



Marae Options Information Booklet

Hui-ā-Hapū, 10am Saturday 8 December 2018



Whakarāpopoto – Summary

The Marae Options Committee, made up of representatives of our Hapū, have explored options to future-proof our Marae from floods. Options including relocating the Marae to a new site or protecting the current site have been explored.

After thorough investigation, only one feasible option remains – to develop the Marae at the current location and rebuild the existing stopbank to mitigate the flood risk. This option would also include building a new wharekai, improving site drainage, upgrading existing buildings and reserving funds. In this booklet you can read about this option, other options and the background information considered by the Marae Options Committee.

You can let us know your feedback on the proposal by attending the Hui-ā-Hapū or via email, Facebook or letter.



Rārangi Upoko – Contents

Mihimihi 2

The Proposal and having your say 4

THE OPTIONS

Marae Options Project 7

Marae Options Committee 7

Criteria Considered 9

Options Considered 10

Offsite Options..... 10

Onsite Options..... 13

BACKGROUND INFORMATION

Our Takiwā..... 19

Our Hapū 21

History of Tangoio Marae 23

Papakāinga – Life in a Marae Community ... 24

History of Flooding at Tangoio 26

What impacts might

climate change have? 28

HAPŪ VISION

Kia tū Māori te Marae – Building
a proud, vibrant and modern Marae 30

Our Hapū vision for the
built environment..... 31

Our Hapū population..... 32

How many whānau do we need
to cater for now and in the future? 33

DETAILED INFORMATION

Questions & Answers..... 35

Glossary 39

Mihi Whakakapi..... 41

References 41

Mihimihi

Kei ngā whakatamarahi ki te rangi, kei ngā whakateitei ki te whenua, tēnā koutou katoa. Me mihi ki ō tātau mate, ko rātau ngā kaiwhakakōrero i ngā pakitara o tō tātau whare whakairo. Haere atu koutou. Hoki atu ki te pūtahitanga o te kōrero, ki te huihuinga o te huatau. Waiho mai mātau, ko ngā whakareanga o muri mai. Tēnā anō tātau i roto i ngā whakaaro matihere o te wā.

Our Hapū vision for our Marae is “Kia tū Māori te Marae – Building a proud, vibrant and modern Marae”. An important step towards our vision is reducing the flood risk to our Marae. Our Hapū asked that a Committee be established to investigate options to relocate Tangoio Marae or protect and develop it at the current location.

Jared Pullar, rangatahi representative on the Marae Options Committee, explains *“it is an incredibly significant project for making sure that our Marae will be usable for many generations to come, well past all the ones who are living today. So that is the significance of the Marae Options project, and the Marae Options Committee to me... I am fortunate to be able to be a part of that process.”*

The process and results of the investigation are outlined in this booklet. Additional information is also available in the members’ section of our website at www.tangoio.maori.nz/maraeoptions. Answers to some common questions are provided on pages 35-38 of this booklet. There is a glossary of kupu Māori and technical words and concepts on pages 39-40.


Please note the Marae Options Committee has worked hard to obtain the best information available at this time. This has involved consulting with experts, on whose advice we rely. Marae Options Committee member Marewa Reti said, *“it is essential for our Hapū to have the best information we can give them, and from experts; not just what we think, but from the actual people that are the experts in these things, so that we can make clear decisions that are informed decisions.”*

I think the research that’s been done is just so important, so vital.”

When we embarked on this process, we hoped to provide our whānau with several options. However, the investigation resulted in **only one feasible option: to protect and develop the Marae at its current location.**

The options which were explored are outlined in this booklet. The Marae Options Committee is seeking support from our Hapū for the proposed way forward. You can let us know your feedback by attending the Hui-ā-Hapū or through our communications channels (see page 5).

The Hui-ā-Hapū will include a presentation about the Marae Options kaupapa and there will be time for you to ask questions. The hui will be held:

 10am Saturday 8 December 2018
at Tangoio Marae

Bring your tamariki to the Marae. There will be fun activities for children aged 5-10 years from 10am-12pm, while you attend the hui. Older children are invited to attend the hui. At the conclusion of the hui, we will have a hākari to celebrate Christmas.

A short video on the Marae Options Project will be released near the end of November. You will be able to access it on our Facebook page and website at www.tangoio.maori.nz/maraeoptions.

Tēnā koutou katoa

Marae Options Committee
Maungaharuru-Tangitū Trust (MTT)
November, 2018



Marae Options Committee. **From left to right, front row:** Joe Taylor, Bevan Taylor, Tania Hopmans, Mutu Spooner, Cathy Spooner, Whakiao (Daise) Hopmans, Rosy Hiha, Whetumarama Kire, **middle row:** Rangi Tawhai, (Lovie Pullar who is not on the Marae Options Committee), Aroha Taurima, **back row:** Joe Tawhai, Jared Pullar, Marewa Reti, Perēri King. **Marae Options Committee member not in photo:** Shane Taurima (Chair).



Maungaharuru-Tangitū Trustees: Adam Puna, Charmaine Butler, George (Hōri) Reti, Kerri Nuku, Shane Taurima (Chair), Tania Hopmans (Deputy Chair), Tamehana (Tom) Manaena.

The Proposal and Having Your Say

The Marae Options Committee has carefully considered all of the options for our Marae. The investigation has resulted in only one feasible option, outlined below. We are now seeking feedback from our Hapū on the Marae Options Committee's proposed way forward. You can let us know what you think of the proposal by attending the Hui-ā-Hapū or providing feedback via email, Facebook or letter.

The Proposal

The Marae Options Committee proposes that the Marae Fund be spent on:

- rebuilding the existing western stopbank;
- building a new wharekai;
- improving site drainage. This would deal with nuisance flooding caused by rainfall on site, to help the Marae stay drier during rainfalls;
- repairing and upgrading existing buildings; and
- reserving some funds for a "Plan B" and insurance (in case the Marae becomes uninsurable).

"Plan B" means that the Marae would stay at the current site until something happens to require it to move, for example if the stopbank fails or if climate change and the effects of flooding are much worse than anticipated.

Cost

Our quantity surveyor estimates the high level cost of this option to be approximately \$4.5 million (excluding the reserve fund for Plan B and insurance). We will need to apply for external funding in addition to spending the Marae Fund to help meet these costs.

Next Steps

Discussions with the Marae Trustees have resulted in a plan to establish a new Committee for the implementation phase of the project. That is, a Committee to oversee the building and development of the Marae. The Committee will have representatives from the key groups in our Hapū. A new Project Manager will be contracted to work with the Committee and to manage the building and development of the Marae. The plan will be arranged so that if the Hapū support the proposal, work can begin as soon as possible.



The Marae Options Committee evaluated many flood protection options. Only one onsite option, to rebuild the western stopbank, remains feasible after the due diligence process. This photo shows the Marae Options Committee members viewing the existing western stopbank.

How to have your say

Please let us know your feedback on this proposal by:

Attending the Hui-ā-Hapū

📍 10am Saturday 8 December 2018 at Tangoio Marae


Contacting us via email, Facebook, or post.

Our contact details are below:

Kāreke ā-Rorohiko info@tangoio.maori.nz

Pae Tukutuku www.tangoio.maori.nz

 Maungaharuru-Tangitū Trust

 Maungaharuru-Tangitū Trust

Wāhi Mēra

PO Box 3376, Hawke's Bay Mail Centre,
Napier 4142

The Options

In this section we outline the Marae Options Project and Committee, and explain the criteria and options considered.



Marae Options Project

Our Hapū asked the Marae Options Committee to explore options to relocate Tangoio Marae or protect and develop the Marae at the current location. Our Marae options project has been a long journey. This reflects the importance of the project to our Hapū and its complexity.

Below is a brief timeline.

2010

At Hui-ā-Kaumātua and Hui-ā-Hapū our whānau agreed for Maungaharuru-Tangitū Incorporated to seek funding from the Crown to relocate our Marae. After our Treaty Settlement our whānau would make an informed choice to relocate or protect and develop our Marae at the current location.

2012

The Crown paid \$2 million towards the Marae Fund.

2013

Our Deed of Settlement was signed. The Maungaharuru-Tangitū Trust added another \$1 million from the Settlement to the Marae Fund. A sub-committee was established with nominations from whānau. The purpose was to investigate options for our Marae.

2014 – 2015

A detailed work programme was developed and funding sought for research about flood risks. The Marae Options Committee Terms of Reference was approved.

2016 – 2017

We worked with NIWA on a research project which included five Hui-ā-Hapū / Hui-ā-Kaumātua. This project was funded by Government funding.

2017 - 2018

The Marae Options Committee was expanded to be more representative of our Hapū. In their work the Marae Options Committee met 19 times and held 3 Hui-ā-Hapū. Note the Marae Options Committee members volunteered their time to the kaupapa (were not paid).

December 2018

We seek your support for the proposed option for our Marae.

Marae Options Committee

The Marae Options Committee is made up of 16 representatives of our Hapū.

- **Kāhui Kaumātua representatives:** Bevan Taylor (Pou), Joe Taylor
- **Kuia representatives:** Whakiao (Daise) Hopmans, Rosy Hiha
- **Marae Trustees:** Perēri King (Marae Chair), Mutu Spooner (and previously Lewis Neera)
- **Kōhanga Reo representatives:** Aroha Taurima, Elaine Cook
- **Rangatahi representatives:** Joe Tawhai, Jared Pullar
- **Whānau nominee:** Cathy Spooner
- **Co-opted whānau:** Rangi Tawhai, Marewa Reti, Whetumarama Kire
- **MTT Trustees:** Shane Taurima (MTT Chair) and Tania Hopmans (MTT Deputy Chair)



Rangatahi signing our Deed of Settlement in 2013. The Settlement included a fund to relocate or develop our Marae.



Whānau participating in the Marae-opoly exercise as part of the NIWA research project. The purpose of the exercise was to explore different options and strategies for our Marae.



Marae Options Committee hui at the tari. Representatives of different groups in our Hapū provided their perspectives.



Many Hui-ā-Hapū were held to keep our whānau informed about the project and to receive feedback. In this photo whānau are considering what criteria are important to use when evaluating options for our Marae. (More information is on page 9.)



Marae Options Committee visiting potential offsite options.



Considering flood protection options onsite.

Informed decision making

To make an informed decision on the future of our Marae, we need to consider our past, current situation and our shared future.

The following information helped the Marae Options Committee in their decision-making.

For more information on the following kaupapa and for references, see our website at www.tangoio.maori.nz/maraeoptions

Criteria Considered

We asked whānau what we need to consider in weighing up the options for our Marae. The Marae Options Committee came up with some criteria, and feedback was given by whānau at hui-ā-hapū. These criteria were informed by the aspirations in the MTT strategic plan, NIWA research, and other hui-ā-hapū. The Marae Options Committee used the following criteria to rank the shortlisted options.

Assessment Criteria	Criteria Description
1. Hononga – Connection to place	<ul style="list-style-type: none"> • What are our Hapū connections to this location? • Are there kāinga, pā, urupā or other wāhi taonga nearby? • Can we see what we want to see e.g. Maungaharuru, Tangitū, wāhi taonga?
2. Ngā pānga ki te Taiao - Environmental Impact	<p>From a kaitiaki perspective:</p> <ul style="list-style-type: none"> • What is the actual or potential environmental impact of this option, both in terms of physical works and also ongoing maintenance requirements? • What ability do we have to mitigate these effects? • Particularly consider disposal of wastewater, amount of earthworks required, impact on natural character and environment.
3. Papakāinga & whakawhanaketanga - Village & development potential	<ul style="list-style-type: none"> • Is there potential to build what whānau want at or near the Marae location? E.g. papakāinga, kaumātua flats, māra kai, playground. • Are there associated economic benefits and opportunities (for a self-funded Marae)?
4. Ratonga Pahaki – Access to services	<ul style="list-style-type: none"> • What is the access like to services, e.g. health care, employment opportunities, schools, housing, transport, shops? • How far is the driving distance from Napier?
5. Rerehua – Appeal	<ul style="list-style-type: none"> • Is the site appealing? E.g. sunny, quiet, pleasing views? • What can people see of us? • Is the drive to the Marae easy or are the roads difficult/windy?
6. Tatanga Taiao – Access to natural resources	<ul style="list-style-type: none"> • Closeness and ease of access to mahinga kai, natural resources, taonga, e.g. moana, maunga, ngahere, awa, roto.
7. Wāhi Haumaruru – Safety from and resilience to natural hazards & other hazards	<ul style="list-style-type: none"> • How safe would this option be from known natural hazards? • How quickly can we bounce back from a hazard event? • How safe would this option be from other hazards, e.g. hazardous roads or intersections? • Consider the anxiety/concern about risks of those living on site and whānau whānui.

Options Considered

The Marae Options Committee had a range of offsite and onsite options to consider. These options were scored and ranked according to how well they fit the criteria listed on the previous page.

Offsite Options

Criteria for Offsite Options

Criteria for offsite options were defined by the Marae Options Committee, and outlined to whānau at Hui-ā-Hapū. The criteria were:

< 40 mins

- site must not be more than 40 minutes drive from Napier (and must be within our takiwā)
-

> 0.8 ha

- site must have at least 0.8 hectares of land that can be built upon, so it must be at least half the size of the current site (i.e. the area of the Marae buildings, back carpark and part of the front carpark)
-

minimise hazards

- site must not be exposed to risks of flooding, tsunami, liquefaction, coastal inundation
-

Some of these criteria were later relaxed to include sites for consideration that had some risk of tsunami and liquefaction. Ideally a site would not be exposed to tsunami and liquefaction risks. However, given the limited number of options, the Committee assessed some sites with a low risk of tsunami, and sites where liquefaction risk could be mitigated.

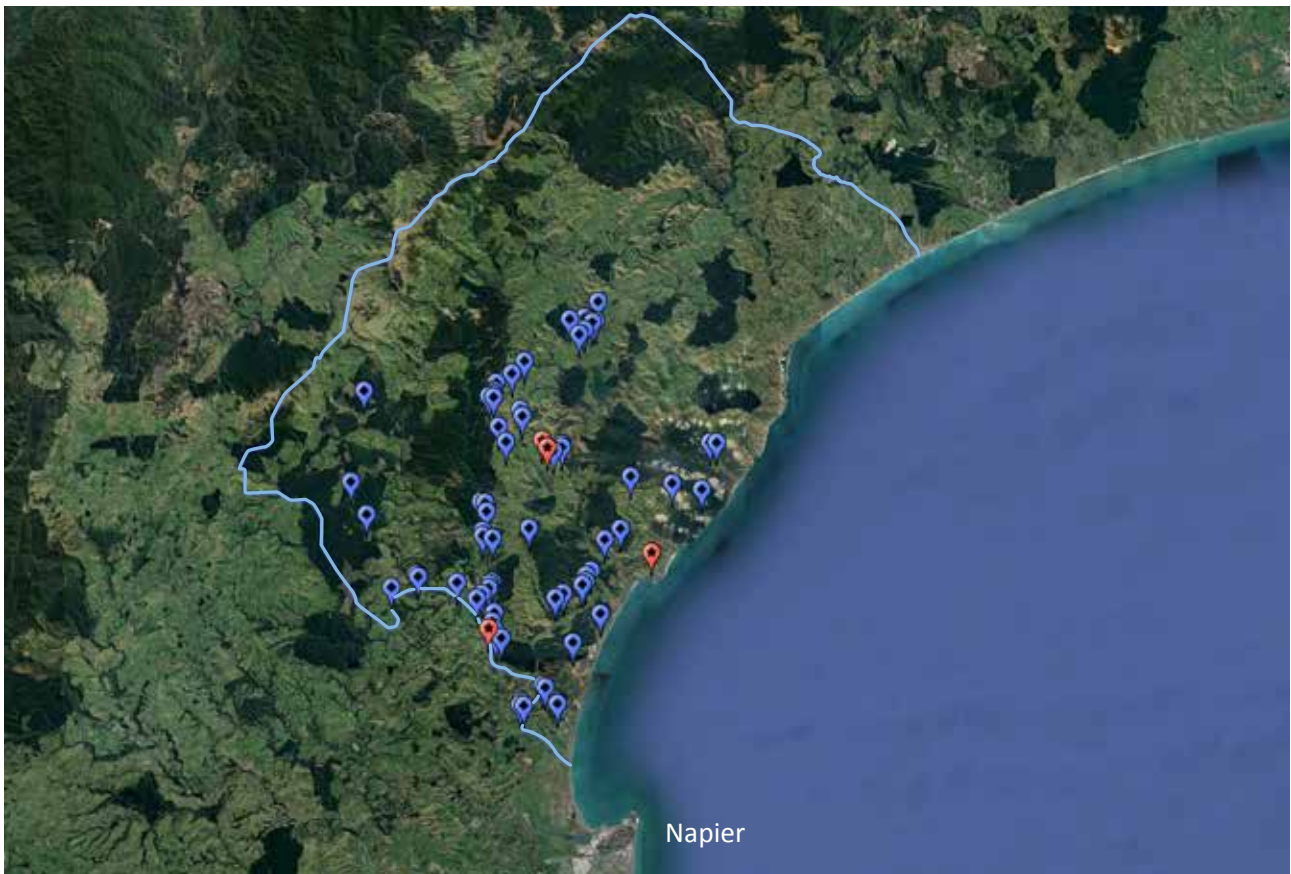
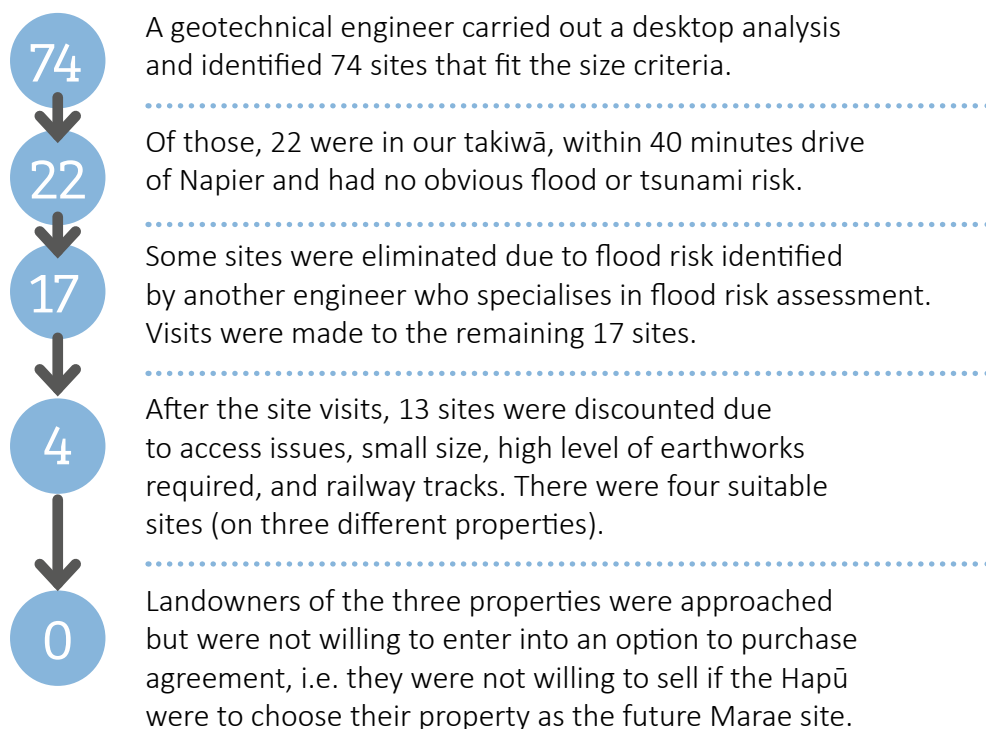


Figure 1: A geotechnical engineer identified and assessed 74 sites within our takiwā. These sites fit the additional criteria of having at least 0.8 ha of developable land, and being reasonably close to Napier. The Google Earth map above shows the spread of the identified sites. These sites were further shortlisted to the four shown in red, as described below. The blue line shows our area of interest from our Deed of Settlement.

Process to identify Offsite Options



Three Suitable Offsite Options (but landowners not willing to sell)

Tangoio Property

A site on our coastline with two large flat buildable areas, 2.4 ha in total. It has beautiful views and access to the beach.



Kaiwaka Property

A farm on Kaiwaka Road. This property has three large developable areas (3 ha, 1 ha, and 1.6 ha) with lots of space for papakāinga. The property has spectacular views of Maungaharuru, Tangitū and Lake Tūtira.



Eskdale Property

The largest site with 8 ha of flat, developable land including space for papakāinga. It has partial views of Maungaharuru and is next to the Mangakōpikopiko Stream (which marks our southern boundary).



Onsite Options

Options were explored to protect our Marae from flooding at the current location. At the Hui-ā-Hapū in September 2016, whānau provided their ideas for options to mitigate flood risks at our Marae. Other whānau provided their ideas later via email. The Marae Options Committee considered all the suggestions from whānau. Professional advice was also sought from engineers. The options that made it through to the shortlist for detailed consideration were:

- A) a long stopbank across the Marae and other properties;
- B) raising the Marae land and adjoining land;
- C) raising the Marae land only; and
- D) rebuilding the existing western stopbank.

More information on each of these onsite options is provided in the following sections.

A) Long Stopbank

The Marae Options Committee looked at the possibility of a long stopbank, to protect as much land as possible for the Marae and papakāinga on adjoining land.

Unfortunately, this option was not viable. Floodwaters not only come from our awa but also run-off from the hills opposite the Marae (see Figure 2). In March 2018 flooding from run-off from the hills was captured on video (you can view the video on our website at www.tangoio.maori.nz/maraeoptions). Engineers explained that this run-off from the hills would be trapped on the inside of the long stopbank, and therefore advised against a long stopbank. Another major issue with this option was the difficulty in obtaining consent from other landowners to build the stopbank across their property.

B) Raising the Marae Land and Adjoining Land

The Marae Options Committee looked at the possibility of raising land to protect it from flooding. The preferred option was to raise the Marae land and a section of adjoining land.

The whakaaro was to protect more land for Marae development and potential papakāinga. However, our engineer advised raising that amount of land would require an enormous amount of fill that would be very costly and difficult to source.

C) Raising the Marae Land only

The Marae Options Committee then focused on the option to raise just the Marae land.

This option required approximately 68,900m³ of fill, which is equivalent to 4,593 truck and trailer loads. The estimated cost just to quarry, cart and compact fill to site is approximately \$3.5 million. The option would include relocating the Marae buildings offsite while the land is built up, building a new wharekai, reinstating the Marae buildings and associated utilities, and landscaping.

The high level estimated cost for this option was approximately \$10.8 million. Our quantity surveyor also estimated costs for a reduced option based on raising the land level across half of the current site (including the back car-park, Marae buildings and Marae ātea). The cost would still be very high at approximately \$8.2 million.

The Marae Options Committee considers that neither of these options are feasible due to the very high cost.

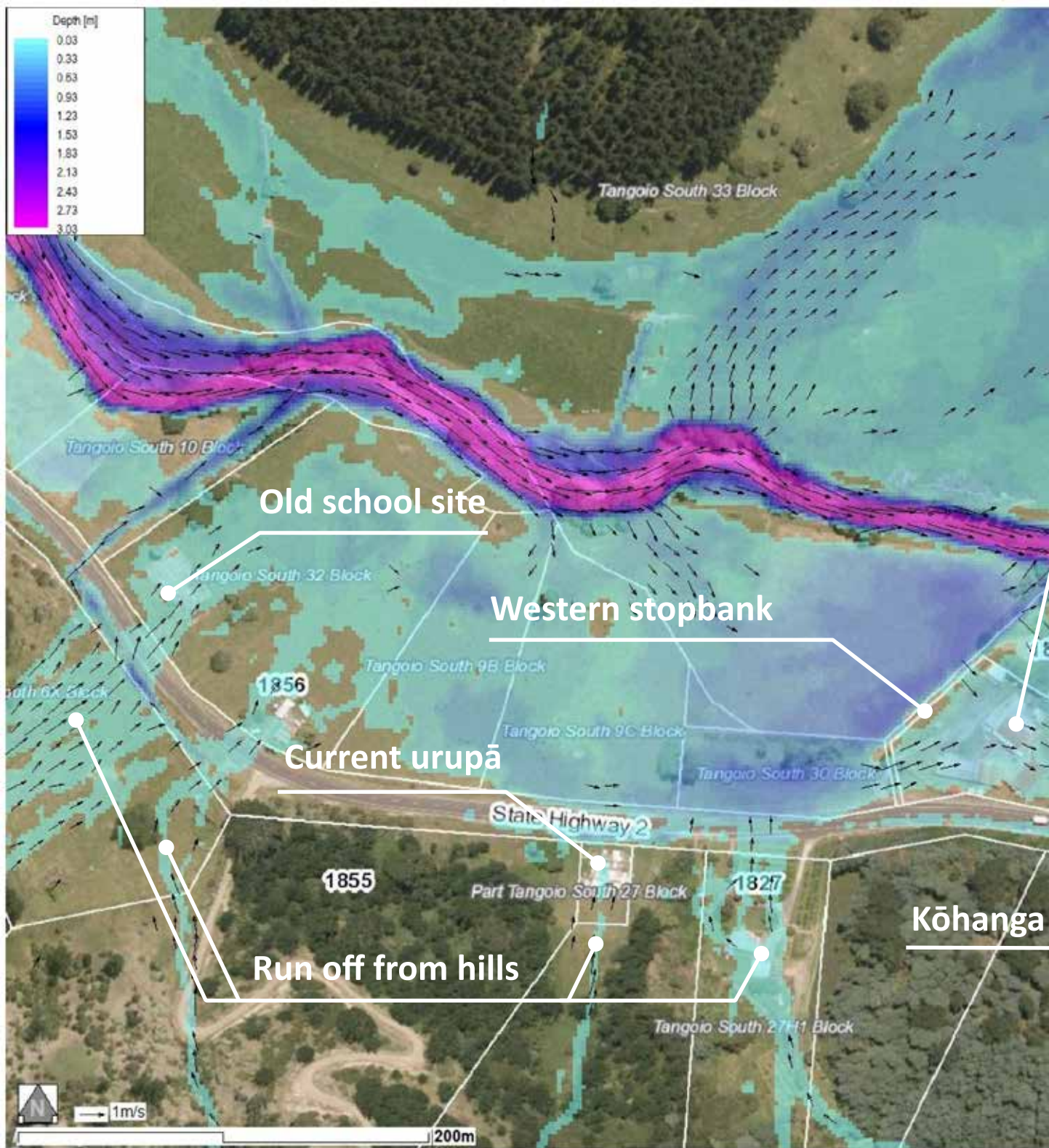
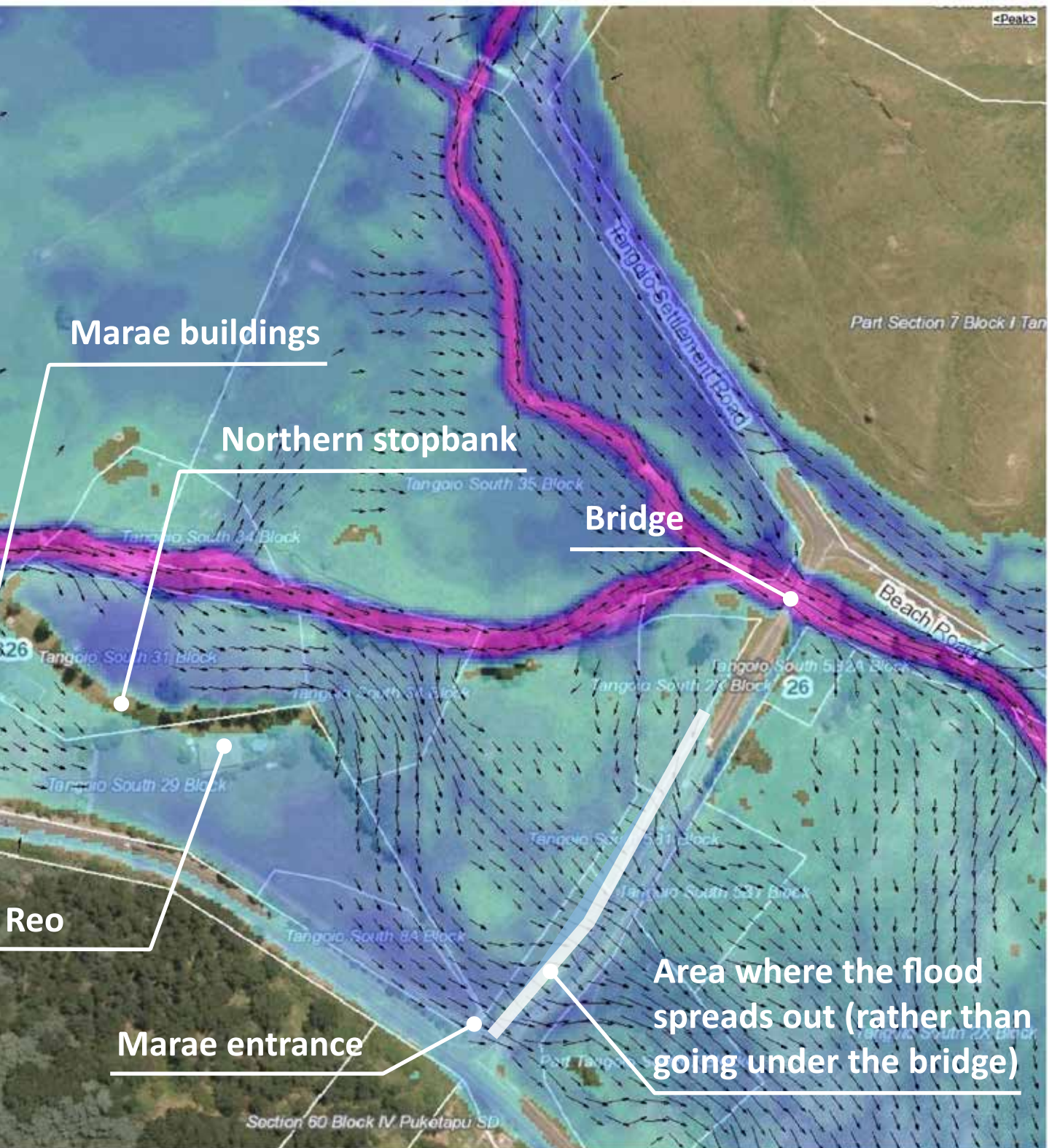


Figure 2: Modelling of maximum flood depths for existing Marae site and current stopbank during a 1 in 100 year flood

This map shows what a significant flood event might look like with our current stopbanks in place. For this purpose, our engineers modelled a “1 in 100 year flood”. This means that a flood of that size has a 1 in 100 chance of occurring in any given year (a 1% probability). The maximum flood depths are depicted using colours – the darker the blue, the deeper the water. The pink shows where the awa currently flows. The arrows indicate the direction and speed of the floodwaters – the more arrows, the faster the flow. Note that the floodwater would overtop the current western stopbank. Also note at the left and bottom of the map, the run-off from the hills.



D) Rebuilding the existing Western Stopbank

The flood modelling shows that the existing western stopbank would not protect the Marae in a large flood (see Figure 2 on page 14).

The existing stopbank was built in 1988 using the silt that was deposited near the Marae during Cyclone Bola. It is situated to the west of the Marae, along the edge of the back carpark.

To improve the western stopbank, our engineers recommend:

- excavating the western stopbank and replacing it with high-quality fill;
- increasing the height, so that it is approximately 0.5m higher than the road, State Highway 2;
- widening the stopbank; and
- extending it so that it joins up to the State Highway.

The detailed design of the stopbank would be part of the next phase of the project.







Discussions with adjoining landowners have been ongoing and their approval will be sought at the detailed design phase.

Flood mitigation

The rebuilt stopbank would significantly reduce the depth and speed of flooding through the marae.

It would be designed to withstand a Probable Maximum Flood, which is the largest flood that could theoretically occur at the current Marae site. Our engineers have modelled the Probable Maximum Flood and advised that it would be approximately the same size as a 1 in 500 year flood. Note that a Probable Maximum Flood is a theoretical estimate and it may be possible to experience a worse flood. For more details on the risks involved with this option, see the question and answer section on pages 37-38.

Please refer to the table below and the maps on page 17, which show how the rebuilt stopbank could mitigate the maximum flood depth in a 1 in 100 year flood.

	Maximum Flood Depth in a 1 in 100 year flood	
	Existing Western Stopbank	Rebuilt Western Stopbank
Area around Marae buildings	up to 0.4m 	less than 0.05m 
Kōhanga Reo area	0.05 – 0.6m 	0.05 – 0.5m 
Entrance at eastern end of main carpark	0.7 – 1m 	0.7 – 1m 

The map below shows the results of flood modelling done by our engineers for the existing stopbank. The scenario is a “1 in 100 year flood” which has a 1% probability of occurring in any given year. The maximum flood depths are depicted using colours.

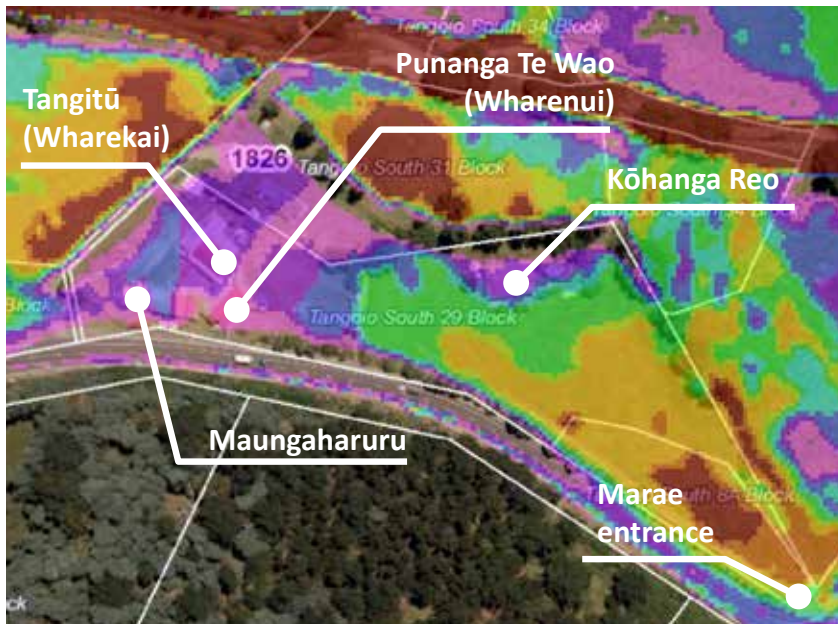
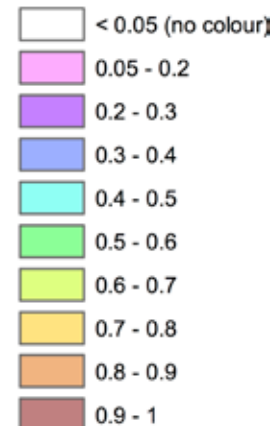


Figure 3: Modelling of maximum flood depths during a 1 in 100 year flood for the Marae with existing stopbank

Legend (m)



The map below shows the results of flood modelling done by our engineers for the rebuilt western stopbank. The scenario is a “1 in 100 year flood” which has a 1% probability of occurring in any given year. An indication of what the rebuilt stopbank could look like is shown on the map. The detailed design of the stopbank is part of the next phase of the project. The maximum flood depths are depicted using colours. Note the clear area around the Marae buildings represents a maximum flood depth of less than 0.05m.

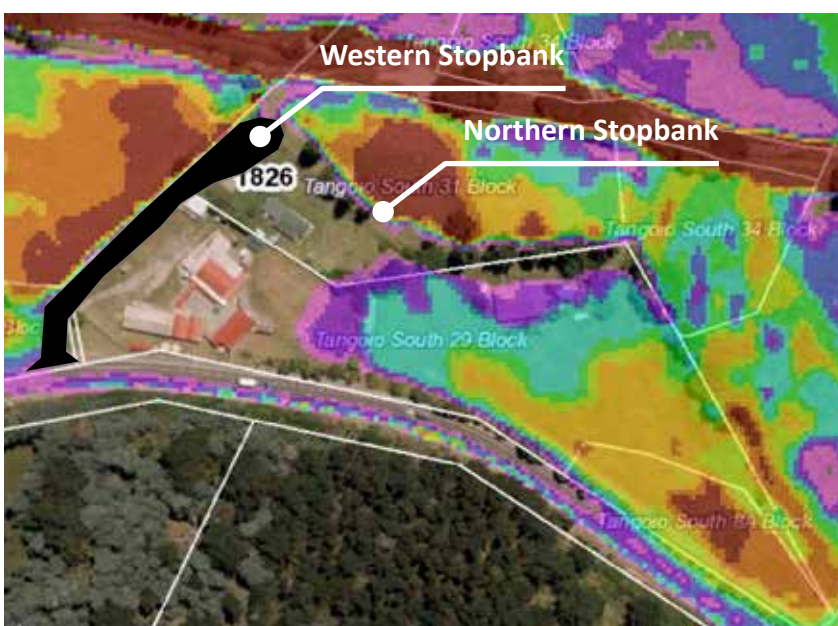
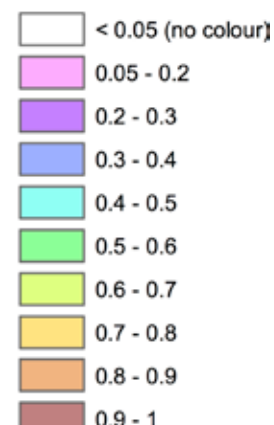


Figure 4: Flood mitigation protection level during a 1 in 100 year flood if the western stopbank is rebuilt

Legend (m)



Background Information

In this section we describe our takiwā, Hapū, our connection with Tangoio and the flooding issues.



Our Takiwā

Ka tuwhera a Maungaharuru, ka kati a Tangitū
Ka tuwhera a Tangitū, ka kati a Maungaharuru

According to our kōrero tuku iho, this whakatauākī:

- describes the takiwā of our Hapū – from Maungaharuru in the west, to Tangitū in the east;
- provides that when Maungaharuru is open, Tangitū is closed. When Tangitū is open, Maungaharuru is closed; and
- describes the mahinga kai of our Hapū, where the ngahere on Maungaharuru was the source of food for our Hapū in the winter and Tangitū was, and remains, the source of food in the summer.

While our Hapū collected food on a seasonal basis, they were blessed that they did not need to leave their takiwā in search of food. Hence another Hapū whakatauākī:



These carvings on our waharoa represent the mahinga kai of our Hapū, the ngahere as the source of kai in winter and Tangitū as the source in summer.

ko tō rātau pā kai ngā rekereke – their pā were in their heels.



Our takiwā extends from Maungaharuru in the west to Tangitū in the east.

Map of Wāhi Taonga in our Takiwā

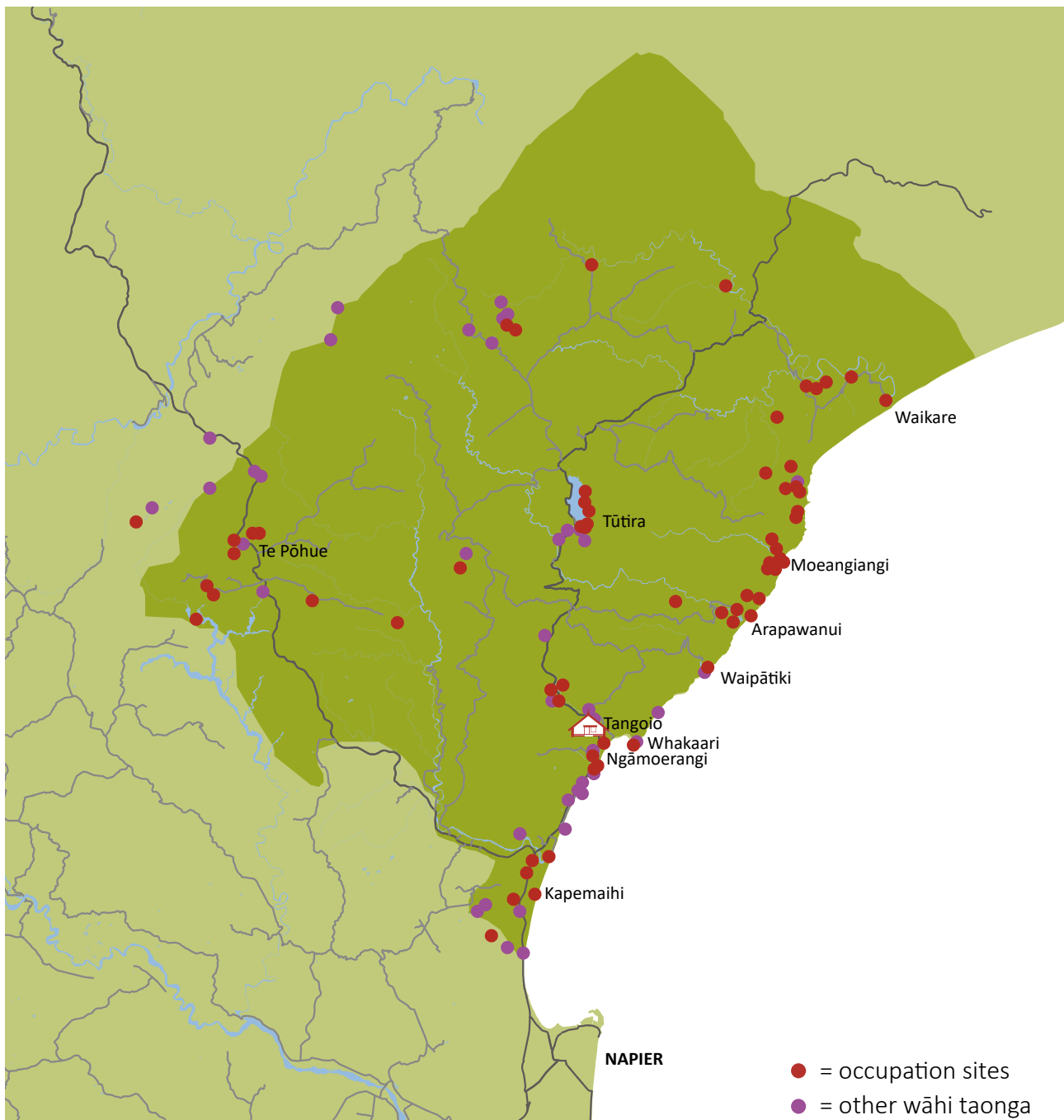


Figure 5: The map shows the approximate location of some of our wāhi taonga; many more are still to be mapped. The red dots are past occupation sites including pā and kāinga. The purple dots are other types of wāhi taonga such as wāhi tapu, mahinga kai, lookouts, lakes, caves, toka. The principal settlements that our whānau were living in around the 1840s are labelled. The dark green shows our area of interest from our Deed of Settlement.

Our Hapū

Our whānau are a collective of Hapū who over time have occupied various parts of our takiwā.

Ngāti Marangatūhetaua (Ngāti Tū):

The area occupied by Ngāti Tū expanded from its origins at Maungaharuru around Te Pōhue and Kaiwaka, to incorporate areas towards the coast at Tangoio and northwards. Ngāti Tū's pā include Te Pōhue, Motu-o-Rūrū and nearer the coast, Pukenui, Te Pā-o-Toi, Te Rae-o-Tangoio, Whakaari and Ngāmoerangi. Ngāti Tū includes several other Hapū including Ngāti Whakaari, Ngāi Te Aonui and Ngāti Rangitohumare.

Ngāti Whakaari

Ngāti Whakaari are a section of Ngāti Tū that lived at Petane and also occupied Whakaari.

Ngāi Te Aonui & Ngāti Rangitohumare

The Hapū Ngāi Te Aonui was based at Moeangiāngi and Ngāti Rangitohumare at Arapawanui. Both of those Hapū were absorbed into Ngāti Tū through intermarriage and occupied Te Puku-o-te-Wheke.

Ngāi Tauira

Ngāi Tauira is an ancient Hapū preceding Ngāti Tū and was based at Maungaharuru on the Te Waka part of the range. Their pā include Pirinoa, Taurua-o-Ngarengare and Tauwhare Papauma.

Ngāti Kurumōkihi

Ngāti Kurumōkihi was formerly known as Ngāi Tatarā, and was based inland at Tūtira, and on the coast at Tangoio and Moeangiāngi. They occupied Te Rae-o-Tangoio and the pā south of the river at Moeangiāngi. They also occupied the twin pā sites Kokopuru and Matarangi near Opouahi, and Tauranga-kōau, Oporae and Te Rewa-o-Hinetu on Lake Tūtira.

Ngāi Te Ruruku (ki Tangoio)

Ngāi Te Ruruku was gifted Te Wharangi at Waipātiki. Other pā associated with Ngāi Te Ruruku include Ngāmoerangi, Whakaari and Te Puku-o-te-Wheke.

Ngāi Tahu

Ngāi Tahu occupied the northern area of the takiwā along the Waikari and Waitaha rivers and their tributaries. Although they were a small Hapū, their whānau branches occupied many pā and kāinga along those rivers including Kuramarawainui, Tutaekaraka, Hurihanga, Takapuwahia, Tokatea, Pukepiripiri, Puketaiata, Tauwhare, Kaiwaka, Te Nakunaku, Waipopopo, Tawhitikoko, Patokai and Tiekenui.



Te Puku-o-te-Wheke pā at Arapawanui. Ngāi Te Aonui and Ngāti Rangitohumare (who were absorbed into Ngāti Tū) occupied this pā; Ngāi Te Ruruku also has an association.

Movement of the Hapū

Generally, during sustained periods of peace, the Hapū moved out of their pā and occupied their kāinga on the flats.

Around the 1840s and the arrival of Pākehā in our region, the principal settlements of the Hapū were at Waikare, Moeangiangi, Arapawanui, Waipātiki, Tangoio, Whakaari, Ngāmoerangi, Kapemaihi, Tūtira and Te Pōhue.

From 1851 to the 1930s the landholdings of the Hapū in their takiwā were dramatically reduced from approximately 110,700 hectares to just small holdings by individual whānau at Arapawanui, Tūtira and Tangoio totalling 1,820

hectares. The Crown was the main cause of land loss with disputed purchases between 1851-1865, raupatu in 1867 as well as further contentious purchases by the Crown from 1911-1931. Prior to our Treaty of Waitangi Settlement, the only land that remained for the benefit of the Hapū was the area gifted by whānau for the present-day Marae at Tangoio, a total of 1.6 hectares.

After our Treaty Settlement our Hapū now own 6,060 hectares of land in our takiwā. This land includes Opouahi Station, part of the Esk Forest, reserves and lake beds.



This beautiful old pūriri tree marks the location of Kapemaihi, one of our Hapū settlements in the 1840s.

Connection with Wāhi Taonga

In spite of the loss of land, our Hapū have maintained an association with our lands through kōrero tuku iho. The landscape is our history book, and every feature tells a story. Evidence of the areas that our tīpuna occupied include wāhi taonga that are still visible or acknowledged today. Wāhi taonga include:

kāinga, mahinga kai, marae, pā, tauranga waka, urupā and wāhi tapu.

The connection to these wāhi taonga and others such as our awa, roto, ngahere, maunga and moana was considered by the Marae Options Committee when evaluating the location options for our Marae.

History of Tangoio Marae

In the past, Tangoio Marae was the centre point of Hapū life. The Hapū lived around the Marae and observed the tikanga of the Hapū. The Marae provided a place of gathering and identity. The Marae was at the heart of the community, whānau looked after whānau there. It was once a place that was used for everyday activities; from birth through to death. It was the base of our people.

There has been a succession of wharenui in Tangoio since at least 1916. Around 1942 the Hapū decided to fundraise to build a wharekai. The struggle to raise funds was a

long and hard one. However, their efforts were rewarded some 12 years later when on 9 April 1955, the wharekai named Tangitū was opened.

Unfortunately, by the 1950s the wharenui was beginning to fall into disrepair. In the 1970s the Hapū once again took on fundraising, this time to build a new wharenui. In 1981 the building began and was finally completed on 16 March 1991 with the opening of the current day wharenui. The wharenui (and the one before it) is named Punanga Te Wao.

The Kōhanga Reo building was opened on 3 April 1993. The Kōhanga Reo is also called Punanga Te Wao.



The old wharenui pictured above was named Punanga Te Wao (as is the existing wharenui).



The photo above shows the opening of the existing wharekai, Tangitū, on 9 April 1955.



The photo above shows the opening of the existing wharenui, Punanga Te Wao, on 16 March 1991.

Papakāinga – Life in a Marae Community

Ko te whare e hanga te tangata, ko te tangata e hangaia e te whare

The whare (whare tangata) builds the people and the people build the whare

The Marae Options Committee considered papakāinga & whakawhanaketanga – Village & development potential when weighing up the options for our Marae. They asked “is there potential to build what whānau want at or near the Marae location?” For example papakāinga, kaumātua flats, māra kai, a play ground. Some of the benefits of papakāinga are described below.

Papakāinga at Tangoio

Prior to the 1960s Tangoio was a bustling community with over 20 homes, a Marae, school and post office.

Kaumātua, Trevor Taurima and May Karaitiana grew up in Tangoio and were interviewed about their experiences. Trevor commented that a Marae needs to breathe every day and that the breath comes from the people. The Marae had life all around it because the children, parents and grandparents lived there.



Every household had their own māra kai with orchards scattered around the valley. Kai was shared among the whānau in the valley and no one went hungry. This photo is of the garden at Tangoio School in the 1930s.



The Marae was the centre of Hapū life. The Marae was used for hui, dances, birthdays and debutante celebrations. Table tennis, movies, whakamoemiti were all held in the wharenuī. This photo is of a debutante ball in the late 1950s.



Tamariki attended the school and it was an important part of community life. The whole valley was their playground including Te Ngarue and Tangitū. Everyone knew everyone, and children wandered from home to home. The photo above shows tamariki performing at the school's Diamond Jubilee in 1962.



The school rugby team in 1961.

Loss of Papakāinga

By the 1960s many whānau were forced to move away from their lands due to a series of devastating floods in Tangoio.

As a result, many of our people became disconnected from their Marae, wider whānau, culture, Te Reo, mahinga kai and tribal history; their home. The Tangoio community and its many advantages were lost. Today, there are only a handful of whānau who live in Tangoio, near the Marae. While there is a Kōhanga Reo on the Marae, all of the 15 children are collected and bused over 20 kms from Napier to attend each day.

History of Flooding at Tangoio

This timeline gives some insight into what our whānau experienced during the floods at Tangoio. There have been four major floods in the last 100 years, and numerous other floods. These events are represented on the timeline by the black dots for major floods and small blue dots for other floods.

Our website has videos, photos, news articles and quotes from our whānau about flooding in Tangoio, for more information please see www.tangoio.maori.nz/maraeoptions.



1938 ANZAC Day Flood

Violet Koko of Petane commented, “returning after the 1938 flood, the recent earthquake and depression set us back for a long time making no head way. There was about nine feet of silt covering our land”.¹

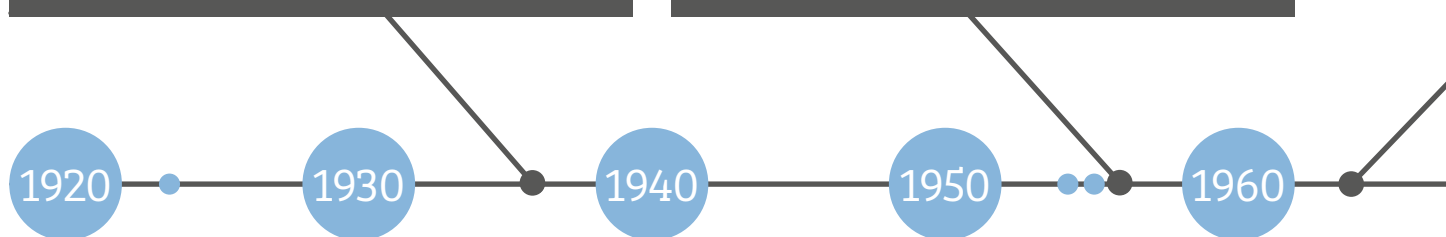
*Photo: 1938 flood, looking north towards our Marae with the wharehau highlighted.*²



1956 Flood

Residents forced onto their roof commented that “The whole house shook with the force of the water, and we were afraid we were going to be swept out to sea. Great trunks of trees swept past the house and fortunately none of them made contact.”³

*Photo: Desolate surroundings of the home of Mr and Mrs Sullivan, which lay in the path of the flood in 1956.*⁴



- = floods
- = major floods



1963 Queen's Birthday Flood

"...63 it was just amazing, the flood just covered the whole valley...(George Tawhai)" "they would have had to carry us out we were lucky to stand up cause the water was coming down there that fast... (Jonny Taunoa)" ⁵

Photo: Tangoio School yard clean-up in 1963, left to right: Hana Tawhai, Lala Puna, Graham Johnson, Cathy Taylor. ⁶



1988 Cyclone Bola

One of our Kaumātua remembers "...when the whānau saw the damage their hearts just bled because I was building what they dreamt of, their dreams". "Oh yes they came [to help clean up]. Old people, young people, the lot. My family, my whānau just came down, went there to help whatever they could do..." ⁵

Photo: Silt deposits remaining across the valley floor following Cyclone Bola in 1988, with our Marae highlighted. ⁷

1970

1980

1990

2000

2010

2018

What impacts might climate change have?

Climate change will cause more floods and more droughts.
We need to think about how that could impact on our Marae.

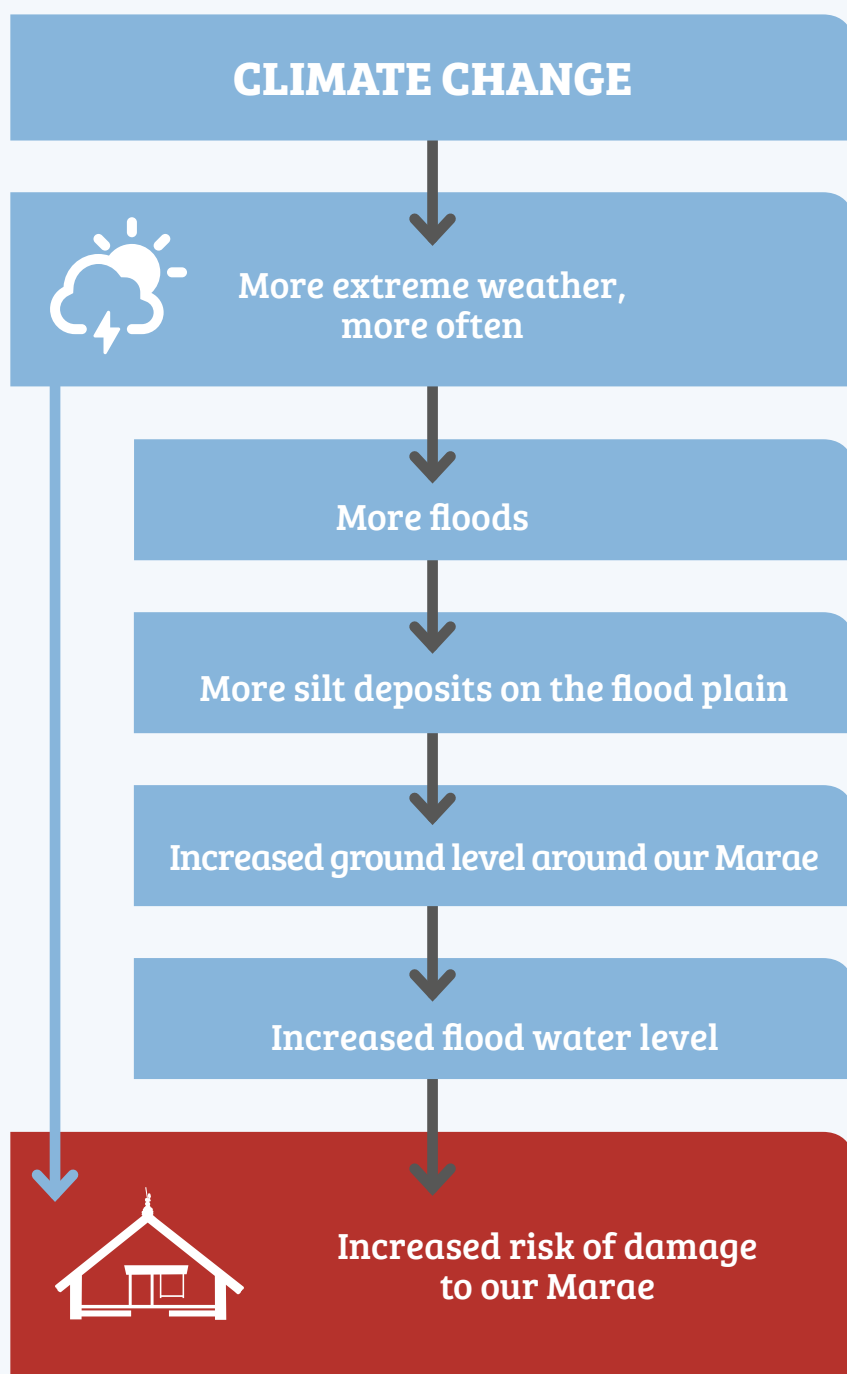
What is Climate Change?

Earth getting warmer causing change to the prevailing weather conditions.

What causes Climate Change?

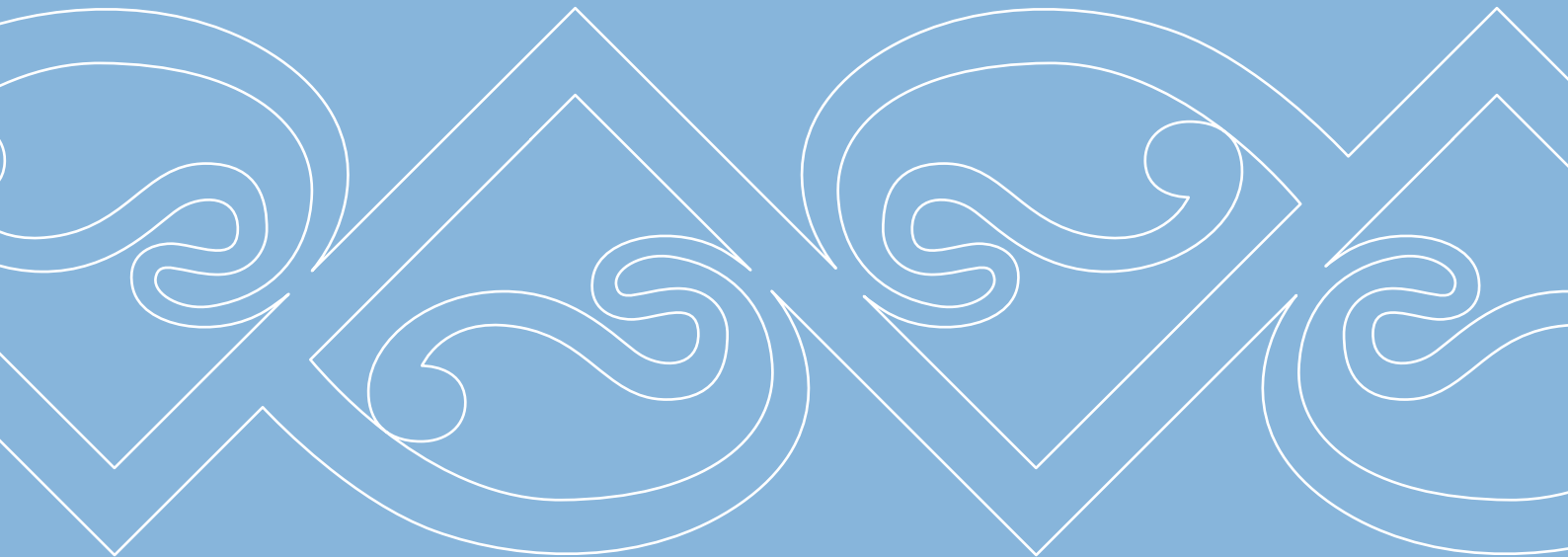
- Increase in carbon dioxide, e.g. from vehicle exhaust
- Increase in methane, e.g. from cow burps

For more information on climate change and references, please see our website at www.tangoio.maori.nz/maraeoptions



Hapū Vision

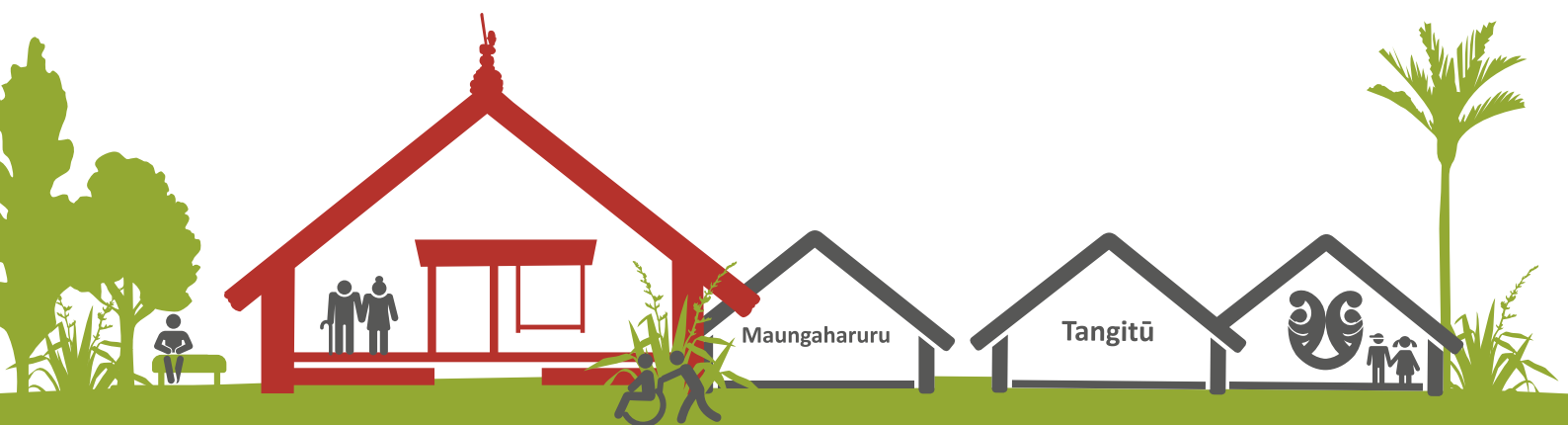
In this section we describe our vision and who it is for – our Hapū population.



Kia tū Māori te Marae

Building a proud, vibrant and modern Marae

The statement above is our Hapū vision for our Marae. It was developed from whānau input at strategic planning hui. The top ten priority aspirations that whānau provided in surveys and at hui are listed below.



..... Our Marae is:

Where our culture and identity lives

Self-sufficient and self-sustaining

A welcoming place for whānau
to (re)connect

A place that tamariki and rangatahi want to come to

A place to learn tikanga, whakapapa, our history
and Te Reo Māori

Fully functioning, safe and comfortable

Advancing the health and wellbeing
of our people

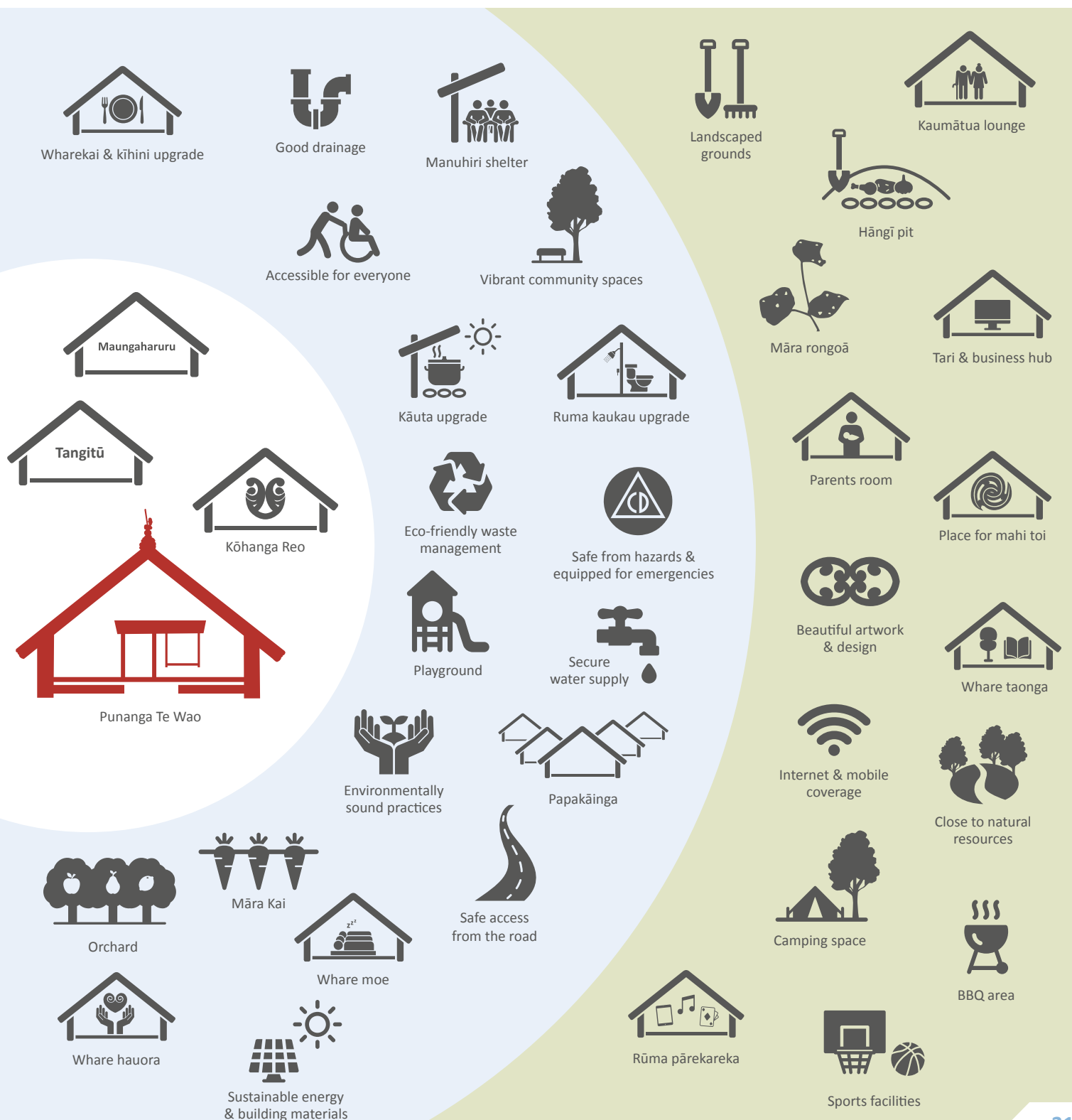
The heart of the Hapū community

A place to celebrate

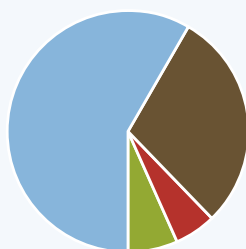
Future-proofed

Our Hapū vision for the built environment

When assessing options for our Marae the Marae Options Committee considered what our Hapū wanted for our Marae in the future. The ideas that whānau provided in surveys and at hui for the built environment are portrayed below. They are shown in approximate order of priority – the top of the inner circle being highest priority, the bottom of the outer circle being lowest priority.



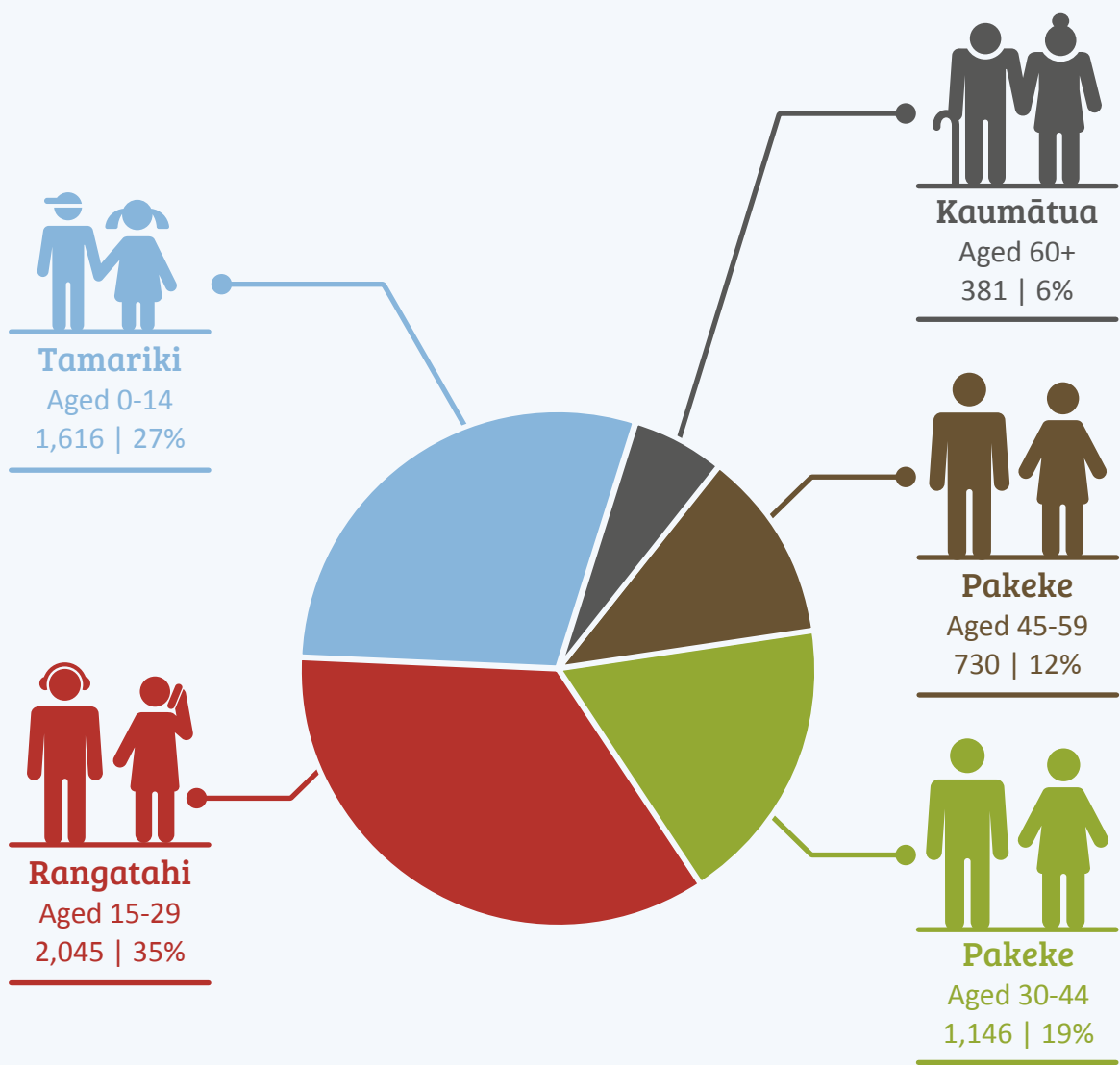
Our total population (of registered MTT members) is 5,927. We have members living all over the world, but most are in Aotearoa. Of the members we have addresses for, more live outside of Hawke's Bay (55%) than in Hawke's Bay (45%). Of all the locations, Napier is where most of our members live (26%). The statistics on this and the following page come from the MTT registration database.



- Napier – 1,312 | 58%
- Hastings – 661 | 30%
- Northern HB – 126 | 6%
- Central HB – 144 | 6%

How many whānau do we need to cater for now and in the future?

NOW



IN FUTURE



Year 2018
5,918



Year 2026
9,200

Detailed Information

In this section we respond to some pātai that have been asked and include more detail on the options considered.



Questions & Answers

Roles & Responsibilities

Q1. How many committees manage the Marae?

One – the Marae Trustees manage the Marae (buildings and land). The five Marae Trustees that are responsible for the day to day running of the Marae were elected on 18 March 2018.

Q2. What is the role of the MTT Trustees?

MTT Trustees are elected by Hapū members and are responsible for managing our Treaty Settlement, including the Marae Fund, and protecting and promoting the interests of our Hapū.

Q3. Who oversaw the Marae Options project?

The Marae Options Committee oversaw the Marae Options Project, with support from a project manager through MTT. The Committee was asked by our Hapū to explore options to relocate the Marae or protect and develop the Marae at the current location, and to provide recommendations to our Hapū. The Marae Options Committee is made up of 16 whānau members representing Marae Trustees, Kāhui Kaumātua, Kōhanga Reo, Rangatahi, Ahikā and MTT. The members are listed on page 7.

The Project & Proposal

Q4. What was the process and who determined the process?

Whānau at Hui-ā-Hapū held over several months said that this would be the most important decision that they would make about our Marae and Hapū. They asked for a Committee of Hapū representatives to be set up to explore all of the options and to provide a recommendation to them so they would be able to make an informed decision. This is a whānau led process determined by whānau.

Q5. What did the NIWA and Marae Options projects provide?

The NIWA research project looked at climate change impacts on flooding in Tangoio and

explored pathways for the Marae to adapt to those impacts. Hapū aspirations for the Marae were also surveyed. See our website www.tangoio.maori.nz/maraeoptions for more information. The subsequent Marae Options Project investigated options to relocate or protect and develop the Marae at the current location.

Q6. Why is there no formal vote?

At the start of this project it was anticipated that there would be several feasible options for our Marae, and that whānau would have a choice between 'stay' and 'go' options. However, it has turned out that there is only one feasible option identified by the Marae Options Committee. Instead of incurring expenses on a 'vote' we are instead asking whānau for feedback on the proposal. This can be done at the Hui-ā-Hapū on 8 December or via email, Facebook, or post.

Q7. Was this project a waste of time?

No. At the start of this project we didn't know what options were available for our Marae. It is only after thorough investigation that we have found there is only one feasible option at this time. The project was necessary to explore the options before committing to a particular option.

Q8. How much did the project cost and how much has been spent on the Marae?

The NIWA research project was funded using government funds from the Deep South Challenge. The subsequent Marae Options Project cost approximately \$223,000 as at September 2018, funded from the interest accrued from the Marae Fund. Project costs included expert advice on flood modelling, flood mitigation, risks, mapping, geotechnical aspects, property considerations, cost estimates, process, communications, and Marae Options Committee support. An additional \$163,000 (approximately) of the Marae Fund interest was also spent on the Marae including the MaraeFit project, mattress room/roof, electrics, septic system, insurance and various maintenance work. MTT also seconded a

Questions & Answers Continued

project manager to manage the Marae Options project for a minimum of 28 hours per week for 19 months.

Q9. Is the Marae supposed to be self-sustainable?

Yes. The Investment Framework that was approved by our Hapū in 2012 has an objective in clause 4.2d that the “Marae should be able to sustain its operations (the income it receives should cover its expenses).”

Q10. Has the Marae Options Committee looked into designing a new wharekai?

A Marae Facilities Survey was undertaken in 2016 for our whānau to provide input on the needs and priorities for our Marae facilities, including the Wharekai. It is not for the Marae Options Committee to decide on design details for the Wharekai, but the survey results provided a useful guide on the approximate size of buildings that may be required. The more detailed information collated from the survey will be useful in developing detailed designs for the Wharekai and the Marae generally.

Offsite Options

Q11. Were the lands our Hapū own considered as offsite options for our Marae?

The lands our Hapū own (for example at Opouahi Station and Esk Forest) did not meet the criteria of being within 40 minutes drive from Napier, so were not considered as offsite options.

Q12. Were any properties owned by the Tangoio South Trust considered?

The Marae Options Committee sought professional advice on a property owned by Tangoio South Trust, across the road from the old Tangoio School site. However run-off from the hills is a problem. The modelling shows the flooding flows to be high speed over a wide area (see Figure 2 on page 14). Such flows have the potential to cause scour and erosion. Another issue is that obstructions and minor changes to the flow path further up the hill could have significant impacts on the flood flow, making it difficult to develop mitigation solutions.

Q13. Were other sites in Tangoio Valley considered?

The Tangoio Valley was investigated for potential Marae sites and papakāinga. Unfortunately, there were no practicable options. Many sites are flood prone from the awa and in some cases, also from the run-off from the hills.

Our engineers have advised us that our awa, Te Ngarue, is a reasonably active main river channel, which means the course of the awa can change. The change in the course of the awa over the last 100 years is evident from old survey maps. Movement of the awa is therefore another risk to consider.

Works to mitigate flood risks are likely to have negative impacts on neighbouring landowners (i.e. increase flood levels on neighbouring properties). Therefore such works may be an issue when seeking a resource consent.

Onsite Options

Q14. Have whānau been given the opportunity to share their ideas and have these ideas been considered by the Marae Options Committee?

Yes. Many of our whānau have shared their ideas at hui, in surveys, via social media, in person and directly to members of the Marae Options Committee. All of these ideas have been considered by the Marae Options Committee.

Q15. Why can't we spend the money obtained in our Treaty Settlement on the raised land option?

The Marae Fund is money that was specifically negotiated in our Treaty Settlement to deal with the impacts of flooding on our Marae. The remainder of the settlement moneys is invested according to the Investment Framework approved by the Hapū and our Investment Policy Statement (SIPO) approved by the MTT Trustees from time to time. The income from those investments enables MTT to grow our capital to provide for current and future Hapū members and to fund projects relating to our strategic objectives:

- Kia Niwha – Strong People

- Kia rirā te Pā kai ngā Rekereke – Strong Culture, Reo & Marae
- Kia Rawaka – Strong Hapū Economy
- He Kāinga Taurikura – A Treasured Environment
- He Waka Kairangatira – MTT Group – A Great Organisation.

Q16. Why is there a development at Tangoio Beach if it is at risk of flooding like the Marae?

The developers have explained on the Trade Me website that “[i]n 2008 the Hastings District Council ... rezoned this land at Tangoio to allow for Coastal Residential Development. A concept plan has been developed proposing 37 Coastal Residential sites and 1 Lifestyle site but no formal resource consent applications have as yet been lodged.” The Hawke’s Bay Regional Council is responsible for the management of waterways and opposed the rezoning. The Council produced a technical report in 2005 called “Te Ngaru [sic] Catchment Flood Hazard Study” explaining why it opposed residential development within the flood plain. In summary, the reasons provided in the report (on page 2) are:

“The area is subject to inundation from flash flooding which is an extremely volatile natural hazard. There is a risk to public safety. There is generally very little warning time for flooding in this area. Residential occupation of the floodplain is likely to end in disaster, as it has in many other developments that have taken place on floodplains around New Zealand. The floodplain is an area that is constantly undergoing natural changes due to erosion and siltation. Any permanent structures in this environment will be at risk.”

You can access the full report on our website at www.tangoio.maori.nz/maraeoptions.

Q17. Why don’t we raise the buildings instead of rebuilding the stopbank?

Lifting buildings can provide increased flood protection but does not provide protection to the adjacent land (including the Marae ātea, courtyards, carparks). Rebuilding the western stopbank reduces flood risk without having to modify buildings and infrastructure. However, increased floor levels may be worth considering when building new buildings (e.g. the wharekai)

Q18. Why don’t we build a wall instead of a stopbank?

Walls tend to be more expensive, require more ongoing maintenance, and more design and assessment effort than earth stopbanks.

Q19. Why is high-quality fill required for the stopbank?

High-quality fill is required to rebuild the stopbank to manage ground settlement and resilience from earthquakes and resulting liquefaction risk. To obtain building consent approval, land development and subdivision requirements (NZS4404) will need to be complied with.

Q20. Does the northern stopbank need replacing too?

The northern stopbank is high enough to provide flood mitigation in a 1 in 100 year event. However, modelling shows there are some minor low areas of the northern stopbank where flooding may occur during a Probable Maximum Flood event. Raising those lower areas has been included in the high-level cost estimate for the option.

Stopbank Option Risks

Q21. Can stopbanks fail?

There is a risk of stopbank failure that could be catastrophic for the Marae. Some of the ways stopbanks can fail are: problems caused by rabbit burrowing, leakage and overtopping. Stopbank failure can cause high-speed flow of flood waters and movement of sediment into the Marae area inside of the stopbank resulting in catastrophic effects on Marae buildings and infrastructure. For these reasons, stopbanks are typically used to protect rural land and are rarely recommended to protect buildings and areas used for public gathering.

Q22. Do stopbanks need to be maintained?

Stopbanks require regular and rigorous maintenance. They need to be checked every year, and after any flood event. The proposed stopbank is likely to be grassed with an access way on top. Further detailed design and advice will determine whether or not stock can graze on the stopbank. A rough estimate of the cost to maintain the stopbank is \$1,500 per year.

Questions & Answers Continued

Q23. What potential hazard risks are there due to forestry slash?

Forestry slash is woody debris caused by logging operations or natural forest disturbances such as wind or snow. Our engineers did not include the impact of forestry slash in the modelling shown above. They did however provide a separate assessment of the possible changes in the flood hazard due to forestry slash. This is important because forestry is a key land use in the Tangoio Valley, especially upstream of the Marae.

Harvesting of mature trees could speed up how quickly the valley floods. This is because more of the rainfall will land on the bare ground once trees have been harvested, and less rainfall will be caught up in the tree structures. However, the quicker response from the lower catchment may not combine with the flow from the upper catchment. This means the valley may flood for longer but the flood may not be as deep, even though there may be additional flows.

If forests in Te Ngarue and Rauwirikokomuka catchments are harvested at the same time, it could result in larger flood flows. Harvesting in the Kotomangengi catchment could cause excess flow contributing to backwater effect, and therefore affect flood levels at the Marae.

Q24. What if forestry slash blocked the bridge?

If forestry slash were to block the bridge at Tangoio Settlement Road (as it did in Cyclone Bola) in a large flood, we understand there would be only a small effect on peak flood level adjacent to the Marae. This is because in a large flood, more flow passes over the Tangoio Settlement Road near to the intersection with State Highway 2 than goes through the bridge (see Figure 2 on page 14).

Q25. What damage could be caused to the Marae from forestry slash?

If there was a large accumulation of slash upstream of the Marae, and the flood was to overtop the western stopbank or if the stopbank

was to fail, the debris could wash through the Marae causing catastrophic damage. The stopbank would be designed to reduce the risk of overtopping.

Q26. What are the potential impacts of forestry slash on the stopbank itself?

During a flood there may be superficial damage to the soil of the stopbank due to the water borne debris and slash. Localised soil replacement and compaction may be required after the debris is cleared. The overall integrity of the stopbank should not be compromised.

Q27. Was silt buildup taken into account?

The modelling for this project was for water flow and did not include silt transport and deposition. As standard practice, silt buildup is not included in flood modelling as it is difficult to predict where and how much silt will accumulate. Accumulation of silt is a concern as it could change the flood levels and reduce the effectiveness of the stopbank. Silt buildup on the floodable side of the stopbank may need to be cleared.

Background Information

Q28. Was Cyclone Bola in 1988 the worst flood in Tangoio?

No. Our whānau and reports show that:

- the 1938 flood was worse than Cyclone Bola
- the 1956 flood likely had similar short-term impacts but at a smaller scale
- the 1963 flood was more destructive than Bola.

For more detailed information on the flood comparison, see our website at www.tangoio.maori.nz/maraeoptions.

Glossary

Te Reo Māori

ahikā	burning fires of occupation
awa	river, stream
hākari	feast
Hakihea	December
Hapū	the tribes represented by MTT
hononga	connection, relationship
hui-ā-hapū	tribal meetings
Kāhui Kaumātua	Elders' Committee
kai	food
kāinga	villages
kaitiaki	guardian
kārere-ā-rorohiko	email
kaumātua	elders
kaupapa	topic, subject
kāuta	outside cookhouse
kihini	kitchen
kōhanga reo	Māori language preschool
kōrero tuku iho	oral traditions
kuia	female elder
kupu	word
kura	school
mahinga kai	places for gathering food
manuhiri	visitors
māra kai	food garden
marae ātea	open area in front of wharenui
maunga	mountain
mihimihi	greeting
moana	ocean, sea
motu	island
nama waea	phone number
nama waea kore utu	freephone
ngahere	forest
pā	fortified village
pae tukutuku	website
pakeke	adult
papakāinga	village
pātai	question
pou	leader
rangatahi	youth
rārangi upoko	contents
raupatu	confiscation

ruma kaukau	ablution block
roto	lake
ruma pārekareka	entertainment room
takiwā	traditional area
tamariki	children
tari	office
tauranga waka	anchorage site
tikanga	custom, protocol
tīpuna	ancestors
toka	rock
urupā	cemetery
waea pūkoro	mobile phone
waharoa	entranceway
wāhi mēra	postal address
wāhi taonga	site of significance to the Hapū
wāhi tapu	sacred site
whakaaro	thought, idea, opinion
whakamoemiti	church service
whakapā mai	contact us
whakapapa	genealogy
whakarāpopoto	summary
whakataukāki	tribal proverb
whakawhanaketanga	development
whakawhanaungatanga	kinship
whānau whānui	extended family
whare	house
wharekai	dining hall
wharenui	meeting house
whare hauora	house for health and wellbeing
whare moe	sleeping house
whare tangata	womb
whare taonga	museum
whare tīpuna	meeting house

Terms and Concepts

1 in 100 year flood	a flood of the size that has a 1 in 100 chance of occurring in any given year (a 1% probability)
catastrophic	involving or causing sudden great damage
catchment	area from which rainfall flows into a river, lake or reservoir
climate change	earth getting warmer causing change to the prevailing weather conditions
coastal inundation	overtopping and sea level rise
Deed of Settlement	the formal agreement between representatives of Maungaharuru-Tangitū Hapū and the Crown recording the settlement of the historical Treaty of Waitangi claims of the Hapū, signed on 25 May 2013
Deep South Challenge	A national science challenge which provides funding for research to enable New Zealanders to adapt, manage risk and thrive in a changing climate
desktop analysis	use of existing data and information (rather than field research)
engineer	a person who designs, builds, or maintains engines, machines or structures
erosion	wearing away of the ground surface as a result of the movement of wind, water or ice
feasible	possible and practical to do easily or conveniently
fill	material used to fill or artificially change the elevation of the ground
flash flooding	sudden, severe flooding usually caused by heavy rain falling over a short period of time
flooding hazards	primary hazards occur due to contact with water, secondary effects occur because of the flooding (e.g. health impacts, disruption of services), and tertiary effects are for example changes in the position of river channels
floodplain	an area of low-lying ground next to a river, formed mainly of river sediments and subject to flooding
forestry slash	woody debris caused by logging operations or natural forest disturbances such as wind or snow
geotechnical engineer	an expert who analyses, designs and constructs systems that are made of or are supported by soil or rock, e.g. stopbanks, retaining structures, slopes, foundations etc
hectares (ha)	unit of area equal to 10,000m ² or 2.47 acres
high-quality fill	material used to manage ground settlement and resilience from earthquakes and resulting liquefaction risk
Investment Framework	parameters (boundaries) to guide investment decisions
Investment Policy Statement (SIPO)	a document that sets out the investment governance and management framework, philosophy, strategies and objectives of a managed investment scheme and its investment funds or portfolios

liquefaction	a phenomenon in which the strength and stiffness of soil is reduced by earthquake shaking or other rapid loading. It can cause buildings to sink and underground pipes may rise to the surface. Groundwater can be squeezed out causing flooding
m	metres, e.g. 0.8m = 80cm = 800mm
Marae Fund	a fund to relocate or protect and develop the Marae. The Crown paid \$2 million into the fund as part of our Treaty Settlement. MTT added another \$1 million from the Settlement to the fund
MaraeFit	a Hastings District Council fund that assisted Marae to be ready to host Te Matatini in 2017
Maungaharuru-Tangitū Incorporated	The entity which preceded MTT and carried out our Treaty of Waitangi Settlement negotiations with the Crown
mitigate	make (something bad) less severe
modelling	a computer program that is designed to simulate what might happen or did happen in a situation
MTT	Maungaharuru-Tangitū Trust, responsible for managing our Treaty Settlement and protecting and promoting the interests of our Hapū
NIWA	National Institute of Water and Atmospheric Research
NIWA research project	research into climate change impacts on flooding in Tangoio and exploring pathways for the Marae to adapt to those impacts, funded using government funds from the Deep South Challenge
option to purchase agreement	an agreement that at the end of a specified period, one party has the option of purchasing a property from the other, i.e. they can choose whether they want to purchase it or not
overtopping	when water comes over the top of a stopbank
Probable Maximum Flood	largest flood that could theoretically occur at a particular location
quantity surveyor	an expert who calculates budgets and manages finances for construction projects
scour	the removal of sediment such as sand or silt from around an object due to an increase in flow velocity around the object
sediment	naturally occurring material that is broken down by weathering and erosion and is then transported by the action of wind, water or ice
silt	fine sand, clay or other material carried by running water and deposited as a sediment
stopbank	an embankment built to prevent a river flooding
tsunami	a series of waves or surges caused by an earthquake or other disturbance (such as underwater landslides)

Mihi Whakakapi

Kāti ake i konei ngā pitopito kōrero mō tēnei wā. E rere tonu ana ngā mihi ki a koutou, ko ngā uri whakaheke o ngā hapū o Maungaharuru-Tangitū. Kia ū tātau ki ngā moemoeā o ngā mātua tīpuna, nā rātau tō tātau marae i whakatū, hei aha? Hei kāinga, hei tūrangawaewae, hei whakaruruhau mō ngā whakareanga o ināianeī, o āpōpō anō hoki.

Tēnā koutou katoa

Marae Options Committee

Maungaharuru-Tangitū Trust



References

Cover image: Photo provided by Hawke's Bay Regional Council

Page 11: Figure 1: Map data: Google, Digital Globe

Page 14: Figure 2: Tonkin & Taylor Ltd, 2018. Tangoio Marae Flood Protection Assessment.

Page 16: Table: Tonkin & Taylor Ltd, 2018. Memo: 100-year event consideration of effects relating to flood mitigation measures.

Page 17: Figures 3 & 4: Tonkin & Taylor Ltd, 2018. Tangoio Marae Flood Protection Assessment.

Page 23: Photo of the old wharenui supplied by Lizzy Taurima, p.g. 271 in Tawhai, Toi, 2011. Tangoio Native School 1902 – 1974.

Photo of the existing wharenui supplied by Whakiao Hopmans.

Page 24: Photo of the school garden supplied by Mrs McDonald, pg.219 in Tawhai, Toi, 2011. Tangoio Native School 1902 – 1974.

Page 25: Photo of the Diamond Jubilee supplied by Mrs Jill Stanley, Hawke's Bay Photo News; pg.131 in Tawhai, Toi, 2011. Tangoio Native School 1902 – 1974.

Photo of the school rugby team pg.246 in Tawhai, Toi, 2011. Tangoio Native School 1902 – 1974.

Page 26: 1 Taylor, Bevan, 1993. Customary Usage Report.

2 Archives NZ – Wellington BAAA 1001 556A 44/4 1931 – 1940.

3 1956 Newspaper Report in Hawke's Bay Regional Council, 2005. Te Ngaru Catchment Flood Hazard Study.

4 Photo supplied by Ray Johnson, The Weekly News 25 July 1956; pg.147 in Tawhai, Toi, 2011. Tangoio Native School 1902 – 1974.

5 NIWA, 2016. A History of Flooding.

6 Photo supplied by Mrs Jill Stanley, Hawke's Bay Photo News; pg. 160 in Tawhai, Toi, 2011. Tangoio Native School 1902 – 1974.

Page 28: NIWA, 2016. Presentation at Hui-ā-Hapū at Tangoio Marae.

Page 30: NIWA, 2016. Marae Vision Survey.

Page 31: NIWA, 2016. Marae Vision Survey.

Page 32: Data from the Maungaharuru-Tangitū Trust Registration Database as at 18 July 2018.

Page 33: Data from the Maungaharuru-Tangitū Trust Registration Database as at 18 July 2018.

Future projections from: Jackson, Natalie; Rarere, Moana; Kukutai, Tahu, 2012. Experimental Register-based Projections for Maungaharuru-Tangitū Inc.

General Information:

Hawke's Bay Regional Council, 2018. Tangoio Marae Proposed Stopbank Hydrodynamic Analysis.

Tonkin & Taylor Ltd, 2018. Memo: 100-year event consideration of effects relating to flood mitigation measures.

Tonkin & Taylor Ltd, 2018. Memo: Tangoio Marae Options Assessment.

Tonkin & Taylor Ltd, 2018. Tangoio Marae Flood Protection Assessment.



MAUNGAHARURU
T A N G I T Ū

Whakapā Mai

Nama Waea (06) 835 3300

Waea Pūkoro 027 815 2357


Nama Waea Kore Utu

0800 TANGOIO/0800 826 4646

Kārerere ā-Rorohiko info@tangoio.maori.nz

Pae Tukutuku www.tangoio.maori.nz

 Maungaharuru-Tangitū Trust

 Maungaharuru-Tangitū Trust

Tari

First Floor, 15 Hardinge Road,
Ahuriri, Napier

Wāhi Mēra

PO Box 3376, Hawke's Bay Mail Centre,
Napier 4142