

# *Stormwater* Activity Management Plan 2018-28

*December 2019*

## ***Document Control***

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0.1	Stormwater AMP	Andrew Guthrie		September 2017
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## ***Introduction***

In the Ashburton District, there is presently only one significant piped stormwater system, serving the urban area of Ashburton. Methven and Rakaia have small lengths of stormwater pipe serving specific areas, while Lake Hood and Hinds have small systems of swales and open drains.

The balance of properties in the district dispose of their stormwater by other means, typically through on-property soak pits.

This plan summarises the Council's strategic and management long-term approach for the operation and maintenance of the stormwater service.

The stormwater activity has a large amount of capital expenditure programmed as part of a long-term project to improve both the management and the treatment of stormwater in Ashburton, underpinned by the Stormwater Management Plan (SMP).

The SMP itself, and the global stormwater discharge consent that was applied for in June 2018, will lead to significant improvements in levels of service.

## ***1. Key Issues for Stormwater***

### **1.1. System Capacity**

The district's stormwater reticulation dates primarily from the 1960s and onwards. Nuisance flooding occurs on a regular basis in a number of locations, largely due to undersized pipes, culverts and reliance on soak-pits. Surface flooding is predicted across 33 ha of the urban area for Ashburton and Tinwald during a 1 in 10 year Average Recurrence Interval (ARI) rainfall event, with 84% of pipes predicted to be surcharged.

Development over recent years has put pressure on the stormwater system with urban expansion and infill exacerbating urban stormwater flooding. There is no spare capacity in the existing system to accept additional flows from further development or intensification. If not managed properly, the additional runoff created from new impervious areas will greatly exacerbate current flooding issues.

Future development areas are required to manage stormwater onsite as far as possible and discharges to the Council network will be limited to the same or less than pre-development levels.

While urban flooding is a frequent occurrence during rain events, Ashburton is relatively flat and ponding is generally static, shallow (less than 300mm) and is rarely sufficient to enter habitable buildings or cause property damage. A greater concern is that natural overland flow paths, many of which cross private property, are not clearly defined and are easily manipulated, intentionally or unwittingly, through subdivision development and the construction of new roads.

Stormwater management in Methven, Rakaia and other small communities will be considered via an extension to the Ashburton SMP or through the development of a District SMP. This will provide the future direction of stormwater within these communities.

Future expansions of the serviced area will be aligned with the growth directions signalled in the District Plan, as well as forecast climate change effects.

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One way in which network capacity can be maximised is through altering stormwater catchments to share the load more evenly. The proposed capital programme begins to do this, and further work may identify other opportunities.

## **1.2. Environmental impact**

Stormwater is mainly discharged to urban streams (Mill Creek, Lagmhor Creek, Carters Creek) or to ground. This affects the surface and groundwater quality, leading to degraded in-stream habitat and ecology. The urban streams hold low cultural and recreational value.

Coupled with this existing stormwater discharge is the potential expansion of stormwater into other urban areas. The networks and infrastructure in Methven, Rakaia, Hinds and elsewhere is minimal and generally intended only to service the road corridor. Planning for future requirements to treat and manage this stormwater is a key consideration.

The Ashburton District Plan sets a framework for development and the management of resources in the District. It establishes objectives and policies for managing the environmental effects of development, it defines the various zones (residential, rural, business, open space, etc.), and the rules for what activities are permitted to occur in each zone.

River water quality, and 'swimability' in particular, is a strong focus for central and regional government at the moment. This affects the way we prioritise projects within the broader stormwater work programme.

## **1.3. Land Drainage Responsibilities**

Uncertainties presently exist around the demarcation of responsibilities for land drainage between Ashburton District Council and Environment Canterbury.

There are a number of cut-off drains, swales, transient water courses and overland flow paths that serve an important purpose in managing stormwater in the district, which are not being actively managed and it is uncertain which party has responsibility for maintaining and overseeing them. If this ultimately falls on ADC, this is a significant change to the service and will have implications on resources, consenting and funding.

## ***2. The Stormwater Activity***

### **2.1. What we do**

In the Ashburton District, there is presently only one significant piped stormwater system, serving the urban area of Ashburton. Methven and Rakaia have small lengths of stormwater pipe serving specific areas, while Lake Hood and Hinds have small systems of swales and open drains.

Operations and maintenance is covered by a contract with Ashburton Contracting Limited. This contract is due for renewal in 2018/19.

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**Table 1: Community Based Stormwater Schemes**

Scheme	Length of network	Manholes	ORC June 2017	Annual Depreciation June 2017
Ashburton	37.9km	558	\$ \$39,930,197	\$ \$423,729
Methven	2.9km	36	\$ \$2,334,676	\$ \$22,566
Rakaia	1.4km	14	\$ \$832,372	\$ \$7,927

#### **2.1.1. Ashburton**

Stormwater from residential, commercial and industrial properties in the Ashburton District is collected via gravity pipelines and open drains before being discharged to soakage pits and watercourses. Some stormwater is held in detention and infiltration basins. There is also a retention pond adjacent to Mill Creek for flood control.

Ashburton is the only system where historic stormwater discharges to the kerb and channel from private dwellings exist. From the kerb and channel the stormwater enters the stormwater system.

#### **2.1.2. Methven**

Methven has a very limited piped stormwater network with stormwater disposal in road side channel or old gravel pit. System capacity is adequate with no significant flooding issues, although there is some nuisance flooding.

#### **2.1.3. Other Townships**

Rakaia, Lake Hood and Hinds have small systems of swales, open drains and the occasional pipe.

Outside those areas served by public stormwater systems, dwellings are reliant on on-site disposal of stormwater – generally via ground soakage systems. These are generally single property solutions and not Council responsibility.

#### **2.1.4. Rural**

Rural stormwater has traditionally been seen as the domain of ECan, inheriting from the former Catchment Boards. However there is a growing recognition that there may be legitimate rural stormwater assets in need of maintenance and management. These are typically swales or cut-off channels and are often closed water races that serve a residual purpose for stormwater conveyance.

### **2.2. Why we do it**

Council operates stormwater schemes to help protect the health and safety of the community and environment through the provision of reliable and efficient stormwater schemes. The Health Act 1956 requires Councils to improve, promote and protect public health within their Districts.

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### 3. Goal for Stormwater

The stormwater service primarily supports the outcomes of providing great spaces and places, and balanced and a sustainable environment. Council is committed to providing fit for purpose stormwater services.

#### *Contributions to Community Outcomes*

Stormwater contributes to the following Community Outcomes as shown below.

	Residents are included and have a voice	A district of great spaces and places	A prosperous economy based on innovation and opportunity	A balanced and sustainable environment
Stormwater		✓	✓	✓

We are committed to providing Stormwater services using the following strategic objectives.

	Plan and provide fit for purpose services	Lead the community with clear and rational decision-making	Work with the community and engage in meaningful conversations	Represent the district on regional/national issues and partner with others as needed
Stormwater	✓	✓		

### 4. Levels of Service and Performance Measures for Stormwater

#### 4.1. What are we trying to achieve

Council manages performance to monitor levels of service and improve service delivery. Performance measures for stormwater are reported through the Triannual Performance Report, Annual Report and reports to the Service Delivery Committee.

The mandatory performance measures adopted for the 2015-25 LTP are retained for the 2018-28 LTP. These focus on:

- Minimising the number of flooding events and responding quickly to those that occur.
- Ensuring that management of Stockwater has acceptable environmental impact.

In addition, we aim to increase customer satisfaction by minimising complaints. In practice, customer complaints typically relate to the system's performance under load.

The current performance measures are outlined in the table below.

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*What we plan to do and our levels of service*

**What we're aiming for:** To ensure property and the environment are protected and roads and footpaths continue to be accessible during rain events.”

WHAT WE'RE WORKING TOWARDS (Levels of service)	HOW WE'LL MEASURE PROGRESS (Performance measures)	HOW WE'RE PERFORMING NOW (2016/17 results)	WHAT WE'RE AIMING FOR				
			2018/19	2019/20	2020/21	2021/22 – 2027/28	
<b>We provide protection from flooding for private properties</b>	Flooding events from stormwater overflows *	0	0	0	0	0	
	<i>The number of flooding events resulting from stormwater overflows, and for each flooding event the number of habitable floors affected, expressed per 1,000 properties connected to the stormwater system.</i>	0	0	0	0	0	
	Median response time (in hours) to callouts* <i>Where Contractors attend a call-out on Council's behalf to attend a flooding event, the median response times are measured from the time Council receives the notification to the time that service personnel reach the site.</i>	0 (no flooding events)	1 hour	1 hour	1 hour	1 hour	
<b>We provide efficient and sustainable stormwater services</b>	Compliance with resource consents *	Abatement notices	0	0	0	0	0
	<i>Compliance with Council's resource consents for discharge from its stormwater systems measured by the number of the following received by Council:</i>	Infringement notices	0	0	0	0	0
		Enforcement orders	0	0	0	0	0
		Convictions	0	0	0	0	0
<b>The majority of residents are satisfied with our stormwater services</b>	Customer satisfaction with stormwater services* <i>The total number of complaints received by Council about the performance of its stormwater system, expressed per 1,000 connections to the stormwater systems.</i>	2.71 complaints/1,000 connections	≤5	≤5	≤5	≤5	

\* Mandatory performance measure set by the Department of Internal Affairs

## 4.2. How will we know if we are achieving it

### 4.2.1.1. Data Inputs

Incidences of flooding and customer complaints are assessed by reviewing records of customer contacts.

Management of the environmental impacts is assessed by ECan by checking compliance with issued resource consents for the stormwater network.

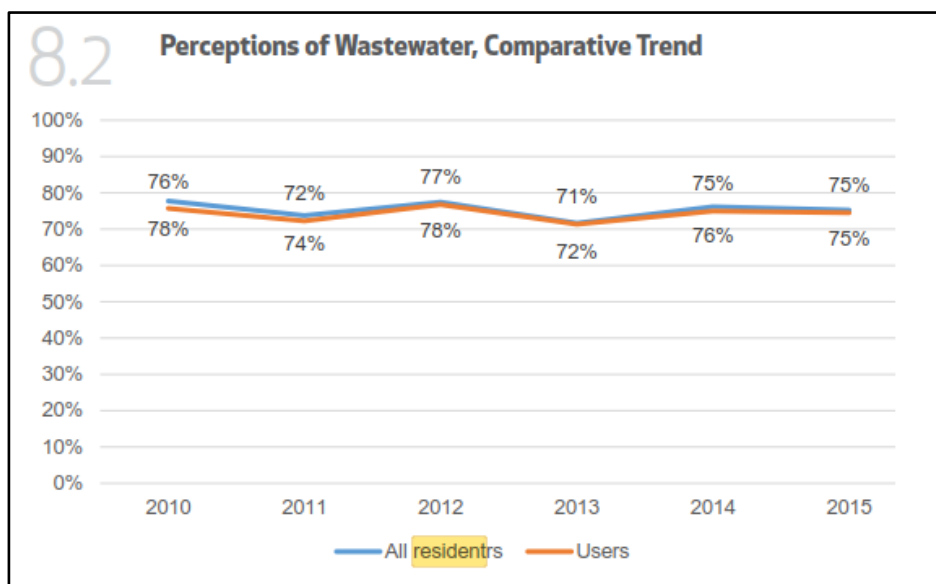
Response time to reported issues is a contractual performance indicator with the maintenance contractor.

### 4.2.1.2. Reporting of Performance Measures

Council manages performance to monitor levels of service and improve service delivery. Reporting performance information is a key element of performance management. Interpreting results and communicating them to Council, management and the community provides a picture of service performance across Council. Performance measures for wastewater are reported through the Triannual Performance Report, Annual Report and reports to the Service Delivery Committee.

Council used to monitor resident satisfaction with the stormwater service through the Council's annual residents' survey. A specific question for stormwater was included for the last time in 2015. The reported satisfaction with the stormwater service is shown in Figure 1.

**Figure 1: Residents' Survey Reported Satisfaction**



User satisfaction with the stormwater service averaged 75%, consistently below the target of 85%.

## 5. Changes Made for Stormwater

### 5.1. Capital Work

A large amount of work has been done in the last three years upgrading the bank stabilisation along Mill Creek. Mill Creek is an important urban waterway which receives and conveys stormwater through the town. Bank stabilisation improvements will ensure that this waterway continues to provide an effective service without causing nuisance to adjacent landowners.

Minor improvements have been made to stormwater pipework to alleviate localised flooding at times of heavy rain. Notably:

- At the viaduct under the railway in Tinwald, where a new pipe and swale were created to prevent ponding in the road at the low point;
- Around the Bridge Street water treatment plant and Hampstead Rugby Club, where a constructed swale and lowered footpath and kerb provide a secondary flow path for stormwater off Bridge Street; and
- A reconfiguration to service the new road alignment installed as part of the EA Networks Centre development.

New subdivisions have been vested, including stormwater reticulation and management structures, including Oaklea and Cawton Grove in Tinwald, Braebrook in Ashburton, and additional stages of Lake Hood.

## **5.2. Performance Modelling**

A hydraulic model for Ashburton was developed in conjunction with the Ashburton stormwater strategy. This model has enabled analysis of the system's response to rainfall and areas of likely flooding. It will be used to identify secondary overflow paths which will need to be protected in future.

# **6. Key Projects for Stormwater**

## **6.1. Renewals**

The stormwater reticulation is relatively long-lived and relatively young, and stormwater structures are generally long-lived concrete, rock or earthwork structures. As a result there are no renewals in the 30-year renewals programme.

Planned condition assessment of pipes will ensure future renewal programmes are based on the best information available. Once additional condition data is obtained on pipelines and facilities, any urgent projects will be added to the programme.

## **6.2. Capital Projects**

An extensive capital upgrade programme over the next 30+ years will dominate the expenditure for stormwater. The programme is in two parts: new and upgraded pipework to provide flood alleviation; and attenuation and treatment facilities to improve the quality of the final discharge. The total programme is budgeted at approximately \$22.6m.

Pipelines are proposed in:

- West Street: Mill Creek to the river. Split into four stages, finishing in 2027;
- Chalmers Avenue: South St to the river. Programmed for 2029-31;
- Alford Forest Road: Charles Street to Allens Road. Programmed for 2036-38; and
- Havelock St: Grigg St to West St. Programmed for 2040-42.

Attenuation and treatment facilities are proposed for the discharges located at:

- West Street
  - Chalmers Avenue
-

- Trevors Road
- River Terrace
- Allens Road
- Melcombe Street
- Smithfield Road

The programme has been modified since the 2015-25 LTP to address the increased regional and national interest in river and stream water quality. The attenuation and treatment projects have been brought forward, and the pipeline projects have been moved back. No projects have been added or removed. The first stage of the pipeline project in West Street remains because this is regarded as critical to reduce existing flooding issues affecting the State Highway.

The following table details the annual budget for new capital works until 2028. New capital work refers to the development of new infrastructure, which increase the levels of service and/or the capacity of the asset service an increase in demand.

	<b>Year 1 2018/19 \$000</b>	<b>Year 2 2019/20 \$000</b>	<b>Year 3 2020/21 \$000</b>	<b>Year 4-10 2021-28 \$000</b>
<b>TOTAL NEW CAPITAL WORKS</b>	<b>1,799</b>	<b>1,903</b>	<b>1,936</b>	<b>11,537</b>
<b>Ashburton</b>				
West Street trunk main (Havelock St / River Tce)	1,799	1,803		
Attenuation and treatment facilities		100	1,936	4,765
West Street trunk main (Wills St / Havelock St)				1,372
West Street trunk main (Walnut Ave / Wills St)				3,357
West Street trunk main (Millcreek / Walnut Ave)				2,042

## 7. Management of the Stormwater Activity

### 7.1. General

#### 7.1.1. Operation and Maintenance

The Council intends to continue to own, control and manage all of the public systems, but the work of actually operating and maintaining them is contracted out.

The operation and maintenance of stormwater assets is contracted out to Ashburton Contracting Ltd (ACL). ACL is required to operate and maintain the assets to achieve specified outcomes and ensure they provide the required levels of service. This is currently a negotiated contract.

The contract is performance based with a focus on forward programming, preventative maintenance and reporting, however, there are certain minimum standards. Contract works must be carried out to an acceptable standard, at the least cost, with minimum disruption to the community and the environment.

In accordance with Section 17A of the LGA 2002 (amendment Act 2013) a review of the cost-effectiveness of current arrangements has been completed. One of the difficulties identified during the review, was that with a negotiated contract with one party, demonstrating cost-effectiveness was not possible. The review has resulted in a decision by Council to progress the development of a new contract during 2018/19, with the aim to competitively tender the work the following year.

### 7.1.2. Forecasting Assumptions

The broad underlying assumptions that form the basis for the stormwater AMP development are presented below.

**Table 2: Stormwater Forecasting Assumptions**

	Management Area	Assumption	Comment
1	Major Project & Capital Works	Procurement will be provided that delivers the defined Level of Service within budget, at a similar cost to that presently incurred.	Construction Projects costs estimated using the following: Post tender +/-5% Where designed +/-10% Estimate +/- 30%
2	Demand Management	Discharges from new developments will be the same as or less than pre-development flows.	-
3	Asset lives and depreciation	Assets will not wear out more quickly than forecast and require replacement earlier than planned.	If assets require replacement more quickly than forecast, renewal projects may need to be brought forward.
4	Population forecasts	The level of population growth will be as forecasted.	-
5	Assets aging	No attempt has yet been made to predict increases in maintenance costs that might occur.	-
6	Method of service delivery	In preparing the maintenance and operating budget it is assumed that the move to a competitive contract may result in cost increases from year 2.	The section 17a service delivery review resulted in Council deciding to tender the O&M provision for the 3 waters activities from the 2019/20 year.
7	Renewal forecasts	Based on current knowledge of asset condition and performance, and levels of service identified in this AMP.	Analysis of asset renewal requirements will increasingly be undertaken using predictive modelling. Some increases and decreases in expenditure may result.
8	Land Use change	There will be no sudden changes in network demand caused by sudden changes in land use.	-

### 7.1.3. Operational Improvements

Some operational improvement projects are fundamental to meeting the Ashburton SMP Strategic Objectives. A full list and more detail is included in Appendix D, and the original is in the SMP.

These include:

- Obtaining a global stormwater consent for Ashburton
- Planning and prioritising the capital upgrades
- Defining and protecting overland flow paths
- Installing a network of rain gauges and water table monitoring bores
- Assessments of industrial sites
- Education and engagement with the community.
- Stormwater standards and specifications
- Creating a new stormwater bylaw

Ultimately SMP(s) and global stormwater discharge consents will be created for the other urban stormwater catchments (Methven and Rakaia).

#### 7.1.4. Renewal Strategy

Renewal expenditure is major work that does not increase the asset's design capacity or increase its planned level of service, but restores, rehabilitates, replaces or renews an existing asset to its original capacity or service level. Work over and above restoring an asset to original capacity involves new works expenditure.

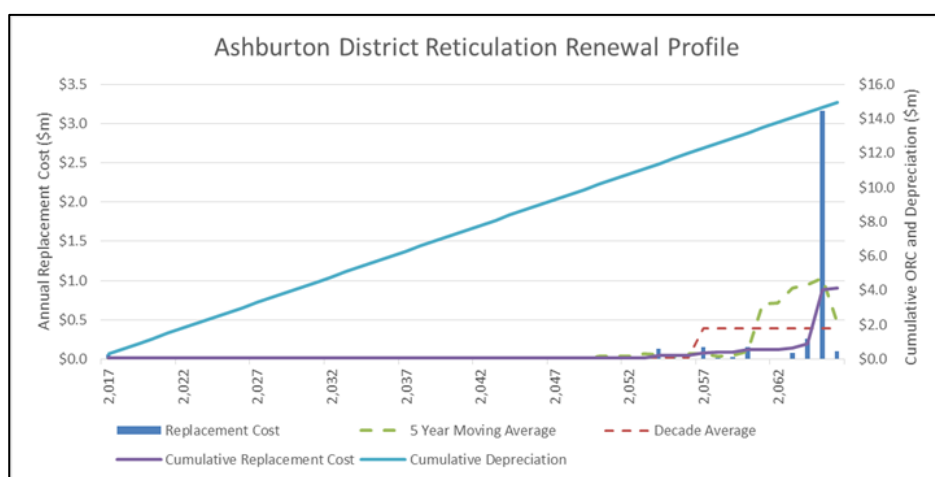
The purpose of the renewal strategy is to ensure that:

- Replacement of assets is carried out at the most appropriate time
- The most effective benefit is received from any asset renewal
- Renewals assist with compliance with stormwater levels of service

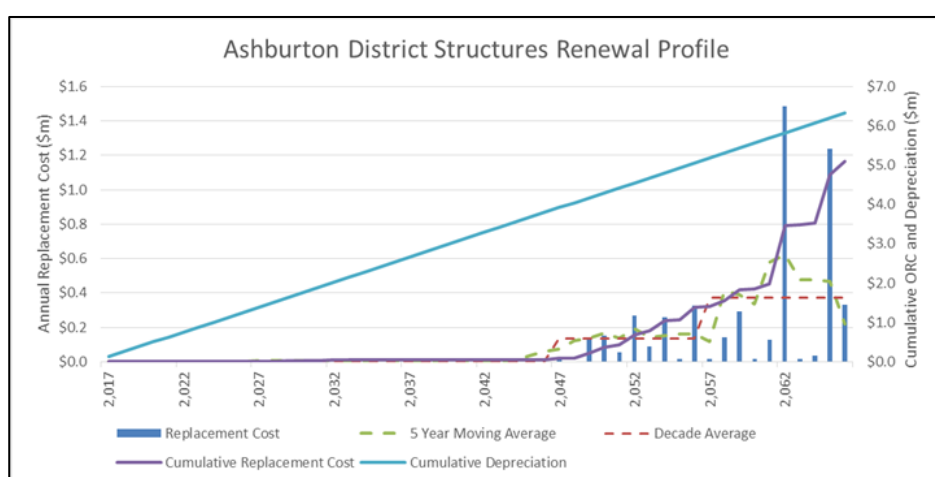
#### 7.1.5. Renewal Profiles

The overall stormwater main renewal profile for 2018 to 2068 is presented in Figure 2. This indicates the expenditure required based purely on projected useful life.

**Figure 2: 50 Year Reticulation ORC Profile**



**Figure 3: 50 Year Facilities ORC Profile**



#### 7.1.6. New Capital

Four flood alleviation projects are programmed between 2018-19 and 2040-42. These are new trunk stormwater mains and are required in advance of other connecting stormwater pipe upgrades. For the previous (2015/25) long term plan these trunkmain projects had a higher priority. As a consequence of

the new National Policy Statement for Freshwater Management, these projects have been reprioritised in favour of projects delivering improvements to the quality of our existing stormwater discharges.

The water quality projects are programmed between 2019-21 and 2046-48, and involve the creation of stormwater management areas to improve stormwater quality prior to discharge to the receiving environment. The stormwater management areas are likely to be a combination of treatment and attenuation basins, and other treatment systems e.g. vegetated filter channels. The commitment to improving the quality of existing stormwater is important to Council's application for stormwater consent for the Ashburton area.

There are wider issues in Tinwald, predominantly relating to runoff from upstream rural land and the capacity of the waterways and culverts managed by ECan, that need to be resolved before investment in significant capital expenditure. Council will work with ECan to develop a solution for managing runoff from upstream rural areas before programming the local stormwater network upgrades required to achieve the same 10yr level of service.

An indicative timeframe is provided for each of the capital projects. However, the SMP upgrades optimisation project is important for refining these timeframes and providing more clarity around the level of flood alleviation or water quality improvement each project is expected to achieve. The purpose of the optimisation is to ensure the capital projects are the most effective and efficient use of funding. Note that the outcome of the SMP upgrades optimisation may further alter the prioritisation of the capital projects.

## 7.2. Programmed actions years 1-3

**Table 3: Programmed Actions - Years 1-3**

Scheme	Project	Driver	Timing	Indicative Cost
Ashburton	Global stormwater consent	Compliance	2018/19	\$100,000
Ashburton	SMP capital upgrades optimisation and prioritisation	Efficiency and effectiveness	2018/19	\$35,000
Ashburton	Define and protect overland flow paths	Levels of Service	2018/19	\$27,000
Ashburton	Industrial sites assessment	Compliance	2018-23	\$100,000
Ashburton	Stormwater Bylaw (new)	Compliance	2018/19	\$10,000
Various	SMP(s) and global stormwater discharge consent for other urban stormwater catchments (Methven and Rakaia)	Compliance	2019/20-2021/22	TBC
Ashburton	Community engagement and education	Education and Awareness	Biennially	Staff time
Ashburton	CCTV/Condition Assessment	Levels of Service	2018/19-2022/23	\$20,000 per year
Ashburton	West St Trunk Main (Havelock St to outfall)	Levels of Service	2018/19	\$1,717,500
Ashburton	Attenuation and Treatment Facilities – West Street Discharge	Compliance Levels of Service	2019/21	\$1,900,000

### 7.3. Future directions for years 4 – 10

*Table 4: Programmed Actions - Years 4-10*

Scheme	Project	Driver	Timing	Indicative Cost
Ashburton	CCTV/Condition Assessment	Levels of Service	2018/19-2022/23	\$20,000 per year
Ashburton	West St Trunk Main (Wills St to Havelock St)	LOS Improvement	2021/23	\$1,175,000
Ashburton	Attenuation and Treatment Facilities – Chalmers Ave Discharge	Compliance LOS Improvement	2022/24	\$2,580,000
Ashburton	West St Trunk Main (Walnut Ave to Wills St)	LOS Improvement	2023/25	\$2,910,000
Ashburton	West St Trunk Main (Mill Creek to Wills St)	LOS Improvement Catchment Mgmt.	2025/27	\$1,640,000
Ashburton	Attenuation and Treatment Facilities – Trevors Rd Discharge	Compliance LOS Improvement	2026/28	\$1,450,000

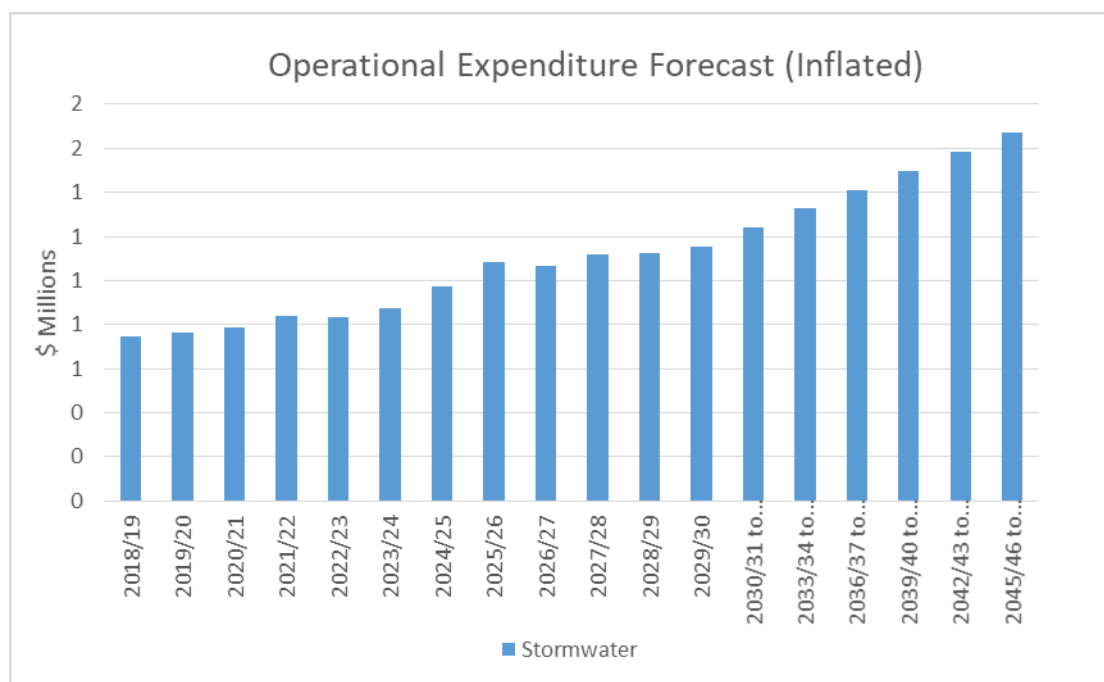
## 8. Costs for Stormwater

### 8.1. Operations and Maintenance Expenditure

The total estimated operations and maintenance costs for stormwater activities is summarised below. The figures from year 2 (2019/20) include an increase to allow for the move to a competitively tendered contract for the 3 water activities, and the application of a forecast cost indexation (BERL 2016) to current expenditure.

Please note that these forecasts excludes interest, depreciation and overhead charges and is inflated.

**Figure 4: Forecast Operations and Maintenance Expenditure (Inflated)**



The primary operational and maintenance issues associated with the stormwater schemes are:

- A need to ensure that preventative maintenance is being carried out regularly and robustly. This is an area of focus.
- A need to revisit the quantity, quality and medium of asset information being captured by the contractor and reported back to council during the course of operating the network.

Any new operations and maintenance contract will have provision to be integrated with the asset management and information system. This will include electronic data feeds for work orders, related back to unique assets.

As the Surface Water Strategy and its action plan are developed, there is an expectation that rural stormwater will begin to incur additional operational cost as critical rural stormwater assets are identified, or, for example, closed water races are adopted so that they can be retained for stormwater conveyance. Funding in the rural stormwater cost centre has been proposed from 2019-20 onwards to assist with these efforts.

## 8.2. New Capital Expenditure

The 30 year capital expenditure profile for Ashburton stormwater is shown in the figure below. The 30 year plan is only a subset of the total extent of upgrades required to provide a fully developed network and improve stormwater discharge quality. The complete package of potential projects is identified in Appendix 0.

Figure 5: SMP 30 Year Capital Plan

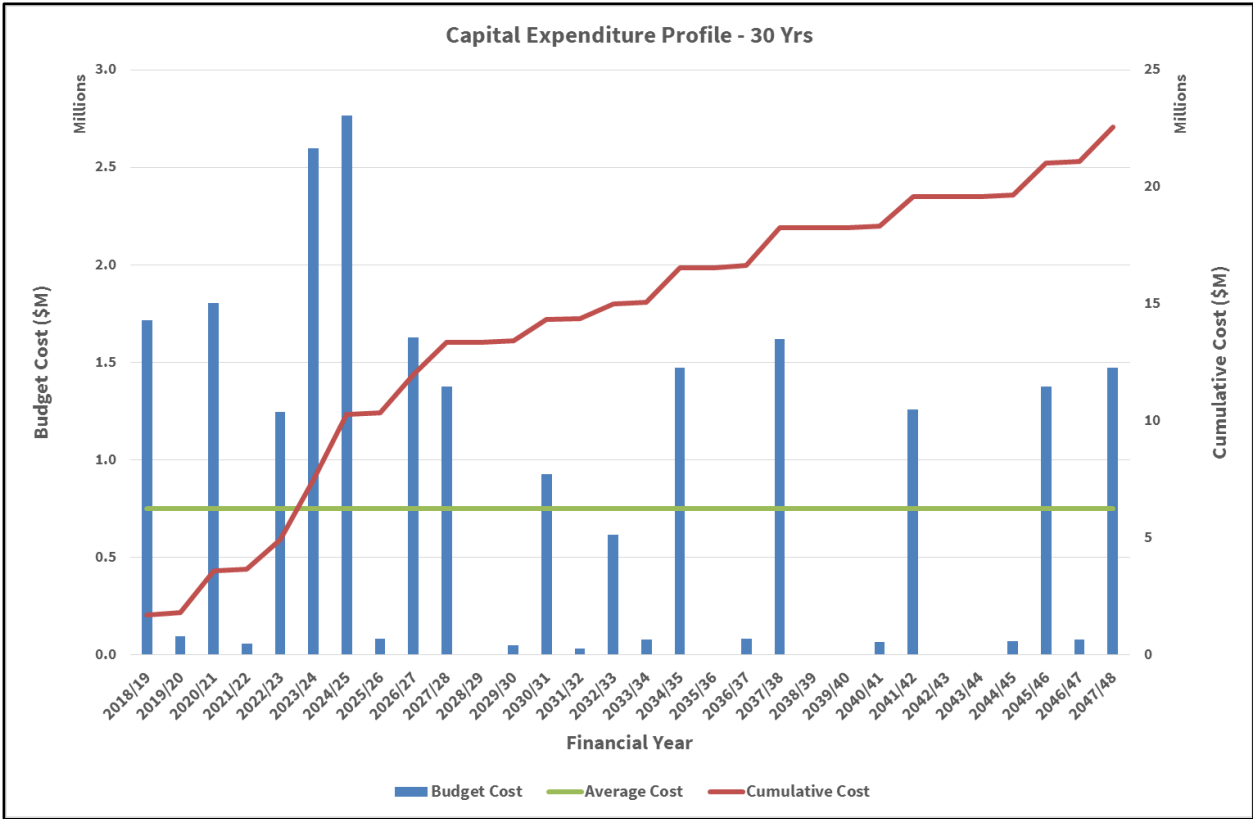


Figure 6: Capital Works

## 8.3. Funding Requirements

### 8.3.1. General Approach to Funding

Council's approach to funding its activities is detailed in its revenue and financing policy.

Owners of all properties that are within the catchment served by a public stormwater system pay a **targeted capital value rate** per property. This approach recovers 90% of the cost of the service. The remaining 10% of the cost of the service is recovered through the district-wide **general rate**.

The only exception to the above approach is due to Mill Creek's dual purpose of conveying stockwater through the urban area. Council decided that it was appropriate for the costs of the Mill Creek capital projects to be partially (25%) funded through the stockwater activity. The implications of this has lessened somewhat with the recent completion of bank stabilisation works on Mill Creek.

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### 8.3.2. Funding Requirements

#### *Funding Impact Statement*

For  
Stormwater

	Annual Plan 2017/18 \$000	Year 1 2018/19 \$000	Year 2 2019/20 \$000	Year 3 2020/21 \$000	Year 4 2021/22 \$000	Year 5 2022/23 \$000	Year 6 2023/24 \$000	Year 7 2024/25 \$000	Year 8 2025/26 \$000	Year 9 2026/27 \$000	Year 10 2027/28 \$000
<b>Operating Funding</b>											
<b>Sources of operating funding</b>											
General rate, UAGC, rates penalties	100	107	126	132	143	152	154	182	201	203	210
Targeted rates	863	921	1,080	1,136	1,237	1,304	1,325	1,566	1,729	1,749	1,806
Subsidies and grants for operating purposes	0	0	0	0	0	0	0	0	0	0	0
Fees and charges	0	0	0	0	0	0	0	0	0	0	0
Internal charges and overheads recovered	12	4	3	3	3	2	3	2	1	1	1
Local authorities fuel tax, fines, infringement fees and other receipts	21	37	27	19	20	21	22	23	24	25	26
Total sources of operating funding	996	1,068	1,236	1,290	1,403	1,480	1,503	1,772	1,956	1,978	2,043
<b>Applications of operating funding</b>											
Payments to staff and suppliers	183	285	232	196	188	191	197	198	206	208	213
Finance costs	180	222	290	338	396	379	410	503	600	571	615
Internal charges and overheads	257	239	244	250	255	261	267	274	277	285	292
Other operating funding applications	0	0	0	0	0	0	0	0	0	0	0
Total applications of operating funding	620	746	766	784	839	831	874	975	1,083	1,065	1,120
<b>Surplus/(deficit) of operating funding</b>	376	322	470	505	564	649	630	797	873	913	923

\*Uniform Annual General Charges

	Annual Plan 2017/18 \$000	Year 1 2018/19 \$000	Year 2 2019/20 \$000	Year 3 2020/21 \$000	Year 4 2021/22 \$000	Year 5 2022/23 \$000	Year 6 2023/24 \$000	Year 7 2024/25 \$000	Year 8 2025/26 \$000	Year 9 2026/27 \$000	Year 10 2027/28 \$000
<b>Capital Funding</b>											
<b>Sources of capital funding</b>											
Subsidies and grants for capital expenditure	0	0	0	0	0	0	0	0	0	0	0
Development and financial contributions	0	0	0	0	0	0	0	0	0	0	0
Increase/(decrease) in debt	1,538	1,267	1,207	1,447	(425)	775	2,327	2,415	(705)	1,095	823
Gross proceeds from sale of assets	0	0	0	0	0	0	0	0	0	0	0
Lump sum contributions	0	0	0	0	0	0	0	0	0	0	0
Other dedicated capital funding	0	0	0	0	0	0	0	0	0	0	0
Total sources of capital funding	1,538	1,267	1,207	1,447	(425)	775	2,327	2,415	(705)	1,095	823
<b>Application of capital funding</b>											
Capital expenditure											
- to meet additional demand	0	0	0	0	0	0	0	0	0	0	0
- to improve the level of service	1,915	1,799	1,903	1,936	115	1,410	2,942	3,197	152	1,992	1,729
- to replace existing assets	0	0	0	0	0	0	0	0	0	0	0
Increase/(decrease) in reserves	(0)	(210)	(226)	17	24	14	15	15	16	16	17
Increase/(decrease) in investments	0	0	0	0	0	0	0	0	0	0	0
Total applications of capital funding	1,915	1,589	1,677	1,952	139	1,424	2,956	3,212	168	2,008	1,746
<b>Surplus/(deficit) of capital funding</b>	(376)	(322)	(470)	(505)	(564)	(649)	(630)	(797)	(873)	(913)	(923)
<b>Funding Balance</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

## Expenditure by Stormwater Scheme

	<b>Annual Plan 2017/18 \$000</b>	<b>Year 1 2018/19 \$000</b>	<b>Year 2 2019/20 \$000</b>	<b>Year 3 2020/21 \$000</b>	<b>Year 4 2021/22 \$000</b>	<b>Year 5 2022/23 \$000</b>	<b>Year 6 2023/24 \$000</b>	<b>Year 7 2024/25 \$000</b>	<b>Year 8 2025/26 \$000</b>	<b>Year 9 2026/27 \$000</b>	<b>Year 10 2027/28 \$000</b>
Ashburton	898	1,098	1,137	1,218	1,332	1,337	1,410	1,597	1,759	1,759	1,855
Methven	67	59	74	60	60	61	62	63	64	65	66
Rakaia	17	17	31	18	17	18	18	19	19	19	20
Hinds	3	3	3	3	3	3	3	3	3	3	3
Total operating expenditure	985	1,176	1,245	1,299	1,412	1,419	1,493	1,681	1,844	1,846	1,944
less depreciation	365	430	479	515	574	588	620	706	762	781	824
Total applications of operating funding	620	746	766	784	839	831	874	975	1,083	1,065	1,120

### Capital by Stormwater Scheme

	<b>Annual Plan 2017/18 \$000</b>	<b>Year 1 2018/19 \$000</b>	<b>Year 2 2019/20 \$000</b>	<b>Year 3 2020/21 \$000</b>	<b>Year 4 2021/22 \$000</b>	<b>Year 5 2022/23 \$000</b>	<b>Year 6 2023/24 \$000</b>	<b>Year 7 2024/25 \$000</b>	<b>Year 8 2025/26 \$000</b>	<b>Year 9 2026/27 \$000</b>	<b>Year 10 2027/28 \$000</b>
Ashburton	2,035	3,097	1,954	1,936	222	1,410	3,053	3,197	268	1,992	1,850
Total capital expenditure	2,035	3,097	1,954	1,936	222	1,410	3,053	3,197	268	1,992	1,850
less vested assets	120	1,298	51	0	107	0	111	0	116	0	121
Council funded capital expenditure	1,915	1,799	1,903	1,936	115	1,410	2,942	3,197	152	1,992	1,729

## **8.4. Development Contributions**

### **8.4.1. Stormwater Contributions**

The Development and Financial Contributions Policy has been the subject of review in September 2017 and public consultation will be completed in conjunction with the Long Term Plan.

There is currently no development contribution in place for the stormwater activity. There are no plans to introduce a contribution at this point in time.

## ***9. Key Legislation/Industry Standards and Relationship with Other Planning/Policy Documents for Stormwater***

### **9.1. Legislation and other drivers**

#### **9.1.1. Resource Management Act 1991**

Provides an environmentally conscious framework for Local and Regional Authorities to administer powers with regard to development and the management of natural resources. The RMA 1991 focuses on the effects of activities rather than on the activities themselves. Council has 34 resource consents for stormwater treatment and disposal associated with Ashburton, Methven and Rakaia.

#### **9.1.2. Health Act 1956**

Places an obligation on Council to improve, promote and protect public health within the District. The provision of stormwater services conserves public health and helps to protect land and waterways from contamination.

#### **9.1.3. Health and Safety at Work Act 2015**

Requires Council to ensure the health and safety of workers while at work by providing: a working environment that is without risks to health and safety; safe plant and structures; safe systems of work; and information, training and supervision that is necessary.

Council must ensure the safety of the public and all workers (including contractors) when undertaking the activity. This requirement extends to the design and supply of new plant and structures.

#### **9.1.4. Local Government Act 2002:**

Provides for democratic and effective local government that recognises the diversity of New Zealand communities. It states the purpose of local government, provides a framework and powers for local authorities to decide which activities they undertake and the manner in which

they will undertake them, promotes the accountability of local authorities to their communities; and provides for local authorities to play a broad role in meeting the current and future needs of their communities for good-quality local infrastructure, local public services, and performance of regulatory functions.

#### **9.1.5. National Policy Statement for Freshwater Management (2017)**

Provides high level guidance for regional authorities when considering freshwater management objectives, policies and methods for inclusion in statutory planning documents. Key changes in 2017 are the inclusion of national targets which now give them legal status. New policies make it mandatory for regional council to work toward the targets. Other changes including monitoring requirements and management nitrogen and phosphorus.

#### **9.1.6. Canterbury Water Management Strategy (2010)**

The Canterbury Water Management Strategy (CWMS) is a non-statutory document with a collaborative approach to managing water within the Canterbury Region.

#### **9.1.7. Canterbury Land and Water Regional Plan:**

The purpose of the Canterbury Land and Water Regional Plan (LWRP) is to identify the resource management outcomes or goals for managing land and water resources in Canterbury to achieve the purpose of the RMA. It identifies the policies and rules needed to achieve the objectives.

#### **9.1.8. Ngai Tahu Claims Settlement Act (1998):**

The Ashburton River is a statutory acknowledgement river and is identified as a major mahinga kai area for Ngai Tahu. The Ngai Tahu association with the river also includes the sustainable utilisation of resources. Mauri is a critical element of the spiritual relationship of Ngai Tahu Whanui with the river.

## **9.2. Related documents**

### **9.2.1. Infrastructure Strategy**

The infrastructure strategy provides a look forward for 30 financial years at current and upcoming key infrastructure issues for the core activities (water, wastewater, stormwater and transportation) and stockwater, and the significant projects and expenditure required to address them.

The AMP provides the context and support for the infrastructure strategy.

### **9.2.2. Long Term Plan**

The Long Term Plan explains what Council proposes over the next ten years with an infrastructure strategy and financial strategy looking at a thirty year horizon.

### **9.2.3. Stormwater Strategy (2009)**

The stormwater strategy statement for the Ashburton urban area, adopted by Council in 2009, is:

Effectively manage stormwater systems in the Ashburton urban area in order to minimise flooding, protect receiving environments, meet changing legislative requirements and promote best practice solutions, while allowing future growth and land development to occur, in accordance with agreed development programmes.

Council is in the process of developing a surface water strategy. This strategy is intended to capture not just stormwater related matters but also include stockwater network and other waterways.

An overarching surface water strategy will provide the links between the different activities and values Council manages, with regards to the stormwater networks. It will also provide a strategic approach to how Council manages the water race network (including race closures on the network), and future management of other surface water bodies.

### **9.2.4. Ashburton Stormwater Management Plan**

The draft Stormwater Management Plan (SMP) provides an integrated approach to the management of stormwater discharges from a catchment perspective.

The SMP comprises a review of existing issues and the identification of future needs. It includes the development of hydraulic models to examine both the piped network and stream channels within the Ashburton and Tinwald urban catchments, providing critical information on the performance of the networks. The models also predict the performance of the networks when future development is taken into consideration.

Council intends this SMP to be a living document that can be updated to reflect new development as necessary and subject to a full review every ten years to keep the document current and provide direction to ADC's Long Term Plan.

A hydraulic model of the stormwater network was developed in 2012 as part of the implementation of the Ashburton Urban Stormwater Strategy.

Once operational in Ashburton, the Stormwater Management Plan will be extended to provide guidance to stormwater management in other townships and villages within the district.

### **9.2.5. Ashburton Urban Stormwater Consent**

An application has been lodged for a global stormwater consent to cover all standard stormwater discharges in the Ashburton urban area. This consent is still under consideration by ECan and final conditions have yet to be set. Non-standard discharges will not be covered and will have to obtain a consent separately.

### **9.2.6. Surface Water Strategy**

Through the SWS the role of water races, swales, and other water channels to rural and urban stormwater conveyance has been recognised.

## 10. Risk Management for Stormwater

### 10.1. Council Risk Register

The Council has developed a district wide risk register in 2013. This includes a high level consideration of the risk around “flooding of roading network, Council facilities, private homes and land”.

The impact of this risk was assessed from a Health and Safety, Operational, Political, Financial, and Environmental perspective. The risk register was reviewed and updated in 2015.

The risk register indicates the risk profile for the stormwater service is classed as **medium** and the controls in place effectiveness are classed as “Good – Majority of risks are managed but there is potential for failure.” Further controls were required and these are presented in Table 5.

**Table 5: Additional Controls for the Stormwater Service Risk Register**

Control	Priority	Comment
Stormwater Management Plan (catchment specific)	Medium	Implementation of the Ashburton SMP.  Stormwater management in Methven, Rakaia and other small communities will be considered via a District SMP.
Identify properties affected by wastewater infiltration and add information to LIMs	Medium	LIMs will identify properties shown to be non-complying in the “Right Pipe Project”.

### 10.2. Stormwater Risk Register

A risk management framework based on ISO AS/NZS 30001 was developed in 2011 and used to establish a stormwater risk register. The risk register identifies risk management strategies to minimise the risks associated with the provision of stormwater. The risks are categorised as extreme, high, medium or low.

The risk register was reviewed in 2017 and indicates there are no extreme risks and two high risks. The high risks have existing controls (mitigation) that have been or are being developed that reduce all the risks to moderate as presented in Table 6.

**Table 6: Stormwater Risk Register - Extreme and High Risks Risk**

Risk Severity	Risk Category	Potential Impact	Controls
High	Product	Unable to meet legislative / consent compliance requirements for quality of stormwater discharged	Existing: LTP programme of works. To Develop: ADC will review consents once Global consent in place.

Risk Severity	Risk Category	Potential Impact	Controls
High	Infrastructure	Performance or capacity failure	Existing: LTP programme of works. Allowances for safety factors and climate change in design. To Develop: Stormwater improvement projects from the SMP upgrades long term capital works plan.

The risk profile will in the future be extended to encompass in a Risk Management Plan.

### 10.3. Climate Change Risk

As with the rest of the Canterbury region, the Ashburton area will likely be affected by climate change. The District has experienced extremes of drought and flood in the past and these may occur with greater frequency and severity.

The Climate Change Effects and Impacts Assessment report (Ministry for the Environment, 2008) details projections for climate trends in the Canterbury Region. Possible climate change trends that may impact on stormwater schemes in Ashburton District include:

- Increase in mean annual temperature.
- More frequent extreme rainfall events as a result of increased moisture holding capacity of warm air.
- Reduced annual mean precipitation and increased drought conditions.
- Sea level rise.

The projected increased frequency of extreme rainfall events (or the increase in rainfall intensities) might cause more frequent rainwater entry into sewer systems that could result in more frequent sewer overflows.

### 10.4. Resilience

Council has contributed to the resilience of the Stormwater system (network, treatment and disposal) by:

- Effective implementation of the Ashburton Urban SMP
- Increase in maintenance requirements and standards
- Consideration of construction standards (including materials)
- Requiring conservative safety factors as part of asset design
- Designs account for projected increases in rainfall due to man-made induced climatic change.

## 11. Stakeholders and Consultation for Stormwater

- ACL as contractor for the daily provision of the service

- Residents served by the respective stormwater networks
- Iwi
- Environment Canterbury
- Ministry of Health
- Ministry for the Environment
- Audit NZ
- Community and Public Health (CDHB)

## ***12. Improvement Programme for Stormwater***

### **12.1. Process Overview**

#### **12.1.1. Asset Management Approach**

Council has undertaken a structured assessment of the appropriate level of asset management practice for the stormwater assets in October 2010. This structured assessment follows the guidance provided in Section 2.2.4 of the International Infrastructure Management Manual (IIMM) 2006. The results of this assessment were that the stormwater was considered **Core Plus**.

#### **12.1.2. ISO 55000 Asset Management 2014**

This international standard was released in January 2014 and outlines the requirements for an asset management system for achieving a balance between cost, risk and performance in asset management to help guide asset related decision making and activities.

Council has yet to review whether their current Council's asset management practices will be changed to seek conformance with ISO 55000. However, improvement areas have been identified in this AMP which will assist in the move towards aligning with the requirements of ISO 55000 should this step be taken in future.

### **12.2. Asset Management Data Quality**

The quantity and quality of the asset data held was reviewed in August 2011 by Opus International Consultants Ltd. These grades have been periodically reviewed since that time and no changes are warranted at this point. To lift the data quality from a B to an A grade would require significant and unjustifiable expenditure.

However, changes in requirements for as-built drawings and improvements in managing projects has increased the confidence level for data for new assets level A.

**Table 7: Asset Data Confidence Assessment**

Asset Group	Asset	Quantity	Replacement Cost	Life Expectancy	ODRC
Utilities Assets	Drinking Water assets	B	B	B-C	B
	Wastewater assets	B	B	B-C	B
	Stormwater assets	B	B	B-C	B
	Stockwater assets	B	B	B-C	B

**Table 8: Definition of Data Confidence Levels**

Grade	Label	Description	Accuracy
A	Accurate	Data based on reliable documents	±5%
B	Minor inaccuracies	Data based on some supporting documentation	±15%
C	Significant data estimated	Data based on local knowledge	±30%
D	All data estimated	Data based on best guess of experienced person	±40%

### 12.3. Training

No specific training has been identified, however through the re-write of the Utilities Operations and Maintenance contract, emphasis will be placed on a requirement for Contractor staff to have appropriate industry recognised qualification(s).

Further staff training may be required in future as the SMP implementation progresses, to build up the in-house capability.

### 12.4. Improvement Actions

Ashburton District Council is committed to on-going improvement in the quality of its stormwater services management practices. This is reflected in the implementation of asset management systems and associated data collection and maintenance requirements.

The Improvement Plan is integral to that approach, quantifying current business practice and measuring progress toward an identified future position. Improvement Plan is focused on the key areas of:

- **Information Management:** AMIS implementation and the use of this system to increase the effectiveness, efficiency and reporting of the management and operation of the stormwater systems.
- **Scheme Knowledge:** Increased asset attribute knowledge (condition, performance, material, size) and monitoring regime for stormwater management assets, and in particular for assets identified as critical.
- **AM Policy:** To provide the principles by which Council intends to apply asset management to achieve Council's objectives.
- **AM Improvement Programme:** To achieve the Asset Management level of Core Plus;
- **Criticality Assessment** (reflects the consequence of the asset failing): To allow assets to be managed more proactively in order to mitigate the risk associated with their failure.
- **Renewal Strategy:** To ensure that replacement of assets are carried out at the most appropriate time and the most effective benefit is received.

Additional resources will be required to enable the achievement of the above improvement programme.

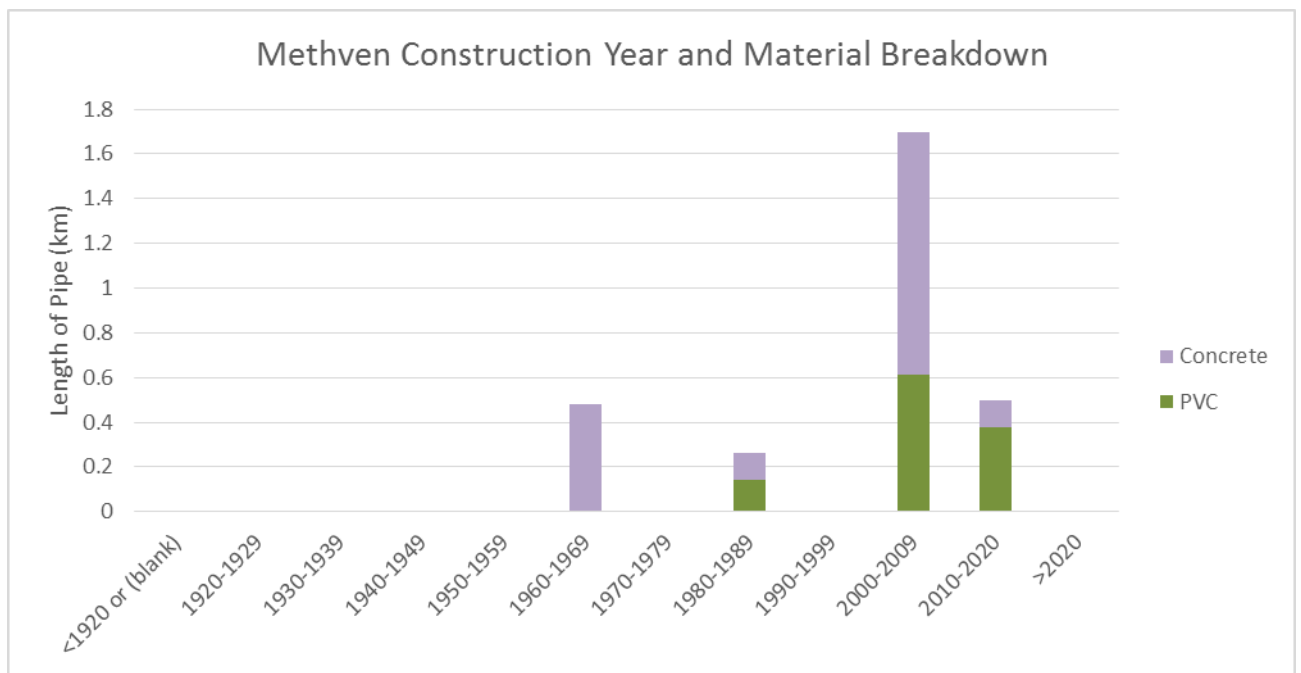
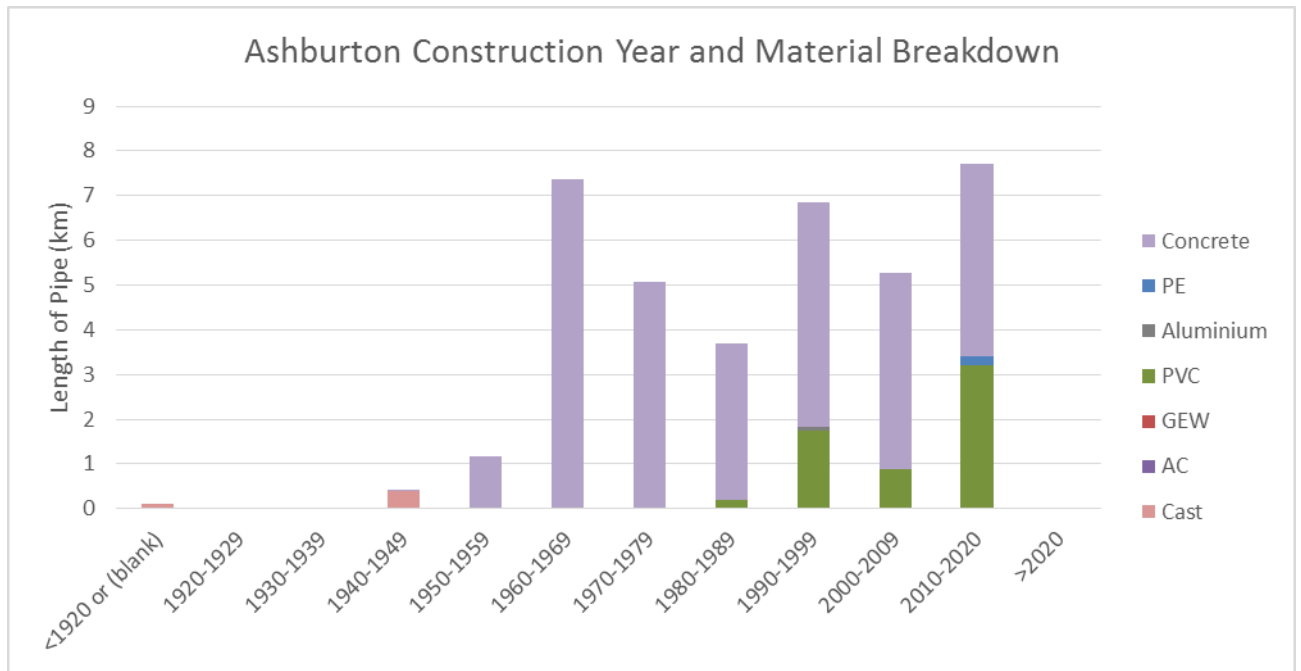
## 13. Appendices

### 13.1. Appendix A - Current Valuation by Scheme

**Table 9: Scheme Financial Summary**

Scheme	Asset Group	ORC June 2017	Annual Depreciation
Ashburton	Reticulation	\$ 28,568,243	\$ 272,502
	Structures	\$ 8,752,923	\$ 124,970
	Sub Total	<b>\$ 37,321,166</b>	<b>\$ 397,472</b>
Methven	Reticulation	\$ 2,048,693	\$ 19,511
	Structures	\$ 124,784	\$ 1,507
	Sub Total	<b>\$ 2,173,477</b>	<b>\$ 21,018</b>
Rakaia	Reticulation	\$ 772,517	\$ 7,357
	Structures	\$ -	\$ -
	Sub Total	<b>\$ 772,517</b>	<b>\$ 7,357</b>
Hinds	Reticulation	\$ 5,247	\$ 50
	Structures	\$ -	\$ -
	Sub Total	<b>\$ 5,247</b>	<b>\$ 50</b>
<b>Total</b>		<b>\$ 40,272,407</b>	<b>\$ 425,898</b>

## 13.2. Appendix B – Stormwater Network Age and Material Details



### 13.3. Appendix C - Operation and Maintenance Strategies

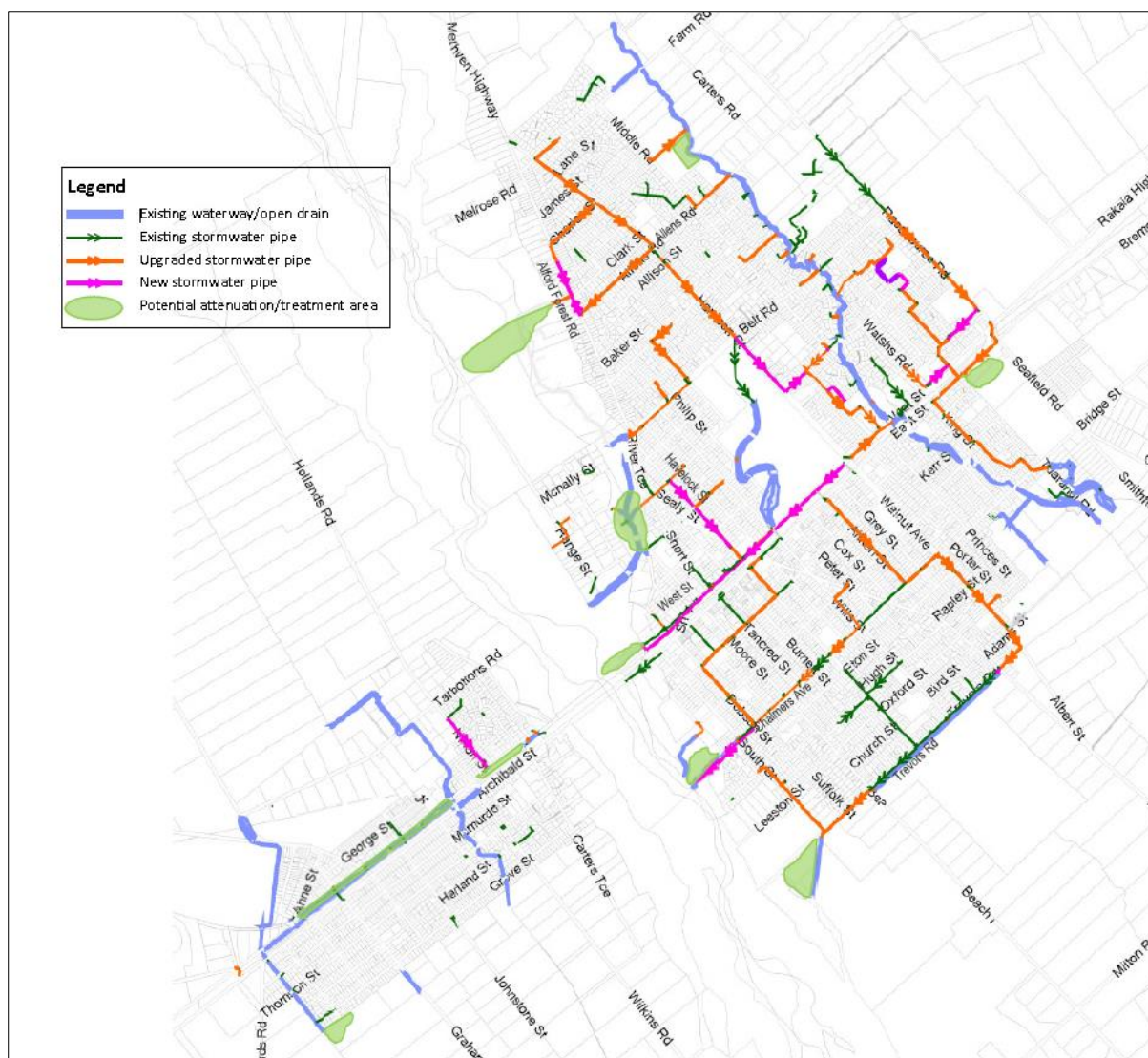
**Table 10: Operations and Maintenance Strategies**

Strategy	Objective/ Description
Routine Maintenance	Routine Maintenance is carried out by ACL an supervised and monitored by Council staff to an agreed programme.
Repairs	The detection and repair of faults causing failure will be undertaken as quickly as practically possible. The fault will be isolated and components repaired or replaced as appropriate with the main aim to restore service as quickly as possible.
Corrective Maintenance	Remedial maintenance will be undertaken to restore an asset to a satisfactory condition after a repair or following routine maintenance has identified additional work is required to avoid a likely future problem.
Redesign and Modification	Redesign may be necessary if an asset or system does not meet its operational objective. Similarly, modifications may be necessary to improve the operating characteristics. Alternative options are considered and can coincide with Corrective Maintenance.
Operations	Operational activities will be undertaken by ACL unless specialised advice is required. Council staff are responsible for the determination and optimisation of planned and unplanned works, work methods and maintenance scheduling to achieve the target service standards. Council supervise and monitor ACL work with Council staff defining the required standards.
Physical Works Monitoring	Council audits work carried out ACL and any other contractor to verify compliance with standards.
	Audits are carried out of approximately 5% of maintenance work to confirm compliance with contractual requirements.
Operation of Utilities	Utilities such as treatment plants are pump stations are operated in terms of defined parameters and standards set out in quality system manuals.
	Stormwater services utilities will be operated in terms of these quality manuals.
Incident management	Councils approach is an escalation process from minor to major, minor incidence is managed by the contractor, and medium to major issues by Council staff. Involvement is also judged by the potential consequences or asset criticality

## 13.4. Appendix D – Ashburton Capital Expenditure Programme

The figure below shows the complete package of potential projects presented. The stormwater upgrades shown for Tinwald are indicative only.

**Figure 7: Map showing all proposed stormwater improvements (from the SMP)**



The following tables contain the complete list of proposed operational and capital improvements from the SMP. This goes beyond the 30-year timeframe.

**Table 11: Operational projects to meet the SMP strategic objectives**

Priority & Project	Driver	Timeframe	Indicative Cost
<b>Ashburton Stormwater Consent</b>			
Priority A  Global stormwater discharge consent for Ashburton catchment, allowing for ECan processing fees, responses to s92 requests, preparing evidence and attending a hearing.	Compliance	2018/19	\$100,000
<b>Ashburton SMP Implementation</b>			
Priority A  SMP upgrades optimisation – create a prioritised capital projects list using multi-criteria analysis (social, cultural, ecological, economic, etc)	Efficiency & effectiveness	2018/19	\$35,000 <sup>3</sup>
Priority B  Define and protect overland flow paths	LoS	2018/19	\$27,000 <sup>3</sup>
Priority C  Install rain gauge(s) and water table monitoring bores <sup>1</sup>	Compliance	Initial 3 Sites Completed	
Priority C  Industrial sites assessment	Compliance	2018-23	\$100,000 <sup>3</sup>
Priority C  Community engagement and education <sup>2</sup> - community open day following lodgement of global consent to raise awareness of stormwater management and consultation with key stakeholders	Education & awareness	biennially	Staff Time
Priority D  Staff training to build in-house capability to implement the SMP	Compliance	Initial staff training completed and now ongoing	
Priority D  Stormwater Specification and standard details	Compliance	In development	
Priority E  Stormwater Bylaw (new)	Compliance	2018/19	\$10,000 <sup>3</sup>
<b>District-wide SMP</b>			

Priority & Project	Driver	Timeframe	Indicative Cost
Priority - not assigned  SMP(s) and global stormwater discharge consent for other urban stormwater catchments (Methven and Rakaia). Including, as necessary: SMP upgrades optimisation, define and protect overland flow paths, industrial sites assessment, community engagement and education	Compliance	2019/20 to 2021/22	TBC
<b>Total (External Only)</b>			<b>\$100,000</b>

**Table 12: Capital projects to meet the SMP strategic objectives**

Scheme	Project	Driver	Timeframe	Budget
Ashburton	West St Trunk Main (Havelock St to outfall)	LOS Improvement	2018/19	\$1,717,500
Ashburton	Attenuation and Treatment Facilities – West Street Discharge	Compliance LOS Improvement	2019/21	\$1,900,000
Ashburton	West St Trunk Main (Wills St to Havelock St)	LOS Improvement	2021/23	\$1,175,000
Ashburton	Attenuation and Treatment Facilities – Chalmers Ave Discharge	Compliance LOS Improvement	2022/24	\$2,580,000
Ashburton	West St Trunk Main (Walnut Ave to Wills St)	LOS Improvement	2023/25	\$2,910,000
Ashburton	West St Trunk Main (Mill Creek to Wills St)	LOS Improvement Catchment Mgmt.	2025/27	\$1,640,000
Ashburton	Attenuation and Treatment Facilities – Trevors Rd Discharge	Compliance LOS Improvement	2026/28	\$1,450,000
Ashburton	Chalmers Ave Trunk Main (South St to River)	LOS Improvement	2029/31	\$975,000
Ashburton	Attenuation and Treatment Facilities – River Terrace Discharge	Compliance LOS Improvement	2031/33	\$650,000
Ashburton	Attenuation and Treatment Facilities – Allens Rd Discharge	Compliance LOS Improvement	2033/35	\$1,550,000
Ashburton	Alford Forest Rd Trunk Main (Charles to Allens Rd)	LOS Improvement	2036/38	\$1,705,000
Ashburton	Havelock St Stormwater (Grigg St to West St)	LOS Improvement	2040/42	\$1,325,000
Ashburton	Attenuation and Treatment Facilities – Melcombe St	Compliance LOS Improvement Catchment Mgmt	2044/46	\$1,450,000

Scheme	Project	Driver	Timeframe	Budget
Ashburton	Attenuation and Treatment Facilities – Smithfield Rd	Compliance LOS Improvement Catchment Mgmt.	2046/48	\$1,550,000
				<b>\$22,577,500</b>