

Coastal Hazards  
Social Impact  
Assessment & Valuation  
for Ahuriri/Pandora,  
Westshore, Bay View and  
Whirinaki

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**Joint Councils**  
**Clifton to Tangoio Coastal Hazard Strategy**

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**IMPORTANT NOTICE**

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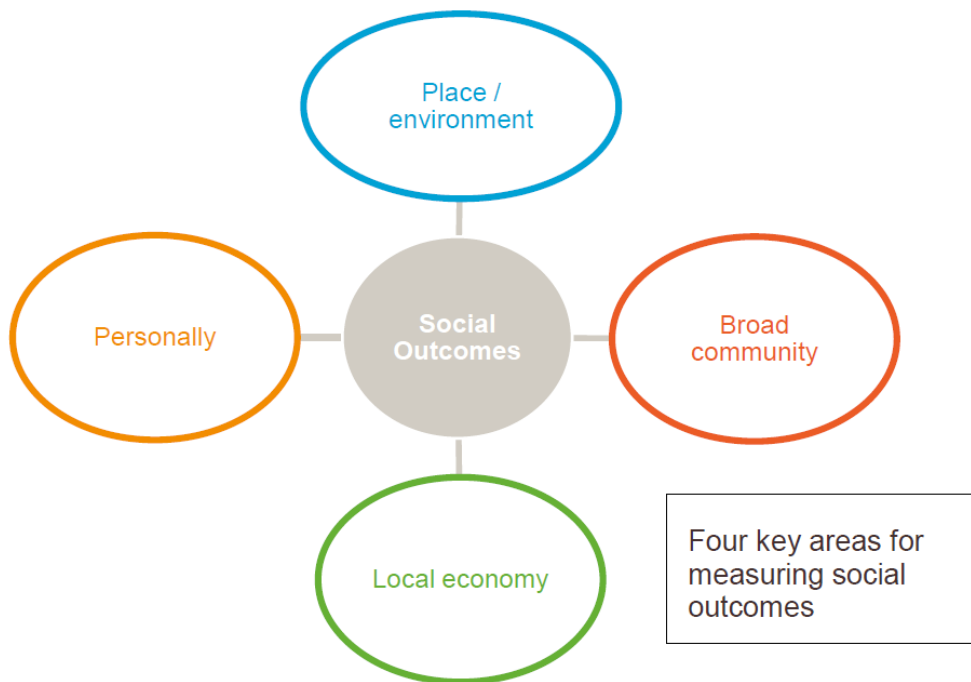
## 1.0 Executive summary

This study considers the social impact of coastal hazards (inundation and erosion) on the communities of Ahuriri/Pandora, Westshore, Bay View and Whirinaki over the next five to ten years, assuming a Status Quo scenario, i.e. no change in interventions compared to those carried out at present time.

The projected social outcomes are valued using financial proxies and value mapping to estimate a social cost to each community if that scenario materialised. This assessment can be used as a baseline for coastal hazards mitigation prioritisation and evaluation of results.

Cultural impacts for tangata whenua that arise from coastal hazards are not addressed in this report. They are considered in a separate assessment process by the evaluation panel as part of determining an overall appropriate adaptation response.

Measuring and valuing social outcomes is an evolving area with new methodologies and tools emerging. Monetary value helps decision makers to consider adaptation responses that are economically consistent with social outcome costs, and to apportion the adaptation costs between public and private benefit in accordance with the requirements of the Local Government Act.



To understand the social impact for the Ahuriri/Pandora, Westshore, Bay View and Whirinaki communities, interviews were conducted with around 35 local residents and stakeholders during May 2017. The insights from interviews were complemented with other background information and reports that informed the overall analysis.

The coastal area between Ahuriri and Whirinaki has a long history, starting with Māori arrival in the Hawkes Bay going back to 970AD and the European settlers in the 1800s. In total, the four

communities have about 4,700 residents, the largest one being Bay View followed by Ahuriri/Pandora, Westshore and Whirinaki. All these communities have seen an increase in the residents' number as result of lifestyle choices (living by the sea), economic development and connectivity of the region with the rest of New Zealand.

There is a wide range of businesses operating across the four communities, including horticulture and viticulture, forestry, fisheries, services and administration. As coastal settlements, the area also attracts a significant number of tourists and provide accommodation through hotels, motels, camping grounds and also house rentals.

## Why residents like the area as a place to live

### Ahuriri/Pandora

- Vibrancy/vibe of the water front (cafes, restaurants, hotels)
- Great attraction for out-of-region visitors & for outings of local families
- Great amenities and recreational value – linked to Hardinge Rd, Ahuriri Estuary, Pandora Pond
- Prime sailing and fishing location, events
- Easy access for local school activities
- Significant (high value) business growth

### Westshore

- Quiet area/peaceful lifestyle yet in close proximity to the city/jobs
- Great recreational amenities, especially the green verge and cycle/walkway and the local surf club
- Very close to the city
- Welcoming to outside visitors (up to 80-90% of verge and beach users are believed to be non-residents)
- The surf club (350 members) provides connections outside the area and a strong social focus
- The Westshore residents' association is the only one in Hawkes Bay.

### Bay View

- A vibrant rural community
- Strong connections through second and third generation residents
- Welcoming to new residents & development
- A safe place to live
- Coastal culture heritage

### Whirinaki

- Community is very supportive and people help each other.
- There are strong connections between residents
- The sea and air are really good for health
- North Shore Rd feels like a little enclave
- The mill provides a lot of support for the community

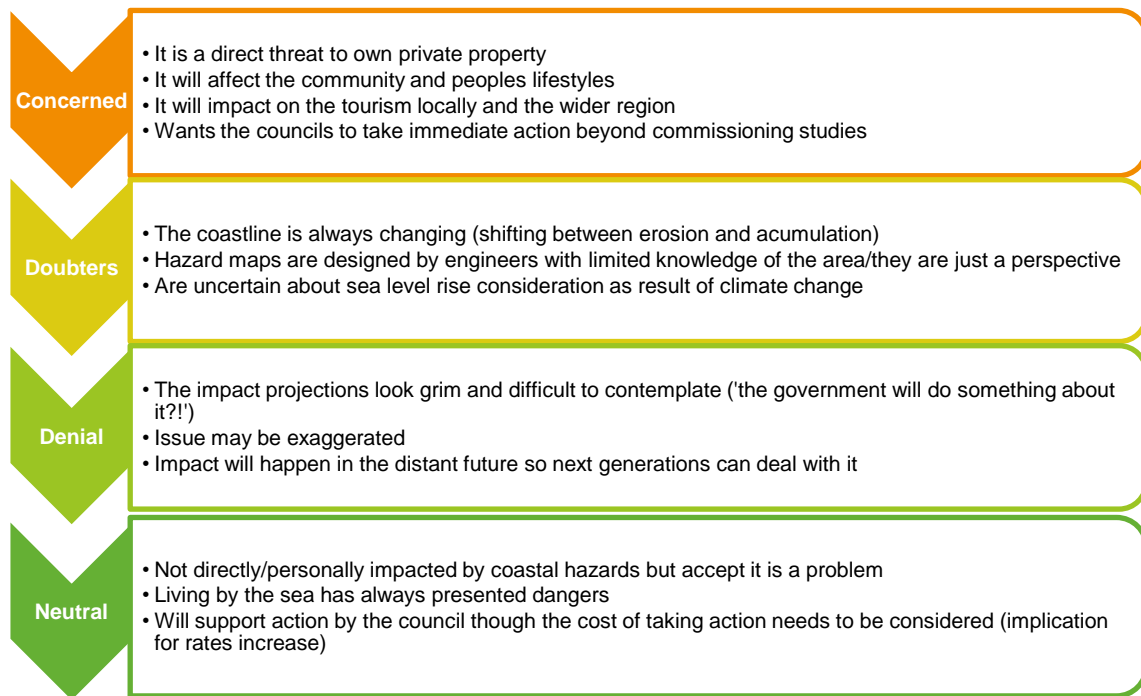
Whereas all four communities have relatively different identities (urban vs sub-urban vs rural vs coastal), they all share the strong connection to the ocean, have an outward perspective and are welcoming of new residents and visitors.

The interviews with residents of the four communities have highlighted key general concerns and issues:



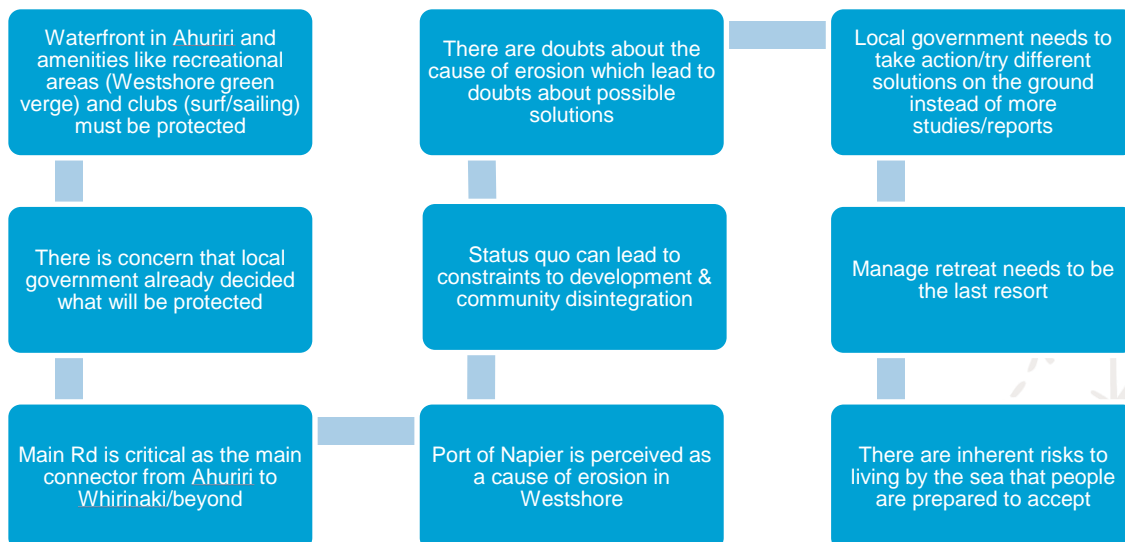
The community is made up of people from diverse backgrounds with different experiences and expectations of living by the area. They sometimes hold conflicting views about coastal hazards and what they expect will be the social outcomes if the projected effects of hazards such as erosion and inundation on property and infrastructure eventually become a reality.

The diagram below is an attempt to group the people interviewed based on the views they expressed.



Overall, the responses of those interviewed suggest that there is greater concern about erosion than about flooding and inundation. There are a number of reasons for this, the most important being that erosion is permanent unlike flooding that is temporary in nature. Inundation is perceived as a smaller risk by many of those interviewed on the basis that a major flood event (1:100 AEP) is unlikely and even if it happens, it is temporary and it is possible to recover following clean up.

However, irrespective of the diversity of views, a number of themes have emerged in discussions with the interviewees and are captured in the diagram below.



## 2.0 Purpose of study

Hawke's Bay Regional Council (HBRC), Napier City Council (NCC) and Hastings District Council (HDC) – (together referred to as the Joint Councils) – are developing a co-ordinated Coastal Hazard Response Strategy for the Tangoio to Clifton coastline which is and will continue to be affected by coastal erosion and increased inundation risk from flooding<sup>1</sup> arising from sea level rises and climate change projected between now and 2120.

Coastal adaptation strategies have been put in place by other communities around New Zealand and the Ministry for the Environment published in 2008 a national guidance manual '*Coastal Hazards and Climate Change: A Guidance Manual for Local Government in New Zealand*' which is regarded as the fundamental basis for any adaptation efforts at local level.

As part of the Coastal Hazards Response Strategy, adaptation strategies need to be agreed upon by stakeholders and the Joint Councils. Their implementation is expected to commence in 2018. Decisions on adaptation strategies will be made by evaluation panels that include community representatives as well as other stakeholders. These panels will consider and weight seven criteria to determine an optimal adaptation response for geographically based coastal units (sometimes referred to as cells) as defined in the 2016 Coastal Hazards Assessment report<sup>2</sup>.

The Northern Panel is responsible for decisions concerning the subject area of this social impact assessment report. One important input to the panel's decision making is the social impact that erosion and flooding hazards impose on the affected coastal communities.

The International Association for Impact Assessment (IAIA) has defined social impact assessment (SIA) as "*the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions*".

According to the IAIA, social impacts refer to changes to one or more of the following:

- People's way of life – how they live, work, play and interact with one another on a day-to-day basis.
- Their culture – their shared beliefs, customs, values and language or dialect.
- Their community – its cohesion, stability, character, services and facilities.
- Their political systems – the extent to which people are able to participate in decisions that affect their lives, the level of democratization that is taking place, and the resources provided for this purpose.
- Their environment – the quality of the air and water people use; the availability and quality of the food they eat; the level of hazard or risk, dust and noise they are exposed to; the adequacy of sanitation; their physical safety; and their access to and control over resources.

<sup>1</sup> The work also includes evaluation of increased flooding from tsunami risk but this coastal hazard risk does not form part of the multi criteria analysis that will be undertaken by the evaluation panels discussed in this report.

<sup>2</sup> Clifton to Tangoio Coastal Hazards Strategy 2120: Coastal Hazard Assessment. Tonkin & Taylor, May 2016.



- Their health and well-being – health is a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity.
- Their personal and property rights – particularly whether people are affected economically, or experience personal disadvantage which may include a violation of their civil liberties.
- Their fears and aspirations – their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and that of their children.

Typically, SIA is used as a baseline assessment and impact prediction mechanism and decision-making tool in advance of an intervention.<sup>3</sup> However, equally important is the role of SIA in contributing to the ongoing management of social issues throughout the entire period of the intervention.

SIA influences coastal adaptation strategies in several ways. Firstly, if the impact is especially high on the community, then it might lead towards defensive strategies to defend the shoreline and coastal areas rather than less costly mitigation expenditure. Secondly, social impact of coastal hazards can influence the extent to which the costs of adaptation should be shared between private and public beneficiaries. For example, if coastal erosion resulted in the destruction of an important social amenity that has value for the wider community (for instance a sailing club), then some (or all) of the cost of defending or replacing that amenity might fairly be apportioned to that wider community rather than the coastal residents in the immediate vicinity.

During the work on the Coastal Hazards assessments, Joint Councils have received feedback from various stakeholders that an understanding (and measurement) of social impact is a critical aspect that needs to be considered appropriately during the strategy development process.

The purpose of this SIA study is to provide:

- A clearer understanding of social issues and impacts.
- Meaningful engagement with community stakeholders.
- Analysis of social outcomes that would occur if there were no human intervention to address coastal hazards (beyond current interventions).
- A valuation (estimated monetary value) of those outcomes using social impact measurement methodologies (Social Return on Investment).

The outcome will be used as a key input to multi-criteria analysis by the northern evaluation panel in their decision making. Ultimately, it is hoped that this study will help enhance the benefits of the coastal hazards strategy for the communities of Ahuriri/Pandora, Westshore, Bay View and Whirinaki and that the social impacts identified here will be monitored and managed during strategy implementation.

<sup>3</sup> Social Impact Assessment: Guidance for assessing and managing the social impact of projects. IAIA, 2015.

### 3.0 Methodology

The report is based on three elements of investigation conducted between May and June 2017:

- semi-structured interviews with stakeholders
- research and collection of relevant data
- validation of key findings.

Stakeholder interviews represent the main input into this report. Interviews were conducted with 35 key stakeholders with a balanced representation among stakeholders including residents, businesses, recreational and schools. The selection of interviewees was based on the need to gain a balanced input and representation of views from people and groups directly affected (residents, businesses, recreation) and those with knowledge of the coastal changes over time. In addition, a good representation of vulnerable groups such as elderly or children was also aimed to be achieved in line with recommendations for good practice in social impact assessment.<sup>4</sup>

The breakdown by the target communities is provided below; most stakeholders interviewed could provide perspectives across more than one community. The 'General' category refers to individuals with responsibilities in nature reserves management, recreation, or transport and infrastructure which are not confined to a single community.

Ahuriri/ Pandora	Westshore	Bay View	Whirinaki	General
8	10	5	5	7

The interviews were conducted in two stages, during 2<sup>nd</sup> – 4<sup>th</sup> May and 18<sup>th</sup> – 19<sup>th</sup> May 2017. The individuals approached initially were members of the Northern Panel (residents and business representatives).

A semi-structured interview technique was applied to broadly ascertain the interviewees' perspectives and perceptions in relation to the study area, including positive features, social issues and perception of risks and potential changes if coastal hazards are not mitigated for the communities of Ahuriri/Pandora, Westshore, Bay View and Whirinaki. Details about the interview structure are provided in Appendix One.

To gain a perspective from interviewees how things might change in their respective communities due to ongoing erosion and flooding hazards, a "status quo" five to ten years scenario was discussed with them, based on the projections for the potential extent of coastal erosion and inundation over the next 100 years<sup>5</sup>. Maps were used as appropriate during meetings to assist discussions (attached in Appendix Four). Most of the interviewees had previous knowledge of the maps and had already formed opinions about their credibility and usefulness.

In addition to the interview process, relevant data has been collected from various sources (census data, direct input by knowledge holders and stakeholders) and several reports and background information were also used to support findings of this study.

<sup>4</sup> Ibid 3.

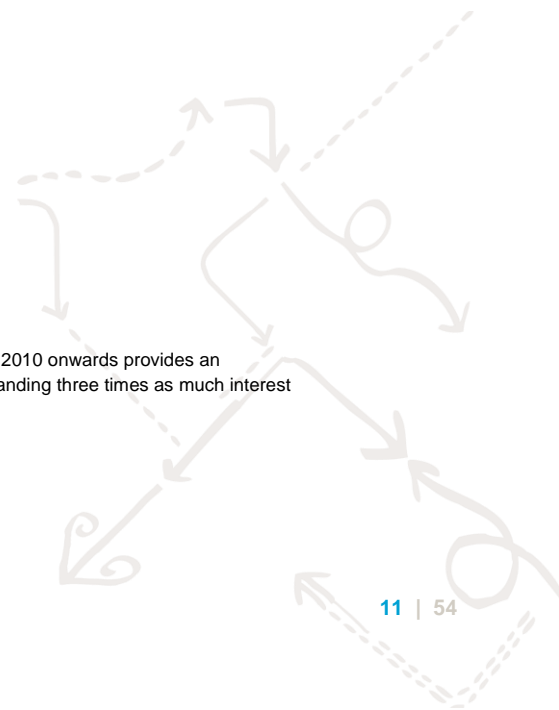
<sup>5</sup> Ibid

To confirm that the assumptions used in the 'Status Quo' scenario and the projected social outcomes from this scenario accurately reflected the views expressed in the interviews, a preliminary findings summary was circulated for feedback to those interviewed. The same document was also presented to the Northern Panel members as well as Technical Advisory Group for comments and input.

The available time to complete this study was limited and it was not possible to seek input from the wider community to better contextualise coastal hazards amongst other social issues in the study areas. However, the findings in this study are within the parameters of the results for Cape Coast and East Clive – particularly with a view to issues that the community expressed concerns about.<sup>6</sup> A wider community survey regarding coastal hazards management is being carried out by the EDGE research team under the national science challenge 'Resilience to Nature's Challenges'. The results of this survey are expected to be published in the near future.

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<sup>6</sup> A review of 3,500 social media posts that Maven commissioned in the Cape Coast community from 2010 onwards provides an overview of the most discussed issues in the community. Beach is the top issue of discussion, commanding three times as much interest as the next most important topic, at least amongst those in the community that use social media. Source: Dot Loves Data – Survey commissioned by Maven in December 2016



## 4.0 Background and history

Interviews with residents, statistics from 2013 census and other data available with the local councils provided a very useful insight into the history and development of the target suburbs for this study.<sup>7</sup> Westshore, Bay View and Whirinaki have all developed along the shingle spit which was known to Māori as Te Mahu, to commemorate the visits of ancestor Mahu Koaponui.

This section only has brief mention of Māori references and it does not cover whakapapa, cultural history and significance of the area for tangata whenua. The cultural aspects and impacts have a great importance and are considered separately by the evaluation panel in its decision making on coastal adaptation strategies.

Key information is provided below as a synopsis of details which are relevant to coastal hazards and their impact on the community.

### 4.1 Ahuriri/Pandora

Adjacent to the port, Bluff Hill, Westshore and Hospital Hill, Ahuriri is now a highly sought after coastal suburb in Napier City. A result of intense gentrification over the last two decades, the replacement and restoration of industrial buildings once established to support the original Port of Napier have been repurposed to create a variety of commercial, residential, industrial and recreational structures. Preservation of the historical features such as the Customhouse built in 1895, has given Ahuriri a distinct visual and cultural character that sets it apart from the rest of the city.

- Ahuriri is believed to be named after Tu Ahuriri, a chief of the Māori Ngai Tara tribe and is of cultural importance to local Māori, particularly in regards to seafood harvesting from the harbour. European settlement started in the 1850s with the creation of the original port and several industrial firms including wool stores, British American Tobacco and material processing factories.
- The 1931 earthquake that devastated Napier was the catalyst for the relocation of the port, subsequently many of the industrial firms left the area. The true value of the land was properly realised post-1960's where new residential and commercial buildings appeared around the well-utilised marina. The shift towards high density and high value apartment construction in the last decade has substantially increased the population, which is now approximately 1.9% of Napier's total population<sup>8,9</sup>.
- Pandora is a smaller industrial area at west of Ahuriri. The area has easy access and is home to a wide range of businesses, large and small, including companies like Fonterra, AFFCO New Zealand, Mainfreight and Hawke's Bay Seafood.

<sup>7</sup> Mrs. Dorothy Pilkington has kindly provided a summary document about the history of Westshore and the neighbouring suburbs.

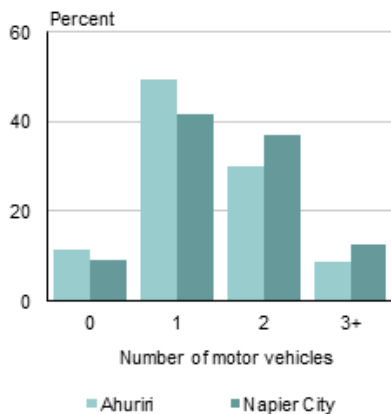
<sup>8</sup> <http://www.ahuriri.co.nz/about/history-and-tours/>

<sup>9</sup> <http://turley.co.nz/wp-content/uploads/2011/11/PDT-re-Ahuriri-for-HBT-June-2011-tcl-web.pdf>

A summary of key demographic characteristics for Ahuriri/Pandora is provided in the following table.<sup>10,11</sup>

Metric	Data
Total area	1.14 km <sup>2</sup>
Residential use	Around 130ha
Residential population	1,086 people (459 M/627 F)
Median age:	57.3
Median personal income	\$28,100
Dwellings	519 occupied, 90 unoccupied
Median weekly rental	\$280
Education:	74.6% of people (15y<) have a formal qualification. 17.5% (15y<) hold a bachelor's degree or higher
Employment:	5% unemployed for those 15y<, 1.9% less than for all of Napier city. 1,770 paid employees located in Ahuriri
Number of business	265
Accommodation	11 hotels/motels. 45 beds listed on AirBnB, 39 beds listed on Bookabach

In terms of access to motor vehicles, 8.8% of Ahuriri residents have access to 3+ vehicles and 67.2% use private transport to travel to work.



Note: Some percentages may be too small to show on graph.  
Source: Statistics New Zealand

<sup>10</sup> [http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-a-place.aspx?request\\_value=14080&tabname=Business#](http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-a-place.aspx?request_value=14080&tabname=Business#)  
<sup>11</sup> <http://profile.idnz.co.nz/napier/population-estimate>

The property values in Ahuriri show greater variation than other suburbs, however, overall, property values have achieved above average growth during the property boom and remained relatively stable since.<sup>12</sup>

Some recurring themes in the interviews include:

- Ahuriri/Pandora is seen as a unique location due to its geography which has led to the rapid positive change in recent years.
- There is expansion and conversion to commercial from industrial happening in both Ahuriri and Pandora, but more so in Ahuriri than Pandora; there is even residential development which has led to increase in population.
- The interface residential/commercial/industrial plays out especially around Ahuriri Bypass, which acts almost like a barrier between industrial and residential areas and the water front. There is concern in the community about safety and environmental impacts of such a high traffic road going through the suburb.

## 4.2 Westshore

Settled at the same time as Ahuriri (around 1850s), Westshore began as a residential suburb and popular destination next to Port of Napier, however, limited land availability meant that expansion was limited.

- There were European people living on the Western Spit (what is now the suburb of Westshore) before the Ahuriri Block was purchased by the New Zealand Colonial Government from Ngati Kahungunu in 1851. A ferry service was available from the Western Spit across the Inner Harbour to Ahuriri and the upcoming town of Napier.
- When the first plan for the town of Napier was drawn by Alfred Domett, District Commissioner of Crown Lands and Resident Magistrate in Ahuriri (Napier) from 1854, the Western Spit was part of that first survey and the streets names are reference to the origins of the settlement.
- Alfred Domett named the town he was laying out “Napier” for Sir Charles James Napier who had then recently died, and who had led the British troops in the battle of Miani (Meeanee) in the province of Sindh, India in 1843. Meeanee Quay was named for the battle, Nott Street was named for Sir William Nott, who also led British troops in India, notably in a battle in the Khyber Pass, in 1842. Park Street (now renamed as Naomi Street) was named for Robert Park, the chief surveyor in the team laying out the town. Alfred Street was named after Domett himself.
- Tareha Street was named for the paramount chief of the area, and the first of the Māori signatories on the Ahuriri deed of purchase. A section was also allocated to Tareha on the corner of that street and Meeanee Quay.

The 1931 earthquake which uplifted the Ahuriri lagoon and transformed the beach area ultimately allowed Westshore to expand by providing new land for construction and improving the aesthetic qualities of the shore (i.e. sandy beach instead of shingle).

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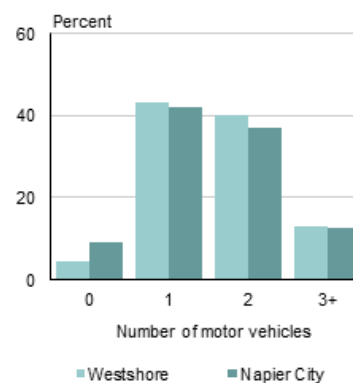
<sup>12</sup> source: <https://www.addedvaluation.co.nz/napier/ahuriri/>

Landscaping and effective urban design along the waterfront has made Westshore one of the most popular beach destinations in Napier, attracting both locals and tourists for safe swimming environments, yachting and sunbathing. Famous for being a top seaside resort in Napier, Westshore now boasts several motels to cater to the tourist demand, a school, an airport, as well as a high socio-economic residential community<sup>13</sup>.

A summary of key demographic characteristics for Westshore is provided in the table below.<sup>14,15</sup>

Metric	Data
Total area	1.04 km <sup>2</sup>
Residential population	1,062 people (519 M/543 F)
Median age:	52.3
Median personal income	\$30,800
Dwellings	507 occupied, 75 unoccupied
Median weekly rental	\$250
Education	78.4% of people (15y<) have a formal qualification. 16% (15y<) hold a bachelor's degree or higher
Employment	3.7% unemployed for those 15y<, 3.2% less than for all of Napier city. 320 paid employees located in Westshore
Number of business	150
Building consents (2013)	3, total value = \$2,483,272 (all residential)
Accommodation	12 hotels/motels. 36 beds listed on AirBnB. 26 beds listed on Bookabach.

About 13% of households have access to 3+ vehicles and 70.3% use private transport to go to work.



Note: Some percentages may be too small to show on graph.  
Source: Statistics New Zealand

<sup>13</sup> <http://www.teara.govt.nz/en/hawkes-bay-places/page-1>

<sup>14</sup> [http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-a-place.aspx?request\\_value=14079&tabname=Transport#](http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-a-place.aspx?request_value=14079&tabname=Transport#)

<sup>15</sup> <http://profile.idnz.co.nz/napier/about?WebID=270>

### 4.3 Bay View

Situated north of the airport with easy access to Napier's CBD via the expressway, Bay View is an affluent seaside suburb with a mixture of inland and coastal fronting properties. This suburb is primarily sought after by people seeking a rural and/or coastal lifestyle close to Napier.

- Church Missionary Society missionary, William Colenso, established a mission outstation called Bethany, which was called "Petane" by Māori.
- This was an important and closely populated area of Māori settlement, based round Te Whanganui-a-Orotu (the Ahuriri Inner Harbour) and the Waiohinanga (Esk River), which provided very rich food sources for the inhabitants. There are important pa sites on the hillsides in the area (Heipipi, Kaimata, Titi-o-Haweia) and Petane marae is today located in Tait Road, between Bay View and Whirinaki.
- Early European settlers also called the area Petane, but the name was changed to Bay View in 1924 to avoid confusion with the suburb of Petone in Lower Hutt.
- In the era of European settlement, Bay View became a centre for market gardening because of the benign microclimate and the fertile soil.
- As a result of the local body reforms of 1989, Bay View became a suburb of Napier, and is now a growing residential area.

With a popular residential property market fuelled by the creation of quality new builds and beachfront living, this area outperforms the rest of Napier's property sales, premium prices demanded by coastal homes have driven up the median house price. Key demographics for Bay View are provided below<sup>16,17</sup>:

Metric	Data
Total area	29.18 km <sup>2</sup>
Residential population	1920 (957 M/ 963 F)
Median age:	44
Median personal income	\$30,300
Dwellings	750 occupied, 63 unoccupied
Median weekly rental	\$270
Education	77.3% of people (15y<) have a formal qualification. 12.9% (15y<) hold a bachelor's degree or higher
Employment	4.4% unemployed for those 15y<, 2.5% less than for all of Napier city.

<sup>16</sup> [http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-a-place.aspx?request\\_value=14075&tabname=Housing](http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-a-place.aspx?request_value=14075&tabname=Housing)

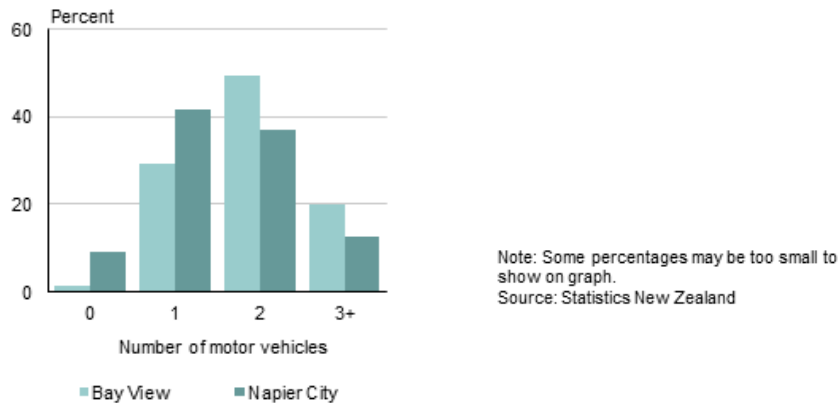
<sup>17</sup> <http://profile.idnz.co.nz/napier/about?WebID=110>

<sup>18</sup> This represents the entire area boundary and not just the coastal area of Bay View.



Number of business	276
Building consents (2013)	10, total value = \$6,062,516 (majority residential)
Accommodation	5 hotels/motels. 39 beds listed on AirBnB. 4 beds listed on Bookabach.

About half of the households have access to two cars and 65.2% of residents use private transport to travel to work.



#### 4.4 Whirinaki/Eskdale

A semi-rural setting outside the Napier city boundary (part of the Hastings District), Whirinaki is known for the mountain bike park, kayaking, good quality accommodation, pleasant beach environment, and a music festival too (Valley Vibes<sup>19</sup>).

- This area does not have a long settlement history (previously farmland) though it is close to Whakaari which is one of the outstanding archaeological sites of a former whaling station.
- The Whirinaki power station (est. 1978) which runs on diesel operates very rarely and was created as a backup energy source during periods when the hydro lake levels are low<sup>20</sup>. The power station is isolated from much of the residential development that is focused along Whirinaki Rd at the water front.
- Pan Pac Forest Products company is a significant employer in Whirinaki and the community reports a close connection with the company.

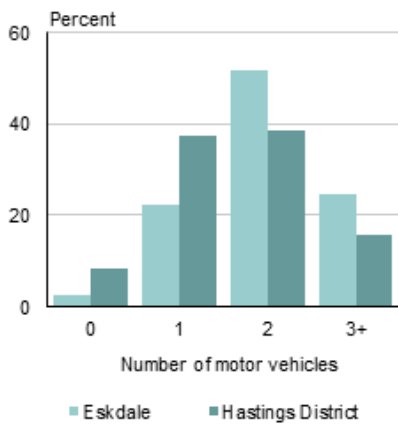
<sup>19</sup> <http://www.hawkesbaynz.com/index.php/your-event/conference-catering/eskdale-escape>

<sup>20</sup> [https://en.wikipedia.org/wiki/Whirinaki\\_Power\\_Station](https://en.wikipedia.org/wiki/Whirinaki_Power_Station)

Key demographics for Whirinaki are provided below:

Metric	Data
Residential population	624 (315 M/309 F)
Median age:	47.7
Median personal income	\$34,400
Dwellings	258 occupied, 30 unoccupied
Median weekly rental	\$300
Education	75.3% of people (15y<) have a formal qualification. 15.8% (15y<) hold a bachelor’s degree or higher
Employment	1.6% unemployed for those 15y<, 5.3% less than for all of Napier city.
Number of business	84. Dominated by manufacturing
Building consents (2013)	2, total value = \$1,535,375 (majority residential)
Accommodation	1 hotels/motels. 47 beds listed on AirBnB. 0 beds listed on Bookabach.

Car ownership is similar to Bay View, about a quarter of households have access to 3+ cars and 68.5% use private transport to travel to work.



Note: Some percentages may be too small to show on graph.  
 Source: Statistics New Zealand

## 5.0 Infrastructure

### Hawke's Bay Airport

Hawke's Bay Airport is the key infrastructure facility located near the Westshore coastal area.

The airport has been operating since 1964 and gradually expanding to serve an ever increasing number of tourists and visitors to the Hawkes Bay region. Commercial air service (between Napier and Gisborne) originally started in 1935, a few years after the earthquake that raised the seabed by two meters and turned the previous tidal lagoon into flat land suitable for a runway. The airport terminal is growing at a projected rate of 3%; however, the arrival of Jetstar alone has led to an increase in passengers of 20%.

Because of its role as a regional gateway strong growth prospects, the airport published in 2012 a Master Plan that outlines the planning framework for development up to 2030. While the growth of the airport is centred around the air activities (increasing the number of passengers and aircraft movements), the airport company also aims to increase its property portfolio with the setting up of a Business Park and other commercial spaces. Twenty hectares of land have already been released for Business Park development, and another 40 ha are planning to be released in the next stages of development<sup>21</sup>.

The coastal hazards maps prepared by Tonkin and Taylor<sup>22</sup> (see aerial photo below) do not suggest that the airport is at risk from coastal inundation – neither at present nor by 2065 or 2120.



However, there is recognition of risks related to earthquakes, tsunamis and cyclones and the airport company has in place a Business Continuity Plan to deal with these emergency situations. Power outage is a particular concern and the airport operates backup generators for this – which would ensure that the airport can operate as a lifeline in the event that the road to/from Taupo and Gisborne is closed.

The airport is expecting to see more frequent flooding and has increased capacity to pump stormwater into retention ponds.

*Aerial view of Hawke's Bay airport, and the erosion and flooding lines; Westshore.*

<sup>21</sup> See <https://www.hawkesbay-airport.co.nz/assets/Docs/About/hawkes-bay-airport-master-plan-volume-1.pdf>

<sup>22</sup> See Coastal Hazards 2015-2025 Study, Tonkin and Taylor 2016 and

**Other infrastructure**

Other significant infrastructure in close proximity to the coastal area is the Main Road /State Highway 2 connecting Napier City to Bay View and Whirinaki. In addition to connecting these coastal communities, the road is also important as a gateway in and out of the region.

Similar to the airport infrastructure, the coastal hazard study does not suggest an erosion or inundation risk to the Main Rd at present. The road, however, is vulnerable to erosion in the exposed stretch between Westshore and Bay View though the presence of the railway track can act as a buffer to some extent.

New Zealand Transport Agency (NZTA) is focused on its road network resilience which also means ensuring the road is open for traffic in and out of the region. The organisation expects that at some point in the future it will undertake specific assessments linked to sea level rise, especially if the current projections are accurate. The perspective is that the organisation has time to prepare and deal with what is considered a long-term threat. Road provision is linked to the plans of the communities; if retreat is considered, the roads will be retreated too. The discussions around the coastal hazards strategy are seen as a useful start to initiate the conversation.

## 6.0 Wineries, tourism and recreation

Similar to other areas in Hawkes Bay, there is a long tradition for wine making, orchards and market gardens around Bay View and Eskdale Valley.

- Grapevines were first planted in the Esk Valley by Robert Bird, who set up Glenvale, the present day Esk Valley Wines, in 1930's. The Esk Valley brand was created in 1970 and in 1980's Glenvale was acquired by George Fistonich, founder of Villa Maria Estate. Esk Valley is famous for The Terraces wine and the award-winning Winemakers Reserve.
- Crab Farm Winery is located closer to Bay View village and is a family-owned vineyard that also runs a restaurant popular with tourists and locals alike.
- Both vineyards benefit from cellar door traffic, primarily vehicular traffic but also cyclists during the summer season using the cycle trail that connects Bay View to Napier and further south.

In addition to the vineyards, the study area also hosts a number of popular events as follows:

- Tremain Triathlon, which is held in Westshore in March annually and attracts large numbers of runners.
- Big Easy cycling event which has been held since 2013 and passes through Ahuriri waterfront area. The event attracts in excess of 1000 riders (about 1700 have listed for 2017) and the majority will stop for lunch/refreshments in the area.



*Esk Valley Winery*

Hawke's Bay Marathon does not run past the study area but it attracts over 3,000 out of town entrants and the event also boosts the use of cycle trails around the coast.

Discussions with some winery and cafe owners suggest that many do not expect to be affected by coastal hazards directly, however, their business can be affected if there is wider disruption in the region – for example if there is damage to the cycle trails or road infrastructure.

There is insufficient reliable data available to quantify the importance of tourism to the local economy. However, this is significant given the high number of hotels/motels/B&B in the area (about 30 in total – see individual demographic sections for more details), the listing on BookaBatch and AirBnB (around 200 beds in June 2017) and the expansion plans of Hawke’s Bay Airport.

Insights from discussions with those involved in tourism and hospitality suggest that about 30,000 cyclists<sup>23</sup> use the trail between Ahuriri and Bay View during peak summer season. A significant proportion of them will stop for refreshments or a meal along the trail. Crab Farm winery estimates that about 100 cyclists per week will visit the winery during non-peak months of November and March, and that number is double during December through to February.<sup>24</sup>

Cyclists spent an average of \$25-40 per meal.

Panpac trails also attract cyclists to the area, predominantly locals but visitors too (about 2% of full members are from out of town). PanPac currently has 2150 members that on average ride in the park once a week. In addition, about 1700 temporary passes are issued yearly and it is estimated that about 60-70% of them are for visitors out of town. Panpac, NCC and HBRC are in discussions about putting a cycle bridge over the Esk River (which is difficult to cross otherwise) which is expected to increase the number of riders that cycle all the way to the Panpac trails from town.<sup>25</sup>

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<sup>23</sup> Personal communication with Vicki Butterworth, HBRC, June 2017.

<sup>24</sup> Personal communication with Crab Farm Winery staff, June 2017.

<sup>25</sup> Personal communication with Ross Mephram, PanPac Trail Manager, July 2017.

## 7.0 Social Issues and Concerns

This section describes why people like to live in the four communities and the general issues they are concerned with. It analyses the community perception of coastal hazards as a perceived threat, and the impacts that the community might face if there are no interventions to mitigate coastal hazards beyond current measures.

### 7.1 Similarities and differences between Ahuriri/Pandora, Westshore, Bay View and Whirinaki

As long-term residents or in some case quite recent residents to these areas, all those interviewed shared a common passion for this coastal area, seeking a well-balanced lifestyle and a supportive community to live in.

One of the key insights from the interviews conducted for this study was the strong connectedness within and between the communities of Ahuriri/Pandora, Westshore, Bay View or Whirinaki. These communities are small and some of their residents would have lived in more than one community in their lifetime or have strong knowledge and connections (friends, family, colleagues) with the other communities.

This was reflected in their understanding of hazards to the other communities not just their own. For instance, many outside Westshore voiced their view that that community will need protection before their own community – since they were aware of the more pressing erosion issues.

Another important similarity was reflected in their outward perspective and welcoming of new residents and tourists/visitors to their own community. Small communities can be insular and isolated, yet, throughout the interviews, the idea of openness to the new and readiness to accept change came up in the discussion in a variety of forms.

Because of this, it was interesting to note that the four communities could still articulate the differences between them and their own identify and uniqueness. This was a combination between what the areas had to offer – rural setting vs sub-urban vs vibrant waterfront – but also the expectations, desires and needs of the people living in the respective communities. The influx of new residents moving from larger urban areas like Auckland or Wellington helps articulate the differences between these communities as higher wealth buyers make buying decisions based on lifestyle values that the area is seen to offer. For instance, Whirinaki has attracted more alternative lifestyles or retirees because of the relaxed pace of life and perceived isolation of the area. On the other hand, families with kids and still of working age may choose to settle in Bay View – where there is a choice between being by the sea or living in a rural setting in close proximity to the sea.

### 7.2 Why people like the area as a place to live

From a social impact perspective, it is important to establish why people like these areas as a place to live, what aspects they appreciate and value. This helps to form an overview of the fabric of social and community values, or issues (aside from coastal hazards) within Ahuriri/Pandora through to Whirinaki, but also provide a perspective on changes that need to be avoided.

## Ahuriri/Pandora

### Why people like Ahuriri/Pandora as a place to live

- Vibrancy/vibe of the water front (cafes, restaurants, hotels)
- Great attraction for out-of-region visitors & for outings of local families
- Great amenities and recreational value – linked to Hardinge Rd, Ahuriri Estuary, Pandora Pond
- Prime sailing and fishing location, events
- Easy access for local school activities
- Significant (high value) business growth

Ahuriri/Pandora is a great place to live for professionals or families that prefer a city vibe, easy access to a wide range of services and facilities (schools, medical, shopping, restaurants, events) and also a waterfront environment (beach, sea walkway, water sports). One resident mentioned how “unique it is to have the foreshore, the inner harbour, the beach” and the history that goes with Ahuriri while others compared Ahuriri to Fisherman’s Wharf in San Francisco. “There’s something special about having the cafes facing out to the harbour. Such a nice ambiance.”



*Hardinge Rd*

The significant growth of the area in recent years has driven a renewal of the community and added value to the entire region. A lot of the old industrial buildings are now being converted to more commercial operations and innovation technology. Such shift goes hand in hand with residential development and is supported by Ahuriri Business Association “because it is actually becoming a nice place to live.”



The Napier Sailing Club was created at the end of the 19<sup>th</sup> century but it has been operating at its present location since 1931. The sailing club location is believed to be one of the best in the country due to the sheltered area for launching, ample parking and proximity to a racing area. There is appreciation for the history of the club and interest to pass it on to future generations.

## Westshore

### Why people like Westshore as a place to live

- Quiet area/peaceful lifestyle yet in close proximity to the city& jobs
- Great recreational amenities, especially the green verge and cycle/walkway, and the local surf club
- Welcoming to outside visitors (up to 80-90% of verge and beach users are believed to be non-residents)
- The surf club (350 members) provides connections outside the area and a strong social focus
- The Westshore residents' association is the only one in Hawkes Bay.

Similarly to Ahuriri, Westshore has a long history since settlers' arrival in the 1850s. Many interviewees described Westshore as a "retreat from urban stress" with the city nearby while providing great amenity value for its residents and visitors. "The amenity of the beachfront where I can walk my dog, ride my bike, swim, take the family, water recreational sport, is a hugely important aspect of my life, so proximity is important."



*Westshore beach, courtesy of Richard Karn*

While the area does not have the white sand beach any longer but a swimming beach, not all Westshore residents are concerned about that since there are other amenity values for locals and visitors to enjoy especially the green verge and walkway/cycle way which jointly also attract significant visitors to the area. The Tremain Triathlon and the schools' coastal cluster are two events organized in the area.

The Westshore Surf Life Saving Club has been around for over 100 years provides key life-saving services and training, including beach patrol. With its 350 members, the club also operates as a social hub for the community and connector to the wider region.

A quarter of residents are members of the Westshore Residents' Association which publishes a newsletter about three times per year. A "Gap Party" is organised every year that brings everyone together.

## Bay View

### Why people like Bay View as a place to live

- A vibrant rural community
- Strong connections through second and third generation residents
- Welcoming to new residents & development
- A safe place to live
- Coastal culture heritage

Bay View is a rural area which is attractive as a lifestyle choice for families and retirees as it also provides for proximity to the city. One interviewee emphasized how there is "lots of recreation here and no city stress" and "traffic jams are about five cars." The community has a strong connectivity to the ocean, can fish in the Esk River and the ocean and can also enjoy hill activities (walking, mountain biking, etc.). The Esk Valley School is another draw to the area and one local describe it as "one of the great rural schools of New Zealand" that has lots of parental involvement. Hillside in Esk Valley has been occupied by Maori for 600 years so there is a lot of history and culture in the area too.



*Bay View beach*

## Whirinaki

### Why people like Whirinaki as a place to live

- Community is very supportive, people help each other
- There are strong connections between residents
- There is a special tranquillity and sense of being far away from the world
- The sea and air are really good for health
- The mill provides a lot of support for the community (notwithstanding some nuisances like smell or waste water).

Locals love Whirinaki for its relative isolation and opportunity to enjoy the ocean with no distraction. Coastal hazards aside, one of the people interviewed said that it “couldn’t be any better” living in Whirinaki. The sea and air are really good for one’s health, and people help each other. Locals have benefited from the increase in property values and some decided to sell and cash in. It is believed that about 40-50% of residents in North Shore Rd have changed in recent years as a result, however, the newcomers have integrated easily and are part of the community. The locals who lived in the community for a long time would only consider moving if there was a huge physical change to their lifestyle.



North Shore Rd.

### 7.3 Main social and community issues

A number of issues have been identified during interviews as social concerns for the areas.



#### Local authorities

Many of those interviewed expressed concerns about the role and performance of local authorities (one or more of NCC, HDC or HBRC) in providing clear processes and solutions for dealing with coastal hazards but also some environmental issues. The general view seems to be

that the authorities have been slow to address coastal hazards and have not engaged or informed the community adequately – particularly when looking at the deteriorated situation in Haumoana or Te Awanga and the perceived slowness by the council to engage. Some are concerned that decisions are already made and that protection measures will be put in place on the basis of cost only. Issues have also been raised in relation to the application of the Resource Management Act, which places restrictions on what measures can be carried out from an environmental perspective but it is not supportive of (economic) development.

Another issue that came up repeatedly was about the technical studies that have been commissioned over the years (by HBRC or others), which have not led to tangible actions. The debates about the cause for the erosion in Westshore are not helpful – as residents would like to have clarity from the authorities about the cause for erosion and specifically whether the Port of Napier is responsible for this. The reports do not give a consistent answer and there is a lack of trust in councils about this; moreover, communities like Whirinaki also feel disconnected from HDC and the artificial way in which district boundaries were set. This distrust has penetrated the many interactions between councils and the community, including when independent experts are involved in carrying out a task (as was the case with this particular study).

The current effort to produce a 100-year strategy is also looked at with mixed views: most organisations operate on '30-year timeline for investments not 100-year plans'. However, views were also expressed that central government needs to do more since local government can only do so much and that country wide hazard zoning needs to be done in view of climate change and sea level rise predictions.

Regarding environmental stewardship, the Pan Pac discharge of waste water into the bay as well as Hawke's Bay sewage also being discharged untreated was raised by several interviewees in the context of local risks and the need for authorities to focus on solving these issues, including putting in place plans for suitable infrastructure to deal with waste water.

### Rising property prices

While recognising that higher property prices have supported the development of these communities (new residents and investments, renewal), there was concern that the interest to capture these high price leads to significant change in the community and potentially a loss of the spirit and identity of those communities in face of such highspeed change. High prices could also lead to pressure on the council not to prevent land development, despite recognised coastal hazards.

### Crime

The limited concerns raised in relation to crime were primarily linked to petty crime and freedom camping. There was satisfaction about the fact that the community was looking after each other and not feeling exposed to crime too much.

### Town and regional planning

Linked to role of local authorities addressed above is the aspect of planning and development.

There is concern that while there are efforts to increase awareness about coastal hazards, the approval of new developments/issuing of resource consents for new build in low lying or water front areas sends a confusing message to residents and potentially creates more liability for the

community in the future. Te Awa was given as an example of development which is not perceived by some in the community as a sensible decision.

The issue of 'equity' in town planning was also brought up in two different contexts: there does not seem to be the same approach to (building) restrictions across the coastal communities (NCC vs HDC), and there seems to be a lack of interest to invest in infrastructure development in Bay View. Furthermore, there was also concern expressed about the inconsistent ways in which hazards information is included in Land Information Memorandum (LIM). What type of information is provided in LIM, and whether the insights from the maps from the Hazards Information Portal was a topic of discussion where opposing views are expressed by those interviewed: some have the view that more information needs to be provided while others do not support this because they either do not trust the hazard maps or are concerned that the "tagged" properties will drop in price/become uninsurable.

## 8.0 Coastal hazards issues and concerns

Discussions with individuals and groups in the four communities point to a wide range of views regarding coastal hazards, the cause of the hazard (or who is to blame for it) and how the risks could be mitigated.

A number of themes have emerged in discussions with the interviewees and are captured in the diagram below.

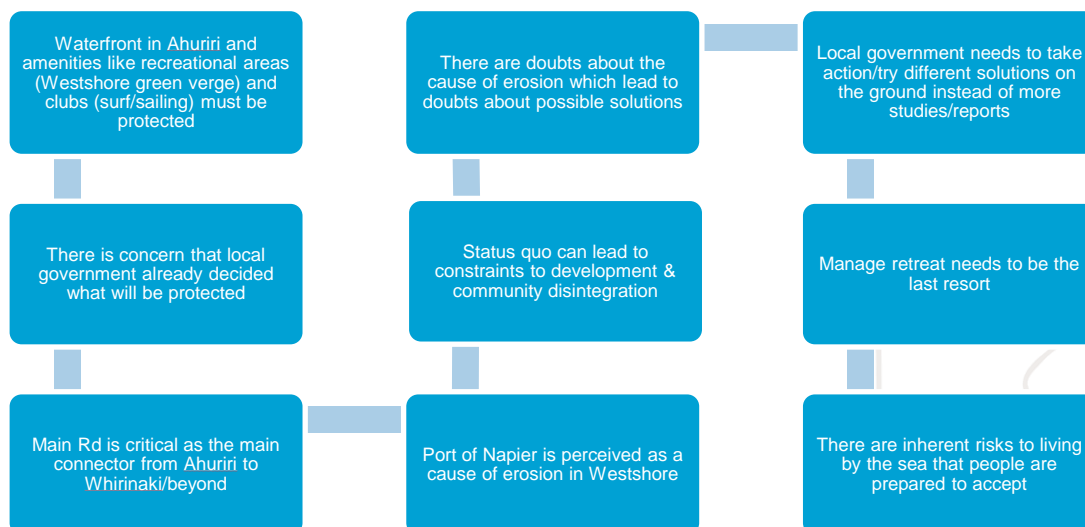
These views are influenced by various factors, including the deeper values and beliefs held as individuals, such as accepting or not that climate change and sea level rise are happening, or whether people can protect themselves from the force of the ocean. Being directly impacted (for instance those that live on the waterfront) also influences the point of view as the issues become personal and emotions change risk perception. Maintaining the Status Quo is a concern as it ultimately impacts on the community which is not resilient and prepared to adapt to coastal hazards.

Many of those interviewed put forward the view that there are inherent risks in living by the coast, tsunamis and cyclones being the most cited events. They accept these as a reality they need to live with if they want to enjoy living by the sea.

However, there are different views with regards to coastal erosion and flooding – particularly when discussing these with people who are directly affected. Coastal erosion is seen as a real threat with irreversible consequences by some of those interviewed who have been concerned by the coastal change for many years and advocate for more targeted intervention.

Inundation on the other hand is perceived as a smaller risk by many of those interviewed on the basis that a major flood event is unlikely and even if it happens, it is temporary and it is possible to recover following clean up. While inundation may be viewed as a fact of life by those in the flood area, it was suggested that people would make different decisions about moving to the area if they are aware of the flood risk (especially if insurance cover will be removed/un-available). There is acknowledgement that a combination of sea level rise, high tide and storm surge can have a devastating impact on the coastal properties and amenities.

Overall, flooding seems to be a more ‘acceptable’ risk than erosion due to its transient aspect.



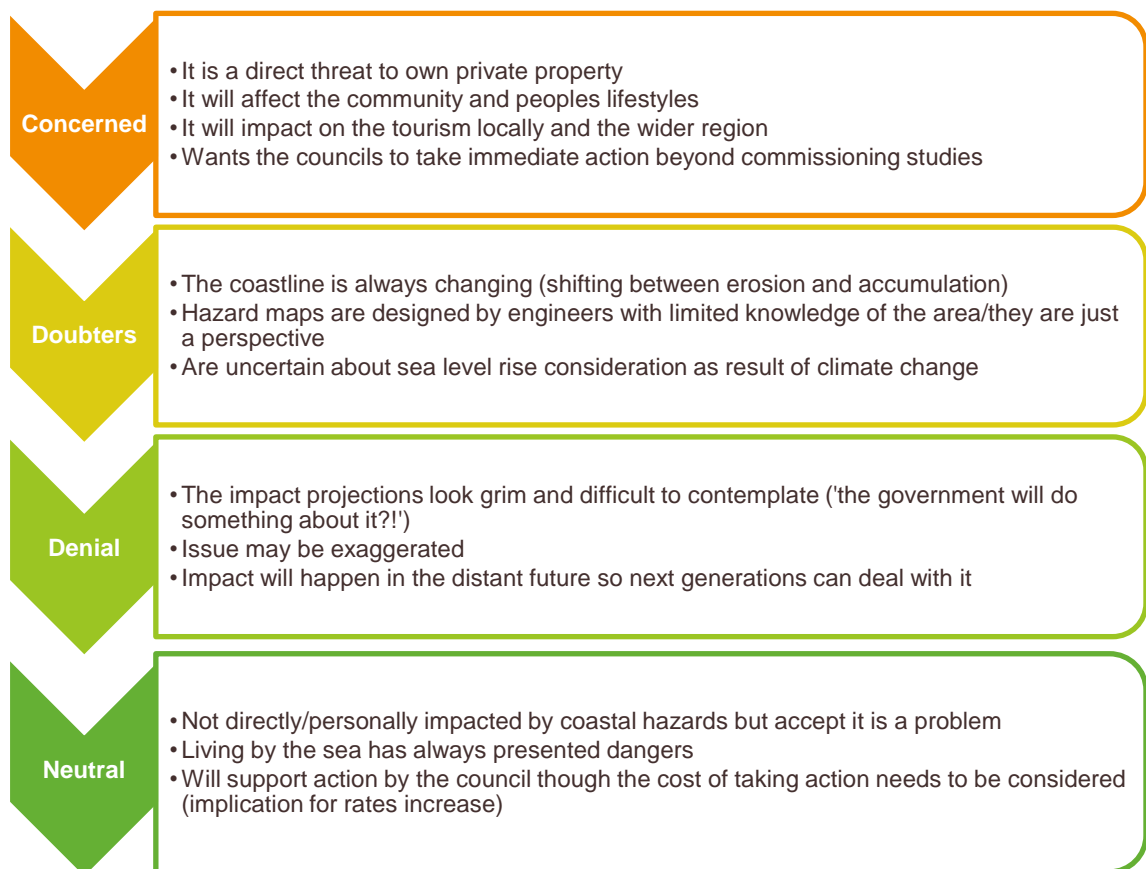
## 8.1 Community perception of coastal hazards

Residents in Westshore and pockets of residents in Bay View and Whirinaki who have lived in the area for a long time are concerned with the changes to the coastline that they have witnessed, and the dynamic between erosion and accumulation at different points along the coast. While they may hold different views regarding the cause of erosion, they are in agreement that they would like the government to act and protect the community before greater damage happens.

A smaller, second group ('doubters') accept that the coastline is changing "as it always does" though they do not fully accept or trust the impact projections in the hazard information portal. Because they do not see the risk as greater than in the past they are therefore not necessarily in favour of intervention, especially if they are not impacted directly and would not want to pay for protection.

Another group are residents who are aware of the projected impacts and only somewhat concerned ('denial') about this even though they will be impacted directly. They would rather default decisions to future generations since the projected impacts are not expected to happen in the near future (5 to 10 years).

The last group ('neutral') are not personally impacted by the hazards and also tend to take a more appeasing view regarding coastal hazards ('living by the sea presents dangers'). They would not get involved in protection themselves but they would support intervention by council or others provided their rates do not change significantly.





The four communities have started interacting and talking to each other more about coastal hazards. As a result of the coastal strategy process, they are also better linked to communities like Haumoana. This increased awareness is likely to lead to more people shifting into the 'concerned' group and want to play a greater role in advocacy and solutions design, possibly in the coastal hazards strategy implementation too.

### Coastal erosion: a thorny issue

As noted in other parts of this report, the range of views expressed by people interviewed suggest there is uncertainty as to why coastal erosion is happening and whether it is a natural change or a result of human intervention (seabed dredging carried out by Port of Napier or Tutaekuri river re-routing). Yet, the concern in the community is very high, particularly in Westshore and to a lesser extent in Bay View and Whirinaki. Some of the interviewees reported how they are considering (or have considered) selling their house due to erosion risks or they know of acquaintances and friends who moved for this reason. Currently beach replenishing in Westshore seems to contribute to accumulation in parts of Bay View. There is concern that interventions in the future in Westshore (for instance to stop replenishing the beach) may shift the balance again and lead to increased erosion in Bay View.

Whereas the purpose of this study was not to discuss the merits of previous technical reports into the cause of erosion, there is a strong interest to clarify the cause of erosion and whether it is man-made, which some of the interviewees believe. This needs to be addressed as there is a risk of becoming a distraction from making decisions and implementing solutions.

## 8.2 Community outlook on coastal hazards risks

The perception of coastal hazard risk to life, property and infrastructure varies in the community, depending largely upon where people live in the area and if they are directly affected or not, their knowledge about the hazards and attitude to risks. Those living close to the shoreline – especially those on the water front - see the threat of erosion as much more immediate and, as property owners, are concerned about a number of issues:

- Their ability to take necessary action to protect their property from erosion and storm surges (what are the solutions, what will the government do);
- The availability of property insurance;
- The availability of mortgage finance (which is wholly dependent upon whether the property is insured); and
- The resale value of their properties if the hazard continues to escalate.

Those interviewed also expressed concerns about broader community assets and amenities at risk. The Surf Club in Westshore is the most named asset currently at risk from erosion and also flooding; the Sailing Club has increased flooding risks. The boardwalk along the estuary was also mentioned as an asset at risk from flooding.

Transport infrastructure such as the Napier Airport and the expressway connecting the coastal settlements are not at immediate risk but the airport has emergency preparedness plans in place for tsunamis and storms and are aware of the risk of flooding from tidal waters. New Zealand Transport Agency (NZTA) has not looked into the impacts of the sea level rise on the Main Rd but they focus on resilience more broadly (ensuring main roads are open); they expect that over the coming years they will focus more closely on climate adaptation.

### 8.3 Difference of views regarding mitigation

There is a range of views about the options and effectiveness of different adaptation strategies. Some suggest that hard engineering as an alternative to the soft engineering tried to date at Westshore may have to be tried. Building seawalls or off-shore reefs were also mentioned as potential options.

Much depends on the costs of these solutions and how suitable and effective they are. There is hope that the strategy development process will bring to the forefront new ideas but also weed out ineffective ones. Overall, the community shows a clear determination to deal with the issues and seek solutions – even though they may not be acceptable to everyone or are only intermediate solutions (e.g. extend their stay as long as possible).

A divergent point in the community is about who should pay for the protection of private property and whether public money (rates) should be used for this. Many of those affected are of the view that government needs to contribute – the same way it contributes to a library or museum which are only used by part of the community. However, some of those interviewed who do not live by the sea and are not impacted by hazards, expressed their opposition to this idea on the basis that those taking the risks to enjoy water front views need to take responsibility for their protection. A smaller group amongst those that will be potentially impacted expressed the view that they are interested in taking responsibility over their protection but it will require some coordination and flexibility from councils, including a more coordinated engagement with insurance companies.

While the question of costs is an important one, the communities need to understand the process for moving forward, how decisions will be made and gaining clarity that potential solutions will not shift the impact from one part of the beach to another.

It is important that HBRC, HDC and NCC engage more with the affected communities by building on the strategy process and shifting the opinion of the community that council suffers from inaction.

#### Managed retreat as the last resort

Managed retreat is generally seen as a ‘giving up’ measure, in which the communities abandon their properties without a fight. Whereas the risks for the four communities in this study are not so imminent as was the case for instance in Haumoana, those interviewed suggested that they would like to see longer term plans and readiness to try different options before managed retreat is deemed the only remaining solution.

The councils will need to be very transparent and clear about the process and the rules about managed retreat, particularly since managed retreat is somewhat seen as a council favoured solution in those situations that only private properties are at risk.

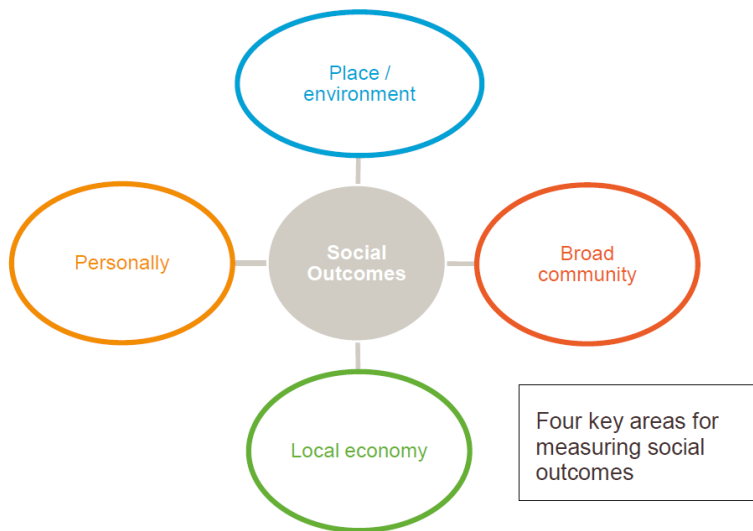
Maintaining the community cohesion should be an important outcome of the managed retreat process. The council will need to consider more determined actions to provide information and increase awareness about adaptation in general, and specifically about managed retreat since there seems to be a knowledge gap in the communities about these issues.

## 9.0 Social outcomes from Status Quo

This section considers the social outcomes that would arise for the community in the “status quo” scenario.

Where possible, valuation of social outcomes is carried out. Outcomes are defined as answers to questions such as:

- What would people in the Ahuriri/Pandora, Westshore, Bay View and Whirinaki and the wider Hawke’s Bay region experience?
- How would life change for these communities?



### 9.1 Defining the Status Quo scenario

The assumptions and hazard probabilities used for the Status Quo scenario for the area from Ahuriri/Pandora to Whirinaki are described in the table below. It needs to be noted again that some of the stakeholders do not trust the maps provided in the ‘present’ day scenario in the Coastal Hazards 2015-2025 Study and the related Hazards Information Portal. However, all interviewees were willing to express their view of how the Status Quo scenario may impact on them personally and the wider community.

#### Status Quo Scenario - predicting social outcomes Overview of assumptions, probability and risk

- Coastal erosion and inundation processes reflect the “Present” scenarios in accordance with Coastal Hazards 2015-2025 Study (Tonkin and Taylor 2016);
- The “Present” mapping model used for this study is the 66% probability that coastal erosion will occur to the extent shown, in the event of a 1:10 AEP storm surge;

- It is assumed that a 1:100 AEP storm surge will occur in the next 5-10 years and causes inundation projected in the “Present” mapping model;
- These assumptions are therefore conservative but not unrealistic scenarios for the purpose of identifying social outcomes.
- Residents and property owners take individual responsibility for the protection of their own properties and assets;
- Councils do not construct any defensive works along the coastline beyond present day interventions (e.g. replenishing of Westshore beach, maintenance of rock revetment in Ahuriri);
- The viability of the Main Rd will be maintained and essential services (power and water supply, etc.) will continue to coastal properties in the erosion and inundation hazard zone for as long as it is viable to do so.

## 9.2 Social outcomes that may arise in the Status Quo scenario

Based on the stakeholder interviews and related research, it is considered that the following outcomes may arise for the communities of Ahuriri/Pandora, Westshore, Bay View and Whirinaki if there is no intervention in the current process of coastal erosion and inundation (beyond what is currently being done) that will arise from rising sea levels and storm surges, and assuming the Status Quo scenario described above actually occurs.

### Ahuriri/Pandora

Output (Impact)	Outcome for community
<b>Coastal property</b>	
<p><b>Present day through ten years:</b></p> <p>Some coastal properties will experience inundation risk from 1:100 AEP events arising from sea level rise and storm surges.</p> <p>This includes Napier Sailing Club.</p>	<p>Some property owners (residents and business) will experience negative well-being (anxiety / concern/anticipatory fear, etc.) driven by:</p> <ul style="list-style-type: none"> <li>• Insurance exclusions or refusal of cover;</li> <li>• Falling resale values;</li> <li>• Fear of major structural damage (perhaps repairable after flooding events);</li> <li>• Inability to implement mitigation or protection works because of regulatory obstacles.</li> </ul> <p>Napier Sailing Club will face disruptions and possibly loss of revenue as result of flooding</p>

	(hosting functions or use of the bar will be affected).
<b>Cycle &amp; walkways along Hardinge Rd, Ahuriri Estuary and the Pond</b>	
<p><b>Present day through ten years:</b></p> <p>Parts of cycle and boardwalks along Hardinge Rd and the estuary will experience increased inundation from 1:100 AEP events arising from sea level rise and storm surges.</p>	<p>People in the community and tourists will experience occasional inaccessibility to these amenities.</p> <p>Number of recreational walkers and cyclists using the trail would decline as sections of it became less viable.</p> <p>Continued flooding may put pressure on the ecological integrity of Ahuriri Estuary.</p>
<b>Perfume Point Recreation Reserve and Spriggs Park</b>	
<p><i>Present day through ten years:</i></p> <p>Parts of the area will be subject to erosion if current seawall is not maintained.</p> <p>Lower parts of Perfume Point and Spriggs Park will be inundated in a 1:100 AEP storm event arising from sea level rise and storm surges. East Pier Hotel will face increased inundation risk.</p>	<p>Flood events caused by storm surge will mean the area is inaccessible to the community and visitors for short periods during flood and clean-up.</p> <p>Local cafes and shops would be affected by declining cyclist patronage.</p>

## Westshore

Output (Impact)	Outcome for community
<b>Coastal property</b>	
<p><b>Present day through ten years:</b></p> <p>Some coastal properties will experience increased inundation risk from 1:100 AEP events arising from sea level rise and storm surges.</p> <p>Exposure of Westshore Surf Life Saving Club to erosion will continue.</p>	<p>Property owners will experience negative well-being (anxiety / concern/anticipatory fear, etc.) driven by:</p> <ul style="list-style-type: none"> <li>• Insurance exclusions or refusal of cover;</li> <li>• Falling resale values;</li> <li>• Fear of major structural damage (perhaps repairable after flooding events);</li> <li>• Inability to implement mitigation or protection works because of regulatory obstacles.</li> </ul>

	Westshore Surf Life Saving Club will eventually cease to operate at present location and have to relocate.
<b>Cycle trail &amp; green verge</b>	
<p><b>Present day through ten years:</b></p> <p>Coastal erosion will impact some of the cycle trail along the Esplanade and North Terrace.</p> <p>Most of the cycle trail would likely be inundated in a 1:100 AEP storm event arising from sea level rise and storm surges.</p>	Number of recreational walkers, beach goers and cyclists using the trail may be affected (either temporarily or permanently) when beach erosion advances and sections of the cycle trail become less usable*.
<b>Charles Street, North Terrace and the Esplanade</b>	
<p><b>Present day through ten years:</b></p> <p>Parts of North Terrace, Charles Street and the Esplanade will experience increased inundation risk from 1:100 AEP events arising from sea level rise and storm surges making the roads inaccessible at times.</p> <p>Charles St will also face increased exposure to erosion.</p>	Local residents may face occasional inaccessibility to their homes.

\*Because the cycle trail runs along the roads in Westshore, there are likely alternatives for cyclists to avoid impacted areas; it is hard to envisage/estimate how the usage would be affected.

### Bay View

Output (Impact)	Outcome for community
<b>Le Quesne Rd</b>	
<p><b>Present day through ten years:</b></p> <p>Parts of Le Quesne Rd will experience increased exposure to coastal erosion and inundation risk from 1:100 AEP events as result of sea level rise and storm surges, making the road inaccessible at times.</p>	Local residents may experience anticipatory fear and alternative access to properties for the long term may be considered.
<b>Coastal property</b>	
<p><b>Present day through ten years:</b></p> <p>Some coastal properties will experience increased inundation risk from 1:100 AEP</p>	Property owners will experience negative well-being (anxiety / concern/anticipatory fear, etc.) driven by:

events as result of sea level rise and storm surges.	<ul style="list-style-type: none"> <li>• Insurance exclusions or refusal of cover;</li> <li>• Falling resale values;</li> <li>• Inability to implement mitigation or protection works because of regulatory obstacles.</li> </ul>
<b>Cycle trail</b>	
<p><b>Present day through ten years:</b></p> <p>Most of the cycle trail between Westshore and Bay View will experience increased exposure to 1:100 AEP storm event as result of sea level rise and storm surges.</p>	<p>Number of recreational walkers and cyclists using the trail may be affected when sections of it became less usable*.</p> <p>Local cafes and shops, including wineries, would be affected by declining cyclist patronage.</p>

\*The cycle trail is mostly exposed at Westshore, but it is likely to have a spillover effect on Bay View since many cyclists will pass through or come from Westshore.

## Whirinaki

Output (Impact)	Outcome for community
<b>North Shore Rd.</b>	
<p><b>Present day through ten years:</b></p> <p>North Shore Rd will experience increased exposure to coastal erosion and inundation risk from 1:100 AEP events as result of sea level rise and storm surges.</p>	<p>Local residents may experience anxiety and anticipatory fear, and alternative access to properties for the long term may be sought.</p>
<b>Coastal property</b>	
<p><b>Present day through ten years:</b></p> <p>Some coastal properties will experience increased inundation risk from 1:100 AEP events as result of sea level rise and storm surges.</p>	<p>Property owners will experience negative well-being (anxiety / concern/anticipatory fear, etc.) driven by:</p> <ul style="list-style-type: none"> <li>• Insurance exclusions or refusal of cover;</li> <li>• Falling resale values;</li> <li>• Inability to implement mitigation or protection works because of regulatory obstacles.</li> </ul>

## 10.0 Valuation of social outcomes

To further contribute to community preparedness and decision making regarding coastal hazards, a valuation approach has been applied to the social outcomes identified above.

For this, a value map was created which incorporates explanation of the assumptions that are used to develop financial proxies for specific social outcomes. The Value Map is attached in Appendix three.

### 10.1 Why value social outcomes?

Estimating the value of social outcomes that arise from the impact caused by coastal hazards is important for two reasons:

- If the economic cost of social outcomes were to be higher than the costs of capital works to provide coastal hazard protection to the targeted community, then the capital works (e.g., building a seawall) may be justified to avoid that outcome; and
- A social outcome value helps to provide a more objective assessment of how adaptation costs should be apportioned between private and public benefit. This distinction is important since Councils must apply the principles contained in s101(3) of the Local Government Act which (broadly) require that costs (including infrastructure costs) should be attributed to those who stand to benefit from such an investment. Where there is a direct benefit to a user, the primary benefit is to individuals. Where a number of people or specific groups benefit, then the primary benefit would be attributed to those groups. Where there is a benefit to the majority of persons or properties across a local authority district, then the primary benefit is attributed to the wider ratepayer base.

In the past, there has been a general acceptance that social impact of coastal hazards is real but that it cannot be economically valued<sup>26</sup>. An arbitrary figure (say 10% of proposed capital cost) is sometimes adopted to determine the proportional value of the activity that ought to be attributed to public benefit. Since it is expressed as a proportion of planned expenditure, it never reflects whether the total planned expenditure itself is appropriate, in the context of overall social impact.

Measuring and valuing social outcomes, however, is an evolving area with new methodologies and tools emerging. Establishing financial proxies for social impact is gaining more widespread practice<sup>27</sup>, as it helps decision makers to consider adaptation responses to hazards that are economically consistent with social outcome costs and provide clarity on the social return on investment (SROI). In the New Zealand context, it can also be useful to apportion the adaptation costs between public and private benefit in accordance with the requirements of the Local Government Act.

SROI, like return on investment, can be used to evaluate investments ex ante or ex post. Monetizing the social outcomes of coastal hazards presents several unique challenges:

<sup>26</sup> See for example Statement of Proposal, Sustainable Long Term Solutions to Coastal Hazards at Haumoana – HDC – 2011, Page 32.

<sup>27</sup> See for example Social Return on Investment methodology approved by UK Cabinet Office in 2009. New Zealand Treasury's preference for use of CBAX techniques in evaluating social investments.



- The evaluation is best undertaken over short timeframes (five years or ten years) when stakeholders can realistically visualise and express tangible outcomes, whereas coastal erosion and flooding will impact on a community over several decades.
- Estimates of coastal hazard effects are almost always based on percentage probabilities of the events occurring. This is not a particular challenge in the context of this study due to the Coastal Hazards study undertaken which provides probabilities of specific events occurring, and their physical impact (erosion, inundation).
- There is only limited and very basic data to measure the impact of the status quo position on the community, regionally important assets, and recreational activities – and consequently to monetise all impacts. More quantitative surveys and empirical data are needed to improve existing knowledge.
- Financial proxies cannot be defined for important outcomes such as people’s well-being since it does not have value in the market place (these are harder to determine and always subject to an assumptions).

However, despite the challenges above, the process of defining values, impacts and outcomes is important in and of itself.<sup>28</sup> in order to increase community preparedness to natural hazards.

## 10.2 Establishing a financial proxy for the social costs of adverse effects on wellbeing

The most significant value component of social impact shown by the value map is the level of anxiety and concern the community would feel over the next five to ten years for a status quo scenario. Establishing financial proxies for the cost of issues such as health and wellbeing presents some significant challenges because they do not have a market price.

Discussions with interviewees confirmed that the level of concern and anxiety in the community is felt the most by those who have coastal properties near the waterfront and are within close proximity of the erosion and inundation areas as reflected in the maps on the Information Hazards Portal. Generally, the community seemed less concerned about flooding, though this is not a unanimous view and there were at least two interviewees who stated that they would still not buy a property if they knew it was vulnerable to flooding.

For valuing the outcome, a financial proxy was selected that is based on discounts applied to properties that are exposed to natural hazards and environmental health risks.

More explanations on the discount rates applied to properties prone to erosion and flooding are provided in Appendix Two. These have been applied to capital values of those properties as per NCC and HDC rating revaluation completed in August 2016.

Discounts on property in an area that is subject to natural hazards will remain for as long as the hazards exist (and may actually increase if the perceived risk becomes higher) but a ten-year timeframe was used for this calculation.

<sup>28</sup> Reinhard, M. et al. 2014. Making communities more flood resilient: The role of cost-benefit analysis and other decision-support tools in disaster risk reduction. Zurich: Zurich Flood Resilience Alliance, September 2014

Using a property-based financial proxy of negative wellbeing is consistent with the idea that anxiety and stress would increase in a community if there were a higher number of houses in a settlement affected by coastal hazards, or that they had a higher capital value<sup>29</sup>. On the other hand, this approach may not reflect wellbeing on an individual resident basis since it is a proxy based on households rather than individuals.

### 10.3 Assessment of social outcome costs

If the status quo scenario outlined above occurs, a conservative estimate for the cost of social outcomes caused by coastal hazards has a net present value of approximately \$1.9 million.

Status Quo Scenario – Summary of social outcome cost estimates over the next ten years		
Outcomes	Net Present Value \$'000	%
Negative wellbeing in community	\$1,196	64%
Loss of amenity values along Ahuriri & Westshore	N/A	
Loss of ecological values Ahuriri Lagoon	N/A	
Decline in wineries cyclists visits	N/A	
Loss of Westshore Surf Club/relocation	\$685	36%
Decline in cyclists using Westshore to Bay View track	N/A	
	<b>\$1,881</b>	

As expected, the largest component is due to negative well-being in the community, followed by the likely loss/relocation of the Westshore Surf Club.

It should be noted that many social outcomes have not been valued at this point due to uncertainty and lack of meaningful data that can be reliably used to apply financial proxies and make cost estimates.

The approach has also been not to include in the analysis properties that are in close proximity to erosion areas at this point but not necessarily expected to be impacted in the next 10 years – as it is unclear how the value of those properties would change due to risks perception.

However, it is important to note that the community anticipatory anxiety and fear is likely to increase as more become informed about coastal hazards and physical impacts are more obvious, or a 1:100 AEP event actually occurs.<sup>30</sup> Overall social outcome costs are expected to increase over the next ten years.

<sup>29</sup> Since greater financial exposure would lead to greater stress about the hazards.

<sup>30</sup> Recent flooding events such as the one in Edgecumbe gives reasons to be concerned to those at risk of flooding as they can see the devastation it led to – and more discussions in the community are taking place.

## 10.4 Public vs private benefit, and equity considerations

An important and challenging issue to consider in the coastal hazards adaptation strategy and subsequent interventions, is the extent to which council-funded responses, i.e. use of rate payers' money, to coastal hazards should be allocated between private and public benefit.

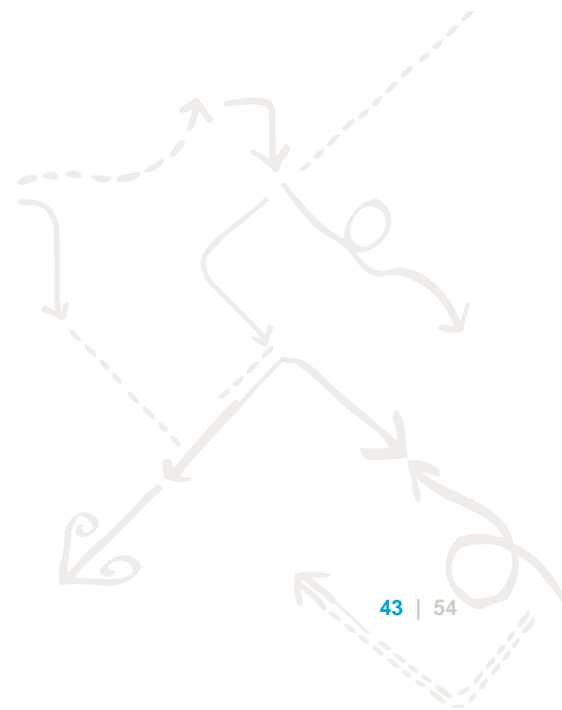
Economic approaches generally do not address distributional issues (private vs public benefits, socio-economic grouping etc) but rather look whether interventions (policies, projects, etc.) will make the community/region as a whole better off.

Costs and benefits are considered in their entirety without regard to differences in income, age, race or other aspects. However, it is important to have clarity about who bears the costs, and who benefits from a certain intervention since this can determine if the intervention is politically and ethically acceptable.

Estimates of economic benefits (and costs) can have equity implications. Benefits are often estimated as an individual's willingness-to-pay, which can be challenging given that willingness-to pay is often conditioned by ability to pay. Economic approaches (and use of valuation) should be applied in conjunction with other decision-making criteria related to distributional effects – and recognising the specifics of communities of Ahuriri/Pandora, Westshore, Bay View and Whirinaki.

Under the status quo scenario, it has been assumed that no new infrastructural assets will be built in the study area, and the only adaptation activities funded by ratepayers will be the on-going adaptation interventions (beach nourishment, rock revetment maintenance).

Valuation shows a conservative estimate of social impact costs of about \$1.9 million over the next 10 years – primarily as result of anticipatory fear & anxiety over the expected effect of the coastal hazard risk on people's private property assets and loss of public amenities and tourism. This suggests that the costs of adaptation & risk mitigation could be supported by (regional or city council) ratepayers to prevent loss of amenities like the cycle-trail, green verge or the surf club.



## 11.0 Conclusion and recommendations

This study has assessed the social impacts from coastal hazards in a status quo scenario for the communities of Ahuriri/Pandora, Westshore, Bay View and Whirinaki. Social impact assessment approaches and principles have been applied in identifying stakeholders and carrying out interviews.

A status quo scenario has been used to discuss and identify social outcomes for the four communities and establish a valuation baseline to the extent that reliable data was available. The key social outcomes are related to community well-being and loss of amenities as foundations for community cohesion and development. The four communities have different levels of knowledge and perception around coastal hazards risks, and there is a determination to be involved and seek solutions. Current efforts to develop a long term coastal hazards adaptation strategy and insights into the challenges that communities like Haumoana are faced with, have created strong premises for engagement and dialogue, as well as hopes for on the ground solutions.

Below are a number of recommendations regarding the next steps and how the insights of this report can be used.

### Information and knowledge provision

- Interviews with, and opinions expressed by, residents suggest a need to enhance information provision to the community regarding the status of the coastal hazards, actions taken and options for the community going forward – to build their resilience and capacity to engage and contribute to solutions.
- Learnings and insights from the strategy engagement process (positive and negative) need to be used as a way to enhance engagement and information provision for the four communities (and those south of Napier) in a way that is tailored and effective.
- For example, engagement in the short term can be directly connected to the current strategy development process and be targeted specifically at those that are currently vulnerable to coastal hazards, e.g. ocean front properties, who are more concerned and need to be more regularly updated on coastal hazards action and plans. Appropriate means of communication need to be identified (electronic vs mail vs direct meetings), recognising the diversity of those communities.
- Information for the community also needs to clarify some technical concepts – for instance that of ‘managed retreat’ which is a concept variedly interpreted by the community in the absence of clear information from Councils. Such clarifications will ultimately help build trust too while reducing anxiety in the community.

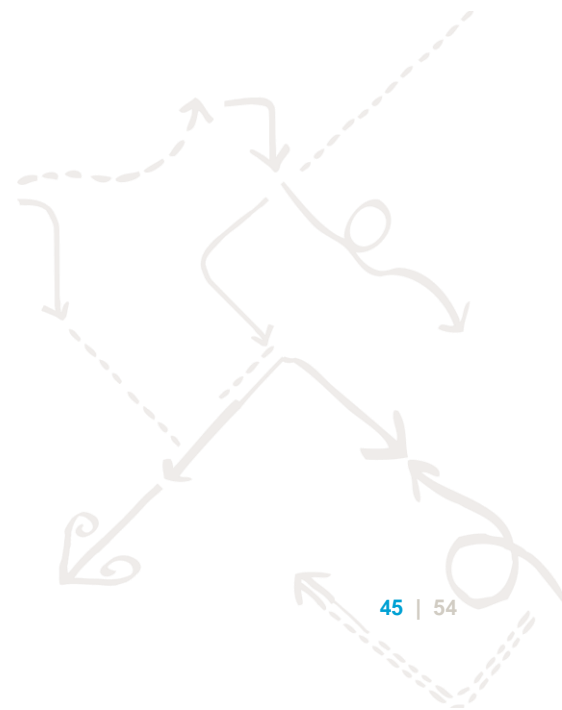
### Quality and reliability of data

- Efforts to value some of the social outcomes for the four communities have been hindered by the lack of reliable data – particularly empirical evidence.
- It is likely that more data will be needed as the coastal hazards strategy is implemented and its outcomes monitored.
- In some cases, longitudinal data will be needed, which may require surveying (a relatively resource intensive activity).

- The Councils may want to identify jointly what are the data gaps that need to be addressed, and develop relationships with organisations that can help to gather such data.
- Collaborations with research and academia (similarly to the collaboration with EDGE Team) can be an effective model to achieve this.

### **Social return on investments**

- The application of SROI in this study is aimed at providing a baseline to inform future investment to mitigate coastal hazards.
- Because data availability is limited at present, it is recommended that this SROI is updated at a later date when actual mitigation measures and projects are being considered for investment.
- In doing so, the Councils will be able to establish the impact of specific mitigation measures and prioritise investments against a baseline for social outcomes (ex-ante investment analysis). Following implementation of specific mitigation, e.g. seawall or revetment, an ex-post analysis can be conducted to help attribute a particular outcome to a specific investment using the same SROI methodology.



## Appendix One

### Semi-structured interviews outline

#### Broad discussion themes

- How would you describe this area?
- Why do you like to live here?
- What are the local features that you particularly like?
- What do you not like about the area?
- What, if anything, would you say are the most significant risks facing this area – outside coastal hazards?
- To what degree do you feel that coastal erosion and increased flooding is a threat to this area?

#### Core questions linked to Status Quo

With ongoing coastal erosion and flooding hazards in this area and the projections of the Coastal Hazards Study, and no intervention to mitigate this risk beyond current measures (if any):

- What would you do?
- What would others in the community do over short and medium term?
- How would things change in your community – in relation to the environment, local economy, connectivity?
- What values (amenities etc) would the community lose?

## Appendix Two

### Using property values as a financial proxy for negative wellbeing

Literature suggests that where properties are subject to natural hazards, a “stigmatic” effect can depress the pricing of these properties<sup>31</sup>. Examples include areas that are subject to subsidence from underground mining or geothermal activity, leaky buildings, or flood prone areas after natural events (e.g. post-earthquake Christchurch). Stigma is defined as a “detrimental impact on the market value of a contaminated property due to market perception of environmental health risks and possible future legal and financial liabilities”<sup>32</sup>.

It is considered that this is a helpful way to develop a financial proxy for the anxiety and concern that people attach to owning property that is imminently threatened by coastal hazards. The price discount is in effect a revealed value of the cost owners attribute to living with health, legal and / or financial risks.

The difficulty with this approach is that coastal properties continue to be in high demand and their prices have continued to escalate year on year. The general view amongst those interviewed and supported by the available data was that house prices for beach properties in either of the four communities are growing and demand is steady.

Some insight into house pricing in sought-after areas that are exposed to natural hazards is provided in an article published by the Australian Agricultural and Resource Economics Journal in which research was undertaken into the impact of flood-hazard zone location on residential property prices<sup>33</sup>. The study utilises data from over 2,000 private residential property sales that occurred during 2006 in North Shore City, which the authors noted was an area where coastal properties were highly priced and keenly sought after. It was noted that house prices are driven by a complex mix of determinants. The study’s aim was to “reveal the buyer’s subjective assessment about the likelihood of personal injury and property damage caused by flooding”. The study concluded that property values were “6.2 per cent lower than an otherwise similar house located outside the flood plain, if it was sold before the flood plain maps were available. A flood plain property is priced 2.3 per cent lower compared with a house located outside the flood plain if it was sold when the flood plain maps were available to the public, all else constant”<sup>34</sup>. The authors cited a number of other studies which suggested the discount range for flood risk was between 4.2% and 11%.

Further evidence is revealed in a guide published by EQC on reduction in values of properties prone to flood risk in post-earthquake Christchurch<sup>35</sup>. The guide considers market based evidence in New Zealand and internationally which suggests that the discounts range between low single figure percentages up to 20% where flood events are more frequent or houses may be inundated.<sup>36</sup>

<sup>31</sup> See for example Effect of Flood Hazard Notation on Property Values – Report prepared by Truss and Keys for the Taupo District Council – September 2015, which itself references a number of other articles on the subject of stigma.

<sup>32</sup> Chan 2004

<sup>33</sup> Flood prone risk and amenity values: a spatial hedonic analysis – Oshadhi Samarasinghe, Basil Sharp - Australian Journal of Agricultural and Resource Economics Volume 54 Issue 4. September 2010.

<sup>34</sup> Ibid – Section 4.4

<sup>35</sup> Diminution of Value Methodology for Increased Flooding Vulnerability April 2014 (updated with Guidance notes and minor amendments as at March 2015)

<sup>36</sup> Ibid – see pages 46 – 59.

For the purpose of this valuation, it is considered that a suitable financial proxy can be adopted for anxiety and concern utilising a range between 2.3% and 10% of the CV of properties that are in the areas affected by coastal hazards. The lower bound is used to apply to properties that are potentially affected by coastal inundation (since residents seem more comfortable living with this risk), while the higher limit is used to apply to those properties likely to be damaged or become uninhabitable through coastal erosion over the status quo timeframe of ten years.

Under the “Present” scenario, the projected extent of coastal erosion is based on a 66% probability after a 1:10 AEP storm surge over the next five years which is a pessimistic (but not unrealistic) outcome. Accordingly, the value mapping presumes that anxiety and stress levels for people living in coastal properties less threatened by immediate coastal erosion are likely to increase over time from a starting point of 2.3% in Year One to 10% by Year Ten.



# Appendix Three

## Value mapping outcomes from the status quo scenario

**Value map for social impact – Ahuriri/Pandora, Westshore, Bay View & Whirinaki**  
 Measuring the social cost of a status quo strategy for coastal hazards – from present to 10 years

Stakeholder	Outcomes – Describing the Change	Indicator – How would it be measured?	How much change will there be?	Duration – How long will it last (yrs)	Financial Proxy – what proxy was used to value the change?	Value – What is the value of the change?	Will the outcome decline in future years?	Year One	Year Two	Year Three	Year Four	Year Five	Year six	Year seven	Year eight	Year nine	Year 10	
Coastal property owner (residential or business)- immediate erosion risk* *Westshore Surf Club	Decreased wellbeing (anxiety / stress) driven by fear of major structural damage (perhaps repairable after flooding event/storm )	Imputed discount on value of properties (based on literature research) in hazard-affected areas reflecting a discount for the anxiety and concern over these hazards	\$,975 million CV of property at risk; it will need to relocate	Until property becomes unsustainable (in the next 10 years).	10% for immediate threat - see Appendix Two of main report for explanation of values used	\$975,000	unlikely	\$97,500	\$97,500	\$97,500	\$97,500	\$97,500	\$97,500	\$97,500	\$97,500	\$97,500	\$97,500	
Coastal property owners (residential or business) - medium term erosion risk	Decreased wellbeing (anxiety / stress) driven by one or more of: • Insurance exclusions or refusal of cover; • Falling resale values; • Inability to implement mitigation or protection works because of regulatory obstacles.	As above	\$1.55 million CV properties potentially at risk from erosion	Until properties become unsustainable to live in or mitigation measures are put in place.	2.3% rising in equal increments to 10% by Year 10 given increasing risk - see Appendix Two of main report for explanation of values used	\$35,650 rising to \$155,000 in year 10	yes if mitigation is carried out (revetment strengthened etc)	\$35,650	\$48,911	\$62,172	\$75,433	\$88,694	\$101,956	\$115,217	\$128,478	\$141,739	\$155,000	
Coastal property owners (residential and business)- AEP 1:100 flood risk properties	As above	As above	\$10.74 million CV of properties subject to storm surge flooding in next ten years	As above	2.3% for properties likely to be affected by flooding but not erosion		Levels of anxiety / stress likely to increase .	\$82,340	\$82,340	\$82,340	\$82,340	\$82,340	\$82,340	\$82,340	\$82,340	\$82,340	\$82,340	
Local residents and visitors to waterfront and beach amenities in Westshore & Ahuriri	Visitors & users occasionally unable to access tractor beach trip to Cape Kidnappers gannet sanctuary unless old boat ramp is deconstructed	No meaningful data for level of disruption	Outcome is probably not material in overall value map			\$0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Ahuriri ecological values stakeholders	Continued flooding may impact on the ecological integrity of the lagoon.	No meaningful indicator at present	Outcome is probably not material in overall value map					\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Westshore Surf Club, members and activities	Eventual loss of the Surf club building, and the related activities and contributions to the community	Value of property asset considered above under coastal property at immediate erosion risks; club services to members and community not quantifiable	Organisation would cease to operate	Permanent				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Napier Sailing Club	Flood events caused by storm surge will disrupt activities for limited time during flood and clean-up.	Value of property asset considered above under coastal property at risk of flooding; no meaningful data to quantify club services to members and community	Effect is probably not material in overall value map at present			N/A		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Users of Ahuriri to Bay View Cycle Trail and local business	Local cafes and shops maybe temporarily affected by declining cyclist patronage as sections of the trail Ahuriri-Westshore-Bay Clifton Rd are unuseables.	Spend per cyclist - no meaningful data	Est. 30,000 cyclists per annum (HBRC data)	Temporary	Average spend per visit on coffees, lunch etc.	Not quantifiable	Effect likely to increase in time	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Users of Ahuriri to Bay View Cycle Trail and wineries	Cellar door sales at wineries in Bay View maybe be temporarily affected by decreasing cyclist patronage	Spend per cyclist	Est. 30,000 cyclists per annum. Assume 10% call into cellars for lunch or purchase of wine.	Temporary	\$30 per cyclist (estimate based on business feedback)	\$90,000	N/A	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>Annual Value of Social Impact</b>								<b>\$ 215,490</b>	<b>\$228,751</b>	<b>\$242,012</b>	<b>\$255,273</b>	<b>\$268,534</b>	<b>\$281,796</b>	<b>\$295,057</b>	<b>\$308,318</b>	<b>\$321,579</b>	<b>\$334,840</b>	
<b>Net Present Value of Social Impact (discounted at 7%)</b>								<b>\$1,881,050</b>										

\*this includes community facilities

Status Quo Scenario - Summary of Outcomes over the next ten years

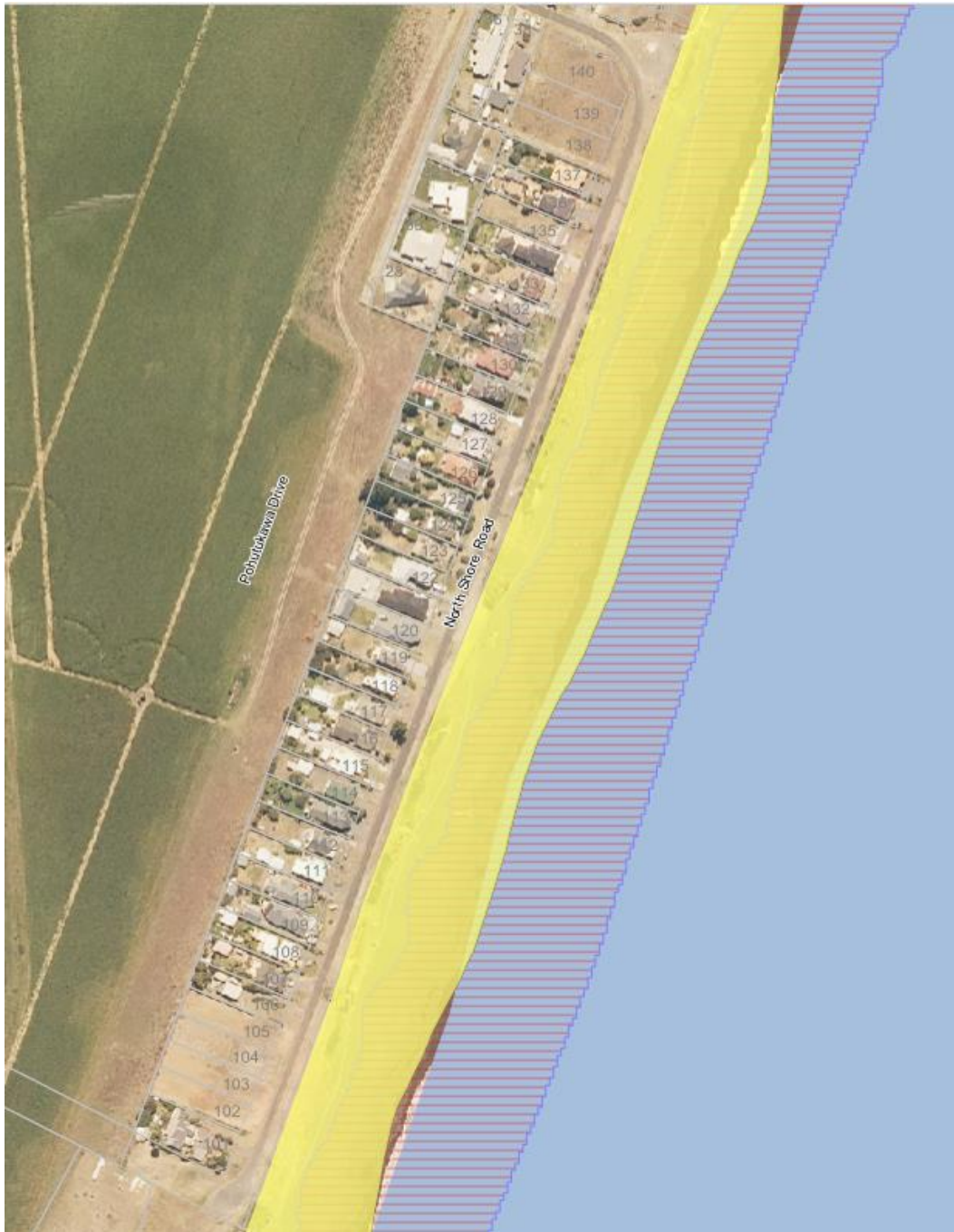
Outcomes	Net Present Value \$'000	% of total	Discount Rate 7%
Negative wellbeing in community	\$1,196	64%	
Loss of amenity values along Ahuriri & Westshore	N/A		
Loss of ecological values Ahuriri Lagoon	N/A		
Decline in wineries' cyclists visits	N/A		
Loss of Westshore Surf Club/relocation	\$685	36%	
Decline in cyclists using Westshore to Bay View track	N/A		
	<b>\$1,881</b>		

## Appendix Four

### Selected sectional maps of Ahuriri/Pandora, Westshore, Bay View and Whirinaki

The maps show projected coastal erosion and inundation risk under specified AEP events for present day.

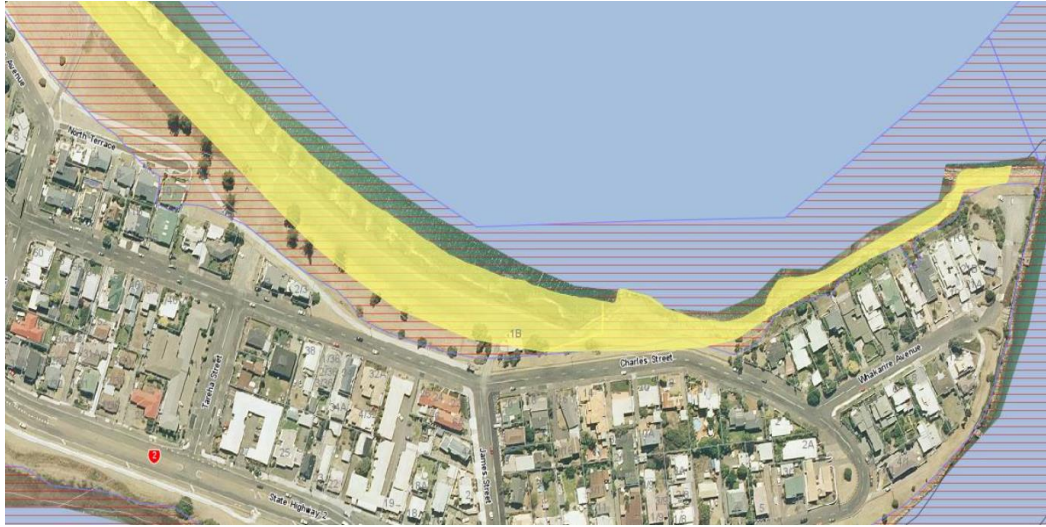
North Shore Rd, Whirinaki



Le Quesne Rd, Bay View



Charles St and North Terrace



Hardinge Rd.



Napier Sales Club area



## Acknowledgements

Maven would like to extend its appreciation and thanks to all those involved in this study:

Residents and stakeholders from Ahuriri/Pandora, Westshore, Bay View and Whirinaki who have been generous with sharing their time and knowledge about the area, providing background material and feedback;

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