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**Stormwater**

**Asset Management Plan**

**1 July 2021 – 30 June 2031**

**20 SEPTEMBER 2022**

**Stormwater Asset Management Plan 2021 - 2031**

Plan management – review and update records:

|  |  |
| --- | --- |
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# Executive Summary

## Introduction

The purpose of this asset management plan is to describe how Stormwater assets in the South Waikato District will be managed so that acceptable levels of service are provided in the most cost-effective manner and contribute to the achievement of the 2021 – 2031 Long Term Plan (LTP).

This plan details information about:

* The strategic outcomes that Council is seeking to achieve related to Stormwater infrastructure.
* The level of service to be provided.
* The infrastructure that needs to be maintained, renewed and developed to meet the demands placed on it over the next 30 years.
* How these services are to be provided.
* What funding is required to meet these demands.
* The associated risks.

The AMP covers the period 1 July 2021 to 30 June 2031 with a particular focus on work programs over the next five years. It informs the Councils 2021/31 10 Year plan and the 30-year infrastructure strategy and contributes to meeting Councils identified strategic outcomes.

## What we do

Council owns, operates and maintains 123km of stormwater collection networks and disposal schemes in Arapuni, Tirau, Putāruru, and Tokoroa communities.

The services that are provided to the community through the stormwater assets in this plan are as follows:

* A reticulated stormwater system of pipes and channels (primary network) sufficient to cope with frequent rainfall events.
* A secondary stormwater system comprising swales, road, kerb and channel and both formal and informal overland flow paths sufficient to control stormwater from less frequent rainfall events
* Planning and building controls to restrict building in high flood risk areas, require minimum floor levels and require mitigation of stormwater runoff effects to prevent stormwater entry to habitable buildings.
* Planning and policy initiatives to minimise stormwater quality and quantity effects at source.
* Gross pollutant traps or similar treatment devices to reduce debris and contaminant levels in stormwater discharge.

We collect stormwater from homes and businesses via stormwater pipes and direct it by gravity to natural watercourses.

## Why we do it

The provision of Stormwater collection networks is vital to the needs and aspirations of all who live in the District. They provide the means of safe, reliable and efficient disposal of stormwater for resident's homes, schools, and businesses 24 hours a day, 365 days a year in a manner that is safe for both human health and property.

**Our Goals and Outcomes**

The Stormwater activity contributes to the Council’s Vision, Outcomes and Strategies linking to the Levels of service and driving performance objectives.

The external strategic environment is also of relevance in that the performance of the stormwater network is governed by legislative obligations and dependant on the management of the receiving waters which fall under the control of the Waikato Regional Council.

Council’s strategy presents what we are going to do for the next ten years to make our district a better place to live and work. At the core of our strategy is our vision, our outcomes and our strategies. The link between the vision, outcomes and strategies is explained in the figure below:

The external strategic environment is also of relevance in that the performance of the Stormwater network is governed by legislative obligations such as, Local Government Act, Resource Management Act, Health Act (Drinking Water) Amendment Act and Drinking Water Standards for New Zealand.

## Three Waters Reforms and Water Services Act 2021

In addition to the above, the proposed Three Waters Reforms currently proposed are likely to significantly impact on the delivery of the Stormwater services in the District. With the creation of a new water regulator Taumata Arowai the performance of our Stormwater activities will be under additional scrutiny.

There is currently strong policy direction from national and local government to improve the state of our waterbodies as reflected in the Vision and Strategy, the National Policy Statement for Freshwater Management, the National Environmental Standard for Freshwater, the Waikato Regional Policy Statement, and Plan Change 1 of the Waikato Regional Plan.

These policies expect improvements in water quality nationally and their implementation can be expected to require a shift in Stormwater and stormwater management. This will require TAs across the region to continue to seek funding through Long Term Planning processes to resource further upgrades.

Recently, TAs in the region, including the SWDC, have taken advantage of funding made available by the Government which has enabled some upgrade programmes to be brought forward.

The Water Services Act 2021 will significantly impact upon 3-waters management in New Zealand. The new water regulator, Taumata Arowai, will regulate stormwater utility providers and regulators (including Regional Council regulatory responsibilities). The Water Services Act will mean additional monitoring and reporting requirements for the management of water supply, stormwater and wastewater activities.

## Contribution to the Council Strategy

**Council’s Stormwater services are provided for the benefit of the community to ensure that the Vision of ‘Healthy people thriving in a safe, vibrant and sustainable community’, as expressed in the Long-Term Plan, is achieved.**

**The Stormwater Activity contributes towards the implementation of Council's Vision, through achieving the Outcomes and Strategies.**

| ****Outcomes**** | ****Strategies**** |
| --- | --- |
| Growth: Council aims to increase population and jobs, reduce unemployment, increase average earnings and improve the deprivation index. | ***Service provision*: Stormwater disposal is an essential contribution to economic growth and increased quality of life to mitigated flooding and contamination of water courses.**  *Infrastructure:* It is imperative that our Stormwater plant is fit for purpose in terms of a growing population and the associated demand, as well as the effects of climate change on stormwater flows.  ***Growth*:** Stormwater infrastructure will be established for the growing developments in the district. **An inevitable consequence of urban growth is an increased demand for Stormwater disposal services. Council will continue to assess the need for service extensions to areas of growth.** |
| Resilience: We all, Council and community, need to anticipate, resist, respond to and recover from significant change or events. | ***Climate Change:* The effects of climate change are progressive and apparent through increased and more intense rain fall leading to greater maintenance and service requests. Council recognises the need for improved stormwater ways and plan to undertake a number of stormwater way enhancements this LTP period.**  ***Financial sustainability*: Council will ensure adequate revenue is available to provide the required capacity or service level improvements in advance of development demand. Significant purchases will maintain a level that is viable for the current economic and population climate.** |
| Relationships: We will build stronger relationships with Iwi and Māori along with community and business groups to ensure that by working together we can achieve growth and a resilient community. | *Engagement:* Council and Raukawa have undergone a significant engagement process regarding options for the new wastewater plant. This will transfer quite readily to the stormwater activity with respect to renewal of the global stormwater consent. Council will maintain relationships with Iwi regarding Stormwater activities, such as Te Waihou. |

**AMP Response to the Strategic Context**

The approach taken in this AMP is to ensure that safe and reliable collection, treatment transport and disposal of stormwater to protect community health and the environment. Specific issues focussed on for the 2021 – 31 period and addressed in the plan are:

* **Staged upgrades of the existing water network to meet projected growth and rainfall trends.**
* Staged upgrades to meet existing Levels of Service (LoS) shortfalls in the stormwater network
* Completion of necessary upgrades to stormwater treatment to meet enhanced resource consent requirements
* The benefits of addressing these problems and the consequences of not addressing them are outlined in this AMP.

The benefits of addressing these problems and the consequences of not addressing them are outlined in this AMP.

**Key achievements over the last 3 years:**

**The key achievements for the Stormwater activity from the previous AMP update are:**

* Awarding of a 5-year maintenance contract for the district stormwater network,
* Completion of **network model of the Tokoroa, Putāruru & Tīrau stormwater reticulation.**

**Key Focus Areas 2021-2031:**

**The key focus areas for the Stormwater activity for the next 10 years are:**

* Delivery of growth-related programmes particularly in Putāruru
* Delivery of LoS related programmes to address current deficiencies
* Delivery of a renewal programme to address deteriorating and/or under sized pipes

**Network modelling**

**SWDC undertook further Network Modelling using Te Miro Water (TMW) model in 2022, to identify undersized infrastructure of the stormwater reticulation system, and to potentially identify upgrade requirements to meet future growth and provide input to future asset management planning. The findings of the consecutive Watershed Engineering and Te Miro Engineering modelling in 2022 reflected in the updated Stormwater Network growth and upgrades recommendations.**

**Growth Programmes**

**Due to the anticipated growth in the north of the district an increased focus will be required in supplying infrastructure to meet that growth.**

**AMP Updates**

The New Works scope, also identified as Projects-2022 below in this AMP reflect the following changes:

* the addition of the flood mitigation measures based on Te Miro Water recommendations,
* the addition of the network growth projects required for the new zoning areas in Tokoroa and Putāruru,
* the addition of the Capital improvements in Putaruru as per the LTP Amendments[[1]](#footnote-2) in August 2022.

## The Assets covered in this AMP

Council staff manage stormwater services to four main community areas: at Tokoroa, Putāruru, Tīrau, and Arapuni.

The key assets that contribute to providing these services are summarized in the below table.

Table 0.1 Stormwater assets - key components

| **Asset Component** | **Quantity** |
| --- | --- |
| Stormwater mains, km | 123 |
| Manholes | 1,539 |
| Catch pits or basins | 2,216 |
| Detention facilities | 11 |
| Service Connections | Approximately 10,000 properties |

The total replacement value of the Stormwater assets is estimated **$46** million as per the 2019 asset valuation.

## Levels of Service for Stormwater Customers

Customers’ expectations of the service have been identified and subsequently defined in terms of Levels of Service and Performance Indicators that can be monitored, measured and reported. South Waikato District Council has an ongoing need to measure how satisfied residents are with stormwater management, and services provided by the Council, and to prioritise improvement opportunities that will be valued by the community.

This plan supports Council providing:

* Stormwater collection and monitoring systems which protect residential, industrial and commercial properties in the District from flooding of habitable buildings for all rainfall events up to a 1 in 100-year return period.
* Stormwater infrastructure which meets the growth requirements outlined by Council.
* Stormwater services which comply with regulatory and consenting requirements.

The Following Key Performance Indicators (KPIs) relate to the Stormwater team:

* Council will have no more than one per 1,000 properties flooded during a storm event\*.
* Stormwater: There will be no "Formal Enforcement Actions" from the consenting authority (Waikato Regional Council) regarding Council's compliance with resource consent conditions relating to stormwater.
* Stormwater: The median response times for callouts in response to a fault or interruption to Council's stormwater reticulation system does not exceed four hours of notice during a flood event. A flood event is defined as an occasion where buildings that are compliant with the Building Code and are serviced by Council's reticulated stormwater system experience flooding.
* Stormwater: The total number of complaints received does not exceed one complaint per 1,000 connections to Council's stormwater system. The total number of rateable properties within the stormwater area is 7686 which allows for 7 number of flooded properties per year. (KPI stormwater connections will be amended per year to account for changes in property numbers in the district)

*\* A storm event causes flooding to compliant rateable properties due to exceeding the design capacity of the stormwater system.*

* Level of service is expected to change in the following areas in the next 30 years
* Reduced incidence of network faults and performance issues within the network following proactive investment in inspection, condition assessment and renewals
* More frequent ponding and nuisance flooding in road and overland flow paths associated with more frequent operation of the secondary stormwater network due to climate change and additional stormwater runoff due to intensification
* Improved outcomes with respect to stormwater quality due to greater focus on regulatory and physical controls to treat stormwater at or close to source

**How we measure performance**

The table below shows the changes in customer satisfaction levels over the past three years for all of the three water activities (Water, Wastewater & Stormwater). The satisfaction figures discount those who answered “don’t know” when they were asked for their opinion of the service. There has been a change in methodology between 2019 and 2020 when online or free post returns were allowed, and this may have impacted on the satisfaction percentages shown.

Table 0. Customer satisfaction survey results

| **Council Activity** | **2018 Satisfaction Level** | **2019 Satisfaction Level** | **2020  Satisfaction  Level** | **2020  Sample  Size** |
| --- | --- | --- | --- | --- |
| How well the stormwater network is maintained | 75% | 73% | **72%** | **331** |
| Ability of stormwater network to keep roads and footpaths free from flooding | 71% | 71% | **68%** | **377** |
| Ability of stormwater network to protect your property from flooding | 82% | 83% | **79%** | **350** |

## Planning for Future Growth and Demand

New capital expenditure comprises a combination of investment in infrastructure required for growth primarily in Tokoroa and Putāruru and construction of new assets to mitigate the effects of flood damage in at risk areas of the network, a breakdown in the funding split between these activities is outlined below.

The main demand for stormwater services in the future will be driven by:

* Urban intensification, commercial and household growth particularly in Putāruru and Tirau.
* Climate change effects resulting in more frequent higher intensity rainfall events.
* Higher expectations around achievement of improvements in stormwater quality particularly in the urban streams and watercourses.

The following key issues have been identified for the ten-year planning period:

* Renewal of global resource consents for stormwater discharges
* Construction of new stormwater treatment either at source or within the network to meet new consent requirements.
* Increasing capacity in some areas due to higher intensity storms and population growth.

The latest 2018 Census data has revealed the district having an estimated population of 24,800 in 2018 and 25,100 in 2019 which is just over a 1% increase from 2018. Most of the growth is anticipated to be in the north of the district focused on Tīrau and Putāruru.

The impacts of proposed developments in Putāruru have been modelled to measure the impacts on the existing stormwater network. From this modelling, a number of upgrades are proposed to both the reticulation and open channel infrastructure to cope with increased flows.

Increased stormwater flows can be expected from developments of recent industrial subdivisions in Tokoroa, Putāruru, and Tīrau communities during the planning period, as well as infill developments in Tīrau and Putāruru growth areas.

## Lifecycle Management

Council manages six separate Stormwater schemes using its professional engineering staff and as required, external resources.

The major Stormwater assets include:

* Pipes (mostly of reinforced concrete and between 225mm and 1200mm in diameter as shown below).
* Manholes at points where pipes intersect or their direction changes.
* Catchpits with gratings to collect stormwater run-off at roadsides and elsewhere.
* Inlet and outlet structures on the ends of pipelines to protect land and control water flow.
* Detention facilities to store and detain stormwater resulting in reduced flow rate and improved water quality.

This enables the individual components to be depreciated and the replacement value calculated. Reports can be produced forecasting renewal and replacement programs and costs.

**Asset Condition and Performance**

**The pipe network appears to be in generally moderate condition based on the frequency of the fault and failure incidents. However, some assets are coming to the end of their useful life. Renewal expenditure is primarily targeted to replace these pipes based on pipe condition and areas of flooding events.**

In the case of stormwater pipelines, the condition of the pipe is taken as being directly related to its age unless better information is available. Council does not have a complete or accurate set of condition ratings for stormwater assets in its database, however there is an improvement task to address this. Without knowledge of the condition of each stormwater pipeline it has been necessary to adopt standard life expectancies based on pipeline age and expected useful life rather than by analysis of condition grades. Estimates of average life expectancy for the various makes of pipe were assessed using local knowledge, published data from other local authorities and technical papers such as the International Infrastructure Management Manual.

However, there is evidence of problems with performance of the networks and with the condition of the piped network is worse than assumed in some cases. While it is expected that most of the network is in good condition, inspection and condition assessment data for a representative cross section of the network is required to confirm this.

**Operations and Maintenance**

Stormwater operations and maintenance strategies set out how the stormwater activity will be operated and maintained on a day-to-day basis to consistently achieve the optimum use of assets. The operation and maintenance of stormwater assets is carried out using a combination of Council Asset Management staff and external contractors.

The maintenance regime has historically focused on ensuring key above ground structures particularly gated outlets, open channels and water courses are maintained to operate reliably at their design capacity. Less attention has been given to the piped networks on the assumption that given most of the network is less than 50 years old that there will be few significant problems.

Figure 0.1 Stormwater operations cost components based on historical figures

Figure 0.2 Stormwater Pipes by Diameter

**Capital Improvements and Renewals**

Following extensive modelling work of the stormwater networks in Tokoroa, Putāruru and Tīrau a number of significant projects have been identified in the next 10 years to address current deficiencies in the stormwater network in Putāruru. These are as follows:

* Arapuni St open channel improvements – piping of 250m of open drain between Mountbatten and Montgomery
* Arapuni Rd culvert – replacement of an undersized culvert to remove backwater effects in the network
* Buckland Street culvert replacement – replacement of undersized culvert under rail line
* Scotia Glen to Golf Street – piping of open drain
* Philip Street Stormwater improvements – piping of 380m of open drain
* SH1/Harry Martin Drive Stormwater improvements – upsizing of pipe network
* Harry Martin Drive – high level overflow
* Golf Street stormwater improvements – upgrading of existing 450 mm and 525 mm pipe diameter to 600 mm.

The following renewals have been identified in the next 10 years:

* SH1 Tokoroa stormwater – rehabilitation of 440 m of 450 mm CP pipe under SH1
* Norrie Place stormwater – replacement of existing 225 mm pipe diameter between Norrie Place and the Oraka stream.

The modelling work completed by Watershed Engineering in Tokoroa has identified the problem areas and produced only high-level solutions. Further modelling work and optioneering to refine the most appropriate solutions was carried out by Te Miro Water.

Additional new components are required to respond to public requests to convert open drains to piped systems, and to construct improved inlet/outlet or stormwater detention structures, which help to prevent flooding or damage to the pipe system. Sustainable and reliable delivery of the Stormwater service requires careful consideration of the various types of risk associated with the service.

The major risks addressed in this Asset Management Plan include:

***Business Risk***

The Corporate Risk Management Policy addresses community outcomes, vision statement and strategic themes. Full details can be found in the South Waikato Risk Register and Risk Profile, which ranks the risks and includes control measures, where they exist.

***Asset Risk***

An Asset Criticality and risk Assessment report in 2007 addressed the consequences of infrastructure failure and identified the critical assets that required further investigation in order to ensure that they would continue to perform reliably delivering the agreed levels of service. Subsequent to that review our understanding of criticality and risk has evolved further, and additional work is underway to further refine our critical assets.

Critical assets are those assets which have the highest consequences in terms of disruption in services and financial, environmental and social cost should they fail. For the Stormwater activity the assets in this category are:

* Large diameter Stormwater pipes and channels
* Stormwater treatment devices
* Assets with critical customers

Mitigation measures to address these risks are covered in this plan, Resilient infrastructure is able to deal with significant disruption and changing circumstances as a result of the occurrence of natural hazards such as seismic and volcanic events.

***Business Continuity Risk***

Council has developed Business Continuity Plans that address the continuation of service delivery in the event of a disaster or failure of critical infrastructure. This is also linked to the regional lifelines program involving all territorial authorities in the greater Waikato and other utility providers.

Other key risks for the activity as a whole are:

* Climate change.
* Non-compliance with legislation and legal requirements.
* Discharge of hazardous or dangerous contaminants to the stormwater network.

## Financial Forecasts LTP 2021

The figure and table below summarise financial projections for OPEX and CAPEX for the 10-year planning period. The chart below includes the latest Growth, Improvements and Renewals’ amendments made in 2022.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **OPEX & CAPEX Expenditure** | **2021/22** | **2022/23** | **2023/24** | **2024/25** | **2025/26** | **2026/27** | **2027/28** | **2028/29** | **2029/30** | **2030/31** | **Total Cost 10 Years** |
| OPEX Operations and Maintenance | 1,141,859 | 1,176,590 | 1,220,488 | 1,292,601 | 1,744,470 | 1,801,051 | 2,094,501 | 2,125,908 | 2,167,510 | 2,345,851 | **17,110,831** |
| CAPEX Renewals & Improvements | 213,000 | 453,000 | 11,576,807 | 13,097,807 | 5,358,030 | 4,489,030 | 1,138,000 | 40,573 | 573,000 | 573,000 | **37,512,247** |
| **Total** | **1,354,859** | **1,629,590** | **12,797,295** | **14,390,408** | **7,102,500** | **6,290,081** | **3,232,501** | **2,166,481** | **2,740,510** | **2,918,851** | **54,623,078** |

Figure 0.3 Financial Forecasts LTP 2021

## Improvement Plan

Council’s asset management target is to achieve the "Intermediate" level, which is considered to be appropriate for an organisation of its size. Following guidance from the Office of the Auditor General and the NAMS manual, several Improvement Plans have been developed and implemented historically, while others are ongoing.

Further improvement proposals are based on a review of the status of compliance with the requirements of “Intermediate” level.

## Conclusion

This AMP sets out programs for operating, maintaining, renewal and development of the Stormwater Activity over the next thirty years that will ensure that the required level of service is delivered to the community, the service potential of the assets is maintained for future generations, and that the growth of the District is provided for.

1. ECM\_598789\_v6\_Long Term Plan Amendment update.docs [↑](#footnote-ref-2)