

# Asset Management Plan

## Stormwater

### Wakefield Regional Council

18 March 2021

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**WAKEFIELD**  
REGIONAL COUNCIL



## Document History and Status

Rev	Description	Author	Reviewed	Approved	Date
A	Initial Draft for Council Comment	LJB	RKE	RKE	20 November 2020
B	Update structure of Plan	LJB	RKE	RKE	3 February 2021
C	Update to include section on Asset Renewal Ratio	LJB	RKE	RKE	11 February 2021
D	Update following feedback from Council	LJB/TJF	RKE	RKE	18 March 2021

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# 1 Executive Summary

The purpose of this Asset Management Plan (Plan) is to provide a clear strategy in relation to the maintenance, renewal and upgrade of Wakefield Regional Council's stormwater network.

In 2020, Council worked closely with the community to develop Wakefield 2030, Council's 10 year community plan. To support the shared community vision of a sustainable future, Council must continue to maintain the existing stormwater infrastructure and provide additional flood protection to minimise the risk of flooding. This will in turn support the sustainability of the communities into the future.

Wakefield Regional Council (Council) is responsible for stormwater drains, pit structures/headwalls and floodways with a total replacement value of over \$19.92M.

Council employs a sophisticated asset management platform called Conquest. Conquest holds information on all of Council's stormwater assets including length/size, value, useful life, condition, construction year and expiry date. Conquest was utilised to determine the future renewal costs of the stormwater system.

The basis of this plan is to renew assets in poor condition progressively over the next 10 years. It is planned to replace all assets at end of life and those that reach end of life over the next 10 years. This equates to \$93,000 per year over the next 10 years.

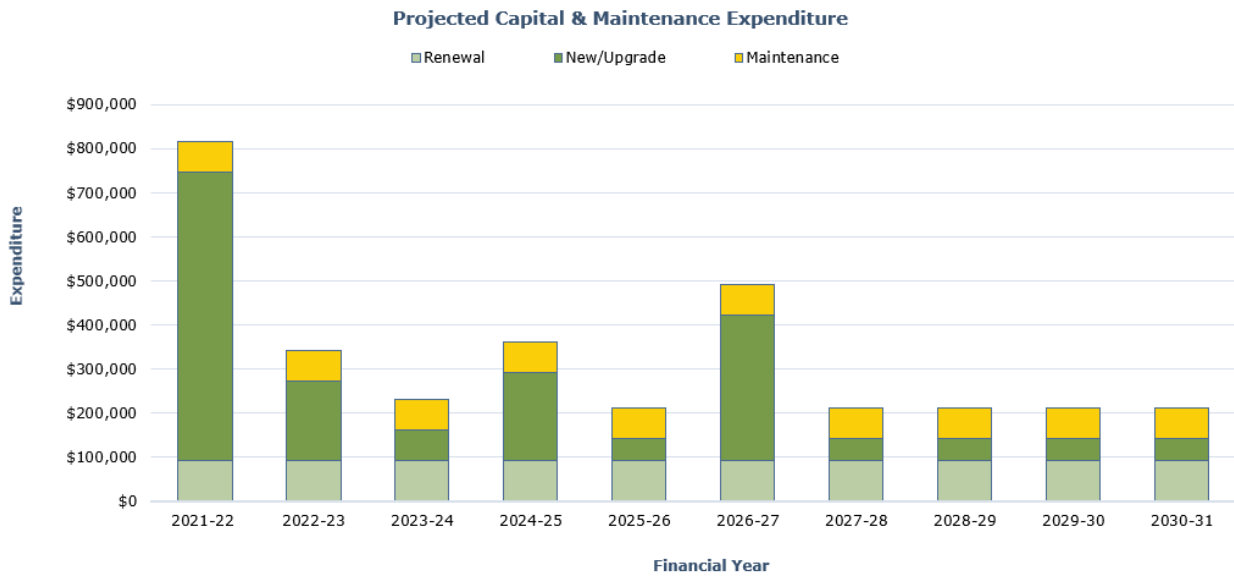
The assets due to be replaced from Conquest will be inspected annually as part of the annual capital works planning.

Separate to asset renewal the plan has identified locations where deficiencies in service performance are known which require upgrade. This includes Balaklava levee, Bowmans levee, Port Wakefield levee and Townsvale Estate. The new/upgrade strategy set out in this plan is to address the known deficiencies, and includes Railway Embankment Balaklava Construction, Bowmans Levee Bank Construction, and Townsvale Estate Construction. Further Flood Plain Mapping for Wakefield River is required to determine the flood mitigation requirements. In addition to the site upgrades, an allocation of \$50,000 per year has been proposed to upgrade cross drains for rural unsealed roads to address known localised drainage issues for the unsealed road network.

The current stormwater drainage systems are reportedly performing satisfactorily. In order to confirm this a local drainage study for Balaklava, Port Wakefield, Blyth, and Snowtown is recommended in the Plan. These studies would involve a pit and pipe drainage study to identify network capacity and upgrade requirements. These investigations have been set out in the new/upgrade strategy.

Future maintenance expenditure is forecast to trend in line with the 3 year average provided. The average annual maintenance cost over a 10 year planning period (medium term) is \$69,000.

The financial projections are shown in the figure below for projected maintenance, capital renewal, capital upgrade (including stormwater investigations).



**Figure 1** Projected Maintenance, Capital Renewal and Capital Upgrade Expenditure



## 2 Introduction

### 2.1 Context

This Infrastructure Asset Management Plan (Plan) is for Wakefield Regional Council (Council) stormwater assets and is an update of the 2018 Plan. The last stormwater valuation was for 1 July 2017 and is still current for this Plan. Previously, Council and Tonkin developed a digitised stormwater asset register during 2012 and 2013. Data was uploaded into Conquest and a stormwater valuation as of 1 July 2013 was developed. Capital works are updated annually, and a desktop revaluation of Council’s stormwater assets was also developed as of 1 July 2016. The stormwater asset register is at a good standard of reliability to be used by Council for managing the assets.

At this stage no performance assessment has been undertaken in order to determine the capacity of the system and its adequacy to manage minor and major rainfall events. Accordingly, the extent to which the system is meeting expectations and industry standards is unknown. Also, at this stage the identification of nuisance and major flooding risks have not been determined. These should be considered in future iterations of the Plan and included in the improvement plan is provision for additional investigations to better understand any capacity issues. This Plan provides Council with an understanding of the current stormwater infrastructure and its age profile and impact on future renewal.

### 2.2 Background

Wakefield Regional Council is situated within the Mid North Region of South Australia and includes the townships of Balaklava, Snowtown, Hamley Bridge, Blyth and Port Wakefield and smaller towns including Lochiel, Brinkworth, Owen and Bowmans. The Council area covers 3,469km<sup>2</sup> and has a population of over 6,800 people.

Council own and manage both township and rural stormwater assets including pipes, box culverts, spoon drains, pits, floodways, headwalls and other miscellaneous assets including gross pollutant traps and scour protection assets.

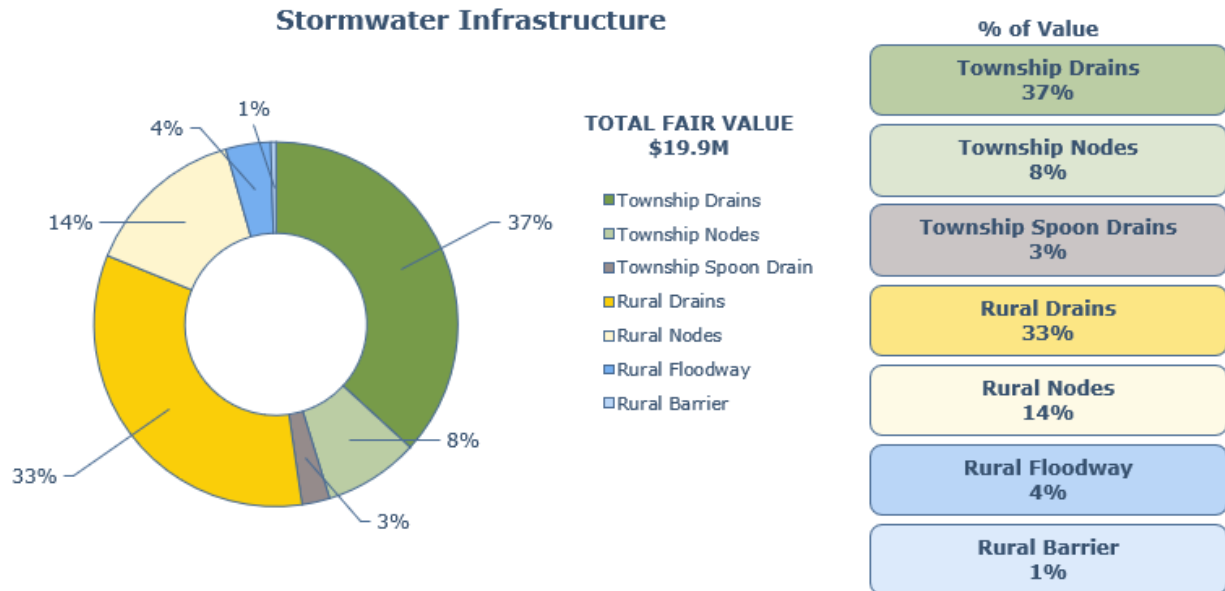
An overview of the Stormwater infrastructure assets covered by this Plan is shown in Table 1 and in Figure 2.

**Table 1 Assets Covered By this Plan**

Asset Category	Dimension	Fair Value (as at 30 June 2020)
Township Stormwater Drains	14,243 m	\$7,330,214
Township Stormwater Nodes	631 items	\$1,681,161
Township Spoon Drains	2,538 m	\$492,868
Rural Stormwater Drains	8,137 m	\$6,664,341
Rural Stormwater Nodes	1,155 items	\$2,870,263
Rural Floodway	31 items	\$795,340
Rural Stormwater Barrier (W Beam)	10 items	\$89,575
<b>Total</b>		<b>\$19,923,762</b>



Fair Value represents a combination of assets valued at Current Replacement Cost as of 1 July 2017 and assets valued at Cost for capital works undertaken between 1/7/2017 and 30/6/2020.



**Figure 2 Distribution of Stormwater Assets by Fair Value as at 30 June 2020**

## 2.3 Plan Framework

This Plan is based on the fundamental structure of the Institute of Public Works Engineering Australasia (IPWEA) National Asset Management Strategy (NAMS) 3 - Asset Management for Small, Rural or Remote Communities template.

Wakefield Regional Council provides services for the community and a major part of this is through the provision of infrastructure assets. Over the years, Council has acquired these assets directly through construction by Council staff or contractors or by inheritance from developers or other organisations.

Stormwater infrastructure protects communities in times of flooding both from river systems and local area catchments and conveys runoff under regional roads.

The goal in managing infrastructure assets is to meet the required level of service in the most cost-effective manner for present and future consumers. The key elements of infrastructure asset management are:

- Taking a life cycle approach.
- Developing cost-effective management strategies for the long term.
- Providing a defined level of service and monitoring performance.
- Managing risks associated with asset failures.
- Sustainable use of physical resources.





Key elements of the Plan are:

- Levels of service – specifies the services and levels of service to be provided by Council.
- Future demand - how this will impact on future service delivery and how this is to be met.
- Life cycle management – how the organisation will manage its existing and future assets to provide the required services.
- Financial summary – what funds are required to provide the required services.
- Plan improvement and monitoring – how the plan will be monitored to ensure it is meeting the organisation’s objectives.

This Plan is prepared under the direction of the community’s Wakefield 2030 vision and key themes which are as follows:

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“Wakefield is a thriving and connected regional community known for its lifestyle, vibrant towns and economic prosperity. The region is growing, supported by quality assets and driven by a strong sense of pride and confidence.

**Wakefield is a great place to do business and a great place to belong.”**

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#### **Liveable Communities**

Wakefield is a great place to live, work and play. Our vibrant, attractive towns are full of energy and excitement, with places and spaces designed for people to pursue recreation, leisure and fun. Our communities are connected by social events, a sense of pride and belonging and quality infrastructure that serves them well.

#### **Thriving Region**

Wakefield is open for business. Our region’s economic future is bright as existing businesses thrive and expand, while new businesses and industries put down local roots. Our population is growing as people recognise the affordable, quality lifestyle on offer, with new housing options enticing people to move to the area.

#### **Sustainable Future**

Wakefield has a clean, green future. Strong partnerships between Council, the community and other agencies have been formed as we come together to manage our environment in the best possible way. We are seen as a region that respects its natural assets and seeks sustainable outcomes for the community.

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In order to deliver on this vision the way infrastructure is managed from planning, budgeting, delivery and maintenance and operations needs to be of a high standard with resources equipped to match the demand that this Plan outlines.

Maintaining the existing stormwater infrastructure and upgrading the systems to provide additional flood protection minimises risk of flooding and therefore allows the communities to grow and businesses to continue to thrive. This Plan details the approach Council are undertaking to manage and upgrade the stormwater system to provide the community with a safe and reliable network.



## 3 Life Cycle Management

The life cycle management plan details how Council plans to manage and operate the assets as the agreed levels of service (defined in Section 5) while optimising life cycle costs.

### 3.1 Background Data

Wakefield Regional Council manages township stormwater assets within the townships of Balaklava, Snowtown, Hamley Bridge, Blyth and Port Wakefield and in smaller towns including Lochiel, Brinkworth, Owen and Bowmans. Council also manages rural stormwater assets generally associated with road alignments. The assets covered by this Plan are shown in Table 1.

#### 3.1.1 Asset Capacity

Council's services are generally provided to meet design standards where these are available. Locations where deficiencies in service performance are known are detailed in Table 2.

**Table 2 Known Service Performance Deficiencies**

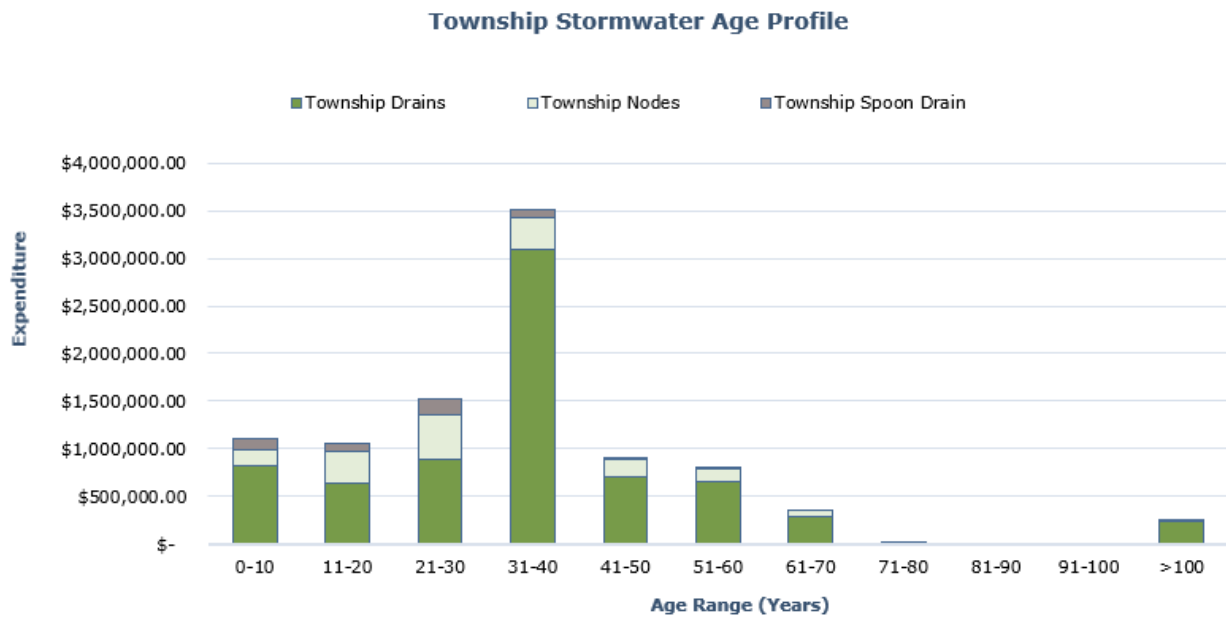
Assets	Service Deficiency
<b>Balaklava levee</b>	There are low-lying and poorly draining areas in the north eastern section of Balaklava with potential for flooding if the Wakefield River breaches during a high rainfall event. A design for a levee bank to protect the low-lying area near the railway line has been completed and levee is planned for construction.
<b>Bowmans levee</b>	Several residences in Bowmans were inundated during a flood event in 2016. Mounds have been constructed in the past along the north side of the residential area however these mounds were ineffective during the 2016 flood event. Council has undertaken survey work and identified a notional flood level based on information provided by locals. Council is currently in the process of undertaking a design for the Bowmans Levee Bank. Construction is proposed for 2021/22 with an estimated budget.
<b>Port Wakefield levee</b>	Port Wakefield has large low-lying areas that are prone to flooding. There are partly constructed old levee banks situated to the north east of the town along the south side of the Wakefield River and the north side of the Balaklava Rd. During a flood event in 2016, the levee was breached in at least two locations and the Wakefield River flooded into areas east of the town. The road between Port Wakefield and Balaklava was cut off. Survey along the top of the existing levee has been completed.  Department of Transport and Infrastructure (DIT) have recently undertaken a localised flood study of the Wakefield River as part of the Port Wakefield road upgrade works. The flood study will be reviewed by Council and future investigations and works will be actioned accordingly.
<b>Townsvale Estate Stormwater Management</b>	Townsvale Estate is proposed to be gazetted into public roads with the addition of Dale Street to be constructed. The drainage along the existing roads is poor due to several trapped low spots. A concept design was undertaken in 2019 to enable an improvement to the drainage system such that it will provide an adequate level of flood protection to development within the Estate.



### 3.1.2 Asset Age – Township Stormwater

The age profile of the township stormwater assets included in this Plan and represented by total Fair Value (as of 30 June 2020) is shown in Figure 3. The age of the township stormwater assets has been calculated from the construction year. All township stormwater assets constructed by Council during 2017-18, 2018-19, 2019-20 are included within the 0-10 year age range.

As no condition data is available for the township stormwater assets, the date of construction and the standard useful life of the asset type is used to determine the remaining life of the asset.



**Figure 3 Township Stormwater Asset Age Profile**



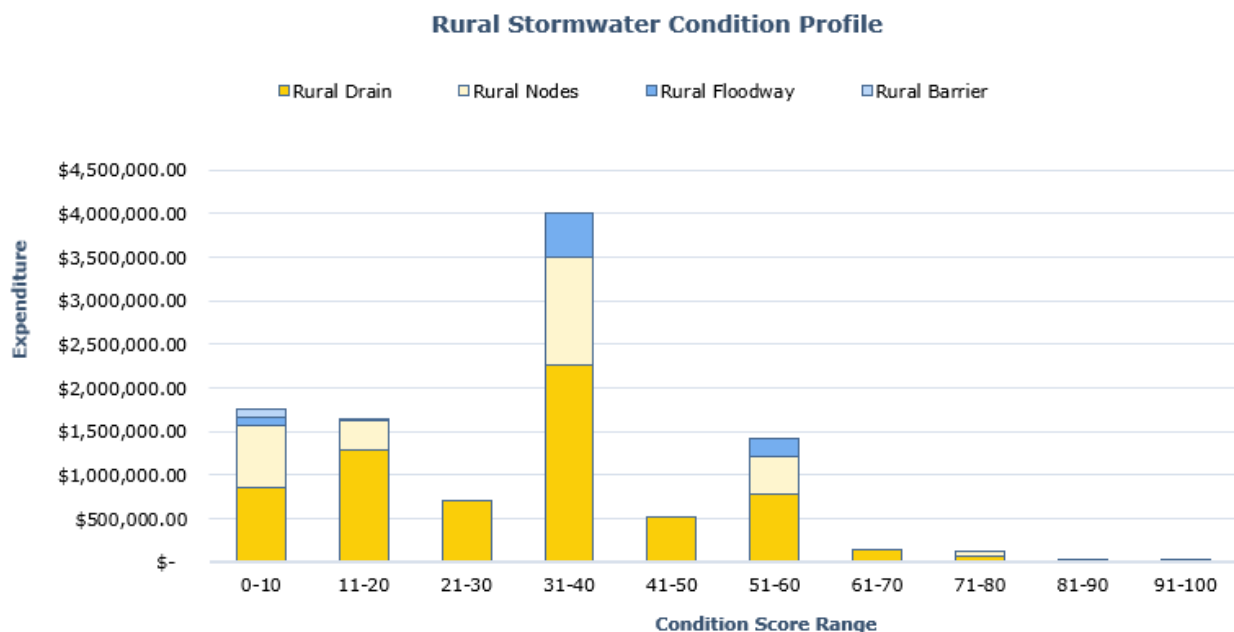
### 3.1.3 Asset Condition – Rural Stormwater

Asset Condition information is available for the rural stormwater assets as these were inspected during 2012 and 2013. The asset condition of the rural stormwater floodway assets and the node assets was based on a condition rating between 0 and 6 which was converted to a condition score between 0 and 100 where 0 represents a brand new asset and 100 represents a fully consumed asset that is due for replacement.

For the rural cross drain pipe and rural box culvert assets, an asset blockage rating (1-5), a vegetation rating (1-5) and a condition rating (0-6) were assigned to each asset. These ratings were converted into a blockage score, a vegetation score and a condition score for each asset and combined into an overall condition score between 0 and 100 for each asset.

For each rural stormwater asset, the overall condition score and the standard useful life of the asset type is used to determine the remaining life of the asset. All new rural stormwater assets captured through capital works since the last condition assessment have a condition score of 0.

A condition profile of the rural stormwater assets is provided in Figure 4 below.



**Figure 4 Rural Stormwater Condition Profile**



### 3.1.4 Asset Valuations

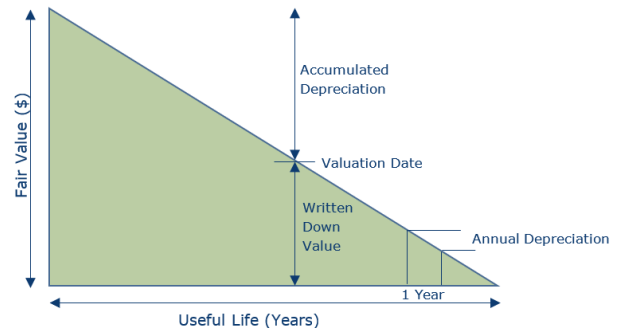
Fair Value represents a combination of assets valued at Current Replacement Cost as of 1 July 2017 and assets valued at Cost for capital works undertaken between 1/7/2017 and 30/6/2020, a summary is shown in Table 3 below.

**Table 3 Stormwater Asset Valuation Summary as at 30 June 2020**

Category	Fair Value	Carrying Amount (WDV)	Annual Depreciation (2019/2020)
<b>Stormwater Assets</b>	\$19,923,763	\$11,727,087	\$269,286

The Depreciation expense shown is the 2019-20 expense as reported at the 'Stormwater Asset Depreciation Report for 2019-20 Financial Year'.

The current rate of consumption (annual depreciation/depreciable amount) for Stormwater assets is 1.4%. This indicates that on average, over the life of an asset, 1.4% of the depreciable amount is consumed annually. The translation of this consumption rate into renewals is subject to a decision on funding, service level determination and asset condition.



## 3.2 Risk Management

An assessment of the risks associated with the service delivery of Wakefield Regional Council's Stormwater system has not been undertaken by Council. The risk assessment process identifies credible risks, considers the likelihood of an event occurring and assesses the impact or consequence that would be caused by an event occurring. A risk rating system using a risk matrix of likelihood versus impact is developed and a risk treatment plan to address non-acceptable risk is developed.

Critical risks assessed as being "Very High" – requiring immediate corrective action and "High" – requiring prioritised corrective action will be identified and addressed in future revisions of the plan.

This plan does not include a formal risk assessment however the following risks have been identified for further consideration in future iterations of this plan.



**Table 4 Stormwater Preliminary Risk Register**

Risk	Comments
<p><b>Drainage system:</b> Increased capacity requirement</p>	<p>The current stormwater drainage systems are reportedly performing satisfactorily at present however, a local drainage study for Balaklava, Port Wakefield, Blyth, and Snowtown is recommended. These studies would involve a pit and pipe drainage study to identify network capacity requirements and upgrade requirements. The studies may also identify locations for regional scale facilities such as wetlands or basins.</p>
<p><b>Wakefield River:</b> Levee requirements at Balaklava, Bowmans and Port Wakefield</p>	<p>The levees at Port Wakefield and Bowmans were breached during the 2016 flood event and there remains a risk to low-lying areas in the north east area of Balaklava.</p> <p>Determination of levee height requirements to provide flood protection to residences at Balaklava, Bowmans and Port Wakefield is not possible without further investigations, including undertaking flood plain mapping of the Wakefield River from Port Wakefield to east of Balaklava.</p>
<p><b>Wakefield River:</b> Flood level estimates for rural areas</p>	<p>Determination of floor level requirements for residential dwellings in rural areas outside of Balaklava, Bowmans and Port Wakefield could also be undertaken once flood plain mapping of the Wakefield River is completed.</p>
<p><b>Townsvale Estate Stormwater Management</b></p>	<p>A Concept design has been undertaken to enable an improvement to the drainage system such that it will provide an adequate level of flood protection to development within Townsvale Estate. However, there are still a number of residual risks to be addressed that are associated with the work.</p> <p>Any further and additional studies of the Wakefield River can be used to further refine the design.</p>
<p><b>Ownership of Levees as an asset</b></p>	<p>Any levee construction in private property would not be classed as a Council asset and may not qualify for disaster relief funding. Council to investigate ownership of levees further and determine impact on the Townsvale Estate proposed works.</p>
<p><b>Levees protecting private property only and not public infrastructure</b></p>	<p>Any levee constructed to protect private property in need of upgrade would not qualify for disaster relief funding for betterment, as the fund is there for public infrastructure protection.</p>



### 3.3 Required Expenditure

This 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 medium term financial planning period, this provides input into 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

#### 3.3.1 Routine Maintenance

Routine maintenance is the regular on-going work that is necessary to keep assets operating, including instances where portion of an asset fails and needs immediate repair to make the asset operational again. Maintenance includes reactive (unplanned), planned and specific maintenance work activities. Assessment and prioritisation of reactive maintenance is undertaken by operational staff using experience and judgement.

Council's current and future stormwater drainage maintenance costs are based on the maintenance costs provided for the past three years. All expenses are shown in the costs reported for the corresponding financial year dollar values.

**Table 5 Annual Maintenance Expenses**

	2017-18	2018-19	2019-20
<b>Stormwater Maintenance</b>	\$71,000	\$45,000	\$80,000

Future maintenance expenditure is forecast to trend in line with the 3 year average provided. The historic costs have been indexed by Building Price Index (BPI) and the average cost has been calculated. The average annual maintenance cost over a 10 year planning period (medium term) is \$69,000.

#### 3.3.2 Capital Renewal

Renewal 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 upgrade expenditure. For the purposes of this Plan, the method used to develop the renewal plan is based on the expiry date and renewal value.

The expired assets include rural drainage that has been inspected and condition assessed to include inlet and outlet structures and pipes/culverts replacement based on visual assessments. In addition to this there are some expired assets related to the underground township stormwater pipes and culverts which is aged based. Further investigations are recommended (such as CCTV) to determine condition and performance to confirm remaining life of township pipe expired or due to expire. It is suspected that not all the expired assets will require renewal, and therefore the life can be extended in some cases.

In order to even out the annual renewal expenditure requirement over the 10 year period, the total value of stormwater assets expired (including Backlog) and due to expire over the next 10 years has been averaged across 10 years. The total value was indexed by the Building Price Index (BPI) to reflect current replacement values. This equates to \$93,000 per year over the next 10 years. However through further inspection and planning for each budget, the decision can be made annually which assets to replace.

The list of assets identified within the projected 10 year capital renewal program are provided in Appendix A.



### 3.3.3 Capital New/Upgrade and Acquisition

New/upgrade expenditure is major work that creates a new asset that did not previously exist, or works which upgrade or improve an existing asset beyond its existing capacity. They may result from growth, social or environmental needs. Assets may also be acquired at no cost to the Council from land development. Localised capital stormwater system upgrades for Balaklava, Port Wakefield, Blyth, and Snowtown will be determined from the drainage studies. As the studies are yet to be undertaken, the associated extent of work and estimated cost has not been included in this Plan. This has been included in the improvement plan. Investigation costs have also been included within this section.

It should be noted that the allowance is an estimate only and subject to change once works are quantified and detailed design is finalised.

See Appendix B for summary of Capital New/Upgrade Plan inclusive of the investigation studies.

#### Railway Embankment Balaklava Construction

Previous flood protection investigations were undertaken for Balaklava. It was recommended that a detailed design and construction should be undertaken for a new Railway Embankment for Sandgate Street to protect properties to the south-west of the existing railway embankment from inundation during a 100 year ARI flood event. The estimated cost for a detailed design and construction of the new railway embankment is \$100,000 and allocated to 2022-23. It is noted this is only an estimate and is subject to change following the detailed design.

#### Bowmans Levee Bank Construction

Council has previously undertaken survey work and identified a notional flood level based on information provided by locals. Council is currently in the process of undertaking design and investigation of the construction for the Bowmans Levee Bank. For the purposes of the 10 year plan, an estimated \$150,000 has been allocated for 2021-22 for the construction of the levee bank. It is noted this is only an estimate and is subject to change following the detailed design.

#### Townsvale Estate Construction

Townsvale Estate is proposed to be gazetted into public roads with the addition of Dale Street to be constructed. The drainage along the existing roads is poor due to several trapped low spots. A concept design was undertaken in 2019 to enable an improvement to the drainage system such that it will provide an adequate level of flood protection to development within the Estate. The scope of the concept design examined the local catchments draining to the site, however excludes any new assessment of the Wakefield River flooding risk.

The concept design proposed an indicative cost estimate, proposed scope, and staging of works. For the stormwater related works, this was separated into three stages, including the initial works, stormwater basin, and Dunn Road Levee Bank. The initial works were conceptually designed to remove nuisance flooding locations, and involved pit and pipe system. The estimated costs associated for the initial works is \$300,000 and allocated to 2021-22. The Sandgate Street stormwater basin was estimated to cost \$130,000 and proposed for 2024-25. The Dunn Road Levee Bank was estimated to cost \$280,000 and proposed for 2026-27.

#### Rural Cross Drain Upgrade

Council have a budget allocation of \$50,000 per year to upgrade cross drains for rural unsealed roads. This is to address known deficiencies.





## Local Drainage Studies for Balaklava, Port Wakefield, Blyth, and Snowtown (Investigation)

No capacity assessment of the stormwater system has been undertaken prior to development of this Plan. Local drainage studies are recommended for Balaklava, Port Wakefield, Blyth, and Snowtown. These would involve a pit and pipe drainage study to identify network capacity requirements and upgrade requirements for each town and would cost approximately \$100,000 for the four studies. The four studies have been planned over the following financial years, starting from 2021-22 to 2024-25.

### Flood Plain Mapping of the Wakefield River (Investigation)

Flood Plain Mapping of the Wakefield River between Port Wakefield and east of Balaklava is also recommended to understand the flood mitigation requirements along the river and assist with floor level design requirements for residential dwellings in the towns of Balaklava, Bowmans and Port Wakefield and in rural areas within the catchment. Flood Plain Mapping would also assist in understanding the requirements for levee bank heights and lengths to protect the low-lying residential areas in Balaklava, Bowmans and Port Wakefield. As part of this project Digital Terrain Mapping (DTM) data (topography) would be required and the project would cost in the vicinity of \$250,000. Potentially the Stormwater Management Authority (State Government) would provide 50% of the funding for this project, and Council would be responsible for the remaining 50% ie \$125,000. This has been allocated to 2021-22.

A Regional Flood Monitoring and Alert System for the Wakefield River was previously undertaken by the Department for Environment, Water and Natural Resources (DEWNR) and Bureau of Meteorology. This study may provide the required information to understand the flood mitigation requirements along Wakefield River. The Improvement Plan has flagged Council to review this study.

Department of Infrastructure and Transport (DIT) have recently undertaken a localised flood study of the Wakefield River as part of the Port Wakefield road upgrade works. The flood study will be reviewed by Council and future investigations and works will be actioned accordingly. This has been included in the Improvement Plan.

### 3.3.4 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. Council has not identified any stormwater infrastructure assets to be disposed in the 10 year planning period (medium term).



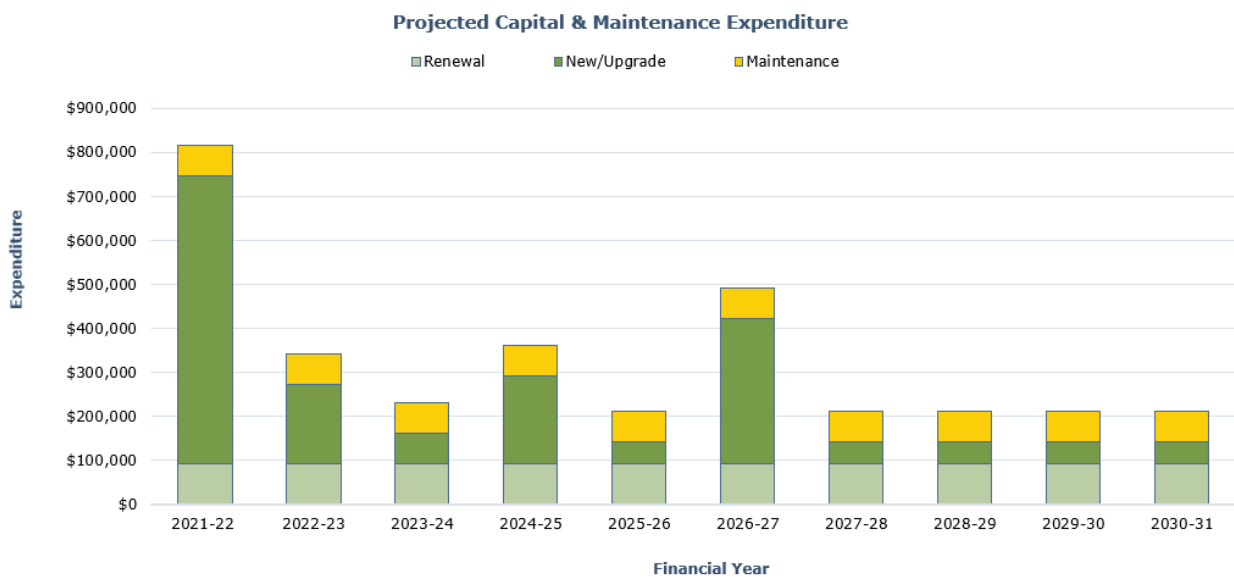
### 3.3.5 Financial Projections

The financial projections are shown in Table 6 and Figure 5 for projected maintenance, capital renewal, capital upgrade, and stormwater investigations.

**Table 6 Operating and Capital Expenditure**

Financial Year	Maintenance	Capital Renewal	Capital New/Upgrade (incl. Investigations)*	Total Expenditure Requirement
2021-22	\$69,000	\$93,000	\$655,000	\$817,000
2022-23	\$69,000	\$93,000	\$180,000	\$342,000
2023-24	\$69,000	\$93,000	\$70,000	\$232,000
2024-25	\$69,000	\$93,000	\$200,000	\$362,000
2025-26	\$69,000	\$93,000	\$50,000	\$212,000
2026-27	\$69,000	\$93,000	\$330,000	\$492,000
2027-28	\$69,000	\$93,000	\$50,000	\$212,000
2028-29	\$69,000	\$93,000	\$50,000	\$212,000
2029-30	\$69,000	\$93,000	\$50,000	\$212,000
2030-31	\$69,000	\$93,000	\$50,000	\$212,000
<b>Total</b>	<b>\$690,000</b>	<b>\$930,000</b>	<b>\$1,685,000</b>	<b>\$3,305,000</b>

Estimate only until upgrade requirements can be quantified as outlined in the improvement plan.



**Figure 5 Projected Operating and Capital Expenditure over the Medium Term (10 Years)**

The average projected operations, maintenance and capital expenditure required over the 10 year planning period is \$330,500.



### 3.3.6 Asset Renewal Funding Ratio

No financial restrictions were applied in the development of this plan in an effort to ensure all maintenance and renewal requirements were appropriately captured. Council's Long Term Financial Plan (LTFP) has however delivered a reality check to this approach as there are other financial obligations within Wakefield 2030 Strategic Plan and a commitment by Council to responsibly manage any rate increase.

To ensure an appropriate balance is achieved in relation to strategic objectives, rate increases and asset maintenance and renewal, the LTFP requires an Asset Renewal Funding Ratio of 80% for the first four years of this plan. The ratio will increase to above 100% for the remaining half of this plan to ensure all identified maintenance and renewal requirements are delivered by year 10.

It should be noted that the financial numbers within this plan have not been adjusted down and reflect 100% maintenance and renewal requirements. Numbers will only be adjusted within Council's LTFP and Annual Budgets to ensure the financial integrity of each IAMP is preserved and Council remains within its identified financial targets.



## 4 Future Demand

### 4.1 Demand Forecast

Factors affecting demand include population change, changes in demographics, seasonal factors, vehicle ownership, consumer preferences and expectations, economic factors, agricultural practices, environmental awareness, etc. Demand factor trends and impacts on service delivery are summarised in Table 7.

**Table 7 Demand Factors, Projections and Impact on Services**

Demand Driver	Present Position	Projection	Impact on Services
<b>Growth in stormwater drainage area due to new development areas</b>	<p>There is some potential for population growth in Port Wakefield and Balaklava due to business expansion</p> <p>The populations in Snowtown, Hamley Bridge and Blyth are stable</p>	Unknown	Significant population growth in Port Wakefield or Balaklava may require reassessment of the stormwater network and drainage capacities
<b>Wakefield River breaches during high rainfall events</b>	Several residential areas in the towns of Balaklava, Bowmans and Port Wakefield have been or have the potential to be impacted by breaches of the Wakefield River	Potential for future flooding in the north eastern area of Balaklava, the northern residential area of Bowmans and eastern sections of Port Wakefield	<p>Assessment of Wakefield River flood levels and requirements for flood protection is required</p> <p>Consideration of floor levels in flood prone residential areas and potentially in rural areas is required</p>
<b>Pressure to develop low-lying areas within the towns of Balaklava and Port Wakefield</b>	<p>There is potential for further residential development of the north eastern area of Balaklava where several houses have been built along unsealed roads without formal drainage</p> <p>There is potential for residential development of the area east of the golf course at Port Wakefield</p> <p>There is a planned industrial estate on the west side of Gwy Terrace in Balaklava</p>	Undetermined likelihood	<p>Assessment of floor level requirements in low-lying areas in Balaklava and Port Wakefield that have recently flooded or have potential to flood is required.</p> <p>Assessment of stormwater drainage solutions for Gwy Terrace is required</p>



## 4.2 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. Council will determine the ability of the existing systems to manage increased requirements. Opportunities identified to date for demand management are shown in Table 8. Further opportunities will be developed in future revisions of this Plan.

**Table 8 Demand Management Plan**

Service Activity	Demand Management Plan
<b>Stormwater Drainage</b>	<ol style="list-style-type: none"> <li>1. Capacity assessment of stormwater drainage system</li> <li>2. Evaluation of impact of new allotments on existing infrastructure</li> <li>3. Evaluation of potential new developments in flood prone areas associated with the Wakefield River</li> <li>4. Developer contributions per Council policy</li> <li>5. Negotiated developer system augmentations where required</li> <li>6. Planning to incorporate any identified growth over asset life (currently &lt;1%growth expected for townships)</li> <li>7. Significant population growth due to regional economic development projects to be assessed and negotiated during development assessment phases</li> <li>8. Incorporate in future iterations of the Asset Management Plan as requirements are known</li> </ol>



## 5 Levels of Service

The community generally expect that Council will provide an effective method for the drainage of stormwater throughout the townships it serves. Council has defined service levels in two terms and provides the level of service objective, performance measure process and service target in Table 9 and Table 10.

### 5.1 Community Levels of Service

Community Levels of Service relate to the service outcomes that the community wants in terms of reliability, responsiveness, amenity, safety and financing.

**Table 9 Community Levels of Service**

Key Performance Measure	Level of Service Objective	Performance Measure Process	Service Target
<b>Reliability</b>	Drainage system operation without blockage	Reported or identified blockages	Zero complaints per year
	Maintenance of service during power outage	Manage system in accordance with contingency plan to minimise and manage stormwater flooding at pump stations	Activation of contingency plan as required
<b>Responsiveness</b>	Response to blockages and alarms within set timeframe	Response to critical alarms and complaints	Within 1 hour of notification
<b>Amenity</b>	Maintain visual amenity of stormwater infrastructure	Maintain pumping equipment, clear debris and weeds from pit entry points	Weed spraying and debris clearing of stormwater sites in conjunction with footpath spraying program <5 per year
<b>Safety</b>	Ensure public safety around high risk system components including pump stations, basins, maintenance holes	All lockable infrastructure secured from public access	No unauthorised access to stormwater infrastructure
	Accidents related to asset conditions are minimised	No successful claim increase against Council	Zero claims against Council.
<b>Flood Mitigation</b>	Provide flood mitigation measures to protect residences in the towns of Balaklava, Bowmans and Port Wakefield from inundation from Wakefield River breaches during high rainfall events	Reported residential inundation of flood water in Balaklava, Bowmans or Port Wakefield	Avoidance of residential inundation during a 100-yr ARI rainfall event in the Wakefield River catchment
<b>Financing</b>	Annual budget reporting in line with Council financial processes	Adequate recording and reporting on costs	Budget reporting in line with measured costs



## 5.2 Technical Levels of Service

Technical Levels of Service support the community service levels and are operational or technical measures of performance. These technical measures relate to the allocation of resources to service activities that the Council undertakes to best achieve the desired community outcomes.

**Table 10 Technical Levels of Service**

<b>Key Performance Measure</b>	<b>Level of Service Objective</b>	<b>Performance Measure Process</b>	<b>Service Target</b>
<b>Reliability</b>	Ongoing operation of pump stations	System outage frequency and duration during a rainfall event	No system outages during rainfall events. Activation of contingency plan as required
<b>Maintenance</b>	System maintenance in accordance with component manufacturers' recommendations and Council Operations and Maintenance Plan	Reporting	Records maintained of all system maintenance
<b>Renewal</b>	Planned asset renewal and upgrade undertaken to maintain system in compliant operational condition	Asset Management Plan integrated with Long term Financial Plan and annual budget process	Meet and maintain planned renewal expenditures  Updated plans adopted for 2020/309 budgeting and reviewed annually
<b>Capacity</b>	Ensure adequate capacity for future growth forecasts	System planning based on growth forecasts and development planning	Drainage catchment plans completed and aligned to growth forecasts and development planning
<b>Safety</b>	System free of preventable hazards	Assessment of hazardous components and tasks in accordance with Hazard Management Procedure	No lost time injury associated with stormwater operations

At the time of writing this Plan there is limited records regarding operational capacity of the system. In future iterations of the Plan, the service levels should be refined to match the known system capacities.



## 6 Plan Improvement and Monitoring

The following tasks have been identified for improving future versions of the Plan. Council should assign responsibilities and resources to these tasks as part of the endorsement of the Plan.

**Table 11 Tasks Identified for Improving Future Versions of the Plan**

Task No.	Task	Responsibility
1.	Review accuracy and currency of the existing asset register	Council
2.	Undertake a condition review of a selection of the drains to assess end of life of the stormwater drains	Council
3.	Undertake local drainage studies of the pits and pipes in Balaklava, Port Wakefield, Blyth, and Snowtown to identify network capacity requirements and upgrade requirements for these four towns	Council
4.	Determine ownership of levee associated with the Wakefield River as ownership may affect disaster relief funding	Council
5.	Undertake flood plain mapping of the Wakefield River in order to understand flood levels and determine levee requirements for Balaklava, Bowmans and Port Wakefield and floor level requirements for both rural and township residences	Council
6.	Develop and refine a 10 year stormwater upgrade funding plan once various investigations have been undertaken	Council
7.	Review the Regional Flood Monitoring and Alert System for the Wakefield River study previously undertaken by the Department for Environment, Water and Natural Resources (DEWNR) and Bureau of Meteorology. This study may provide the required information to understand the flood mitigation requirements along Wakefield River. Once reviewed by Council, future investigations and works will be actioned accordingly	Council
8.	Review the report from the localised flood study of the Wakefield River recently undertaken by the Department of Transport and Infrastructure (DIT) as part of the Port Wakefield road upgrade works. Once reviewed by Council, future investigations and works will be actioned accordingly including the Port Wakefield Levee Bank design. This has not been accounted for in the 10 year plan	Council

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





## 7 References

IPWEA, 2006, NAMS.PLUS3 Asset Management, Institute of Public Works Engineering Australia, Sydney, [www.ipwea.org](http://www.ipwea.org)

IPWEA, 2011, Asset Management for Small, Rural or Remote Communities Practice Note, Institute of Public Works Engineering Australia, Sydney, [www.ipwea.org](http://www.ipwea.org)



## Appendix A Projected 10 Year Capital Renewal

Projected 10 Year Capital Renewal

AssetID	Asset Description	Asset Type	Conquest Expiry	Replacement Cost (\$)
18060	Box Culvert No. 2 (SWD-0280) in Makin Street (002)	500mm x 700mm Concrete/Stone SW Box Culvert	30/06/1940	\$55,891
18062	Box Culvert No. 1 (SWD-0280) in Makin Street (002)	500mm x 700mm Concrete/Stone SW Box Culvert	30/06/1940	\$55,891
18831	Spoon Drain (SPD-0058) in West Street (001)	600mm Concrete Spoon Drain	30/06/1970	\$2,049
18790	Inlet Scour Protection (SWN-0531) in Oval Avenue (003)	Concrete SW Scour Protection	30/06/2000	\$81
18794	Outlet Scour Protection (SWN-0586) in East Terrace (Snowtown) (001)	Concrete SW Scour Protection	30/06/2000	\$121
18795	Outlet Scour Protection (SWN-0588) in East Terrace (Snowtown) (001)	Concrete SW Scour Protection	30/06/2000	\$202
18543	Single Cell Inlet Headwall (SWN-0297) for 1800mm x 700mm Box Culvert in Cooper Street (001)	Single Cell (1800mm x 700mm Box Culvert) Standard SW Headwall	30/06/2010	\$3,415
18600	Single Cell Outlet Headwall (SWN-0298) for 1800mm x 700mm Box Culvert in Cooper Street (001)	Non Standard Stone >1.2m High SW Headwall	30/06/2010	\$19,496
18674	Single Cell Inlet Vertical Wall (SWN-0478) for 250mm Pipe in August Street (001)	Rip Rap Bags <1.2m High SW Vertical Wall	30/06/2010	\$59
18683	Single Cell Inlet Vertical Wall (SWN-0504) for 300mm Pipe in Guildford Street (001)	Rip Rap Bags <1.2m High SW Vertical Wall	30/06/2010	\$340
18784	Outlet Scour Protection (SWN-0458) in Gwy Terrace (002)	Concrete SW Scour Protection	30/06/2010	\$303
18785	Outlet Scour Protection (SWN-0363) in Harris Street (001)	Concrete SW Scour Protection	30/06/2010	\$1,010
18770	Inlet Retaining Wall (SWN-0579) in Francis Street (Lochiel) (001)	Rip Rap Bags <1.2m High SW Retaining Wall	30/06/2012	\$1,188
18771	Inlet Retaining Wall (SWN-0581) in Francis Street (Lochiel) (001)	Rip Rap Bags <1.2m High SW Retaining Wall	30/06/2012	\$951
18772	Outlet Retaining Wall (SWN-0580) in Francis Street (Lochiel) (001)	Rip Rap Bags <1.2m High SW Retaining Wall	30/06/2012	\$713
18792	Inlet Scour Protection (SWN-0583) in Elder Terrace (001)	Concrete SW Scour Protection	30/06/2012	\$101
18793	Outlet Scour Protection (SWN-0584) in Elder Terrace (001)	Concrete SW Scour Protection	30/06/2012	\$121
12603	Single Cell Outlet Headwall (CD-0081) for 450mm x 150mm Box Culvert in Water Tower Road (001)	Non Standard Insitu Concrete <1.2m High CD Headwall	28/11/2012	\$1,439
12432	Single Cell Inlet Headwall (CD-0081) for 450mm x 150mm Box Culvert in Water Tower Road (001)	Non Standard Insitu Concrete <1.2m High CD Headwall	28/11/2012	\$1,439
13243	Single Cell Inlet Vertical Wall (CD-0079) for 375mm x 225mm Box Culvert in Alma Road (001)	Rip Rap Bags <1.2m High CD Vertical Wall	28/11/2012	\$219
13244	Single Cell Inlet Vertical Wall (CD-0087) for 300mm Pipe in Goward Road (001)	Insitu Concrete <1.2m High CD Vertical Wall	28/11/2012	\$308
12819	Single Cell Inlet Vertical Wall (CD-0114) for 600mm x 375mm Box Culvert in Days Hill Road (001)	Insitu Concrete <1.2m High CD Vertical Wall	3/12/2012	\$1,193
13352	Single Cell Outlet Vertical Wall (CD-0146) for 300mm Pipe in Salter Springs Road (010)	Rip Rap Bags <1.2m High CD Vertical Wall	5/12/2012	\$221
12829	Single Cell Inlet Vertical Wall (CD-0148) for 600mm x 300mm Box Culvert in Smyth Road (001)	Stone/Mortar <1.2m High CD Vertical Wall	5/12/2012	\$966
12518	Single Cell Outlet Vertical Wall (CD-0160) for 1200mm x 600mm Box Culvert in Smyth Road (002)	Insitu Concrete >1.2m High CD Vertical Wall	7/12/2012	\$3,320
13248	Single Cell Inlet Vertical Wall (CD-0181) for 300mm x 100mm Box Culvert in Proof Range Road (003)	Concrete Block <1.2m High CD Vertical Wall	20/12/2012	\$1,090
12567	Single Cell Inlet Vertical Wall (CD-0193) for 375mm Pipe in Salter Springs Road (003)	Stone <1.2m High CD Vertical Wall	7/02/2013	\$1,048
13265	Single Cell Inlet Vertical Wall (CD-0192) for 300mm Pipe in Salter Springs Road (003)	Rip Rap Bags <1.2m High CD Vertical Wall	7/02/2013	\$221
12506	Single Cell Outlet Vertical Wall (CD-0288) for 225mm Pipe in Terminus Street (001)	Rip Rap Bags <1.2m High CD Vertical Wall	6/03/2013	\$86
12568	Single Cell Inlet Vertical Wall (CD-0302) for 300mm Pipe in Jericho Road (002)	Rip Rap Bags <1.2m High CD Vertical Wall	8/03/2013	\$221
12913	Single Cell Inlet Vertical Wall (CD-0315) for 600mm Pipe in Watchman Road (009)	Stone <1.2m High CD Vertical Wall	12/03/2013	\$3,438
12602	Triple Cell Outlet Headwall (CD-0462) for 1200mm x 450mm Box Culvert in Templeton Road (018)	Non Standard Insitu Concrete <1.2m High CD Headwall	1/07/2013	\$6,081
12498	Single Cell Outlet Vertical Wall (CD-0534) for 300mm Pipe in Barunga Top Road (007)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2013	\$221
12500	Single Cell Outlet Vertical Wall (CD-0537) for 300mm Pipe in Barunga Top Road (007)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2013	\$221
12501	Single Cell Outlet Vertical Wall (CD-0507) for 600mm x 375mm Box Culvert in Blyth Road (015)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2013	\$764
12502	Single Cell Outlet Vertical Wall (CD-0646) for 375mm Pipe in Angle Grove Road (002)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2013	\$736
12503	Single Cell Outlet Vertical Wall (CD-0644) for 300mm Pipe in Angle Grove Road (001)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2013	\$634
12504	Single Cell Outlet Vertical Wall (CD-0408) for 375mm Pipe in Railway Line Road (003)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2013	\$457
12505	Single Cell Outlet Vertical Wall (CD-0663) for 375mm Pipe in Lookout Road (001)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2013	\$363
12519	Single Cell Outlet Vertical Wall (CD-0573) for 600mm x 375mm Box Culvert in Black Range Road (004)	Stone <1.2m High CD Vertical Wall	1/07/2013	\$1,378
12936	Single Cell Inlet Vertical Wall (CD-0400) for 450mm Pipe in Branch Hill Road (006)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2013	\$410
12565	Single Cell Inlet Vertical Wall (CD-0447) for 375mm Pipe in Lake Road (near Lochiel) (001)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2013	\$746
12571	Single Cell Inlet Vertical Wall (CD-0537) for 300mm Pipe in Barunga Top Road (007)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2013	\$221
12572	Single Cell Inlet Vertical Wall (CD-0573) for 600mm x 375mm Box Culvert in Black Range Road (004)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2013	\$727
12573	Single Cell Inlet Vertical Wall (CD-0634) for 300mm Pipe in Koolunga Road (004)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2013	\$634
12575	Single Cell Inlet Vertical Wall (CD-0659) for 300mm Pipe in Lookout Road (001)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2013	\$401
12576	Single Cell Inlet Vertical Wall (CD-0673) for 300mm Pipe in Marola Road (001)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2013	\$634
18641	Twin Cell Inlet Vertical Wall (SWN-0430) for 225mm Pipe in Edith Terrace (001)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2015	\$568
18642	Twin Cell Inlet Vertical Wall (SWN-0435) for 300mm Pipe in Edith Terrace (001)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2015	\$2,106
18671	Twin Cell Inlet Vertical Wall (SWN-0052) for 300mm Pipe in Whitwarta Road (001)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2015	\$1,044
18672	Twin Cell Inlet Vertical Wall (SWN-0053) for 300mm Pipe in Whitwarta Road (001)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2015	\$1,044

Replacement Cost represents the 1 July 2017 Valuation Replacement Cost and reported in 2017 dollar values.

**Projected 10 Year Capital Renewal**

<b>AssetID</b>	<b>Asset Description</b>	<b>Asset Type</b>	<b>Conquest Expiry</b>	<b>Replacement Cost (\$)</b>
18743	Inlet Retaining Wall (SWN-0434) in Edith Terrace (001)	Insitu Concrete <1.2m High SW Retaining Wall	30/06/2015	\$1,864
18744	Outlet Retaining Wall (SWN-0431) in Edith Terrace (001)	Insitu Concrete <1.2m High SW Retaining Wall	30/06/2015	\$280
18745	Outlet Retaining Wall (SWN-0433) in Edith Terrace (001)	Insitu Concrete <1.2m High SW Retaining Wall	30/06/2015	\$1,864
18800	Sump (SWN-0381) in Glen Davidson Drive (002)	600mm x 300mm x 800mm SW Sump	30/06/2015	\$4,262
12520	Single Cell Outlet Vertical Wall (CD-0505) for 450mm Pipe in Blyth Road (007)	Rip Rap Bags <1.2m High CD Vertical Wall	30/06/2017	\$176
12578	Single Cell Inlet Vertical Wall (CD-0504) for 300mm Pipe in Blyth Road (007)	Rip Rap Bags <1.2m High CD Vertical Wall	30/06/2017	\$162
12522	Single Cell Outlet Vertical Wall (CD-0387) for 375mm Pipe in Beaufort Road (004)	Rip Rap Bags <1.2m High CD Vertical Wall	30/06/2017	\$152
12507	Single Cell Outlet Vertical Wall (CD-0346) for 750mm Pipe in Muanu Road (001)	Stone <1.2m High CD Vertical Wall	19/03/2018	\$6,547
12797	Single Cell Outlet Headwall (CD-0536) for 600mm x 450mm Box Culvert in Barunga Top Road (007)	Non Standard Insitu Concrete <1.2m High CD Headwall	1/07/2018	\$1,776
12798	Single Cell Outlet Headwall (CD-0190) for 600mm x 300mm Box Culvert in Mungala Road (001)	Non Standard Insitu Concrete <1.2m High CD Headwall	1/07/2018	\$805
12454	Single Cell Inlet Headwall (CD-0536) for 600mm x 450mm Box Culvert in Barunga Top Road (007)	Non Standard Insitu Concrete <1.2m High CD Headwall	1/07/2018	\$1,710
12514	Single Cell Outlet Vertical Wall (CD-0676) for 600mm Pipe in Marola Road (001)	Stone <1.2m High CD Vertical Wall	1/07/2018	\$2,850
12515	Twin Cell Outlet Vertical Wall (CD-0583) for 375mm Pipe in Bumbunga Road (014)	Stone <1.2m High CD Vertical Wall	1/07/2018	\$1,213
12525	Single Cell Outlet Vertical Wall (CD-0440) for 450mm Pipe in Pipeline Road (001)	Stone <1.2m High CD Vertical Wall	1/07/2018	\$518
12577	Single Cell Inlet Vertical Wall (CD-0449) for 750mm x 600mm Box Culvert in Bismark Valley Road (007)	Stone <1.2m High CD Vertical Wall	1/07/2018	\$707
19003	Rubble Floodway Surface (FW-0013) in Herds Hill Road (002)	Rubble Floodway Surface	12/03/2019	\$9,764
12523	Single Cell Outlet Vertical Wall (CD-0075) for 225mm Pipe in Emu Road (001)	Insitu Concrete <1.2m High CD Vertical Wall	25/05/2019	\$429
12521	Single Cell Outlet Vertical Wall (CD-0208) for 600mm x 150mm Box Culvert in High Street (002)	Insitu Concrete <1.2m High CD Vertical Wall	10/08/2019	\$662
12526	Single Cell Outlet Vertical Wall (CD-0521) for 225mm Pipe in Koolunga Road (001)	Insitu Concrete <1.2m High CD Vertical Wall	31/12/2019	\$242
12579	Single Cell Inlet Vertical Wall (CD-0685) for 375mm Pipe in Marola Road (003)	Insitu Concrete <1.2m High CD Vertical Wall	31/12/2019	\$457
17906	Pipe No. 1 (SWD-0268) in Gilbert Street (004)	150mm Concrete SW Pipe	30/06/2020	\$887
18214	Grated Inlet Pit (SWN-0262) in Gilbert Street (004)	400mm x 300mm SW Grated Inlet Pit	30/06/2020	\$2,677
18341	Side Entry Pit (SWN-0276) in Albert Street (001)	900mm x 450mm SW Side Entry Pit	30/06/2020	\$2,151
18342	Side Entry Pit (SWN-0277) in Albert Street (001)	900mm x 450mm SW Side Entry Pit	30/06/2020	\$2,151
18343	Side Entry Pit (SWN-0263) in Annie Street (001)	900mm x 450mm SW Side Entry Pit	30/06/2020	\$2,151
18344	Side Entry Pit (SWN-0264) in Annie Street (001)	1900mm x 450mm SW Side Entry Pit	30/06/2020	\$3,628
18345	Side Entry Pit (SWN-0274) in Barry Street (001)	900mm x 450mm SW Side Entry Pit	30/06/2020	\$2,151
18346	Side Entry Pit (SWN-0275) in Barry Street (001)	900mm x 450mm SW Side Entry Pit	30/06/2020	\$2,151
18348	Side Entry Pit (SWN-0269) in Dahlmyra Avenue (002)	900mm x 450mm SW Side Entry Pit	30/06/2020	\$2,151
18349	Side Entry Pit (SWN-0270) in Dahlmyra Avenue (002)	900mm x 450mm SW Side Entry Pit	30/06/2020	\$2,151
18350	Side Entry Pit (SWN-0257) in Gilbert Street (006)	1000mm x 600mm SW Side Entry Pit	30/06/2020	\$2,151
18351	Side Entry Pit (SWN-0260) in Gilbert Street (005)	900mm x 900mm SW Side Entry Pit	30/06/2020	\$2,151
18352	Side Entry Pit (SWN-0261) in Gilbert Street (004)	600mm x 600mm SW Side Entry Pit	30/06/2020	\$2,151
18353	Side Entry Pit (SWN-0272) in Gilbert Street (003)	900mm x 450mm SW Side Entry Pit	30/06/2020	\$2,151
18354	Side Entry Pit (SWN-0273) in Gilbert Street (003)	900mm x 450mm SW Side Entry Pit	30/06/2020	\$2,151
18356	Side Entry Pit (SWN-0265) in Light Street (North) (002)	900mm x 600mm SW Side Entry Pit	30/06/2020	\$2,151
18357	Side Entry Pit (SWN-0266) in Light Street (South) (001)	900mm x 450mm SW Side Entry Pit	30/06/2020	\$2,151
18410	Side Entry Pit (SWN-0302) in Railway Terrace West (001)	900mm x 600mm SW Side Entry Pit	30/06/2020	\$2,151
18418	Side Entry Pit (SWN-0317) in Railway Terrace West (006)	900mm x 600mm SW Side Entry Pit	30/06/2020	\$2,151
18465	Junction Box (SWN-0258) in Gilbert Street (006)	1000mm x 800mm SW Junction Box	30/06/2020	\$3,152
18466	Junction Box (SWN-0268) in Gilbert Street (003)	600mm x 600mm SW Junction Box	30/06/2020	\$2,158
18467	Junction Box (SWN-0271) in Gilbert Street (003)	1400mm x 900mm SW Junction Box	30/06/2020	\$4,865
18468	Junction Box (SWN-0278) in Gilbert Street (002)	900mm x 900mm SW Junction Box	30/06/2020	\$3,152
18470	Junction Box (SWN-0267) in Light Street (South) (001)	600mm x 600mm SW Junction Box	30/06/2020	\$2,158
18562	Single Cell Outlet Headwall (SWN-0303) for 375mm Pipe in Railway Terrace West (001)	Single Cell (375mm Pipe) Standard SW Headwall	30/06/2020	\$724
18567	Twin Cell Inlet Headwall (SWN-0432) for 300mm Pipe in Edith Terrace (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2020	\$1,558
18568	Twin Cell Inlet Headwall (SWN-0434) for 300mm Pipe in Edith Terrace (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2020	\$1,129
18569	Twin Cell Outlet Headwall (SWN-0433) for 300mm Pipe in Edith Terrace (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2020	\$1,558
18746	Inlet Retaining Wall (SWN-0451) in Gwy Terrace (005)	Concrete Block <1.2m High SW Retaining Wall	30/06/2020	\$6,337
13085	Outlet Scour Protection (CD-0510) in O'Hara Road (002)	Concrete CD Scour Protection	30/06/2021	\$101
13172	Outlet Scour Protection (CD-0667) in Hart Road (010)	Rip Rap Bags CD Scour Protection	30/06/2021	\$11,885

Replacement Cost represents the 1 July 2017 Valuation Replacement Cost and reported in 2017 dollar values.

**Projected 10 Year Capital Renewal**

<b>AssetID</b>	<b>Asset Description</b>	<b>Asset Type</b>	<b>Conquest Expiry</b>	<b>Replacement Cost (\$)</b>
13117	Inlet Scour Protection (CD-0510) in O'Hara Road (002)	Concrete CD Scour Protection	30/06/2021	\$101
12300	Pipe No. 1 (CD-0189) in Kirkland Road (001)	225mm Concrete CD Pipe	7/08/2022	\$3,012
12513	Single Cell Inlet Headwall (CD-0057) for 600mm x 300mm Box Culvert in Almond Tree Road (001)	Non Standard Insitu Concrete <1.2m High CD Headwall	24/10/2022	\$772
12609	Single Cell Outlet Headwall (CD-0057) for 600mm x 300mm Box Culvert in Almond Tree Road (001)	Non Standard Insitu Concrete <1.2m High CD Headwall	24/10/2022	\$772
12527	Single Cell Outlet Vertical Wall (CD-0193) for 375mm Pipe in Salter Springs Road (003)	Stone <1.2m High CD Vertical Wall	7/02/2023	\$2,697
12615	Twin Cell Outlet Headwall (CD-0463) for 1200mm x 450mm Box Culvert in Templeton Road (018)	Non Standard Insitu Concrete <1.2m High CD Headwall	1/07/2023	\$3,512
12617	Single Cell Inlet Headwall (CD-0398) for 375mm Pipe in Wheat Road (007)	Non Standard Insitu Concrete <1.2m High CD Headwall	1/07/2023	\$614
12599	Single Cell Outlet Headwall (CD-0610) for 1200mm x 300mm Box Culvert in Wirreanda Road (004)	Non Standard Insitu Concrete <1.2m High CD Headwall	1/07/2023	\$977
12607	Single Cell Outlet Headwall (CD-0375) for 600mm x 450mm Box Culvert in Templeton Road (010)	Non Standard Insitu Concrete >1.2m High CD Headwall	1/07/2023	\$5,709
12538	Single Cell Inlet Headwall (CD-0588) for 300mm Pipe in Falcon Road (001)	Non Standard Insitu Concrete <1.2m High CD Headwall	1/07/2023	\$647
12761	Single Cell Inlet Headwall (CD-0375) for 600mm x 450mm Box Culvert in Templeton Road (010)	Non Standard Insitu Concrete >1.2m High CD Headwall	1/07/2023	\$5,709
12762	Single Cell Inlet Headwall (CD-0610) for 1200mm x 300mm Box Culvert in Wirreanda Road (004)	Non Standard Insitu Concrete <1.2m High CD Headwall	1/07/2023	\$1,314
12799	Single Cell Outlet Headwall (CD-0448) for 600mm x 300mm Box Culvert in Blyth Road (001)	Non Standard Insitu Concrete <1.2m High CD Headwall	1/07/2023	\$1,882
12800	Quadruple Cell Outlet Headwall (CD-0464) for 1200mm x 450mm Box Culvert in Templeton Road (018)	Non Standard Insitu Concrete <1.2m High CD Headwall	1/07/2023	\$7,012
12904	Single Cell Inlet Vertical Wall (CD-0676) for 600mm Pipe in Marola Road (001)	Stone <1.2m High CD Vertical Wall	1/07/2023	\$2,496
18993	Sealed Floodway Surface (FW-0003) in Bonnie Brae Road (001)	Sealed Floodway Surface	24/10/2024	\$20,852
18910	Pipe No. 1 (CD-0105) in Old Mallala Road (001)	225mm Concrete CD Pipe	29/11/2024	\$1,390
18996	Sealed Floodway Surface (FW-0006) in Catford Road (near Halbury) (002)	Sealed Floodway Surface	8/02/2025	\$28,037
18717	Twin Cell Inlet Vertical Wall (SWN-0535) for 300mm Pipe in Oval Avenue (003)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$662
18718	Twin Cell Inlet Vertical Wall (SWN-0536) for 300mm Pipe in Oval Avenue (003)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$662
18727	Single Cell Inlet Vertical Wall (SWN-0562) for 225mm Pipe in East Terrace (Snowtown) (002)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$75
18728	Single Cell Inlet Vertical Wall (SWN-0534) for 600mm x 300mm Box Culvert in First Street (Snowtown) (001)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$559
18729	Single Cell Inlet Vertical Wall (SWN-0553) for 225mm Pipe in Fourth Street (Snowtown) (001)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$103
18730	Single Cell Inlet Vertical Wall (SWN-0554) for 225mm Pipe in Fourth Street (Snowtown) (001)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$186
18731	Twin Cell Inlet Vertical Wall (SWN-0555) for 375mm Pipe in Fourth Street (Snowtown) (001)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$205
18732	Twin Cell Inlet Vertical Wall (SWN-0556) for 375mm Pipe in Fourth Street (Snowtown) (001)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$354
18733	Single Cell Inlet Vertical Wall (SWN-0569) for 375mm Pipe in Glen Davidson Drive (002)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$457
18734	Single Cell Inlet Vertical Wall (SWN-0570) for 375mm Pipe in Glen Davidson Drive (002)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$457
18735	Single Cell Inlet Vertical Wall (SWN-0523) for 225mm Pipe in High Street (South) (001)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$103
18736	Single Cell Inlet Vertical Wall (SWN-0524) for 225mm Pipe in High Street (South) (001)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$103
18737	Single Cell Inlet Vertical Wall (SWN-0571) for 375mm Pipe in James Road (003)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$568
18738	Single Cell Inlet Vertical Wall (SWN-0572) for 375mm Pipe in James Road (003)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$568
18739	Single Cell Inlet Vertical Wall (SWN-0532) for 225mm Pipe in Railway Terrace East (001)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$103
18740	Single Cell Inlet Vertical Wall (SWN-0550) for 375mm Pipe in Railway Terrace East (004)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$130
18741	Single Cell Inlet Vertical Wall (SWN-0552) for 225mm Pipe in Railway Terrace East (001)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$103
18742	Twin Cell Inlet Vertical Wall (SWN-0551) for 300mm Pipe in Railway Terrace East (003)	Insitu Concrete <1.2m High SW Vertical Wall	30/06/2025	\$429
18762	Inlet Retaining Wall (SWN-0539) in Junction Street (001)	Insitu Concrete <1.2m High SW Retaining Wall	30/06/2025	\$280
18763	Inlet Retaining Wall (SWN-0531) in Oval Avenue (003)	Insitu Concrete <1.2m High SW Retaining Wall	30/06/2025	\$84
18777	Inlet Retaining Wall (SWN-0563) in East Terrace (Snowtown) (002)	Insitu Concrete <1.2m High SW Retaining Wall	30/06/2025	\$932
18778	Inlet Retaining Wall (SWN-0565) in East Terrace (Snowtown) (001)	Insitu Concrete <1.2m High SW Retaining Wall	30/06/2025	\$559
18779	Outlet Retaining Wall (SWN-0588) in East Terrace (Snowtown) (001)	Insitu Concrete <1.2m High SW Retaining Wall	30/06/2025	\$326
18780	Outlet Retaining Wall (SWN-0556) in Fourth Street (Snowtown) (001)	Insitu Concrete <1.2m High SW Retaining Wall	30/06/2025	\$1,864
18781	Outlet Retaining Wall (SWN-0524) in High Street (South) (001)	Insitu Concrete <1.2m High SW Retaining Wall	30/06/2025	\$168
12581	Single Cell Inlet Vertical Wall (CD-0084) for 300mm Pipe in Water Tower Road (002)	Insitu Concrete <1.2m High CD Vertical Wall	28/11/2025	\$634
13136	Outlet Retaining Wall (CD-0295) in Hughes Park Road (004)	Insitu Concrete <1.2m High CD Retaining Wall	6/03/2026	\$932
13139	Outlet Retaining Wall (CD-0308) in Big Dipper Road (002)	Insitu Concrete >1.2m High CD Retaining Wall	8/03/2026	\$7,904
12835	Single Cell Inlet Vertical Wall (CD-0650) for 300mm Pipe in Angle Grove Road (002)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2026	\$773
12589	Single Cell Inlet Vertical Wall (CD-0388) for 450mm Pipe in Beaufort Road (002)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2026	\$1,389
12528	Single Cell Outlet Vertical Wall (CD-0388) for 450mm Pipe in Beaufort Road (002)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2026	\$1,025
12529	Single Cell Outlet Vertical Wall (CD-0652) for 300mm Pipe in Angle Grove Road (002)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2026	\$634
12827	Single Cell Inlet Vertical Wall (CD-0648) for 375mm Pipe in Angle Grove Road (002)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2026	\$596

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AssetID	Asset Description	Asset Type	Conquest Expiry	Replacement Cost (\$)
12822	Single Cell Inlet Vertical Wall (CD-0457) for 300mm Pipe in Templeton Road (017)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2026	\$382
12823	Single Cell Inlet Vertical Wall (CD-0604) for 375mm Pipe in Magpie Creek Road (002)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2026	\$550
12824	Single Cell Inlet Vertical Wall (CD-0633) for 600mm x 300mm Box Culvert in Koolunga Road (004)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2026	\$764
12825	Single Cell Inlet Vertical Wall (CD-0647) for 375mm Pipe in Angle Grove Road (002)	Insitu Concrete <1.2m High CD Vertical Wall	1/07/2026	\$876
11891	Box Culvert No. 1 (CD-0633) in Koolunga Road (004)	600mm x 300mm Precast Concrete CD Culvert	18/10/2026	\$12,852
12001	Box Culvert No. 1 (CD-0510) in O'Hara Road (002)	600mm x 300mm Precast Concrete CD Culvert	3/09/2027	\$10,710
12908	Single Cell Inlet Vertical Wall (CD-0104) for 225mm Pipe in Old Mallala Road (001)	Rip Rap Bags <1.2m High CD Vertical Wall	29/11/2028	\$109
13234	Single Cell Outlet Vertical Wall (CD-0104) for 225mm Pipe in Old Mallala Road (001)	Rip Rap Bags <1.2m High CD Vertical Wall	29/11/2028	\$109
12914	Single Cell Inlet Vertical Wall (CD-0152) for 300mm Pipe in Salter Springs Road (011)	Rip Rap Bags <1.2m High CD Vertical Wall	5/12/2028	\$221
12983	Outlet Scour Protection (CD-0141) in Salter Springs Road (008)	Concrete CD Scour Protection	5/12/2028	\$4,243
12984	Outlet Scour Protection (CD-0142) in Salter Springs Road (007)	Stone Grouted CD Scour Protection	5/12/2028	\$1,212
12932	Single Cell Inlet Vertical Wall (CD-0201) for 300mm Pipe in Barker Road (001)	Rip Rap Bags <1.2m High CD Vertical Wall	7/02/2029	\$221
12509	Single Cell Outlet Vertical Wall (CD-0202) for 300mm x 150mm Box Culvert in Woolshed Flat Road (003)	Rip Rap Bags <1.2m High CD Vertical Wall	7/02/2029	\$166
12933	Single Cell Inlet Vertical Wall (CD-0203) for 300mm Pipe in Woolshed Flat Road (004)	Rip Rap Bags <1.2m High CD Vertical Wall	8/02/2029	\$459
13079	Outlet Scour Protection (CD-0204) in Catford Road (near Halbury) (002)	Concrete CD Scour Protection	8/02/2029	\$404
13159	Outlet Scour Protection (CD-0308) in Big Dipper Road (002)	Concrete CD Scour Protection	8/03/2029	\$606
13160	Outlet Scour Protection (CD-0317) in Halbury School Road (002)	Dumped Rock CD Scour Protection	12/03/2029	\$1,524
11975	Box Culvert No. 1 (CD-0610) in Wirreanda Road (004)	1200mm x 300mm Precast Concrete CD Culvert	3/06/2029	\$20,232
18664	Single Cell Inlet Vertical Wall (SWN-0420) for 375mm Pipe in Railway Terrace (Balaklava) (003)	Rip Rap Bags >1.2m High SW Vertical Wall	30/06/2029	\$2,351
18665	Single Cell Inlet Vertical Wall (SWN-0421) for 375mm Pipe in Railway Terrace (Balaklava) (003)	Rip Rap Bags <1.2m High SW Vertical Wall	30/06/2029	\$212
12403	Single Cell Inlet Headwall (CD-0467) for 375mm Pipe in Templeton Road (008)	Non Standard Stone/Mortar <1.2m High CD Headwall	30/06/2029	\$1,519
12580	Single Cell Inlet Headwall (CD-0206) for 450mm x 300mm Box Culvert in Hoyleton Road (003)	Non Standard Rip Rap Bags <1.2m High CD Headwall	1/07/2029	\$385
12434	Single Cell Inlet Headwall (CD-0190) for 600mm x 300mm Box Culvert in Mungala Road (001)	Non Standard Rip Rap Bags <1.2m High CD Headwall	1/07/2029	\$290
12508	Single Cell Outlet Vertical Wall (CD-0481) for 300mm Pipe in Blyth Road (006)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2029	\$174
12419	Single Cell Outlet Vertical Wall (CD-0512) for 450mm Pipe in Newton Road (002)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2029	\$212
12400	Single Cell Outlet Vertical Wall (CD-0645) for 300mm Pipe in Boucaut Road (001)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2029	\$162
12922	Single Cell Inlet Vertical Wall (CD-0442) for 300mm Pipe in Penna Road (001)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2029	\$102
12582	Single Cell Inlet Vertical Wall (CD-0644) for 300mm Pipe in Angle Grove Road (001)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2029	\$162
12540	Single Cell Inlet Vertical Wall (CD-0548) for 375mm Pipe in Barunga Top Road (009)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2029	\$152
13367	Single Cell Outlet Vertical Wall (CD-0535) for 300mm Pipe in Barunga Top Road (007)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2029	\$221
13346	Single Cell Outlet Vertical Wall (CD-0433) for 375mm Pipe in Nantawarra Road (001)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2029	\$307
13348	Single Cell Outlet Vertical Wall (CD-0555) for 450mm Pipe in Wokurna Road (006)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2029	\$295
13215	Single Cell Inlet Vertical Wall (CD-0492) for 375mm Pipe in Ninnes Road (002)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2029	\$259
13259	Single Cell Outlet Vertical Wall (CD-0496) for 300mm Pipe in Ninnes Road (004)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2029	\$162
13271	Single Cell Inlet Vertical Wall (CD-0385) for 375mm Pipe in Beaufort Road (005)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2029	\$140
13323	Single Cell Outlet Vertical Wall (CD-0567) for 300mm Pipe in Windview Road (004)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2029	\$162
13320	Twin Cell Outlet Vertical Wall (CD-0386) for 300mm Pipe in Branch Hill Road (004)	Rip Rap Bags <1.2m High CD Vertical Wall	1/07/2029	\$323
13165	Outlet Scour Protection (CD-0672) in Marola Road (001)	Dumped Rock CD Scour Protection	1/07/2029	\$762
13149	Inlet Scour Protection (CD-0680) in Renfrew Lane (001)	Concrete CD Scour Protection	1/07/2029	\$303
13171	Outlet Scour Protection (CD-0658) in Lookout Road (002)	Stone Grouted CD Scour Protection	1/07/2029	\$16,165
13173	Outlet Scour Protection (CD-0680) in Renfrew Lane (001)	Concrete CD Scour Protection	1/07/2029	\$303
11863	Box Culvert No. 1 (CD-0294) in Hughes Park Road (003)	1200mm x 900mm Precast Concrete CD Culvert	23/12/2029	\$16,647
12027	Box Culvert No. 1 (CD-0375) in Templeton Road (010)	600mm x 450mm Precast Concrete CD Culvert	18/02/2030	\$15,585
18194	Open Channel with Concrete Slab (No Vertical Walls) (SWD-0360) in Railway Terrace East (002)	900mm x 300mm Concrete SW Open Channel with Concrete Slab (No Vertical Walls)	30/06/2030	\$462
18283	Side Entry Pit (SWN-0367) in Ralli Street (001)	1100mm x 500mm SW Side Entry Pit	30/06/2030	\$2,151
18284	Side Entry Pit (SWN-0368) in Ralli Street (001)	1100mm x 500mm SW Side Entry Pit	30/06/2030	\$2,151
18338	Side Entry Pit (SWN-0364) in East Terrace (Brinkworth) (002)	800mm x 600mm SW Side Entry Pit	30/06/2030	\$2,151
18339	Side Entry Pit (SWN-0365) in East Terrace (Brinkworth) (002)	1000mm x 600mm SW Side Entry Pit	30/06/2030	\$2,151
18340	Side Entry Pit (SWN-0366) in East Terrace (Brinkworth) (001)	1100mm x 600mm SW Side Entry Pit	30/06/2030	\$2,151
18406	Side Entry Pit (SWN-0543) in Adelaide Road (002)	900mm x 600mm SW Side Entry Pit	30/06/2030	\$2,151
18407	Side Entry Pit (SWN-0567) in East Terrace (Snowtown) (001)	900mm x 600mm SW Side Entry Pit	30/06/2030	\$2,151

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<b>AssetID</b>	<b>Asset Description</b>	<b>Asset Type</b>	<b>Conquest Expiry</b>	<b>Replacement Cost (\$)</b>
18409	Side Entry Pit (SWN-0549) in Railway Terrace East (004)	600mm x 450mm SW Side Entry Pit	30/06/2030	\$2,151
18506	Junction Box (SWN-0382) in North Terrace (Recreation Ground) (004)	450mm x 450mm SW Junction Box	30/06/2030	\$2,158
18507	Junction Box (SWN-0383) in North Terrace (Recreation Ground) (004)	450mm x 450mm SW Junction Box	30/06/2030	\$2,158
18509	Junction Box (SWN-0373) in Railway Terrace East (002)	900mm x 600mm SW Junction Box	30/06/2030	\$3,152
18510	Junction Box (SWN-0374) in Railway Terrace East (002)	900mm x 600mm SW Junction Box	30/06/2030	\$3,152
18511	Junction Box (SWN-0378) in Railway Terrace East (002)	600mm x 600mm SW Junction Box	30/06/2030	\$2,158
18558	Single Cell Inlet Headwall (SWN-0573) for 300mm x 225mm Box Culvert in Glen Davidson Drive (002)	Single Cell (300mm x 225mm Box Culvert) Standard SW Headwall	30/06/2030	\$724
18559	Single Cell Outlet Headwall (SWN-0574) for 300mm x 225mm Box Culvert in Glen Davidson Drive (002)	Single Cell (300mm x 225mm Box Culvert) Standard SW Headwall	30/06/2030	\$724
18594	Single Cell Inlet Headwall (SWN-0537) for 300mm x 225mm Box Culvert in Junction Street (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$654
18595	Single Cell Outlet Headwall (SWN-0538) for 300mm x 225mm Box Culvert in Junction Street (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$1,446
18596	Single Cell Outlet Headwall (SWN-0540) for 600mm x 300mm Box Culvert in Junction Street (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$1,499
18597	Single Cell Outlet Headwall (SWN-0533) for 750mm x 225mm Box Culvert in Oval Avenue (003)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$1,056
18622	Twin Cell Inlet Headwall (SWN-0545) for 225mm Pipe in Adelaide Road (002)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$594
18623	Twin Cell Outlet Headwall (SWN-0547) for 225mm Pipe in Adelaide Road (002)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$898
18624	Single Cell Inlet Headwall (SWN-0557) for 600mm x 300mm Box Culvert in Condowie Plain Road (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$2,159
18625	Single Cell Outlet Headwall (SWN-0558) for 600mm x 300mm Box Culvert in Condowie Plain Road (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$2,179
18626	Single Cell Inlet Headwall (SWN-0559) for 200mm Pipe in East Terrace (Snowtown) (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$588
18627	Single Cell Inlet Headwall (SWN-0560) for 600mm x 300mm Box Culvert in East Terrace (Snowtown) (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$805
18628	Single Cell Inlet Headwall (SWN-0585) for 450mm x 300mm Box Culvert in East Terrace (Snowtown) (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$574
18629	Single Cell Inlet Headwall (SWN-0587) for 600mm x 300mm Box Culvert in East Terrace (Snowtown) (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$805
18630	Single Cell Outlet Headwall (SWN-0561) for 600mm x 300mm Box Culvert in East Terrace (Snowtown) (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$1,103
18631	Single Cell Outlet Headwall (SWN-0564) for 450mm x 225mm Box Culvert in East Terrace (Snowtown) (002)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$911
18632	Single Cell Outlet Headwall (SWN-0566) for 450mm x 225mm Box Culvert in East Terrace (Snowtown) (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$891
18633	Single Cell Inlet Headwall (SWN-0568) for 600mm x 300mm Box Culvert in Glen Davidson Drive (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$5,064
18634	Single Cell Inlet Headwall (SWN-0575) for 600mm x 300mm Box Culvert in James Road (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$2,350
18635	Single Cell Outlet Headwall (SWN-0576) for 600mm x 300mm Box Culvert in James Road (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$1,697
18636	Single Cell Inlet Headwall (SWN-0541) for 375mm Pipe in Old Adelaide Road (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$1,215
18637	Single Cell Outlet Headwall (SWN-0542) for 375mm Pipe in Old Adelaide Road (001)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$1,089
18638	Twin Cell Inlet Headwall (SWN-0548) for 300mm Pipe in Railway Terrace East (003)	Non Standard Insitu Concrete <1.2m High SW Headwall	30/06/2030	\$1,360
18789	Outlet Scour Protection (SWN-0427) in Watchman Road (001)	Stone Grouted SW Scour Protection	30/06/2030	\$3,031
18791	Outlet Scour Protection (SWN-0281) in Gilbert Street (002)	Stone Grouted SW Scour Protection	30/06/2030	\$1,616
18066	Box Culvert No. 1 (SWD-0349) in East Terrace (Brinkworth) (002)	375mm x 225mm Precast Concrete SW Box Culvert	30/06/2030	\$8,548
18067	Box Culvert No. 1 (SWD-0350) in East Terrace (Brinkworth) (002)	375mm x 225mm Precast Concrete SW Box Culvert	30/06/2030	\$1,684
18068	Box Culvert No. 1 (SWD-0351) in East Terrace (Brinkworth) (001)	600mm x 150mm Precast Concrete SW Box Culvert	30/06/2030	\$16,680
18069	Box Culvert No. 2 (SWD-0350) in East Terrace (Brinkworth) (002)	375mm x 225mm Precast Concrete SW Box Culvert	30/06/2030	\$1,684
17990	Pipe No. 1 (SWD-0519) in James Road (003)	375mm Asbestos SW Pipe	30/06/2030	\$2,341
17992	Pipe No. 1 (SWD-0518) in Glen Davidson Drive (001)	375mm Asbestos SW Pipe	30/06/2030	\$851
18117	Box Culvert No. 2 (SWD-0495) in Main Street (Brinkworth) (009)	600mm x 225mm Precast Concrete SW Box Culvert	30/06/2030	\$3,616
18136	Box Culvert No. 1 (SWD-0509) in Condowie Plain Road (001)	600mm x 300mm Precast Concrete SW Box Culvert	30/06/2030	\$13,924
18147	Box Culvert No. 1 (SWD-0494) in Junction Street (001)	600mm x 300mm Precast Concrete SW Box Culvert	30/06/2030	\$13,924
18150	Box Culvert No. 1 (SWD-0510) in East Terrace (Snowtown) (001)	600mm x 300mm Precast Concrete SW Box Culvert	30/06/2030	\$18,208
18151	Box Culvert No. 1 (SWD-0512) in East Terrace (Snowtown) (002)	450mm x 225mm Precast Concrete SW Box Culvert	30/06/2030	\$12,721
18152	Box Culvert No. 1 (SWD-0514) in East Terrace (Snowtown) (001)	450mm x 225mm Precast Concrete SW Box Culvert	30/06/2030	\$13,516
18153	Box Culvert No. 1 (SWD-0528) in East Terrace (Snowtown) (001)	450mm x 300mm Precast Concrete SW Box Culvert	30/06/2030	\$14,578
18154	Box Culvert No. 1 (SWD-0529) in East Terrace (Snowtown) (001)	600mm x 300mm Precast Concrete SW Box Culvert	30/06/2030	\$18,208
18155	Box Culvert No. 1 (SWD-0502) in First Street (Snowtown) (001)	600mm x 300mm Precast Concrete SW Box Culvert	30/06/2030	\$19,279
18156	Box Culvert No. 1 (SWD-0517) in Glen Davidson Drive (001)	600mm x 300mm Precast Concrete SW Box Culvert	30/06/2030	\$48,197
18157	Box Culvert No. 1 (SWD-0520) in Glen Davidson Drive (002)	300mm x 225mm Precast Concrete SW Box Culvert	30/06/2030	\$3,524
18158	Box Culvert No. 1 (SWD-0521) in James Road (001)	600mm x 300mm Precast Concrete SW Box Culvert	30/06/2030	\$16,066
18160	Box Culvert No. 1 (SWD-0496) in Old Adelaide Road (001)	450mm x 300mm Precast Concrete SW Box Culvert	30/06/2030	\$8,575
18162	Box Culvert No. 1 (SWD-0491) in Oval Avenue (003)	750mm x 225mm Precast Concrete SW Box Culvert	30/06/2030	\$21,434

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**Projected 10 Year Capital Renewal**

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18173	Box Culvert No. 1 (SWD-0493) in Junction Street (001)	300mm x 225mm Precast Concrete SW Box Culvert	30/06/2030	\$7,634
18175	Box Culvert No. 1 (SWD-0497) in Old Adelaide Road (001)	450mm x 300mm Precast Concrete SW Box Culvert	30/06/2030	\$7,718
18188	Box Culvert No. 1 (SWD-0495) in Main Street (Brinkworth) (009)	600mm x 225mm Precast Concrete SW Box Culvert	30/06/2030	\$3,616

*Replacement Cost represents the 1 July 2017 Valuation Replacement Cost and reported in 2017 dollar values.*





## Appendix B 10 Year Capital Upgrade Plan



Project	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31
<b>Flood Plain Mapping of the Wakefield River</b>	\$125,000									
<b>Bowmans Levee Bank Construction</b>	\$150,000									
<b>Railway Embankment Balaklava Construction</b>		\$100,000								
<b>Townsvale Estate Construction</b>	\$300,000			\$130,000		\$280,000				
<b>Local Drainage Studies - Balaklava</b>	\$30,000									
<b>Local Drainage Studies - Pt Wakefield</b>		\$30,000								
<b>Local Drainage Studies - Blyth</b>			\$20,000							
<b>Local Drainage Studies - Snowtown</b>				\$20,000						
<b>Cross Drain upgrade</b>	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
<b>Total</b>	<b>\$655,000</b>	<b>\$180,000</b>	<b>\$70,000</b>	<b>\$200,000</b>	<b>\$50,000</b>	<b>\$330,000</b>	<b>\$50,000</b>	<b>\$50,000</b>	<b>\$50,000</b>	<b>\$50,000</b>