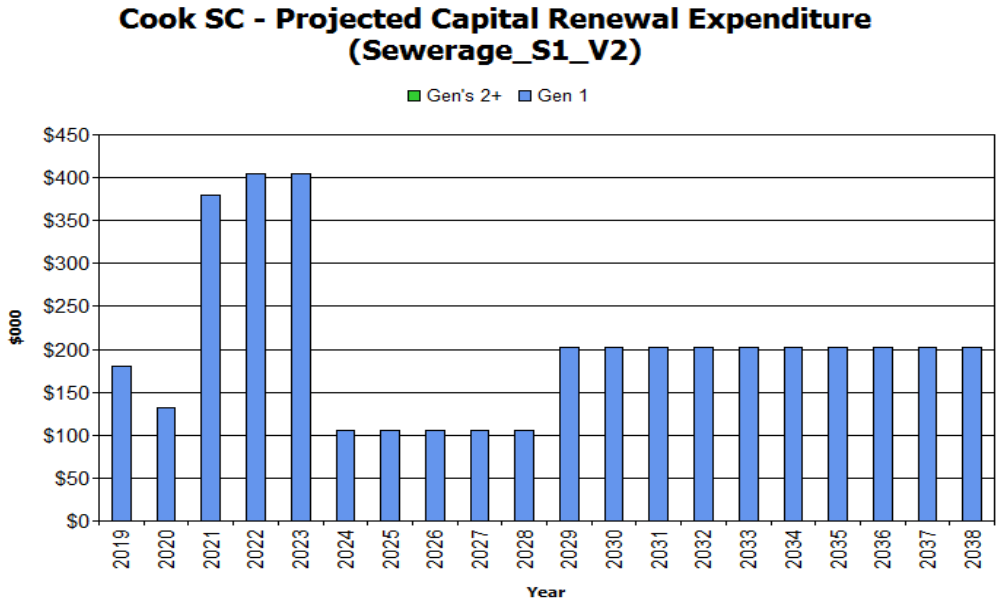
- Have a high consequence of failure,
- Have high use and subsequent impact on users would be greatest,
- Have a total value representing the greatest net value,
- Have the highest average age relative to their expected lives,
- Are identified in the AM Plan as key cost factors,
- Have high operational or maintenance costs, and
- Have replacement with a modern equivalent asset that would provide the equivalent service at a net saving.[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 required is shown in Fig 4. Note that all amounts are shown in current (real) dollars.

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

Fig 4: Projected Capital Renewal and Replacement Expenditure



Renewal requirements are not anticipated to change in the medium term. The projected renewal expense will require funding consideration within the Long term financial forecasting (LTFF), with renewal requirements potentially requiring deferral due to funding shortfall in the next 10 year timeframe. This is further discussed in Section 7.

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

5.4 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, customer, regulatory, or environmental needs. Assets such as those contributed by developers may also be acquired at no cost. These additional assets are considered in Section 4.4.

5.4.1 Selection criteria

Construction of new assets and the upgrade/expansion of existing assets are identified from various sources such as:

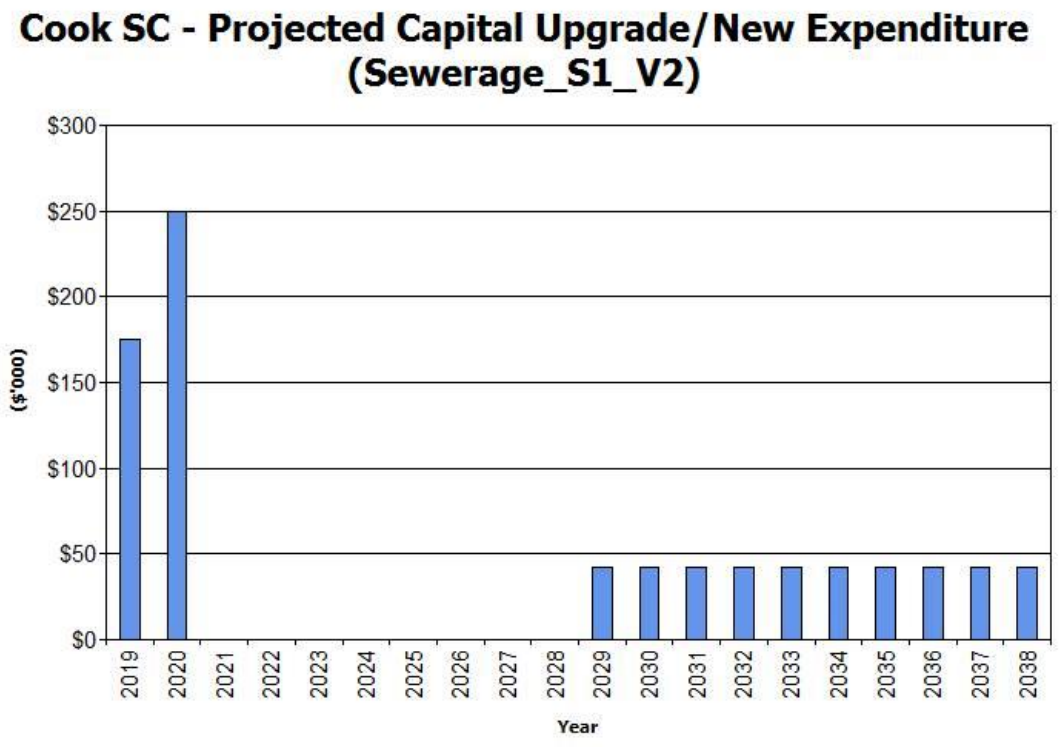
- feedback and requests from community groups, stakeholders, and Council
- noted deficiencies within existing infrastructure
- strategic planning and master planning processes, and
- regional strategic planning frameworks (often in partnership with others).

Project proposals are considered by Council in view of available funds and the long term financial forecasting, with priority projects considered for inclusion in the annual capital works budget and/ or specific grant funding opportunities.

5.4.2 Summary of future upgrade/new assets expenditure

Projected upgrade/new asset expenditures are summarised in Fig 5. The projected upgrade/new capital works program is shown in Appendix B. All amounts are shown in current (real) dollars.

Fig 5: 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 forecasting to the extent of the available funds. Acquiring these new assets will commit the funding of ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required.

5.4.3 Summary of asset expenditure requirements

The financial projections from this asset management plan are shown in Fig 6 for projected operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets). Note that all costs are shown in current (real) dollars

The bars in the graphs represent the projected budget requirements to achieve lowest lifecycle cost with the budget line indicating the budget expenditure required to provide a balanced budget. The gap between required budget expenditure and the available budget as derived from the long term financial forecasting informs the discussion on achieving the balance between services, costs and risk to achieve the best value outcome.

Fig 6: Projected Operating and Capital Expenditure

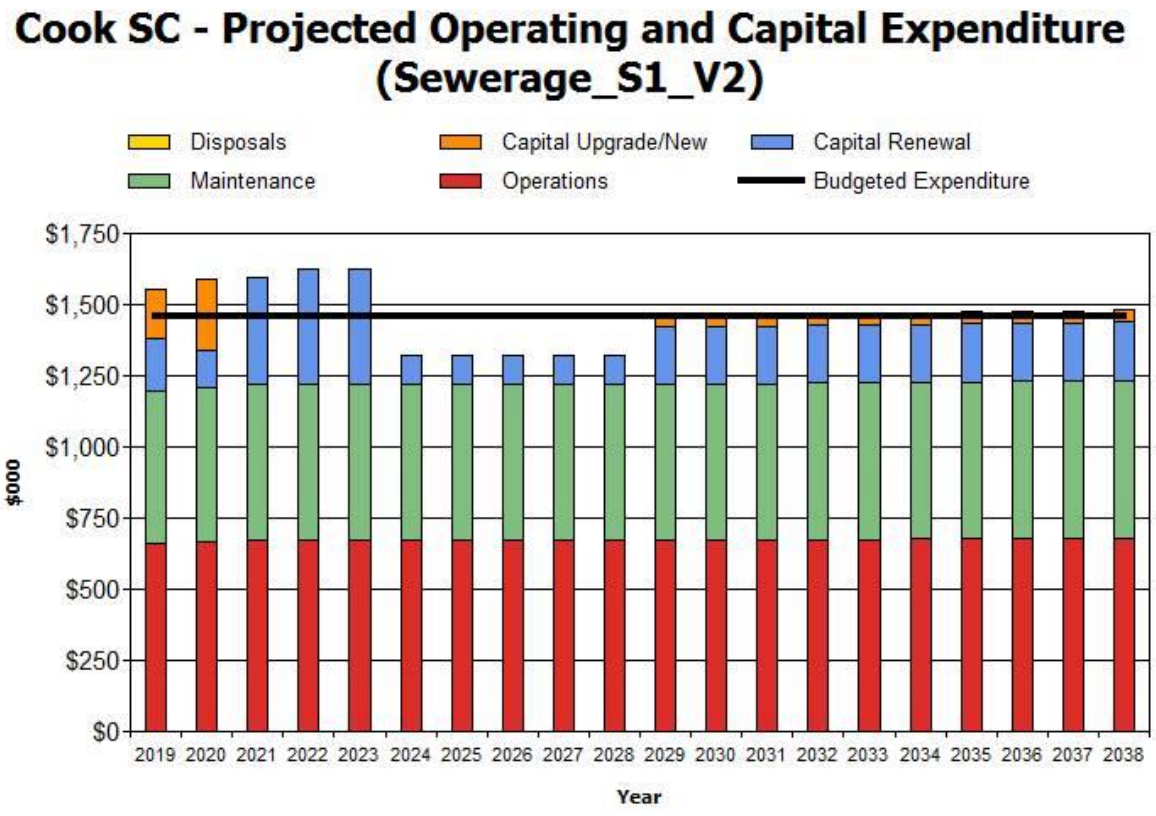


Figure Values are in current (real) dollars.

The net lifecycle cost to Council per property connection is significantly higher than many other Councils due to Cook Shire Council's sewerage schemes being remote and widely separated, small in scale with limited connections (especially Coen and Laura), and impacted by cyclones and monsoonal rains. *Queensland's Urban Potable Water & Sewerage Benchmarking Report* (Feb 2019) for 2017-18 outlines that the Shire's sewerage:

- Capital expenditure per property was approx. $2,400 vs a State median of $275
- Operating expenditure per property was approx. $1,100 vs a State median of $393
- Residential bill for water and sewerage was approx. $1,650 vs a State median of $1,394, and
- Economic real rate of return on sewerage was -0.4% vs a State median of + 2.1%.

The sewerage schemes sit within a heavily regulated and compliance focussed environment with the smaller schemes in Coen and Laura not anticipated to ever provide a positive return i.e. they will always be a net cost to Cook Shire Council.

5.5 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. There are no sewerage assets identified for possible decommissioning and disposal.

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 is required to identify/ verify the organisation's 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.

Cook Shire Council adopted a *Risk Management Policy* and *Risk Management Framework 2019* in line with International Standard ISO 31000:2009 Risk management – Principles and Guidelines (March 2019). The risks outlined in this section of the AM Plan will be assessed/ considered as part of this *Risk Management Framework 2019* and collated into Council's Risk Register as required.

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.

Critical assets have been identified and their typical failure mode and the impact on service delivery are shown in Table 6.1 below.

Table 6.1 Critical Assets

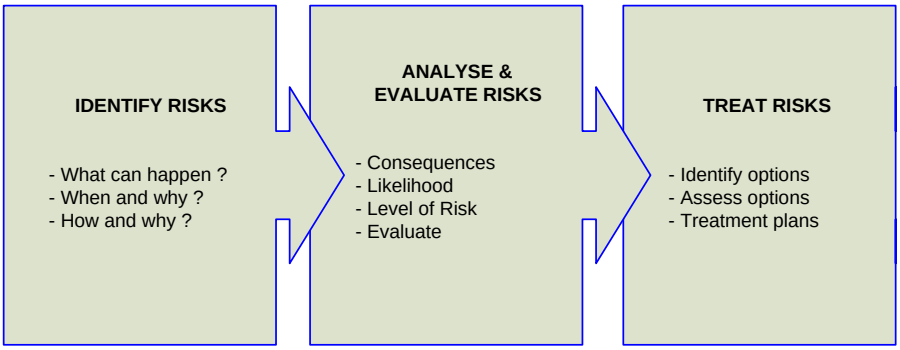
Critical Asset(s)	Failure Mode	Impact
Cooktown STP	Natural Disaster/ Cyclone	Sewerage Services provided by facility cannot be delivered
Coen STP	Natural Disaster/ Cyclone	Sewerage Services provided by facility cannot be delivered
Laura STP	Natural Disaster/ Cyclone	Sewerage Services provided by facility cannot be delivered

The sewerage assets noted are the most critical in maintaining Council's sewerage services. Condition inspection programs, maintenance, and capital expenditure plans can be directed at crucial areas by identifying critical assets and their failure modes.

6.2 Risk Assessment

The risk management process used in this AM Plan 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



[8] ISO 31000:2009, p 2

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 some of the critical risks that will result in significant loss, 'financial shock', or a reduction in service.

Critical risks are those assessed with 'Very High' risk rating (requiring immediate corrective action) and 'High' risk rating (requiring corrective action). Critical risks, the residual risk, and treatment cost after the selected treatment plan is implemented is shown in Table 6.2.

Table 6.2: Critical Risks and Treatment Plans

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Sewerage Services	Non-compliance with EA/ licensing requirements leading to environmental harm and fines	VH	Keep DES fully informed of any non-compliances and address/ rectify issues; Negotiate revised license parameters for Laura STP; Rectify infiltration issues at Cooktown and Coen over coming years	H	Staff time; $850,000 over 10 years as allowed for in the Renewal plan to rectify Infiltration Issues
Sewerage Services	Stormwater infiltration into sewerage network impacting treatment capacity and the environment	VH	Rectify infiltration issues at Cooktown and Coen over coming years using camera investigations and undertaking infiltration repairs	H	$850,000 over 10 years as allowed for in the Renewal plan to rectify Infiltration Issues
Sewerage Services	Wastewater plant and equipment failures or electricity supply failure impacting treatment and/ or causing sewerage spillage	VH	Undertake periodic inspection of critical treatment plant assets to plan replacements; programmed maintenance and replacement of sewerage pumps; Provide generator back-up for critical operations	H	Staff time; Replacement of sewerage pumps allowed for in Renewal plan $100,000 over 10 years; (Generators are in place)

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

6.3 Infrastructure Resilience Approach

The resilience of our critical infrastructure is vital to our customers and the services we provide. To adapt to changing conditions and grow over time we need to understand our capacity to respond to possible disruptions and be positioned to absorb disturbance and act effectively in a crisis to ensure continuity of service.

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

Our current measure of resilience is shown in Table 6.4 which includes the type of threats and hazards, resilience assessment and identified improvements and/or interventions.

Table 6.4: Resilience

Threat / Hazard	Resilience LMH	Improvements / Interventions
Stormwater infiltration into sewerage network impacting treatment capacity and the environment	M	Rectify infiltration issues at Cooktown and Coen over coming years using camera investigations and undertaking infiltration repairs
Wastewater plant and equipment failures or electricity supply failure impacting treatment and/ or causing sewerage spillage	M	Undertake periodic inspection of critical treatment plant assets to plan replacements; programmed maintenance and replacement of sewerage pumps;

6.4 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.

6.4.1 What we cannot do

What we cannot do will be outlined within Council's long term financial forecasting (LTFF) which uses a whole of organisation approach. The LTFF will provide 10 year planning for the entire Council organisation and will consider projected operational, maintenance, renewal/ replacement, and upgrade/ new funding requirements from this and other AM Plans in its formulation.

It should be noted that renewal and new capital works projects remain dependent on:-

- grant funding streams such as Works for Queensland,
- successful targeted grant funding application for Sewerage projects.

6.4.2 Service trade-off

Operations and maintenance activities and capital projects that cannot be undertaken will maintain or create service consequences for users. It is anticipated that service trade-offs will be required with definition of these trade-offs to be defined and documented within Council's LTFF. These trade-offs will in turn be incorporated into the next iteration of this AM Plan.

6.4.3 Risk trade-off

Operations and maintenance activities and capital projects that cannot be undertaken may maintain or create risk consequences. There are no identified risk trade-offs anticipated from this Plan within the next 10 years, with actions and expenditures to manage current risks shown in *Table 6.2: Critical Risks and Treatment Plans*.

7. FINANCIAL SUMMARY

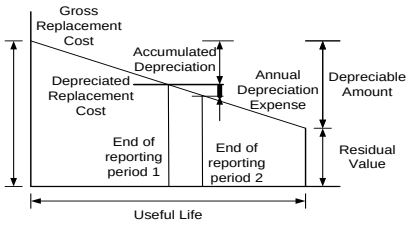
This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections are best estimates only and subject to improvement as further information becomes available on desired levels of service and 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, with the following values applicable at 30 June 2018 (to nearest $1000):

Gross Replacement Cost	$26,189,000
Depreciable Amount	$26,189,000
Depreciated Replacement Cost[9]	$19,963,000
Annual Average Asset Consumption	$539,000.



7.1.1 Sustainability of service delivery

Two key indicators for service delivery sustainability used for analysis of the services provided by this asset category are 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] % N.A. (Available Renewal Funding for Transport assets to be confirmed in the LTFF)

The Asset Renewal Funding Ratio is the most important indicator and indicates what % of the funds required for the optimal renewal and replacement of Sewerage assets over the next 10 years will be available within the LTFF budget. The benchmark or target is to have the renewal funding requirement 100% funded within the LTFF allowing optimal renewal 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.

The projected operations, maintenance and capital renewal expenditure required over the 10 year planning period is $1,401,000 on average per year. This projected funding requirement excludes upgrade/ new assets.

Estimated available operations, maintenance and capital renewal funding is to be confirmed within the long term financial forecasting process which will take into consideration funding demands across the organisation, including projected requirements from Transport, Building, and Water 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 forecasting.

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

7.1.2 Projected expenditures for long term financial forecasting

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

Expenditure projections are in 2018-19 real values.

Table 7.1.2: Projected Expenditures for Long term financial forecasting ($000)

Year	Operations ($000)	Maintenance ($000)	Projected Capital Renewal ($000)	Capital Upgrade/ New ($000)	Disposals ($000)
2019	$660	$538	$180	$175	$0
2020	$664	$542	$132	$250	$0
2021	$671	$547	$380	$0	$0
2022	$671	$547	$405	$0	$0
2023	$671	$547	$405	$0	$0
2024	$671	$547	$105	$0	$0
2025	$671	$547	$105	$0	$0
2026	$671	$547	$105	$0	$0
2027	$671	$547	$105	$0	$0
2028	$671	$547	$105	$0	$0

7.2 Funding Strategy

Funding for assets is provided from the budget and long term financial forecasting.

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. With the current over-capacity of the three sewerage schemes in place there are few additional assets planned.

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:

- Budget funding of projected renewal and upgrade/ new requirements are to be considered within the formulation of the long term financial forecasting. The availability of budget funds is dependent on continuation of grant funding streams such as Works for Queensland.
- Operational and maintenance expenditure remains relatively static as shown in *Figure 3: Projected Operations and Maintenance Expenditure* and as documented in *Table 7.1.2* and *Appendix C: Long Term Budgeted Expenditures Accommodated in AM Plan.*
- The 10 year capital works program for renewal/ replacement and new/ upgrade is reliable, and is a reliable indication of average expenditure on capital works in years 10-20.

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 reliability of data used in this AM Plan is estimated as 'B Reliable', with sample condition assessment completed in the field, and a desk-top assessment of the Cooktown sewerage scheme's underground GIS assets register also completed as part of this AM Plan compilation.

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

8. PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices[12]

8.1.1 Accounting and financial data sources

Council uses Authority as its financial management system with annual reporting in the Sewerage area informed by periodic asset revaluations, the most recent being prepared for Cook Shire Council by Cardno (QLD) Pty Ltd for the 2016-17 financial year.

8.1.2 Asset management data sources

Asset management data for this AM Plan has been based on in-field data review of inventory outlined in the most recent sewerage revaluation spreadsheets, and desk-top review of Council's GIS sewerage system data. In-field work was completed in March-May 2019 and consisted of inventory verification and enquiry, and itemised Sewerage Treatment Plant condition assessment. This work provided a broad overview of the nature and condition of Council assets and has informed commentary in this Plan.

8.2 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.	Improvement Plan Task	Responsibility	Resources Required	Timeline
1	Review, update and rationalise Council's sewerage GIS layer to ensure accuracy and completeness of underground asset networks for all schemes	Mgr Assets/ GIS Officer	Staff Time	2019-2020
2	Formulate and implement a coordinated process to ensure sewerage renewals, additions and disposals are recorded, GIS/ registers updated, and all relevant staff are fully informed	Mgr Assets	Staff Time	2019-2020
3	Rectify service deficiencies: 1. Negotiate with DES to amend Laura EA to bring STP into compliance, fence irrigated area 2. Assess and rectify high network infiltration flows at Cooktown and Coen	Mgr Water & WW	Staff Time 1. $80,000 (fencing) 2. $850,000 (over 10 yrs)	1. 2019-2020 2. 2019-20 to 2028-29
4	Review CRM systems and implement collection of customer service level data for specific sewerage items: 1. Blockage/ odour; 2. Environmental harm; 3. Inclusion of an un-serviced property in a serviced area	Dir OBS, Mgr Water & WW	Staff Time	2019-2020
5	Review and revise *CSC Water & Wastewater Customer Service Standards 2014*	Mgr Water & WW	Staff Time	2019-2020
6	Implement condition inspections for critical sewerage components such as treatment tanks and pipe/ manhole networks on a 5 yearly periodic basis	Mgr Assets Mgr Water & WW	Staff Time	2020-2021 & on-going 5 yearly
7	Continue SWIM reporting to the State, with annual Feedback to Council after release of *Queensland's Urban Potable Water & Sewerage Benchmarking Report*	Mgr Water & WW	Staff Time	2019-2020 & on-going annually
8	Review and revise Community and Technical Levels of	Mgr Assets	Staff Time	2020-21

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

	Service in this Plan in accord with data from Task 4			

Table 8.1: Improvement Plan (Cont.)

Task No.	Improvement Plan Task	Responsibility	Resources Required	Timeline
9	Review and revise:- 1. Renewal; and 2. upgrade/ new; works programs in this Plan	Mgr Water & WW Mgr Assets	Staff Time	2020-2021 & on-going annually
10	Annually compile and review Planned maintenance programs	Mgr Water & WW	Staff Time	2020-2021 & on-going annually
11	Provide an integrated approach to sewerage revaluations to ensure Water & wastewater team, Mgr Assets and Mgr Finance have input into the process	Mgr Assets, Mgr Finance	Staff Time	2020-2021

8.3 Monitoring and Review Procedures

This asset management plan will be reviewed during annual budget planning processes and, if applicable, may be 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 is to be assessed annually in terms of current service level; asset values; projected operations, maintenance, capital renewal/ replacement, capital upgrade/new, and asset disposal expenditures; and projected expenditure values incorporated into the long term financial forecasting.

The AM Plan has a life of 4 years and is due for complete revision and updating within 3 years of each 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 forecasting,
- 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 strategic planning and associated plans,
- The Asset Renewal Funding Ratio achieving the target of 1.0.

9. REFERENCES

- 'Cook Shire Council Corporate Plan 2017-2022', Cook Shire Council
- 'Cook Shire Community Plan 2011-21', Cook Shire Council
- 'Cook Shire Council Economic Plan 2016-2020', Cook Shire Council
- 'Cook Shire Council 2017-2018 Annual Report', Cook Shire Council
- 'Valuation of Water and Sewer Assets 2016-2017', prepared for Cook Shire Council by Cardno (QLD) Pty Ltd
- 'Water & Wastewater Customer Service Standards - 2014', Cook Shire Council
- 'Queensland's Urban Potable Water & Sewerage Benchmarking Report – Released February 2019', Queensland Water Directorate
- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney
- IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australasia, Sydney
- IPWEA, 2015, 2nd edn., 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney
- IPWEA, 2015, 3rd edn., 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney
- IPWEA, 2012 LTFF Practice Note 6 PN Long term financial forecasting, Institute of Public Works Engineering Australasia, Sydney.

10. APPENDICES

Appendix A: Projected 10 year Renewal/ Replacement Capital Works Program

Appendix B: Projected 10 Year New/ Upgrade Capital Works Program

Appendix C: Long Term Budgeted Expenditures Accommodated in AM Plan

Appendix A: Projected 10-year Renewal/Replacement Capital Works Program

Cook SC

Projected Capital Renewal Works Program - Sewerage_S1_V2

Year	Item	Description	Estimate ($000)
2019		**Network Renewals**	
	1	Annual program of sewer main camera inspections and infiltration repairs (Cooktown)	$80
	2	Replacement of Wastewater Pumps (STP & P/Stn's),mixers, equipment (Cooktown)	$15
	3	Digester Tank - Investigate Options, Costs, Schedule, for Digester Tank replacement (Cooktown)	$20
	4	Replace walkway around balance tank (Cooktown)	$35
	5	Replacement of Wastewater Pumps (STP & P/Stn's) (Coen)	$10
	6	Earthworks to provide flood reliency to Laura Pumphouse & 4X ponds	$20
2019		**Total**	**$180**
2020		**Network Renewals**	
	1	Annual program of sewer main camera inspections and infiltration repairs (Cooktown)	$80
	2	Replacement of Wastewater Pumps (STP & P/Stn's),mixers, equipment (Cooktown)	$15
	3	Replace Blower Covers (Cooktown)	$27
	4	Replacement of Wastewater Pumps (STP & P/Stn's) (Coen)	$10
2020		**Total**	**$132**
2021		**Network Renewals**	
	1	Annual program of sewer main camera inspections and infiltration repairs (Cooktown)	$80
	2	Replacement of Wastewater Pumps (STP & P/Stn's),mixers, equipment (Cooktown)	$15
	3	Replace Belt Press, include capacity upgrade (Cooktown)	$225
	4	Replacement of Wastewater Pumps (STP & P/Stn's) (Coen)	$10
	5	Undertake camera inspections and infiltration repairs (Coen)	$50
2021		**Total**	**$380**
2022		**Network Renewals**	Estimate
	1	Annual program of sewer main camera inspections and infiltration repairs (Cooktown)	$80
	2	Replacement of Wastewater Pumps (STP & P/Stn's),mixers, equipment (Cooktown)	$15
	3	Replacement of Wastewater Pumps (STP & P/Stn's) (Coen)	$10
	4	Replace Digester Tank Cooktown - Construct over 2 financial years	$300
2022		**Total**	**$405**
2023		**Network Renewals**	
	1	Annual program of sewer main camera inspections and infiltration repairs (Cooktown)	$80
	2	Replacement of Wastewater Pumps (STP & P/Stn's),mixers, equipment (Cooktown)	$15
	3	Replacement of Wastewater Pumps (STP & P/Stn's) (Coen)	$10
	4	Replace Digester Tank Cooktown - Construct over 2 financial years	$300
2023		**Total**	**$405**

Projected Capital Renewal Works Program - Sewerage_S1_V2 (Cont.)

Year	Item	Description	Estimate ($000)
2024		**Network Renewals**	
	1	Annual program of sewer main camera inspections and infiltration repairs (Cooktown)	$80
	2	Replacement of Wastewater Pumps (STP & P/Stn's),mixers, equipment (Cooktown)	$15
	3	Replacement of Wastewater Pumps (STP & P/Stn's) (Coen)	$10
2024		**Total**	**$105**
2025		**Network Renewals**	
	1	Annual program of sewer main camera inspections and infiltration repairs (Cooktown)	$80
	2	Replacement of Wastewater Pumps (STP & P/Stn's),mixers, equipment (Cooktown)	$15
	3	Replacement of Wastewater Pumps (STP & P/Stn's) (Coen)	$10
2025		**Total**	**$105**
2026		**Network Renewals**	
	1	Annual program of sewer main camera inspections and infiltration repairs (Cooktown)	$80
	2	Replacement of Wastewater Pumps (STP & P/Stn's),mixers, equipment (Cooktown)	$15
	3	Replacement of Wastewater Pumps (STP & P/Stn's) (Coen)	$10
2026		**Total**	**$105**
2027		**Network Renewals**	
	1	Annual program of sewer main camera inspections and infiltration repairs (Cooktown)	$80
	2	Replacement of Wastewater Pumps (STP & P/Stn's),mixers, equipment (Cooktown)	$15
	3	Replacement of Wastewater Pumps (STP & P/Stn's) (Coen)	$10
2027		**Total**	**$105**
2028		**Network Renewals**	
	1	Annual program of sewer main camera inspections and infiltration repairs (Cooktown)	$80
	2	Replacement of Wastewater Pumps (STP & P/Stn's),mixers, equipment (Cooktown)	$15
	3	Replacement of Wastewater Pumps (STP & P/Stn's) (Coen)	$10
2028		**Total**	**$105**

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

Cook SC
Projected Capital Upgrade/New Works Program - Sewerage_S1_V2

($000)

Year	Item	Description	Estimate
2019	1	Install new valve from filters to bypass line, plus SCADA/ electrical (Cooktown)	$25
	2	Construct roof over Septic Receival (Cooktown)	$20
	3	Magnesium Hydroxide Dosing Regent St P/Stn (Coen)	$20
	4	Design 100% plus expansion of Coen Irrigation Area, Including Road Drainage Re-Routing	$30
	5	Secure Fence Laura Irrigation area in line with pending License amendment/best practice	$80
2019		**Total**	**$175**

($000)

Year	Item	Description	Estimate
2020	1	Construct 100% plus expansion of Coen Irrigation Area, Including Road Drainage Re-Routing	$250
	2		
2020		**Total**	**$250**

($000)

Year	Item	Description	Estimate
2021	1		
	2		
2021		**Total**	**$0**

($000)

Year	Item	Description	Estimate
2022	1		
	2		
2022		**Total**	**$0**

($000)

Year	Item	Description	Estimate
2023	1		
	2		
2023		**Total**	**$0**

($000)

Year	Item	Description	Estimate
2024	1		
	2		
2024		**Total**	**$0**

Projected Capital Upgrade/New Works Program - Sewerage_S1_V2 (Cont.)

($000)

Year	Item	Description	Estimate
2025	1		
	2		
2025		**Total**	**$0**

($000)

Year	Item	Description	Estimate
2026	1		
	2		
2026		**Total**	**$0**

($000)

Year	Item	Description	Estimate
2027	1		
	2		
2027		**Total**	**$0**

($000)

Year	Item	Description	Estimate
2028	1		
	2		
2028		**Total**	**$0**

Appendix C: Long Term Budgeted Expenditures Accommodated in AM Plan

NAMS.PLUS3 Asset Management **Cook SC**

Sewerage_S1_V2 **Asset Management Plan**

First year of expenditure projections **2019** (financial yr ending)

Sewerage

Asset values at start of planning period

			Calc CRC from Asset Register
Current replacement cost	$26,189	(000)	$0 (000)
Depreciable amount	$6,226	(000)	This is a check for you.
Depreciated replacement cost	$19,963	(000)	
Annual depreciation expense	$539	(000)	

Operations and Maintenance Costs for New Assets

	% of asset value	Existing %ages calculated from data in worksheet	
Additional operations costs	2.52%	2.52%	of CRC (10 yr average)
Additional maintenance	2.05%	2.05%	of CRC (10 yr average)
Additional depreciation	8.66%	8.66%	of Dep Amt
Planned renewal budget (information only)		0.80%	of CRC (Year 1 comparison)

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 **2019** values

Financial year ending	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
Expenditure Outlays included in Long Term Financial Plan (in current $ values)											**Average of first 10 year Expenditure Outlays from LTFP**									
Operations																				
Operations **budget**	$396	$396	$396	$396	$396	$396	$396	$396	$396	$396	$396	$396	$396	$396	$396	$396	$396	$396	$396	$396
Management **budget**	$264	$264	$264	$264	$264	$264	$264	$264	$264	$264	$264	$264	$264	$264	$264	$264	$264	$264	$264	$264
AM systems **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total operations	$660	$660	$660	$660	$660	$660	$660	$660	$660	$660	$660	$660	$660	$660	$660	$660	$660	$660	$660	$660
Maintenance																				
Reactive maintenance **budget**	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269
Planned maintenance **budget**	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269	$269
Specific maintenance items **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total maintenance	$538	$538	$538	$538	$538	$538	$538	$538	$538	$538	$538	$538	$538	$538	$538	$538	$538	$538	$538	$538
Capital																				
Planned renewal **budget**	$210	$210	$210	$210	$210	$210	$210	$210	$210	$210	$210	$210	$210	$210	$210	$210	$210	$210	$210	$210
Planned upgrade/new **budget**	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50
Non-growth contributed asset value	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$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	$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	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Additional Expenditure Outlays Requirements (e.g from Infrastructure Risk Management Plan)											**Average of first 10 years Expenditure Outlays required from IRMP**									
Additional Expenditure Outlays required and not included above	2019 $000	2020 $000	2021 $000	2022 $000	2023 $000	2024 $000	2025 $000	2026 $000	2027 $000	2028 $000	2029 $000	2030 $000	2031 $000	2032 $000	2033 $000	2034 $000	2035 $000	2036 $000	2037 $000	2038 $000
Operations	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Maintenance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Capital Renewal	to be incorporated into Forms 2 & 2.1 (where Method 1 is used) OR Form 2B Defect Repairs (where Method 2 or 3 is used)																			
Capital Upgrade	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
User Comments #2																				

Forecasts for Capital Renewal using Methods 2 & 3 (Form 2A & 2B) & Capital Upgrade (Form 2C)											**Average of first 10 years Capital Renewal & Upgrade Forecasts**									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Forecast Capital Renewal from Forms 2A & 2B	$180	$132	$380	$405	$405	$105	$105	$105	$105	$105	$203	$203	$203	$203	$203	$203	$203	$203	$203	$203
Forecast Capital Upgrade from Form 2C	$175	$250	$0	$0	$0	$0	$0	$0	$0	$0	$43	$43	$43	$43	$43	$43	$43	$43	$43	$43