



*November 2020*  
**NAPIER  
FLOOD**

9 November 2021



**NAPIER**  
CITY COUNCIL  
*Te Kaunihera o Ahuriri*

# Contents

1. Executive Summary	1
2. Document Purpose	2
3. Incident Background	3
4. Impact to Communities	4
5. Response	7
6. Climate & Change	7
7. Stormwater System	8
8. Recovery	11
9. Twelve months on	12
10. Sources of Information	14
11. Acknowledgements	16

## 1. Executive Summary

***On 9 November 2020, Napier received an extreme level of rain in a short period of time over a small geographic area. Due to the speed and intensity of the weather event, many parts of the City and environs were flooded.***

The stormwater system worked as it was designed to do, although the specifications of the system are rated below the rating of this storm, which was described as a '1 in 250 year' event, one of the highest rainfalls on record. As the climate changes these return periods or Annual Exceedance Probabilities are less relevant with such events returning more often than the rating suggests. As population, and resulting housing stock, grows, the built environment includes a greater number of houses, and a greater number of impermeable surfaces such as concrete and roofs, meaning water sheets off exacerbating flooding issues.

The priority is to mitigate the damage caused by flooding. This will take a multi-pronged approach with councils, partner agencies and community working together to ensure the city can withstand such events. Building a resilient community that understands the nature and effects of flood, and can take proactive measures to minimise damage, is as important as ensuring council-led strategies and operational processes are effective.

Post flood reports on the incident have been reviewed to help inform operational and strategic approaches to managing flood in the future. As much as reviewing the incident, response and recovery of the November flood, reviewing such reports is a valuable element in taking a forward-facing view to prepare community, assets and infrastructure to best meet the impacts of any future events.

## 2. Document Purpose

Following the Napier flood of 9-10 November 2020, partner agencies reviewed existing documents or commissioned reports.

These documents and reports confirmed or provided key information to build a full picture of the nature of the flood, the way stormwater assets performed during the event, and the impacts on community and infrastructure. This report examines these learnings to take a forward-facing view of how Napier can become a more resilient community that can withstand potential damage caused by rainfall events in the future.

This document primarily draws into a single document key information from the incident reports and strategic summaries. The source material is referenced in the Sources of Information section.

The intent of this document is to look forward, however, this document will reflect on the work identified to date. It also informs the agreed way forward for both infrastructure improvements and organisational development.

Infrastructure improvements are covered in the Performance of Stormwater System section of this report.

Organisational development key learnings are predominantly drawn from the Independent Operational Review. These reviews cover measures taken and lessons learnt from and during the incident. An action plan for organisational development is being collated from recommendations identified in the reports noted in the Sources of Information. These learnings will also be used to develop an action plan for readiness and response planning so future incidents of this scale can be managed effectively.



### 3. Incident Background

Flooding occurred in Napier on Monday 9 November 2020 after a high-intensity, localised, rapidly developing weather bomb of a relatively short duration. This significant weather event saw a local state of emergency declared by Mayor Kirsten Wise at 8.10 pm on that evening. The local state of emergency was lifted on Thursday 12 November.

On Sunday 8 November, severe weather warning messages had been sent to Napier City Council (NCC), and other councils and agencies in the area through the Hawke's Bay Civil Defence Emergency Management (CDEM) regional warning system. These warnings placed the weather event well north of Napier.

Rain fell across a large portion of Hawke's Bay but was particularly significant in a 15sq kilometre area of Napier, centred over the City. Napier experienced twice its average monthly rainfall in a 24-hour period.

The event has been described as a '1 in 250 year storm' with over 200mm falling in the 6 hours between 2pm and 8pm. Napier experienced its wettest day since 1963 and second wettest on record.

A total of 54 mm of rain was received in one hour between 5pm and 6pm on Monday and the Nelson Park rain gauge recorded 250.2 mm in a 24-hour period.

Although the rain event was tagged as a '1 in 250 year storm' it is important to note that events of this nature, and subsequent flooding, may occur more often. Rainfall is measured at specific points, which are small, and in many ways do not reflect rainfall across the whole City. By some counts, this event was a '1 in 50 year storm'. Therefore, flooding of the severity experienced in November 2020 may happen more often than rainfall statistics indicate.

Rising sea levels will also impact pump station capacity and ground water levels. It may be appropriate to redefine the Annual Exceedance Probability - or 'return periods' - in the codes of practice for design and construction, or to consider other alternatives for ensuring stormwater, wastewater and drinking water networks remain in service during such events.



## 4. Impact to Communities

The incessant heavy downpour in such a short period of time caused slips, and flooding of streets and properties. This further resulted in the wastewater system being inundated with stormwater from rainfall as flood levels rose above wastewater gully traps.

When a state of emergency was declared on Monday night, the Hawke's Bay Civil Defence Emergency Group, Fire and Emergency New Zealand, Police and Napier City Council's Incident Management Team were mobilised.

Power cuts and surges throughout the flooding event impacted the potable water (drinking-water) supply to the reticulated areas of the City. All key facilities were inspected during and after the event and no issues of flooding or contamination were identified in relation to water source, storage or reticulation.

These power surges caused drinking water bore pumps and chlorine-dosing pumps to trip during the evening of Monday 9 November. The Standard Operating Procedure requires staff to visit the sites to manually re-set on site. At one point in the evening, all the drinking water pumps were off, primarily to protect the water quality and safety of the bores and ensure surface water did not enter the network.

The water quality team took regular samples throughout the event due to the potential risk of contamination and was in regular contact with the Hawke's Bay District Health Board. No contamination was recorded.

At 5pm on 9 November, overloading of the wastewater network meant manhole covers began 'popping', releasing diluted wastewater into some areas. At 5.45pm the decision was made by NCC to release diluted wastewater into the Atherfold Channel opposite Wilkie Place, then to the Pūrimu Stream, which flows to the Ahuriri Estuary. Wastewater was then discharged to the Estuary for 77 hours until 3.58am on Thursday 12 November 2020.

A number of homes and businesses were affected by flooding and slips in various locations across the City. The slips were mainly on Mataruahou (Bluff and Hospital Hills) and the flooding centred on Maraenui, Pirimai and Marewa. There were over 10,000 power outages recorded, ranging from a few minutes to 26 hours.

Roads in all areas of Napier were affected by flooding to varying degrees. Many roads were closed when it became unsafe to drive on them. Surface damage of the roads themselves, wastewater overflows and high water levels all meant roads were compromised. Napier Hill experienced 41 major slips resulting in homes being inundated, retaining wall failures, and downstream flooding of the Central Business District and Ahuriri.

NCC-owned properties were damaged in the flood including two residential properties. Of the Council's commercial properties, nine visitor facilities were damaged including the Napier Aquatic Centre, iSite, Par2 MiniGolf, Kennedy Park, MTG and the SP Smith Pavillion. McLean Park Rodney Green Centennial Hall, Ocean Spa and the Napier War Memorial Centre were significantly affected.

Landslides also took place in several parks with an immediate response required at Bluff Hill, Maggie's Way and Park Island Cemetery. At McLean Park, two light towers were affected by water damage.

***The effects of the flood on people, homes, businesses and infrastructure are myriad and complex. In simple figures, the impacts of the flooding from the rain event can be summarised as follows:***

- 173 known flood evacuees
- 589 properties affected in total
- 115 properties affected to a status of 'uninhabitable'
- 386 properties affected but still 'habitable'
- 658 service requests created in the NCC system following calls from members of the public.

**Although all areas of Napier were affected, some neighbourhoods were particularly affected by flooding and damage to properties.**

### **MARAENUI**

was severely impacted by flooding. Water remained for several days and some areas could not be accessed for up to 36 hours after the initial downpour. Flood water reached 75cm above ground level in parts. The majority of impacted homes were in Maraenui.



### **NAPIER SOUTH**

also experienced flood water up to 75cm above ground level. The most affected areas were near Latham Street and Georges Drive.



### **MAREWA**

also had flooding, particularly around the main drainage channel and pump station on Kennedy Road.



### **ONEKAWA**

flooding reached 80cm above ground level at times. It was centred around Ford Road, Wakefield Street and Niven Street with some commercial properties being flooded.



### **PIRIMAI**

experienced flooding particularly around Harold Holt Avenue and Bill Hercock Street where flood waters reached up to 90cm above ground level.



## TARADALE AND GREENMEADOWS

experienced flooding when the Taipo Stream overflowed. Stormwater ponded in an overflow area adjacent Kent Terrace and around Churchill Drive. Flood levels reached 50cm above ground level in Taradale and 40cm above ground level in Greenmeadows.



## TAMATEA

experienced flooding up to 20cm above ground level in some areas, particularly around Westminster Avenue and Saltwater Creek.



**According to Unison, the local electricity network managers, approximately 2680 homes were impacted by power outages.**

Power supply was restored to around 2000 houses on Monday 9 November and 680 houses were reconnected on Tuesday 10 November. Some schools - Tamatea Primary, Porritt Primary, Tamatea Intermediate, Tamatea High, Henry Hill and Fairhaven - cancelled all classes for Tuesday 10 November.

**Fire and Emergency New Zealand (FENZ) reportedly received around 300 calls regarding floods between 5pm on 9 November and 3am on 10 November.**

Some 80 firefighters worked through the night of 9 November. Defence Force assisted FENZ in assessing the significant flooding in low-lying suburbs including Maraenui and Pirimai. A Search and Rescue team from Palmerston North helped the NCC team to assess badly damaged properties on Napier Hill.

Emergency services encouraged people to stay with family and friends if they needed to evacuate. About 60 people made their way to a welfare centre in Kennedy Park in the suburb of Marewa.



## 5. Response

***The response to the flood was multi-faceted and prompt with a number of businesses, agencies and individuals working through the night to assist people, and for many days afterwards. In some cases, that help extended for many weeks after the event.***

Early on, community exhibited self-reliance and resilience managing their own needs and supporting each other including assisting family and neighbours. Many self-evacuated to family and friends, and across the board there were illustrations of people working together to ensure safety and wellbeing was the main focus.

NCC staff, supported by CDEM resource, rang around households potentially affected by flooding and found a high number were confident to self-manage. This showed a level of community resilience and self-reliance. Due to this, the exact number of homes with damage is unknown as is the number of people who evacuated to friends and family as a result of the flood.

Agencies working on the response set up a walk-in centre of shared service at the Marewa Shopping Centre easily accessible to members of the public. This was supported by the Council's Customer Services team, other staff and Councillors, and became a 'one-stop-shop' for the community to seek help and assistance in a number of welfare and wellbeing areas. When it was no longer required the information was transferred to a single point of contact website to ensure continuity of assistance.

This online resource for householders to access key information helped enable streamlined recovery, in areas such as insurance navigation. This portal is still open and has been used throughout the last twelve months. According to the Insurance Council, the majority of insurance claims for flood damage are now substantially settled.

NCC staff from across all areas of business worked well beyond their expected capacity to ensure community continued to be served throughout the event and response periods. It is important to note, the flood came directly after a period of time when many staff had been working within the COVID-19 response and were already stretched to capacity.

Those NCC teams that worked in their roles to respond to the flood did so for many hours above and beyond their usual working hours. Building inspectors worked into the night to check on buildings. Transport teams worked across the city to maintain roads and access routes. Customer services teams stayed working after-hours with a decision made early on not to re-route calls to the after-hours function but to remain on duty. Their priority was to take calls from the community and ensure needs were being met; retaining local knowledge was seen as important for an effective response. Depot and water teams worked through the night to ensure pumps (50 wastewater pumps and 10 stormwater pumps owned and operated by NCC) remained operational and waterways clear. Community engagement worked as part of the welfare response, proactively contacting households to ascertain their needs and working with the CDEM response to ensure those needs were met

Over 50 NCC staff moved from their business-as-usual roles into CDEM roles. For some this secondment was in place for many months as the response and recovery phases of the event unfolded.

## 6. Climate & Change

Napier, by its geographic and topographic nature, provides a distinctive receiving environment for extreme weather events. It is low-lying with large pockets of land below sea level. This includes proximity to a number of rivers, streams and waterways. It is a coastal city with unpredictable and changeable weather patterns, and occasional intense, localised storms. Some parts of the city, and significant suburban areas, are built on reclaimed land, with a few areas on reclamation made up of post-earthquake rubble.

In the context of climate change, events such as the November flood may become more common, and Napier should expect and prepare for extreme weather events in the future with changing weather patterns meaning extreme weather events will return on a shorter cycle than they once did. Mitigating and minimising the damage caused by such events takes a prepared and participatory community. Councils, support agencies and members of the public must work in partnership to ensure the city responds effectively when such events happen. It also means community and council focus plans and projects towards building environments and spaces that are resilient to the effect of climate change. This includes ensuring domestic and municipal works programmes that see infrastructure, such as pipes and pumps, operating at peak effectiveness during such events.

As with many urban areas in New Zealand, Napier is experiencing growth in population and issues with housing where increased housing stock is being constructed on land serviced by infrastructure designed to meet the needs of fewer households. Any future development must allow for a certain level of capacity in terms of weather events but it will never protect the City from every potential flood event.

The stormwater systems and networks are not designed in their entirety to one level of service. Parts of the network are set to a 1 in 50 year event, with assets such as roads set to 1 in 10 or even 1 in 5 year events. In some places, what were once rated to with-stand 1 in 10 year events are now 1 in 5 year standards.

## 7. Performance of Stormwater System

### *How does a stormwater system work?*

Stormwater systems are often thought of as pipes and pumps, but some of the most important parts of the system to minimise damage from floods include roadways, waterways and open spaces.

The stormwater system in Napier includes all the components built to control the flow of water in a storm from the time rain hits the ground until it is discharged to the sea.

- Parks and open spaces that are designed to fill with water to keep the water back, higher up in the catchment, allowing areas closer to the outlet to drain before they also have all the water from upstream arrive.
- Roadways are designed to convey floodwaters and store water in large storms to minimise flooding of surrounding properties. While it may cause temporary access issues, it prevents longer lasting property damage. This approach is standard practice around the world, and usually the roads are designed to hold the water from the smaller storms with no ponding on private property.
- Waterways with grass swales and culverts under roads are designed to get the water to the sea, and to store large amounts of water upstream to stop all the water arriving downstream at the same time, causing deep flooding downstream.



- Pipes and pumps are the main ways stormwater is carried to the sea in the Napier system. They have little capacity for storing water, rather they are designed to convey the water. If downstream is already flooded, pipes and pumps are not as effective in conveying the water downstream because there is no capacity downstream to receive the water. When this happens, the area upstream of the pipes and pumps will back up and start to flood upstream.

The Napier stormwater system uses a combination of all these components to manage the flow of water from a storm to avoid loss of life and minimise damage to property. Stormwater systems around the world are designed to deal with storms that happen anywhere between once every 10 years to once every 100 years. Larger storms that happen very infrequently are very difficult to predict and it is not practical to design the system for such events. A stormwater system that would deal with a storm rated at 1 in 250 years would involve building expensive infrastructure that may only be used every 50 years or so, and would need to be maintained in the 50 intervening years.

### **Did the Stormwater System Work in the November 2020 Storm?**

In the 9 November storm, the stormwater system performed as it was designed to, approximately 40% was designed over 50 years ago. The system was designed for the population, climate and standards of the time. Since then, in Napier, there has been significant population growth and changes in weather patterns that have eroded away the ability of the system to perform.

Events like the November storm highlight the deficiencies in the Napier system that have accumulated over time, and require significant investment to meet the increasing pressures that population growth and climate change are putting on the stormwater system. Modelling and simulation work have identified areas of focus, which now form the basis of the Stormwater Activity Management Plan for period 2021-31.

### **Each component of the stormwater system performed as follows:**

- Parks and open spaces stored significant volumes of water, preventing further flood damage downstream. In some cases, they were full to capacity and overtopped on spillways to roadways, as they were designed to do.



- Roadways stored water and successfully prevented some flood damage. There were cases where the flood damage was not prevented because residents in large vehicles drove through streets before the flood subsided and pushed waves of water onto private properties causing unnecessary damage.



- Waterways stored and conveyed large amounts of water, although there were points where they were constrained by undersized culverts, causing more flooding upstream than would have occurred if the culverts had been upsized. These culvert upgrades had already been identified before the storm and are budgeted in the Long Term Plan.



- Pumps that did not appear to pump at maximum capacity were actually pumping at full capacity when the depth of the downstream water is taken into account. The deeper the water is downstream the less a pump can transfer to that water body. In some cases, the water from upstream had yet to arrive at a pump, so the pump was operating at the maximum level it could with the water at its inlet.
- Pumps owned and operated by NCC that ran out of diesel or had power outages were not affected at peak flow times. This means the pump outages did not exacerbate flooding upstream, rather it delayed the water arriving downstream. The electrical Cross Country Pump continued to run throughout the event, with its back-up diesel pump running out of fuel 10 hours after the rain stopped.

- Pipes conveyed floodwater downstream, however, their capacity was exceeded by the size of the storm. The pipes potentially conveyed less flood water than they were designed to because there was a build-up of silt and rubble in the pipes. Regardless of the condition of the pipes, they were not designed to convey the volume of water that was in the catchment from such a large and rare storm. This means for a storm this size, the upstream flooding was much more likely exacerbated by the initial design and size of the pipes than it was by the build-up in the pipes.



## 8. Recovery

Transition from response to recovery commenced in the week of 23 November 2020. A Recovery Strategy was developed to set the direction for the recovery. At the time of the flood, Council and community resources were already stretched by the demands of the emergence of COVID-19. The timing of the rainfall event at the end of a hard year created a heavy additional toll on council staff, some of whom were personally affected by flood damage.

Agencies involved in the Recovery process included: HB Civil Defence Emergency Management Group (CDEM), Hawke's Bay District Health Board, Insurance Council (IC), Kāinga Ora, Kennedy Park, Ministry of Business, Innovation and Employment (MBIE), Temporary Accommodation Services (TAS), Ministry for Social Development (MSD), Te Taiwhenua o Te Whanganui ā Orotū, and Council's Community Strategies team. The hard work and significant contribution from all these partners greatly improved NCC's ability to respond to the event. The relationships forged over the course of the last twelve months will be invaluable to help in future events.

### 8.1 WELFARE

Following the establishment of navigators to individually case manage those in need of continued assistance, information came from three main agency sources. These were MBIE, which focused on the temporary Kennedy Park residents; MSD, who co-ordinated the navigators; and Kāinga Ora. From all known agency data sources, by January 2021, 81 family groups were out of their homes. This comprised 40 at Kennedy Park, 6 in portacabins and approximately 35 families staying in other accommodation (with friends and family). MBIE and Napier City Council extended the agreement for use of Kennedy Park for temporary accommodation until the end of July 2021. This was further extended in some exceptional cases.

### 8.2 HEALTH

There was an increase in the number of campylobacter cases notified to the Public

Health Unit in the two weeks following the flood compared to the number expected for these weeks (when looking at the historical average for this period in previous years). Case investigation of these notifications, however, did not show a link to the flood waters, and these cases were dispersed across Hawke's Bay. Fluctuations in campylobacter cases are expected at this time of year.

Other data regarding calls to Healthline and HealthStat data from GP consultations did not show a significant rise in people reporting symptoms of gastroenteritis in the areas affected by the flood.

### 8.3 TEMPORARY ACCOMMODATION

On 19 October 2021, the last displaced resident left Kennedy Park, to go to MBIE Temporary Accommodation Service (TAS) accommodation. The original deadline for this had been the end of August, with three national sports tournaments based in Hawke's Bay booking the facility to accommodate players, officials and support crews. The emergence of the COVID delta variant and subsequent lockdowns led to cancellations of those tournaments and enabled an additional six weeks temporary accommodation at the facility for the remaining resident.

There are two displaced households under the care of TAS, awaiting a house purchase and refurbishment, respectively. For the most part, the extended time taken for rebuilds was a result of shortages of builders and building materials.

### 8.4 REVIEW PROCESS

A review with agency partners has been carried out to inform planning and preparation for any future flooding events. The review has highlighted things that went well and areas for improvement. The positives include the prompt use of Kennedy Park to accommodate displaced families, efficient distribution of the Mayoral Relief Fund and the one-stop-shop Civil Defence Hub in Marewa. The areas for improvement mainly focus on systems and processes to help co-ordinate individuals, communities and agencies who wanted to help with the initial response and the ongoing recovery. Keeping clear lines of communication was challenging. Maintaining existing strong relationships to enable better communication, resourcing and sharing of sensitive data is essential.

## 9. Twelve months on and the next steps

***Through the Long Term Plan, Napier has confirmed key projects to assist with damage mitigation and flood-zone remediation work.***

- \$11.6 million in the next 6 years on CBD upgrades
- \$15 million in 7 years in Maraenui
- \$14.5 million in 6 years in Te Awa
- \$1.7 million in 2022
- \$1 million in 3 years for pump station upgrades including increased electrical and control cabinets

NCC's operational work plan for the next twelve months includes process and operations adaptations, as well as significant changes that respond directly to the Napier flood.

Physically, the work from the flood has been two-fold. First, a significant 'clean up' programme to clear pipes of rubble and silt is still ongoing. Second, a comprehensive programme of pipe jetting and cleaning of the 241 km stormwater pipe network, and investigation for debris and damage through CCTV has taken place, and is ongoing on a rota programme.

***Post flood, Napier City Council identified a number of improvements. A work programme incorporating these is managed through NCC's project management tool:***

- Construct Wastewater Treatment Plant containment cells to help manage such an event in the future.
- Investigate upgrades at pump stations on Sale Street and Latham Street to ensure electrical panels are well above floor level and protected from potential future flooding events.

- Install flow meters and sensors at wastewater mains in Greenmeadows and Taradale Road.
- Improve weed screen systems at Georges Drive.
- Analyse inconsistencies between various waterways' ability to drain flood water.
- Review maintenance, cleaning and inspection practices across all water assets.
- Streamline communication of service requests to one point of contact to more effectively use resources.
- Maintain a stock of sand – at least enough to fill 200 bags – to help with future flood management.
- Enable access by NCC teams to vehicles better suited to emergency events.

Across the board, NCC teams are being bolstered by the addition of staff, new technology and operational knowledge both within NCC and in partnership with other councils and agencies. Institutional knowledge is being supported by improved capacity through increased human resources.

Strategic work has centred on refocusing the organisation towards preparing for the effects of climate change and amending plans and development rules to ensure any damage from potential flooding is minimised.

***Succinctly, work to date incorporates:***

- Changing development rules through Spatial Plan, Key Account Managers, and Draft District Plan.
- Partnering with Government on community resilience and sustainable infrastructure, for example the in-progress Infrastructure Acceleration Fund application.
- Improving pump technology and monitoring ability.
- Improving operational partnerships including a revised Memorandum of Understanding with Hawke's Bay Regional Council for HBRC stormwater assets.
- A newly established Climate Change role within NCC.

- A number of new positions within NCC to help with delivery of Long Term Plan water projects.
- Regional Park planning to help with climate change resilience.
- Full CCTV drain jetting and cleaning programme.
- Repaired slip damage.
- Improved communication between NCC and partner agencies such as HBRC and Unison has been prioritised and streamlined.

Over the last twelve months, since the November flood, NCC staff from across the organisation have been working on how to best prepare the Napier community for such events in the future. Mitigating damage caused by such events is the primary focus as well as building a more resilient community that is supported to take an active role in ensuring built-environments are designed with such events in mind.

Raising community knowledge of their role in participating in storm preparation and management is vital in ensuring damage from future events is minimised. This ranges from simple actions such as clearing gutters of debris and drains outside properties when rain is forecast, to larger shifts such as moving away from designs that incorporate impermeable surfaces such as concrete.

As Napier continues to develop and grow, Council and community need to look at how all the components that make up the stormwater system are managed.

An important way to minimise flooding damage is to ensure any future developments do not add more stormwater load to the existing system. To do this, developments must be required to adopt designs and practices that are standard in other parts of New Zealand, and internationally.

## ***Water Sensitive Urban Design (WSUD) has been adopted around the world to manage stormwater in a holistic way to minimise flooding damage while enhancing living standards in urban areas. WSUD includes ensuring:***

- Enough open space is designed to hold stormwater back (often called detention basins) until the system downstream can deal with it. The size of the detention basin is determined by the size increase in impermeable services such as roofs and roads.
- New developments are not established in low-lying areas that have flooded historically. While these areas can be built up to prevent localised flooding in that new development, this forces the water downstream and often will lead to exacerbated flooding downstream in already established areas.
- Use of innovative materials and stormwater system designs in the development, such as permeable concrete and purpose-built wetlands.

Making sure future development in Napier is at a high standard (including WSUD) is important, because high standard of service is an expectation for community. But it is also essential because Napier is a low lying, earthquake-formed land mass, which is on the coast and will be impacted by rising sea levels and variable weather patterns from climate change.

# 10. Sources of Information

The documents and reports that have been used as sources of information for this section of the document are summarised below with a brief of the original document's purpose.

## 10.1 STORMWATER ACTIVITY MANAGEMENT PLAN FOR PERIOD 2021-31

## 10.2 NAPIER RAINFALL EVENT NOV 2020 HAZARD REPORT SEPT 2021

## 10.3 FLOOD INCIDENT SUMMARY DOCUMENT

## 10.4 INDEPENDENT OPERATIONAL REVIEW, NAPIER FLOODS

### 10.1 Stormwater Activity Management Plan for period 2021-31

This document is a comprehensive Stormwater Activity Management plan developed by the Napier City Council. The document details the proposed approach to stormwater management for the period 2021 to 2031. The stormwater network asset is comprised of 241 kms of pipe network, 10 pumpstations and 2 detention dams. Together, stormwater assets have a replacement value of \$341 million as at 30 June 2020. One of the core goals of the city's stormwater system is to minimise the effects of flooding.

Activity Management Plans are an integral part of the Council's planning and regulatory functions. The Stormwater AMP determines the level of service expected of the City's stormwater assets and at what cost. It determines how the asset is performing, what extra capacity the asset may have, and what future capacity is required. The AMP also determines when the asset may need to be replaced or upgraded, what that will cost, what further works are required to meet future demand, and what improvements are programmed.



## 10.2 Napier Rainfall Event Nov 2020 Hazard Report (Sept 2021)

The purpose of this report was to create a record of the flooding event that occurred on 9 November 2020 in Napier, the impacts on Hawke's Bay Regional Council (HBRC) assets and infrastructure, Napier City Council assets and infrastructure and the effects of the event on Napier communities.

This report does not review the operational response, which is the subject of a separate process and report. The two reports did inform each other.

The report presents data and event analysis in order to convey the magnitude of the event and related impacts. This is supported with information provided by key agency representatives involved in the response to the event and anecdotal evidence collected during and after the flood.

## 10.3 Flood Incident Summary Document

This summary document provides an overview of the Napier City Council technical report on the November 2020 Napier Flooding Event. It looks at the response from Napier City Council and partner agencies, as well as the impact of the flooding on community, and on Council assets and business areas. The report also considers operational issues that were encountered and documents actions to improve systems and processes.

## 10.4 Independent Operational Review, Napier Floods

This report was requested by the chair of the Hawke's Bay Coordinating Executives Group, who was also the sponsor of this report. The terms of reference for the review were to provide an independent assessment of the strengths and improvement areas of the response during the Napier flood of November 2020.

The Fire and Emergency New Zealand Operational Efficiency and Readiness team was utilised to facilitate the review.

The team regularly conducts operational reviews and debriefs and has ensured neutrality throughout this review, despite Fire and Emergency being involved in the response at multiple levels.

This report has been prepared for learning purposes and does not apportion responsibility, blame or criticism to any agency or individual.



## 11. Acknowledgements

All the members of community who stepped out of their day-to-day lives to help their friends, family and neighbours.

Angus Inn

Bay Vineyard Church brought volunteers together to help with the clean up

Civil Defence personnel who came from out of town to help

Crewcut

Earthquake Commission

Eastern District Police

Fire and Emergency

Greenmeadows Rotary Club who assisted with clean-up of rubbish and helped people clear out their homes

Hawke's Bay Civil Defence Emergency Management Group

Hawke's Bay District Health Board

Hawke's Bay Regional Council Guppy Road staff

Hon Stuart Nash

Hon Kiri Allan – Minister for Emergency Management

Insurance Council

Karl Wairama - Team Leader, Community Engagement – Hawke's Bay Civil Defence Emergency Management Group

Ken Cooper – Area Commander, Fire & Emergency

Kāinga Ora

King's House Church helped with recovery and response, checking on families.

Māori Wardens

Maraenui Donations

MBIE's Temporary Accommodation Service

Multicultural Association helped with the recovery and response at the evacuation centre.

Napier City Council's Incident Management Team

NCC Animal Control

NCC Building Control Team

NCC Community Services and Community Engagement teams

NCC Customer Service Team

NCC Depot team

NCC Parking team

Peter Scott - Above Hawke's Bay

Red Cross

Residential Advisory Service

Riza and Vivi Ambador and the team at Restaurant Indonesia

Staff at Ministry of Social Development

Te Kupenga Hauora - Ahuriri

Te Puni Kokiri

Te Taiwhenua o Te Whanganui ā Orotū

The Salvation Army

Tihei Mauri Ora

Victim Support