



Meeting of the Clifton to Tangoio Coastal Hazards Strategy Joint Committee

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

Attachments Excluded From Agenda

| ITEM | SUBJECT | PAGE |
|------|--|------|
| 8. | Stage Three: Progress Report | |
| | Attachment 2: Cape Coast Area Coastal Hazards Social Impact Assessment & Valuation | 2 |

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**FINAL DRAFT – NOT
FOR PUBLICATION**

Cape Coast Area Coastal Hazards Social Impact Assessment & Valuation

Maven Consulting Ltd | www.consultmaven.co.nz | February 2017

Cape Coast Area Coastal Hazards – Social Impact Assessment and Valuation – Draft for Discussion Only – Not for Publication

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Submitted: 17 February 2017

Version: 6.1



Joint Councils
Clifton to Tangoio Coastal Hazard Strategy

C/- Hawke's Bay Regional Council
159 Dalton Street
Napier 4110
Attention: Michael Adye, Chairperson: Joint Committee

IMPORTANT NOTICE

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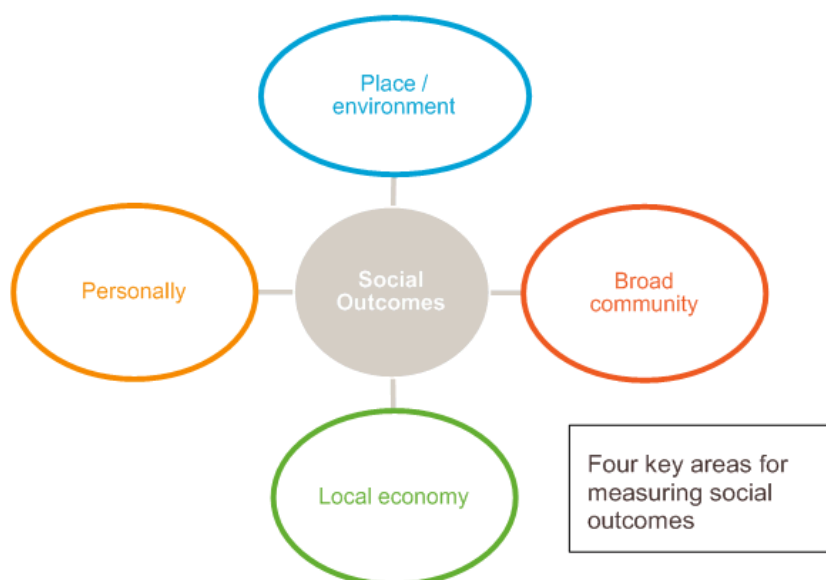
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1.0 PART ONE - Synopsis

This study considers the social impact of coastal hazards on the Cape Coast community over the next five years, assuming a Status Quo scenario. The projected social outcomes are valued using financial proxies and value mapping to estimate a social cost to the community if that scenario materialised.

Cultural impacts for tangata whenua that arise from coastal hazards are not addressed in this report. They will be considered separately by an evaluation panel as part of determining an overall appropriate adaptation response.

Valuing social outcomes is by no means a precise science. But estimating a monetary value helps decision makers to consider adaptation responses that are economically consistent with social outcome costs, and how best to apportion the adaptation costs between public and private benefit in accordance with the requirements of the Local Government Act.



To develop the social impact story for the Cape Coast community, interviews were conducted with around forty local residents and stakeholders during December 2016. A range of background reports and data was also gathered and merged into the overall analysis.

The Cape Coast is a vibrant community of around 2,300 residents living in the two main settlements of Te Awanga and Haumoana. The former settlement is undergoing a level of gentrification as newly retired professional people or alternative lifestyleers move into the area from larger cities, in pursuit of a coastal lifestyle. Haumoana is a settlement more characterised by families who have lived in the area for generations. There are also a significant number of creative people (artists, sculptors and the like) living in Haumoana.

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The area has a long European history dating back to Cook's first voyage in 1769, and as one of the first settlements in Hawke's Bay. It is currently home to a number of notable wineries, a world-renowned gannet sanctuary, and the internationally acclaimed Cape Kidnappers golf course and accommodation. Camping grounds and freedom camping sites add to the area's attractiveness to visitors from outside the region.

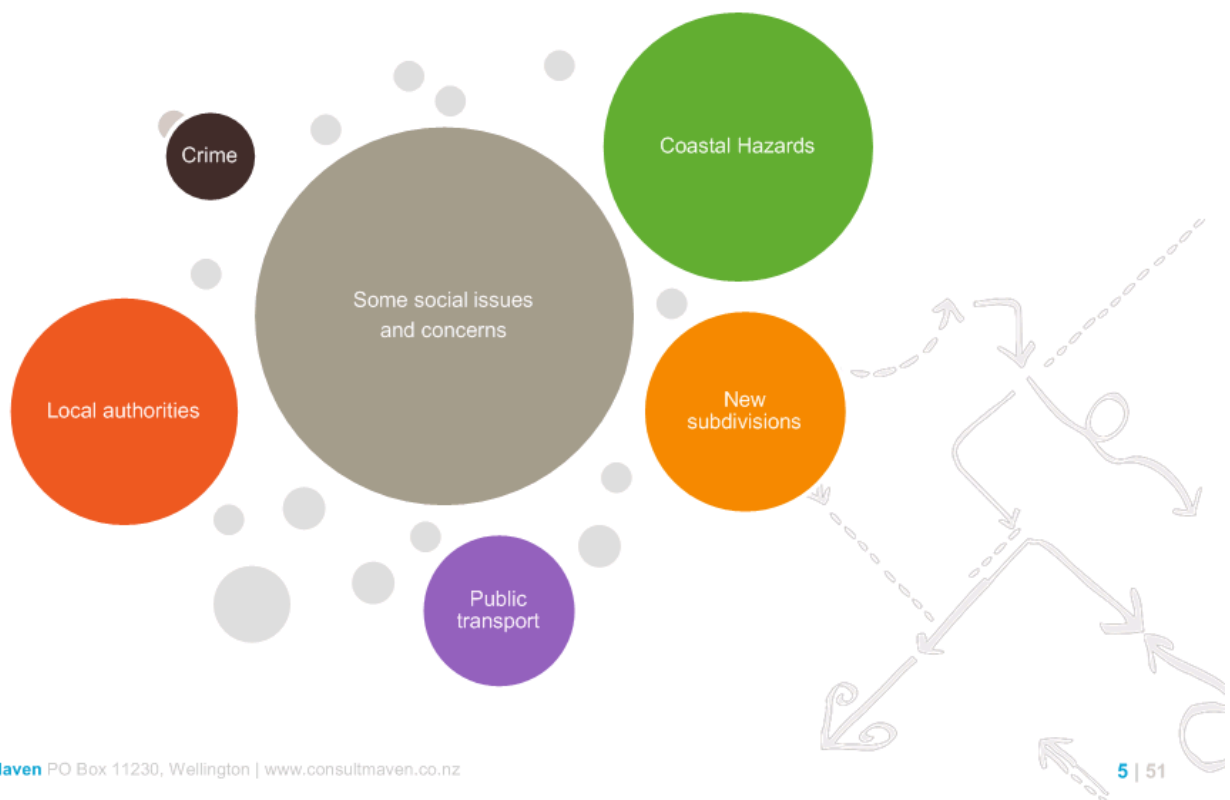
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Why Cape Coast people like the area as a place to live

- Slice of paradise – a coastal lifestyle with all the recreational benefits of living near the sea
- Relaxed lifestyle – carefree culture – perfect place for raising kids and retirement
- Great community atmosphere, neighbours are friendly. They trust, and look out for each other
- Safe and secure, quiet, peaceful – separated from the busier inland urban and city areas
- Wonderful climate – cooler in summer, warmer in winter
- Resilient community – self-sufficient lifestyle
- Local schooling is excellent

The area's relative isolation from the main communities of Napier and Hastings adds to people's sense of self-reliance which, in turn, fosters strong support for each other and active social networks.

Based on interviews with people in the area, the main social issues and concerns are considered to be:

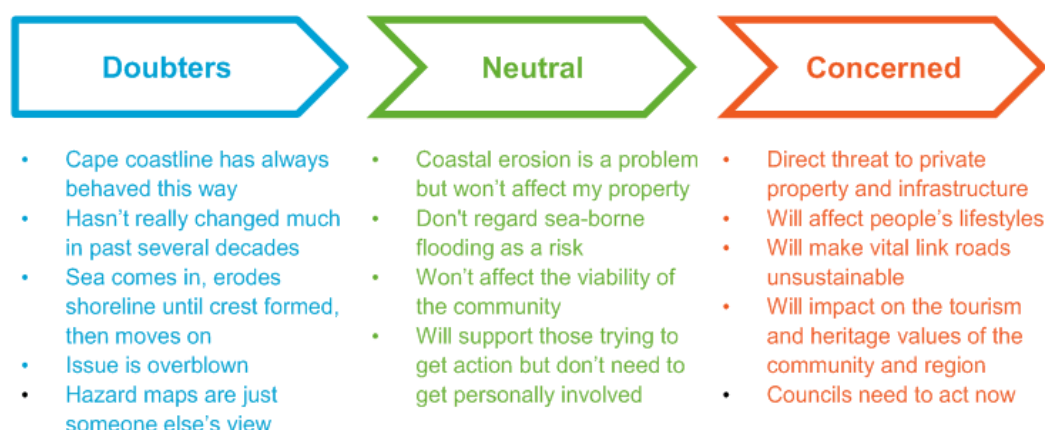


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Unsurprisingly, interviews demonstrated that the community is made up of people from diverse backgrounds with different experiences of living in the area. They often hold alternative and conflicting views about coastal hazards and what they expect will be the social outcomes if the projected effects of coastal hazards such as erosion and inundation on property and infrastructure eventually become a reality.

An overview of these views might be shown in the following diagram:

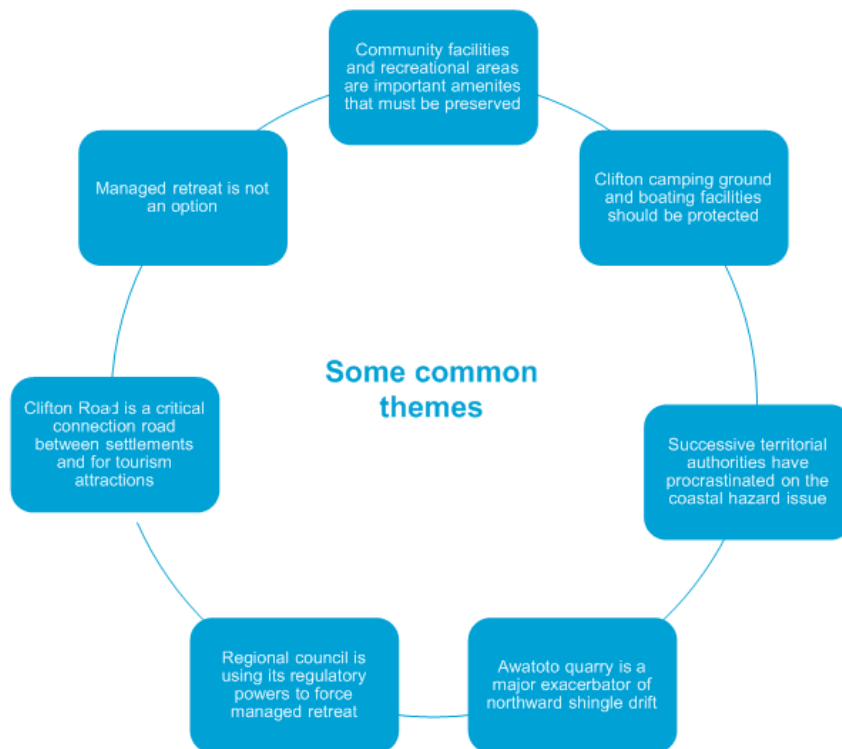


More generally, responses also suggested that the prospect of increasing areas of sea-borne flood inundation from sea level rises and storm surges is perceived as less threatening to the community than coastal erosion. Reasons for this are considered to include that:

- In contrast to occasional flooding, coastal erosion is highly visible and permanent;
- An event with a 1:100 AEP is interpreted as meaning a flood that occurs once every hundred years. Over any property owner's lifetime this is regarded as a remote risk ;
- Living near water carries inherent flood risk, which, while likely to cause damage, is temporary in nature and more than offset from the benefit of a coastal lifestyle.

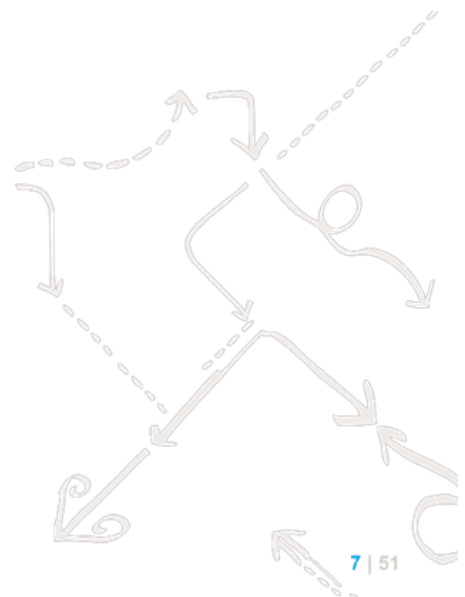
Nevertheless there was widespread consensus on some issues.

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Social impacts and outcomes are considered under a Status Quo scenario which extends over the next five to ten years. The scenario is based on coastal erosion and inundation processes “Present” risks in accordance with Coastal Hazards 2015-2025 Study (Tonkin and Taylor 2016) and associated mapping.¹ Based on probabilities and AEP events discussed in the study, the Status Quo scenario is considered to be a pessimistic, but not unrealistic impact over the next five – ten years.

¹ See Appendix Four



Status Quo scenario

- 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;
- 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;
- As Clifton Road becomes increasingly unreliable as a through-road for access to Te Awanga and Clifton settlements, an alternative access road to the two southern settlements is constructed by way of an extension to Parkhill Road²;
- A replacement boat ramp near Clifton is constructed to maintain a useful marine safety facility and for recreational marine use in the region³;

Present Day through Ten Years

| Output (Impact) | Outcomes |
|--|---|
| Coastal private property | |
| <p><i>Present day through ten years:</i></p> <p>Coastal erosion will likely destroy, or make continued occupation of some houses near the beach front uninhabitable.</p> <p>Some coastal Haumoana properties will experience increased inundation risk from 1:100 AEP events arising from sea level rise and storm surges.</p> <p>Most of the original Te Awanga settlement will experience increased inundation risk from 1:100 AEP events arising from sea level rise and storm surges.</p> | <p>Private property owners, their families and neighbours will experience decreased well-being (increased anxiety / concern, etc.) driven by:</p> <ul style="list-style-type: none"> • Non-availability of mortgage finance; • Insurance exclusions or refusal of cover; • Falling resale values (or even non-saleability); • Fear of major structural damage (perhaps irreparable after flooding events); • Risks to personal safety in extreme events; and • Inability to implement mitigation or protection works because of regulatory obstacles. <p>Septic tank systems in affected properties may begin leaching wastewater into coastal sea areas.</p> |

² This solution was previously contemplated in Statement of Proposal – Sustainable Long Term Solutions to Coastal Hazards at Haumoana – HDC 2011 – so is seen as a realistic possibility.

³ This option is discussed in the HDC Paper – Clifton Revetment Options – presented to the Council on 15 December 2016 as an alternative to preserving the existing Clifton Camp Ground and Marine Club amenities.

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| Clifton Road | |
|--|--|
| <p>Present day through ten years:</p> <p>Parts of Clifton Road will experience increased inundation risk from 1:100 AEP events arising from sea level rise and storm surges making the road impassable for periods.</p> <p>Ten years and beyond:</p> <p>Parts of Clifton Road (especially around Beach Road and East Road intersections), will cease to exist as coastal erosion encroaches.</p> | <p>People in the community and from further afield would experience:-</p> <ul style="list-style-type: none"> • No access to the only food market in the area. • The Clifton Road foodmarket (and associated bar / café etc.) would likely have to close, or relocate. • Curtailment of freedom camping on Clifton Road Reserve and at Clifton Beach. • Curtailment of cellar door access to wineries along Clifton Road. |
| Clifton Reserve | |
| <p>Present day:</p> <p>Clifton Motor Camp (No.1) and Clifton Marine Boating Club will not be viable as erosion eventually reclaims the underlying land.</p> <p>Closure of No. 1 Motor Camp means that No.2 would also need to close since water supply, power and camp manager housing is sourced at No. 1.</p> | <p>People in the community and the wider region, and tourists would experience:-</p> <ul style="list-style-type: none"> • Loss of available camp ground accommodation at Clifton. • Disruption to beach-based tractor safaris to Cape Kidnappers (until existing boat ramp is deconstructed). |
| Haumoana Domain | |
| <p>Present day through ten years:</p> <p>Parts of the Domain are and will be subject to continuing erosion (mostly the southern end affecting Clifton Reserve freedom camping ground).</p> <p>Much of the domain will be inundated in a 1:100 AEP storm event arising from sea level rise and storm surges.</p> <p>Ten years and beyond:</p> | <p>Fewer sites available for campervan tourists (already identified above in Clifton Road impact).</p> <p>Flood event caused by storm surge will mean domain is inaccessible to the community and visitors for short periods during flood and clean-up.</p> <p>Continued flooding may put at risk areas that are deemed to have important ecological values.</p> |

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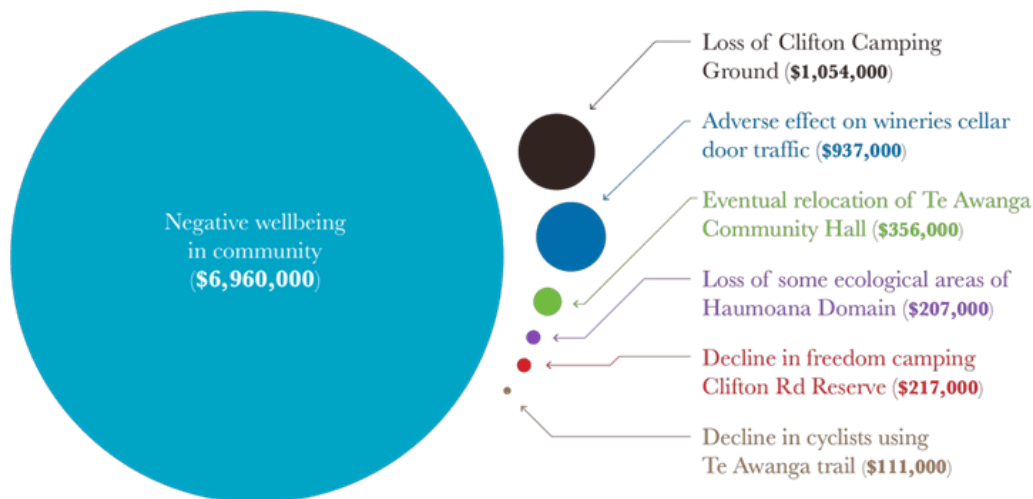
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| | |
|---|---|
| <p>Further coastal erosion will encroach onto the Clifton Reserve camping ground removing camping sites.</p> <p>All of the Domain would be inundated by a 1:100 AEP storm event arising from sea level rise and storm surges.</p> | |
| Te Awanga Domain | |
| <p>Present day through ten years:</p> <p>Parts of the Domain are and will continue to be subject to coastal erosion affecting reserve land but not buildings and playgrounds.</p> <p>The reserve is, and will be subject to inundation in a 1:100 AEP storm event arising from sea level rise and storm surges.</p> <p>Ten years and beyond:</p> <p>Coastal erosion is projected to move further into the Domain rendering community facilities non-viable. Erosion is projected to reach the banks of the domain lagoon.</p> | <p>Eventually, residents would lose access to the community hall and playground / recreational facilities in the Domain.</p> |
| Cycle Trail | |
| <p>Present day through ten years:</p> <p>Coastal erosion could remove parts of the Kidnappers Coast cycle trail along Beach Road.</p> <p>All of the cycle trail from Haumoana to Te Awanga would likely be inundated in a 1:100 AEP storm event arising from sea level rise and storm surges.</p> <p>Ten years and beyond:</p> <p>Parts of the cycle trail would cease to exist along Beach Road, northern parts of Clifton Road and through Te Awanga Domain as a result of coastal erosion.</p> | <p>Number of recreational walkers and cyclists using the trail would decline as sections of it became less viable.</p> <p>Cellar door sales at wineries would be affected by decreasing cyclist patronage.</p> <p>Local cafes and shops would be affected by declining recreational walker and cyclist patronage.</p> |

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A valuation of these outcomes suggests there will be a social cost of between \$6.3 and \$9.8 million (in net present value terms) spread over the next five years. The range of costs is driven by how much the community perceives future storm surge flooding and inundation (as opposed to coastal erosion) as a real risk.

At the higher limit, the social cost over the next five years is attributable to each of the assessed outcomes as follows:



The largest proportion of social outcome is attributable to negative wellbeing amongst those residents whose properties are most at risk to the threat of coastal hazards. This negative wellbeing is a function of anxiety and concern caused by:

Causes of negative wellbeing amongst Cape Coast residents exposed to coastal hazards

- Current and future insurability of homes (excesses, exclusions, and eventual refusal to provide cover);
- Ability to raise mortgage finance (which is directly related to insurability);
- Future saleability of property as hazards increase;
- Physical damage caused by erosion or storm events; and
- Perceived "oppression" by territorial authorities using regulatory powers to force retreat as the only option.

Projected negative social outcomes for the local economy, public amenities and tourism under the status quo scenario (around \$ 2.9 million NPV spread over five years) suggest that future costs of mitigation should be more widely spread amongst regional or district ratepayers to protect, or replace, assets and infrastructure at Clifton Reserve (which is also a non-profit making Trust structure that helps to maintain access to the existing Marine boat ramp), and, for tourism and visitor purposes, to maintain the viability of Clifton Road for as long as possible before it becomes unsustainable.

One emerging theme from interviews and discussion is that private property owners do not necessarily expect that a wider ratepayer group should fund significant capital expenditure to protect the private coastal homes and properties of those directly at risk. Most accept that living in a coastal setting brings with it a collateral responsibility to protect their property from the natural hazards present in such an idyllic location. But they do consider that the local authorities have procrastinated over many years, removed defensive structures that might otherwise have been effective, and used regulatory powers to prevent them from taking those actions they feel would have, or could still protect their properties from erosion or flooding.

The situation is difficult for both parties, but one interviewee suggested that there was a need for greater collaboration and for both sides to set aside entrenched views. In this respect some interviewees held out positive hope for the forthcoming multi-criteria evaluation panel process which will involve community representatives, and of which this study will form an integral part.

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2.0 PART TWO - 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 flooding⁴ arising from sea level rises and climate change projected between now and 2120.

This work has now advanced to a point where adaptation strategies need to be settled upon and implemented, commencing 2018, for priority areas. These areas include the Cape Coast settlements of Clifton, Te Awanga and Haumoana.

Decisions on adaptation strategies will be made by evaluation panels that include community representatives as well as other stakeholders. The panels will consider and weight a range of criteria to determine an optimal adaptation response for geographically based coastal units (sometimes referred to as cells) as defined by Tonkin and Taylor⁵, along the coastline.

One important input to the panel's decision making is the social impact that erosion and flooding hazards impose on affected coastal communities.

Social impact on coastal communities influences adaptation strategies in two ways. Firstly, if the impact was especially high, then it might encourage decision makers more 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 for a wider community such as the district or region, 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 their work on the Coastal Hazards study, Joint Councils have received feedback from various stakeholders that an understanding (and measurement) of social impact is a critical factor that has perhaps been neglected, or received only passing acknowledgement in the past.

This study (and future ones focussing on other coastal cells) aims to redress that perception. Its purpose 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
- An estimated monetary value on those outcomes using contemporary social impact measurement methodologies.
- A key input to multi-criteria analysis by the evaluation panels for better decision making.

⁴ 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.

⁵ Clifton to Tangoio Coastal Hazards Strategy 2120: Coastal Hazard Assessment. Tonkin & Taylor, May 2016

3.0 Methodology

The main input for this report comes from a series of interviews with approximately forty Cape Coast residents, interest groups, and non-residents. In the latter case, their interest in Cape Coast social impact issues derives from working within the community or having business interests and development projects in the area.

These interviews were conducted 5th – 16th December 2016. Some interviewees were directly approached by Maven because they are active community spokespeople or previous submitters who were thought likely to hold strong and informed views and perspectives on the social impact of coastal hazards. Another group of interviewees requested a meeting with Maven as a result of a series of public meetings held to discuss the evaluation panel process described above, during which people were invited to contribute to the social impact study.

Interviews were conducted on a semi-structured basis and broadly followed the discussion topics that are attached to this report as Appendix One.

The interviews focussed on the positive features and values of living in the Cape Coast area, the wider social issues that challenge the community, and, especially, how people perceived the risk of coastal hazards to the community.

The focus of the interview process was to gain a view from respondents of how things might change in the Cape Coast Community, in the short, medium and long terms, with ongoing erosion and flooding hazards in the area and no human intervention to mitigate that risk - a “status quo”, five-ten year scenario described in more detail later.

Maven utilised a series of maps for sections of the shoreline and surrounding areas showing the potential extent of coastal erosion and inundation over the next 100 years⁶. These were used as appropriate during meetings to assist discussions and are attached as Appendix Four.

Aside from the interview process Maven researched a number of past reports and background information to support the conclusions in this study. We acknowledge the support and assistance of HDC officials and Councillors in providing a lot of this material. We also acknowledge the assistance of a number of residents in the area who provided a range of background material and data to assist the process.

To confirm that the assumptions used in the Status Quo scenario and the projected social outcomes from this scenario accurately reflected our consultation process, Maven invited all participants to attend a follow-up meeting in February 2017 where the findings⁷ were presented. Apart from some (mainly minor) changes the participants confirmed that the work reflected their views of social impact and outcomes fairly and reasonably.

The available time to complete the study did not permit a quantitative survey of the whole community to better contextualise coastal hazards amongst other social issues in the Cape Coast area. However, some comfort is provided by the following graph which is based on 3,500 social media posts from within the area collected from 2010 onwards. Most comments are recent (40% in 2016 and 10% in 2015).

⁶ Ibid

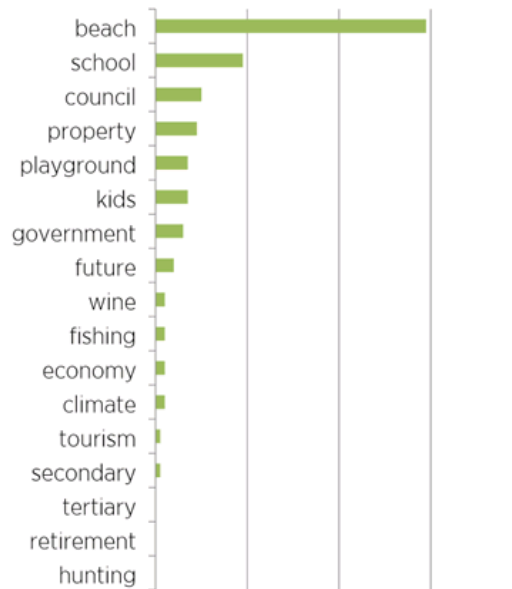
⁷ Valuations of outcomes were not discussed at this meeting.

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The graph shows that “beach” issues command three times as much focus as the next most important topic, at least amongst those in the community that use social media.

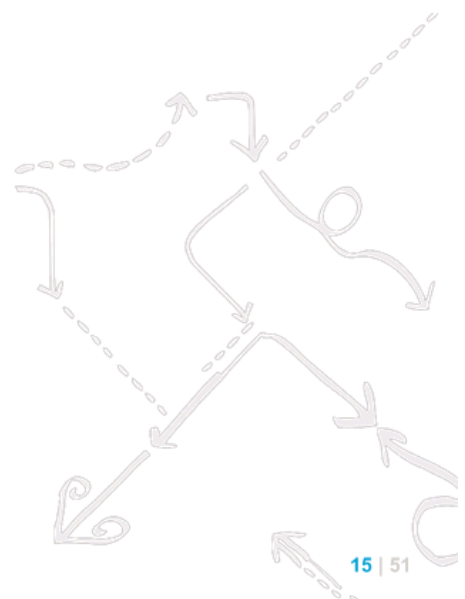
Relative Importance

Looking through over 3.5k social media posts from Coast residents on pages, here is how often topics appear through that content



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Source: Dot Loves Data – Survey commissioned by Maven in December 2016



4.0 Background – Cape Coast

Past papers and reports have provided detailed analyses of demographic data, geographic, infrastructure and amenity descriptions of the Cape Coast area⁸. In this study, key information is summarised below with a more detailed emphasis on aspects which are directly relevant to coastal hazards and their effect on the community.

A concise description of the three distinct settlements is contained in the HDC Cape Coast Community Plan (2014) extracts of which are as follows:

Haumoana and Te Awanga

- Formerly a settlement of baches that has developed over a long period of time in a linear pattern along the shingle crests of the coastal strip.
- Over the years larger dwellings have been built and some commuters have chosen these coastal settlements in preference to the main centres.

Haumoana

- Located just south of the Tukituki River outlet; 12km south of Napier; and 10km east of Hastings.
- Approximately 430 dwellings within the Haumoana settlement.
- Serviced by a play centre, a church, a general store, two takeaway shops, a licensed bar, a hall, a volunteer fire station and Memorial Park.

Te Awanga

- Coastal community located approximately 12km south east of Hastings; just south of Haumoana.
- Adjacent to the Maraetotara Lagoon and river mouth. The Maraetotara River and coastal wetlands have conservation values and there are archaeological sites in the area.
- Population slightly smaller than Haumoana with approximately 310 households.
- Three wineries located on Clifton Road between Haumoana and Te Awanga. Two of these wineries (Elephant Hill and Clearview) have well established restaurants. Te Awanga Estate offers platters and tastings over summer.

Clifton

- Located 18 km southeast of Napier and 8km west of the tip of Cape Kidnappers.
- A very small settlement - mostly a farming community with two motor camps and a large café.
- One of the motor camps is located on Clifton Reserve⁹, managed by the Clifton Reserve Society. This reserve is owned by the Department of Conservation and administered by HDC.

⁸ See for example, Cape Coast Master Plan 2050 Stage One Stocktake (November 2014), Cape Coast Reserves draft management plan, Hastings District Plan (2013) all of which describe in detail the nature of the three settlements and the recent development of the area.

⁹ Other information suggests that both motor camps are located on Clifton Reserve.

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- Nearest settlement to Cape Kidnappers which has the world-renowned gannet bird colony.

The following map illustrates where the three settlements are located.



Source: www.hbviewer.intramaps.co.nz

Some recurring themes from Maven's interviews can also be observed on the above map.

- The Cape Coast area is geographically bounded and separated to the east by the sea, north and west by the Tukituki River and to the south by a high plateau area between Clifton and Cape Kidnappers. The Black Bridge on Mill Road provides almost the only vehicular and cycling access to the area from other parts of Hawke's Bay.¹⁰ This topographical separation adds to the community's sense of unique identity and solitude which is discussed later.
- The only access to Te Awanga and Clifton is via Clifton Road. This road begins at the conjunction of East Road and Beach Road. The intersection is (unless new access roads can be formed) a critical junction for vehicles and cyclists travelling south to Te Awanga and Clifton (including accessing Cape Kidnappers) since, as discussed later, its viability is very exposed to near-term coastal erosion. The map also shows an extension of Parkhill Road to join up with Te Awanga, but this is actually an unformed legal road. The importance of Clifton Road is discussed further later.

¹⁰ The other much-less used access point to Cape Coast is the Red Bridge over the Tukituki River some 12 – 15km further south along Tukituki Road.

- Two major rivers (the Tukituki at Haumoana, and Maraetotara at Te Awanga) form an integral part of the settlements and both have been subject to previous large river-borne flood events, giving rise to historical protection works for some of the low lying areas.

A summary of key demographic characteristics and other metrics for the Cape Coast area is provided in the following table. The data is sourced from the 2013 census.

| Metric | Data |
|--|--|
| Total area | Around 2,700ha |
| Residential use | Around 130ha |
| Residential population | 2,271 people (3.1% of Hastings total population). |
| No of dwellings | 1,000+ (range is from seaside batches to sizeable homesteads) 430 houses in Haumoana 310 houses in Te Awanga |
| One family households | 72% of all households |
| One-person households | 189 – average household size is 2.5 people |
| Owner-occupied dwellings | 72.8% of dwellings (compared with 66.4% in Hastings District as a whole) |
| Median weekly rental | \$280 |
| Business locations | 291 (compared with 8,862 in Hastings District) = 3.2% |
| Estimated number of vehicles owned by private residents | 1,895 ¹¹ |

Anecdotally, comments from some interviewees would suggest that the number of vehicles per dwelling has increased since the 2013 census. Additionally, the view was expressed that as property values have escalated over the same timeframe, the weekly median rental has increased to the point where rental accommodation has become increasingly inaccessible to lower income families.

¹¹ This estimate is imputed from 2013 census data which provides the number of vehicles by percentage for private dwellings in the area. A base figure of 1000 households has been used (even though some were unoccupied).

5.0 History of the area

Several interviewees considered that Cape Coast history has sufficient importance and uniqueness to justify greater recognition by councils, and preservation as a unique Hawke's Bay tourist attraction. A heritage project is being developed by a number of local residents who are using their own resources and innovation to build a detailed history, map and "story-build" for the area with plans for a highly interactive experience for tourists visiting the area¹².

Residents expressed the view that the importance of heritage and history should be incorporated into a social impact review because:

- Some of the key historic sites (or access to them) might be lost by the impact of coastal erosion and increased inundation from storm surges and sea level rises; and
- Unprotected coastal areas and a general neglect of the area would give the impression to visitors that the historical significance of the Cape Coast was not perceived as particularly important either regionally or nationally.

A brief synopsis, as well as specific sites that may be relevant to coastal hazard issues, is set out below.

It is noted however, that this section excludes whakapapa, cultural history and significance of the area for tangata whenua. As described earlier, cultural impacts are matters of importance in their own right to be considered separately by the evaluation panel in its decision making on coastal adaptation strategies.

- People are believed to have traded and practiced agriculture at Te Awanga for over 900 years, long before the 1350AD Maori immigration from Polynesia.
- The Maori name for Cape Kidnappers is Te Matau a Maui (the fish-hook of Maui) while the European name refers to an incident during Cook's first voyage in 1769 when an attempt was made to trade with the occupants of an armed canoe.
- In the Clifton area, the Gordon family established Clifton Station in 1859 (originally 13,500 acres purchased from the Crown and stretching from Cape Kidnappers to Ocean Beach). Timber and prefabricated teak house blocks for the homestead were landed by barge. The original homestead still stands near the entrance to Clifton Camping Ground (No. 1) and has been owned by the family through four or five generations. Clifton Beach and the gannets reserve were both gifted by the Gordon family to the Crown. The present owner has played an important role in attempts to maintain the viability of the coastal access road to the camp ground, an issue which is discussed later.
- The main whaling station, Rangaika, was established south of Cape Kidnappers from the early 1840s but often short term camps were set up at Te Awanga and Clifton when whales were driven into or beached there.
- The European settlement history of the township of Te Awanga began to take shape in the 1880s. The sheltered sandy bay, ocean reef and freshwater Maratetara River attracted squatters, holiday makers and fishermen who built baches, and formed roads and

¹² Maven acknowledges the support of this group of residents, along with the Hawke's Bay Heritage Trails group in providing some of the historical material in this section.

walkways. Most of the old part of Te Awanga had been subdivided and sold off by 1914. The beach front sections north of the present domain were developed in the period between the first and second world wars.

- From 1912, the river mouth, ocean and Maraetotara Lagoon attracted up to 500 “surf-bathers” and picnickers on summer weekends with horse and gig operators bringing people from Hastings.
- In 1919, pioneering settlers, the Burden family, purchased the land for the popular campground bordering the Maraetotara stream and lagoon. The family also later established the popular “Burden’s beach-bomb” excursion which ferried visitors and holidaymakers on tractor and trailers from Te Awanga motor camp to Cape Kidnappers gannet sanctuary.
- In the 1960s, development began to the west of Clifton Road with the Gordon road subdivision. Further development occurred in the 1970s and 1980s to the land west of the sections fronting Clifton Road.
- Haumoana was part of runholder Joseph Rhodes station, Clive Grange. Around the turn of the 19th century parts of the station were sold to James McFarlane and Walter Shrimpton who each eventually subdivided their farm properties into sections to form what is now Haumoana village. The first town sections were sold in 1907. The area became a popular recreational and camping spot with Hastings residents in the 1900s.
- A memorial arch and pavilion were erected at the Haumoana Memorial Park in 1956. Renowned New Zealand architect, John Scott, whose birthplace was Haumoana, donated his considerable design skills to this project. The community considers the archway and the pavilion to be unique and appropriate for the seaside community. The Scott family continues to have strong links to the Haumoana area.
- Since the 1990s land surrounding the township has changed from sheep and cattle grazing to vineyards and lifestyle blocks.
- The original one-lane Black Bridge was built in 1888 for livestock droving from the isolated coastal area. The bridge was expanded in 1920 to a one lane motor vehicle access and the present bridge was completed in 1959.



6.0 Infrastructure

A brief overview of infrastructure that is considered relevant to this social impact study follows:

- Te Awanga and Haumoana are serviced by a public reticulated water supply but rely on on-site wastewater disposal which can cause problems in low-lying areas subject to flooding and /or inundation by the sea. From the interviews, it is understood that the septic tanks on private properties are subject to re-consenting (at a cost to the owner) every ten years.
- Haumoana School is the only primary school in the community. It is a Decile 7 contributing co-ed school with a roll of between 160-180 pupils, and a staff of 9 full-time teachers. 25% of the children identify as Māori and there is a strong school affiliation with the local Matahiwi Marae and Ngati Hawea hapu. It is understood that the school is well regarded in the wider area, and that approximately 25-30% of the roll commutes from Havelock North and Hastings. The school, along with the adjoining Te Awanga kindergarten, are located on Raymond Road off Parkhill Road, which is an elevated level well away from the threat of any future coastal hazards.
- High school students are bussed from the area each day to high schools in the Hastings or Havelock regions. A similar service operates to transport Rudolph Steiner students.
- There is no public transport service.
- There is no community police station. A community police station in nearby Clive that serviced the Cape Coast area was closed down in May 2015.

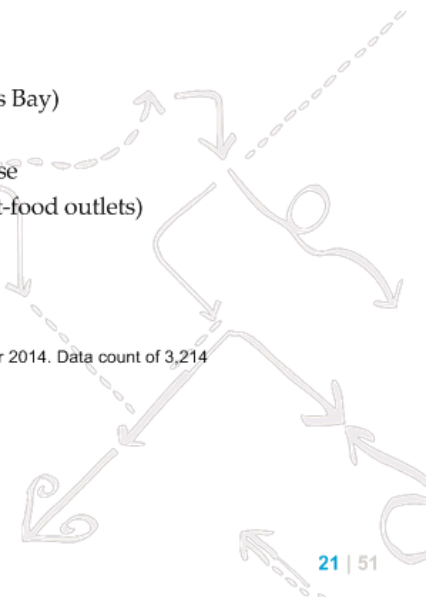
6.1 The significance of Clifton Road to the Cape Coast

Of significant relevance to the social impact of coastal hazards is the link provided by Clifton Road. The road is estimated to have a total average traffic volume of 3,200 vehicles per day in the peak summer season.¹³ Some of the main attributes arising from discussions with interviewees and other research appear to be:

- It provides the only link between Te Awanga and Haumoana as well as other residential enclaves located to the north and west.
- Clifton Road provides the connection to:
 - The internationally acclaimed Cape Kidnappers golf course and its five star accommodation and restaurant facilities.
 - Clifton Motor Camp
 - Clifton Marine Club (one of only two slipway boat ramps in Hawke's Bay)
 - Tourist attractions of Cape Kidnappers and the gannet sanctuary
 - Three important wineries – Elephant Hill, Clearview and Beach House
 - The only food market in the whole area¹⁴ (with adjoining bar and fast-food outlets)
 - Freedom camping grounds
 - Te Awanga Motor Camp

¹³ TDG Report to HDC on the traffic effects of the proposed Te Awanga Terraces subdivision – September 2014. Data count of 3,214 vehicles took place in the week between 2nd and 9th February 2014.

¹⁴ Although there is a smaller general store in Haumoana village.



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- Te Awanga Domain and Clifton Domain
- Te Awanga Point reef surf break for regional surfing enthusiasts
- The road has an adjoining recreational cycleway which forms part of the Hawke's Bay cycle trails network.



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7.0 Parks and Reserves

There are ten reserves in the Cape Coast area which have national, regional, district and / or local functions¹⁵.



A brief description of those considered relevant to coastal erosion and inundation hazards is as follows:-

¹⁵ The information in this section relies heavily on the Cape Coast Reserves Draft Management Plan - November 2016

Haumoana Domain

- The largest and most important of the ten reserves. Extending from the Tukituki River to Te Awanga, the 35ha reserve covers 4km of the coastline.
- The Domain lost mature trees and a camp ground to early coastal inundation and flooding but current stopbanks and pumped outfall are considered to be controlling the flooding risk. HBRC manages the pumped outfall behind the shingle ridge as part of its wider rural network in Haumoana) the catchment of which extends to the Domain's two lagoons and up to Beach Road.
- The lagoons and saline wetlands are considered (by HDC officials) to have key ecological values¹⁶.
- Public use of the Haumoana Domain (including the Clifton Road reserve area) is strong. It is an important tourism and local recreation destination.



¹⁶ Ecological value is defined (by the USDA) as being the "worth attributed to an organism, ecosystem, product, resource or activity, in terms of benefits to the environment". "Worth" is seemingly a matter of judgment left to ecologists.

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Te Awanga Domain

- This domain includes the well-utilised community hall and runs out to the Te Awanga “point” surf break. The domain includes a lagoon and waterway and is considered (by HDC officials) to be a key scenic feature reserve of the Cape Coast.



Te Awanga Domain Lagoon



Te Awanga Domain



Te Awanga Community Hall

Clifton Domain

- This domain is divided into two areas either side of the end of Clifton Road. The reserves are leased to Clifton Reserve Society Inc. The society runs a motor camp on both reserve areas and sub-leases land to the Clifton Marine Club Inc which has clubrooms, a slipway, and boat storage.
- Marine club members estimate that aside from their recreational activities, they are also involved in several rescue incidents each year where, for example, boats have got into difficulty or coastal walkers need to be rescued from encroaching tides. These incidents are seldom, if ever, reported.
- Issues of coastal erosion and the sustainability of access to the No. 1 camping ground and marine club have reached a critical stage and are the subject of a proposal before the HDC to build a revetment wall and widen the existing road to allow continued usage. This is discussed later.



Clifton Domain

8.0 Wineries, tourism and recreation

The Cape Coast area has transitioned over time from pastoral farming to cropping, orchards and market gardens. There has also been a burgeoning viticulture industry supported by the climate and stony river gravels.

- The first winery was established by pioneering winemaker Anthony Joseph Vidal, an immigrant from Spain, who moved to Hawke's Bay in 1905, creating several vineyards. In 1913 he established Vidals, Te Awanga, which is now the site of the award winning Clearview Winery owned by industry identity Tim Turvey which commenced in 1989.
- The Weiss family established Elephant Hill in 2003, notable for its spectacular architecture set back, but highly visible from Clifton Road.
- A boutique winery, Beach House, is also located on Clifton Road, while noted Hawke's Bay winemaker Rod McDonald operates a cellar door and vineyard at Te Awanga Estates on Parkhill Road.
- Each of the wineries benefits from cellar door traffic and it was noted by one owner that there has been an unexpected input to this trade from recreational cyclists using the nearby cycle trail. A wine industry focus group suggested that cellar door turnover from vehicular traffic or cyclists visiting may account for as much as 25% of total revenue from one to another. (Some also offer café / venue facilities).



Elephant Hill Winery which looks out over Clifton Road

Discussions with winery owners and other stakeholders suggested they would be largely unaffected by coastal hazards except perhaps for the following potential impacts on their business operations:-

- Cellar door sales would be unaffected unless Clifton Road became inaccessible. However, each of the Clifton Road wineries appears to have the capability to develop new cellar door access off Parkhill Road if that became necessary in the future.
- The spectacular Elephant Hill frontage architecture would be lost to visitors who now drive up to the cellar and restaurant from Clifton Road.
- The wineries have some reverse sensitivity issues if neighbours seek to build or relocate closer to the higher plateaus on which the vineyards are located – these are specifically spraying activity and bird scarers. However, this was not thought to be a major issue for the future.

Aside from the presence of attractive winery destinations, tourism in the Cape Coast area is also driven by the presence of the gannet sanctuary, wildlife tours, golf, cycling, surfing, fishing, camping areas, B&Bs and holiday accommodation and other attractions.

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Te Awanga also has an important surf break point near the camp, which, when south-easterly sea conditions prevail is keenly sought after by surfers. Residents consider this is a major recreational attraction for surfing enthusiasts across the Hawke's Bay region.

Interviewees also noted that the Cape Coast area is increasingly hosting summer concerts, notably the Summer Series held at Te Awanga Estates Winery.

The Hawke's Bay Heritage Trails society has provided Maven with a schedule of Cape Coast heritage sites that might ultimately be affected by coastal hazards such as erosion and sea level rise combined with storm surges and flooding. Other than those already identified above, these include:

- No 9 Haumoana Road - The Clive Grange
- British Car Museum
- Haumoana Zoo
- Clifton Wool World

So far as it is possible to predict, none of the above sites appears threatened or likely to be affected by falling patronage under the Status Quo scenario that is the subject of this study.

At Cape Kidnappers there is unique five star luxury lodge accommodation, award winning golf course and spa treatment facilities. Cape Kidnappers is also a member of Relais and Chateaux, an exclusive collection of the finest hotels and gourmet restaurants in the world. These facilities and destinations would not be affected provided that a connection road to replace Clifton Road was eventually built.

Regretfully, there is little available data to quantify the importance of tourism to the economy of Cape Coast area and Hawke's Bay generally. Nevertheless, Maven has gathered (or imputed) some metrics from anecdotal and other research information which are set out in the following table.

| Some Estimated Tourism Data | |
|---|--|
| Cyclists using the Te Awanga trail each year ¹⁷ | 15,500 (Calendar Year 2014) 17,000 (Calendar Year 2015) |
| Visitors travelling out to Cape Kidnappers along the beach on tractor tours | 10,000 – 11,000 per annum ¹⁸ |
| Visitors travelling overland by 4WD gannet safaris | 10,000 per annum ¹⁹ |
| Number of bed nights available at Clifton Motor Camp per annum | 16,500 ²⁰ |

¹⁷ Data counts provided by HBRC. While it is not clear from the data count information, it is assumed that the count represents cyclists travelling both directions and the total number has therefor been halved to arrive at an estimated head count.

¹⁸ Estimate by business owner

¹⁹ Estimate by business owner

²⁰ From HDC Council meeting papers – Clifton Revetment option - 15 December 2016



In addition to the above metrics it was noted above that Clifton Road had a traffic count of 3,200 vehicles per day in the 2014 peak summer season. Assuming that this count reflects two-way trips (since Clifton Road is not a through road), and that there are around 1,000 vehicles owned by residents in the Te Awanga settlement²¹, the additional volume of traffic that arises from visitors is (very indicatively) likely to be of the order of around 600 vehicles per day in the peak season.

This tourism data, albeit very limited, suggests that the area has a strong growing, if somewhat seasonal, patronage from visitors to the Cape Coast.

²¹ See earlier table suggesting 1,895 vehicles attached to dwellings in the Cape Coast area.

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9.0 Subdivision and future development

In the context of any future consideration by the evaluation panel of coastal adaptation decisions, it is considered relevant to set out the future subdivision and development proposals that have been contemplated by territorial authorities.

The Heretaunga Plains Urban Development Strategy (HPUDS), a draft of which was published in 2016, foreshadows the need to provide for 4,415 projected additional greenfield dwellings in the Heretaunga Plains region over the next thirty years.

In coastal settlements other than Cape Coast, HPUDS allows for 20 dwellings in Waimarama and 90 dwellings in the northern area of the coastline at Bay View. These projections, together with 130 dwellings proposed for the Haumoana / Te Awanga area, are, collectively, a very small proportion of the total 4,415 dwellings and suggest that areas identified for future greenfield coastline property development will be scarce and limited in the Hawke's Bay region.

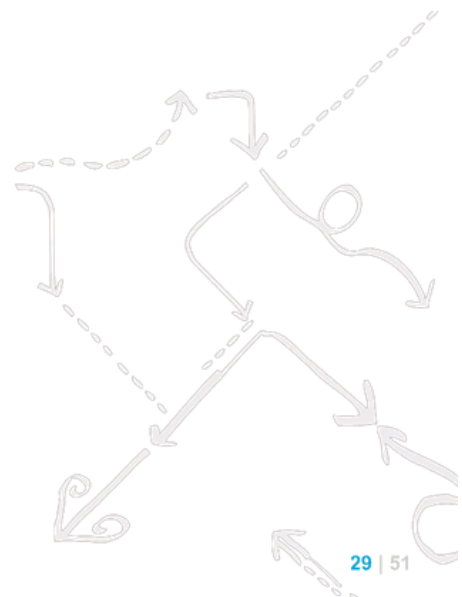
The 130 new houses projected for the Cape Coast area are understood to have derived from three development projects that were in planning and consent stages at the time the HPUDS was promulgated. These are:

- Te Awanga Downs - 70 planned lots
- Te Awanga Lifestyles Ltd – 10 planned lots; and
- Beach Road East – 50 planned lots

In 2014 Te Awanga Downs and neighbouring Te Awanga Lifestyles owners sought a rezoning of the area to Coastal Residential under the District Plan to permit the two subdivisions to go ahead. This application attracted 150 opposing submissions mainly from residents living in the Te Awanga settlement. HDC ultimately declined the application but it is understood that through subsequent Environment Court appeals the outstanding issues are all but resolved. Anecdotal comments suggest the Te Awanga Downs development will proceed in stages with the first stage being in the lower lying area of the project which some interviewees (and opposing submitters) considered to be a flood-prone area.

At the same time the Beach Road East project further south received no opposing submissions. This planned development is understood to have since reduced in size to 10 lots.

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10.0 Social Issues and Impacts

This section identifies the reasons why people like to live in the Cape Coast area along with the principal social issues that are of concern. This discussion helps to contextualise how coastal hazards are perceived as a threat to the community and what social outcomes might be expected if the current coastal process continues without any significant human intervention.

10.1 Differences between Te Awanga and Haumoana settlements

As noted, Te Awanga's history is one as an early beach settlement of baches where residents from Hastings and Napier holidayed especially during summer. In the 1970s and 1980s the area evolved to be more popular as a place of permanent residence. Houses were cheaper than the nearby urban areas of Hastings, Havelock North and Napier, and commuting to work became more viable as transport infrastructure improved. The area appealed to those on lower incomes who could not afford higher-priced housing closer to the main cities. According to most interviewees, in recent years this demographic pattern has changed significantly.

Houses in Te Awanga (especially those which are closer to the seafront), are the focus of growing "gentrification" and substantial refurbishment. There has been a significant influx of (often) higher wealth buyers from out of the area (sometimes larger metropolitan centres) acquiring properties for the coastal retreat and lifestyle values that the area is seen to offer. The Te Awanga settlement is held by some to now be a settlement predominantly occupied by "alternative lifestyle" and (often retired) professionals.

By contrast, Haumoana's residents are generally described as firmly established in the area, many having lived there for several generations with extended families purchasing other houses in the same settlement. It was suggested that as much as 30% of Haumoana's population is made up of these types of extended and intergenerational families.

One interviewee suggested that to be defined as a Haumoana "local", a prior residency in the area of at least twelve years was required. Interviews also suggested that the settlement is popular with creative people (artists, sculptors, etc.) as a place to live.

Discussions suggest that people living in one area differentiate themselves and hold occasionally sardonic views about those living in the other. However, there is something of a common purpose apparent when dealing with issues such as tourism growth, infrastructure improvements, education and the like, all of which unite the area under the Cape Coast collective view. The primary school is also seen as an important "binder" of the two communities.

One further observation is that because people living in each area are quite close to each other through their family ties, history in the area, or similar socio-economic backgrounds, communication and opinion about issues affecting the area is rapidly socialised across the community. This can be both a powerful positive tool, but also counter-productive since, as observed during the interview process, it is possible for misinformation and flawed perceptions to be spread rapidly and then become entrenched as irrefutable fact. Some of these perceptions are discussed later.

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10.2 Why people like the area as a place to live.

From a social impact perspective it is important to establish why people like the area as a place to live. This helps to form an overview of the fabric of social and community values, or issues, (aside from coastal hazards) within the Cape Coast area.

Among the interviewees there was a unanimous view that the Cape Coast was a special place to live. This sense of place emerged not only from those whose families had lived in the area for several generations, but the more recently-settled arrivals. Themes that were often repeated are set out in the following table:

Why Cape Coast people like the area as a place to live

- Slice of paradise – a coastal lifestyle with all the recreational benefits of living near the sea
- Relaxed lifestyle - carefree culture – perfect place for raising kids and retirement
- Great community atmosphere, neighbours are friendly. They trust, and look out for each other
- Safe and secure, quiet, peaceful – separated from the busier inland urban and city areas
- Wonderful climate – cooler in summer, warmer in winter
- Resilient community – self-sufficient lifestyle
- Local schooling is excellent

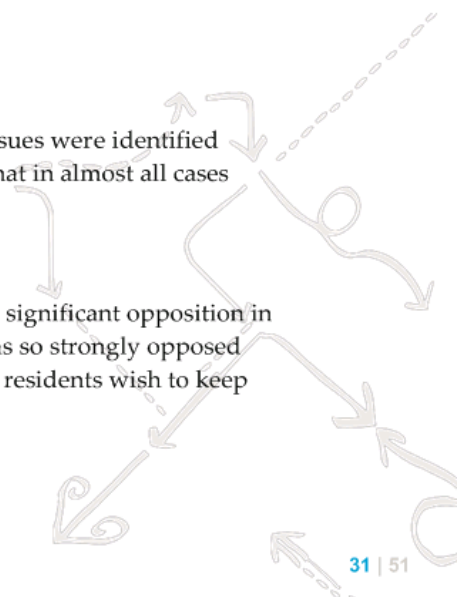
It is considered that this passion for the Cape Coast area and people's sense of solitude and uniqueness underpins much of the community's concern for each other and the area's ongoing wellbeing. Social media supports this perception through, for example, websites such as www.haumoana.com, and Facebook pages such as Save the Cape Coast (which offers posts on a range of community topics not purely related to coastal erosion), Te Awanga Progressive Association and Haumoana School.

10.3 Main social and community issues

Aside from coastal hazards, and in no particular order, the following issues were identified during interviews as social concerns in the area. In passing it is noted that in almost all cases there were varying views about the importance of each issue.

Subdivision and development

As already noted, the proposed subdivisions near Te Awanga attracted significant opposition in the community. Opinions vary as to why the development proposal was so strongly opposed but there is an undercurrent of thinking that a significant proportion of residents wish to keep



the area as a relaxed and smaller coastal community without the resultant infrastructure pressures and adverse effect on lifestyle that might come from having a greater population. These pressures (especially in the case of recent arrivals) are what people sought to escape from by choosing to live in the area. One perspective offered was “people do not like change in an area that hasn’t changed much over several decades”. Another person commented that some people had actually left the Te Awanga area because they thought subdivision would “change their lifestyle too much”.

On the other hand, some interviewees welcomed the subdivision proposals suggesting that development and modernisation provides the community with more options and services.

There is no clear consensus that emerges from this issue other than that there is a general theme of concern in the area around how a long-established small and stable community might be affected by increasing population and the social changes that accompany this.

Public Transport

As already noted there is no public transport to the area. Some people commented that this effectively curtailed the ability of older people, who perhaps could not drive or did not own a car, to remain in the area since access to other shopping areas and amenities (including medical centres) outside the area was essential. Others suggested it was a problem for youth in the area to access the main centres for social and recreational purposes. Others saw no support from local council for the introduction of public transport services to such a small community unless there was an increase in population (arising say, from sub-divisional growth).

Crime

There were mixed views on this issue. Some felt the area was extremely safe because there was no through-traffic and the community was good at watching out for each other. Others expressed concern around safety issues for children and rising petty crime. The absence of any community policing (following the closure of the East Clive police station) is a sore point adding to the feeling of neglect in the community that emerged in several interviews.

Regulatory authorities

An almost unanimous view to emerge from interviews concerned a resentment for, and distrust of, local authorities whose jurisdiction covers the Cape Coast area. Terms and phrases such as “oppression”, “backroom deals”, “processes that make people feel powerless” and “mitigating their own risks by passing them on to the community” were used to describe this antipathy. There was a pervasive theme that regulatory authorities were using obfuscation, delay and orchestration of a preferred outcome on matters like subdivision developments and coastal hazard adaptation.

Coastal hazards, and perceived inaction over several years on this issue, appear to have formed a flashpoint for this resentment, but antipathy towards local authorities appears to have existed in the area for at least the past few decades. There is an underlying view expressed by some parties that the community feels disregarded and ignored. In some people’s eyes the Cape Coast infrastructure (roads, parks, etc.) has been left by HDC to deteriorate. Part of the resilience and self-reliance felt by the community is driven by the perception that they have been largely left to fend for themselves.

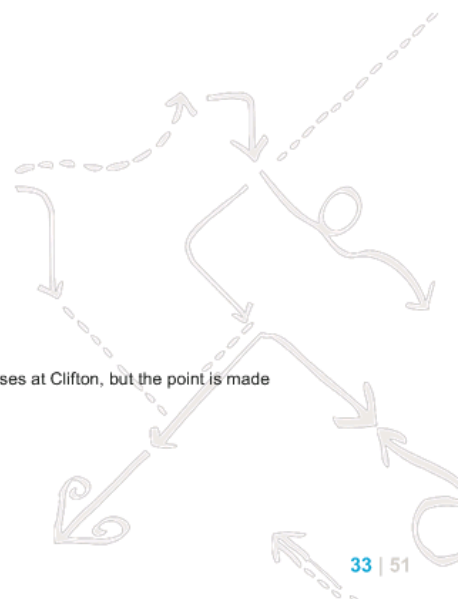
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Clifton camping ground along with its access road, was sometimes cited as an example of a valuable recreational asset that had been permitted to deteriorate over several years while successive councils firstly removed protection works that were deemed illegal (which locals felt had been a reasonably effective, if somewhat unsightly, barrier to prevent erosion), and then stood back to allow the encroaching sea to destroy many camp sites and much of the access road.²²

There appears to be little understanding of the separate regulatory roles of HBRC and HDC in relation to coastal marine areas and the fact that HBRC has jurisdiction over certain areas to the landward side of the Coastal Marine Zone.

One of the consequential effects of antagonism felt towards Councils is that, in relation to the Coastal Hazard Response Strategy for the Tangoio to Clifton coastline, efforts at transparent and open communication of factual information and the projected consequences for the Cape Coast are being hampered by an underlying distrust of the messenger (perhaps extending to the Councils technical advisors). One interviewee made the observation that both sides have formed entrenched views on what is happening and what should be done, and are talking past each other.

²² Maven's own research suggests that this is something of an oversimplification of the coastal processes at Clifton, but the point is made to show how the issue is perceived by some interviewees.



11.0 Coastal Hazards – Social Impact

Discussion with individual residents and interest groups in the three main settlements produced a wide range of views about the perceived reality of coastal hazards, who is to blame, the perception of risk and how that risk should be mitigated. Each of these is discussed below.

Another theme arising from interviews and discussion, is an apparent difference in how coastal erosion risk is perceived, as against the threat of increasing inundation caused by sea level rises and storm surges in the next 100 years.

Coastal erosion is seen by those who are alarmed about it, as a real threat to the community which requires an immediate human intervention. On the other hand, future inundation of properties arising from sea level rises and storm surges (which appears potentially to have far more invasive and wide-spread effects on properties based on the Tonkin and Taylor maps contained in Appendix Four) is viewed as a “fact of life” which people must accept if they choose to live near the water. People living within the flood map areas are perhaps aware of and concerned by flood risk from storm surges (especially if insurance policies exclude it from cover), but see a large flood event as a remote risk that will be able to be recovered from following a clean-up.

This may also be a function of lay-people’s interpretation of the “1:100 AEP” expression as meaning that a flood of this magnitude will only occur once every century, rather than seeing it as an annual exceedance probability. People contextualise this risk within their property’s and their own lifetime lasting less than 100 years, concluding a flood event of such rare magnitude is a risk they are prepared to live with.

11.1 How does the community view the coastal hazard issue?

Some residents in the area (particularly those who have lived there for more than a few decades) consider that the coastline has either remained relatively stable for several decades, or that it is a constantly changing environment in which “the sea comes in and erodes an area but then it stops and moves on to another area....once a crest is formed”.

They consider that the visible areas of erosion that are threatening properties and infrastructure are simply the sea behaving along the coastline in the way it always has over time, nothing has changed, and that the current focus on potential impact on the community is “over-blown”. Some in this group saw hazard maps such as those contained in Appendix Four as “coloured bits of paper”, “models based on assumptions”, or “very general, not following topography and stop banks, etc.”. In summary, they do not think the coastal hazard is any greater or different than it has ever been.

Another group of interviewed residents acknowledges that there is increasing threat from coastal erosion but is not particularly interested in the issue, mainly because they live inland away from the at-risk areas and see it neither as a threat to their own properties nor the viability of the area as a place to live. They tend to see interest groups pursuing the issue such as WOW²³ as a commendable and understandable cause, but not one in which they feel a need to participate.

²³ Walk on Water which has as its mission “To find and implement solutions for serious erosion at Haumoana, Te Awanga and Clifton and unite the Cape Coast community to protect and promote the coastline as an asset for the wider Hawke’s Bay region.”

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The third group of residents are those that are genuinely concerned about the threat of coastal erosion (or flooding caused by sea level rise) to their own properties, and to the effects on the wider community. This group includes both individuals and representative organisations such as WOW and the Te Awanga Progressive Association.

As observed earlier, issues are efficiently networked in the close-knit community because of its tight social fabric and its strong familial links (especially in Haumoana). WOW is energetically led and has a high profile in the community. Its strong views about the need to preserve the heritage and future of the area, along with how the coastline issues should be addressed (through construction of groynes), are widely disseminated and generally respected. Some interviewees however perceived that the construction of groynes as a solution to coastal erosion in the area was not the right answer and that WOW's advocacy of this approach may have alienated them from other points of view.

11.2 How does the community perceive risk and responsibility?

As noted above, the range of views expressed by people interviewed suggest there is general confusion around why (or if) coastal erosion is occurring at a greater rate than in the past, despite there being a number of weighty scientific reports in the past several years on the causes and effects²⁴. The related problem of future inundation risk from sea levels and storm surges also appears at times enmeshed with river-borne flooding which has resulted in past flood events and the level of protection (stop banks and pumps, etc.) that has been built to protect the community.

One theme that frequently emerged in discussion is that the Awatoto shingle works is seen to have played a major contributing role in causing shingle to be moved northwards from the Cape Coast to replace what is taken. There is a widespread view that this operation should be closed down immediately, or at least (as a few interviewees suggested) made to return twenty percent of the offtake to the Cape Coast area coastline.

WOW itself, has assembled a collection of articles dating back to 1999²⁵ that address a long history of coastal erosion, threats to properties, proposed solutions and entrepreneurial efforts to provide protection works. This work reinforces their view that the problem has been around a long time, and that successive Councils have used regulatory authority to prevent new ad-hoc protection works by private property owners, to have existing structures removed, proposed no alternative solutions, and largely left nature to take its course.

The Tukituki River mouth groyne was instanced by some interviewees as an example of the Regional Council having been prepared to construct such protection works to slow the rate of coastal erosion in 1999²⁶. Interviewees suggested that the presence of one groyne raised questions as to why the Council was not prepared to continue with this approach.

As already noted, the perception of coastal hazard risk to life, property and infrastructure varies widely in the community depending largely upon where people live in the area. Those living

²⁴ Councils have tried to disseminate information resources such as the Tonkin and Taylor May 2016 Study via websites such as www.hbcoast.co.nz but it appeared that few interviewees had developed a good technical understanding of causes.

²⁵ Supporting documents to a community-based submission and vision statement rejecting the 2011 two-option proposal from the Hastings District Council (HDC) and the Hawke's Bay Regional Council (HBRC) that ratepayers cover the cost of 13 groynes or accept a managed retreat as the ocean encroaches on homes along the waterfront.

²⁶ In an extension to the resource consent in 2003 (to 2028) the Council review stated that the groyne was "acting as intended".

closest to the shoreline 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;
- The availability of adequate property insurance;
- The availability of mortgage finance (which is wholly dependent upon whether the property is insured);
- The resale value of their properties if the hazard continues to escalate; and
- Their own personal safety or damage to uninsured effects in extreme events.

A wider group of interested stakeholders are concerned for the preservation of coastal assets and infrastructure. The Clifton Camping Ground and Marine Club were most often cited as an asset at extreme risk. The Te Awanga Domain with its community hall was also instanced as a valuable community asset that must not be put at risk. Because it provides (inter alia) the only access to Te Awanga and Clifton settlements, the only food market, key tourist attractions, and cycle trails, Clifton Road itself is also held by many to be an essential infrastructural link that is at significant risk.

11.3 Difference of views around suitable mitigation

As noted, there are widespread views about the effectiveness of different adaptation strategies. WOW is recognised for its strong advocacy of a groyne field while others prefer more varied and gradual approaches perhaps engaging more positively with the ingenuity of the community's own resources (e.g. contracting skills and equipment) and initiatives to protect their property. A case in point is the number of houses owned by Bridgeman interests along the foreshore at the northern end of Clifton Road which are the subject of a concrete wall construction proposal. It is understood that Mr Bridgeman has offered to finance and provide the same protection to neighbours in a collaborative deal.

There is a view among some within the community that are not directly affected by coastal hazards that people purchased their properties on an "eyes wide open" basis, and must accept responsibility for the costs and consequences of protecting their own assets (mitigated, they presume, through private insurance cover). To be fair, this view was also echoed by several whose properties are at direct risk. Maven's impression is property owners are not so challenged by who should pay for property protection works, but a sense of frustration that HBRC is engaged in using its regulatory powers to prevent any protection works from being built at all.

The reasons cited are:

- that HBRC (and HDC for that matter) has no appetite to co-ordinate or invest in large-scale hard engineering protection works and prefers to "force" people to move away from the affected areas and let the coastline find its own course; and
- Costs (and delays) of gaining resource consents to undertake protection works are prohibitive and unreasonable.

HBRC's (and HDC's) position is a difficult one, since, when questioned, several shoreline residents agreed that they would be concerned if a neighbour constructed protection works that

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resulted in a consequential adverse effect on their own property. One interviewee suggested that there was a need for people to work together – “everybody in the region has something to offer and there is plenty of resource. You stitch stuff together and collaborate”.

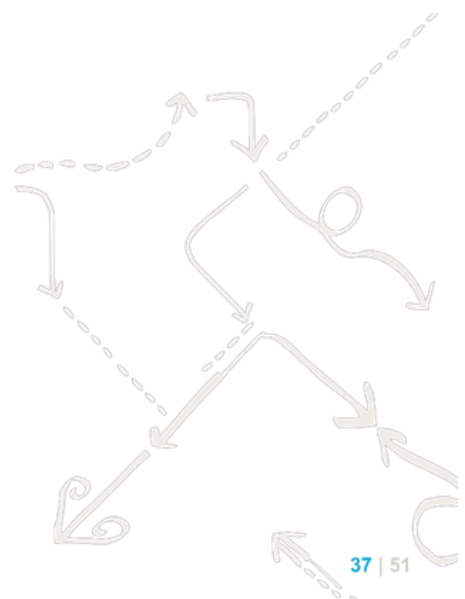
Managed retreat not seen as an option

One common theme that emerged is an almost unanimous opposition towards “managed retreat” as an adaptation strategy.

Maven considers that the concept is not well understood by people, and appears to have been interpreted by many as enforced eviction from at-risk properties with cash grants to assist in relocation. The eviction process is foreseen to be achieved through HBRC using its regulatory powers to prevent owners from protecting their existing properties. Managed retreat is thus seen as a council-inspired solution that will be achieved by stealth as part of the “pre-ordained” plan of statutory authorities to achieve their own preferred outcome. It is both vigorously opposed and resented by those among the interviewees who would likely be most affected, and strongly rejected by interest groups and other networks.

One further view that bears on managed retreat was expressed by some interviewees as a deep passion and affinity for living right on the seafront. In many cases, coastal properties have been in families for generations and the idea of relocation inland to higher ground is a major problem for them.

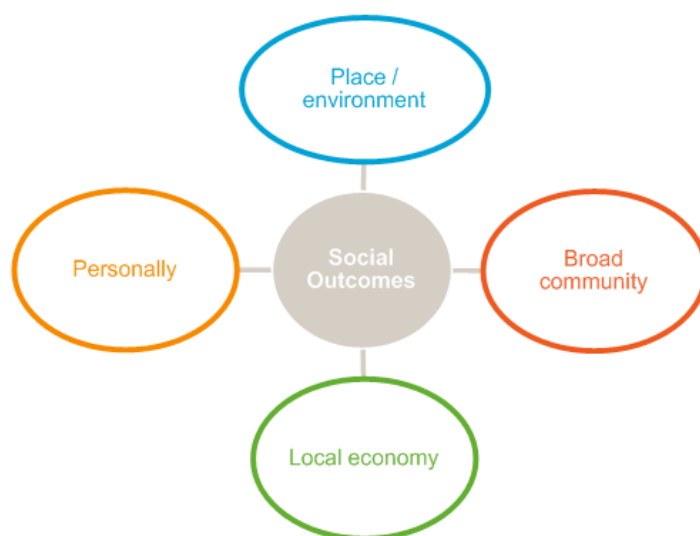
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12.0 Outcomes

This section considers the social outcomes that would arise from a “status quo” option and places an estimated value on them. Outcomes are defined as answers to questions such as –

- What would people in the Cape Coast community and the wider Hawke’s Bay region experience?
- How would life change for the Cape Coast community?



12.1 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 such work may be justified to avoid that outcome (provided other criteria are consistent with that adaptation strategy); 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.

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In the past, there has been a general acceptance that social impact of coastal hazards is real but that it cannot be economically valued²⁷. Hence 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 can never reflect whether the total planned expenditure itself is appropriate in the context of overall social impact.

Although establishing financial proxies for social impact is gaining more widespread practice²⁸, it is by no means a perfect science. Monetizing the social outcomes of coastal hazards also presents several unique challenges:

- The evaluation is best undertaken over short timeframes (say five 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.
- In the case of Cape Coast there are only very rudimentary metric data upon which to measure the impact of the status quo position on the community, regionally important assets, and recreational activities. More quantitative surveys and data would greatly improve this exercise.
- So far as Maven is aware, there are no precedents for attempting to place an economic value on social outcomes arising from the impact of coastal hazards, so there are no historical case studies to which it can refer.
- The work relies in some cases on establishing financial proxies for outcomes that involve things (such as people's wellbeing) that do not have values in markets (prices). These are harder to determine and always subject to a greater degree of speculation.

Status Quo Scenario – predicting social outcomes - an overview of probability and risk

- Coastal erosion and inundation processes reflect the “Present” scenarios in accordance with Coastal Hazards 2015-2025 Study (Tonkin and Taylor 2016);
- “Present” mapping model used for this study shows a 66% probability that coastal erosion will occur to the extent shown, in the event of a 1:10 AEP storm surge;
- Maven has assumed that a 1:100 AEP storm surge will occur in the next 5-10 years and cause inundation projected in the “Present” mapping model;
- These assumptions are therefore conservative / pessimistic, but not unrealistic scenarios for the purpose of considering near-term social outcomes.



²⁷ See for example Statement of Proposal, Sustainable Long Term Solutions to Coastal Hazards at Haumoana – HDC – 2011. Page 32.

²⁸ 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.

12.2 Defining the Status Quo Option

The Status Quo scenario is based on the following further assumptions.

Status Quo scenario

- 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;
- 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;
- As Clifton Road becomes increasingly unreliable as a through-road for access to Te Awanga and Clifton settlements, an alternative access road to the two southern settlements is constructed by way of an extension to Parkhill Road²⁹;
- A replacement boat ramp near Clifton is constructed to maintain a useful marine safety facility and for recreational marine use in the region³⁰;

12.3 Social outcomes that may arise in the Status Quo model

Based on the stakeholder interviews and accompanying research, it is considered that the following outcomes will arise in the Cape Coast community if there is no intervention in the current process of coastal erosion and inundation that will arise from rising sea levels and storm surges, and assuming the Status Quo scenario described above actually occurs.

| Output (Impact) | Outcome for community |
|--|--|
| Coastal private property | |
| <p><i>Present day through ten years:</i></p> <p>Coastal erosion will likely destroy or make continued occupation of some houses near the beach front uninhabitable.</p> <p>Some coastal Haumoana properties will experience increased inundation risk from 1:100 AEP events arising from sea level rise and storm surges.</p> <p>Most of the original Te Awanga settlement will experience increased inundation risk from 1:100 AEP events arising from sea level rise and storm surges.</p> | <p>Private property owners, their families and neighbours will experience increasing negative well-being (anxiety / concern, etc.) driven by:</p> <ul style="list-style-type: none"> • Non-availability of mortgage finance; • Insurance exclusions or refusal of cover; • Falling resale values (or even non-saleability); • Fear of major structural damage (perhaps repairable after flooding events); • Risks to personal safety in extreme events; and |

²⁹ This solution was previously contemplated in Statement of Proposal – Sustainable Long Term Solutions to Coastal Hazards at Haumoana – HDC 2011 – so is seen as a realistic possibility.

³⁰ This option is discussed in the HDC Paper – Clifton Revetment Options – presented to the Council on 15 December 2016 as an alternative to preserving the existing Clifton Camp Ground and Marine Club amenities.

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| | |
|---|---|
| | <ul style="list-style-type: none"> Inability to implement mitigation or protection works because of regulatory obstacles. <p>Septic tank systems in affected properties may begin leaching wastewater into coastal sea areas.</p> |
| Clifton Road | |
| <p>Present day through ten years:</p> <p>Parts of Clifton Road will experience increased inundation risk from 1:100 AEP events arising from sea level rise and storm surges making the road impassable for periods.</p> <p>Ten years and beyond:</p> <p>Parts of Clifton Road (especially around Beach Road and East Road intersections), will cease to exist as coastal erosion increases.</p> | <p>People in the community and from further afield would experience:-</p> <ul style="list-style-type: none"> Occasional inaccessibility to the only food market in the area. The foodmarket (and associated bar / café etc) would likely have to close, or relocate. Curtailment of freedom camping on Clifton Road Reserve and at Clifton Beach. Curtailment of cellar door access to wineries along Clifton Road. |
| Clifton Reserve | |
| <p>Present day:</p> <p>Clifton Motor Camp (No.1) and Clifton Marine Boating Club will not be viable as erosion eventually reclaims the underlying land.</p> <p>Closure of No. 1 Motor Camp means that No.2 would also need to close since water supply, power and camp manager housing is sourced at No. 1.</p> | <p>People in the community and the wider region, and tourists would experience loss of available camp ground accommodation at Clifton.</p> <p>Beach-based tractor safaris to Cape Kidnappers would be inaccessible at times until the existing boat ramp is deconstructed to enable a throughway during low tides.</p> |
| Haumoana Domain | |
| <p>Present day through ten years:</p> <p>Parts of the Domain are and will be subject to continuing erosion (mostly the southern end affecting Clifton Reserve freedom camping ground).</p> <p>Much of the Domain will be inundated in a 1:100 AEP storm event arising from sea level rise and storm surges.</p> | <p>Fewer sites available for campervan tourists (already identified above in Clifton Road impact).</p> <p>Flood event caused by storm surge will mean domain is inaccessible to the community and visitors for short periods during flood and clean-up.</p> |

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| | |
|---|--|
| <p>Ten years and beyond:</p> <p>Further coastal erosion will encroach onto the Clifton Reserve camping ground removing camping sites.</p> <p>All of the Domain would be inundated by a 1:100 AEP storm event arising from sea level rise and storm surges.</p> | <p>Continued flooding may put at risk areas that are deemed to have important ecological values.</p> |
| Te Awanga Domain | |
| <p>Present day through ten years:</p> <p>Parts of the Domain are and will continue to be subject to coastal erosion affecting reserve land but not buildings and playgrounds.</p> <p>The reserve is, and will be subject to inundation in a 1:100 AEP storm event arising from sea level rise and storm surges.</p> <p>Ten years and beyond:</p> <p>Coastal erosion is projected to move further into the Domain rendering community facilities non-viable. Erosion is projected to reach the banks of the domain lagoon.</p> | <p>Eventually, residents would lose access to the community hall and playground / recreational facilities in the Domain.</p> |
| Cycle Trail | |
| <p>Present day through ten years:</p> <p>Coastal erosion could remove parts of the Kidnappers Coast cycle trail along Beach Road.</p> <p>All of the cycle trail from Haumoana to Te Awanga would likely be inundated in a 1:100 AEP storm event arising from sea level rise and storm surges.</p> <p>Ten years and beyond:</p> <p>Parts of the cycle trail would cease to exist along Beach Road, northern parts of Clifton Road and through Te Awanga Domain as a result of coastal erosion.</p> | <p>Number of recreational walkers and cyclists using the trail would decline as sections of it became less viable.</p> <p>Cellar door sales at wineries would be affected by decreasing cyclist patronage unless different access is found.</p> <p>Local cafes and shops would be affected by declining cyclist patronage.</p> |

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13.0 Measuring Outcomes: Methodology

The value map for outcomes is attached as Appendix Three. The map includes an explanation of the assumptions that are used to develop financial proxies for each of the outcomes.

13.1 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 years for a status quo scenario. As noted earlier, 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. Some explanation of our monetization approach to this expected social outcome is therefore necessary.

Maven's assessment is that the level of concern and anxiety in the community is most keenly felt by those who have coastal properties near to the shoreline. It has already been noted that there is an increasing level of ambivalence towards coastal hazards by those in the community who reside further inland or away from the hazard zones. It has also been noted that the community appears less concerned about the prospect of flood events caused by storm surges and sea level rises. It is assumed that part of the reason for this is that flood events are seen to be remote risks which can be managed through if they occur, whereas coastal erosion is permanent.

For valuing this outcome, Maven has selected a financial proxy that is based on discounts applying to property that is subject to natural hazards, environmental health risks and possible future legal and financial liabilities. Examples in New Zealand include areas that are subject to subsidence from underground mining or geothermal activity, leaky buildings, or increased flood risk arising from natural events such as certain areas in post- earthquake Christchurch.

It is acknowledged that coastal properties are rising in value, but analysis suggests that the increase in the Cape Coast area is a net gain reflecting a degree of discount for the risk of living with coastal hazards. A further explanation and identification of a range of ratios applied to properties prone to erosion and flooding in the Cape Coast area is contained in Appendix Two. These have been applied to capital values of those properties as released by Quotable Value in the latest HDC rating revaluation completed in August 2016.

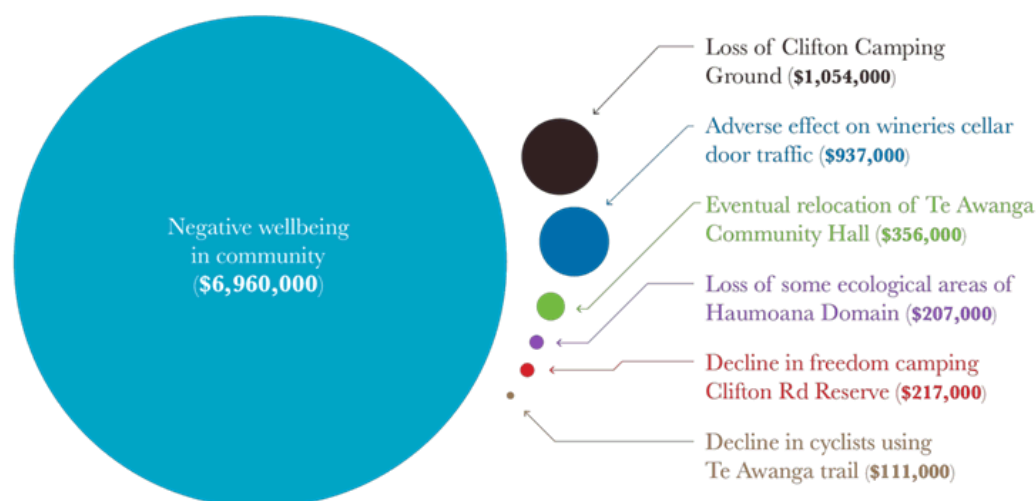
Discounts on property in an area that is subject to natural hazards will remain for as long as the hazards exist (and may actually increase if the perceived risk becomes higher). While they are typically crystallised in individual property transactions, they are never eliminated from the area unless hazards disappear. Maven has therefore adopted this financial proxy as an annual adverse effect on wellbeing in the community under the status quo scenario, starting from a lower base level but increasing over the five year time frame of the value mapping model, as the hazard risk increases.

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 value³¹. 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. This may have the effect of understating overall community anxiety and concern, though there are counter arguments³². The 2013 census statistics suggested an average 2.5 occupants per dwelling in the Cape Coast area.

13.2 Assessment of social outcome costs

Aggregate social outcome cost estimates for the next five years (expressed as net present value)



If the status quo scenario outlined above occurs, Maven's assessment is that, over the next five years, the cost of social outcomes caused by coastal hazards in the Cape Coast area has a net present value of between \$6.3 and \$9.8 million.

By far the largest component of this (\$3.4 - \$6.96 million) is attributable to negative wellbeing in the community, mainly for those whose properties are physically exposed to rising risk of coastal erosion risk, or inundation in major storm surge events. The lower bound of this estimate reflects, (based on respondents' general views), that flood risk from coastal inundation is less worrying to them, although it might be expected that if a 1:100 AEP event actually occurs during the next five years and its effects are therefore more tangible, the cost of social outcomes is likely to rise to the upper level³³.

Another significant contributor to the net present value of social impact would be the imminent loss of the Clifton Camp Ground. (As noted above, Maven has assumed that the Status Quo scenario would include the construction of a replacement boat ramp in a more viable area to maintain useful access for southern coastal marine emergencies and for the wider district to enjoy boating recreation along the southern coast and fishing grounds).

³¹ Since greater financial exposure would lead to greater stress about the hazards.

³² For example households will include children who would be unlikely to share the same level of anxiety or concern.

³³ A demonstration of this point was that the interviews in December 2016 occurred not long after the November Hanger Springs 7.8 earthquake which prompted tsunami warnings along the East Coast. Although no tsunami actually eventuated, the evacuation process and perceived shortcomings were still front-of-mind for many interviewees.

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It is important to note that issues of community anxiety and concern are a function of a number of drivers, including insurability of homes, ability to raise mortgage finance, resale values of property assets, and physical damage caused by erosion or storm events. None of these drivers can be directly controlled by territorial authorities.

Nevertheless (and based on interviews) part of this component of social impact cost is attributable to the way in which property owners and residents perceive that Councils are acting.

13.3 Public and Private Benefit

As noted above, an important issue to determine is the extent to which council-funded responses to coastal hazards should be allocated between private and public benefit.

Under the status quo scenario Maven has assumed that two new infrastructural assets will be built in the area:

- An extension to Parkhill Road to permit continued alternative access to Te Awanga and Clifton as Clifton Road becomes increasingly unsustainable.
- A replacement boat launching slipway.

In each case the assumption is that these assets will be funded from a general ratepayer base because they provide important regional benefits for ongoing tourism, marine safety and recreation.

These assets aside, Maven's assessment, is that most social impact cost (up to \$7.0 million in net present value terms, spread over 5 years) in the Cape Coast area arises from the anxiety and concern that is created by the effect of the coastal hazard risk on people's private property assets, and the shared concern for that issue by a close-knit community.

Projected negative social outcomes for public amenities and tourism under the status quo scenario (around \$2.9 million in net present value terms over 5 years) suggest that costs of mitigation could be more widely spread amongst regional or district ratepayers to protect assets and infrastructure at Clifton Reserve (which is also a non-profit making Trust structure that helps to maintain access to the existing Marine boat ramp), and, for tourism and visitor purposes, to maintain the viability of Clifton Road for as long as possible before it becomes unsustainable.

13.4 Final comment on valuation

Ultimately, estimating a monetized value for social impact is always going to be a subjective judgment open to differing views about its robustness and usefulness. But, at worst, it is still better than the selection of an arbitrary percentage by which to measure that impact and to judge how funding should be apportioned between public and private beneficiaries.

Appendix One - Broad themes used for discussion in Cape Coast interviews

- How would you describe this area?
- What is it 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?

Explore the perceived likelihood and potential impact of each risk if it occurred – effects on the place/environment, effects on the local economy, effects on the broad community, effects on them personally.

- To what degree do you feel that coastal erosion and increased flooding is a threat to this area?

Show participants the projected coastal erosion and flooding images and description. Explore responses – believability, perceived impacts, degree of concern (as above).

Baseline Question

With ongoing coastal erosion and flooding hazards in this area, and no intervention to mitigate this risk:

- What would you do? What would others in the community do?
- Short term – 1-5 years
- Medium term – 5-20 years
- Long term – 20 years +
- How would things change in the Cape Coast community?

What amenities, values, and interactions would be lost or adversely affected in the short, medium and long term?

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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 properties³⁴. 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”³⁵.

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 consensus among coastal property owners interviewed (especially in Te Awanga) was that house prices were escalating at a rapid rate and any newly-listed beachfront property seldom stayed on the market more than two weeks.

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 prices³⁶. 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”³⁷. 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 diminution in values of properties prone to flood risk in post-earthquake Christchurch³⁸. 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.³⁹

³⁴ 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.

³⁵ Chan 2004

³⁶ 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.

³⁷ Ibid – Section 4.4

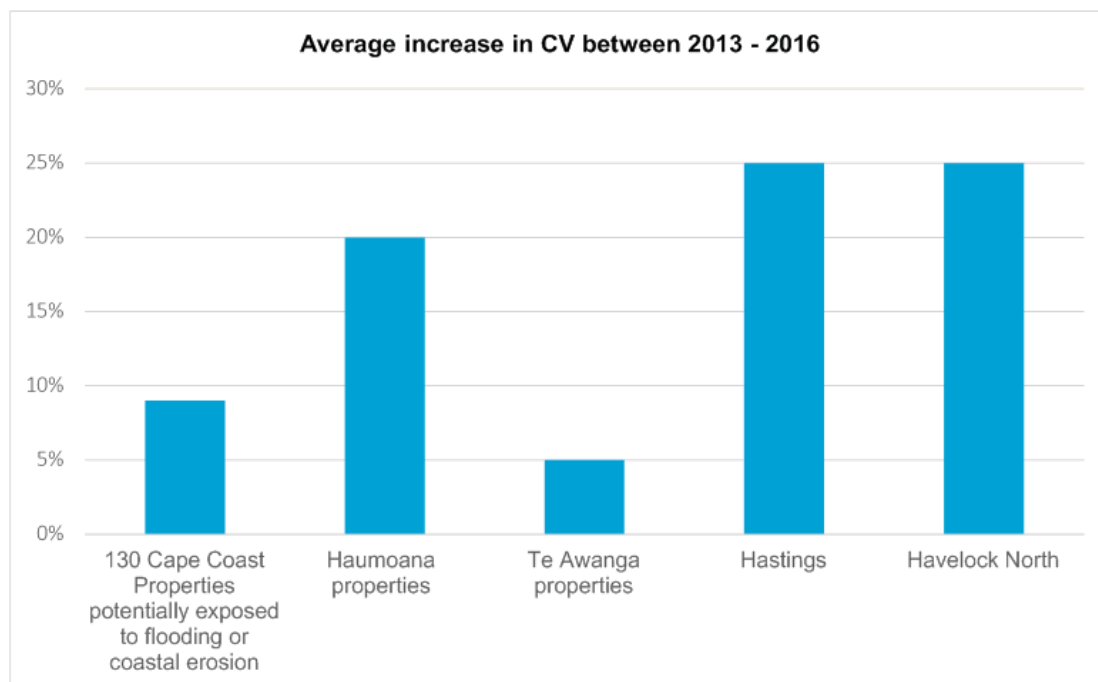
³⁸ Diminution of Value Methodology for Increased Flooding Vulnerability April 2014 (updated with Guidance notes and minor amendments as at March 2015)

³⁹ Ibid – see pages 46 – 59.

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It is possible to conclude from this that while coastal property prices appear to be escalating on the Cape Coast, there is nevertheless likely to be an embedded discount reflecting people's concern about coastal environment and natural hazards. But the risk to wellbeing is not (yet) sufficient to cause coastal property prices in the area to stabilise or decline. A slowing of value escalation is nevertheless perhaps demonstrated in the following comparative graph, which shows the three-yearly revaluation of capital values for properties in the Hastings district completed in August 2016.



On balance, 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. Where several houses are owned by one stakeholder these have been eliminated from the calculation on the basis that such buyers are confident they will not be impacted by, or can defend themselves against coastal hazards and are not therefore concerned by them.

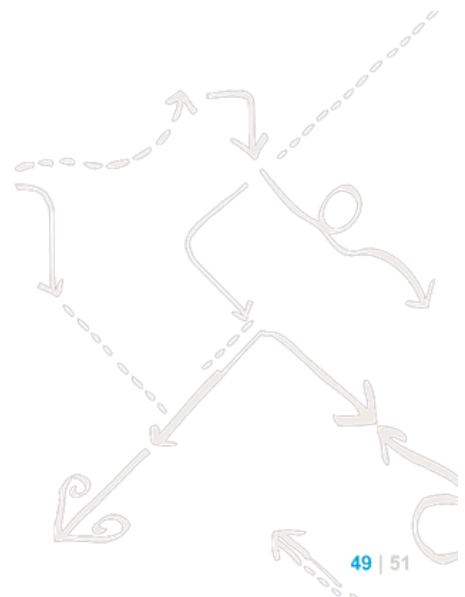
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| Summary of negative impact on wellbeing caused by coastal hazards, using imputed property value discounts for natural hazards as a financial proxy | Capital Values \$'000 | Applied percentages for negative well-being in relation to coastal hazards | Number of affected properties | Annual negative wellbeing per household |
|--|-----------------------|--|-------------------------------|---|
| CV of single property owners properties immediately threatened by erosion | \$ 998 | 10.00% | 5 | -\$ 19,960 |
| CV of single property owners near beachfront subject to increasing erosion (but not threatened in short term) | \$ 20,740 | | 41 | \$ - |
| Year One | | 2.30% | | -\$ 11,635 |
| Year two | | 2.98% | | -\$ 15,049 |
| Year Three | | 3.65% | | -\$ 18,464 |
| Year Four | | 4.33% | | -\$ 21,903 |
| Year Five | | 5.00% | | -\$ 25,293 |
| CV of single property owners in coastal areas threatened by 1:100 inundation from storm surges / sea level rise | \$ 47,173 | 2.30% | 84 | -\$ 12,916 |
| Total CV of all properties affected by flood and coastal erosion hazard | \$ 68,911 | | 130 | |
| CV of properties subject to flood risk from river borne hazards | \$ 9,805 | | | |
| Total Annual Negative Wellbeing - Cape Coast Area | | | | |
| Properties immediately threatened by erosion | \$ 99,800 | | | |
| Coastal hazard properties that have 5-10 year erosion risk outlook | | | | |
| Year One | \$ 477,020 | | | |
| Year Two | \$ 617,015 | | | |
| Year Three | \$ 757,010 | | | |
| Year Four | \$ 898,042 | | | |
| Year Five | \$ 1,037,000 | | | |
| Coastal hazard properties threatened by 1:100 AEP coastal storm (i.e. excluding river-borne flood risk) | \$ 859,464 | | | |

Source Data: QV rating revaluation schedule October 2016 - data provided by Hastings District Council

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 5% by Year Five.

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Appendix Three - Value mapping outcomes from the status quo scenario

VALUE MAP FOR SOCIAL IMPACT - CAPE COAST COMMUNITY
MEASURING THE SOCIAL COST OF A STATUS QUO STRATEGY FOR COASTAL HAZARDS - FROM PRESENT TO FIVE YEARS

| Stakeholder | Outcomes - Describing the Change | Indicator - How would it be measured? | Quantity - 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? | Deadweight - What would have happened without the activity? | Dropoff - will the outcome decline in future years? | Year One | Year Two | Year Three | Year Four | Year Five |
|---|---|--|--|---|--|--|---|--|--------------|--------------|--------------|--------------|--------------|
| Coastal property owners, families, and neighbours - immediate erosion risk coastal properties | Decreased wellbeing (anxiety / stress) driven by one or more of: Non-availability of mortgage finance; Insurance exclusions or refusal; Falling resale values (or even non-salability); Fear of major structural damage (perhaps repairable after flooding events) or loss of land; personal safety in extreme events | 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 | Excluding multiple properties owned by one person: \$1.0 million CV properties immediately threatened by erosion | Until properties become unsalable, or underlying problems are addressed and cause wellbeing to improve. | 10% for immediate threat - see Appendix Two of main report for explanation of values used | \$998,000 | | Existing levels of anxiety / stress reflect maximum percentage. | \$ 99,800 | \$ 99,800 | \$ 99,800 | \$ 99,800 | \$ 99,800 |
| Coastal property owners, families, and neighbours - medium term erosion risk coastal properties | As above | As above | Excluding multiple properties owned by one person: \$30.7 million CV properties potentially threatened by erosion | As above | 2.3% rising in equal increments to 5% by Year Five given increasing risk - see Appendix Two of main report for explanation of values used | \$476,000 rising annually to \$1,037 million | | Rising levels of anxiety / stress over time. | \$ 477,020 | \$ 617,015 | \$ 757,010 | \$ 898,042 | \$ 1,037,000 |
| Coastal property owners, families, and neighbours - AEP 1:100 flood risk properties | As above | As above | Excluding multiple properties owned by one person: \$47.1 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, given hazard information is known. See Appendix Two of main report for explanation of values used | \$1,083,300 | \$9.8 million of properties (mainly Haumoana) are within flood hazard zone for river floods. Should be excluded to measure for social impact of coastal hazards only. | | \$ 859,464 | \$ 859,464 | \$ 859,464 | \$ 859,464 | \$ 859,464 |
| Coastal property owners | As coastal erosion encroaches, septic tanks begin leaching wastewater into the sea | No meaningful data | Outcome is considered probably not material in context of overall value map | | | N/A | | | | | | | |
| Local Community (wedding convenience store) | No access to the only foodmarket in the area; | Loss of sales by foodmarket (and neighbouring businesses) Additional drive time and vehicle costs to purchase elsewhere | Minimal - assume that market (or existing property owner) would quickly move to invest in a nearby replacement shopping precinct. (Intermittent closure through flooding would not materially influence value map) | Zero | N/A | N/A | | | | | | | |
| Tourists | Curtalement of freedom camping on Clifton Road Reserve and at Clifton Beach | Loss of sales in area at say cafes and foodmarkets | Say 5 camper vans per night on annual average equals 1,825 site-nights. | Clifton Rd likely to be viable for at least next 3-5 years. Duration after that will be high but taper off as campers relocate to other coastal sites | Estimate of per campervan spending. Each spends \$100 locally | \$182,500 | | 40% (as campervans relocate to different Cape Coast sites) | \$ - | \$ - | \$ - | \$ 182,500 | \$ 109,500 |
| Wineries | Curtalement of cellar door access for vehicles to wineries with access frontage along Clifton Road | Loss of sales per vehicle | Assume 600 non resident vehicles per day along Clifton Rd in peak summer - say 600 year round on average. 300 days per annum (open) - Estimate 20% say visit wineries. | Once Parkhill Road extension is completed wineries should be able to adapt cellar door entrance frontage to that road. Clifton Road likely to remain viable for next 3-5 years. | Estimate of per vehicle cellar door spend (see worked example - www.winemakingpros.com/tasting/club-conversion/) Average spend per vehicle - say \$75 | \$7,025,000 | | 60% (as wineries quickly adapt to build new Parkhill Rd access requirement Yr 4-5) | \$ - | \$ - | \$ - | \$ 810,000 | \$ 324,000 |
| Tourists | Loss of Clifton Camping Ground (No.1 and consequential No.2) means cessation of camping availability | Annual Clifton Motor Camp revenue from all sources | The revenue and business operation would cease | Within six months and would be permanent | Annual revenue FY August 2016 | \$790,000 | | 0% 0% | \$ 145,000 | \$ 290,000 | \$ 290,000 | \$ 290,000 | \$ 290,000 |
| Tourists | Visitors occasionally unable to access tractor beach trip to Cape Kidnappers game sanctuary unless old boat ramp is deconstructed | No meaningful data for level of disruption | Outcome is probably not material in overall value map | | | \$0 | | 0% | \$ - | \$ - | | | |
| Haumoana Community and Visitors to Domain | Flood event caused by storm surge will mean domain is inaccessible to the community and visitors for short periods during flood and clean-up. | No meaningful data | Effect is probably not material in overall value map | | | N/A | | | | | | | |
| Haumoana ecological values stakeholders | Continued flooding may put at risk Domain areas that are deemed to have important ecological values | Size of area at risk (15 ha is total size of domain - conservatively estimated 20% at risk of seawater flooding) | Value per hectare of passive reserve lands | Permanent | See footnote - Use mid range estimate of \$40,000 per ha (\$2016) | \$280,000 | | 0% | \$ - | \$ - | \$ - | \$ 140,000 | \$ 140,000 |
| Te Awanga Community and visitors to Te Awanga Domain | Eventually, residents would lose access to the community hall and playground / recreational facilities in the Domain. | Construction of replacement hall and playground | Residual buildings and facilities unlikely to be functional or usable. | Permanent | \$300,000 (Governors Bay Community Centre completed 2016); playground say \$100,000 | \$300,000 in Year Five \$ | | 0% 0% | \$ - | \$ - | \$ - | \$ - | \$ 500,000 |
| Te Awanga Community and visitors to Te Awanga Domain | Flood event caused by storm surge will mean Domain is inaccessible to the community and visitors for short periods during flood and clean-up. | No meaningful data | Effect is probably not material in overall value map | | | N/A | | | | | | | |
| Users of Te Awanga / Clifton Cycle Trail and local business | Local cafes and shops would be affected by declining walker and cyclist patronage as sections of the trail along Clifton Rd and near Haumoana become impassable. | Spend per cyclist | Est. 15,000 cyclists per annum data count. | Permanent | Average spend per visit on coffees, water, light snacks etc = \$10 | \$150,000 | 50% (Cyclists etc could purchase in alternative stores on trail e.g. Haumoana Village) | Effect most likely felt in out years | \$ - | \$ - | \$ - | \$ 75,000 | \$ 75,000 |
| Users of Te Awanga and Clifton Cycle Trail and wineries | Cellar door sales at wineries would be affected by decreasing cyclist patronage as sections of the trail along Clifton Rd and near Haumoana become impassable. | Spend per cyclist | Est. 15,000 cyclists per annum data count. Assume 20% call into cellars for lunches or purchase of wine. | Once Parkhill Road extension is completed wineries should be able to adapt cellar door entrance frontage to that road. Clifton Road likely to remain viable for next 3-5 years. Depends whether cycle trail is relocated to Parkhill Road | \$70 per cyclist | \$210,000 | | 60% (as wineries quickly adapt to build new road access requirement Yr 4-5) and cycle trail is relocated along Parkhill Road | \$ - | \$ - | \$ - | \$ 84,000 | \$ 33,600 |
| Annual Value of Social Impact | | | | | | | | | \$ 1,581,284 | \$ 1,866,279 | \$ 2,006,274 | \$ 3,438,806 | \$ 3,468,364 |
| Net Present Value of Social Impact (discounted at 7%) | | | | | | | | | \$9,841,977 | | | | |

or for the Waikato Region - Valuation Methodology Technical Report - Prepared for Environment waikato - McDonald et al EERNZ June 2010. Page 50

| Status Quo Scenario - Summary of Outcomes over the next five years | | | |
|--|--|--------------------------|------|
| Outcomes | | Net Present Value \$'000 | %age |
| Negative wellbeing in community | | \$6,960 | 71% |
| Decline in freedom camping Clifton Rd Reserve | | \$217 | 2% |
| Decline in wineries cellar door visitors | | \$937 | 10% |
| Loss of Clifton Camping Ground | | \$1,054 | 11% |
| Loss of some ecological areas of Haumoana Domain | | \$207 | 2% |
| Eventual relocation of Te Awanga Community Hall | | \$356 | 4% |
| Decline in cyclists using Te Awanga trail | | \$111 | 1% |
| | | \$9,842 | |

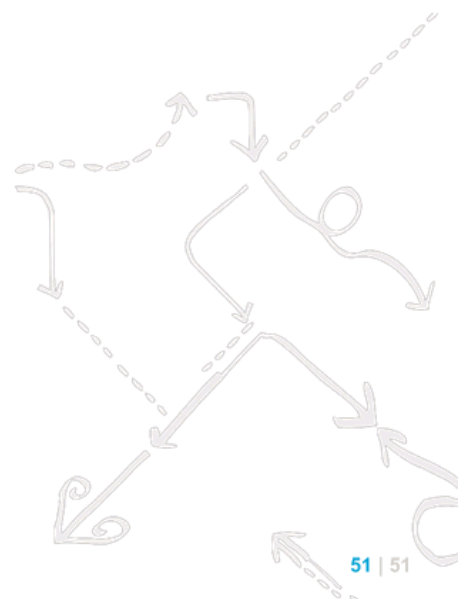
Discount Rate

7%

Commercial in Confidence | Version: 1.0 | February 2017 – Draft for Discussion Only – Not for Publication

Appendix Four - Sectional maps of Cape Coast area showing projected coastal erosion and inundation risk

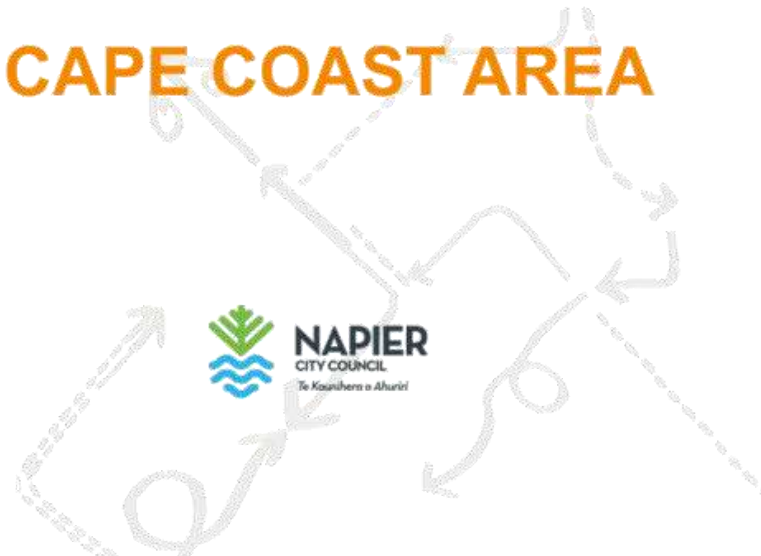
maven





COASTAL HAZARDS ESTIMATES OF EROSION & FLOODING 2017–2120

SOCIAL IMPACT SURVEY – CAPE COAST AREA
DECEMBER 2016



COASTAL EROSION

Tukituki River mouth to Springfield Road –
66% probability in a 1:10 AEP storm event

maven



Source: Coastal Hazard Mapping – Hazard Information Portal - <http://www.hbcoast.co.nz/maps/>

COASTAL EROSION

Springfield Road to East Road – 66% probability in a 1:10 AEP storm event

maven



Source: Coastal Hazard Mapping – Hazard Information Portal - <http://www.hbcoast.co.nz/maps/>

COASTAL EROSION

East Road southward – 66% probability in
a 1:10 AEP storm event

maven

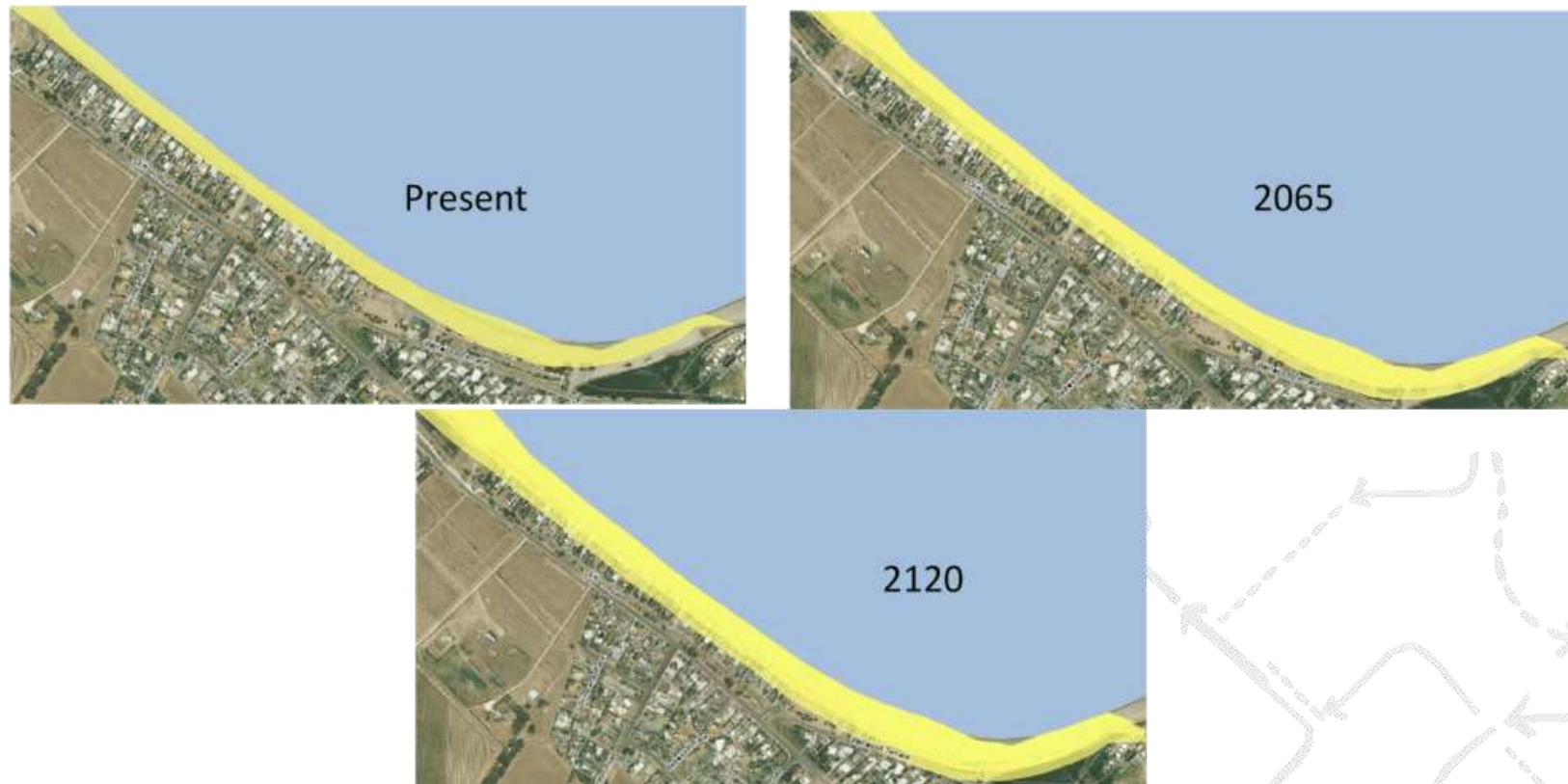


Source: Coastal Hazard Mapping – Hazard Information Portal - <http://www.hbcoast.co.nz/maps/>

COASTAL EROSION

Clifton Road to Maraetotara River mouth –
66% probability in a 1:10 AEP storm event

maven

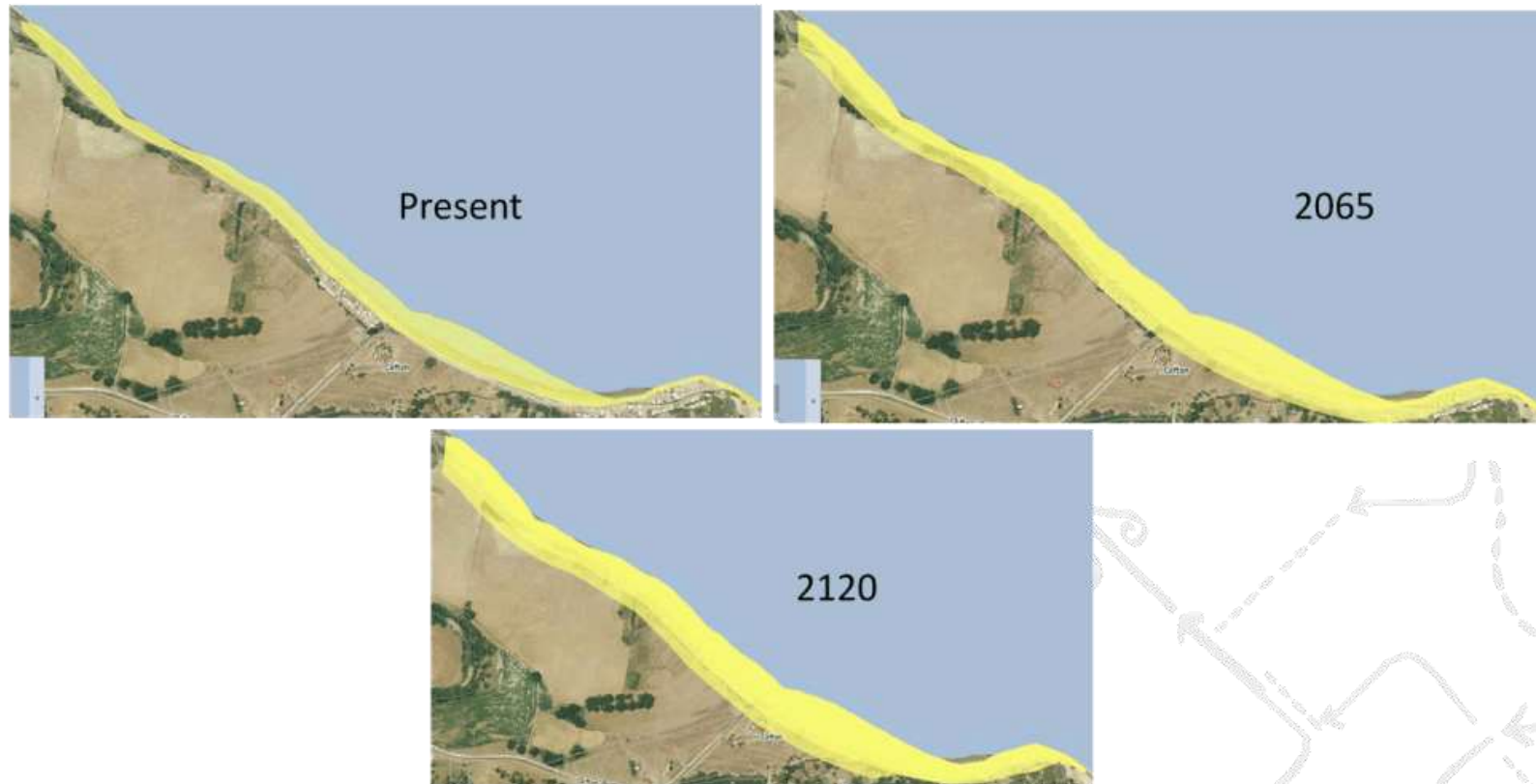


Source: Coastal Hazard Mapping – Hazard Information Portal - <http://www.hbcoast.co.nz/maps/>

COASTAL EROSION

Maraetotara River mouth to Clifton Beach –
66% probability in a 1:10 AEP storm event

maven



Source: Coastal Hazard Mapping – Hazard Information Portal - <http://www.hbcoast.co.nz/maps/>

FLOODING

Tukituki River mouth to Springfield Road – 1:100 AEP flood

maven



Source: Coastal Hazard Mapping – Hazard Information Portal - <http://www.hbcoast.co.nz/maps/>

FLOODING

Springfield Road to East Road – 1:100 AEP flood

maven



Source: Coastal Hazard Mapping – Hazard Information Portal - <http://www.hbcoast.co.nz/maps/>

FLOODING

East Road southward – 1:100 AEP flood event

maven

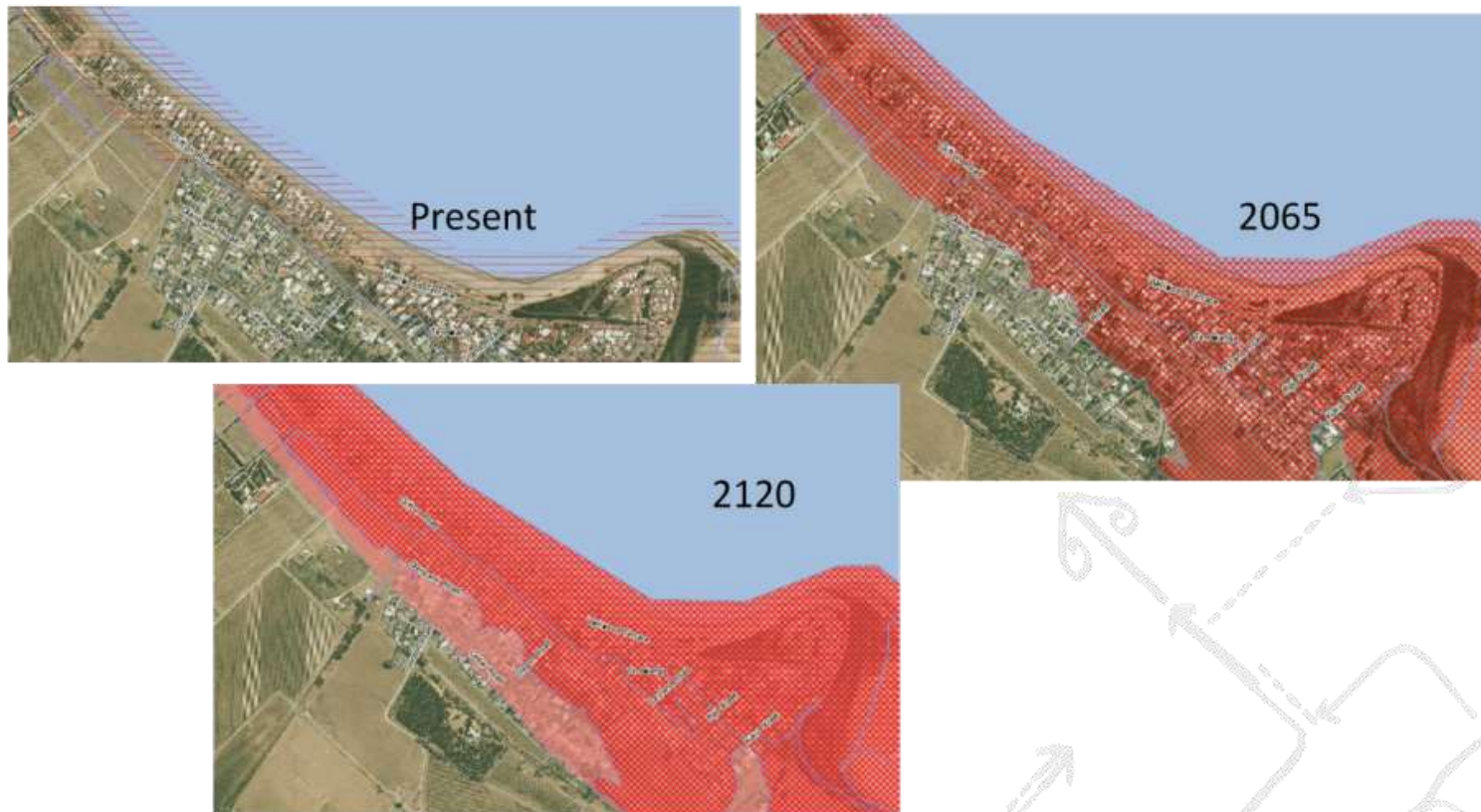


Source: Coastal Hazard Mapping – Hazard Information Portal - <http://www.hbcoast.co.nz/maps/>

FLOODING

Clifton Road to Maraetotara River mouth – 1:100 AEP flood event

maven

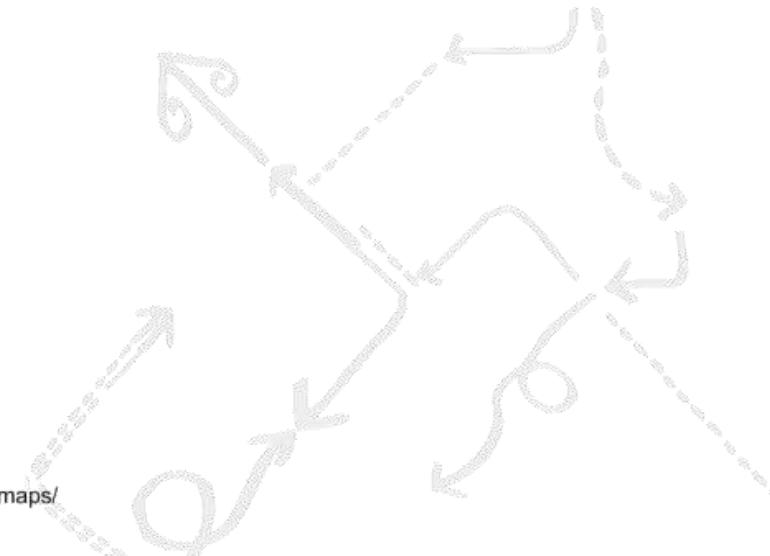
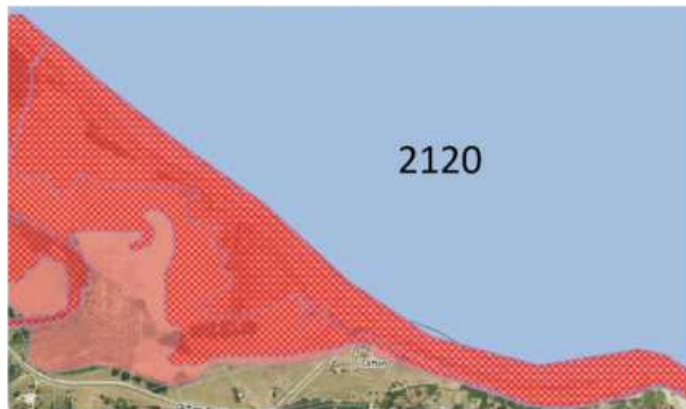
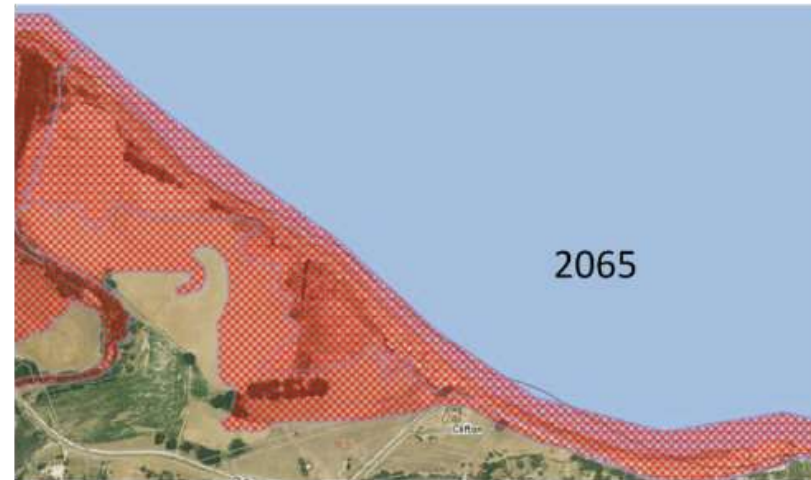


Source: Coastal Hazard Mapping – Hazard Information Portal - <http://www.hbcoast.co.nz/maps/>

FLOODING

Maraetotara River mouth to Clifton Beach – 1:100 AEP flood event

maven



Source: Coastal Hazard Mapping – Hazard Information Portal - <http://www.hbcoast.co.nz/maps/>