



Pump Station Asset Management Plan 2024



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1.0: EXECUTIVE SUMMARY

All councils in Australia own assets, which include infrastructure, property, plant and equipment. At PAE we manage our assets to provide a suitable level of service to current and future generations in the most cost-effective manner. Our approach is strategic and aligned with industry standards to ensure that we manage our assets effectively and sustainably.

Effective asset management for our pump station assets is a key contributor to our City Vision, in which we envision PAE as 'a welcoming, liveable city: made by people'.

What Type of Pump Station Assets Are There in PAE?

Pump station assets are made up of:

- 11 pump stations
- Everything within the facility boundary of a stormwater pump station, including rising mains and pits, gantries and screens, pumps, fences, instrumentation, electrical switchboards and generators.

State of our Pump Stations

- Condition: satisfactory
- Total Replacement Value: \$24 million
- Annual depreciation: \$507,199

How Critical are PAE's Pump Station Assets?

We consider pump station assets to have the second highest level of criticality in comparison with our other major asset classes. They provide an essential flood protection service for our community, and therefore in comparison with other kinds of assets such as footpaths and buildings, the consequences of failure are more serious.

Levels of Service

Criteria	What Level of Service Do We Aim For?
Function	We design our pump stations with redundancy in case a pump outage occurs.
Condition	Our pump stations are in an appropriate condition to reliably convey water from flood-affected areas during major rain events
Safety	We design and maintain our pump stations to provide flood protection for our community
Environmental Sustainability	We install gross pollutant traps and screens to capture waste before it can enter our waterways
Renewal Capacity	We manage renewing each pump station in a financially sustainable way

Future Demand

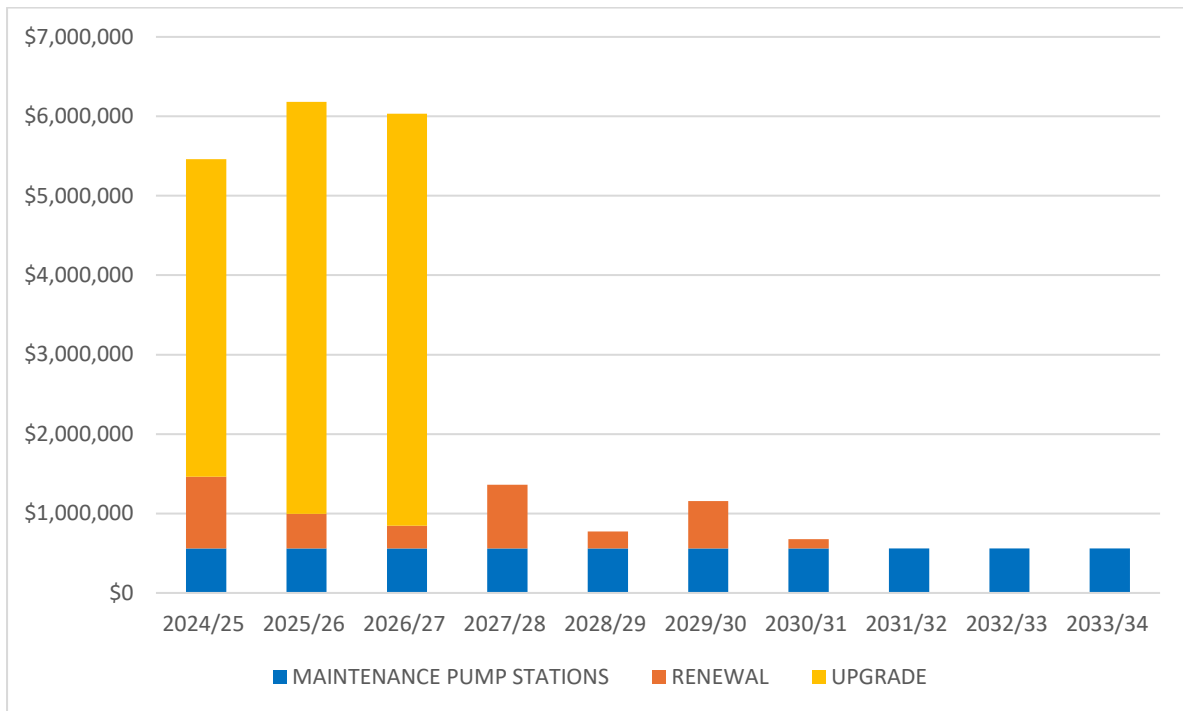
Infill Development	There will be less permeable land due to increased housing on smaller land parcels. This will cause capacity issues on our existing infrastructure
Environment and Climate Change	Rainfall intensity will increase, along with severe storm events, which will increase the demand on pump stations
Technology	- We will continue to improve technology within pump stations so they remain reliable and effective during extreme weather events - We will use automated technology to continue to operate pump stations remotely and safely - We will use data to assist in making decisions and delivering services

Financial Summary

The table below shows our planned annual renewal expenditure based on time-based replacement requirements over the projected 10-year period.

Year	Maintenance	Capital for Renewal	Capital for Upgrade / New	Total
2024–25	\$561,800	\$900,000	\$4,000,000	\$5,461,800
2025–26	\$561,800	\$432,400	\$5,187,000	\$6,181,200
2026–27	\$561,800	\$285,000	\$5,187,000	\$6,033,800
2027–28	\$561,800	\$799,900		\$1,361,700
2028–29	\$561,800	\$213,800		\$775,600
2029–30	\$561,800	\$593,800		\$1,155,600
2030–31	\$561,800	\$114,000		\$675,800
2031–32	\$561,800			\$561,800
2032–33	\$561,800			\$561,800
2033–34	\$561,800			\$561,800
Total	\$5,618,000	\$3,338,900	\$14,374,000	\$23,330,900

The above figures are in present value and are subject to CPI increase each year.



2.0: INTRODUCTION

Councils face challenges in managing their infrastructure and other assets due to factors such as development growth, climate change, ageing infrastructure, new legislative requirements, increasing community expectations and the growing demands of a changing population.

The City of PAE has a suite of strategic documents that together:

- set the long-term strategic direction for Council (City Vision);
- describe the strategic emphasis that Council will apply to achieve the City Vision goals and objectives;
- consider the impact on Council resources (including on our finances, our infrastructure and assets, and our employees);
- identify specific activities to deliver each year; and
- identify key performance measures.

Council's Strategic Management Framework (SMF), illustrated in the diagram below, demonstrates how these documents work together to deliver on our City Vision.



PAE manages and maintains a significant quantity of assets and infrastructure, including roads, footpaths, stormwater, buildings and open space. Collectively, these assets and infrastructure are valued at around \$2 billion. These assets and infrastructure are vital for delivering services and programs, and there are significant risks to both Council and the community if assets fail or cannot deliver to the desired level of service. Sound asset management is therefore a key contributor to the long-term financial, environmental and social sustainability of the City of PAE.

Under the *Local Government Act 1999*, PAE is required to develop and adopt an infrastructure and asset management plan (AMP) for relevant major assets and infrastructure covering a period of at least 10 years. Council is also required to produce a long-term financial plan (LTFP) covering a period of at least 10 years. These two plans must be aligned in their development and implementation.

The purpose of this Pump Station AMP is to plan the use of existing assets to deliver services, to predict asset maintenance and renewal requirements, and to anticipate the need for new/additional assets to meet future community expectations.

In summary, this AMP aims to consider and define:

- how Council's assets will enable the implementation of the City Vision (and other relevant strategies and plans);
- the condition of key assets;
- acceptable levels of service; and
- a plan to manage assets including when and how Council will renew, update, maintain or dispose of existing assets and provide new assets to meet current and future community needs.

This AMP aligns with the IPWEA International Infrastructure Management Manual. It is a living document and will be reviewed and revised where necessary over the next four years, continuing to comply with all legislative requirements.

2.1 Key Stakeholders

The key stakeholders associated with the management of our pump stations is presented in the following table.

Stakeholder	Role	Responsible (R)	Accountable (A)	Supportive (S)	Consulted (C)	Informed (I)
Residents / Ratepayers	Provide input and feedback on the development and review of the AMPs Report issues associated with the asset				C	I
Council	Represent needs of community Endorses AM policy, strategy, and plans; allocate resources to meet objectives		A		C	I
Executive & Management Team	Provide leadership to execute strategic direction; Ensures community feedback and service review outcomes are incorporated in AMPs; Ensures the organisation is financially sustainable Ensures risks are managed effectively		A	S		
Director City Assets	Responsible for the development and review of AMPs Ensures annual capital program is delivered Ensures maintenance programs are established, active and achieving service standards	R		S		
Asset Management Team	Lead development and review of AMPs Ensures improvement strategies are implemented Coordinates governance framework for ongoing monitoring of Asset Management Promote AM awareness, and supports capability building across the organisation Manage AM information systems	R		S		

Program Managers	Develop and implement maintenance, renewal, and capital works programs; Report asset-related risks; Provide technical expertise	R		S		
Finance Department	Ensure accurate asset valuations Use AMPs for annual preparation and review of LTTP Develop supporting policies and prepare financial reports	R		S		
Field Teams	Undertake maintenance programs and report maintenance issues	R				
Project Leaders	Lead the delivery of capital renewal, upgrade and new projects	R				
Stormwater Management Authority	The SMA promotes the development of integrated Stormwater Management Plans (SMPs) by local government, and administers the Stormwater Management Fund to assist local government with the costs of stormwater management planning and stormwater infrastructure.			S		

3.0: PAE's CITY VISION

PAE's City Vision sets our long-term strategic direction. It identifies the key Goals and Objectives that we will work towards delivering over 10 years. The City Vision informs other more detailed strategies and plans. Our AMPs and Long Term Financial Plan (LTFP) outline how we will resource the delivery of strategies and plans.

Vision	A welcoming, liveable City: made by people			
	Equity and belonging • Building a better future for all Participation • Listening to the community and involving them in our decision making Sustainability • Managing our environment responsibly and sustainably Integrity • Making informed decisions honestly, transparently and accountably Transformative • Showing courage, foresight and innovation			
Goals	Thriving Community	Prosperous Economy	Clean And Green City	Places For People
	<i>A City where people have the opportunity to connect and flourish</i>	<i>A City with a thriving economy that enriches its local community</i>	<i>A City that values its natural environment</i>	<i>An accessible City where people love to be</i>
Objectives	We promote community capacity, connection and participation in civic life ----- We encourage cultural expression and recognise people's history, stories and connection to place ----- We support and encourage people to live healthy and active lives	We participate in the economy with the community in mind ----- We support local businesses, big and small, to grow, innovate and succeed ----- We invest in our local economy to benefit current and future generations	We reduce the City's adverse environmental impact and participate in a circular economy ----- We shape the City to tackle the challenges of a changing climate ----- We protect and enhance the City's natural environment	We walk together on Kaurna country ----- We shape the City to be attractive and liveable and care for our cultural and built heritage ----- We bring places to life through community events, culture, design and the arts
Enablers	Organisational Capability Our diverse workforce is resourced to deliver meaningful outcomes Our systems, processes and tools are contemporary and reflect leading practice Our assets and finances are managed with good stewardship			

3.1: ASSET MANAGEMENT STRATEGY AND POLICY

City of PAE has an Asset Management Strategy (2019-2024) and an Asset Management Policy. These strategic documents provide linkages between the organisational objectives and the asset management objectives, as well as setting areas of focus and principles to guide decision making and practices to support meeting those objectives.

As the Council recently revised its Strategic Management Framework and adopted a new City Vision, which importantly resets Council's long terms goals and objectives, it is timely to review the Asset Management Strategy and Policy to determine their role and focus for the future. Notwithstanding this review, the key principles within the policy and strategy have guided the review and revision of the AMPs.

3.2: KEY STRATEGIC DOCUMENTS & GUIDELINES

Stormwater Management Plans (SMPs)

Stormwater Management Plans (SMP) are key stormwater planning documents that provide a strategic approach to flood management and planning of infrastructure upgrades to meet service levels. SMPs also provide information regarding required improvements to the quality of stormwater being discharged into the receiving environment.

To date Council have completed and endorsed the following SMP's which provide recommendations for the upgrade of existing Pump Stations based on increased capacity requirements within a catchment, and also recommendations for new Pump Stations where catchment studies confirm infill development will require the need for additional infrastructure to mitigate projected run off.

STORMWATER MANAGEMENT PLAN (SMP)	STATUS
Torrens Rd Drainage Authority (TRDA)	Completed - March 2015
North Arm East (NAE)	Completed - November 2016
Lefevre Peninsula	Completed - April 2018
Port River East	Completed - August 2019
Barker Inlet Central area including North Arm West (NAW)	Completed - May 2022
Torrens River (TUNE)	Current
Hindmarsh Enfield Prospect (HEP)	Current (Managed by City of Prospect)
Dunstan Rd (NAW 5)	Future
Dry Creek	Future

4.0: HOW MUCH WE MANAGE

4.1: VALUATION BY PUMP STATION

The pump station infrastructure assets covered by this AMP are shown below. The following rates and values relate to the 2020/21 valuation data.

Table 4.1.1: Valuation by Asset Type

Pump Station	Total Replacement Value	Accumulated Depreciation	Written Down Value	Annual Depreciation	% Consumed
Carlisle St	\$1,497,571	\$987,396	\$510,175	\$32,497	66%
Hack St	\$3,664,863	\$1,757,260	\$1,907,604	\$77,695	48%
Hamilton St	\$211,621	\$81,961	\$129,660	\$4,677	39%
Hart St	\$3,773,729	\$2,400,252	\$1,373,477	\$88,305	64%
Lu Lu	\$1,287,067	\$647,220	\$639,847	\$34,493	50%
Mersey St	\$2,006,657	\$888,400	\$1,118,258	\$46,956	44%
Midlunga	\$144,684	\$74,281	\$70,403	\$2,474	51%
Perkins Dr	\$505,044	\$214,191	\$290,853	\$13,535	42%
Wellington St	\$2,835,854	\$1,956,372	\$879,482	\$49,060	69%
Hargrave St	\$8,160,960	\$1,402,695	\$6,758,265	\$157,507	17%
Naval Reserve	-	-	-	-	-
Total	\$24,088,050	\$10,410,028	\$13,678,024	\$507,199	43%

Note – the construction of Naval Reserve was completed after the last valuation. It is comparative in size to Perkins Dr.

We manage a total of 11 Pump Stations, varying in size and complexity.

Table 4.1.1 represents the valuations undertaken in 2021, which were measured at 'Fair Value' as required under the Accounting Standards (AASB13). Fair Value is the equivalent of the full replacement cost, less accumulated depreciation to the date of valuation, based on the remaining useful life of the asset.

It is recognised that the total replacement value of \$24 Million is not reflective of the current construction costs given the complexity of construction works required to replace or build a new pump station and the increases in construction costs post COVID. A comprehensive assessment will be undertaken on all pump stations during our next valuation review.

Table 4.1.2: Number of Pumps and Total Capacity of each Pump Station

Pump Station	Pump Capacity	Total Capacity Litres per Second (L/s)
Hart	3 x 800 L/s 2 x 500 L/s 2 x 210 L/s	3,820 L/s
Hack	10 x 350L/s	3,500 L/s
Hargrave	2 x 200 L/s 3 x 800 L/s	2,800 L/s
Wellington	1 x 200 L/s 2 x 1000 L/s	2,400 L/s
Lu Lu	6 x 350 L/s	2,100 L/s
Mersey	6 x 350 L/s	2,100 L/s
Carlisle	4 x 350 L/s	1,400 L/s
Perkins Dr	2 x 350 L/s	700 L/s
Midlunga	1 x 100 L/s	100 L/s
Hamilton	2 x 25 L/s	50 L/s
Naval Reserve	2 x 370 Ls	740 L/s

Note – Sump Pumps are not included in table above however may appear in table 4.1.3

The larger Pump Stations are designed to pump volumes of water at more than 2000 litres per second, with Hart St capable of discharging 3,820 litres per second. Each Pump Station is designed to match the expected volumes of water which exceed the designed street holding capacity within each catchment during a major storm event.

The following Image 4.1.1 provides context to the general catchments serviced by each Pump Station. The map further identifies the 3 catchments that have existing Council approval for construction of future Pump Stations, however there is now a further review aimed at the potential construction of infiltration basins which potentially may complement or offset the need for the new pump stations. A review and update of this AMP will be undertaken once the infiltration study has been completed and a clearer understanding with regards to the mix of pump stations and other treatment options is known. The capital new and upgrade funding will also be reassessed through this process.

Image 4.1.1: Location and Catchment size for existing Pump Stations with catchments under investigation for future treatment

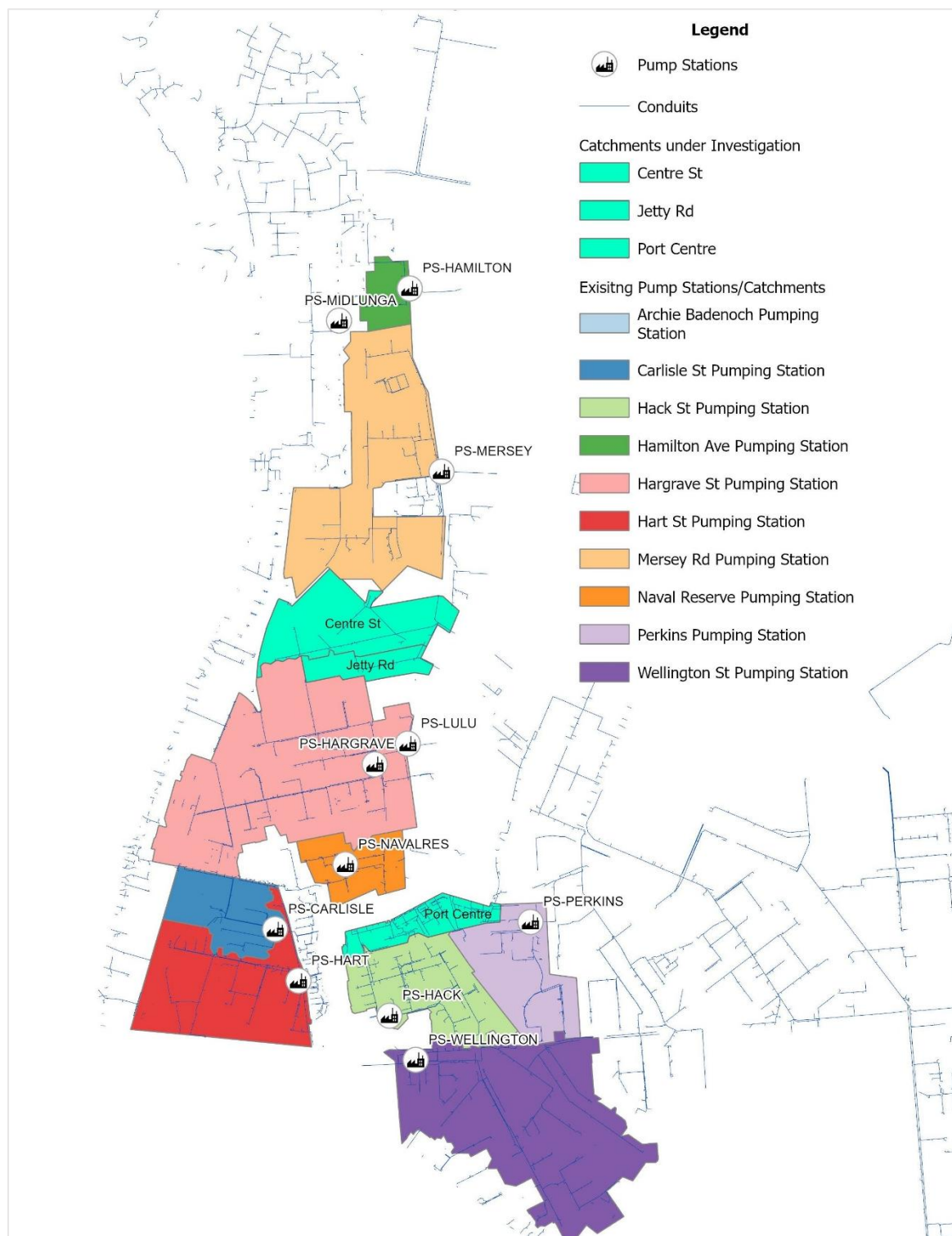


Table 4.1.3: Count of Components by Pump Station

Asset Type	Carlisle	Hack	Hart Street	Hamilton	Hargrave	Lulu	Mersey	Midlunga	Perkins	Wellington
Pit	2	5	6	3	6	3	1	3	1	7
Gantry	2	3	4	0	4	2	2	0	0	2
Fence	1	2	3	1	4	1	1	0	0	8
Generator	1	2	1	0	2	1	2	0	0	1
Manifold	1	2	2	1	1	1	1	1	1	1
Electrical	1	1	1	1	2	1	1	1	1	2
Screen	1	2	2	1	4	3	1	1	1	1
Sensor	2	2	3	2	5	2	2	1	2	1
Pump	5	10	7	3	5	6	6	1	2	3
SCADA	1	1	2	1	1	1	1	0	1	1
Asphalt	1	1	1	2	1	1	1	0	0	1
Valve	1	2	1	1	19	1	2	1	2	2
Rising Main	2	2	2	1	2	1	1	1	1	2

Table 4.1.4: Useful life of various Pump Station components

Pump Station Component	Minimum Life (years)	Pump Station Component	Minimum Life (years)
Pit	60	Manifold	30
Gantry	60	Electrical	15
Hoist	15	SCADA	10
Fence	30	Sensor	10
Pump	20	Asphalt	30
Valve	35	Platforms	15
Generator	40	Screens	10

The valuations in Table 4.1.1 represent the size and complexity of each Pump Station as reflected in tables 4.1.2 and 4.1.3. The larger and higher valued Pump Stations have a greater pumping capacity, and due to the size of the overall pump station there is generally more individual components than the smaller stations.

The useful lives as displayed under table 4.1.4 help determine the remaining life of each component for planned replacement and are used to account the depreciation of the overall Pump Station. The useful lives of components are annually reviewed against other Local Government asset registers, industry standards, and manufacturer assigned lives.

5.0: NETWORK GROWTH

Unlike other asset classes such as Roads and Stormwater where there has been acquisition of new infrastructure through residential or industrial major land development, Council is generally upgrading or potentially constructing new pump stations due to demand factors relating to infill development and climate change (such as increased rainfall intensity).

Stormwater Management Plans (SMP) are key stormwater planning documents that provide a strategic approach to flood management along with planning of infrastructure upgrades to meet service levels. SMPs also provide recommendations to improve the quality of stormwater being discharged into the receiving environment.

5.1: STORMWATER MANAGEMENT PLAN RECOMMENDATIONS

The topography of Port Adelaide and the Lefevre Peninsula is characterised by undulating coastal dunes to the west, and open flat, land surrounding the Port River. This topography has resulted in a number of low-lying areas and trapped low points that are unable to be serviced by conventional gravity drainage systems.

Development in these areas continues to increase runoff as well as properties requiring effective drainage.

Modelling of these areas to determine drainage requirements was undertaken in the Lefevre Peninsula Stormwater Management Plan (2018) and the Port River East Stormwater Management Plan (2019).

The recommendations from the Stormwater Management Plans are progressively being implemented. This includes the following growth to Pump Station Infrastructure:

- Expansion of Hack St Pump Station, Port Adelaide from 3,340L/s to 3,830L/s (completed 2020)
- New 300L/s Naval Reserve Pump Station, Peterhead (completed 2022)
- Upgrade the Midlunga Pump Station, replacing the existing 100L/s pump with a new 400L/s pump station (due for completion 2024)
- Expansion of Wellington St Pump Station from 2,400L/s to 4,400L/s (scheduled 2027)
- New 1,500L/s Port Centre West Pump Station (scheduled 2028)
- New 1,100L/s Port Centre East Pump Station (scheduled 2028)
- New 1,900L/s Jetty Rd Largs Bay pump station (scheduled 2028)

It is worth noting that the projects relating to the construction of the Port Centre Pump Stations and the Jetty Road Pump Station are currently being reviewed for the potential construction of infiltration basins to complement or offset the need for these pump stations.

6.0: CONDITION OF OUR PUMP STATIONS

6.1: VISUAL CONDITION OF PUMP STATION

The objective of a condition assessment is to provide sufficient information on asset performance to enable informed strategic decisions on the lifecycle management of the many components within a Pump Station.

Depending on the type of component and whether confined space is required for inspection, all components of a Pump Station are inspected every 2 or 4 years. The following table 6.1.1 depicts the latest visual condition assessment undertaken.

Table 6.1.1: Average of Visual Condition of Components by Pump Station

Asset Type	Carlisle	Hack	Hart Street	Hamilton	Hargrave	Lulu	Mersey	Midlunga	Wellington	Perkins	Naval
PIT	3.00	3.8	3.2	3.00	2.00	3.00	2.00	3.00	2.86	2.00	1.00
GANTRY	2.50	3.00	2.25		2.00	3.00	1.50		4.00		
FENCE	2.00	2.50	2.00	2.00	1.25	2.00	1.00		2.88		
GENERATOR	4.00	2.00	3.00		3.00	2.00	2.00		3.00		
MANIFOLD	3.00	3.00	4.00	4.00	2.00	3.00	3.00	2.00	3.00	2.00	
ELECTRICAL	2.00	2.00	4.00	3.00	2.00	2.00	2.00	4.00	3.50	2.50	1.00
SCREEN	3.00	3.00	3.00	2.00	2.00	3.00	3.00	5.00	3.00	2.00	
SENSOR	1.00	1.00	2.67	2.00	3.00	2.00	2.00	3.00	2.00	2.00	2.00
PUMP	3.00	2.50	3.00	2.67	2.00	2.67	2.67	3.00	2.00	2.00	1.00
SCADA	2.00	2.00	3.00	2.00	2.00	2.00	2.00		2.00	2.00	2.00
ASPHALT	2.00	3.00	2.00	2.00	2.00	2.00	1.00		3.00	3.00	2.00
VALVE	3.00	2.50	2.00	2.00	2.05	4.00	2.50	4.00	2.50	2.00	2.00
RISING MAIN	1.00	2.50	3.00		3.00		2.00		3.00		2.00

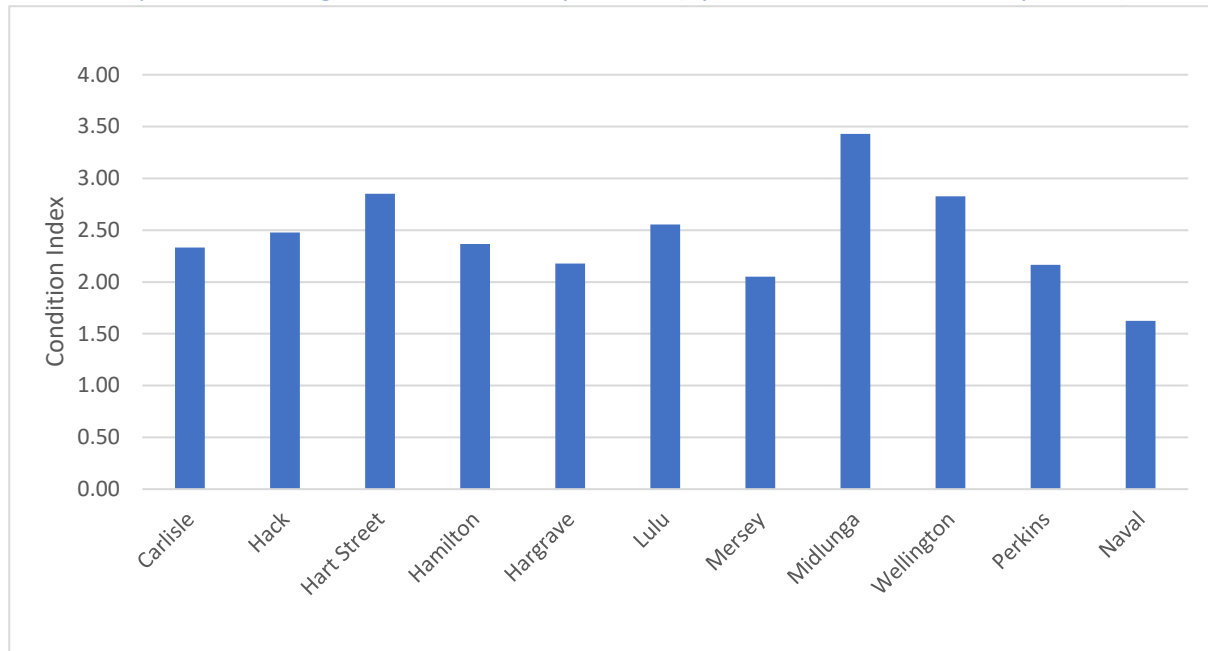
Note: Condition range is 1 = Good (white) to 5 = Immediate Repair (red)

Table 6.1.1 summarises the average condition of components within each Pump Station. This should not be read in isolation without considering the total number of components at each site as detailed in table 4.2 (Section 4). For example, all Pump Stations have varying number of pumps, pits and screens, etc.

The condition of components (Table 6.1.1) relates to the overall condition of Pump Stations displayed within Graph 6.1.1. The components in table 6.1.1 that are in poor condition are identified with a darker shade.

Graph 6.1.1 identifies Midlunga, Wellington and Hart Street as being in our worst condition. Upgrade work is currently in progress at both the Midlunga and Wellington Pump Stations.

Graph 6.1.1: Average Condition of Pump Station (by visual assessment of components)



Note: Condition range is 1 = Good to 5 = Immediate Repair

Table 6.2.1: Components in Condition 4 and 5 requiring replacement within 10 yrs based on Visual Inspection

Asset Type	Pump Station	Condition Rating	Projected Cost
PIT	Hack	4	Structural assessment required
PUMP	Hack	4	\$250,000
VALVE	Hack	4	\$250,000
PUMP	Hamilton	4	\$70,000
MANIFOLD	Hamilton	4	\$20,000
PIT	Hart Street	4	Structural assessment required
PIT	Hart Street	4	\$50,000
MANIFOLD	Hart Street	4	Works in progress
ELECTRICAL	Hart Street	4	\$250,000
PUMP	Lulu	4	\$100,000
PUMP	Lulu	4	\$100,000
VALVE	Lulu	4	\$50,000
PUMP	Mersey	4	\$100,000
PUMP	Mersey	4	\$100,000
VALVE	Mersey	4	\$50,000
ELECTRICAL	Midlunga	4	Scheduled Upgrade Works
SCREEN	Midlunga	5	Scheduled Upgrade Works

VALVE	Midlunga	4	Scheduled Upgrade Works
GANTRY	Wellington	4	Scheduled Upgrade Works
ELECTRICAL	Wellington	4	Scheduled Upgrade Works
GANTRY	Wellington	4	Scheduled Upgrade Works
VALVE	Wellington	4	Scheduled Upgrade Works
Total Replacement Cost			\$1,390,000

* Note: Condition 4 is poor and 5 is immediate repair

Relating to table 6.1.1, table 6.2.1 contains a list of the individual items in the most severe condition across our Pump Station locations. The Replacement value is based on the 2020/21 valuation data.

As per table 6.2.1, the pits in poor condition identified at both Hart Street and Hack Pump Stations are referred to as a 'chamber pit', which are integral to the operation of a Pump Station. Should these require replacement, it would become a significant project to manage the associated risk of the construction and uninterrupted service of the pump station. Given their significance, investigation for remedial works will be undertaken. This has been budgeted for in the 10 year plan under Section 11, and identified as a Risk under Section 9 of this AMP.

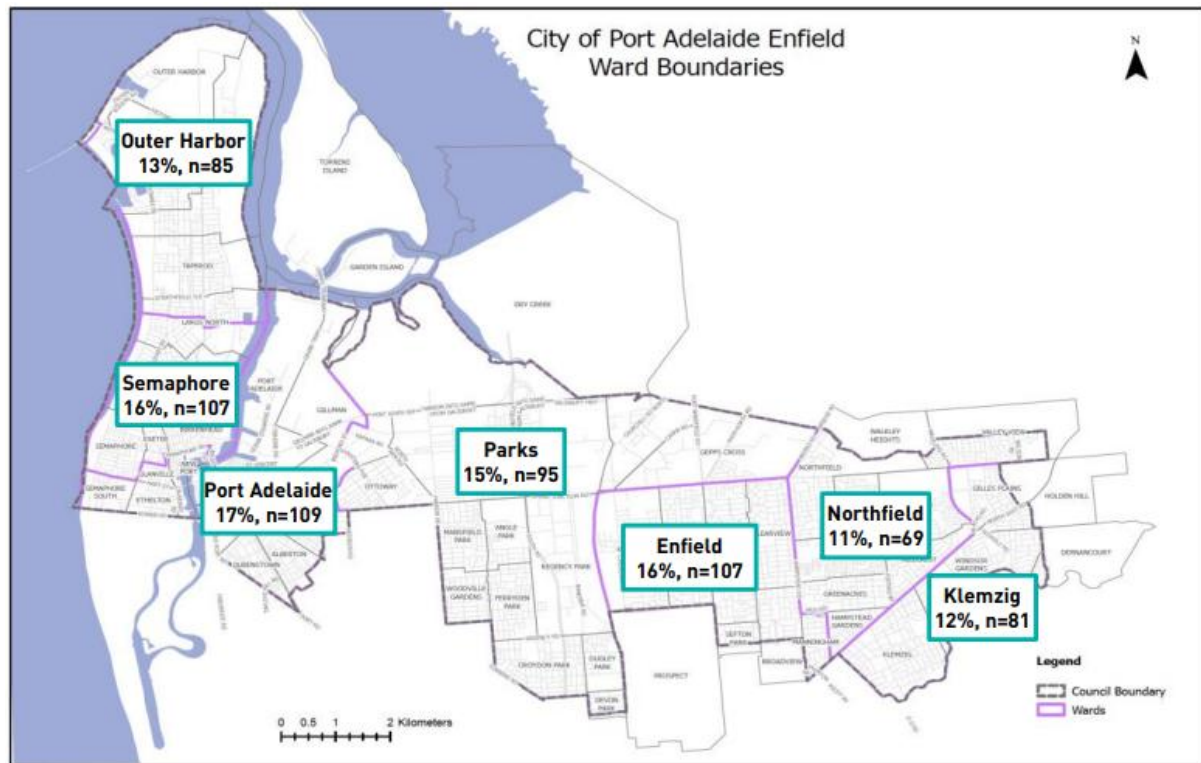
All items in Table 6.2 have been identified in the Capital Renewal Plan under Section 11.

7.0: LEVELS OF SERVICE

7.1: CUSTOMER RESEARCH & EXPECTATIONS

The 2023 Community Survey was undertaken between 12 September and 6 October 2023. The following is a snapshot of findings relating to our community's perception of services provided.

Image 7.1.1: 2023 Community Survey sample size by location and demography



	Age	• Under 40s (40%) • 40 and over (60%)
	Household	• Families with children (42%) • Individuals and families with no children at home (58%)
	Length of residency	• Up to 10 years (41%) • 10+ years (58%)

Image 7.1.2: Community Perception by Importance

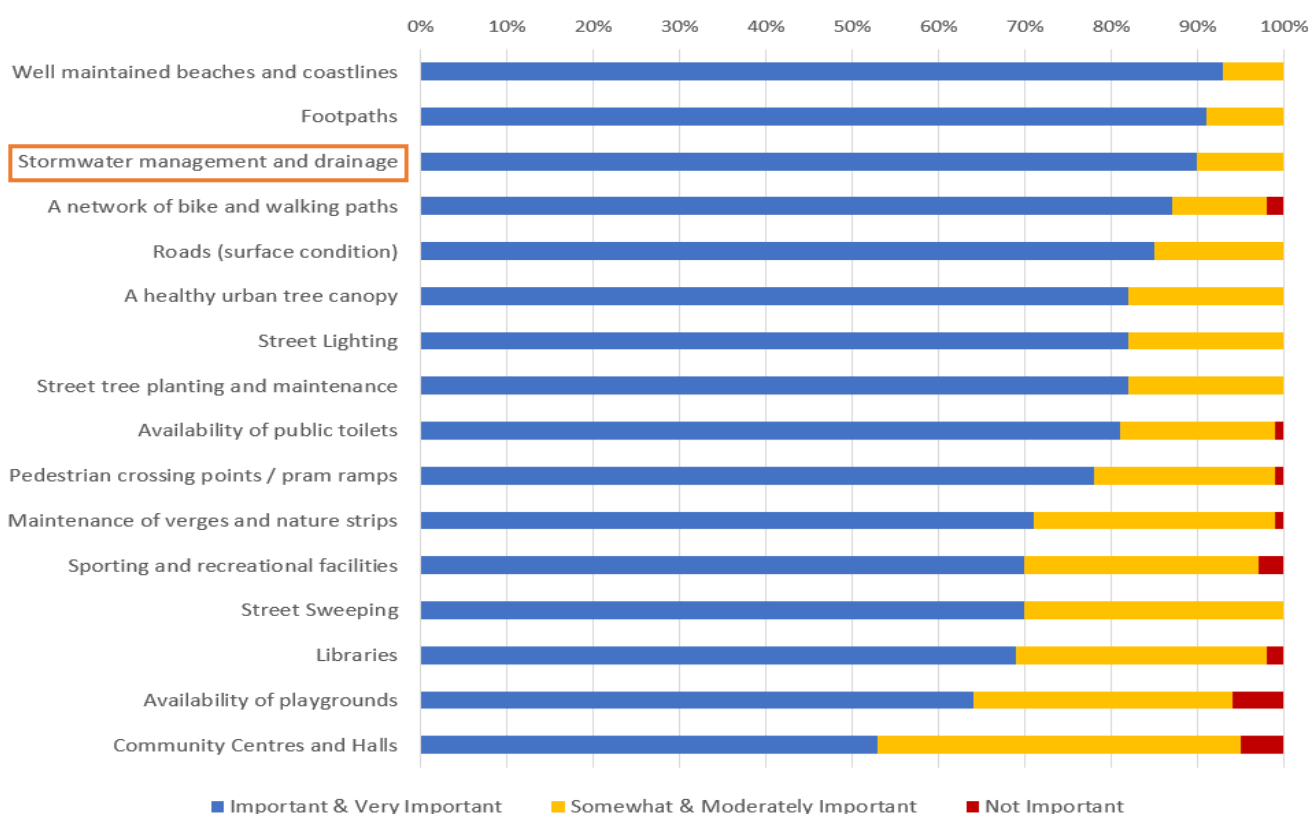


Image 7.1.3: Community Perception by Satisfaction

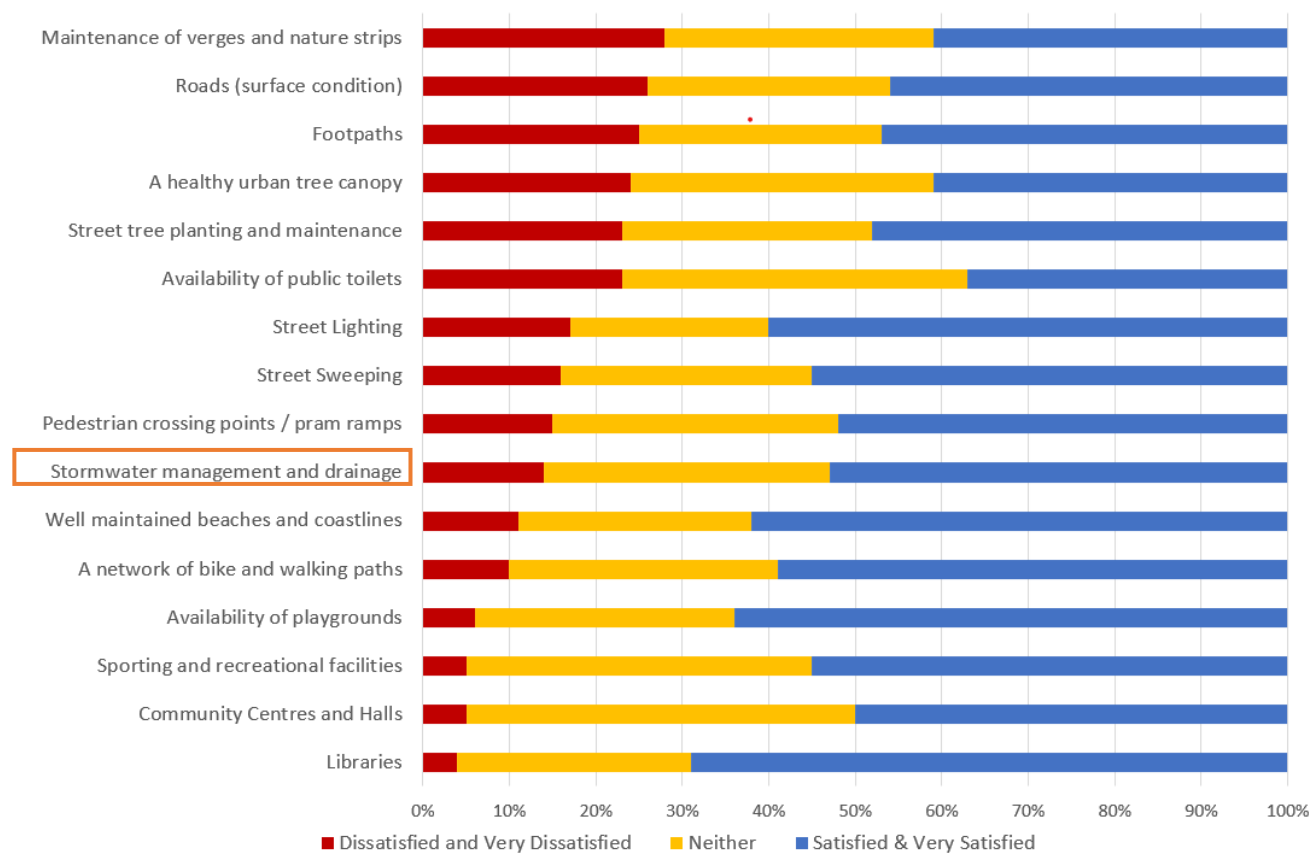


Image 7.1.4: 2023 Community perception of Stormwater management relating to a range of Council services

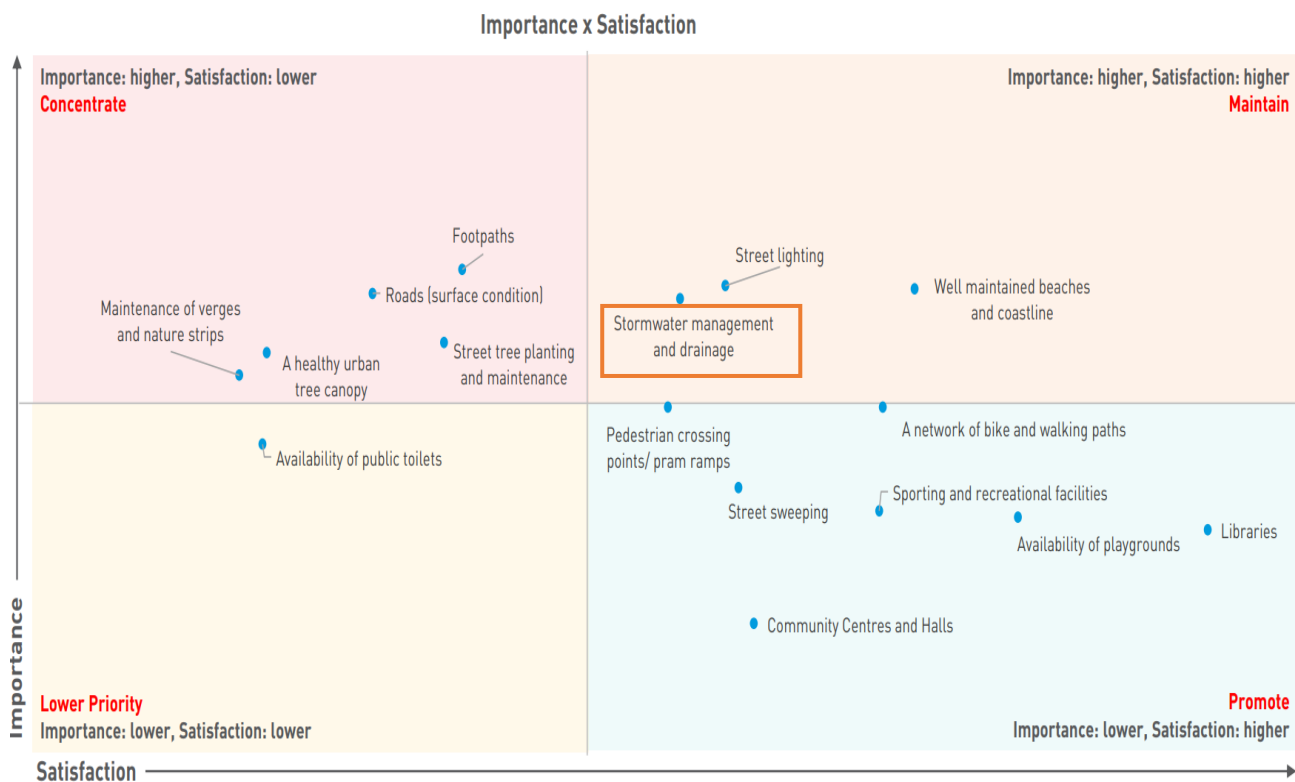


Image 7.1.5: 2020 Community perception: Importance

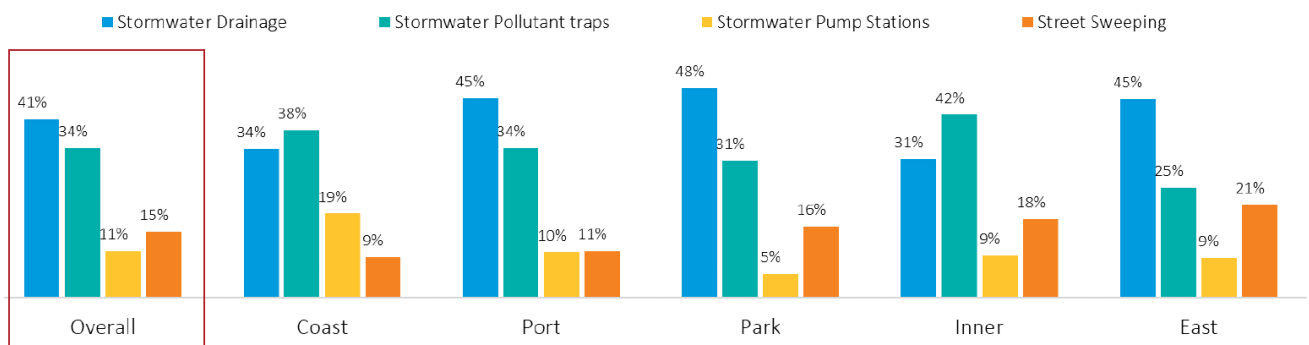
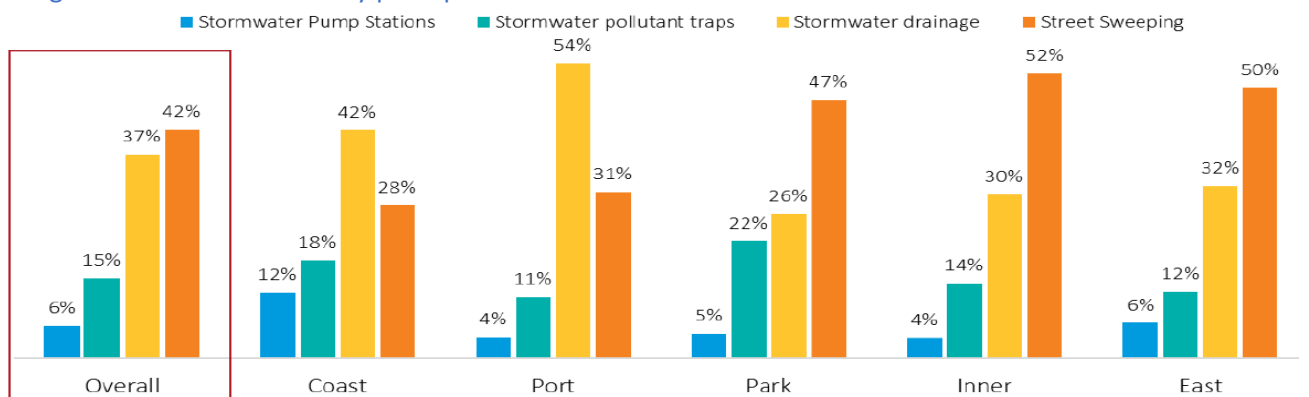


Image 7.1.6: 2020 Community perception: Satisfaction



The 2023 Community Perception Survey confirmed that our community consider the management of stormwater and drainage to be an important service, with a high level of satisfaction. Both Image 7.1.2 and 7.1.3 provide a snapshot of the community's perception of this important service against other services provided by Council. In considering all services provided by our major infrastructure types, stormwater management is considered to have a rating of high importance.

A similar survey was conducted in 2020 which supports a greater level of understanding of our community's perception of services delivered by each stormwater service type. The community identified that Pump Stations are important, particularly around the Coast and Port survey areas.

However, it is interesting to note that Pump Stations received a relatively low level of satisfaction in comparison to other stormwater service types, particularly in the Coast and Port survey areas, despite the same areas indicating the highest satisfaction scores for stormwater drainage.

Overall the community's feedback through these surveys demonstrate that both important and satisfaction levels are relatively high for our stormwater management, and therefore Council should continue to maintain the asset management programs in place to continue to provide this important service to the Community.

7.2: COMMUNITY LEVELS OF SERVICE

About asset service levels

Councils use their assets to provide services for the betterment of their communities. Whether it is evident or not, all assets provide a 'level of service' to the community.

Well defined levels of service can be used to:

1. Provide information about the current level of service being provided;
2. Measure performance against the identified level of service; and
3. Consider options to adjust service levels (if desired or appropriate).

A key objective for PAE is to manage our assets and finances with good stewardship, and to match the levels of service we provide with the expectations of our community.

The table below sets out our levels of service relating to Pump Stations:

- **Criteria:** Describes the category of service levels, consistent across all asset classes.
- **Community Level of Service:** describes the service from a customer's point of view. In other words, it helps to explain what PAE intends to provide. (Note: Asset Community Level of Service in this context is distinct from Customer Service response time).
- **Technical Level of Service:** Describes how PAE achieves delivery of the Community Level of Service. In other words, it explains what PAE will do at an operational level.
- **Performance Indicator:** Describes the metric by which success in service delivery will be assessed.
- **Key strategic relationships:** Describes the key PAE strategies and plans that each service level is aligned to.

Criteria	Community Level of Service <i>How community receives the service</i>	Technical Level of Service <i>How the community service level is achieved</i>	Performance indicator	Key strategic relationships
Function	Residents and businesses experience minimal disruption from flooding	Designing all pump Stations to cater for a 1 in 20-year storm event Pump Stations designed with redundancy should a pump outage occur while continuing to cater for 1 in 20 year storm event	All Pump Stations designed to cater for a 1 in 20 storm event. All Pump Stations have backup pumps to cater for redundancy during potential outage.	Places for People We shape the City to be attractive and liveable and care for our built heritage
Condition	Our Pump Stations provide suitable conditions for water conveyance	Proactively inspecting pump stations and monitoring remotely to ensure sufficient capacity to carry flow during peak events.	100% of pump stations inspected prior to a forecast 1 in 20 storm event. 100% pump stations inspected immediately following a 1 in 20 storm.	Places for People We shape the City to be attractive and liveable and care for our built heritage Organisational Capability Our assets and finances are managed with good stewardship
Safety	Our pump stations are designed and maintained to enhance safety and minimise disruptions to service.	100% Pump Station switchboards are compliant to standards required by the Office of Technical Regulator Inspecting fences and safety at pump stations to ensure no unauthorized access	100% pump station switchboards are compliant with Office of Technical Regulator Standards. 100% of pump stations are inspected weekly for security breaches to fences and gates.	Places for People We shape the City to be attractive and liveable and care for our built heritage
Environmentally Sustainable	Our pump station network energy supply uses renewable sources wherever possible.	Purchasing electricity generated via renewable sources where feasible.	100% of electricity sourced from Green Power	Clean and Green City We reduce the City's adverse environmental impact and participate in a circular economy

				We shape the City to tackle the challenges of a changing climate
Financially Sustainable	Our pump station program is structured to ensure that today's asset users contribute fairly to the lifetime cost of the asset.	Ensure the current cost of managing our pump station network achieves community expectations while also balancing renewal works with consideration of future budgets.	Asset Renewal Funding Ratio is within identified target range on average over four-year period (LGA target = 90%<110%).	City Vision: <i>Organisational Capability</i> —'Our assets and finances are managed with good stewardship.'

8.0: ASSET CRITICALITY

Asset Criticality is defined as those assets which have a high consequence of failure (but not necessarily a high probability of failure); those which are the most important for delivering the required service. (Definition provided by IIMM).

Criticality is assessed on a 1-5 scale with 5 considered to have the highest consequence in the event of failure. Along with other key data and information including Levels of Service and Condition data, Criticality will be used to prioritise resourcing and future investment into capital and maintenance programs. As a priority focus area, any assets assessed as being in poor condition that are considered to have major or catastrophic consequences will be prioritised for treatment.

Table 8.1.1 summarises the Asset criticality assessment across all of PAE's major asset classes.

Table 8.1.1: Criticality Score against all Major Asset Classes.

Asset Class	Average Criticality Score (by service provided)
Stormwater	4.01
Pump Stations	3.72
Roads	3.59
Footpaths	2.91
Parks & Gardens	2.89
Buildings	2.75

High Criticality						Low Criticality
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To evaluate the criticality of an asset, the service delivered by a type of infrastructure was considered against Council's Risk Consequence Table. The consequence of Community wellbeing, the environment, safety, service, and financial exposure was evaluated to provide a criticality score.

Table 8.1.2 provides various services grouped as cohorts that were assessed to understand the consequence of service failure. The above table 8.1.1 provides the average score of the various cohorts assessed within each asset class. Stormwater and Pump Stations are the highest two asset classes on the criticality table due to the severity of damage caused by flooding.

If Pump Station infrastructure was to fail, the impact would result in flooding and damage to property, where in comparison to a footpath failure there would be much less community impact. Pump Station are considered an 'avoid fail' type of service, whereas footpaths are service request driven

Table 8.1.2: Criticality by Pump Station Cohorts

Pump Station Cohort		Rounded Criticality Service Score	Major Consequence Driver
1	Hack Street	4	Safety/Financial
2	Hart Street (North)	5	Safety/Financial
3	Hart Street (South)	5	Safety/Financial
4	Wellington Street	4	Safety/Financial
5	Mersey Rd	4	Safety/Financial
6	Carlisle Street	4	Safety/Financial
7	LuLu	4	Safety/Financial
8	Hargrave Street	4	Safety/Financial
9	Midlunga	3	Financial
10	Naval Reserve	3	Financial
11	Hamilton	3	Financial
12	Perkins Drive	3	Financial

The various Cohorts represent our Pump Station assets that are impacted by different demand factors, such as catchment size and reference to sea level.

Each cohort was then assessed against Council's Consequence table, which measures the impact of failure against the categories of Safety, Reputation, Service delivery, Financial exposure, and impacts to Environment.

Image 8.1.1: Consequence by Condition Matrix

Consequence	Criticality Group	Condition 1	Condition 2	Condition 3	Condition 4	Condition 5
Catastrophic	5			3	2	
Major	4	8, 5, 6		1, 7, 4		
Moderate	3		10, 11, 12	9		
Minor	2					
Insignificant	1					

Note: The allocation of condition relate to Graph 6.1 (Section 6).

Priority 1

Priority 2

Priority 3

Priority 4

Image 8.1.1 provides a visual representation of consequence for each cohort type, and considers the condition of each Pump Station to ensure a sustainable delivery of service. Criticality will influence the financial projections for Capital Renewal, by ensuring any assets identified in the dark red shading will have projects to improve their service provision.

Hart Street Pump Station was considered to have the highest level of consequence given the size of the catchment along with being below high tide level. Hart Street Pump Station was split into North and South due to the age and condition of its components. Hart Street North is the older of the 2 Pump Stations and requires a review of the chamber pit, as identified in Table 6.2 (Section 6). Due to the



importance that the chamber pit has on the operation of the Pump Station, budget has been allocated for engineering review with rejuvenation works scheduled in 2027/28. Although this is only one component of the Pump Station, it is highly critical to the functionality of the facility. Having the structure of the chamber reviewed with scheduled remediation will ensure the Pump Station will remain serviceable for a further 10 to 20 years.

This is the first stage of assessing criticality of infrastructure types within Council, and will provide opportunity to expand in future AMP editions. For example, a criticality assessment at component level following a future condition audit of all Pump Stations will influence maintenance and capital investment decisions.

9.0 RISK:

The identification of risks that can impact the delivery of service is an important component of our decision making. As part of Council's internal Asset Management process, the Stormwater Custodian Group meets annually to identify new risks and review existing risks treatments, using PAE's Risk Management Framework.

A governance model is in place (utilising Table 9.1.1) to oversee ongoing monitoring and escalation of asset related risks, ensuring that residual High and Extreme risks are considered by the Asset Management Steering Group and escalated to Corporate Risk Committees to consider appropriate options for treatment.

Table 9.1.1: View of identified Risks following assessment and treatment control

Risk Rating		Consequence				
		Insignificant	Minor	Moderate	Major	Catastrophic
Likelihood	Almost Certain					
	Likely					
	Possible					
	Unlikely					
	Rare					
		Low	Medium	High	Extreme	

Table 9.1.2 demonstrates the number of inherent risks assessed by the Stormwater Custodian Group, and the reduced residual risk following existing treatment controls. The calculation of risk is based on both likelihood and consequence, as depicted in Table 9.1.1.

Image 9.1.1: View of identified Risks following assessment and treatment control

Inherent Risk Rating

Consequence / Likelihood	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Almost Certain (5)	SW_0002	SW_0003 SW_0020	SW_0022	SW_0012 SW_0013 SW_0019	SW_0024
Likely (4)	SW_0004		SW_0005 SW_0015 SW_0016	SW_0001 SW_0006 SW_0017	SW_0007.1
Possible (3)			SW_0014	SW_0008 SW_0010 SW_0018	SW_0011
Unlikely (2)	SW_0007.4		SW_0007.2	SW_0007.3	
Rare (1)					

Residual Risk Rating

Consequence / Likelihood	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Almost Certain (5)	SW_0003				
Likely (4)	SW_0002	SW_0001			
Possible (3)	SW_0004	SW_0020	SW_0007.1 SW_0012 SW_0022 SW_0024		
Unlikely (2)	SW_0007.2 SW_0015 SW_0016	SW_0014 SW_0017	SW_0005 SW_0010 SW_0013	SW_0006 SW_0008 SW_0018 SW_0019	
Rare (1)	SW_0007.3		SW_0007.4 SW_0011		

The risk assessment for the Stormwater asset class identified two Pump Station 'extreme' inherent risks, and three extreme inherent risks for Stormwater (refer to the Stormwater AMP). The residual risk summary above demonstrates that these extreme risks have been effectively mitigated to a moderate level through a range of treatments which will assist the community during peak storm events. No additional risk treatments are required for these risks.

Risk ID	Description	Consequence Description	Inherent Risk	Treatment	Residual
SW007	Multiple Pump Failure at pump stations	Multiple Pump Failures causing Pump Station to Flood and major flooding to upstream catchment.	Extreme	Review, Identify and fix systemic Issues leading to pump failures. Continued review and replacement of key electrical and pump components. At least two pumps in good condition at each station to provide redundancy. SCADA System in place	Moderate
SW0019	Pump station under capacity due to infill development and climate change	Pump stations of insufficient capacity to deal with 20 year ARI – majority designed for 5 year ARI	Extreme	Stormwater Management Planning continues to identify key areas of capacity shortfall. Doubled capacity at Hamilton PS, Upgrade to Pump at Mersey Built new pump station at Hargrave	Moderate

				Built new pump station at Hart Installed 2 more Pumps at Hack Pump Station to bring capacity to 10x350L/s pumps Upgrading Wellington and Midlunga	
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Using the internal Risk Register, Council has prioritised decisions made in adopting this AMP to continue to manage current risks and consider future risks.

The following Major Inherent Risks that have been mitigated by existing treatments will safeguard our community from flooding.

- Appropriate renewal and maintenance funding to continue the delivery of reliable pump stations.
- Multiple pump failure during a major event, with the treatment consisting of constant ongoing review of the electrical system and sensors, and replace problematic pumps, and to ensure that there are at least 2 pumps at each site to allow redundancy.
- Pump Stations under capacity due to infill development, with the treatment to undertake Stormwater Management Planning to find shortfalls in modelling.
- Rising Main failure/blockage is managed through CCTV inspections to ensure serviceable condition.
- Comprehensive assessment of the Chamber Pits at Hart Street (North) and Hack Pump Stations.

By maintaining a high level of inspection and maintenance work, we are able to analyse the performance of our pump stations to ensure that they remain highly reliable for major weather events.

10.0: DEMAND

10.1: FUTURE DEMAND DRIVERS AND POTENTIAL IMPACTS

All tables and graphs within Section 10.1 have been sourced through 'Population and household forecasts, compiled by informed decisions'. This data demonstrates the projected population increase in the Coast and Port regions that are flood protected by our Pump Stations.

Image 10.1.1: Coast and Port areas with pump Stations



The data contained in table 10.1.1 was captured through 'informed decisions' (.id) forecasts. As part of the forecasting process, current and future major development sites with a capacity of 10 or more dwellings have been identified. Each site is classified with a site status (from speculative to under construction) which helps inform the timing of development and when dwellings are available for people to live. Within this catchment, 36 major development sites have been identified.

By combining data about the current stage of development (from the Residential Development Layer) with future population demand (from population forecasts), we can provide a balanced view of population and dwelling growth based on detailed research about place.

Table 10.1.1: Population and Housing Projections for Coastal and Port areas

	2021	2026	2031	2036	2041
Total Population	41,614	44,705	47,494	49,806	52,108
Total Dwellings	19,479	20,878	22,184	23,223	24,218

Graph 10.1.1: Graph of Population and Housing Projections for Coastal and Port areas

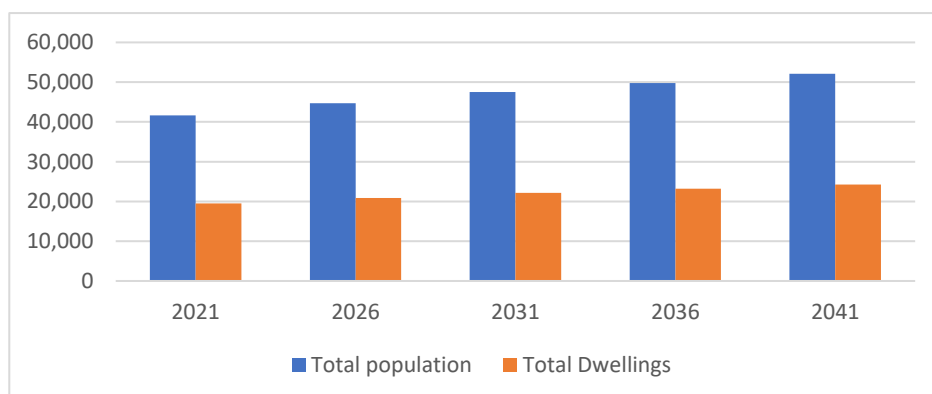


Table 10.1.1 identifies that there is a projected population growth of 25.2% from 2012 to 2041. There will also be a likely increase in housing by 24.3%, which will result in an additional 4,739 dwellings over the 20 year projection period. Such infill of residential development is an important demand factor when considering the impact of hard surface water run off to the modelling of Pump Station design.

10.2: FUTURE DEMAND DRIVERS AND POTENTIAL IMPACTS

Drivers affecting demand include:

- Population change
- Demographic change
- Seasonal factors
- Consumer preference and expectations
- Technological changes
- Economic factors
- Environmental and climate change awareness

Table 10.2.1 is a snapshot of the broader social and environmental demand factors that have been identified through reviewing Council's library of strategic plans and consideration of market and social trends.

Urban Infill coinciding with expected increase rainfall intensity have been identified as demand drivers that will require ongoing reviews of Pump Station operating capacities. Larger more powerful pumps may be required along with diameter of rising main.

Given the cost of Pump Stations, other methods of dealing with water may be required to handle increased loads. Investigation into infiltration basins may be an option depending on ground water levels. Detention basins to reduce peak flows, and additional pipes to enable greater underground retention are always being reviewed.

There is always a high focus on proactive stormwater maintenance to ensure full design capacity within existing pipe network. Any new infiltration basins or soakage pit increase will require additional maintenance to ensure they remain effective in capturing and dispersing water.

Table 10.2.1: Current and future demand factors

Demand Driver	Primary Factor	Relationship	How will this impact current operations	Potential Response
Climate Adaptation	Weather Patterns /Climate Change	Stormwater Management Plans	Storm events with greater intensity and duration of rainfall.	Review Pump Station operating capacities. Increase Storage Capacity in Stormwater network to reduce load on Pump Stations Advocate to State for Planning Code to increase onsite detention for new housing. Consideration of infiltration basins to support existing Pump Stations.

Climate Adaptation	Sea Level Rise	Stormwater Management Plans	Peak Storms and High Tides preventing drainage	Storm valve installation for High Tides.
Urban Infill	Increased hard stand area	Climate Adaptation, Stormwater management Plans, Planning Design Guidelines/Policy	Increase for potential flooding due to existing infrastructure under capacity	Encourage the use of WSUD in developments to reduce run off. Include flood mapping in planning to ensure new development has appropriate Finished Floor Levels. Require Onsite detention/retention of stormwater to reduce runoff volume Increase drainage maintenance Increase capacity of supporting Stormwater infrastructure Consideration of infiltration basins and other treatment options to support existing Pump Stations
Asset Management	Age of Pump Stations	Long term Financial Plan, Criticality Review Condition Rating	Pits constructed in 1960's are approaching end of life.	Down time of Pump Stations while pits replaced, and in some cases increased in size. Future planning for new Pump Station replacement
Technology	Operation	Condition, Safety	Advancement in technology, relating to automation such as SCADA systems.	Continuing to improve technology within pump stations so they remain reliable and effective in managing extreme weather events. Automation of technology to continue to operate pump stations remotely and safely. Using data to assist with decision making and delivery of services

11.0: EXPENDITURE

11.1: FAILURE MODE AND EFFECTS ANALYSIS WITH EXPENDITURE TYPE

Image 11.1.1: Failure Mode and Effects Analysis

Service Provision	Failure Mode	Effects	Remedy	Expenditure Type	Action Type
Our Stormwater network is maintained in an appropriate condition to enable safe use in varying vehicle types. City Vision: Thriving Community—'We promote community capacity, connection, and participation in civic life.'	Electrical failure (internal)	Water Pooling Upstream - Damage to Road Structure or Reserve area - Flooding of private land.	Modern, robust electrical system SCADA and SMS alarms to prompt response from on-call maintenance personnel Carry spares of critical parts	Maintenance	Proactive Reactive
	Electrical failure (Mains)	Water Pooling Upstream - Damage to Road Structure or Reserve area - Flooding of private land.	Backup electrical generation. Detention basin	Capital Maintenance	Proactive
	Mechanical Failure of pumps	Reduced flow through pump station	SCADA and SMS alarms to prompt response from maintenance personnel Multiple pumps at each station to spread risk.	Capital Maintenance	Reactive
	Trash racks, failure to intercept trash	Entanglement of material within pumps causing reduced flow through pump station	SCADA and SMS alarms to prompt response from maintenance personnel Multiple pumps at each station to spread risk.	Maintenance	Reactive

	Structural Damage to Pit • Cracking • Displacement • Structural Damage to Culvert • Reo Exposed • Cracking in Roof • Displaced section	Wall Collapse	Periodic inspection Displacement • Replace Pipe/culvert Section • Lift and Relay • Bandage Cracking • Replace Pipe/Culvert Reline	Capital	Reactive Proactive
	• Broken Valve	Water Backflow	SCADA monitoring of correct valve operation Regular inspections Replace or repair valve	Maintenance Capital	Proactive
	• Sediment build up	Reduced capacity in the well and lower pump flow rates	Regular pit dredging	Maintenance	Proactive
	• Vehicle collides into pump station	Catastrophic damage to electronics and pumps	Pumps and Electrical equipment set back from road Crash barriers	Capital	Proactive
	• Vandalism to pump station	Damage to electronics and pumps	Trespass resistant fences Building Locks Burglar alarms	Capital	Proactive

11.2: REVIEW OF PAST EXPENDITURE

Maintenance

Table 11.2.1: Actual Spend in Pump Station Maintenance per financial year.

Year	Pump Station
2017/18	\$549,775
2018/19	\$450,362
2019/20	\$345,773
2020/21	\$411,958
2021/22	\$362,732
2022/23	\$616,102
2023/24	\$635,900

11.3: PROJECTED RENEWAL INVESTMENT

Asset Renewal Funding Ratio (RFR)

The Australian Infrastructure Financial Management Manual (AIFMM) defines the Asset Renewal Funding ratio as:

The ratio of the net present value of asset renewal funding accommodated over a 10 year period in a long term financial plan relative to the net present value of projected capital renewal expenditures identified in an asset management plan for the same period [AIFMM Financial Sustainability Indicator No 3].

The projected Capital Renewal Expenditure within this AMP has been calculated through:

- the analysis of data captured from programmed condition audits
- the analysis of data captured to inform capital works
- comparison against the Accumulated Depreciation expense.

The Asset Renewal Funding Ratio indicates the percentage of expenditure in the Long Term Financial Plan (LTFP) relative to the 'Projected Capital Renewal Expenditure' in the AMP's. This ensures that infrastructure assets are being renewed in line with the AMPs, thereby maintaining service levels to the desired standard.

An Asset Renewal Funding Ratio of 100% in the LTFP means that PAE is budgeting to renew assets as projected by the AMP, resulting in assets being maintained at the lowest cost to the community.

11.4: CURRENT PROJECTS IN 10 YEAR INVESTMENT PLAN

The following relates to the increase in pump capacity as itemised under Section 5. The Midlunga and Wellington St Pump Station upgrades are key projects scheduled within the 10 year works program as detailed in section 11.5. These upgrade works will safeguard our residents within these catchments from a 20 year Annual Recurrence Interval (ARI) event.

Midlunga Pump Station Upgrade

A new packaged pump station is currently being constructed in the vicinity of the Midlunga Railway Station to reduce property inundation and potential above floor flooding at the trapped low point at the corner of Railway Terrace and Moldavia Walk in events greater than the 5 year ARI. Modelling indicates that this trapped low point receives overflows from the under capacity Military Road drainage system and existing Midlunga Pump Station. Works will also include a new rising main to discharge flows from the packaged pump station. The rising main will be redirected and extended the full length of Moldavia Walk, connecting into an existing system at the intersection of Moldavia Walk and Lady Gowrie Drive, discharging into the adjacent sand dunes (approximately 720 metres).

The estimated pump rate of 400 L/s will provide the catchment with flood protection for up to the 20 year ARI event (currently less than 5 year ARI) and will require a new 500 mm diameter rising main. The cost of these works is estimated to be approximately \$3,500,000.

Wellington Street – Pump Station

An upgrade of the Wellington Street Pump Station will reduce the number of flood affected properties in events greater than a 5 year ARI event. Scenario flood modelling has demonstrated that the existing pump station (and contributing upstream stormwater network) is now considered to underperform in storm events greater than a 5 year ARI.

It was found that any significant works to upgrade the existing stormwater network upstream of the pump station without a significant upgrade to the pump station itself will likely exacerbate flooding in the downstream reaches of the catchment, particularly in the low-lying areas in the vicinity of Wellington Street, Langham Place and Liddon Place. Similarly, an upgrade of the pump station without addressing the upstream network will do little to address flooding in those areas.

It was found that an upgrade is required from the existing Pump Station current capacity of 2.2 m³/s to a total maximum capacity of 4.4 m³/s (an additional 2.2 m³/s). Modelling indicates this pump rate will generally achieve a 20 year ARI standard in most areas throughout the catchment with a moderate reduction in property inundation in the larger 50 and 100 year ARI storm events.

The existing pump station will be maintained (and kept on-line during construction), with a new adjacent pump station of similar size to be constructed within the existing allotment (slightly reducing the size of the existing storage basin). Construction of a second 975 mm diameter rising main parallel to the existing rising main is also required.

The upgrade of the Wellington Street Pump Station is an essential prerequisite for future flood mitigation strategies proposed for the Wellington Street Catchment. The total cost for the new pump station is estimated to be \$11,000,000.

11.5: PROPOSED RENEWAL & UPGRADE/NEW INVESTMENT

Table 11.5.1: Projected Upgrade and Renew Projects

2024/25	Type	Pump Station	Renew	Upgrade / New
Pump and valve replacements	Replace	All	\$250,000	\$3,500,000 \$500,000
Replace Generator	Replace	Carlisle	\$400,000	
Pump Station PLC replacement	Replace	Hart	\$250,000	
Continuation Pump Const Drainage	New / Upgrade	Midlunga		
Wellington Pump Station Upgrade	New / Upgrade	Wellington		
TOTAL			\$900,000	\$4,000,000

2025/26	Type	Pump Station	Renew	Upgrade / New
Refurbish Pumps 1,2 & 3	Replace	Carlisle	\$128,400	\$5,187,000
Replace Mobile Pump with standby Generator & ATS	Replace	Hamilton	\$66,500	
Pump 5 and 2x Valves	Replace	Lulu	\$118,750	
Replace Pump 5	Replace	Mersey	\$118,750	
Wellington Pump Station Upgrade S1	New / Upgrade	Wellington		
TOTAL			\$432,400	\$5,187,000

2026/27	Type	Pump Station	Renew	Upgrade / New
Replace Fence - Security	Replace	Carlisle	\$47,500	\$5,187,000
Replace Pump and valves 5 & 6	Replace	Hack	\$237,500	
Wellington St Pump Station Upgrade S2	New / Upgrade	Wellington		
TOTAL			\$285,000	\$5,187,000

2027/28	Type	Pump Station	Renew	Upgrade / New
Replace 4 Valves	Replace	Carlisle	\$30,400	
Replace Screens	Replace	Carlisle	\$57,000	
Main Chamber Pit – Remedial Treatment	Replace	Hack	\$237,500	
Replace Pumps and valves 7 and 8	Replace	Hack	\$237,500	
Main Chamber Pit – Remedial Treatment	Replace	Hart	\$237,500	
TOTAL			\$799,900	\$0

2028/29	Type	Pump Station	Renew	Upgrade / New
PLC Replacements - Design	Replace	All	\$47,500	
Replace Junction Boxes 1 to 4	Replace	Hart	\$47,500	
Pump 5 and 2x Valves	Replace	Lulu	\$118,800	
TOTAL			\$213,800	\$0

2029/30	Type	Pump Station	Renew	Upgrade / New
PLC Replacements - Build	Replace	All	\$475,000	
Replace Pump 5	Replace	Mersey	\$118,800	
TOTAL			\$593,800	\$0

2030/31	Type	Pump Station	Renew	Upgrade / New
Replace Manifold	Replace	Hamilton	\$19,000	
Replace Hoists	Replace	Hargrave	\$19,000	
Replace Level and gas Sensors	Replace	Hargrave	\$76,000	
TOTAL			\$114,000	\$0

11.6: INVESTMENT TABLE

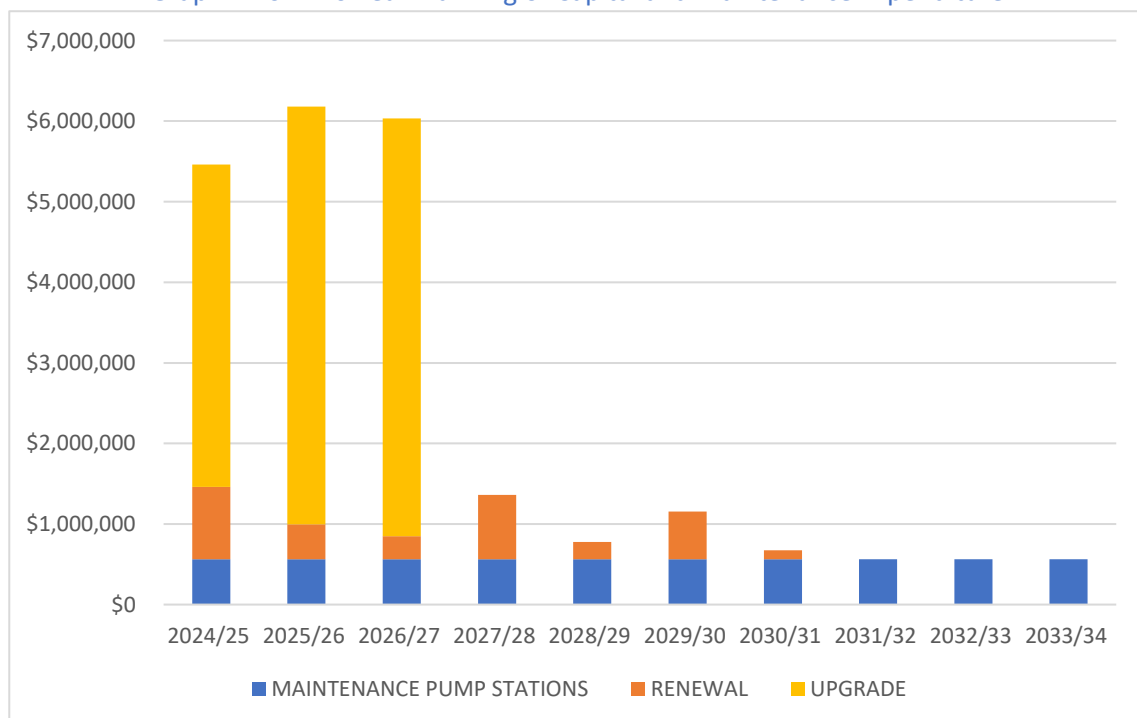
Table 11.6.1: 10 Year Planning of Capital and Maintenance Expenditure

Year	Maintenance	Capital for Renewal	Capital for Upgrade / New	Total
2024–25	\$561,800	\$900,000	\$4,000,000	\$5,461,800
2025–26	\$561,800	\$432,400	\$5,187,000	\$6,181,200
2026–27	\$561,800	\$285,000	\$5,187,000	\$6,033,800
2027–28	\$561,800	\$799,900		\$1,361,700
2028–29	\$561,800	\$213,800		\$775,600
2029–30	\$561,800	\$593,800		\$1,155,600
2030–31	\$561,800	\$114,000		\$675,800
2031–32	\$561,800			\$561,800
2032–33	\$561,800			\$561,800
2033–34	\$561,800			\$561,800
Total	\$5,618,000	\$3,338,900	\$14,374,000	\$23,330,900

The above table of figures is in present value.

- The annual expenditure will be subject to CPI adjustment each year.

Graph 11.6.1: 10 Year Planning of Capital and Maintenance Expenditure



The Capital Renewal expenditure replicates project need based on visual assessment and expected life of components at each Pump Station. Table 6.2 (Section 6) identifies the components requiring renewal.

Table 11.6.1 indicates that there is no Renewal expenditure from year 2031/32. This is due to all components in condition 4 or 5 (1 being good) having been replaced by this time. The Chamber Pits at Hack and Hart St (north) are to be assessed by a structural engineer, with remediation works budgeted in 2027/28.

As Pump Stations are a critical asset, condition inspections will be ongoing, and future renewal will be identified in the 2028 AMP.

Relating to Section 5, it is worth noting that although Council has endorsed the construction of the Port Centre Pump Stations and the Jetty Road Pump Station there is now a further review aimed at the potential construction of infiltration basins, which potentially may complement or offset the need for these pump stations. A review of expenditure will be undertaken once this study has been completed.

Our Maintenance budget has been established at \$561,800 per year, with annual CPI increase to be added. This is slightly higher than the annual depreciation amount of \$527,698, as per the 2020/21 valuations.

12.0: DATA CONFIDENCE

The expenditure projections are based on the best available data. Data confidence is critical for expenditure projection accuracy. As new data becomes available, future plans will be updated.

Table 11.1.1: The 5 levels that measure data confidence.

Confidence Level	Description
A - Highly Reliable < 2%	Data based on sound records, procedures, investigations, and analysis, documented properly and agreed as the best method of assessment. Data set is complete and estimated accuracy <2% uncertainty .
B – Reliable +/- 2 – 10%	Data based on sound records, procedures, investigations, and analysis, documented properly but has minor shortcomings, e.g. 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 accuracy +/-2 -10% uncertainty .
C - Uncertain +/- 10 – 25%	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 estimated accuracy +/- 10 – 25% uncertainty .
D - Very Uncertain +/- 25 – 50%	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 +/- 25 – 50% uncertainty .
E – Unknown >50%	None or very little data held. Accuracy >50% uncertainty .

Source: IIMM Version 6.0, 2020

Table 11.1.1 displays the 5 levels of data confidence. From this table, Council's Pump Station asset data confidence level is at a **B rating** where the data is reliable with an estimate accuracy of +/- 2 to 10%.

Council is very confident in the ongoing monitoring of all Pump Stations. Our Pump Station sites are routinely inspected to ensure that all equipment is operational and there has been no security breaches. Although sound records are maintained, improvement in record keeping and register of investigation works will enable Council to progress to level A.

13.0: IMPROVEMENT PLAN

Ref.	Category	Requirement	Responsible	Due Date
1	Risk	Undertake a comprehensive review of all risks	Team Leader Risk & Audit / Asset Planner	March 2025
2	Risk / Criticality	To undertake condition audit of all Pump Stations and to develop a criticality analysis of components to formalise future decision making for renewal and maintenance.	Asset Planner / Asset Engineer	December 2025
3	Risk / Criticality	Structural assessment of Chamber Pits at Hart and Hack. Pending results, potential need to begin planning future chamber replacement.	Asset Engineer	December 2025
4	Condition / Planning	Continue to improve documentation in condition auditing and maintenance programming processes	Asset Engineer	December 2025
5	Valuations	Review valuation based on increased construction costs.	Asset Planner/ Manager Finance	Next valuation

14.0: APPENDIX ITEMS

Appendix 1: Legislative Requirements

There are many legislative requirements and regulations relating to the management of our pump station assets, of which Council has due consideration and ensures compliance with relevant sections.

- South Australian Local Government Act 1999
- South Australian State Records Act 1977
- Environment Protection Act 1993
- Planning, Development and Infrastructure Act 2016
- Work Health and Safety Act 2012 and Regulations 2012
- Return to Work Act 2014
- Environment Protection (Water Quality) Policy 2015
- Australian Standards
- Water Industry Act 2012 and Regulations 2012
- Landscape South Australia Act 2019
- Dangerous Substances Act 1979 and associated Regulations 2008
- Public Health Act 2011
- Code of practice for wastewater overflow
- Australian Rainfall and Runoff (ARR 2019) Guidebook