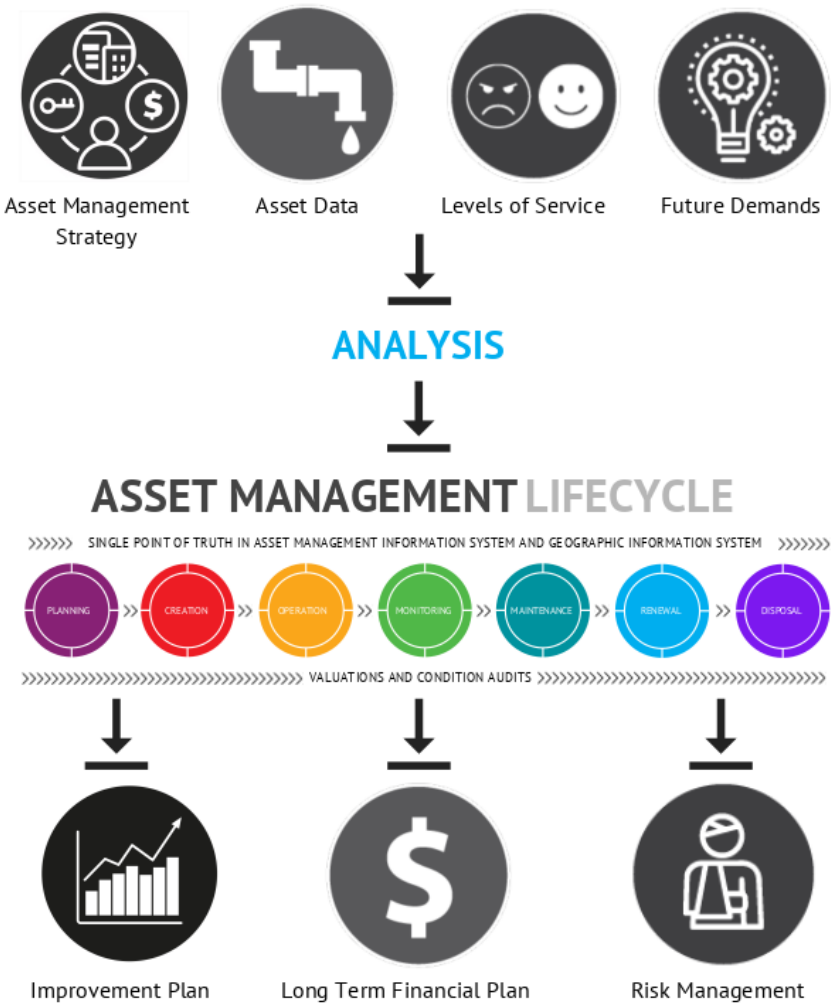
Stormwater Asset Management Plan 2020 - 2030

CONTENTS



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IPWEA, 2015, 2nd edn., 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/AIFMM.

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1 - INTRODUCTION

What is this plan about?

The City of Marion uses stormwater assets to minimise suburban flooding, for pollution control and the harvesting of stormwater for re-use.

Council seeks to maximise value to ratepayers and ensure sustainable services by optimising the use of our assets.

This plan defines the stormwater assets that help deliver the services we provide, how they are provided and the funding required over a 10-year planning period.

What is asset management?

Asset management is about how assets are “looked after”, both on a day-to-day basis (maintenance, monitoring and operation) and in the medium-to-long term (planning, creation / purchase, renewal and disposal).

What will we do?

A significant part of Council’s annual spend is devoted to the maintenance, operations, upgrade and new public assets which deliver safe and sustainable services to the community. Council will continue to invest in these assets as cost effectively as possible while considering beneficial advancements in technology.

This plan has been aligned with Council’s Asset Management Policy (2018), Asset Management Strategy (2019), Holdfast Bay/Marion and Hallett Cove Creeks Stormwater Management Plans (2015) which focus on maintenance and like-for-like-renewals. Any upgrades or new asset expenditure will be prioritised.

Council recognises that climate change is likely to affect asset life and functionality. We are exploring what we can do to build asset resilience in response to climate impacts.

What can you do?

Better understanding of community needs can help us improve user experience, attract more users and provide services more efficiently. Council will be pleased to consider your thoughts on the issues raised in this plan and suggestions on how we may change or reduce the mix of services to ensure that the appropriate level of service can be provided to the community within available funding.

2 - EXECUTIVE SUMMARY

STORMWATER ASSET MANAGEMENT PLAN — EXECUTIVE SUMMARY

Assets covered by this plan

Stormwater Conduits
- Pipes
- Box Drains
- Culverts

Stormwater Components
- Pits
- Outlets
- Fittings
- Gross Pollutant Traps

Gross replacement cost $214.23M
Reliable asset data

What it will cost over the 10-year planning period

Planning	$0.00M
Creation	$27.80M
Operation	$6.20M
Monitoring	$0.30M
Maintenance	$3.50M
Renewal	$0.00M
Disposal	$0.00M
Total	$37.80M

Levels of Service

Provide a stormwater network that successfully controls drainage within the urban environment and protects the community from major flooding.

Funding levels are sufficient to continue to provide identified Community Levels of Service.

Risk Management

Controls in place to manage the major risks of collapse or failure of the stormwater network.

Funding levels are sufficient to continue to manage risks in the short term and will be reviewed during development of two new Stormwater Management Plans.

Future Demands managed through ongoing monitoring

- Community Expectations
- Environmental Sustainability
- Improvement Initiatives
- Legislation
- Technology

Improvement Plan

- Develop, review and endorse a Sturt River Stormwater Asset Management Plan with City of Mitcham.
- Develop, review and endorse a Field River Stormwater Asset Management Plan with City of Onkaparinga.
- Undertake a proactive CCTV inspection program across the Stormwater network.
- Investigate options to conduct Climate Risk Assessments.
- Calculate Asset Renewal Funding Ratio at Asset Management Plan level to better understand service delivery sustainability.
- Integrate asset and financial management systems.

3 - WHY WE NEED A PLAN

"Good asset management is critical for a high-performing Council. Investing in People, Data, Process and Systems enables effective and informed decision-making and optimises community outcomes" Brendon Lyons, Unit Manager Asset Solutions

The Asset Management Framework aligns Council's asset portfolio to meet the service delivery needs of our community.

Council's purpose is:

To improve our residents' quality of life; continuously, smartly and efficiently

The City of Marion Asset Management vision is:

To maintain our assets to agreed levels of service which maximise community value throughout an asset's life

Supported by four Strategic Objectives:

1. **MAXIMISE COMMUNITY VALUE**
2. **DELIVER AGREED LEVELS OF SERVICE**
3. **INFORMED DECISION MAKING**
4. **OPTIMALLY MANAGED**

This Asset Management Plan is based on the format recommended in Section 4.2.6 of the *International Infrastructure Management Manual* (IPWEA 2015).

This Asset Management Plan is driven by the priorities of Council's Strategic Plan, the Asset Management Policy and Asset Management Strategy. It is funded by the Long Term Financial Plan and Annual Business Plan.

The effectiveness of this Asset Management Plan is measured through the following key performance indicators:

KEY PERFORMANCE INDICATOR
Asset Renewal Funding Ratio Calculated by measuring capital expenditure on renewal and replacement of assets relative to the Asset Management Plan required expenditure. This indicates whether Council is renewing or replacing existing non-financial assets in accordance with its future Asset Management renewal requirements.
Asset Management Maturity Assessment Assessed against the Institute of Public Works Engineering Australasia (IPWEA) National Asset Management Strategy (NAMS) targets. The maturity scale builds from 1 - Aware to 3 - Core Maturity to 5 - Advanced Maturity.

4 - WHAT ASSETS WE HAVE

Assets exist to meet community needs and support the delivery of services to the service levels adopted by Council. Council owns all of its stormwater assets:

	Quantity	Gross Replacement Cost (as at 30th June 2019)_	Useful Life
Pipes	265,898 metres	$ 164,437,383	100 years
Culverts & Box Drains	6,255 metres	$ 14,525,569	100 years
Side Entry Pits	4,859 assets	$ 23,628,421	100 years
Junction Boxes	2,010 assets	$ 8,385,467	100 years
Headwalls	167 assets	$ 357,017	100 years
Gross Pollutant Traps (GPT)	64 assets	$ 2,897,527	100 years
TOTAL		**$ 214,231,384**	

Data Quality

Currency and accuracy of asset data is critical to effective asset and financial management. Data confidence is classified on a 5 level scale:

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

Following an extensive data cleanse, data confidence is assessed as reliable (confidence grade B) for asset data used in the preparation of this plan.

All figures in Council's Asset Management Plans are in present value (today's dollars) as a number of factors influence the indexation rates. When incorporating the figures into Council's Long Term Financial Plan, relevant indexations linked to the type of expenditure will be applied.

5 - LEVELS OF SERVICE

Council uses a range of activities to engage with the community and stakeholders on services. Current levels of service and target areas for improvement have been documented through clear and defined asset management business processes for each asset class assigned to this Asset Management Plan.

Our 2019 City of Marion Community Satisfaction Survey shows our residents believe that providing and maintaining stormwater assets are of a high importance:

Asset area	Satisfaction	Importance
Stormwater	80%	94%

Extensive community consultation was undertaken in finalising the Holdfast Bay/Marion (2015) and Hallett Cove Creeks Stormwater Management Plans (2015) which were subsequently adopted by Council, endorsed by the Adelaide and Mount Lofty Ranges NRM Board and approved by the Stormwater Management Authority. The Stormwater Management Plans define the stormwater objectives, strategies and clear definition of the priorities, responsibilities and timeframes for the implementation of the actions within the catchments.

Community Levels of Service

Community levels of service are associated with the variety of services provided by Council to our community. The following table demonstrates how the assets covered under this Asset Management Plan assist in achieving community levels of service.

	Community Level of Service	Achieved By
Safety	No preventable injuries	Assets are inspected and maintained to ensure safe use within the community.
Quality	Operational requirements are safely and effectively met	Assets are managed and maintained to best practice industry standards. No EPA compliance notices issued to Council for stormwater management.
Function	Provide sufficient assets to meet Levels of Service	Providing an effective stormwater network. Reducing hazardous flooding (no above floor inundation of properties) for all events up to and including the 1% Annual Exceedance Probability (AEP) (100 year ARI) storm.
Capacity	Assets are designed to cater for current demand	Ensuring stormwater network meets capacity requirements. Reducing number of customer requests relating to property/street flooding and pollution discharges into waterways.
Sustainability	Operational requirements are safely and effectively met, whilst minimising impact on the environment	Environmental performance is assessed when selecting asset location and material types. Providing an efficient method of collection and environmentally friendly disposal of stormwater run-off.

Technical Levels of Service

Technical levels of service determine the allocation of resources to service activities to best achieve the desired community outcomes and demonstrate effective performance throughout an asset's lifecycle. Council manages and operates assets at the agreed levels of service while managing whole-of-life costs to ensure the best value for resources used. The following table demonstrates the technical Levels of Service for stormwater assets.

Technical Level of Service	Achieved By
Planning in line with a 10 year asset replacement program based on optimum replacement	Catchment objectives are planned through Stormwater Management Plans. Meet the 20% Annual Exceedance Probability (AEP) (5 year ARI) for pit and pipe design requirements. Analysis against Council's upgrade & renewal plan (Drainage Matrix - Appendix B). Annual Replacement Program Budget developed and Long Term Financial Plan updated.
Creation of the asset subject to a business case assessment which sets out capital requirements, whole of life costs and predicted utilisation	Stormwater Management Plan and Flood Plain mapping to identify drainage network deficiencies. Implementing capital works program based on the Drainage Matrix (Appendix B).
Operation of an asset in the manner it was designed to be used for	The stormwater network is maintained in a functioning condition with minimum blockages of pipes and pits. Properties are protected from flooding during major rainfall events. Following Safe Work SA's Code of Practice for construction and maintenance activities. Responding to customer feedback.
Monitoring the asset condition, hydraulics and functionality	Structural condition assessment of drains from the annual CCTV condition and defects inspection. Stormwater quality into receiving waters is compliant under Environment Protection (Water Quality) Policy 2015. No EPA compliance notices issued to Council for stormwater management.
Maintenance of assets to keep the water treatments and resources network functioning and keeping detailed records of reasons for failures	Scheduled maintenance 100% compliant with manufacturers specification. Maintenance issues and condition reports register maintained, recording maintenance performed, labour and materials used. Quick response time for repair and maintenance. Proactive inspections of known 'hot spots' prior to major rain events.
Renewal in accordance with optimum replacement timing principles based on whole of life costs	Risk based approach to replace assets identified as being in poor structural condition.
Disposal where the item fails to meet minimum utilisation benchmarks or is no longer required	Complies with legislative requirements including Disposal of Land and Assets Policy

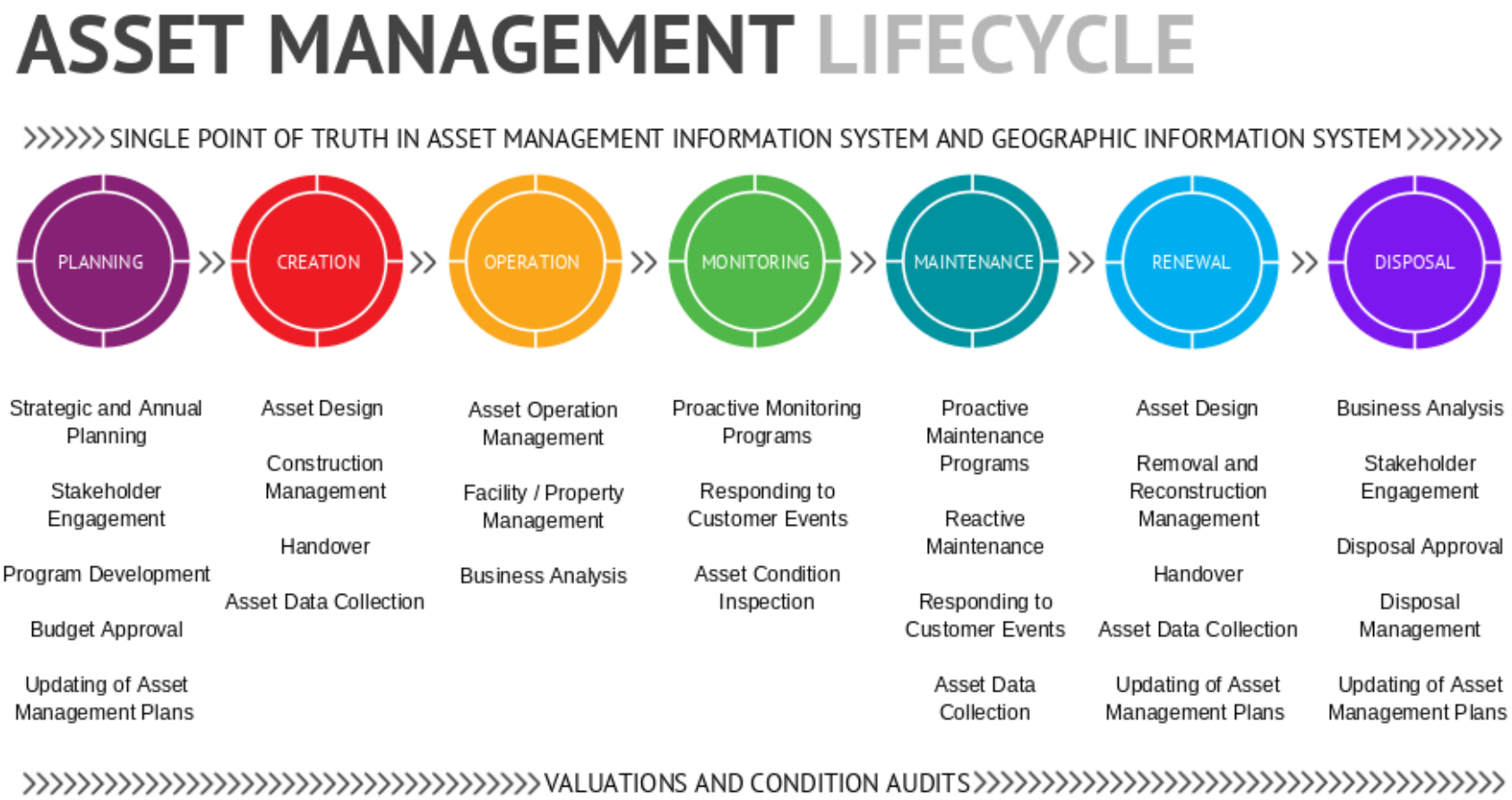
Legislative Requirements

Council considers the following legislative framework in the management of stormwater assets.

Australian Accounting Standards	Set out the financial reporting standards relating to the (re)valuation and depreciation of infrastructure assets
Coastal Protection Act 1972	Establishes Council's responsibility for the day-to-day maintenance of beach and coastal facilities
Development Act 1993	Development and building approval and requirements to control stormwater from developments
Disability Discrimination Act 1992 and other relevant disability legislation	Sets the standard for accessibility to eliminate, as far as possible, discrimination against persons on the grounds of disability.
Environment Protection Act 1993 (Marine and Water Quality)	Provides guidelines for protection of the environment, related areas and legal obligations relating to stormwater pollution protection
Environment Protection (Water Quality) Policy 2015	Provides the structure for regulation and management of water quality in South Australian inland surface waters, marine waters and groundwaters
Local Government Act 1999	Sets out the role, purpose, responsibilities and powers of local governments including the preparation of a Long Term Financial Plan supported by infrastructure and asset management plans for sustainable service delivery
Local Government (Financial Management and Rating) Amendment Act 2005	Provides impetus for the development of a Strategic Management Plan, comprising an Asset Management Plan and Long Term Financial Plan
Local Government (Stormwater Management) Amendment Act 2007	Establishes the Stormwater Management Authority which facilitates and coordinates stormwater management planning in councils
Natural Resources Management Act 2004	Defines the natural resource management requirement to manage catchments including stormwater
Relevant Australian Standards	Establishes standards relating to requirements to inspect and certify cranes, elevated work platforms and lifting devices
Work Health and Safety Act 2012 (SA)	Provides guidelines for protection of the health, safety and welfare of persons at work

6 - HOW WE PROVIDE THE SERVICE

In simplest terms, asset management is about how assets are 'looked after', both on a day-to-day basis (operation, monitoring and maintenance) and in the medium-to-long term (planning, creation, renewal and disposal).



ASSET PLANNING AND CREATION

When specifying asset requirements, Council seeks to balance a range of factors including:

- Safety requirements by applying the hierarchy of hazard controls to designs to ensure hazards are eliminated, or where that is not reasonably practicable, are effectively controlled.
- Operational needs and functional requirements and where possible seek to identify innovation that may provide for greater level of efficiency or effectiveness in undertaking council's services or reduce risk of downtime.
- Factors that impact on our environment or where the environment may impact on the function or lifecycle of the asset
- Whole of life costs when making buying decisions
- Design standards where these are available.

Figure 1: Flood mapping of the 100 year ARI - Found at the City of Marion Website

Figure 2: Construction of new stormwater side entry pits

New assets and the upgrade of existing assets are identified from:

- Community requests
- Known flooding locations and drainage system deficiencies
- Proposals identified by Stormwater Management Plans
- Potential locations for stormwater harvesting and reuse
- Partnerships with other organisations.

The Drainage Matrix (Appendix B) is used to decide on the priority and ranking of individual drainage projects.

Projected Creation Expenditure											
	2020/21	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**TOTAL**
Stormwater	$1,700,000 *	$2,900,000	$2,900,000	$2,900,000	$2,900,000	$2,900,000	$2,900,000	$2,900,000	$2,900,000	$2,900,000	**$27.8 M**

* Note that for 2020/21, $1.2M has been reallocated to the Water Treatment and Resources Asset Management Plan for the Lucretia Way Wetland project.

In addition, Stormwater Management Plans development costs have not been included in this Plan.

Future Trends

Political, economic, social, technological, legal, environmental and relationship drivers that may impact future service delivery and use of assets are monitored via Council's environmental scan and corporate risk register.

Council recognises that climate change is likely to affect asset life and functionality. We are exploring what we can do to build asset resilience in response to climate impacts such as less rainfall overall, more frequent and intense rainfall events, increased frequency and intensity of bushfires, increased temperatures, more frequent and intense heatwaves and increased risk of coastal erosion and flooding as a result of sea level rise. Climate change currently has a high impact on our water treatments and resources assets. We will continue to consider climate change impacts within standard asset replacement processes. The City of Marion Carbon Neutral Plan 2020 – 2030 is currently being developed as a roadmap to reduce carbon emissions from Council operations by 2030.

Additionally, the City of Marion is experiencing continual transformation by way of residential development and land division. This infill development causes the creation of significant increases in impervious site coverage, ultimately resulting in the generation of greater stormwater run-off volumes. The impact of infill development has been captured in our stormwater management plans, which identify a number of recommended strategies to address this issue into the future.

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets. Demand management practices include non-asset solutions (development controls), insuring against risks and managing failures.

Council has considered the following future drivers during development of this asset management plan:

Driver area	Driver	Impact on services	Demand Management Plan
Political	Political changes and council amalgamations	Change in services or service levels.	Approved business case and annual review of the Asset Management Plan.
Social	Changing community demographics, needs and expectations	Change in services or service levels .	Monitoring community expectation. Communicating service levels and financial capacity with the community to balance asset priorities with what the community is prepared to pay for.
Technological	Smart Cities, Sensors, autonomous / connected vehicles and machine learning	Water conservation, harvesting and reuse, pit cleaning/street sweeping efficiencies and analysis of defects.	Market driven, opportunities to lobby for funding.
Technological	Being a smart organisation that uses data to drive decision making	Implementing Internet of Things within facilities, assets and services to understand current demand and identify opportunities to improve service delivery.	Utilisation based asset maintenance and renewal.

Driver area	Driver	Impact on services	Demand Management Plan
Legal	Regulated controls on quality of water treatments and resources discharging into river and marine environment and increased water treatments and resources reuse	Increase in infrastructure to control pollutants, capture and reuse water resources.	Establish compliance registers for key assets. Assess the compliance requirements and gaps.
Environmental	Reduced rainfall and increased intensity of rainfall events	Decreasing water supply and increasing demand. Increased onsite and catchment stormwater reuse. Changes to parks and gardens planting due to water restrictions.	Existing stormwater infrastructure has insufficient design capacity to cope with increased runoff from development - increased frequency of property flooding and damage.
Environmental	More frequent intense heatwaves and increased temperatures	Community demand for a higher level of amenity during summer months.	Monitor and review operations and management practises for seasonal variation. Stormwater reuse where applicable.
Environmental	Erosion and flooding of coastal areas due to sea level rise	Impacts on coastal environment, reduction in stormwater overfall capacity, stormwater capture and reuse infrastructure.	Follow the recommendations from the climate change adaptation plan.
Relationships	Collaboration between Cities of Marion, Charles Sturt and Port Adelaide Enfield	Ability to deliver services at a higher operational level.	Adopting best practice principles across all three councils to deliver best value.
Relationships	Collaboration between neighbouring councils and stakeholders within shared catchments	Improved information and data sharing.	Continue to work with neighbouring councils and share information.
Relationships	Testing of levels of service	Improve understanding of costs and capacity to maintain current service levels.	Continue to analyse the cost of providing service and the capacity to fund at the current level of service.

ASSET OPERATION, MONITORING AND MAINTENANCE

Council operates and maintains assets to provide the defined level of service to approved budgets in the most cost-efficient manner.

Stormwater operations include regular activities to provide services such as public health, safety and amenity, e.g. street sweeping, side entry pit (SEP) and gross pollutant trap (GPT) cleaning.

Projected Operations Expenditure											
	2020/21	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**TOTAL**
Stormwater	$ 620,000	$ 620,000	$ 620,000	$ 620,000	$ 620,000	$ 620,000	$ 620,000	$ 620,000	$ 620,000	$ 620,000	**$6.2 M**

Stormwater Monitoring includes an annual CCTV inspection program which reviews the current stormwater assets and identifies any defects or issues including a condition assessment to help determine when the asset should be renewed.

Projected Monitoring Expenditure											
	2020/21	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**TOTAL**
Stormwater	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	**$0.3 M**

Maintenance programs are normally focused on industry best practice, legislative requirements and design specifications. Reactive pipe and pit repairs and pit lid replacement of the stormwater drainage network keeps it operating safely and at maximum capacity.

Projected Maintenance Expenditure											
	2020/21	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**TOTAL**
Stormwater	$ 350,000	$ 350,000	$ 350,000	$ 350,000	$ 350,000	$ 350,000	$ 350,000	$ 350,000	$ 350,000	$ 350,000	**$3.5 M**

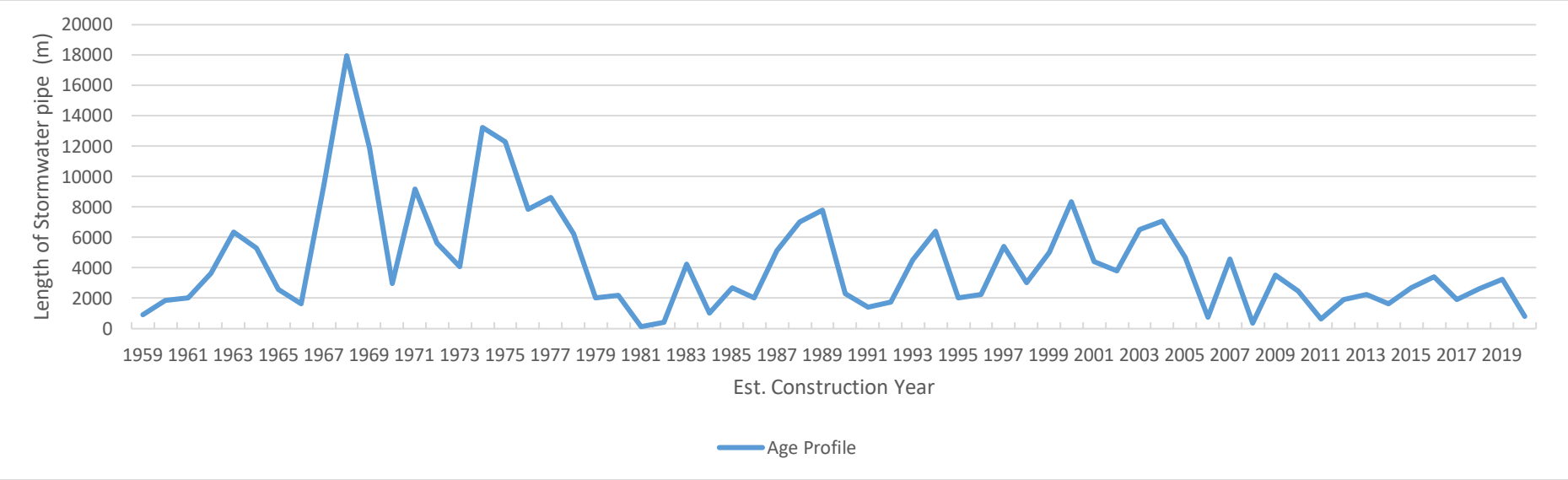
Asset Condition

Condition is monitored by CCTV and measured using a 1 – 5 grading system.

The overall condition of the entire stormwater network has not been assessed. CCTV has only been used in high priority areas for stormwater investigations. To gather condition data a CCTV program needs to be developed and undertaken.

Without condition data, the useful life and the estimated construction year of assets can provide insights on the age profile of the stormwater network.

Condition	Description of Condition	Residual Useful Life (% of asset design life remaining)	Estimated Network Condition
1	**Very Good**: only planned maintenance required	**60% to 100%**	**50%**
2	**Good**: minor maintenance required plus planned maintenance	**35% to 60%**	**50%**
3	**Fair**: significant maintenance required	**20% to 35%**	**0%**
4	**Poor**: significant renewal/rehabilitation required	**10% to 20%**	**0%**
5	**Very Poor**: physically unsound and/or beyond rehabilitation	**0% to 10%**	**0%**



ASSET RENEWAL AND DISPOSAL

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 upgrade/expansion or new works expenditure resulting in additional future operations and maintenance costs. Council plans capital renewal projects to meet level of service objectives and minimise infrastructure service risks.

The capital renewal program is based on an analysis of the drivers for supply, as well as the outcomes of condition appraisals and maintenance plans. The ongoing monitoring of CCTV assessment will increase our knowledge on the condition of these assets and identify future renewal and replacement works.

This Asset Management Plan will be reviewed and updated annually with new condition data received through the CCTV inspection program. Where future CCTV inspections and assessments identify renewal works, these will be accommodated in the Long Term Financial Plan either by:

- Deferring / rescheduling capital works, or
- By increasing an allocation of the annual budgets

This AMP has not identified any renewal works, but has identified a number of upgrades in the Creation lifecycle phase and prioritised through the Drainage Matrix (Appendix B).

Projected Capital Renewal and Replacement Expenditure											
	2020/21	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**TOTAL**
Stormwater	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	**$0 M**

Where assets are deemed to be in the wrong place, not cost effective, lacking functionality, not maintainable or in poor condition, an injection of capital funds may be required for disposal of that asset.

No assets have been identified for disposal under this plan.

Projected Disposal Expenditure											
	2020/21	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**TOTAL**
Stormwater	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	**$0 M**

7 - RISK MANAGEMENT

Risk management provides a process for the selection of treatment plans and management actions to protect the community against unacceptable risks. Risk assessment identifies credible hazards, the likelihood of the hazard event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

An assessment of risks associated with service delivery from stormwater assets, using Council's risk matrix, has identified the hazards that will result in significant loss, 'financial shock' or a reduction in service:

Hazard	Current Controls	Current Risk Rating	Further actions	Forecast Risk Rating
Asset failure due to degradation	Prepare and implement Stormwater Management Plan (SMP) which addresses these issues. Two SMPs have been completed and endorsed. Align SMP outcomes with council's priorities matrix. Reactive CCTV inspection and condition rating of the Stormwater assets. Frequency analysis of asset performance and remaining useful life	Low	Proactive CCTV inspections of underground pipe network	Low
Asset service below technical and/or community levels of service		Low		Low
Asset not managed in an environmentally sustainable manner		Low		Low
Blockages within the network and /or reduced flow capacity	Proactive inlet cleaning & Street sweeping program. Proactive inspection of known 'hot spots' prior to major rain events.	Medium	Proactive CCTV inspections of underground pipe network	Low
The adoption of the Sturt River Stormwater Management Plan (in conjunction with Cities of Mitcham, West Torrens and Unley) will include a number of new projects to the Drainage Matrix	Work with internal and external stakeholders to review the recommendations for the Sturt River SWP	Medium	Review cost estimate of any proposed recommendations before endorsing the plan	Medium

Critical assets are those which have a high consequence of failure causing significant loss or reduction of service. Similarly, critical failure modes are those which have the highest consequences. By identifying critical assets and failure modes, investigative activities, condition inspection programs, maintenance and capital expenditure plans can be targeted at the critical areas. Activities may include increased inspection frequency, higher maintenance intervention levels, etc.

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

Critical Asset(s)	Failure Mode	Impact
Large pipe crossings under main roads	Road failure as a result of significant pipe damage	Commence proactive CCTV monitoring of stormwater network. Repair / replace high risk defects
Side entry pits, drain inlets and outlets	Blockages cause localised street and property flooding. Scouring downstream of drain outlets – erosion and watercourse bank collapse.	Regular cleaning of pits, inlets and outlets. More frequent cleaning of known 'hot spots'. Regular street sweeping to minimise amount of pollutants entering the drainage system
Box culverts and pipes	Collapse of asset	Commence proactive CCTV monitoring of the stormwater network. Repair / replace high risk defects

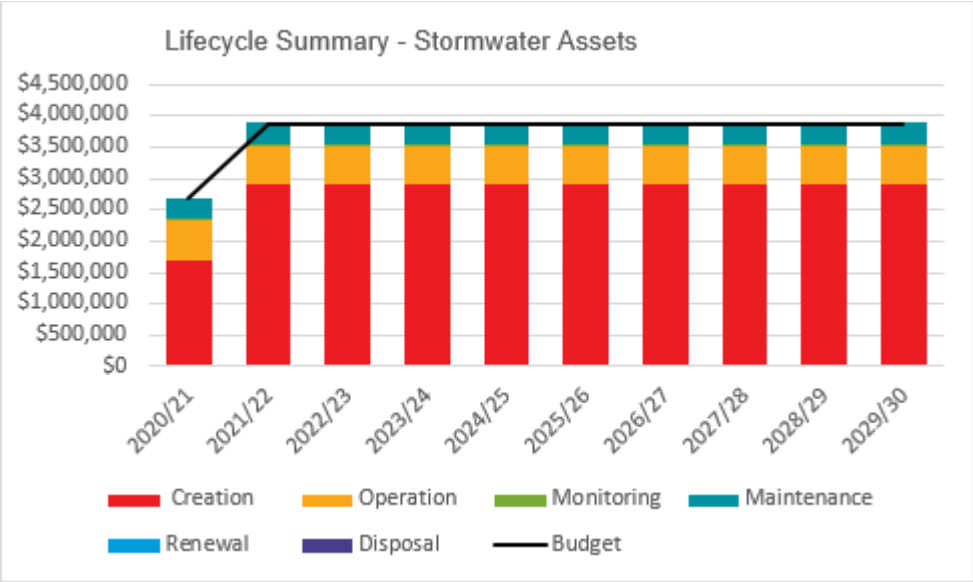
8 - WHAT IT WILL COST AND HOW WE WILL PAY FOR IT

Financial Statements and Projections

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

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

Funding Strategy



This Asset Management Plan identifies the projected operations, maintenance and capital renewal expenditures required to provide an agreed level of service to the community over a 10 year period.

This provides input into 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

All figures in Council's Asset Management Plans are in present value (today's dollars) as a number of factors influence the indexation rates. When incorporating the figures into Council's Long Term Financial Plan, relevant indexations linked to the type of expenditure will be applied.

These figures will be revisited with each iteration of the Long Term Financial Plan.

Note that for 2020/21, $1.2M has been reallocated to the Water Treatment and Resources Asset Management Plan for the Lucretia Way Wetland project.

Lifecycle costs (or whole of life costs) are the average costs that are required to sustain the service levels over the asset life cycle. Lifecycle costs include operations and maintenance expenditure and asset consumption (depreciation expense). The 10 year lifecycle cost for the services covered in this Asset Management Plan **is $37.80M (average of approx. $3.78M per year)** (average operations and maintenance expenditure plus depreciation expense projected over 10 years).

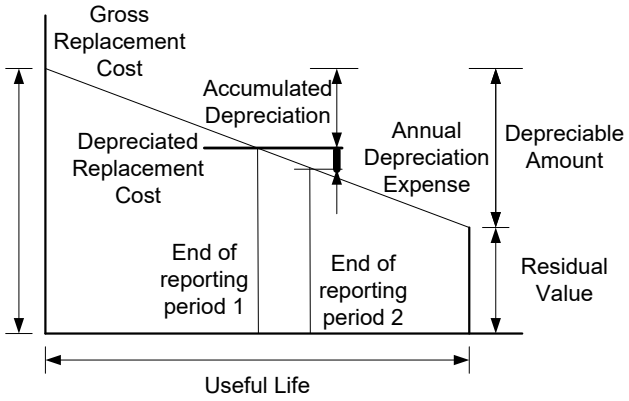
Lifecycle costs can be compared to lifecycle expenditure to give an initial indicator of affordability of projected service levels when considered with age profiles. Lifecycle expenditure includes operations, maintenance and renewal expenditure. Lifecycle expenditure will vary depending on the timing of asset renewals. Matching of lifecycle cost to lifecycle expenditure gives asset renewal of **100%** to maintain the service potential of the stormwater drainage network at year 10 as it was at year 1.

In the future, the Asset Renewal Funding Ratio will be calculated at Asset Management Plan level to better understand service delivery sustainability.

Appendix A contains council's budgeted expenditures accommodated in the Long Term Financial Plan.

Valuation Forecasts

The value of assets recorded in the asset register at 30 June 2019 covered by this asset management plans is shown below. As assets are replaced in line with Council's 10-year Renewal Program, the purchase price recorded on the asset register is considered to be adequate. If any significant changes are required to the registers these are made accordingly.



Gross Replacement Cost	**$214.23M**
Depreciable Amount	**$214.23M**
Depreciated Replacement Cost (Written Down Value)	**$173.65M**
Annual Average Asset Consumption	**$1.42M**
Rate of Annual Asset Consumption	**0.7 %** (Depreciation/Depreciable Amount)
Rate of Annual Asset Renewal	**100%** (Capital renewal expenditure/Depreciable amount)

The table below details the key assumptions made in presenting the information contained in this Asset Management Plan and in preparing forecasts of required operating and capital expenditure and asset values, depreciation expense and carrying amount estimates.

Key Assumptions	Risk of Change to Assumptions
The Long Term Financial Plan will not change over the planning period	Medium – When other SMP are endorsed this will require a review of the AMP and LTFP.
Drainage network overall condition is good to very good based on remaining life derived from age profile and current CCTV information (assuming 100 year useful life). If poorer condition drain lines are identified by future CCTV inspections, this will change the service life and introduce a renewal program	Medium
Climate Risk Assessments may impact asset useful lives	Medium
Carbon Neutral Plan may impact asset planning and renewal evaluation criteria	Medium
Community level of service expectations remain consistent	Low
No significant changes in legislation	Low
Assets are replaced on a 'like for like' basis	Low
The materiality threshold for assets is $5,000	Low
Assets should have a useful life of greater than one year in order for the expenditure to be capitalised and have a value above a Materiality Threshold. Any expenditure considered to be Capital must also pass a materiality test. Materiality levels are set so as not to misstate Financial Statements and to provide a guide whether it is practical from an Administrative perspective that expenditure is capitalised.	Low
Networked/Aggregate Assets - Expenditure can still be capitalised on items that fall below materiality thresholds individually but operate together as a cohesive whole to form a substantial/significant total value. Examples are the Trash Racks, Treenet Inlets and Pit Lids.	Low
The new asset management system will be able to capture operations and maintenance costs to better manage the overall expenditure	Low
Operation and Maintenance costs for new assets will be consistent with the operation and maintenance costs of existing assets	Low

9 - WHAT WE WILL DO NEXT - IMPROVEMENT PLAN

	Task	Responsibility	Timeline/Frequency
1	Ensure asset handover process is utilised to ensure asset acquisition, upgrade, renewal and disposal is captured and communicated to maintain the Asset Management Information System.	Asset Owner – Manager Engineering, Assets and Environment	Ongoing
2	Review and revise chart of accounts to facilitate consistent and accurate cost allocation for all asset expenditure aligned with the Asset Management Lifecycle.	Manager Finance	Ongoing
3	Undertake prioritised proactive annual CCTV surveys to inspect and assess the performance and condition of the stormwater assets to determine remaining useful life. Target 5% of network per year	Asset Owner – Manager Engineering, Assets and Environment	Annual program
4	Investigate options to conduct Climate Risk Assessments for City of Marion assets and the forecast impacts on asset useful lives.	Unit Manager Asset Solutions	June 2021
5	Revise valuation procedures and valuer briefing to better reflect needs of Asset Management Planning cycle.	Unit Manager Asset Solutions	June 2021
6	Civil review - Prepare Operations and Maintenance Management Plan for infrastructure. The plan to include service levels, inspection frequency, maintenance activities and response time.	Manager Operations	June 2021
7	Develop targets for community levels of service'	Asset Owner – Manager Engineering, Assets and Environment	June 2021
8	Investigate feasibility of adding additional questions of Council's future Community Satisfaction Surveys.	Unit Manager Asset Solutions	June 2021
9	Explore alternative asset management systems (as part of council's Digital Transformation initiative) to monitor servicing schedules, record maintenance activities undertaken, and impacts of asset downtime.	Unit Manager Asset Solutions	June 2021 (highly dependent on other factors)
10	Annual review of KPIs and benchmarks aligned to Asset Management Strategy.	Unit Manager Asset Solutions	June 2021 then annually
11	Undertake annual review of Asset Renewal Funding Ratio for asset class to ensure assets are being renewed as they are consumed (Ratio of 1.0)	Unit Manager Statutory Finance and Payroll	June 2021 then annually
12	Update this Asset Management Plan during annual budget planning processes to show any material changes in service levels and/or resources available to provide those services as a result of budget decisions.	Asset Owner – Manager Engineering, Assets and Environment	November 2021 then annually
13	Undertake a full review of this plan at least every four years, within two years of each Council election or any review to Council's Strategic Plan.	Asset Owner – Engineering, Assets and Environment	November 2024
14	Prepare SMP for the remaining catchments - urban area abutting the Field River	Asset Owner – Manager Engineering, Assets and Environment	December 2026
15	Prepare SMP for the remaining catchments – east of the Sturt River	Asset Owner – Manager Engineering, Assets and Environment	December 2026
16	Continue to implement the two adopted Stormwater Management Plans over the 10-year planning period.	Asset Owner – Manager Engineering, Assets and Environment	June 2030

APPENDIX A: Budgeted Expenditures Accommodated in LTFP

All figures in Council's Asset Management Plans are in present value (today's dollars) as a number of factors influence the indexation rates. When incorporating the figures into Council's Long Term Financial Plan, relevant indexations linked to the type of expenditure will be applied.

Year	Creation	Operation	Monitoring	Maintenance	Renewal	Disposal	TOTAL
2020/21	$1,700,000	$620,000	$30,000	$350,000	$0	$0	**$2,700,000**
2021/22	$2,900,000	$620,000	$30,000	$350,000	$0	$0	**$3,900,000**
2022/23	$2,900,000	$620,000	$30,000	$350,000	$0	$0	**$3,900,000**
2023/24	$2,900,000	$620,000	$30,000	$350,000	$0	$0	**$3,900,000**
2024/25	$2,900,000	$620,000	$30,000	$350,000	$0	$0	**$3,900,000**
2025/26	$2,900,000	$620,000	$30,000	$350,000	$0	$0	**$3,900,000**
2026/27	$2,900,000	$620,000	$30,000	$350,000	$0	$0	**$3,900,000**
2027/28	$2,900,000	$620,000	$30,000	$350,000	$0	$0	**$3,900,000**
2028/29	$2,900,000	$620,000	$30,000	$350,000	$0	$0	**$3,900,000**
2029/30	$2,900,000	$620,000	$30,000	$350,000	$0	$0	**$3,900,000**
TOTAL	**$27,800,000**	**$6,200,000**	**$300,000**	**$3,500,000**	**$0**	**$0**	**$37,800,000**

APPENDIX B: Drainage Matrix

PROJECT	SOCIAL / POLITICAL							ECONOMIC			ENVIRO		TECHNICAL				PRIORITY SCORE		
	No. of Stakeholders	Stakeholder Activity	Alignment with other initiatives	Requirements (legal / standards)	Publicity if not installed	Publicity if installed	Align with Council Objectives	Internal Business Impact	External Funding	Maintenance Cost	Retains / Detains	WSUD/ Clean Water	Performance	Prevent the Flooding	Replace an Ageing System	Crucial for the Area		Cost $000	Funding - Marion/Holdfast
Crozier/Johnstone, Oaklands Pk	3	1	3	1	2	3	2	0	0	4	0	0	4	4	1	8	**36**	1,590	Marion
Berrima Rd (Pt2)	1	1	1	1	3	2	2	0	0	3	0	0	6	6	2	8	**36**	1,150	Marion
Melanto Tce, Marion	2	0	3	1	2	3	1	1	0	4	0	0	4	6	0	6	**33**	890	Marion
Warakila Road, Sheidow Park	1	2	0	1	2	1	1	1	0	4	0	0	4	6	2	4	**29**	320	Marion
Water course restoration Stage 2	1	0	1	1	0	1	1	0	2	2	2	4	4	4	2	4	**29**	250	Marion
Ayre St, Sth Plympton	2	0	3	1	1	3	1	1	0	4	0	0	4	4	0	4	**28**	390	Marion
Mercedes Avenue (Caprice Street), Hallett Cove	1	1	0	1	2	1	1	1	0	4	0	0	4	6	1	4	**27**	650	Marion
Railway Tce, Edwardstown	2	1	0	0	1	3	2	2	0	4	0	0	4	4	0	4	**27**	310	Marion
Shaftesbury Terrace (Laneway)	2	1	0	0	1	3	2	2	0	4	0	0	4	4	0	4	**27**	375	Marion
Woodlands Tce, Edwardstown	1	0	3	0	1	3	1	1	0	4	0	0	4	4	1	4	**27**	760	Marion
Warripaninga Wetlands	1	0	1	1	1	1	1	0	0	4	4	3	4	0	2	4	**27**	638	Marion
Shamrock Reserve WSUD	0	0	2	1	1	2	1	1	0	0	4	4	4	2	0	4	**26**	710	Marion
Dwyer Road, Oaklands Pk	2	0	3	1	1	3	2	1	0	4	3	0	2	4	0	0	**26**	700	Marion
English Avenue, Clovelly Park	1	1	1	1	2	1	1	1	0	4	0	0	4	6	0	4	**25**	300	Marion
Clark/Naldera, Glandore	2	0	0	1	1	3	2	0	0	4	0	0	4	2	0	6	**25**	1,100	Marion
Calauria/Bendigo Pl, Sheidow Park	2	0	0	1	1	3	1	2	0	4	0	0	4	0	2	4	**24**	190	Marion
Bandon Res (Shaftesbury), Marino - replacement	1	1	1	1	1	0	0	2	0	3	0	0	4	4	2	4	**24**	To be determined	Marion

PROJECT	SOCIAL / POLITICAL							ECONOMIC			ENVIRO		TECHNICAL				PRIORITY SCORE		
	No. of Stakeholders	Stakeholder Activity	Alignment with other initiatives	Requirements (legal / standards)	Publicity if not installed	Publicity if installed	Align with Council Objectives	Internal Business Impact	External Funding	Maintenance Cost	Retains / Detains	WSUD/ Clean Water	Performance	Prevent the Flooding	Replace an Ageing System	Crucial for the Area		Cost $000	Funding - Marion/Holdfast
Lucretia Wetland, Hallett Cove	1	1	3	0	1	1	2	0	1	1	4	2	2	0	1	4	**24**	1,100	Marion
Oval Road / State Park Boundary drainage	2	1	1	1	2	0	0	2	0	3	0	0	4	6	1	0	**23**	48	Marion
Finnis Street, Marion	1	1	1	0	1	1	0	2	0	3	0	0	2	4	2	4	**23**	180	Marion
Stradbroke Ave WSUD, Plympton Pk	1	1	2	1	1	1	2	1	0	1	4	4	0	2	0	2	**23**	75	Marion
Struan Ave,Warradale	1	0	3	1	1	3	1	1	0	4	0	0	2	2	0	4	**23**	800	Marion
Bowden Grove, Oaklands Park	2	0	0	0	1	1	1	2	0	3	0	0	4	6	0	2	**22**	To be determined	Marion
Calum Gr, Seacombe Heights	0	0	3	1	0	3	0	2	0	4	0	0	4	2	0	4	**23**	550	Marion
Bulter/Helmsdale, Glengowrie	1	0	0	1	1	3	1	1	0	4	0	0	2	4	0	4	**22**	710	Marion
Sub-Station, Shiedow Park	1	1	2	2	2	3	0	0	0	3	0	0	0	2	2	4	**22**	200	Marion
Tarranna Ave WSUD, Plympton Pk	1	0	3	1	0	2	2	2	0	1	4	4	0	0	0	2	**22**	90	Marion
Angas Crescent, Marino	1	1	0	1	2		0	1	0	4	0	0	2	6	0	2	**21**	20	Marion
Linwood Quarry and Golf Course Reuse / Lorenzin drain /Pine Ave Catchment project	2	0	1	0	0	0	1	0	0	0	4	2	4	2	0	2	**20**	1,200	Marion
Glade Crescent drain	1	0	2	0	0	1	2	0	0	2	0	0	4	2	2	4	**20**	90	Marion
Second Street Reserve drain, Hallett Cove	1	0	1	1	1	1	1	0	0	2	0	0	4	4	0	4	**20**	190	Marion
Harrow Road, Wattle Ave, Pine Ave GPTs	2	1	1	0	1	1	2	0	1	2	0	2	2	0	2	2	**19**	307	30% Marion
Mostyn Rd, Darlington	0	0	3	1	1	3	1	2	0	4	0	0	2	0	0	2	**19**	310	Marion
Yeelanna Ave, Seaview Downs	1	0	3	0	0	3	0	2	0	4	0	0	2	0	0	4	**19**	210	Marion

PROJECT	SOCIAL / POLITICAL							ECONOMIC			ENVIRO		TECHNICAL				PRIORITY SCORE		
	No. of Stakeholders	Stakeholder Activity	Alignment with other initiatives	Requirements (legal / standards)	Publicity if not installed	Publicity if installed	Align with Council Objectives	Internal Business Impact	External Funding	Maintenance Cost	Retains / Detains	WSUD/ Clean Water	Performance	Prevent the Flooding	Replace an Ageing System	Crucial for the Area		Cost $000	Funding - Marion/Holdfast
Dunluce St, Outfall	0	1	1	1	0	0	0	1	2	1	0	0	4	2	0	6	**19**	840	30% Marion
Edward St, Outfall	0	1	1	1	0	0	0	1	2	1	0	0	4	2	0	6	**19**	1,600	30% Marion
MCC Plaza ASR	0	0	1	0	0	1	1	0	0	0	3	4	4	0	2	2	**18**	200	Marion
Myer/Meadowvale, Sturt (Grandview Grove)	1	0	0	0	1	3	1	1	0	3	3	3	0	0	0	2	**18**	430	Marion
Rotorua Ave/Bowaka St, Park Holme	0	0	2	0	1	3	0	2	0	4	0	0	4	0	0	2	**18**	420	Marion
Fryer street Reserve, Hallett Cove	1	0	1	0	0	1	0	1	0	2	2	0	4	2	0	4	**18**	180	Marion
Davenport Tce, Seaview Downs	0	0	3	1	0	3	0	1	0	4	0	0	2	0	0	2	**16**	760	Marion
Kurrajong Pl, Seacombe Gdns	0	0	3	0	0	3	0	2	0	4	0	0	2	0	0	2	**16**	200	Marion
Truscott Ave, Seacombe Heights	0	0	3	0	0	3	0	2	0	4	0	0	2	0	0	2	**16**	140	Marion
Morphett Rd, Seacombe Heights	1	0	0	1	0	3	1	2	0	4	0	0	2	0	0	0	**14**	210	Marion
Gregory St WSUD, Seaview Downs	0	0	1	1	0	0	2	2	0	1	4	3	0	0	0	0	**14**	110	Marion
Aroona Road detention	0	0	0	0	1	0	1	2	0	0	4	2	2	0	0	2	**14**	70	Marion
Barramindi Drive detention	0	0	0	0	1	0	1	2	0	0	4	2	2	0	0	2	**14**	70	Marion
Bombay St, Oaklands Park	0	0	1	0	0	0	1	1	0	4	0	0	2	2	0	2	**13**	310	Marion
Solo St, Warradale	0	0	1	0	0	0	1	1	0	4	0	0	2	2	0	2	**13**	350	Marion
Perry Barr Road / Kanowna Street drain, Hallett Cove	0	0	1	0	0	1	1	2	0	0	0	0	4	2	0	2	**13**	40	Marion
Laurence St, Dover Gardens	0	0	1	0	0	0	1	1	0	4	0	0	2	2	0	2	**13**	370	Marion

PROJECT	SOCIAL / POLITICAL							ECONOMIC			ENVIRO		TECHNICAL				PRIORITY SCORE		
	No. of Stakeholders	Stakeholder Activity	Alignment with other initiatives	Requirements (legal / standards)	Publicity if not installed	Publicity if installed	Align with Council Objectives	Internal Business Impact	External Funding	Maintenance Cost	Retains / Detains	WSUD/ Clean Water	Performance	Prevent the Flooding	Replace an Ageing System	Crucial for the Area		Cost $000	Funding - Marion/Holdfast
Travers Street, Sturt	0	0	3	0	0	1	0	2	0	2	0	0	2	0	0	2	**12**	490	Marion
Byre Avenue, Sturt	1	0	1	0	0	0	1	1	0	4	0	0	2	0	0	2	**12**	186	30% Marion
Lonsdale Highway swales	1	0	1	0	0	0	1	0	0	0	2	2	2	0	2	0	**11**	240	Marion
Kurnabinna Tce drain, Hallett Cove	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	2	**8**	110	Marion
Rogana Crescent drain	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	2	**8**	70	Marion
Balandra Street drain	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	2	**8**	80	Marion
Kalmia Court drain	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	2	**8**	80	Marion
Bounty Road drain	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	2	**8**	90	Marion
Dutchman Drive drain	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	2	**8**	50	Marion
Gretal Crescent drain	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	2	**8**	80	Marion
Grand Central Ave drain	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	2	**8**	80	Marion
Madeleine Crescent drain	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	2	**8**	80	Marion
Quintus Tce, Dover Gardens	0	0	0	0	0	0	0	1	0	4	3	0	0	0	0	0	**8**	400	Marion
Barndoo St GPT, Hallett Cove	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	2	**8**	100	Marion
TOTAL																		**24,839**	

SCORING KEY

SOCIAL / POLITICAL						
0 - Low	0 - Low	0 - Not at all	0 - Low	0 - No	0 - Yes/High	0 - No
1	1 - Moderate	1 - Minor	1 - In part	1 - Possible	1 - Moderate	1 - In part
2	2 - High	2 - In part	2 - High	2 - Moderately	2 - Possible	2 - Yes
3		3 - Yes		3 - Yes	3 - No	
4						
5 - High						

ECONOMIC		
0 - Yes	0 - No	0 - Yes/Detailed
1 - In part	1 - Unlikely	1 - Regular
2 - No	2 - Likely	2 - By yearly
	3 - 50/50	3 - Not for 10 years
	4 - Full	4 - Not at all

ENVIRO	
0 - No effect	0 - No effect
1 - Unlikely	1 - Unlikely
2 - Possible	2 - Possible
3 - Likely	3 - Likely
4 - Moderately	4 - Moderately
5 - Highly effective	5 - Highly effective

TECHNICAL			
0 - Low/None	0 - No	0 - No	0 - No
2 - Moderate	2 - Slightly	1 - In part	2 - Slightly
4 - High	4 - Moderately	2 - Yes	4 - Moderately
6 - Very High	6 - High		6 - High
	8 - Very high		8 - Very high

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Front Cover Artwork
Title: Stormwater Inlet