

# STORMWATER

# ASSET MANAGEMENT PLAN

# EXECUTIVE SUMMARY



2013

# STORMWATER ASSET MANAGEMENT PLAN

Prepared For: Holroyd City Council

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# 1 EXECUTIVE SUMMARY

#### 1.1 Overview of Stormwater Assets

Council provides a drainage system to collect and convey stormwater to creeks within the Holroyd Local Government Area. Council also manages Flood Mitigation works to reduce flooding and Stormwater Environmental devices to improve the quality of stormwater to the natural drainage system (creeks) within the LGA.

Assets covered by this Asset Management Plan are defined in the asset hierarchy chart below.



Reasonably comprehensive data collection and condition assessment has been conducted over the last three (3) years to understand the full extent and condition of targeted Stormwater assets (continuous annual asset data collection is programmed for the remainder of the assets). As a result of the data collection exercise, Council now has a better understanding of the extent and current condition of all Stormwater assets (Data Confidence Grade B (ref IIMM 2011 Sec 2.4.5)).

Stormwater and Flood Mitigation assets covered by this Plan include:

- 309 kilometres of stormwater pipe
- 5 kilometres of box culverts
- 6 kilometres of channel
- approximately 23 kilometres of natural channel
- 11,000 pits and headwalls
- 26 detention basins
- 34 gross pollutant traps
- Approximately to 3 hectares of wetlands

# **1.2 Stormwater Assets Valuation**

Asset valuation as at 30 June 2013

STORMWATER ASSET GROUP	CURRENT REPLACEMENT COST (\$)	ANNUAL DEPRECIATION (\$/yr)	DEPRECIATED REPLACEMENT COST (\$)	
Drainage	\$276,006,554	\$1,627,700	\$203,678,602	
Flood Mitigation	\$8,403,331	\$54,872	\$7,187,885	
Environmental/Quality Improvement Devices	\$15,246,964	\$79,770	\$13,836,399	
TOTAL	\$299,656,849	\$1,762,342	\$224,702,886	

# **1.3 Stormwater Assets Important Issues**

#### Drainage

- 5% of the stormwater components are nearing the end of its design life based on the age of the asset
- Current aged infrastructure designed for 20% Annual Exceeding Probability (AEP) storm events which is proving inadequate for today's suburban build up areas
- Tree roots entering damaged or ageing drainage pipes
- Access to easements for maintenance / repairs difficult due to structures (houses, garages, carports and fences) illegally built and encroaching upon the easements
- Budgetary constraints for reconstruction (collapsed or damaged Stormwater)
- Illegal or improperly constructed pipe connections that partially block the free passage of water

## **Flood Mitigation**

- Funding for maintenance / repairs currently from Stormwater Management Charge is inadequate for current needs
- Funding for new structures, currently estimated at \$20M, will take at least 40 years to complete at the present funding arrangement
- Additional Flood Mitigation Devices will be required once Flood Risk Management Studies and Plans are finalised

#### **Environmental/Quality Improvement Devices**

- The maintenance budget has not kept in line with the growing number of SQIDs installed over the past years
- Modelling, for urban stormwater improvement conceptualisation (Music), needs to be undertaken for all of Holroyd

#### Historical Expenditure Levels

Over the past three year period (2012 to 2014):

- Operations expenditure has varied between \$301K and \$997K pa.
- Maintenance expenditure has varied between \$95K to \$134K pa.
- Renewal expenditure has varied between \$83K and \$580K pa.
- Council New Works expenditure has varied between \$378K and \$824K pa.

#### **Condition of Stormwater Assets**

The condition of stormwater drainage network is derived from the "Age" of the assets which had not been surveyed and the condition survey results of those which have been. This is because it is difficult and expensive to carry out a condition audit of the entire network. A concerted effort is underway to achieve CCTV survey of the whole Stormwater network. At the time of this report 20% of the network has been surveyed. This consists of all new assets, assets with its "Age" greater than their "Useful Life" and areas which were planned for CCTV assessment.

Condition surveys were conducted over the last three (3) years using a 1 to 5 condition rating scale where 1 is new and 5 is failed. Assets in condition 1 and 2 are considered to be in "excellent" to "good" condition. Assets in condition 3 are considered to be in "average" condition.

Assets in condition 4 are considered to be in "poor" to "very poor" condition. Condition 5 assets are considered to be in "Very Poor" condition. The percentages are weighted by \$ value of the assets.

	Condition							
ASSET GROUP	Condition 1	Condition 2	Condition 3	Condition 4	Condition 5			
	Very Good	Good	Fair	Poor	Very poor			
Drainage	17%	50%	22%	10.5%	0.5%			
Flood Mitigation	2%	62%	25%	10%	1%			
Environmental/Quality Improvement Devices	71%	18%	11%	0%	0%			

#### Strategic Context

This Stormwater Asset Management Plan integrates with Council's Community Strategic Plan and complies with the Department of Local Government Integrated Planning and Reporting requirements.

The Stormwater Asset Management Plan provides important input into Council's Resourcing Strategy and Long Term Financial Plan.

#### Levels of Service

Levels of Service framework has been developed for all Stormwater assets based on Community and Technical considerations.

The Levels of Service consider Quality, Safety, Function, Condition, Cost/ Affordability, Responsiveness, Appearance/ Presentation.

The Levels of Service are a blend of existing and desired Levels of Service which take into account recent feedback and input from the community. Further work will be done to develop and refine Levels of Service.

These Levels of Service will guide asset management and decision making in the future.

#### Maintenance Management

In conjunction with development of this Asset Management Plan, a Stormwater asset maintenance specification is to be developed which will include and outline of maintenance strategies and intervention levels and response times for the various asset groups.

The asset maintenance specification will guide future maintenance subject to allocation of appropriate resourcing.

#### Asset Defect Inspections

Currently, there is a semi-formal asset defect inspection system in place. It is proposed to formalise the asset defect inspection system to cover all major and critical assets. An initial inspection framework has been developed. Asset criticality and risk guide the inspection frequency and maintenance response framework developed.

The asset defect inspection system will be implemented subject to allocation of appropriate resourcing.

#### **Risk Management**

A comprehensive risk assessment has been completed in conjunction with the development of this Asset Management Plan.

A Risk Management Plan has been developed and identifies risks that require planned and priority action.

The Risk Management Plan informs and supports responsible asset risk management and will assist in guiding Stormwater asset management in the future.

There is a CCTV inspection program underway to inspect the whole pipe drainage network. It is anticipated that this work will be completed in 2016/17. This will provide a comprehensive assessment of the condition of stormwater asset

## 1.4 Lifecycle Costs/ Sustainability Index

There are two key high-level indicators of cost to provide the Stormwater service

- The life cycle cost being the average cost over the life of the asset, and
- The total maintenance and capital renewal expenditure required to deliver existing/desired service levels in the next 10 years covered by Council's long term financial plan.

The average life cycle cost (annual average asset operation and maintenance cost and asset consumption over a 10 year period) to provide the Stormwater service is estimated at \$2.7M pa. Council's budgeted life cycle expenditure is \$2.4M which gives a life cycle sustainability index of 0.89.

(A Sustainability Ratio of 1.0 indicates that the current funding provided is equal to the required lifecycle funding estimate. A sustainability ratio of less than 1.0 indicates a lifecycle funding gap). The total maintenance, operational and capital renewal expenditure required to provide the Stormwater service in the next 10 years is estimated at \$12.1M. This is an average of \$1.2M per annum. Council's current maintenance, operational and capital renewal expenditure is \$0.65M giving a 10 year sustainability index of 0.54.

Following table shows important ratios that reflect the funding requirements for Stormwater assets

Funding Ratio						
Actual Maintenance /Required maintenance	Annual Depreciation/ Value	Bring To Satisfactory/ WDV				
0.99	0.0059	0.0054				

## 1.5 Backlog and 10 Year Maintenance and Renewal Plan

The level of asset maintenance and renewal expenditure required to effectively sustain assets into the future and to provide the asset related levels of service desired has been analysed for existing and new assets.

Projected Maintenance Requirement and Maintenance Funding Gap ( \$000s)								
Year	Projected Maintenance (\$000)	Budgeted Maintenance (\$000)	Maintenance Funding Gap (\$000)	Cumulative Maintenance Funding Gap (\$000)				
2014/2015	\$148	\$142	\$6	\$6				
2015/2016	\$155	\$142	\$13	\$19				
2016/2017	\$160	\$142	\$18	\$37				
2017/2018	\$165	\$142	\$23	\$60				
2018/2019	\$170	\$142	\$28	\$88				
2019/2020	\$175	\$142	\$33	\$121				
2020/2021	\$180	\$142	\$38	\$159				
2021/2022	\$187	\$142	\$45	\$204				
2022/2023	\$194	\$142	\$52	\$256				
2023/2024	\$204	\$142	\$62	\$318				

Analysis of maintenance practices and expenditure levels indicates that Stormwater maintenance funding is meeting the current projected requirement and require a small increase to \$204K by 2023/24.

Assets with 'Age' greater than it's 'Standard Useful Life' and where CCTV condition found to be very poor (ie; 5) are considered to be 'Backlog'. The estimated cost to bring these assets to a satisfactory standard is shown in the table below

Asset Group	\$ 000
Stormwater Drainage	\$1,101
Flood Mitigation	\$95
Environmental Quality Improvement Devices	\$27
Total	\$1,223

The forecast 10 Year Annual Renewal expenditure required is based on Age and its Standard Useful Life of assets. It also includes the total backlog spread over 2014/2015 to 2017/2018.

Projected Renewal (Including Backlog)										
	2014/15 \$000s	2015/16 \$000s	2016/17 \$000s	2017/18 \$000s	2018/19 \$000s	2019/20 \$000s	2020/21 \$000s	2021/22 \$000s	2022/23 \$000s	2023/24 \$000s
Stormwater Drainage	\$349	\$349	\$349	\$331	\$63	\$63	\$83	\$84	\$84	\$84
Flood Mitigation	\$410	\$90	\$44	\$44	\$20	\$196	\$20	\$20	\$449	\$20
Environmental Quality Improvement Devices	\$35	\$33	\$27	\$39	\$36	\$240	\$20	\$20	\$41	\$36
Total	\$794	\$471	\$420	\$414	\$119	\$499	\$123	\$124	\$574	\$140

The current planned renewal, which is made up of Council renewal and Stormwater levy expenditure, and funding gap are summarised as follows:

Projected Renewals Requirement and Renewal Funding Gap (\$000s)									
Year	Backlog (\$000)	Projected Renewals (\$000)	Current/ Planned Renewals (\$000)	Renewal Funding Gap (\$000)	Total Renewals incl. Backlog	Cumulative Renewal Funding Gap (\$000)			
2014/2015	\$305	\$490	\$114	\$376	\$681	\$681			
2015/2016	\$306	\$166	\$114	\$52	\$358	\$1,039			
2016/2017	\$306	\$114	\$114	\$0	\$306	\$1,345			
2017/2018	\$306	\$107	\$95	\$12	\$318	\$1,663			
2018/2019	\$0	\$120	\$103	\$17	\$17	\$1,680			
2019/2020	\$0	\$499	\$103	\$396	\$396	\$2,076			
2020/2021	\$0	\$123	\$123	\$0	\$0	\$2,076			
2021/2022	\$0	\$124	\$124	\$0	\$0	\$2,076			
2022/2023	\$0	\$574	\$124	\$450	\$450	\$2,526			
2023/2024	\$0	\$140	\$124	\$16	\$16	\$2,542			

A graphical representation of the above gaps is shown in the graph below:



Council has a list of all Stormwater works – funded through Stormwater Management Charge. A list of these projects is attached in the Appendix.

Year	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Existing Assets										
Renewals	\$680,529	\$357,546	\$305,737	\$318,448	\$16,514	\$396,272	\$0	\$0	\$450,311	\$15,889
Maintenance	\$148,000	\$148,000	\$148,000	\$148,000	\$148,000	\$148,000	\$148,000	\$148,000	\$148,000	\$148,000
Depreciation	\$1,762,342	\$1,762,342	\$1,762,342	\$1,762,342	\$1,762,342	\$1,762,342	\$1,762,342	\$1,762,342	\$1,762,342	\$1,762,342
Operations	\$690,885	\$690,885	\$690,885	\$690,885	\$690,885	\$690,885	\$690,885	\$690,885	\$690,885	\$690,885
SUBTOTALS	\$3,281,756	\$2,958,773	\$2,906,964	\$2,919,675	\$2,617,741	\$2,997,499	\$2,601,227	\$2,601,227	\$3,051,538	\$2,617,116
Stormwater Levy Char	ge									
Renewals	\$113,600	\$113,900	\$114,200	\$95,400	\$102,700	\$103,000	\$123,300	\$123,600	\$123,900	\$124,200
New or Upgrade	\$660,960	\$687,080	\$904,222	\$731,849	\$752,844	\$781,793	\$1,037,701	\$1,076,031	\$1,115,635	\$1,115,635
Maintenance	\$0	\$7,283	\$11,288	\$16,380	\$20,516	\$24,794	\$29,218	\$35,023	\$41,021	\$47,219
Depreciation	0	\$4,725	\$9,611	\$15,823	\$20,869	\$26,088	\$31,485	\$38,568	\$45,885	\$53,446
Operations	\$26	\$54	\$94	\$144	\$204	\$275	\$361	\$461	\$576	\$576
SUBTOTALS	\$774,586	\$813,042	\$1,039,415	\$859,596	\$897,133	\$935,950	\$1,222,065	\$1,273,683	\$1,327,017	\$1,341,076
S94 - New										
New or Upgrade	\$0	\$1,385,834	\$2,771,669	\$2,771,669	\$3,464,586	\$3,464,586	\$0	\$0	\$0	\$0
Maintenance	\$0	\$0	\$885	\$885	\$1,770	\$2,654	\$2,654	\$3,539	\$5,309	\$8,848
Depreciation	\$0	\$0	\$9,701	\$29,103	\$48,504	\$72,756	\$97,008	\$97,008	\$97,008	\$97,008
Operations	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
SUBTOTALS	\$0	\$1,385,834	\$2,782,255	\$2,801,657	\$3,514,860	\$3,539,996	\$99,662	\$100,547	\$102,317	\$105,856
TOTAL	\$4,056,342	\$5,157,649	\$6,728,634	\$6,580,928	\$7,029,734	\$7,473,445	\$3,922,954	\$3,975,457	\$4,480,872	\$4,064,048

Table below shows Projected Long Term Financial Plan for Stormwater assets:

Council will continue to review maintenance and renewal expenditure forecasts with a view to improve understanding of the maintenance and renewal expenditure requirements. The need and options for increased funding will be considered.

# **1.6 Plans for the Future**

Council plans to operate and maintain the Stormwater network to achieve the following strategic objectives.

- 1. Ensure the Stormwater network is maintained at a safe and functional standard.
- 2. Mitigate flooding throughout the LGA.
- 3. Manage assets in a sustainable manner.

# **1.7 Measuring our Performance**

#### Performance Measures

We will measure our performance against Key Performance Indicators that have been developed to support defined Levels of Service.

#### Quality

Stormwater assets will be maintained in a reasonably usable condition, fit for their intended purpose and in line with adopted Levels of Service. Defects found or reported that are outside our service standard will not be repaired. Our maintenance response service levels detail defect prioritisation and response times.

#### Function

Our intent is that an appropriate Stormwater network is maintained in partnership with other levels of government and stakeholders to meet the drainage, flood mitigation and environmental and stormwater quality needs of our community.

We need to ensure key functional objectives are met. These relate to:

- safety
- flood mitigation
- sustainability

To achieve this we need to ensure that adequate funding is provided to sustain assets and appropriate management practices are in place to effectively and efficiently manage works and expend available funds.

#### Safety

Stormwater assets will be maintained at a safe level and associated facilities will be provided as needed to ensure public safety.

We inspect all major and critical Stormwater assets on a regular/cyclical basis and prioritise and repair defects in accordance with our inspection schedule to ensure they are safe.

## 1.8 The Next Steps

Key actions resulting from this asset management plan are:

- consider provision of and potential funding sources for additional funding for asset renewal
- review asset management systems, processes and resourcing
- undertake further asset management development work to better understand assets and related financial requirements