



## Meeting of the Clifton to Tangoio Coastal Hazards Strategy Joint Committee

**Date:** Tuesday 28 February 2017  
**Time:** 10.00am  
**Venue:** Napier City Council  
Main Committee Room  
231 Hastings Street  
NAPIER

### Agenda

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1.	Welcome and Apologies	
2.	Conflict of Interest Declarations	
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# CLIFTON TO TANGOIO COASTAL HAZARDS STRATEGY JOINT COMMITTEE

Tuesday 28 February 2017

## Subject: CONFIRM THE REMUNERATION OF PANEL MEMBERS

### Reason for Report

1. The approved Terms of Reference for the Assessment Cell Evaluation Panels provide for an honorarium to be paid to full voting members of the panels, where they are not employees attending on behalf of their employer.
2. The relevant section of the Terms of Reference is reproduced below:
  - 2.1. *6.1 (c) - Unless a Panel member is otherwise remunerated for their attendance at panel meetings (i.e. because they are attending as an employee of the organisation they are there to represent), or opts out, all full voting members shall receive an honorarium per meeting attended. The value of the honorarium (and any subsequent adjustments as may be required) shall be determined by the Joint Committee. No additional reimbursement shall be given for mileage or travel to attend workshops.*
3. This report seeks approval from the Joint Committee for an honorarium to the value of \$120 to be issued to panel members in accordance with the provisions of the approved Terms of Reference.

### Financial and Resource Implications

4. The Technical Advisory Group have factored this honorarium in to the overall project budget. An allocation for \$120 per full voting member with an assumed 100% attendance rate is provided for.

### Recommendations

That the Clifton to Tangoio Coastal Hazards Strategy Joint Committee:

1. Receives and notes the ***Confirm the Remuneration of Panel Members*** report.
2. Approves an honorarium to the value of \$120 per meeting attended to be issued to full voting members, in accordance with and subject to the provisions of the approved Terms of Reference for the Assessment Cell Evaluation Panels.

### Authored by:

**Simon Bendall**  
**PROJECT MANAGER**

### Approved by:

**Mike Adye**  
**GROUP MANAGER ASSET**  
**MANAGEMENT**

### Attachment/s

There are no attachments for this report.



# CLIFTON TO TANGOIO COASTAL HAZARDS STRATEGY JOINT COMMITTEE

Tuesday 28 February 2017

## Subject: STAGE TWO: DECISION MAKING FRAMEWORK

### Reason for Report

1. This report presents a final Stage 2 Decision Making Framework prepared by Stephen Daysh from Mitchell Daysh.

### Discussion

2. **Attachment 1** has been prepared as part of Stage Two work, as a proposed process to turn what we now know about coastal hazards risks (as confirmed in Stage 1) into actionable responses.
3. The report has been held in draft since the August 2016 Joint Committee meeting and has undergone some refinements over that time, principally to incorporate:
  - 3.1. Feedback from the Joint Committee;
  - 3.2. Input from the Living at the Edge research team; and
  - 3.3. Vulnerability Assessment, Adaptive Pathways Planning and Real Options Analysis methodologies, to align with Ministry for Environment ("MfE") national guidance on coastal hazards and climate change responses.
4. It is noted that the delayed MfE national guidance document has not, at the time of writing this report, been made publicly available. However, the Technical Advisory Group ("TAG") have been working with key contributors to the guidance (from Living at the Edge) and MfE to ensure that the proposed decision-making framework has a high degree of consistency.
5. On that basis, TAG consider that the Stage 2 Decision Making Framework report should now be finalised.

### Recommendations

That the Clifton to Tangoio Coastal Hazards Strategy Joint Committee:

1. Receives and notes the **Stage Two: Decision Making Framework** report.
2. Adopts the *Stage Two Report: Decision Making Framework* as final.

### Authored by:

**Simon Bendall**  
**PROJECT MANAGER**

### Approved by:

**Mike Adye**  
**GROUP MANAGER ASSET**  
**MANAGEMENT**

### Attachment/s

- 1 Stage 2 Report - Decision Making Framework





CLIFTON TO TANGOIO COASTAL  
HAZARDS STRATEGY 2120

**STAGE TWO REPORT:  
DECISION MAKING  
FRAMEWORK**

Final

February 2017

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**REPORT INFORMATION**

<b>Report Status</b>	Final
<b>Our Reference</b>	3033N
<b>Author</b>	Stephen Daysh
<b>Review By</b>	Simon Bendall

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## 1. INTRODUCTION

Hawke's Bay Regional Council (HBRC) Hastings District Council (HCC) and Napier City Council (NCC) alongside three iwi Groups (He Toa Takatini, Mana Ahuriri Incorporated and Maungaharuru Tangitu Trust Incorporated) have formed a Joint Committee responsible for the development of the Clifton to Tangoio Coastal Hazard Strategy 2120. The strategy development is being supported a Technical Advisory Group, specialist consultants and by the Resilience National Science Challenge- The Living Edge expert team.

The Strategy is being developed in four stages:

**Stage One:** Define the Problem

**Stage Two:** Framework for Decisions

**Stage Three:** Develop Responses

**Stage Four:** Respond

**Stage One** work undertaken by Tonkin and Taylor has been completed. It includes an assessment of coastal erosion, storm surge inundation and tsunami risks under a range of difference climate change scenarios for each distinct part of the Clifton to Tangoio coastline.

**Stage Two** is in two parts; the first is the development of a decision-making framework which is the subject of this report.

A decision-making framework is required to turn what was learned about hazards risks in Stage One into a management strategy for each part of the coast. This strategy will likely involve one or more (over time) of the following adaptation approaches:

- **Status quo** – e.g. do nothing / monitor / private owner's responsibility;
- **Hold the line** – defend / manage natural processes with protection works (potentially through the use of both hard structures and soft engineering responses such as beach re-nourishment, wetland buffers or created wetlands); and
- **Managed retreat** - a staged retreat in the face of an increasing or changing coastal hazard risk, such as withdrawing, relocation, or abandonment.

For decisions to be made between these options pathways, a structured decision-making framework is required. This includes the identification of a suitable process for economic assessment of social impacts arising from the risk management strategies and a way of valuing the pathways options over long time frames of at least 100 years (in this case to 2120).

The second part of Stage Two is the development of funding guidelines to determine how the costs of protection work, relocation or other strategies might be funded and allocated between beneficiaries. The guidelines will include the identification and evaluation of alternative forms of funding taking into account the long-term nature of the Strategy. This is the subject of a companion report prepared by Maven Consulting.

**Stage Three** will involve the application of the decision-making framework through two “Cell Assessment Working Panels” whose members will have the task of evaluating and selecting practicable adaptation options and future pathways that respond to the identified coastal hazards risks in the various identified cells, using the decision-making framework outlined in this Report.

Finally, **Stage Four** will implement the selected adaptation option(s) pathways in a coordinated and planned manner that will provide the best overall outcome for the Hawke’s Bay community now and in the future as the risk profiles change.

## 1.1 DEVELOPMENT OF THIS REPORT

This report was prepared initially by Mitchell Daysh Limited and Maven Consulting for the Joint Committee in 2016 and has subsequently been further developed in collaboration with members from Living at the Edge.

“Living at the Edge” is a component of the Resilience to Nature’s Challenges National Science Challenge and includes members from New Zealand Universities and Crown Research institutes with experience in climate change and adaptation and who are available to provide ongoing advice on the development of the strategy as part of their on-going research programme.

## 1.2 NATIONAL GUIDANCE PENDING AND TO BE APPLIED

The Ministry for the Environment is currently producing a revised National Guidance Document on Coastal Hazards and Climate Change (due for release at the end of February). The guidance is being structured around an iterative 10-step decision framework. It is made up of elements to secure and implement a long-term strategic planning and decision-making framework for coastal areas potentially, or already, affected by coastal hazards and climate-change effects, such as sea-level rise. The 10-step decision cycle below is structured around five key questions:

### A. What is happening?

Step 1: Preparation and context

Step 2: Hazard and sea-level rise assessments

### B. What matters most?

Step 3: Values and objectives

Step 4: Vulnerability and risk assessments

### C. What can we do about it?

Step 5: Identify options and pathways

Step 6: Option evaluation

### D. How can we implement the strategy?

Step 7: Adaptive planning strategy (with triggers)



Step 8: Implementation plan

**E. How is it working?**

Step 9: Monitoring

Step 10: Review and adjust

On a similar timeline as the revised MfE coastal guidance, the Department of Conservation is also releasing implementation guidance for the hazards policies (24-27) and Objective 5 of the NZ Coastal Policy Statement 2010.

This document will cover more detailed information and guidance on implementing the specific policies and alignment with Objective 5 – particularly around not increasing coastal-hazard risk and discouraging hard engineering responses due to their unsustainability when addressing sea level rise for decisions that have a long life time (e.g. public and private assets at the coast).

The Clifton to Tangoio Coastal Hazards Strategy Decision Framework was first developed and ratified by the Joint Committee through 2016 and is well advanced. However, through the input from Living at The Edge and discussions with MfE staff, the intention is to make the approach as consistent with the MfE Coastal Guidance process and the NZCPS as possible.

To assist with Steps 3 (Values and Objectives) and 4 (Vulnerability and Risk), Maven Consulting is undertaking a Social Impact Assessment (SIA) in four of the most vulnerable coastal units (Westshore, Clive / East Clive, Haumoana/Te Awanga and Clifton). Living at the Edge has provided input on these aspects and Mitchell Daysh will augment this work with further vulnerability assessment information about changing population and the degrees of vulnerability in the local communities.

## 2. DECISION MAKING FRAMEWORK METHODOLOGY

A range of well-established techniques are proposed for use in a Community-led decision making process that has been agreed by the Joint Committee. These include Multi-Criteria Decision Analysis (MCDA), Dynamic Adaptive Pathways Planning (DAPP), Benefit Cost Assessment (BCA) and Real Options Analysis (ROV), as discussed below.

### 2.1 MULTI-CRITERIA DECISION ANALYSIS (MCDA)

There is a considerable amount of international literature and experience associated with the use of multi-criteria decision analysis ("MCDA") as a tool for assisting with decision making. For example, the UK Government developed a manual entitled "*Multi-criteria analysis: a manual, Department of Communities and Local Government, 2009*" (the "UK Manual")<sup>1</sup> which is key UK central government guidance on the application of multi-criteria analysis techniques. A well-known MCDA technique in New Zealand is the "Area, Corridor, Route, Easement or ACRE" process applied by Transpower in selecting new electricity transmission alignments.

Environmental Management Services Limited (now Mitchell Daysh) has successfully applied MCDA as an option development / assessment tool for a wide range of projects in New Zealand, including in recent years the Te Ohaaki Marae Relocation Study, a Nuhaka to Opoutama Coastal Road Options assessment for Wairoa District Council, and in assisting Hastings District Council define the Whakatu Arterial Route.

The UK Manual summarises the MCDA approach as follows:

*"MCDA is both an approach and a set of techniques, with the goal of providing an overall ordering of options, from the most preferred to the least preferred option. The options may differ in the extent to which they achieve several objectives, and no one option will be obviously best in achieving all objectives. In addition, some conflict or trade-off is usually evident amongst the objectives; options that are more beneficial are also usually more costly."*

*MCDA is a way at looking at complex problems that are characterised by any mixture of monetary and non-monetary objectives, of breaking the problem into more manageable pieces to allow data and judgements to be brought to bear on the pieces, and then of reassembling the pieces to present a coherent overall picture to decision makers. The purpose is to serve as an aid to thinking and decision making, but not to take the decision."*

In the context of Coastal Hazards, an MCDA approach was applied in 2012 as a Pilot Project for the Coastal Hazard Strategy for Townsville City Council in North Queensland, Australia. The Townsville Pilot Study was a collaborative exercise involving the Australian Government Department of Climate Change and Energy Efficiency, the Queensland Government, Griffith University, City of Townsville and the Local Government Association of Queensland, with GHD as consultants. This study provides a useful example relevant to developing a coastal hazard strategy for the Clifton to Tangoio coastline in Hawke's Bay.

<sup>1</sup> This is a UK government document which focuses on an approach to support public expenditure for public works projects.



The Townsville study report<sup>2</sup> includes a useful table which summaries the generic MCDA process as Table 1 below:

**Table 1: MCDA Process**

Process	Description
Decision Criteria	Develop a set of social, environmental and economic criteria to score potential adaptation options
Scoring	Assess the expected performance of each option against the criteria. Then assess the values associated with the consequences of each option for each criterion.
Weighting	Assign weights for each of the criterion to reflect their relative importance to the decision.
Weighted Scoring	Combine the weights and scores for each option to derive an overall value
Sensitivity Analysis	Conduct as sensitivity analysis: do other preferences or weights affect the overall ordering of the options?

One of the key points the UK Manual makes is the analysis can be framed in different ways, some more directly supporting the eventual decision, and some less so. The MCDA might be structured to:

- Show the decision maker the best way forward
- Identify the areas of greater and lesser opportunity
- Prioritise the options
- Clarify the differences between the options
- Help the key players to understand the situation better
- Indicate the best allocation of resources to achieve the goals
- Facilitate the generation of new and better options
- Improve communication between parts of the organisation that are isolated (e.g. finance, engineering, environmental); or
- Any combination of the above.

## 2.2 DYNAMIC ADAPTIVE PATHWAYS PLANNING (DAPP)

It is understood that a dynamic adaptive pathways planning approach (DAPP) will be recommended in the MfE Guidance Document.

<sup>2</sup> Coastal Hazard Strategy for Townsville City Council: Economic Analysis, GHD Report 41/24609/03, October 2012



One example of adaptive pathways planning developed in the Netherlands is called Dynamic Adaptive Policy Pathways planning.

Dynamic Adaptive Policy Pathways (DAPP) planning (Haasnoot et al., 2012) has particular utility for making decisions in the coastal context where there are dynamic characteristics leading to ever-changing risk profiles, and there is uncertainty around rates and magnitude of changes, especially over the long term.

DAPP focuses on making transparent, the path dependency between actions and whether they will result in lock-in of existing risk or create future exposure to hazard risk, while keeping multiple pathway options open for the future. This helps to reduce the risk of irreversible decisions (Kwakkel et al., 2016).

Importantly, DAPP does not prescribe a single solution that is embedded up-front. Future options are left for future decisions, provided that they lead to the achievement of the stated objective. This means there is some certainty for the community about what the future possible pathways entails. (Kwakkel et al., 2016).

DAPP has been successfully applied in New Zealand as part of a 2015 study of long term options for managing flood risks in the Hutt Valley. Figure 1 below sets out a pathways map for a range of options over time developed for that Study (Greater Wellington Regional Council, 2015 ).

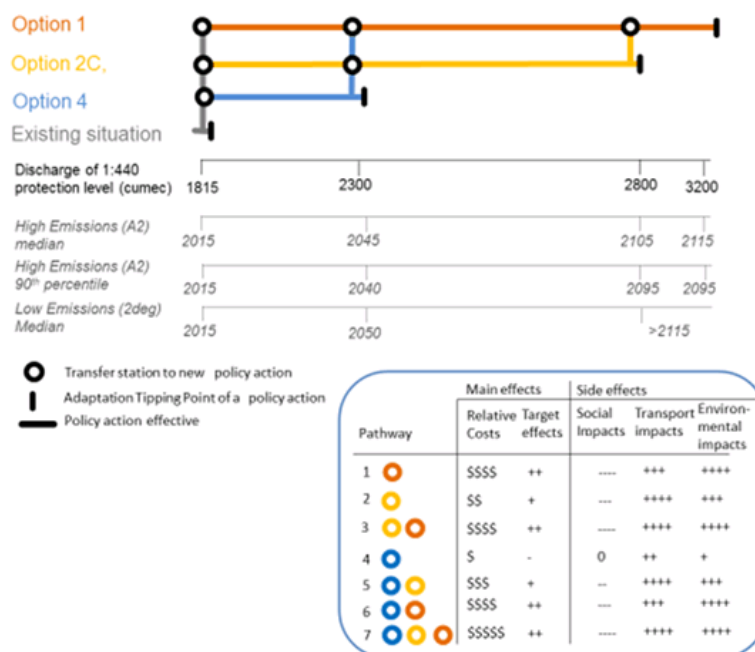


Figure 1: Pathways Map developed in Hutt Valley Flooding Risk Study

### 2.3 BENEFIT COST ASSESSMENT (BCA)

Given the timeframes involved with the strategy (which is looking ahead to 2120) and the nature of the uncertainty with climate change and sea level rise projections (it is known that sea level is rising but not known what the rate and magnitude of the rise will be beyond the next 30 years), an important element of the Decision Making Framework will be to assess the economic viability and timing for undertaking the coastal adaptation strategies recommended in the MCDA process for each of the sixteen Clifton to Tangoio coastal units. Judy Lawrence (one of the Living at the Edge advisors) explains this as follows:

*"For near-term decisions (e.g. with lifetimes up to 2040-2060) because the uncertainty range is smaller (sea-level rise range of 0.2-0.4 m), sea level consideration should not delay initial decision-making processes.*

*However, such near-term decisions should build in sufficient flexibility to enable changes of pathways or measures that can accommodate high end sea level over longer timeframes, and including the impact of more frequent extreme storm events and severe erosion in the shorter term.*

*Conversely, the flexibility of adaptive management approaches can also cover the situation where the rate of sea-level rise is somewhat slower than anticipated for the planning period. In this case, planned response options can be delayed (but the decision-point threshold remains in place providing ongoing certainty for stakeholders).*

*Considering a range of risk exposures is more likely to capture risks from a range of plausible futures. Understanding the consequences of acting and not acting is an essential part of evidence-based decision making required of local government decision makers. This acknowledges that making decisions under uncertain conditions will always involve subjective evaluations of the available knowledge base. Widening the range of possible future conditions is more likely to result in more robust decision making around planned alternate or staged response options and provide leeway for adjustments over time, depending on how the future evolves."*

As is discussed in our associated Stage 2 funding model report<sup>3</sup>, this process is also a key component in determining a contributory funding approach for capital works required at an identified future time.

The BCA process such as it might be applied in the Clifton to Tangoio study is diagrammatically presented in the companion Stage 2 funding model report, and for ease of reference is reproduced as Figure 2 below.

<sup>3</sup> Stage Two – Clifton to Tangoio Coastal Hazards Strategy 2120: Hazards Response Funding Model, Maven & EMS Final Draft July 2016



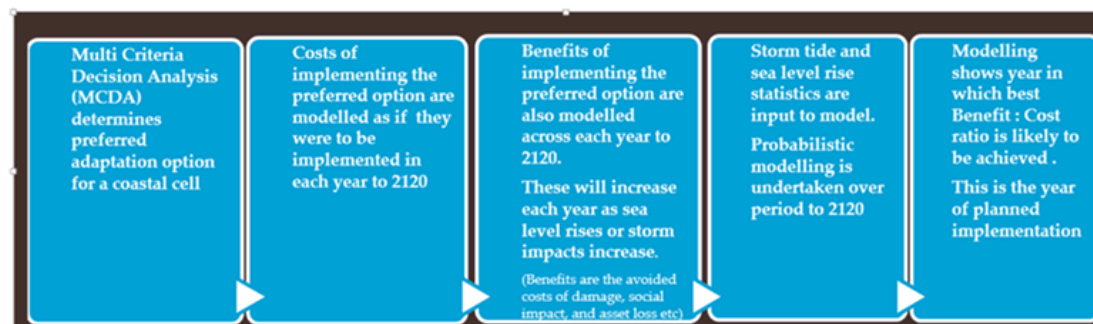


Figure 2: Benefit: Cost Ratios – Modelling the Response

## 2.4 REAL OPTIONS ANALYSIS (ROA)

Real Options Analysis (ROA) allows economic analysis of future option value and economic benefit of deferring investment and allows for the possibility that new information could change the relative costs/benefits of different investment strategies. This is an important consideration when valuing adaptation options and pathways that are exposed to changing hazard risk profiles.

MCDA and ROA are complementary assessment tools. The robustness of MCA results can be checked by comparing the MCDA results with the ROA incremental investment cost differences between the various flexible pathways. In this way, the MCA results can be meaningfully compared with ROA results on value for money. Such an application was used by Greater Wellington Regional Council for the Hutt river upgrade project for valuing pathways and to test the sensitivity of options to climate scenario, discount rate, decision review date and costs and losses (Greater Wellington Regional Council, 2015).

### 3. PROPOSED DECISION-MAKING PROCESS FOR CLIFTON TO TANGOIO COASTAL HAZARDS STRATEGY

#### 3.1 RECOMMENDED PROCESS

The decision-making process proposed for the strategy integrates a range of key principles and proven methodologies to form the following process:

1. Two Evaluation Panels are formed to represent the interests of communities and agencies exposed to coastal hazards risks;
2. The Evaluation Panels work through a structured decision making assessment process to develop and evaluate potential options / pathways for responding to identified risks over time in priority coastal units;
3. Preferred options / pathways are confirmed through the application of MCDA, DAPP, ROA and BCA methodologies;
4. Preferred options / pathways are recommended back to each Council for final decision making.

This process is described in more detail in the following sections.

#### 3.2 TWO EVALUATION PANELS

Mitchell Daysh presented an evaluation of a range of potential assessment cell options at the 2 May 2016 meeting of the Clifton to Tangoio Coastal Hazards Strategy Joint Committee<sup>4</sup>. These options ranged from assessing all sixteen coastal units in the study area defined by Tonkin & Taylor separately through to considering the whole study area as one Assessment Cell. The recommended option (which was approved at the meeting) – hereafter referred to as “Option V” involves two assessment cells described as “North / South” with the dividing line being the Port / Bluff Hill. This is shown as Figure 3 on the following page.

The reasons for our two Assessment Cell recommendation to the Joint Committee that the North / South Option to be utilised in the Stage 3 decision making process were as follows:

##### Coastal Process Groupings and Linkages

In our opinion, Option V best groups areas of potential interrelated coastal processes for consideration in the detailed Stage 3 assessment and the associated decision making process on responses (e.g. the potential cause and effect linkages associated with the units south of the Port of Napier, and those associated with the units from the Port north).

##### Involvement of all Three Councils

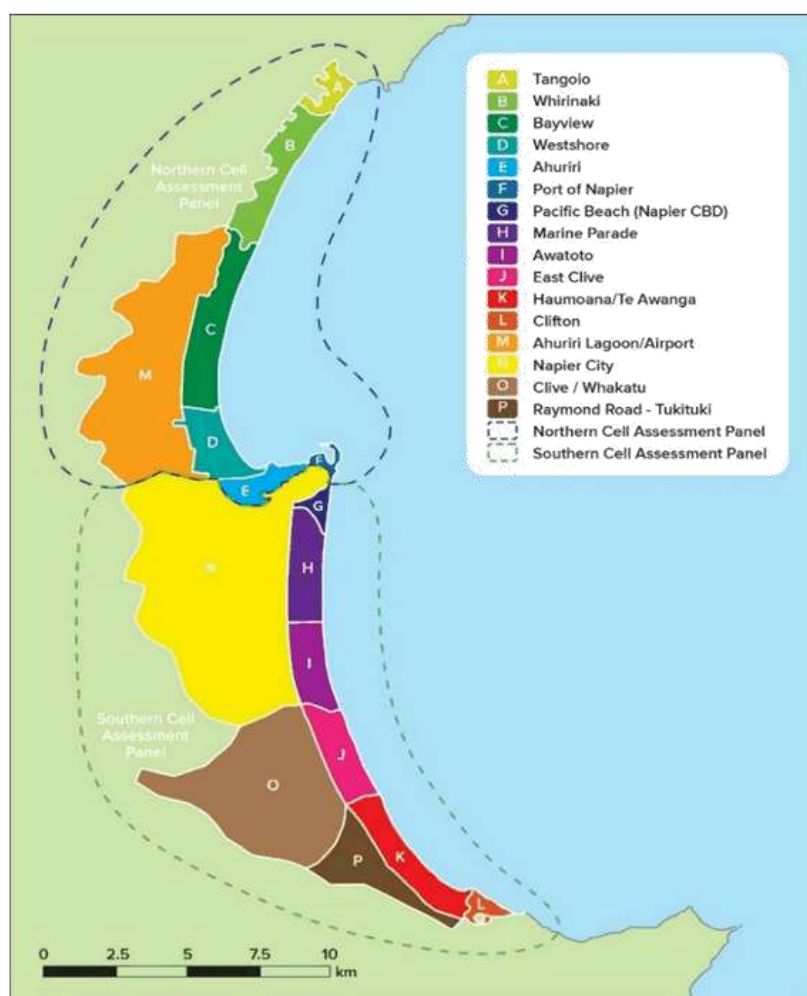
Option V involves both NCC and HDC in all assessments and the decision-making process on responses (as these two Councils cover parts of both the North and South cells). It is

<sup>4</sup> EMS Letter to Mr. Mike Adye dated 26 April 2016

considered that involvement of all Councils in all the assessment processes will aid in co-ordinated and consistent decision making and implementation; and

#### Effective Management of the Multi-criteria Cell Assessment process

Two Assessment Cells strikes a good balance between the administrative and process cost efficiency of the assessment process and the ability to involve the necessary range of relevant interests in the two Cell Assessment Working Parties. Successful multi-criteria assessment processes undertaken previously by EMS have included between ten and fifteen participants and this range is considered ideal. In our experience, if more than around fifteen participants are included the process can become unwieldy.



**Figure 3: Recommended North/South Assessment Cell Option**

It will be apparent from the above map that there are sixteen Coastal Units (as developed by Tonkin & Taylor for their risk assessment work in Stage 1 of the Strategy) involved in the decision-making assessment process. Of these, seven will be assessed in the northern cell process while the balance of nine will be assessed in the southern cell process.



### 3.3 PARTICIPATION IN THE DECISION-MAKING PROCESS

It is important that the various roles and responsibilities of those participating in the decision-making process is clearly defined. The starting point is to clearly set out the purpose and role of the two Assessment Cell Evaluation Panels who will undertake the assessment. The decisions made in the process will require long-term funding decisions to be made by the three Partner Councils and it is highly likely that statutory documents such as the Hawke's Bay Regional Policy Statement and Regional and District Plans, along with other Council documents such as Asset Management Plans will need to be updated to respond to the agreed Strategy. On this basis, the Assessment Cell Evaluation Panels can only have a recommendatory function, as it is the function of the respective elected Councillors to make long term funding<sup>5</sup> and statutory plan decisions. This relationship is shown in Figure 4 below.

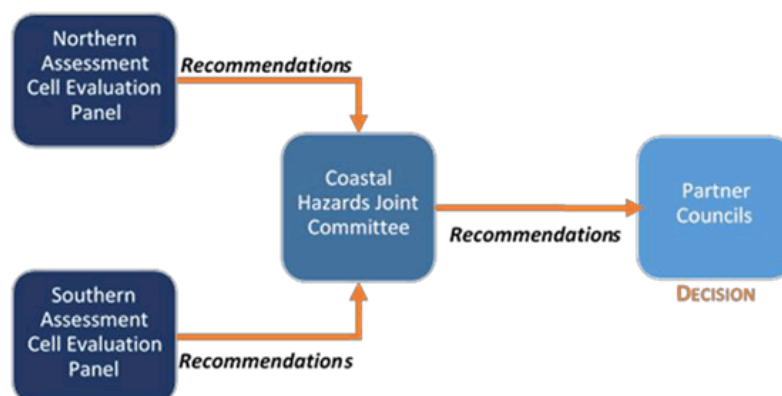


Figure 4: Functions relationships and decision-making

While this “recommendatory” function does entail some process risks (as the outcomes can be re-litigated in the future by the Decision-Making Councils), this risk can be mitigated by having Council members fully involved as observers in the Terms of Reference (see Appendix 1), so when recommendations are ultimately made the reasons for them will be well understood by the elected Council representatives.

#### Dealing with potential elected Councillor and HBRC Regional Planning Committee conflicts

Participation in collaborative stakeholder groups does present challenges for elected Councillors (and also in this case Mana Whenua representatives on the HBRC Regional Planning Committee). While full participation of elected Councillors and Committee members would add value to the Evaluation Panels, involvement in the Evaluation Panels may result in participating Councillors and RPC Committee members being compromised on a pre-determination basis, when the recommendations are taken to the Councils for

<sup>5</sup> Such decisions will also be closely aligned to the adopted recommendations from the Funding Model developed in this Stage Two.

ultimate decision making purposes. Potential conflicts between the evaluation / recommendatory roles and ultimate decision making roles relate to both future related Resource Management Act processes and decision making responsibility under the Local Government Act (e.g. Long Term Plans).

In the case of this strategy, the Clifton to Tangoio Coastal Hazards Strategy Joint Committee has been guiding the development of the Strategy for some eighteen months and elected members have expressed interest in being fully involved in the two Evaluation Panels, but have sought advice from us on whether this would be appropriate or not.

It is considered that given that inevitable role that statutory plans prepared under the Resource Management Act will play in implementing the Coastal Hazards Strategy. The Joint Committee has decided that elected Councillors and RPC Committee Members participate as Observers only in the evaluation process.

#### Recommended Evaluation Panel Participants

In the 26 April 2016 EMS letter referenced above, advice was also sought on an initial list of parties for the two Evaluation Panels.

The make-up of the panels was refined further in discussions with the Joint Committee and in November 2016 a series of public meetings were held in five coastal communities to:

- Provide an update on the strategy to Coastal Communities
- Seek nominations from people wanting to be part of the two Community based Evaluation Panels
- Identify people in the Westshore and Clifton, Te Awanga, Haumoana and East Clive Coast Unit areas who would be happy to be interviewed over the coming months regarding what they particularly value about living in these areas

These meetings resulted in a good number of volunteers for the Panels and after considering these and liaising with other parties (including the Joint Committee iwi representatives regarding Tangata Whenua representation) the final composition of the two Evaluation Panels is set out in tables 2 and 3 below:

**Table 2: Northern Cell Participants**

Full Voting Members	Observer Participants	Observer Participants Support Roles
Tangata Whenua (3)	HBRC Councillor (1)	Independent Chair (1)
Whirinaki Community (3)	NCC Councillor (1)	Kaitiaki o te Roopu (1)
Bayview Community (2)	HDC Councillor (1)	Facilitator (1)
Westshore Community (2)	Maungaharuru-Tangitu Trust (1)	Assistant Facilitator (1)
Ahuriri / Pandora Community (2)	Mana Ahuriri Incorporated (1)	Technical Advisory Group (4)
Recreational Interests (1)		Panel Secretary (1)





Full Voting Members	Observer Participants	Observer Participants Support Roles
Port of Napier (1)		Living at the Edge (2)
Ahuriri / Pandora Businesses (1)		
NZTA / Lifelines (1)		
Department of Conservation (1)		
Regional Representative (1)		
<b>Total Voting (18)</b>		<b>Total Non-Voting (16)</b>

Table 3: Southern Cell Participants

Full Voting Members	Observer Participants	Observer Participants Support Roles
Tangata Whenua (3)	HBRC Councillor (1)	Independent Chair (1)
Clifton/Te Awanga Community (3)	NCC Councillor (1)	Kaitiaki o te Roopu (1)
Haumoana Community (3)	HDC Councillor (1)	Facilitator (1)
Clive / East Clive Community (4)	Mana Ahuriri Incorporated (1)	Assistant Facilitator (1)
Marine Parade Community (1)	He Toa Takitini (1)	Technical Advisory Group (3)
Recreational Interests (1)	Port of Napier (1)	Panel Secretary (1)
Awatoto Businesses (1)		Living at the Edge (2)
Napier CBD Businesses (1)		
NZTA / Lifelines (1)		
Department of Conservation (1)		
Regional Representative (1)		
<b>Total Voting (20)</b>		<b>Total Non-Voting (16)</b>

### 3.4 CONSENSUS APPROACH AND DRAFT TERMS OF REFERENCE

A strong ethic of consensus decision making needs to be understood and adopted at the outset of this process. This requires both strong chairing and facilitation skills and a clear Terms of Reference (including engagement processes and rules) to be agreed as part of the first one or two meetings of the Panels.

Our experience is that the appointment of a Kaitiaki o te Roopu to assist the Chair and Facilitators through applying the principles of manaakitanga<sup>6</sup> to the overall process is a very valuable approach and is recommended.

During the important weighting and scoring phases of the process the facilitators will apply a “negotiation” approach for the establishment of the weighting (of the criterion as between the various criteria) and scoring of the options (against the criteria). This approach engenders reasoning needing to be explained for the outcomes (which is also written down in the process to clearly explain the differences between the defined weightings and scoring).

In our experience, this negotiation / discussion / recording process is usually successful at arriving at an agreed weight / score (without the need for any voting process).

A Final Draft Terms of Reference is included as **Appendix One** of this Report.

### 3.5 FOCUS ON PRIORITY COASTAL UNITS

It is already evident from the hazard and risk assessment reports undertaken by Tonkin & Taylor that some of the 16 units will have a higher priority than others in terms of when an adaptation response may be required.

Assessing all 16 units at the detailed level in this iteration of the coastal hazards strategy is considered impractical, considering the scale of this task, and that some units may ultimately not need adaptation over the life of the strategy, or there will be a long lead time before any changes will need to be determined and implemented. These lower risk units can reasonably be considered in more detail in future reviews of the strategy. However, because there is a risk of increased exposure to hazards in some of non-priority units, the panels will need to consider high level planning options that can reduce this risk, in accordance with the RMA hazard provisions.

It is proposed that the definition of the priority areas is discussed and agreed with the Panels at the early workshops, and from there the priority units will be the key focus for assessment and decision-making. However, the lower priority coastal units will still need some form of consideration as to their risk status, and planning for future responses, particularly where future responses require long term funding considerations.

Based on the risk profiles prepared by Tonkin & Taylor, and subject to any further refinement by the Panels, it is recommended that the priority units are Westshore, East Clive, Haumoana/Te Awanga, and Clifton – Coastal Units D, J, K and L.

### 3.6 CLEAR MEETING SCHEDULE AND OUTPUT REQUIRED

A key to the process is to establish a clear Meeting Schedule and to “lock-in” meeting times and the process at the outset. This provides a clear process and commitment for members of the Evaluation Panel to sign-up to at the outset.

<sup>6</sup> 1. (noun) hospitality, kindness, generosity, support - the process of showing respect, generosity and care for others.



It is recommended that the process for the two Evaluation Panels follows the same general path based on the following principles:

1. The process is completed in a 9-month timeframe
2. The first Workshop will include a talk the Chair of the Regional Council and District Mayors explaining the importance of the task for the region
3. Evaluation Panel Meetings will occur on average every month (target of 10 sessions)
4. Most sessions should occur between 5.00 p.m. and 8.00p.m. with a light supper to start
5. The key option pathways scoring session will need to cover one (or possibly two) full days
6. Community discussion sessions will be held at public venues in the relevant communities at key milestone points in the process in order for the wider public to receive information and make input. This will be supplemented by broader community surveys.
7. An Evaluation Panel report will be produced outlining the process and outcomes of the decision-making process.

Figure 5 below presents the proposed decision-making process as a series of 10 workshops with defined objectives for each, and identifies key work required at various stages between workshops.





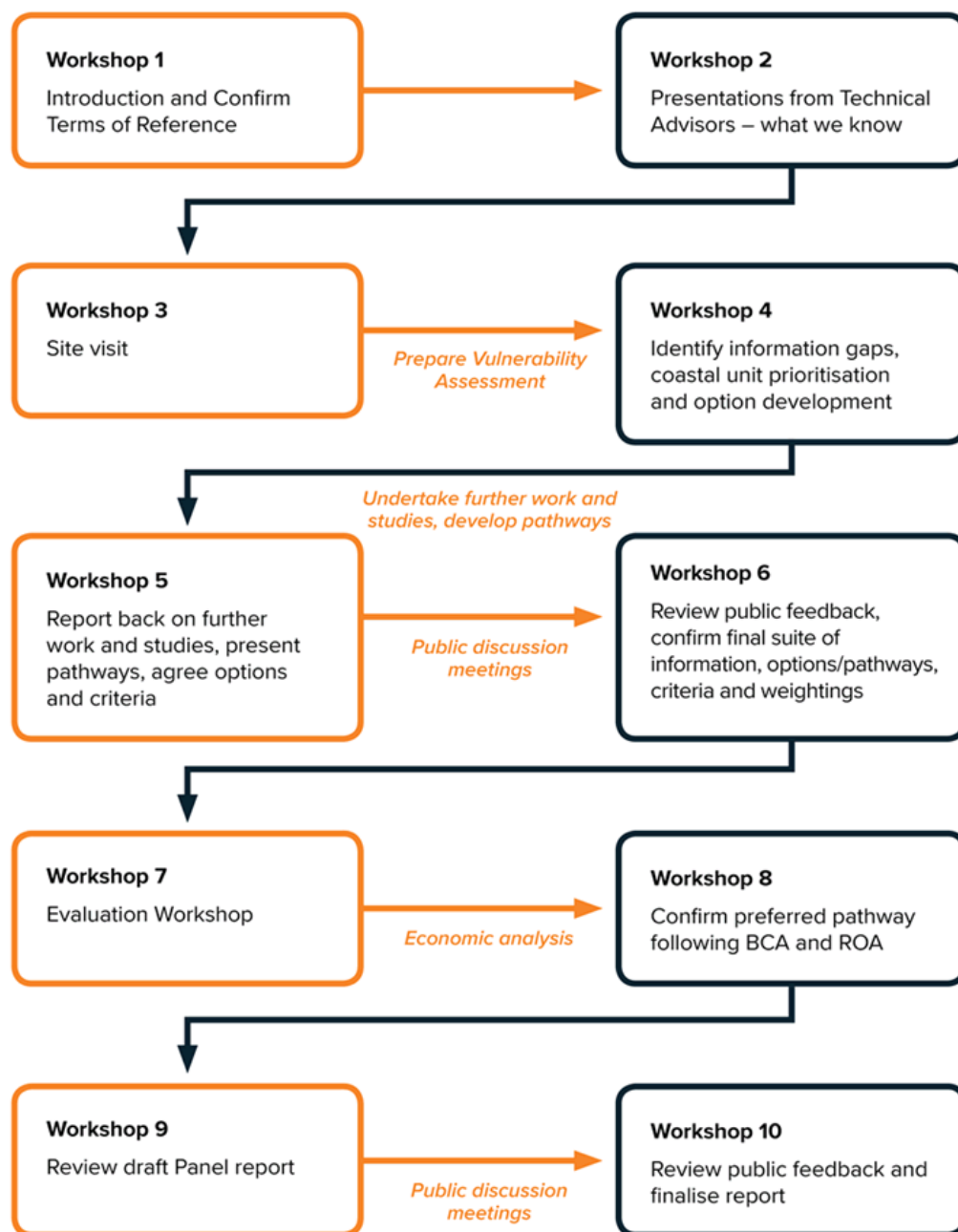


Figure 5: Proposed Decision Making Process



### 3.7 DRAFT ASSESSMENT METHODOLOGY FOR CLIFTON TO TANGOIO COASTAL HAZARDS STRATEGY

#### Option / Pathways Definition

It is important for the process to start as broadly as possible in identifying options because any options chosen will have implications for different people and parts of the study area. All will have implications for the future as well. Therefore, broad groupings of adaptation approaches will form the starting point for the Strategy and options within these groupings will be agreed as part of the early Workshop sessions:

- Status quo – e.g. do nothing / monitor / private owner's responsibility;
- Hold the line – defend / manage natural processes with protection works (potentially through the use of both hard structures and soft engineering responses such as beach re-nourishment, wetlands buffers or created wetlands); and
- Managed retreat - a retreat in the face of an increasing or changing coastal hazard risk, such as withdrawing, relocation, or abandonment.

Each of these options will be considered, noting that through the option/pathways identification process, the specific details of the response relevant to the particular coastal unit will need to be defined (e.g. what specific defend / manage retreat method might be suitable for an area and how regulatory / policy responses might effectively be applied in the circumstance of an area).

The adaptive policy pathways planning approach will then be applied to ensure combinations of potential options are developed as "pathways" over the timeframe of the 100-year Strategy period. These pathways over time (rather than individual options) will be assessed by the Evaluation Panels against a range of relevant decision criteria.

#### Decision Criteria

In consideration of the New Zealand Coastal Policy Statement, and the underlying objectives and principles of the Tangoio to Clifton Coastal Hazards Strategy 2120, the following criteria are proposed for consideration by the Evaluation Panels for assessing the various pathways.

Table 4: Draft Decision Criteria

Criteria	Description	Scoring Guide
Effectively builds resilience	<ul style="list-style-type: none"> <li>➤ Reduces the exposure to risk</li> <li>➤ Ability to meet objectives over long timeframes</li> <li>➤ Hazard risk is not exacerbated</li> <li>➤ Proportionate to the scale and nature of risk</li> </ul>	<p>5 – Highly effective at reducing risk exposure over 100 years with no exacerbation of hazard risk and proportionate to the scale and nature of the risk</p> <p>1 – Risk is not address and community / assets remain exposed and vulnerable</p>

Criteria	Description	Scoring Guide
Flexibility to responds to uncertainty over time	<ul style="list-style-type: none"> <li>➤ Ability to respond to uncertain climate outcomes</li> <li>➤ Measures in place to support future adjustments</li> </ul>	<p>5 – Able to respond ahead of damages from the changing hazard risk as signalled by new science and changing social conditions.</p> <p>1 – No ability to change pathways when new science and changing conditions are signalled.</p>
Effects on cultural sites and values	<ul style="list-style-type: none"> <li>➤ Impact on cultural sites of significance</li> <li>➤ Impact on access to, and carrying out of, customary activities</li> </ul>	<p>5 – All impacts (either from coastal hazard or of the option itself) on cultural sites and values can be addressed</p> <p>1 - High cultural impacts from option and/or risks of coastal hazards on cultural sites cannot be addressed</p>
Socio-economic effects	<ul style="list-style-type: none"> <li>➤ Social Effects e.g. <ul style="list-style-type: none"> <li>➤ Effects on community safety</li> <li>➤ Loss of amenity value</li> <li>➤ Decline in recreational values, community facilities</li> </ul> </li> <li>➤ Indirect economic / industry impacts (e.g. tourism, fishing)</li> <li>➤ Creates incentives for private land-owners to undertake actions that increase costs and risks to the wider community or transfers risk to future generations</li> <li>➤ Enhances existing equity or creates new equity issues</li> </ul>	<p>5 – All socio-economic impacts (either from coastal hazard or the option itself) and values substantially addressed</p> <p>1 - High socio-economic impacts from option and/or risks of coastal hazards on not addressed</p>
Environmental Impacts	<ul style="list-style-type: none"> <li>➤ Impact on natural coastal ecosystems</li> <li>➤ Impact on natural character of the coastal environment</li> </ul>	<p>5 – All environmental impacts (either from coastal hazard or the option itself) substantially addressed</p> <p>1 - High environmental impacts from option and/or risks of coastal hazards on ecosystems and natural character of the coastal environment not addressed</p>
Implementation Risks	<ul style="list-style-type: none"> <li>➤ Complexity of implementation (technical, consenting, stakeholder / social, institutional)</li> <li>➤ Ability to address the complexity e.g. measures to address complexity</li> </ul>	<p>5 – Option can be readily implemented with limited risk.</p> <p>1 – High risk of implementation failure</p>



Criteria	Description	Scoring Guide
Transfer of risk and indirect effects	<ul style="list-style-type: none"> <li>➤ Exacerbation of hazard risk in other areas</li> <li>➤ The degree to which risk is transferred to others</li> </ul>	<p>5 – No exacerbation of coastal hazards risks in adjacent / other coastal units or coastal hazards risks in adjacent / other coastal units reduced</p> <p>1 – Significant exacerbation of coastal hazards risks in adjacent / other coastal units</p>

Importantly, the criteria above will need to be developed, debated, and ultimately agreed by the assessment panels. It is critical that they are well understood, and fairly reflect the objectives of the panel, and the Joint Committee.

However, an important feature that should be retained is that there is no cost-based decision criterion. This allows for the non- monetary elements of different flexible pathways to be assessed separately, prior to a separate economic analysis being undertaken of the options pathway. This two-step process is considered important as it ensures that potential pathways can be thoroughly tested in terms of the objective(s) of the strategy without cost factors dominating the discussion and evaluation.

Costs and community affordability are of course crucial factors in the final decision, but this element can be undertaken separately through the economic assessment process (which requires specialist economic evaluation expertise) and then both the non-monetary and economic viability factors can be looked at together by the Evaluation Panels at the end of the process, prior to them making a final recommendation.

#### Criteria Weighting

Before the scoring process each criterion needs to be weighted to reflect its comparative importance in assessing the options. The weighting should reflect which criteria the Evaluation Panel members, representing the broader community, consider to be critical, important, or merely relevant in deciding which options will ultimately be advanced in each coastal unit.

In the Townsville Study weightings between the assessment criteria were assigned on a percentage basis adding up to 100%. The range ultimately adopted was between 5% for the lowest weighted criteria and 25% for the highest weighted criteria. It is recommended that this weighting technique also be adopted for the Clifton to Tangoio process.

The weighting process will be undertaken as a workshop session with each of the Evaluation Panels.

#### Scoring of the Pathways

A simple five-point scale to evaluate the identified pathways is proposed as follows:

- (1) Highly undesirable
- (2) Undesirable
- (3) Neutral
- (4) Desirable
- (5) Highly Desirable

This five-point scoring scale is consistent with Option scoring for other MCDA processes undertaken by Mitchell Daysh and the Townsville study. Reasons need to be written down to record why certain scores have been assigned.

The key difference from the Townsville Study that we propose for the Clifton to Tangoio MCDA process is to utilise the two Cell Assessment Evaluation Panels to undertake the full scoring process (supported by advice, information and guidance from the Technical team), rather than the Technical Team doing the scoring and using a Stakeholder Group as a feedback mechanism.

There are pros and cons with the two approaches, but on balance it is considered that provided sound technical information and advice is available to the Evaluation Panels, using a multi-party stakeholder group to participate at the heart of the process (and not as a consultation process) will lead to more robust and accepted recommendations based on the trust built during the panel processes resulting in an outcome that is regarded as legitimate.

#### **Economic and Sensitivity Analysis**

After the Evaluation Panels have undertaken the “non-monetary” scoring evaluation process for the identified pathways, an economic analyst will then assess the identified pathways in terms of their costs over time utilising tailored BCA and ROA techniques.

The authors of the Hutt Valley Flooding Study utilised ROA techniques to recommend flexible and “value for money” outcomes, and undertook sensitivity analysis of the pathways chosen for review, relating to a range of aspects including Climate Scenarios, Discount Rate, Decision Review Dates, and Costs and Losses. A similar approach is recommended here.

The outcomes of the economic and sensitivity analysis will be compiled into a separate economic report which will be provided to the Evaluation Panels as a draft for discussion. Once this report is finalised the findings of this report will be used by the Evaluation Panels to assist them in making their final recommendations for each of the Coastal Units assessed.

## REFERENCES

Coastal Hazard Strategy for Townsville City Council: Economic Analysis, GHD Report 41/24609/03, October 2012

Greater Wellington Regional Council, 2015 Flood Protection: Option flexibility and its value Hutt River City Centre Upgrade River Corridor Options Report. Prepared for GWRC by Infometrics & PSConsulting. Greater Wellington Regional Council, Wellington, p. 31.

Haasnoot, M., Middelkoop, H., Offermans, A., Van Beek, E., Van Deursen, W.P.A., 2012. Exploring pathways for sustainable water management in river deltas in a changing environment. *Climatic Change* 115, 795-814.

Kwakkel, J., Haasnoot, M., Walker, W., 2016. Comparing Robust Decision-Making and Dynamic Adaptive Policy Pathways for model-based decision support under deep uncertainty. *Environmental Modelling & Software* Volume 86, 168-183.

Multi-Criteria Analysis: A Manual, United Kingdom Department of Communities and Local Government, 2009.



## APPENDIX 1

Draft Terms of Reference for  
Evaluation Panels



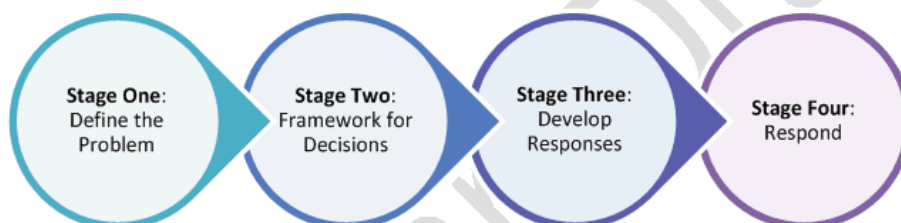


## Clifton to Tangoio Coastal Hazards Stagey 2120

### Assessment Cell Evaluation Panels Terms of Reference [DRAFT]

#### 1.0 Background / Context

- 1.1 The Hawke's Bay Regional Council, Hastings District Council and Napier City Council ("Partner Councils") along with representatives from Maungaharuru-Tangitu Trust Incorporated, Mana Ahuriri Incorporated and He Toa Takitini, have formed a Joint Committee ("Joint Committee") responsible for the development of the Clifton to Tangoio Coastal Hazard Strategy 2120 ("Strategy").
- 1.2 The Strategy is being developed in four stages:



- 1.3 **Stage One** work undertaken by Tonkin & Taylor includes an assessment of coastal erosion, storm surge inundation (flooding from the sea) and tsunami risks for each distinct part of the Clifton to Tangoio coastline.
- 1.4 **Stage Two** work was undertaken by Mitchell Daysh and Maven Limited and sets out a process for making decisions around the risks identified by the Tonkin & Taylor work.
- 1.5 A Northern and Southern Assessment Cell Evaluation Panel ("Panels") have been established to implement the decision-making framework developed in Stage Two, and in doing so complete **Stage Three** of the strategy

#### 2.0 Purpose

- 2.1 The purpose of the Panels is to provide informed recommendations to the Joint Committee on responses to coastal hazards risks within their assigned assessment cell areas (northern or southern).
- 2.2 The specific functions of the Panels are to provide the Joint Committee with input, advice and recommendations on the following matters:
- a) In response to the information developed on coastal hazards risks, the development of coastal hazard response options through consideration of the practicality and affordability of a range of options The range of options might include:
    - i. Do Nothing;





- ii. Hard Engineering solutions;
  - iii. Soft engineering solutions (e.g. beach re-nourishment, beach crest stabilisation);
  - iv. Retreat including identification of alternative building sites and land purchase;
  - v. Emergency Management planning;
  - vi. District and Regional Plan provisions; and
  - vii. Relevant internal Council policies.
- b) Facilitating engagement with the broader community, affected persons and other stakeholders in relation to the risks posed by coastal hazards and the associated coastal hazard response options.
- c) Open, objective and unbiased participation in a facilitated decision making process to select preferred coastal hazards response options;
- d) The determination of a preferred option(s) or series of coastal hazards response options, and the preparation and delivery of reasoned recommendations to the Joint Committee regarding:
- i. Priority areas for action;
  - ii. Preferred coastal hazards responses; and
  - iii. Programming and implementation.

### 3.0 Membership

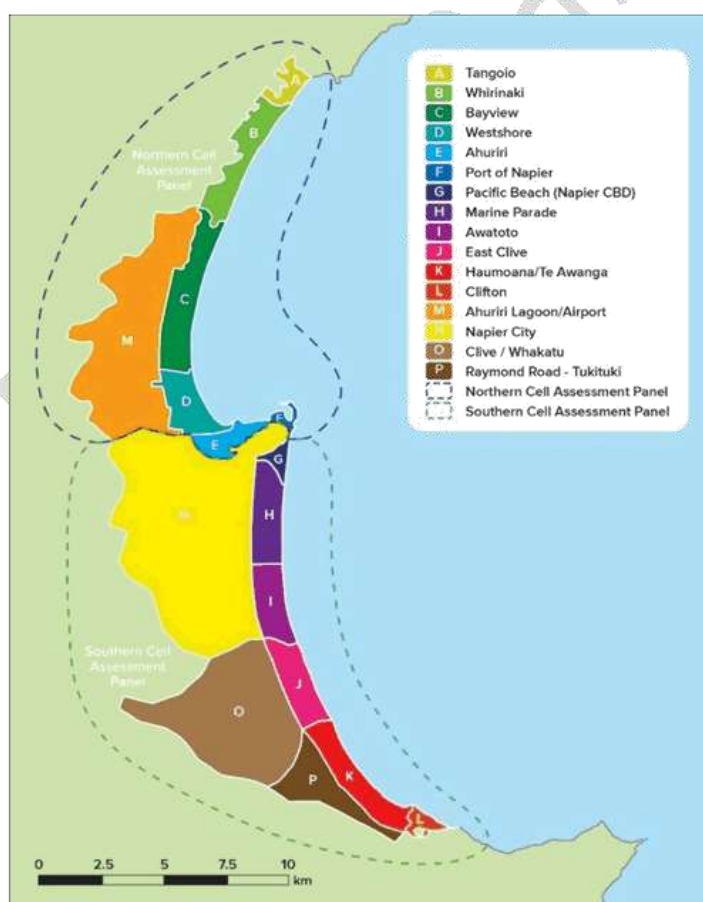


Figure 1: Assessment Cell Evaluation Panel areas

Two Panels shall be formed:

**Northern Assessment Cell Evaluation Panel** covering the area from Tangoio to the Port of Napier (inclusive), as represented by areas A, B, C, D, E, F and M in Figure 1.

**Southern Assessment Cell Evaluation Panel** covering the area from the Napier CBD to Clifton, as represented by areas G, H, I, J, K, L, N, O and P in Figure 1.



### 3.1 Northern Assessment Cell Evaluation Panel

Full Voting Members	Observer Participants	Support Roles
Tangata Whenua (3)	HBRC Councillor (1)	Independent Chair (1)
Whirinaki Community (3)	NCC Councillor (1)	Kaitiaki o te Roopu (1)
Bayview Community (2)	HDC Councillor (1)	Facilitator (1)
Westshore Community (2)	Maungaharuru-Tangitu Trust (1)	Assistant Facilitator (1)
Ahuriri / Pandora Community (2)	Mana Ahuriri Incorporated (1)	Technical Advisory Group (4)
Recreational Interests (1)		Panel Secretary (1)
Port of Napier (1)		Living at the Edge (2)
Ahuriri / Pandora Businesses (1)		
NZTA / Lifelines (1)		
Department of Conservation (1)		
Regional Representative (1)		
<b>Total Voting (18)</b>		<b>Total Non-Voting (16)</b>

### 3.2 Southern Assessment Cell Evaluation Panel

Full Voting Members	Observer Participants	Support Roles
Tangata Whenua (3)	HBRC Councillor (1)	Independent Chair (1)
Clifton/Te Awanga Community (3)	NCC Councillor (1)	Kaitiaki o te Roopu (1)
Haumoana Community (3)	HDC Councillor (1)	Facilitator (1)
Clive / East Clive Community (4)	Mana Ahuriri Incorporated (1)	Assistant Facilitator (1)
Marine Parade Community (1)	He Toa Takitini (1)	Technical Advisory Group (3)
Recreational Interests (1)	Port of Napier (1)	Panel Secretary (1)
Awatoto Businesses (1)		Living at the Edge (2)
Napier CBD Businesses (1)		
NZTA / Lifelines (1)		
Department of Conservation (1)		
Regional Representative (1)		
<b>Total Voting (20)</b>		<b>Total Non-Voting (16)</b>



## 4.0 Role Descriptions

- 4.1 **Full Voting Members:** Representative positions with full voting and speaking rights and participation in scoring and recommendations. A quorum of 75% of full voting members is required for the Panels to pass any resolutions.
- 4.2 **Observer Participants:** Present to observe and offer advice and opinions when these are requested by or through the Chair. Speaking rights may be granted upon request, at the discretion of the Chair. No voting rights
- 4.3 **Chair:** Responsible for the efficient and fair operation of the meeting and ensuring the Terms of Reference are followed and adhered to. Responsible for handling all media enquiries regarding the work of the Panels. No voting rights. Full speaking rights.
- 4.4 **Kaitiaki o te Roopu:** Responsible for ensuring tikanga is respected and followed throughout the process. Provides advice and guidance on the consideration of cultural values and impacts. Assists Tangata Whenua members as may be necessary. No voting rights. Full speaking rights.
- 4.5 **Facilitator:** Responsible for the overall management of each workshop, including managing how the Panels work and interact, resolving conflicts, leading debates, seeking consensus, and ensuring voting members are given the full opportunity to participate. Ultimately responsible for securing the necessary outcomes from each Panel workshop in an efficient, fair, and transparent manner. No voting rights. Full speaking rights.
- 4.6 **Assistant Facilitator:** Responsible for the organisation and logistics associated with the successful operation of each Panel workshop. Responsible for the development of a final report for each Panel, outlining the process taken and resolutions reached. Able to facilitate meetings as an alternate if required. No voting rights. Speaking rights may be granted upon request, at the discretion of the Chair
- 4.7 **Technical Advisory Group:** Provides technical support and expertise to the Panels when this is requested through the Chair. No voting rights. Speaking rights may be granted upon request, at the discretion of the Chair
- 4.8 **Panel Secretary:** Records the minutes, actions and resolutions from each workshop. Manages communications with all Panel members outside of each workshop. No voting rights. Speaking rights may be granted upon request, at the discretion of the Chair
- 4.9 **Living at the Edge:** Independent scientists and researchers available to Panel members to provide advice and guidance when this is requested through the Chair. No voting rights. Speaking rights may be granted upon request, at the discretion of the Chair

## 5.0 Member Attributes and Protocol for Collaborative Deliberation

- 5.1 The Panels represent a community-driven collaborative stakeholder process with the aim of providing the Joint Committee with consensus advice and recommendations on a long-term approach to build resilience to coastal hazards over the next 100 years.



- 5.2 For this process to be successful, members of the Panels will need to have the ability to explore, consider and deliberate on options and recommendations with an open mind, taking into account diverse views and interests (rather than simply advocating for a particular point of view). The following collaborative protocol is to be followed by all Panel members, observers and support roles:
- a) Panel members will participate co-operatively for the “long term benefit” of the region as a whole.
  - b) All Panel members agree to act in good faith. This means that members must commit to open, honest, constructive, robust, respectful and collaborative deliberations. To facilitate this end the Chatham House rule<sup>1</sup> will apply.
  - c) Contributions made within the Panels will be “without prejudice”. That is, nothing said within the group may be used in a subsequent planning or legal process except for any recommendations and agreements reached by the group.
  - d) Panel members agree to show respect for other members’ views when communicating with their wider networks.
  - e) Panel members agree to refrain from discussion and debate through media channels (i.e. newspapers, radio, television, and social media<sup>2</sup>).
  - f) Any public statement regarding advice or recommendations made by the Panels are to be agreed by the Panel and made through the Chair. This also applies to researchers, council staff and others who may attend in support of Panel meetings.
  - g) Consensus shall be strived for in all decisions made by the Panels, and is defined as every member (i.e. 100%) of the group being in agreement.
  - h) Where 100% consensus cannot be reached on a specific piece of advice or a recommendation, the reasons for disagreement will be noted, any alternatives defined, and the reasons for members positions on the alternatives recorded.
  - i) When the group reaches a decision, members will be expected to acknowledge that decision in subsequent public discussion, or presentation to the Council.
  - j) If a meeting is missed by a member, members will not be able to “re-litigate” a piece of consensus advice or recommendation at a later time.
  - k) Any recommendations made by the Panels must also take account of the requirements of the Local Government Act, New Zealand Coastal Policy Statement and other relevant legislation.

<sup>1</sup> When a meeting, or part thereof, is held under the Chatham House Rule, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed.

<sup>2</sup> This does not preclude the objective and impartial use of social media to facilitate engagement with the broader community, affected persons and other stakeholders in relation to the risks posed by coastal hazards and the associated coastal hazard response options.





## 6.0 Operational Protocols

6.1 The following protocols shall apply to the operation of the Panels:

- a) The schedule of agreed meetings is attached as **Appendix 1** to these terms of reference.
- b) Panel Members are expected to commit to the agreed schedule of meetings in **Appendix 1** and make every effort to attend all meetings. While it is anticipated that some Panel Members will miss certain meetings through circumstances beyond their control, if a significant number of meetings are not attended by a Panel Member then at the discretion of the Chair their membership may be reviewed and a reappointment process may be triggered.
- c) Unless a Panel member is otherwise remunerated for their attendance at panel meetings (i.e. because they are attending as an employee of the organisation they are there to represent), or opts out, all full voting members shall receive an honorarium per meeting attended. The value of the honorarium (and any subsequent adjustments as may be required) shall be determined by the Joint Committee. No additional reimbursement shall be given for mileage or travel to attend workshops.
- d) A regular public reporting forum and newsletter or similar mechanism should be adopted by the Panels to ensure the wider public are kept informed of their activities.
- e) Panel meetings are not open to the public; however, the Chair can invite people such as relevant experts and interested parties to specific meetings, and open certain meetings to the public and media representatives where it is considered appropriate. Elected members of the 3 Councils are welcome to attend meetings.
- f) The Partner Councils will be responsible for providing all the necessary support for the effective functioning of the group including the provisions of meeting venues, refreshments, and staff support for the preparation of agendas, minutes, communications etc.
- g) It is expected that the Panel meetings will be hosted by one of the Partner Council's, either in Council Chambers or other suitable venue for a group of this size.
- h) Full voting members of the Panel may not appoint alternates, or vote by proxy.
- i) Where a Panel member is no longer available to continue participation on a Panel for any reason, a replacement will be nominated by the relevant agency, group or community, to be accepted at the discretion of the Chair.
- j) Where a member deliberately or otherwise breaches the requirements and expectations of their participation on the Panel, as set out in this Terms of Reference, the Chair may, at their sole discretion, recommend to the Joint Committee that the member be removed. If this recommendation is confirmed by the Joint Committee, the member in question shall immediately cease to be a member of the Panel.
- k) Notes will be taken of all meetings. Notes will not record meeting conversations verbatim, but will provide an overall summary of the issues covered and the conclusions/decisions reached. These notes will be a public record.
- l) None of the matters in this terms of reference replaces, limits or restricts the individual decision-making of the Partner Councils and organisations involved; the statutory responsibilities and obligations of the Partner Councils for the implementation of plans and policies, including consent processing, monitoring, enforcement and compliance; or the ability to collaborate or work together in ways not defined in this terms of reference.



## 7.0 Resources

7.1 At each meeting, the Panels will have access to a Technical Advisory Group (“TAG”) formed by senior staff from each of the Partner Councils. Independent technical advisors will also be engaged by TAG to assist with supporting the Panels, which may include expertise from the following areas:

- Coastal Process science and engineering
- Landscape
- Legal
- Economics
- Planning

7.2 Attendance at specific meetings by experts shall be at the discretion of the Chair.

## 8.0 Recommendations and Reporting

8.1 At the conclusion of their process, each Panel will present a final report to the Joint Committee outlining the process they have taken and a final set of recommendations for responding to coastal hazards risks.

8.2 The Joint Committee shall, in good faith, consider the report and recommendations and may seek clarification and/or amendments from the Panel before formally receiving the report.

8.3 The Joint Committee shall submit the final Panel reports to the Partner Councils with a formal recommendation.

8.4 This process and is outlined in **Figure 2**.

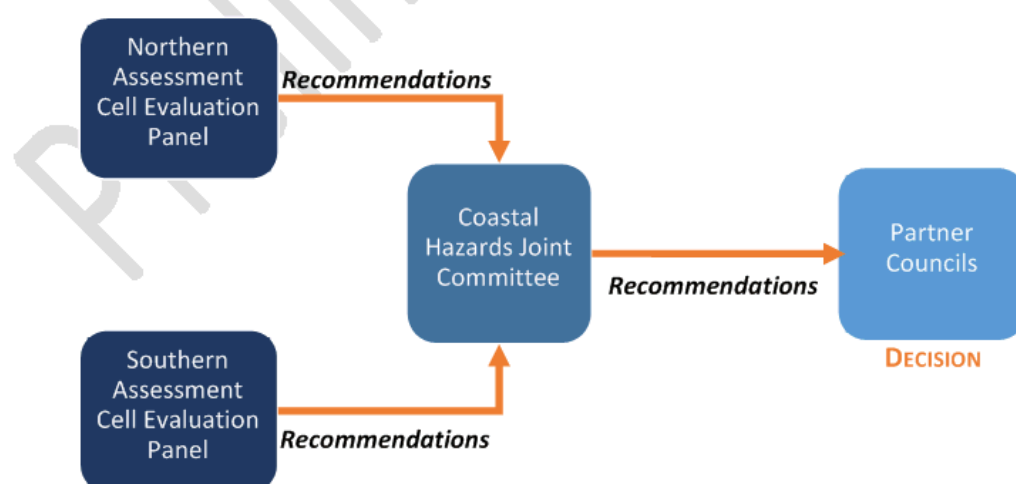


Figure 2: Functional Relationships



## APPENDIX 1 – AGREED MEETING SCHEDULE

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Preliminary Draft



#### Northern Cell Assessment Panel – Schedule of Meetings 2017 (preliminary)

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To be Confirmed

Preliminary Draft





### **Southern Cell Assessment Panel – Schedule of Meetings 2017 (preliminary)**

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To be Confirmed

Preliminary Draft



# **CLIFTON TO TANGOIO COASTAL HAZARDS STRATEGY JOINT COMMITTEE**

**Tuesday 28 February 2017**

## **Subject: STAGE ONE: PEER REVIEW UPDATE**

### **Reason for Report**

1. This report provides an update to the Committee following the receipt of a final peer review of the inundation assessment conducted by Tonkin & Taylor in Stage One.

### **Background**

2. At its meeting on 2 May 2016 the Joint Committee adopted as final the two reports prepared by Tonkin & Taylor, and in doing so confirmed the outcome of Stage One of the Clifton to Tangoio Coastal Hazards Strategy 2120.
3. In support of this decision, the Joint Committee were presented with feedback from key stakeholders, and the outcome of a peer review by Professor Paul Kench from Auckland University.
4. Professor Kench was engaged to peer review the complete hazard assessment work undertaken by Tonkin & Taylor. However, given a delay in confirming the final inundation assessment, Professor Kench was only able to review the coastal erosion component.
5. At that time, the inundation component had been extensively reviewed with in-house expertise at the Hawke's Bay Regional Council, and on that basis it was not considered necessary to delay the confirmation of Stage One.
6. TAG considered it prudent however to 'back-fill' this step. Doing so ensures there can be no claim that the hazard assessment work has not been fully independently peer reviewed, and, were any matters raised, these could be addressed before the Assessment Panels completed their process and recommendations.
7. To that end, Professor Kench was engaged to peer-review the inundation component. Unfortunately, given the availability of Professor Kench to undertake this work, TAG was not able to present the outcome of this review in 2016 as hoped. This work has now been completed however, and his peer review findings are attached to this report.

#### **Attachment 1.**

8. In summary, Professor Kench found no technical deficiencies with the inundation assessment.

### **Recommendations**

1. That the Clifton to Tangoio Coastal Hazards Strategy Joint Committee receives and notes the Stage One Peer Review Update report, and reconfirms their adoption of all Stage One reports.
2. That the Tangoio Coastal Hazards Strategy Joint Committee recommends the peer reviewed Stage One reports be presented to the Napier City Council, Hastings District Council and Hawkes Bay Regional Council for their respective adoption.

### **Authored by:**

**Simon Bendall**  
**PROJECT MANAGER**

### **Approved by:**

**Mike Adye**  
**GROUP MANAGER ASSET**  
**MANAGEMENT**

## Attachment/s

- 1 Peer Review: Coastal Hazard Inundation Assessment



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SCHOOL OF ENVIRONMENT

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## PEER REVIEW

### Hawke Bay Coastal Strategy – Coastal Hazard Inundation Assessment

Hawke's Bay Regional Council (HBRC) commissioned a peer review of the report titled *Hawke Bay Coastal Strategy Coastal Hazard Assessment* produced by Tonkin and Taylor. The erosion hazard component of the report has been reviewed previously. This review examines the inundation component of the hazard report and subsequent inundation mapping.

Section 5.0 of the report outlines the methodology adopted to assess coastal inundation hazards. The assessment of inundation is presented in two parts.

1. **Permanent inundation:** This analysis examines areas of the coast subject to permanent inundation as a consequence of astronomical tidal processes (in particular highest astronomical tide) and sea level rise. The report adopts sea level rise scenarios of 0.5 m and 1.0 m for the 2065 and 2120 time horizons. The combination of sea level and astronomical tide heights are summed and related to coastal topography to determine the areas of the coast subject to permanent inundation using a bath tub approach.
2. **Extreme inundation:** This analysis refers to areas of the coast subject to periodic flooding as a consequence of astronomical tides together with super elevation of water level driven by storm surge and related wave processes (wave setup and runup). The methodology utilises XBeach-G a model primarily constructed to examine beach morphological dynamics in response to incident storm hydrodynamics. Of note, the model has been validated in scientific studies and has shown a good level of performance in predicting wave transformation processes, run-up levels and wave overtopping on gravel beaches (McCall et al., 2014). Notwithstanding the textural differences between pure gravel beaches (upon which the model was developed) and mixed sand and gravel beach system in Hawke's Bay the application of XBeach-G to assess extreme inundation is sound. In the context of the Hawke's Bay hazard assessment, use of the model is also logical as it formed the basis of the erosion modelling. Significantly, outputs of XBeach-G runup levels are compared with previous estimates from Komar and Harris (2014) and are found to show reasonable correspondence. Consequently, I consider the work has demonstrated the validity of the approach to assess inundation in the Hawke's Bay. Indeed model outcomes are also compared with empirical observations (Goodier and Pearse, 2015) and show reasonable correspondence.

In summary, I consider the inundation analysis adopts a robust methodological approach, which forms the basis of inundation mapping.

Extreme inundation evaluated three discrete water levels, the 10% AEP, 1%AEP and 0.5% AEP. Mapping of inundation zones was based on the manual integration of the extreme water levels along the coast produced by XBeach-G with the inundation extent resulting from overtopping from the catchment flood models of HBRC using engineering judgment to refine the inundation maps. Further commentary provided by Craig Goodier indicated the localized decisions taken in preparing

the hazard inundation maps. While the methodology to estimate inundated areas is adjusted between sites, I consider this is a sound process based on ground-truthed empirical nuances of each locality. The ensuing inundation maps provide informative products that highlight areas of the coast subject to inundation.

#### General comments

- I believe the report and its findings are robust given the current state of knowledge of coastal science and the methodological tools available to evaluate inundation hazards.
- There appears to be a disparity between Table 6-2, which shows overtopping as grey cells and Tables 6-3 and 6-4 which do not highlight overtopping despite extreme water levels exceeding those in Table 6-2.
- The report selects only two future sea level rise scenarios to develop inundation analyses. It is recommended that future work seek to explore a more complete spectrum of sea level rise scenarios, joint probabilities and changing inundation frequencies. Such information would be useful to highlight threshold water levels that cause major impacts on communities and the changing frequency of flood events.
- The report divides the coast into discrete compartments centered on established coastal profiles. This is logical and allows variations in coastal topography to be evaluated. The outcome of this approach is to yield spatial differences in flood hazards which realistically reflect variations in coastal configuration.
- Inundation analysis adopts a relatively new model specifically developed to assess gravel beach hydrodynamics and beach dynamics. Gravel beaches are known to behave differently to typically sand beaches and consequently, it is refreshing to see this new model applied to Hawke's Bay.
- Ultimately, inundation analysis was performed using a bathtub approach on the 2003 LiDAR DEM, which is commonly used in flood analyses but does have limitations with respect to future scenario assessment. The bathtub approach assumes that the coastline is geomorphically static. The recent erosion hazard assessment undertaken by HBRC indicates this is not likely to be the case, with coastline changes projected over the next century. Such changes would impact future flood analysis scenarios. While this is not to imply the approach is inappropriate, such geomorphic changes will alter the flooding results into the future. In future it would be instructive to examine how the erosion and flood assessments could be coupled to allow the shifts in the geomorphic template to feed back into flood analyses.

In summary, the report is a well-considered analysis of inundation hazards along the study coastline. It adopts a novel modelling approach combined with ground-truthed local knowledge to present areas subject to inundation. While further work can always be undertaken to refine and improve understanding of future flood hazards, their frequency and the associated risks, I consider the findings provide a baseline dataset, which is appropriate for informing hazard management strategies in the study area.

#### References

- Goodier, C. and L. Pearce (2015) Storm report: Cyclone Pam, March 15-18, 2015. HBRC response to Cyclone Pam, HBRC Report No. 4728, Plan No. AM15/03.
- Komar, P.D., Harris, E. (2014). Hawke's Bay, New Zealand. Global climate change and barrier-beach responses. Report to the Hawke's Bay Regional Council.
- McCall RT, Masselink G, Poate TG, Roelvink JA, Almeida LP, Davidson M, Russell PE, (2014) Modelling storm hydrodynamics on gravel beaches with XBeach-G. *Coastal Engineering*, 91, 231–250.



Professor Paul Kench

# CLIFTON TO TANGOIO COASTAL HAZARDS STRATEGY JOINT COMMITTEE

Tuesday 28 February 2017

## Subject: STAGE TWO: FUNDING MODEL REFRESHER

### Reason for Report

1. At the last meeting of the Joint Committee in December 2016, the Committee requested a refresher on the funding model developed by Wayne Mills from Maven Consulting Limited in Stage 2 of the Clifton to Tangoio Coastal Hazards Strategy 2120.
2. The funding model concepts proposed by Mr Mills in Stage 2 are currently being further developed as part of Stage 3 work by a cross-council sub-working group of the Technical Advisory Group.
3. In addition discussions are being held at a national level regarding the potential for other stakeholders to become involved in the concept. A meeting involving a range of stakeholders is programmed for 24 February.
4. An update on this work will be provided in the following agenda item.
5. Mr Mills will attend this Joint Committee meeting to speak to this paper and run through a PowerPoint presentation on the funding model concepts he developed.

### Recommendation

That the Clifton to Tangoio Coastal Hazards Strategy Joint Committee receives and notes the ***Funding Model; Refresher Plus Progress Update*** report.

### Authored by:

**Simon Bendall**  
**PROJECT MANAGER**

### Approved by:

**Mike Adye**  
**GROUP MANAGER ASSET**  
**MANAGEMENT**

### Attachment/s

There are no attachments for this report.





# CLIFTON TO TANGOIO COASTAL HAZARDS STRATEGY JOINT COMMITTEE

Tuesday 28 February 2017

## Subject: STAGE THREE: PROGRESS REPORT

### Reason for Report

1. This report provides an update to the Joint Committee on progress made in the various work streams that form Stage 3 of the Clifton to Tangoio Coastal Hazards Strategy 2120.

### Assessment Panels

2. Throughout November and December 2016, the Technical Advisory Group ("TAG") worked to confirm nominations and appointments to the Southern and Northern Assessment Cell Evaluation Panels.
3. The level of interest and commitment shown by the community to this process has been positive, and two panels have been formed with good representation.
4. As Joint Committee members will be aware, the panel process was officially launched on 31 January 2017 with a workshop and social event for panel members from both the Southern and Northern Panels. All Councillors from each of the Partner Councils were also invited, with good levels of attendance.
5. Since this time, the Southern Panel has held its second (presentation of technical information) and third (site visit) workshops, while the Northern Panel has held its second workshop and has workshop 3 (site visit) on 2 March, 2017.
6. For reference, **Attachment 1** is the flow chart outlining the full progression of workshops.
7. At each workshop, the Living at the Edge research team have been handing out evaluation surveys to all voting members on both panels. The surveys are designed to assess the level of understanding, engagement and general disposition of panel members towards the process as we work through the 10 workshop programme. While TAG have not yet received a summary of data collected from Workshops 1, 2 and 3, Edge have indicated a positive trend in responses to date.
8. Overall, the level of engagement, questions and interactions at each workshop held to date has been good, and TAG are comfortable that the process has started well.

### Social Return on Investment (SROI) / Social Impact Assessment

9. Wayne Mills from Maven Consultants has been engaged to undertake SROI / Social Impact assessment in the priority coastal units of Clifton, Haumoana, Te Awanga, Clive / East Clive and Westshore.
10. This work will be used primarily to assist the Assessment Panels to undertake an informed consideration of social impacts as part of the option evaluation process.
11. Mr Mills has completed interviews in the Clifton, Haumoana, Te Awanga areas, as well as a follow up meeting to confirm his findings with interviewees. This work is outlined in a draft report '*Cape Coast Area Coastal Hazards Social Impact Assessment & Valuation*' which is **Attachment 2**, to this item. This draft report is currently being reviewed by TAG and Living at the Edge, and is being provided to the Joint Committee for information purposes at this stage.
12. Mr Mills has also conducted interviews in the Clive / East Clive area, and is currently writing up his findings. Interviews for Westshore are scheduled to take place in March, 2017.
13. Mr Mills will be in attendance at this meeting to speak to his process and findings to date and answer any questions.

## Funding Model Development

14. At the Joint Committee meeting on 19 August 2016, the Committee endorsed the report '*Stage Two – Development of Funding Model and Guideline, 19 August 2016*'.
15. The Joint Committee also sought that a working paper be developed to put further detail around the development of a Coastal Response Contributory Fund (CRCF), which was a recommended mechanism in that report. The working paper would cover matters including (but not limited to) governance, objectives, ring-fencing of funding, and future scope of operation.
16. TAG have formed a cross-council sub-working group involving key Council staff to focus on this task, with the assistance of Mr Wayne Mills.
17. To date, in addition to a range of internal meetings and workshops, external meetings have been held with Treasury, Ministry for the Environment and EQC, while the legal aspects relating to establishing a Council Owned Corporation to govern the CRCF are being investigated.
18. The next key step is a meeting in Wellington involving a broad range of stakeholders, which is programmed for 24 February, 2017. A verbal update on the basis for this meeting and its outcomes will be provided by Mike Adye, HBRC at this Joint Committee meeting.
19. TAG were planning to have a working paper developed for presentation to this February meeting of the Joint Committee, however through these ongoing internal and external discussions there are still a range of matters requiring resolution before the working paper can be presented.
20. TAG are continuing to work on this matter and note there is a time-critical component given its importance to the assessment panel process; panel members require confidence that the solutions they ultimately recommend have a realistic pathway forward to implementation.

## Recommendation

That the Clifton to Tangoio Coastal Hazards Strategy Joint Committee receives and notes the ***Stage Three Progress*** report.

### Authored by:

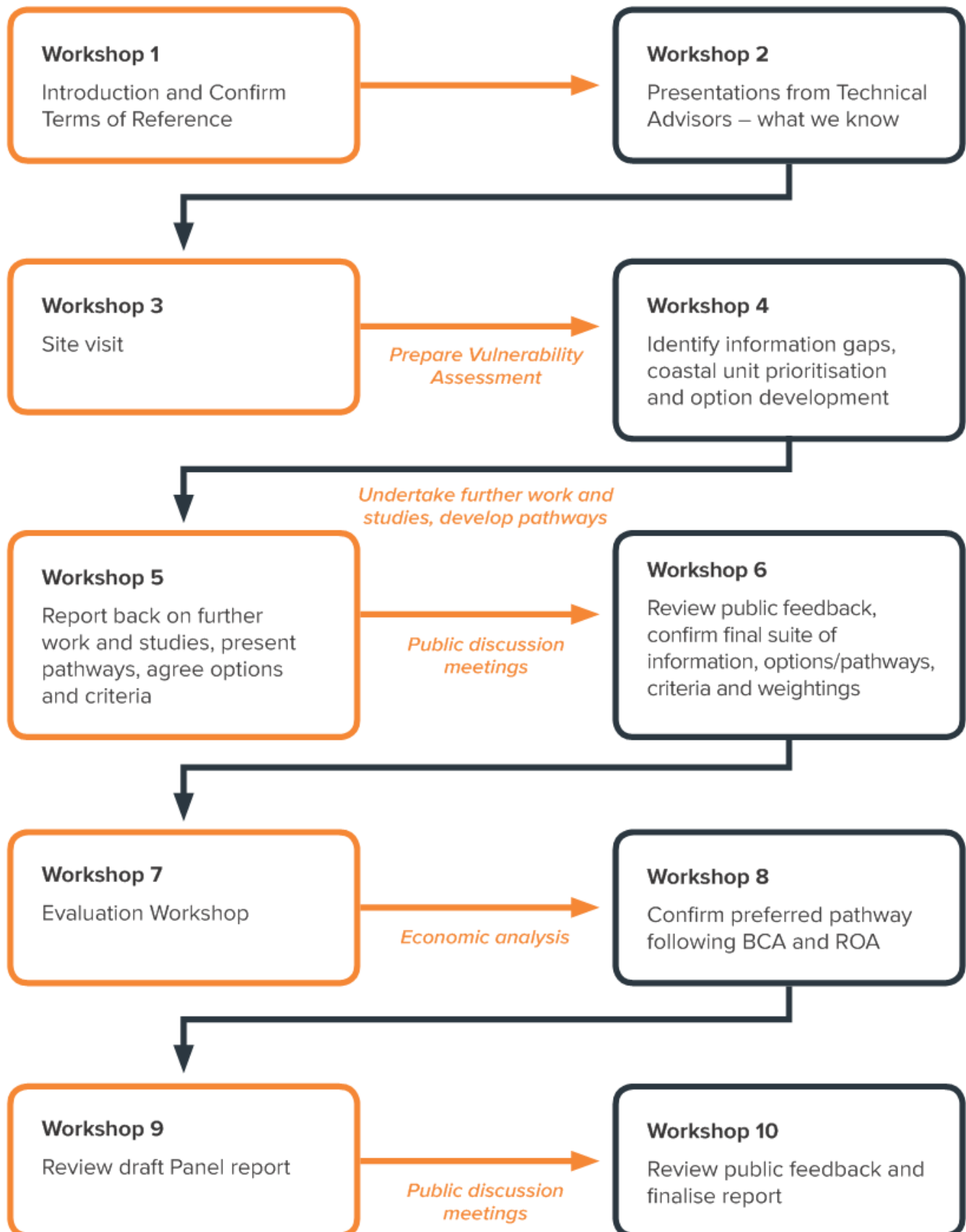
**Simon Bendall**  
**PROJECT MANAGER**

### Approved by:

**Mike Adye**  
**GROUP MANAGER ASSET**  
**MANAGEMENT**

## Attachment/s

- |   |  |                      |
|---|--|----------------------|
| 1 | Workshop Flow Chart  |                      |
| 2 | Cape Coast Area Coastal Hazards Social Impact Assessment & Valuation | Under Separate Cover |





# CLIFTON TO TANGOIO COASTAL HAZARDS STRATEGY JOINT COMMITTEE

Tuesday 28 February 2017

## Subject: MOU: TAG AND LIVING AT THE EDGE

### Reason for Report

1. To update the Joint Committee on the development of a Memorandum of Understanding between the Living at the Edge research team and the Technical Advisory Group.

### Background

2. At the last meeting of the Joint Committee in December 2016 an update was provided regarding ongoing work with the Living at the Edge research team ("Edge").
3. In summary:
  - 3.1. Central Government are funding 11 National Science Challenges that are cross-disciplinary programmes designed to tackle New Zealand's biggest science-based challenges.
  - 3.2. Living at the Edge ("Edge") is a project within one of these 11 challenges, (Resilience to Nature's Challenges).
  - 3.3. Edge are made up of academics and professionals from Auckland University, Massey University, Victoria University, Lincoln University, NIWA and GNS Science.
  - 3.4. Edge have selected this Hawke's Bay project to focus their research efforts on, and are now working with the Technical Advisory Group ("TAG") as a "critical friend" to the strategy development process.
  - 3.5. An integrated workplan has been developed between Edge and TAG which seeks to guide and coordinate activities, avoid duplication, and reduce the risk of consultation fatigue and confusion in coastal communities where both TAG and Edge are working.
4. Recently, TAG felt it prudent to better define principles for working together with Edge, and this resulted in the development of a Memorandum of Understanding ("MoU").
5. While still in draft at the time of writing this paper, the MoU has been through several iterations and TAG are expecting to be able to present a final, signed version for the Joint Committee's information at the meeting on 28 February.

The current draft version of the MoU, **Attachment 1**, for reference.

### Recommendation

That the Clifton to Tangoio Coastal Hazards Strategy Joint Committee receives and notes the **MOU; TAG and Living at the Edge** report.

### Authored by:

**Simon Bendall**  
**PROJECT MANAGER**

### Approved by:

**Mike Adye**  
**GROUP MANAGER ASSET**  
**MANAGEMENT**

### Attachment/s

- 1 Draft Memorandum of Understanding



## **Memorandum Of Understanding**

### **1. PARTIES TO THE MEMORANDUM**

The Living at the Edge (**Edge**) research group of the Resilience to Nature's Challenges National Science Challenge

And

The Technical Advisory Group (**TAG**) of the Clifton to Tangoio Coastal Hazards Strategy 2120 (**the Strategy**)

### **2. FUNDING AGENCY OR SPONSOR**

The Resilience to Nature's Challenge National Science Challenge is funded by the Ministry of Business, Innovation and Employment and managed by GNS Science. As part of this National Science Challenge, the University of Auckland has been subcontracted to manage the Edge.

The Strategy and thus the TAG are funded by the Hawke's Bay Regional Council, Hastings District Council, and Napier City Council (**Partner Councils**).

### **3. PURPOSE**

The purpose of this Memorandum of Understanding (**MOU**) is to record the objectives, principles and protocols that underpin the Parties ongoing working relationship and collaborative work programme.

### **4. OBJECTIVES**

The objectives of this collaborative work between Edge and TAG are to:

1. Provide robust and independent scientific information and research to support and inform the Strategy, while the Edge is engaged in research relevant to and wider than the Strategy;
2. Provide opportunities for the Edge to conduct co-produced, participatory research that will contribute to the overarching aims of the Edge;
3. The Edge will undertake and communicate new coastal science that contributes to improved understanding of coastal hazards and adaptation to changing risk profiles;
4. Support alignment of the Strategy with national-scale thinking around coastal hazard management and climate change effects on the hazards and their risk;

5. The Edge will support the Strategy in a way that allows the Strategy to progress and achieve the outcomes sought by TAG and the Partner Councils within the timeframes and budgets set by TAG; and
6. That the Parties work in a mutually beneficial way.

## **5. PRINCIPLES**

The Parties will encourage the following activities in particular:

1. Subject to any requirements of contract, law and intellectual property rights, the free exchange of materials, publications and information;
2. Joint research and meetings/workshops; and
3. Edge support at workshops and other meetings run by the Strategy.

## **5. PROTOCOLS**

The Parties will adhere to the following protocols:

1. That Simon Bendall from TAG (or nominee) and Emma Ryan from Edge (or nominee) will act as the key points of contact between both parties;
2. To ensure a no surprises approach. This will be achieved through regular communication between the nominated key points of contact to ensure the Parties are kept up to date on each other's activities and priorities;
3. That all external engagement with communities in the Napier and Hastings districts that is undertaken or sought to be undertaken by Edge is carefully coordinated with TAG and is designed to avoid confusion, overlaps, consultation fatigue, or any other outcome that may or will detract from the work of the Strategy;
4. To work in a collaborative, constructive and mutually beneficial way;
5. Both parties will make a concerted effort to minimise additional costs and impacts on timeframes and programmes that may occur as a result of the collaboration;
6. That TAG is given reasonable opportunity to review any material (journal articles, media releases, reports, etc.) produced by Edge that comment on or critique the Strategy or contributing work streams, prior to publication or prior to it otherwise being made publicly accessible. This must be at no prejudice to the objectives and outputs of the Edge research.
7. That any Edge support of the Strategy required by the Assessment Cell Evaluation Panels at a time outside of the ACEP workshops is initially sought through Emma Ryan by email in the first instance. Emma will then direct the support to the appropriate researcher within the Edge team, provided the query or request is within the scope of the Edge programme.

## **5. INDICATIVE PERIOD OF THE MEMORANDUM OF UNDERSTANDING**

**1 January 2017 to 30 June 2019** or as mutually agreed between the Parties.



**6. INTENDED LEVEL OF FUNDING**

Funding of the Edge and the TAG remain distinct from each other under this Memorandum, however, in kind support from both parties may be required from time to time (for example, access to meeting rooms and workspaces)

**7. KEY STAFF AND CONTACT DETAILS**Edge project leader

**Name:** Paul Kench

**Address:** Postal: Room 620, Level 6, Building 302 Science Centre, 23 Symonds Street, Auckland 1010, New Zealand

**Phone:** +64 9 3737599 ext 88440

**E-mail:** [p.kench@auckland.ac.nz](mailto:p.kench@auckland.ac.nz)

Edge co-ordinator

**Name:** Emma Ryan

**Address:** Postal: Room 620, Level 6, Building 302 Science Centre, 23 Symonds Street, Auckland 1010, New Zealand

Physical: Room 435, Level 6, Building 302 Science Centre, 23 Symonds Street, Auckland 1010, New Zealand

**Phone:** +64 9 3737599 ext 83919

**E-mail:** [e.ryan@auckland.ac.nz](mailto:e.ryan@auckland.ac.nz)

TAG project manager:

**Name:** Simon Bendall

**Address:** Postal: PO Box 245, Taupo, 3351 New Zealand

**Physical:** Waipapa House, cnr Gascoigne and Paora Hapi Streets, Taupo

**Phone:** +64 7 378 1797

**E-mail:** [simon.bendall@mitchelldaysh.co.nz](mailto:simon.bendall@mitchelldaysh.co.nz)

TAG Partner Council representative:

**Name:** Mike Adye

**Address:** Postal: Private Bag 6006, Napier 4142, New Zealand

Physical: 159 Dalton Street, Napier

**Phone:** +64 6 835 9203

**E-mail:** [Mike@hbrc.govt.nz](mailto:Mike@hbrc.govt.nz)

**10. EXECUTION**

The undersigned represent that they are duly authorised to execute this memorandum on behalf of the respective Parties.

**SIGNED** for and on behalf of the  
**THE LIVING AT THE EDGE RESEARCH GROUP**

)  
)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name

\_\_\_\_\_  
Date

**SIGNED** for and on behalf of the  
**THE LIVING AT THE EDGE RESEARCH GROUP**

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Signature

\_\_\_\_\_  
Name

\_\_\_\_\_  
Date

**SIGNED** for and on behalf of the  
**THE TECHNICAL ADVISORY GROUP OF THE CLIFTON  
TO TANGOIO COASTAL HAZARDS STRATEGY 2120**

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\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name

\_\_\_\_\_  
Date

**SIGNED** for and on behalf of the )  
**THE TECHNICAL ADVISORY GROUP OF THE CLIFTON** )  
**TO TANGOIO COASTAL HAZARDS STRATEGY 2120**

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Signature

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Name

\_\_\_\_\_  
Date

**SIGNED** for and on behalf of the )  
**THE TECHNICAL ADVISORY GROUP OF THE CLIFTON** )  
**TO TANGOIO COASTAL HAZARDS STRATEGY 2120**

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Signature

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Name

\_\_\_\_\_  
Date



# CLIFTON TO TANGOIO COASTAL HAZARDS STRATEGY JOINT COMMITTEE

Tuesday 28 February 2017

## Subject: PROJECT MANAGER UPDATE

### Reason for Report

1. In accordance with instructions from the Joint Committee, this report is provided in place of the written report required from the Project Manager in accordance with the Terms of Reference for the Joint Committee.
2. It provides an opportunity for the Project Manager to present a verbal update to the Committee and answer any questions on general project matters including tracking against timeframes, milestone achievements and project risks. The Project Manager will provide a verbal update at the meeting.

### Recommendation

That the Clifton to Tangoio Coastal Hazards Strategy Joint Committee receives and notes the ***Project Manager Update*** report.

### Authored by:

**Simon Bendall**  
**PROJECT MANAGER**

### Approved by:

**Mike Adye**  
**GROUP MANAGER ASSET**  
**MANAGEMENT**

### Attachment/s

There are no attachments for this report.



# CLIFTON TO TANGOIO COASTAL HAZARDS STRATEGY JOINT COMMITTEE

Tuesday 28 February 2017

## Subject: CURRENT COASTAL PROJECTS UPDATE

### Reason for the Report

1. This report provides an opportunity for the Technical Advisory Group (“TAG”) to provide an update on various coastal projects the Joint Committee have expressed an interest in keeping abreast of, namely:
  - 1.1. Whakarire Ave Revetment Works
  - 1.2. Port of Napier Capital Works Programme.
  - 1.3. Proposed Revetment Works at Clifton
  - 1.4. Haumoana Wall
2. TAG members will provide a verbal update on each of these projects at the meeting.

### Recommendation:

That the Clifton to Tangoio Coastal Hazards Strategy Joint Committee receives and notes the *verbal* **Current Coastal Projects Update** report.

### Authored by:

**Simon Bendall**  
**PROJECT MANAGER**

### Approved by:

**Mike Adye**  
**GROUP MANAGER ASSET**  
**MANAGEMENT**

### Attachment/s

There are no attachments for this report.