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SUSTAINABLE NAPIER COMMITTEE

Open Agenda

Meeting Date: Thursday 13 February 2020

Time: 10am

Venue: Council Chambers

Hawke's Bay Regional Council

159 Dalton Street

Napier

Committee Members Mayor Wise, Councillor Price (In the Chair), Deputy Mayor

Brosnan, Councillors Boag, Browne, Chrystal, Crown, Mawson,

McGrath, Simpson, Tapine, Taylor and Wright

Officers Responsible Director Infrastructure Services, Director City Strategy

Administration Governance Team

Next Sustainable Napier Committee Meeting

Thursday 26 March 2020

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ORDER OF BUSINESS

Apologies

Nil

Conflicts of interest

Public forum

Announcements by the Mayor

Announcements by the Chairperson including any discussion of minor matters not on the agenda

Note: re minor matters only - refer LGOIMA s46A(7A) and Standing Orders s9.13

A meeting may discuss an item that is not on the agenda only if it is a minor matter relating to the general business of the meeting and the Chairperson explains at the beginning of the public part of the meeting that the item will be discussed. However, the meeting may not make a resolution, decision or recommendation about the item, except to refer it to a subsequent meeting for further discussion.

Announcements by the management

Confirmation of minutes

Nil

Agenda items

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AGENDA ITEMS

1. NATIONAL AQUARIUM DETAILED BUSINESS CASE

Type of Report:	Procedural
Legal Reference:	N/A
Document ID:	841656
Reporting Officer/s & Unit:	Antoinette Campbell, Director Community Services

1.1 Purpose of Report

The purpose of the report is to receive the National Aquarium of New Zealand Detailed Business Case (DBC), approve the communications and engagement plan, and apply to the Provincial Growth Fund and Government for funding.

Officer's Recommendation

That the Sustainable Napier Committee:

- a. Receive the National Aquarium Detailed Business Case.
- b. Note additional Provincial Growth Fund (PGF) funding for completion of Detailed Business Case is to be confirmed following meeting with Ministers.
- c. Note the increased annual operational cost identified in the Detailed Business Case and that alternative options to offset this are being explored.
- d. Approve the high level Communications and Engagement Plan and commence community engagement.
- Resolve to apply to the Ministry of Business, Employment and Innovation (MBIE)
 Provincial Growth Fund (PGF) and other government funds for funding pending meeting with relevant Ministers.
- f. Receive the National Aquarium and Oceans Centre Concept Design.

Chairperson's Recommendation

That the Committee discuss the officer's recommendations.

1.2 Background Summary

In 2017, an Indicative Business Case (IBC) was developed to investigate the feasibility of expanding the current National Aquarium of New Zealand with the objectives of becoming a unique tourist attraction, a leader in environmental education to both schools and the community, and a showcase for research being undertaken in the land-to-sea environment.

All three themes were considered to support economic development and employment opportunities for Te Matau-a-Māui Hawke's Bay. The IBC found that the expansion proposal met the criteria of the Government's Provincial Growth Fund, specifically;

Being located in a surge region, identified for early investment;

- Being a regional project that supports economic development and capability building;
- Delivering a clear public benefit, building on what is already there, the existing National Aquarium of New Zealand; and
- Being strongly connected to regional stakeholders and frameworks, and aligned to regional priorities.

A draft IBC was submitted to the Ministry of Business, Innovation and Employment (MBIE) on 20 November 2017. Initial feedback was provided to officers verbally on 22 December 2017, and followed up in writing on 13 February 2018. MBIE suggested some fine-tuning was needed primarily with regard to;

- Clarifying the primary objective of the expanded facility
- Strengthening the tourism objective and supporting analysis
- Providing evidence to show the economic gains of the research objective, and whether the economic gains from combining the two objectives would be sufficient to meet both tourist and research outcomes.

The draft IBC was amended in line with feedback and a final IBC was submitted to MBIE on 20 April 2018. An application to the Government's Provincial Growth Fund (PGF) for the Detailed Business Case (DBC) was subsequently prepared and submitted to MBIE on 5 June 2018. The successful application resulted in Napier City Council entering into an agreement with MBIE to co-fund the DBC on 18 August 2018. The development of the DBC was awarded to Terra Moana Limited in early 2019 after unavoidable delays in the tendering process. Tenders for the delivery of the Detailed Business Case came in much higher than anticipated, due to the specialist and comprehensive nature of the work required to be undertaken to ensure its overall success. Council therefore resolved in July 2019 to approve \$400,000 from the National Aquarium of New Zealand capital project fund to be brought forward to complete the project-related aspects including architectural and exhibit design, cultural input, quantity surveyor and engineering reports. It was also resolved at the same meeting to approve an additional application to the PGF for 50% of the additional costs. The outcome of this application is still not known and will be discussed at the meeting with Ministers.

The development of the Detailed Business Case (Attachment A) and appendices (Attachments B-U) involved comprehensive stakeholder engagement with Māori, youth and the tourism, conservation, education and research communities, the development of architectural and exhibit design, and the development of a revenue generation strategy and partnering with zoo and aquaria around the world. The project, known as Project Shapeshifter, has been developed with a strong Māori kaupapa that can be easily translated to a general audience. This is what makes the proposal truly unique as it is a first for New Zealand and indeed the world. The draft Detailed Business Case was submitted to MBIE on 18 November 2019 where it was reviewed by the Provincial Development Unit (PDU). Feedback on the draft document was received from the PDU on the 26 November which was incorporated to the final DBC for a National Aquarium and Oceans Centre which was submitted to MBIE on 3 December 2019.

Aquarium History

The history of Napier's Aquarium dates back to 1954 when shoe retailer, Les Mills, had a large goldfish tank installed in his shop. A year later the goldfish were replaced with exotic tropical fish species which "would become an object of curiosity and fascination to customers" as documented by Michael Fowler's historical record, Napier's Aquarium 1957 – 2017 (Attachment V).

Les Mills, a member of the Thirty Thousand Club, proposed at a Club meeting in early 1957 that the basement of the War Memorial Hall would make an excellent location for a public aquarium and £500 (2020: \$25,500) was committed from the Club for this purpose.

The Napier Thirty Thousand Club was formed in 1912 to act as a beautifying association, tourism and economic development agency, and it took a particular interest in the Marine Parade developments. The Club was to dissolve when Napier's population hit 30,000, but it continued to around the mid-1970s after the populace had reached that number in the 1960s.

In 1957, the Council gave permission for the aquarium to go ahead in the basement of the newly opened War Memorial Hall. The aquarium was officially opened on 14 December 1957 and saw an average paid attendance of 1,529 per day with 3,700 visiting on Boxing Day. Other attractions on Marine Parade such as the new boating lake and the Mardi Gras festival were seen to have benefitted from the new aquarium.

The basement aquarium was not without its issues as it doubled up as a supper room for event goers to the War Memorial Hall. The fish tanks soon became coated in residue from cigarette smoke and at times, the tanks and species held within, were contaminated with alcoholic beverages.

In 1964, the newly incorporated Hawke's Bay Aquarium Society set out to raise funds for a purpose-built aquarium building. At this time, the Marineland proposal was gaining traction and funds raised for a new aquarium were diverted for this purpose. It wasn't until February 1973 that Council was presented with the plans for the circular building, which was constructed and eventually opened 10 December 1976.

In the first year of the Hawke's Bay Aquarium operations, visitor numbers of 230,082 were recorded however, by 1989 attendance had dropped to 75,424 which led to a review of the Marine Parade attractions, including the Aquarium and Marineland, and their governance and management arrangements.

In 1999, the Napier City Council Planning Committee approved plans for an expansion to the 1976 building, which is the building we have today. The facility was renamed the National Aquarium of New Zealand, Te Whare Tangaroa O Aotearoa. Prime Minster Helen Clark opened the National Aquarium on 14 March 2002.

Sixty thousand visitors went through the Aquarium in the first eight weeks and 10 months later it had received 180,000 visitors which exceeded the 163,000 visitors projected for a full year of operations.

1.1 Issues

Since the 2002 expansion, the Aquarium has continued to evolve and add exhibits, as well as deliver limited research, conservation and education activities. A nocturnal enclosure was added in 2002 to house a kiwi pair, an alligator exhibit was constructed in 2011, ten little blue penguins were relocated from the now closed Marineland in 2012, and the East Coast LAB (Life at the Boundary) was installed in 2016.

Despite the continued attempts to periodically refresh and revitalise the National Aquarium, recent condition, seismic and design assessments highlight that the Aquarium is no longer meeting the needs of our customers, animals and staff, or meeting modern day aquaria purposes of primarily delivering environmental education and research and conservation initiatives. While education, research and conservation activities are delivered currently, they are comparatively minor and secondary to the Aquarium's current primary purpose of being a tourist attraction.

The visitor journey within the current facility is confused, with visitor exit survey feedback regularly questioning why the National Aquarium of New Zealand has species from around the world, as opposed to focusing on native species. A significant proportion of species on display do not represent clear conservation stories or messages, and do not provide opportunity for involvement of Aquarium staff in real conservation action, such as widespread breeding programmes or rehabilitation. The popularity, both onsite and online, of the rehabilitation and rehoming work with the current colony of Kororā / Little Penguins at the Aquarium shows how this conservation action inspires real passion, understanding and support from the public.

Modern aquariums are underpinned by meaningful conservation work and learning that informs and inspires pro-environmental behaviours. They are expected to have large scale exhibits that assure visitors that animals homed have appropriate conditions to live in, and also that these animals represent real issues faced by their wild counterparts. There must also be support for visitors to understand how they can help. If there is no message, the animal should not be there. The size of many of the current exhibits, not to mention the accessibility visitors have to reach into these exhibits, means they are no longer fit for purpose to meet animal needs or welfare.

In July 2017, a Service Condition Assessment – Mechanical and Electrical Services report (**Attachment W**) was carried out by OPUS, and identified that in general, the equipment installed in the Aquarium is in an average to poor state and some of the items would need a major overhaul and/or replacement in the very near future. The report identified that the heat pump chiller, the main air-handling unit and associated air intake and air exhaust systems, were of major concern. A chiller replacement project is currently underway to address this.

In May 2018, Aurecon carried out Detailed Seismic Assessments (DSA) of the Original 1973 Building (constructed 1976) (**Attachment X**) and the New Building (**Attachment Y**) constructed in 2002.

The results of the Original 1973 Building DSA indicate that the building's National Building Standard (NBS) rating is limited to **40%NBS** at Importance Level 2(IL2) indicating a medium risk exposure.

The results of the New Building DSA found that the building's general structural rating of the main shear walls and primary structure beam, columns and foundations are reasonably robust with a rating of >80%NBS. However, there are problems with the earthquake rating of the precast hollowcore floor seating which has been found to be between 46% and 63% NBS. The building's earthquake rating is therefore limited by the seating of the precast floor units to approximately **46%NBS**. The report details some simple remedial detailing that would allow the building to achieve a rating of 90%NBS(IL2).

In July 2019, Detailed Business Case specialist aquarium architectural and exhibit design consultants, EHDD, carried out an assessment of the current facility in terms of its design and condition (**Attachment Z**). The report found that there was extensive corrosion of systems and degradation of finishes throughout and that such areas were generally not adequately designed or built to meet current standard for aquaria, or were even best practice when constructed. The assessment of lighting of both exhibits and public places was generally poor and life support systems are rudimentary. It recommended demolition of the original 1976 building as the cost of reuse would likely be high, approaching that of new construction, while introducing significant constraints to the design.

The 2002 building presents better potential for reuse. The overall building structure is in good condition however the ability to effectively incorporate the building into a new larger building is limited by the building's shape. The main tanks would require significant changes to them and the building structure to provide for appropriate life support systems, animal welfare, tank access and visitor experience as part of the new aquarium programme. As an alternative the report recommended that the entire ground floor could be readily adapted to uses that do not have to be within the new aquarium. These would include education spaces, temporary exhibit space and similar. Aquarium offices can also remain on the first floor expanding into the East Coast LAB area as required. The existing lobby and stairwell can likely be preserved to provide access to the building and first floor.

The report considers the costs to repurpose the 2002 building should be a significant savings over building the equivalent functions in the new building. Only limited structural work would be required, primarily removal of the main tank walls. New finishes and mechanical and electrical systems will be needed, with improvements to the building's envelope for thermal comfort. A new exterior wall will be required on the south end where the original building is demolished, along with a new elevator.

EHDD developed the National Aquarium and Oceans Centre Concept Design (attachment AA) which addresses site challenges such as potential for flooding and sea level rise. The design identifies the critical importance of incorporating resilience planning and strategies into the design of the facility. It is common for aquaria to occupy coastal locations which allows exhibits to thrive off raw seawater reducing reliance on additional resources. However given potential climate change impacts, using a coastal site means that adapting to sea level rise must be at the forefront of resilience planning.

The current 100-year flood level along the Napier coast is 5.7 meters above sea level. Research suggests that sea levels will rise as much as 0.6 meters in the next 50 years, and up to 1.35 meters in the next century. The corresponding 100-year event projections will be 6.3 meters at the 50-year mark, and 7.05 meters in the next century. In anticipation of this projection the following design considerations are made;

- The main floor level of the aquarium is therefore raised to 7.3 meters above sea level. This level is anticipated to remain dry during a surge event i.e. a king tide coinciding with high tide or heavy swell. All mission critical equipment such as electrical panels, on-site power generation, etc. is to be located at this level or higher.
- The lower level is to be designed as a "wet" level, or a level that could sustain flooding without damage. The design will still work to minimize flooding risk at the lower level, through sealed penetrations, backflow preventers on all drains, and flood doors on any required access hatches. All electrically powered equipment, such as pumps are to be installed on platforms 1m above the floor slab.
- Site development will incorporate features designed to attenuate the impact of storm surge, and channel flood waters into lower-lying areas away from the building.
- A robust structural design that exceeds code requirements. During a major seismic
 event the building would remain standing with minimum structural damage. This
 increase in structural resistance will also make the building more resistant in the event
 of a tsunami.

The 2018/28 LTP, which identified two options to redevelop the National Aquarium of New Zealand. The options were to expand the facility at a capital cost to Council of \$10.2M (plus external funding of \$42.8M) or to refurbish and replace the existing facility at a cost to Council of \$11.5M. LTP consultation found that the preferred option was to expand the facility rather that refurbish and replace. The EHDD assessment has

therefore identified post-LTP development that refurbishing and replacing the current facility is no longer an economical and viable option. Should Project Shapeshifter not proceed the ongoing operation of the National Aquarium of New Zealand would have to be reviewed.

Detailed Business Case

The DBC follows the Treasury Five-Case Model methodology which assesses the Strategic, Economic, Financial, Commercial and Management cases for change. In addition, a **Cultural Case** has also been developed to assess the impact of weaving Te Āo Māori, the Māori worldview throughout the design of the National Aquarium and Oceans Centre and the exhibits. Inspiration is drawn from Māui in redefining the role and purpose of the Aquarium and the challenge is to be bold and adventurous like Māui, to be a shapeshifter and game changer.

The **Strategic Case** is compelling. The existing facility is no longer fit for purpose and should be decommissioned. Worldwide attention is currently on ocean health and its impact on socio-cultural values, tourism, global trade and its contribution to climate and weather systems. Aquaria today inspire awe, wonder and excitement. In addition to informing and raising awareness of environmental issues, aquaria enable visitors to become agents of change and to actively support field conservation of species and ecosystems.

The **Economic Case** projects the construction will generate \$31M of regional GDP, with a further \$50M of national GDP. The facility operations is estimated to generate \$17M per annum of regional GDP with a further \$9M per annum of national GDP. The Social Return on Investment (SROI) to be an estimated \$45M of combined economic and social value.

The **Financial Case** found that the total capital cost of the proposal is \$77.5M (\$83.3M with interest and revenue generation costs) and which includes \$65.6M of construction costs, \$7.0M in contingency and \$4.9M associated with cost escalation during the construction period. Real fit-out replacement costs equal \$1.5M every five years and real exhibition refurbishment costs equal \$3.2M every ten years. Revenue (based on admissions) in the first full year of operations is estimated to be \$6.6M (based on a conservative estimate of 196,000 visitors) against operating costs of \$9.6M. Comprehensive and nation-wide stakeholder engagement during the development of the Detailed Business Case identified a growing interest in the opportunities that the project can offer on a national scale. This has translated to an increase in total capital budget required from \$53M identified in the Indicative Business Case, to \$77.5M.

The **Commercial Case** recommends the government's approved procurement framework and a 'traditional' model of delivery rather than 'design and build' or other method due to the highly specialised nature of the proposal. Some aspects of the build will be able to be ring-fenced as discrete packages of work. The building envelope construction for example can be procured via open tender whereas more specialist services such as tank construction and life support systems may be via a pre-selected tender on price-quality criteria.

The **Management Case** identifies the development of a National Aquarium and Oceans Centre as a project of high complexity. Detailed large programme design and planning will need to be done if the proposal is to go ahead and then professional project, commercial and procurement management, and content expertise deployed. Four major interrelated work packages will be needed to deliver the project;

- 1. Funding, Communications, Te Reo me ōna Tikanga (Māori language integration)
- 2. Infrastructure, Construction and Cultural Design Outcomes
- 3. Experiences, Education and Mātauranga Māori
- 4. People, Capability and Cultural Intelligence.

The project governance structure will comprise a Project Sponsor, the Project Steering Group, a Project Manager and the four packages (teams).

1.2 Significance and Engagement

The National Aquarium of New Zealand is a strategic asset and its redevelopment triggers a number of Criteria for Significance in Council's Significance and Engagement Policy including;

- The level of community interest
- · Impact on levels of service
- Financial impact on Council's overall resources and rating levels
- The cost of the decision
- The involvement of a strategic asset.

The aquarium redevelopment proposal was consulted with the Napier community through the 2018/28 Long Term Plan (LTP). As a result, Council resolved to allocate \$10.2M to the proposal and proceed to full business case and design concept following Government endorsement of the Indicative Business Case. In the development of the Detailed Business Case the proposal has had significant stakeholder engagement with Māori, youth, neighbours, Friends of the Aquarium and the research, education, conservation and tourism sectors (detailed in **Attachment H**).

There is a significant change in the total cost of the proposal from \$53M to \$77.5M with cost and confidence levels still between 15% to 30%. The change in the scale of the proposal has also resulted in higher annual operating costs of \$3M to \$5M annually. There are opportunities to review these costs including the following;

- The current assumption is that the asset would be fully depreciated however Council may opt to not fund the asset replacement due to its location at the end of its useful life (up to 50 years). This would save from \$1.5M to \$2.7M annually over the life of the asset.
- Additional revenue generating opportunities by way of programmes, tours, corporate packages, functions and events.
- Due to the nationally significant nature of the facility, discussions are to be held with Government around potential operational funding and capital grants for new exhibits and attractions.
- In addition to the establishment of a Funding Trust, advice recommends setting up a charitable Operating Trust to govern the development and the management of the facility. A charitable trust is more likely to attract donations to the conservation and education objectives of the Aquarium and its operations.

Council should seek further information around the net cost and agree the net ratepayer cost variance to be included in the next Long Term Plan should the proposal proceed.

Stage One of community engagement has been completed and summarised in the attached report (**Attachment D**). Stage Two, wider community engagement, is planned alongside 2020/21 Annual Plan consultation and is outlined in the Communication and Engagement Plan (**Attachment AB**).

1.3 Implications

Financial

This is a significant financial project for the Council. Council needs to consider the following;

- Clear consideration of the total project cost increase and the implications of increased annual operating costs and potential shortfall to the ratepayer
- Consider the timing of the project funding, the build gateways and the risk of full funding not being achieved (and mitigation of that risk) and the potential impacts for delivery.

As identified above, the Financial Case found that the total capital cost of the proposal is \$77.5M (\$83.3M with interest and revenue generation costs). Council has committed \$10.2M in the LTP. In discussion with MBIE, Council officers have indicated that a PGF application for capital funding will be sought up to \$35M. This project is assessed of being of national significance given the outcomes and benefits it will deliver. The assessment of any application will therefore potentially require Cabinet approval. Discussions are scheduled to be held with relevant Government Ministers around how we can leverage additional Government support and the positioning of the proposal outside the PGF due to the nationally significant nature of this project.

To inform the Economic Case, a Revenue Generation Strategy (RGS) Review (**Attachment E**) was carried out. The review found that private funders will support the aquarium development if it;

- Had an appropriate Māori title
- Be accepted as a national institution
- Be a truly iconic national flagship for environmental conservation
- Showcase live marine species
- Contribute strongly to Te Matau-a-Māui Hawke's Bay tourism brand and economic growth
- Interprets Te Āo Māori, the Māori worldview and showcased kaitiakitanga stewardship
- Provided conservation education
- Changes in attitudes, values and human behaviour in favour of conservation
- Takes place in a significant, eco-friendly building.

The RGS proposes a two-stage fundraising campaign that seeks to raise two successive campaigns of \$20,000,000. The second stage fundraising campaign will also position the aquarium for ongoing funding through sponsorship, membership, ongoing grant applications and philanthropy. Detail of how the two campaigns will be run, the key risks and milestones are documented in the RGS Implementation Plan (Attachment F). Revenue generation is an important but costly component of a project of this size. To achieve the level of fundraising required, an estimate of \$1.6M being 4% of the campaign target, has been included in the total project budget. There is an opportunity to however review the next phase of RGS and how it is delivered which will be undertaken prior to commencement.

PWC set out recommendations on the optimal governance arrangements of the National Aquarium and Oceans Centre (**Attachment J**). It is recommended that the establishment of a charitable Funding Trust is likely to attract more/larger donations as donors should be entitled to a tax deduction for their donations. It also recommends a separate Operating Trust be established to provide governance to the development and

operation of the new aquarium. Council would need to put in place appropriate commercial arrangements to;

- a) Lease the aquarium to the Operating Trust; and
- b) Allow for the ongoing provision of ongoing services to the Operating Trust.

The governance advice recommends that if Council agrees with the establishment of a Funding Trust and an Operating Trust that Council should undertake the steps required to establish the Funding Trust in the first instance. These steps would include retaining appropriate legal counsel to assist with drafting of the relevant trust deed, and determine who should be trustees for the Funding Trust. Once the Funding Trust is established and fundraising is underway, it is recommended that Council turn its attention to the establishment of the Operating Trust.

Social & Policy

N/A

Risk

The following risks are considered material;

Internal Risks

- That the Council do not support the Detailed Business Case and would like to explore other options in more detail
- That delays will incur higher costs of construction
- That time delays to the project result in the closure of the current facility for some time due to the condition of the assets
- That we do not have sufficient resources internally to undertake this project.

Community Risks

- That the community have had limited knowledge or visibility of the project
- That the community do not fully understand how this project is to be funded and the impact on their rates
- That the community does not understand that this project has no impact on the number one priority of resolving Napier's water network issues (noting this project is reserve funded).

The DBC has carefully assessed the risks of implementing the project and identifies the following two events that Council will seek to manage;

- 1. The risk that the facility will not be delivered on time, within budget or to the required standard.
- 2. The risk that the project will not achieve the benefits that are being sought.

The implementation risks are assessed using a bow-tie analysis and are considered to be managed by preventing the risk from occurring, or minimising its severity. These risks are managed generally through design, either of the facility, or in how it is operated, and education and engagement with stakeholders. The risks are primarily reputational in nature.

Benefit realisation risks are significantly more complex to manage. The DBC identifies that there is a risk that visitors remain insufficiently educated about the issues affecting the oceans and as a result that visitors do not change behaviours that adversely affect the oceans after visiting the aquarium.

The RGS Review identifies the main fundraising risk as competition for funds which mainly occurs when funding entities have finite annual distributions. This includes Lotteries, foundations and some individuals. Current major fundraising projects in

Hawke's Bay – Toitoi Hawke's Bay Arts and Events Centre, Hawke's Bay Community Fitness Centre and the Cranford Hospice, being in arts, sports and health are not viewed as being significantly competitive with the Aquarium for philanthropic funds.

A comprehensive fundraising risk analysis is covered in the RGS Implementation Plan. Risks consequences are identified along with mitigation strategies and controls to develop. This risk analysis will be updated throughout the campaign.

1.4 Options

The options available to Council are as follows:

- a. To approve the Detailed Business Case and Stage Two of the Communication and Engagement Plan, and to enter into discussions with Ministers on the national significance of the project before submitting an application to the Provincial Growth Fund and other Government funds for funding.
- b. To maintain the status quo, which is not sustainable. It is estimated that the current facility will no longer be operational in approximately five years' time.

1.5 Development of Preferred Option

The preferred option is to progress the development of the National Aquarium and Oceans Centre by approving the Detailed Business Case and Communication and Engagement Plan, and progress an application to the Provincial Growth Fund.

Due to the deteriorating state of the current Aquarium and its inability to meet public expectations of today's aquaria, maintaining the status quo will lead to eventual closure of the Aquarium. Because it is a Strategic Asset and this would result in a change in service levels, community consultation will be required nevertheless.

The National Aquarium has a long history with Napier residents and the wider Hawke's Bay community. It is a much-loved facility and the DBC supports the case for change to bring the aquarium activity in line with modern expectations in supporting meaningful conservation work and providing opportunities for Aquarium staff and the public to be involved in real conservation action. The Detailed Business Case presents a unique opportunity to Napier and the Region to be home to a national iconic facility increasing the potential to attract greater domestic, national and international visitors to our City.

1.8 Attachments

- A National Aquarium of New Zealand Final Detailed Business Case (*Under Separate Cover*) ⇒
- B 01. List of Appendices and Supportive Correspondence \downarrow
- C 02. Moana Tuatahi Concept U
- D 03. Project Shapeshifter Phase One Engagement Activities report \$\bar{J}\$
- E 04. Revenue Generation Strategy Review J.
- F 05. Revenue Generation Strategy Implementation Plan J.
- G 06. Colmar Brunton Survey Report J.
- H 07. Project Shapeshifter Sectoral Outcomes All Workshops Summary J.
- 1 08. Proposed National Aquarium Demand Study U
- J 09. PWC Governance Advice U
- K 10. PWC Governance Workshop J.
- L 11. Project Shapeshifter Research Dialogue Report U.
- M 12. Cultural Case U
- N 13. Oceans First Kaupapa Conservation Education Messaging U
- O 14. Timeline of Engagements !

- P 15. Financial Model J.
- Q 16. Extract Economic Impact Model J.
- R 17. NCC Project Management Strategy &
- S 18. Rider Levett Bucknall Stage One and Stage Two Estimates U
- T 19. Project Shapeshifter Supportive Correspondence J.
- U 20. M van den Belt Review of Moana my Ocean SROI J.
- V Napier's Aquarium 1957 2017 J
- W Mechanical and Electrical Services Condition Assessment J.
- X Detailed Seismic Assessment Original 1973 Building U
- Y Detailed Seismic Assessment New Building U
- Z Existing Facilities Assessment Report EHDD J.
- AA National Aquarium and Oceans Centre Concept Design (Under Separate Cover)
- AB Communications and Engagement Plan (Under Separate Cover)



Project Shapeshifter Appendices List

- 1. Project Shapeshifter Supportive Correspondence listed below (various)
- 2. Presentation: Moana Tuatahi Concept 30 Oct 2019 (Terra Moana Ltd and Arahia)
- 2019-10 FINAL Project Shapeshifter Phase One Community Engagement Activities report (Te Kaunihera o Ahuriri Napier City Council)
- 4. 20191022b NANZ RGS Review National Aquarium of New Zealand update (AskRight)
- 5. 20191105 NANZ Implementation Plan FINAL -- Revised (AskRight)
- Colmar Brunton Redefining our National Aquarium Survey report 23 Oct 2019 (Terra Moana Ltd and Colmar Brunton)
- 7. Project Shapeshifter Sectoral Outcomes All Workshops Summary (Terra Moana Ltd)
- 8. Proposed National Napier Aquarium _Shapeshifter Demand Study FINAL (Terra Moana Ltd)
- 9. PWC National Aquarium draft 28 August (PWC Governance Report)
- 10. PWC -- NANZ_playback (PWC NCC Governance workshop report)
- 11. Project Shapeshifter Research Dialogue Report (Vince Kerr and Terra Moana Ltd)
- 12. Cultural Case (TERRA MOANA LTD, Arahia and Te Kaunihera o Ahuriri Napier City Council)
- Oceans First Kaupapa Conservation Education Messaging (Terra Moana Ltd and National Aquarium of New Zealand)
- 14. Timeline of engagements (Terra Moana Ltd, Te Kaunihera o Ahuriri Napier City Council)
- 15. Financial Model Te Whare Tangaroa o Aotearoa (KPMG and Terra Moana Ltd)
- 16. Extract Economic Impact Model V4.2 Monte Carlo (Ian Dickson and Terra Moana Ltd)
- 17. Project Management Framework (Te Kaunihera o Ahuriri Napier City Council)
- 18. Rider Levett Bucknall Quantity Survey Estimates
- 19. EHDD Design Package (Separate Folder)

Project Shapeshifter list of Supportive Correspondence

- 1. Office of the Prime Minister's Chief Science Advisor, Participatory Science Platform
- 2. Moana New Zealand
- 3. Hawkes Bay Regional Council
- 4. WWFNZ
- 5. New Zealand Oceans Foundation
- 6. East Coast Lab
- 7. Mountains to Sea Conservation Trust National Office
- 8. University of Waikato
- 9. Eastern Institute Technology
- 10. THL Tourism Holdings Ltd
- 11. X-craft
- 12. Sally Carson Director Marine Studies Center, Otago University
- 13. New Zealand Oceans Foundation



MOANA TUATAHI / PUTTING THE OCEAN FIRST

Let us take you around New Zealand's Oceans Centre - a place that puts ocean care first.

Begin your adventure by being welcomed into Te Rau-ō-Kiwa, our Pacific speaking circle. You will hear indigenous voices of the Pacific Rim talk about this ocean we know as Te Moana-nui-a-Kiwa, the great ocean of Kiwa. This is a place of welcome, of gathering and sharing knowledge, a place for convening Pacific voices. This is where speakers gather to share their views and knowledge.

Then, tentatively entering the darkness of the domain of Tangaroa, god of the ocean, you will be immersed in the sights and sounds of enormous marine mammals swimming overhead as you journey towards the coast of Te Ika-a-Māui, the great fish of Māui, our North island.

Along your journey you will encounter graceful Turtles, our connection and link across the Pacific, and be awed by the silent stealth of our Sharks and Rays, before arriving at the domain of Hinemoana, ocean goddess. Truly mesmerized by her swaying hair in our giant kelp forest, you will be anchored in place watching the diverse array of wildlife in front of you, schooling, swimming, hiding and exploring.

Emerging through our exhilarating wave crash pool, you will encounter fascinating rock pool life before strolling across to our Penguin encounter to be entertained by our cute little waddling characters of the coast. Are you brave enough to pop up in the middle of their enclosure?

Let little bluey, our penguin guide, show you around the rest of our tidal pools and on to our Ray touch pool, to see and touch Rays as they gracefully glide past. Discover the story of Maui, fishing up the largest Ray, the North island of New Zealand.

You will discover our taonga species, species of incredibly important cultural value that have sustained people for generations, Pātiki / Flounder, Tuna / Eel, Wai Koura / Freshwater Crayfish, and Inanga / the juvenile Galaxids we know as whitebait.

Then lie back and rest your legs in our immersive theatre experience that brings to life Māori knowledge of astronomy, Maramataka – the lunar calendar, and how these relate to seasons and the migration of species. This knowledge helped Polynesians navigate the vast Pacific, governing seasonal practices and celebration, in tune with the environment.

In every step of your journey you will gain conservation insights from both scientific and indigenous knowledge systems and understand better the contribution you can make, link with conservation action and become part of the solution.

Finally, take some time out for retail therapy, buy some unique mementos of your journey, and enjoy a coffee, wine or meal.

KI TE AO MARAMA

Let us take you on a journey of enlightenment.

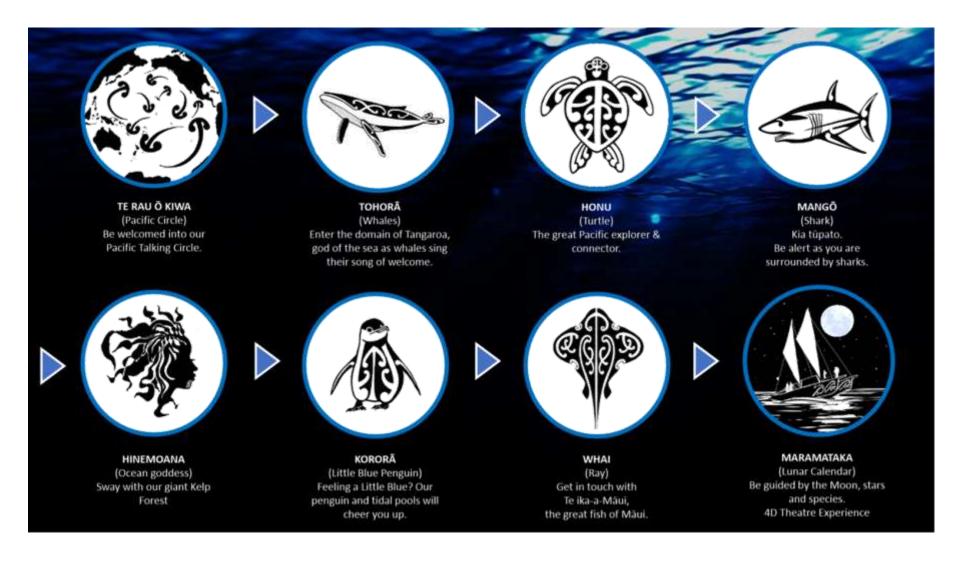
In the Māori creation story, first there was a void, **te kore**, then a long period of darkness, **te pō**, within which energy stirred until **te whaiao**, the moment of separation of Ranginui and Papatūānuku, sky father and earth mother, allowing the space in between to be filled with light, **te ao marama**. The tears of Rangi's grief at being separated, te ihorangi, introduced water into the world.

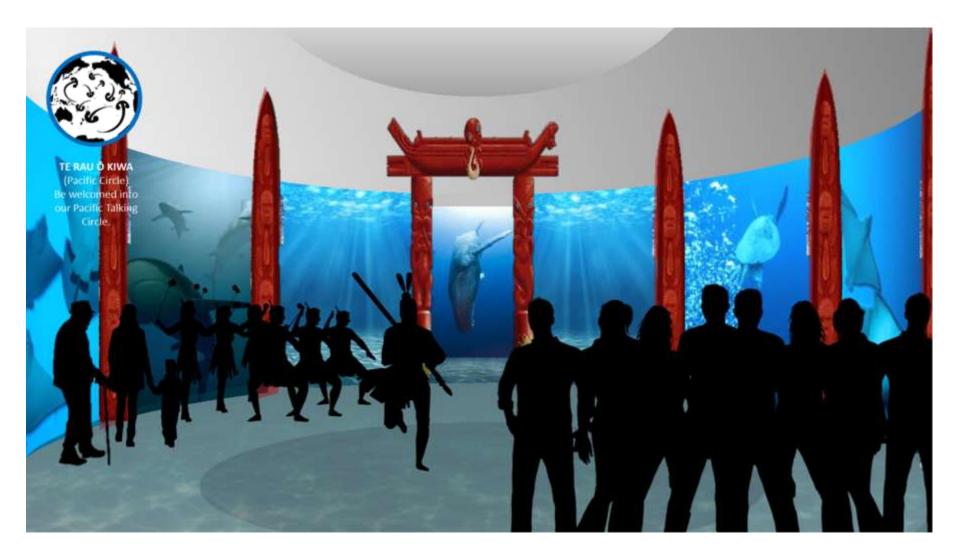
This is not only a creation story, that some compare to 'big bang' theory, it is also creative, thought and birth process. From nothingness anything is possible, into darkness where molecular energy and our subconscious stirs, where conception occurs, and then the moment of cognition, ignition or birth, where ideas are born, emerging into the conscious and physical expression in the world of light, the physical world, the world of knowledge, wisdom and enlightenment, maramatanga.

It is also a journey from a deep sensory space of 'feeling' to a physical space of doing.

So, our journey starts in a dark sensory space and progressively takes you into light and more physical and tactile environments, and finally a space of learning.









TE RAU Ō KIWA (Pacific Circle) Be welcomed into our Pacific Talking Circle.

Te Rau-ō-Kiwa, the gathering circle of Kiwa, makes reference to Te Moana nui-a-Kiwa, the great Ocean of Kiwa, divine ocean guardian and high priest.

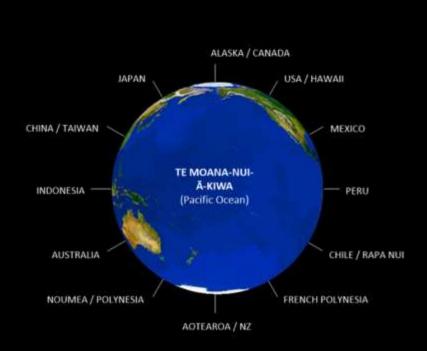
The New Zealand Oceans Centre is about positioning us within Te Moana-nui-a-Kiwa, the worlds largest Ocean containing 50% of the worlds ocean water and covering over 30% of the surface of the planet.

Te Rau-ō-Kiwa creates a 'talking circle', a place where indigenous voices of the Pacific Rim convene, each represented by a pou of their making, which will come to life when they are 'in residence' during forums, displays or programmes.

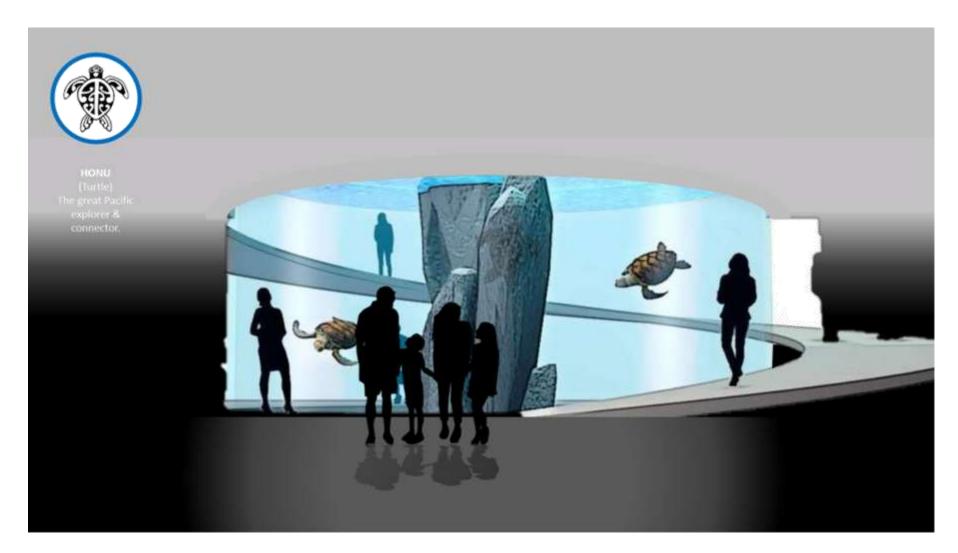
In this place Māori feature as a collective, as one of many indigenous Pacific Rim peoples represented, with Ngāti Kahungunu as the kaitiaki of this place as mana whenua.

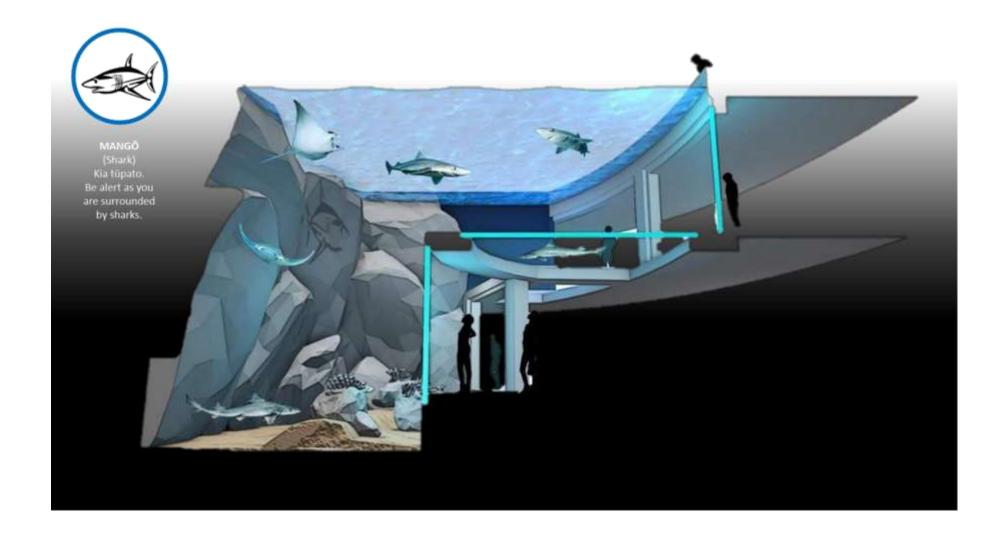
This place can be closed and used for ceremonial welcome, functioning as a talking circle, and when not in use is open to the public who can listen to indigenous voices of the Pacific Rim sharing their views and knowledge of the Pacific Ocean.

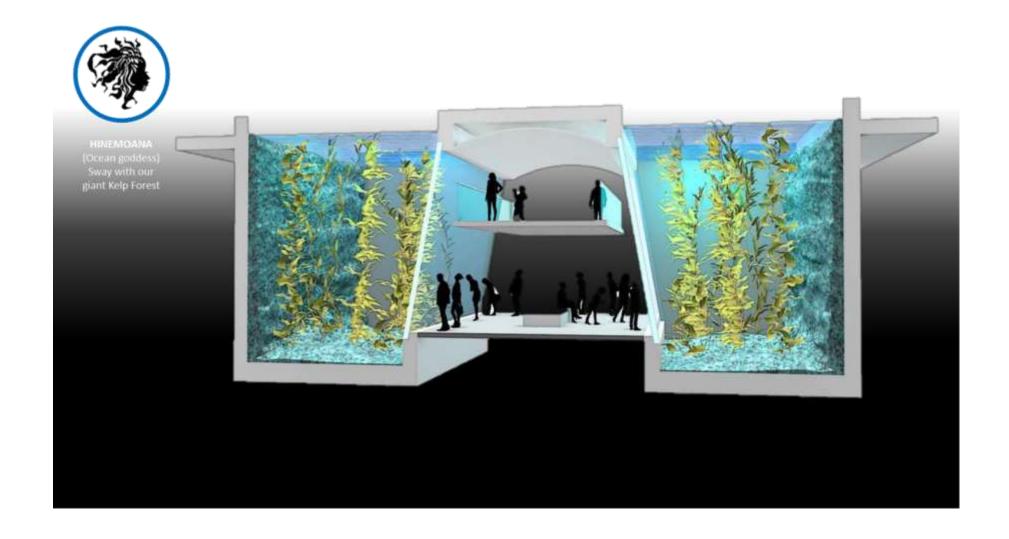
Digital screens will provide a view into the oceans of each location.













KORORĀ (Little Blue Penguin) Feeling a Little Blue? Our penguin and tidal pools will cheer you up.





KORORĀ (Little Blue Penguin)

Let Little Blue guide you around the wave, tidal & touch pool areas.





WHAI (Ray) Get in touch with Te ika-a-Māui, the great fish of Māui.







Project Shapeshifter

Community Engagement Report - Phase One

October 2019

1. Background

Napier City Council has an opportunity to significantly redevelop the National Aquarium of New Zealand, as the current facility is outdated, not fit for purpose and in need of an upgrade. The redevelopment was identified as an initiative of Matariki: Hawke's Bay's Regional Economic Development Strategy, which aims to increase regional growth through increased tourism and job opportunities. It was also highlighted in Napier's Long Term Plan 2018-2028 and residents showed interest and support for the project during consultation on the Plan.

Council has received funding from the government's Provincial Growth Fund to prepare a detailed business case for the Aquarium's redevelopment. This is due to be submitted in late 2019. If the business case is successful and Council is able to also secure funding from other sources (such as central government, grants, private funds, sponsorship), redevelopment of the Aquarium is likely to occur between 2022 and 2025.

Terra Moana Ltd¹ has been engaged by Napier City Council to prepare the detailed business case. To inform this, discussions have been held with a range of people locally, nationally, and internationally, including conservationists, Māori leaders, the tourism industry, researchers, and education providers to hear their ideas for the potential redevelopment. Alongside these discussions, young people and key Aquarium stakeholders have also provided input through an initial engagement process.

This summary describes the activities undertaken during initial engagements held between July and September 2019.

2. Overall approach and purpose

A community engagement plan was developed and approved by the Director of Community Services in July 2019. The plan outlines a two-staged approach for community engagement.

- Stage 1: Initial engagement to inform development of the detailed business case (July— September 2019)
- <u>Stage 2</u>: Community consultation, depending on project confirmation by Council and the Provincial Growth Fund (2020, to be confirmed).

Stage 1 initial engagement involved talking with the following groups to encourage their input into the Aquarium's redevelopment to inform the business case:

- Young people (12-24 years)
- Nearby residents

1

¹ www.terramoana.co.nz

'Friends of the Aquarium' (who pay an annual fee to receive member benefits).²

The initial vision and ideas generated in early discussions with leadership groups and subject matter experts were presented to these groups to seek their reactions and additional thoughts. The vision outlined how the redeveloped Aquarium would showcase New Zealand's unique culture, wildlife and environments through rich story-telling, engaging visual displays, innovative interactive technology, exemplary animal care, and accessible hands-on immersive experiences.

Stage 1 also provided an opportunity to provide initial information to the community about the project, through a website update and media release.

Stage 2, should it proceed, will involve a full community consultation. It will include details about the entire Aquarium redevelopment project, including options and concepts. This stage is dependent on receiving confirmation of Provincial Growth Fund and other funding, and Council approval to continue with the project.

3. Engagement activities and feedback

The following activities were undertaken during Stage 1 of the community engagement:

- · web page update
- · new information sheet (FAQs)
- media release
- · hui with young people
- · meeting with nearby residents
- · pop-ups for Friends of the Aquarium.

Each of these is described below.

Web Page

A web page was created on www.napier.govt.nz to provide details about the Aquarium Expansion Project.3 This is updated with new information as it arises.

The web page includes a number of components:

- · Project outline, including background information and link to the 2018-2028 Long Term Plan
- · Summary of ideas generated from workshops with leaders, experts and specialist groups
- · Frequently asked questions and answers
- Sign up form to receive email updates as the project progresses.

² https://www.nationalaquarium.co.nz/about/friends-of-the-aquarium/

³ https://www.napier.govt.na/napier/projects/aquarium-expansion-project/

Information about the project is also provided on the National Aquarium of New Zealand's website,⁴ with a link to the Napier City Council project page.

Information Sheet (FAQs)

An information sheet was developed to share with the initial engagement groups (see Appendix A). This was also formatted as Frequently Asked Questions for the web page. It includes background information about the redevelopment project, and details about timeframes, costs, location, operation options, animal welfare considerations, and when the wider community is able to review concepts.

Media Release

A media release was distributed on 7 August 2019. The purpose of the release was to inform the wider community about the preparation of the detailed business case and that sector consultation with a range of stakeholders had begun (see Appendix B).

Young People

Three rangatahi/youth engagement hui were held at the Aquarium in August 2019. The first forum involved members of the Napier and Hastings Youth Councils, and the Hawke's Bay Environment Youth Council.

Invitations were extended to a wider group of young people (aged 12-24 years) for two youth hui. One of these was held on a weekday evening, and the other during the daytime on a weekend – both in late August 2019.

The two youth hui were promoted as Facebook events and the project team contacted national and local youth networks to extend the invitation – including EiT, Te Matau – young Māori professionals, Hawke's Bay young professionals, Young Enterprise, Asia Foundation Youth, and Sir Peter Blake Youth EnviroLeaders. All local intermediate and secondary schools were also invited.

A total of 51 young people attended the three facilitated events. Key issues identified were:

- Need to recognise not all young people have a connection with nature; some haven't had the
 opportunity or motivation to engage or connect with it.
- · Real animals provide inspiration, awe, and wonder for young people.
- The redeveloped aquarium proposition is viewed as an icon of cultural significance and there
 is enthusiasm for the expansion.
- The aquarium building needs to embody sustainability.
- There are expectations the new aquarium will have conservation, care and welfare at its heart, and will be accessible to all.
- · Connection and interaction are important, in order to provide exciting opportunities for youth.

⁴ https://www.nationalaquarium.co.nz/about/expansion-project/

A full summary of the youth engagement is contained in Appendix C.

Nearby Residents

Residents living near the Aquarium were identified as a key stakeholder group for the initial engagement. Seventy-seven residents, including owners and occupiers, were sent a letter about the redevelopment project in August 2019 (previous information had been sent to them in September 2018). The letter outlined the business case process and timeframes. It also said a residents meeting would be held in September at the Aquarium and encouraged residents to sign up via the web page to receive project updates. Included with the letter was a copy of the information sheet.

The meeting with residents was held on the evening of 10 September 2019 (6pm) at the Aquarium. More detailed information about the project including high level concepts, was provided at the meeting. Residents were given the opportunity to ask questions.

Twelve residents attended the meeting, and an additional resident (who had been overseas at the time of the meeting) followed up subsequently. Residents' queries mainly focused on costs, building size and location, and impacts during construction. A summary of the discussion is included in Appendix D.

Friends of the Aquarium

Friends of the Aquarium ('Friends') purchase an annual membership which provides unlimited access to the Aquarium during opening hours and a number of other benefits (eg. special invitations to events, discounts in the gift shop and café). The Friends were identified as a key stakeholder group for the initial engagement.

At the time of the engagement, there were 675 Friends of the Aquarium. All were emailed in August 2019 with information about the redevelopment and were referred to the website for project information.

In September 2019, they were invited to one of two informal 'pop ups' at the Aquarium as an opportunity to tell the project team what they wanted to see at the redeveloped facility (see invitation in Appendix E). Families and children were encouraged to attend. Two pop ups were held: one on Thursday 26 September at 9.30am and the second on Saturday 28 September at 1.30pm (the start of the school holidays). A newly produced short video clip was also sent with the invitation.

The pop ups were an informal opportunity for the Friends to give feedback via interactive displays, information stations, and a rolling slideshow presentation which included some of the initial concept diagrams, and fun activities for children. Friends were also offered the opportunity to respond to a survey, which it was anticipated would be sent our soon after the pop ups. The survey was subsequently put on hold until the second round of community engagement (following confirmation of funding).

Nine adults and 10 children attended the two pop ups. Although the numbers were low, interest in the project was high with many of the families staying for over an hour, and providing detailed feedback

and input. Hands on experiences were high on their wishlist. Feedback on the four tank visuals was positive. Everyone was supportive of the development plans and they are keen to see it happen.

4. Next steps

Information from the initial engagement will be used to inform development of the detailed business case. Wider community engagement will be undertaken following confirmation of funding and Council approval to continue with the project.

Appendices

Appendix A - Project Shapeshifter Information Sheet



Project Shapeshifter – Aquarium Expansion Frequently Asked Questions

Q: What is Project Shapeshifter?

A: The expansion of the Aquarium is known as Project Shapeshifter. Central government has asked us to prepare a business case for redefining the National Aquarium of New Zealand, which is located in Napier. This involves creating something exciting and different for New Zealand. The vision is to have a national centre of excellence which showcases education, research, environmental kaitlakitanga (guardianship), indigenous knowledge, and science. Key partners in the project include Air New Zealand, University of Waikato, Hawke's Bay Tourism, Hawke's Bay Regional Council, and local livi.

Timeframes.

Q: What is the timeframe?

A: We have received funding from the government's Provincial Growth Fund to prepare a detailed business case for a new redefined National Aquarium of New Zealand. This will be submitted in late 2019. If the business case is successful and we secure funding from other sources, construction will likely happen from 2022-2024, and the new aquarium may open in 2025.

Costs

Q: What will it cost?

A: The project cost will be determined through the final detailed business case. Napier City Council has put aside \$10.2 million in the 2018-2028 Long Term Plan. The remainder of the construction and ongoing operational costs will be sought from a mix of sources – including central government funding, grants, private funding and sponsorship. Until the full business case is developed, we won't know the exact total cost of the project.

Q: What will happen if we don't get enough external funding?

A: We will have to scale back the project or just do a refurbishment of the current Aquarium.

Q: What will the entry fee be?

A: Admission charges may increase once the new aquarium opens but we intend to look into a locals' entry fee. People can also join the Friends of the Aquarium by paying an annual membership. Council reviews fees and charges every year for all facilities.

The animals

Q: Are the days of keeping animals in captivity over?

A: The National Aquarium of New Zealand is a member of the Zoo and Aquarium Association of Australasia (ZAA). As a member, the aquarium is required to undergo accreditation where we must clearly demonstrate how we meet their standards of, and our commitment to, positive animal welfare. The aquarium expansion is an opportunity to continue to show visitors ways that we can all care for the environment and its inhabitants. The aquarium will continue to have a range of animals to visit, but there will be greater use of digital technologies for visitors to experience. This means visitors will have an opportunity for close up experiences with species that they may never otherwise see.



Q: What will happen to the existing Aquarium animals while the expansion is under construction?

A: What happens to the animals will depend on where the new facility is constructed. If animals need to be moved off-site, some will go to other local facilities or ZAA accredited members to be looked after until the new building is completed. Others, such as native fish species like kahawai, can be released back into the wild.

Location

Q: Why is the National Aquarium in Napier?

A: An aquarium has been in Napier since 1957 when local fish-keeping enthusiasts gathered together to use space in the lower level of War Memorial Hall to display their fish. The Napier Aquarium was expanded in the early 2000s and opened as the National Aquarium of New Zealand in 2002. Hawke's Bay is known by its Māori name of Te Matau-a-Māui The Fish Hook of Māui, which carries significant meaning for the National Aquarium. Being associated with Te Matau-a-Māui supports the National Aquarium being in Napier, drawing on a 1,000 year legacy of navigation, voyage and migratory movement of species.

Q: Why is the Aquarium by the sea?

A: Aquariums are often located on coastlines so they can connect with the sea. The water from the ocean is also vital for the life support systems needed by the animals. The current aquarium site is 5.5m above sea level.

Q: What about rising sea levels?

A: The main level of the current aquarium is 5.5 metres above sea level. With the expected rise in sea levels in the coming decades due to climate change, the current aquarium site is at risk of flooding during 100-year flooding events. To account for this, the design will include strategies to minimize damage and protect the aquarium's collection. Incorporating these design strategies means the aquarium can be built to survive future storm surge events with minimal damage. The current 100-year flood level along Napier's coast is 5.7 metres above sea level. Research suggests that sea levels will rise 0.6 metres in the next 50 years, bringing a 100-year flood event to 6.3 metres. The main floor of the new aquarium would be 7.3 metres above current sea level – 1 metre above the 100-year flood level adjusted for sea level rise. To minimise damage, mechanical, electrical and telecommunication rooms and associated equipment would be located on the upper floor or the building's roof to avoid flooding. The building will be designed to withstand high wind speeds during storms. In general, aquariums are very robust buildings due to the stress load requirements of the wet exhibits.

Q: Would the Aquarium survive a tsunami?

A: A detailed seismic assessment has been commissioned and the findings will be incorporated in the project. Most buildings in close proximity to the sea would be challenged by a significant tsunami. The aquarium has animal rescue procedures in place for natural hazard events.



Getting involved

Q: When will the community have a say?

A: Napier residents gave strong support for the National Aquarium expansion during the Long Term Plan 2018-2028 consultation. A more formal consultation process with Napier residents will be undertaken in 2020 if the business case is approved by central government.

Q: What about the Friends of the Aquarium?

A: Anyone is able to join the Friends of the Aquarium, which will still continue if the expansion goes ahead. Friends can visit every day the aquarium is open. They also receive special invites to events and new exhibit openings. From 1 July 2019 the Friends of the Aquarium annual fee will be \$65 per adult, \$95 for an adult and one child, \$150 for two adults and up to two children, and \$25 per extra child, per year.

Q: Who will run the new National Aquarium?

A: We are looking at the possibility of setting up a Charitable Trust for the aquarium and will investigate this in the business case.

Find out more

About the project:

www.napier.govt.nz/napier/projects/aguarium-expansion-project/

About Friends of the Aquarium: www.nationalaquarium.co.nz/about/friends-of-the-aquarium/

Appendix B - Project Shapeshifter Media Release

Sector consultation underway for National Aquarium project

The process to complete the detailed business case for the proposed expansion of the National Aquarium of New Zealand, known as Project Shapeshifter: Redefining our National Aquarium, has entered an important phase, with sector consultation underway.

ion for Project Shapeshifter is being shared at a series of workshops, (during July and August) with stakeholders including ivil, youth and leaders from the fields of conservation, research, education and tourism.

Antoinette Campbell, Director Community Services, Napler City Council augla We are redefining our national aguarium to make a significant and positive contribution to New Zealand's equatic environments, from mountain top to deep ocean trench



"The name Project Shapeshiber is emblematic of Mau"—the 'shapeshifter' and great East Polynesian ancester-explorer of the Pacific Ocean. Our challenge is to be hold and adventurous like Milui – to be a shapeshifter and game-changer

"We are excited to share our ideas and passion for this project. We're asking our stakeholders to job with us and contribute their valuable kno expertise so that we can revitalise and shapeshift the national aquarium

'A modern equation that reconnects people with our equatic environment, and abovecases equatic life and formanity's interdependence with it, will help people understand what goes on under the water and how our everyday actions can affect those fragile eminorments - both positively and negatively

We want to create a disbally distinctive facility to arrapse, inspire and compet. We can only achieve this by working closely with our partners and ensuring that

"There has been great buy in from the visitishops so far. Participants have been anthusiastic; not only for the project healf but also for the consultation process.

Once the sentor workshape are completed and feetback collated, the public will be invited to participate by sharing their thoughts about the project. This is likely

"We are hopeful that once people have had a chance to see how Project Shapeshifter is developing, they will be just as enthusiastic and excited about the huge potential of this project, and provid that such an impirational and provocative facility is located in their region," continues Campbell.



NCC's Antoinette Campbell: 'We are excited to share our ideas and passion for this project, We're asking our stakeholders to join with us and contribute their valuable knowledge and expertise so that we can revitalise and shapeshift the national aquarium."

Combined feedback from the sector consultation process and public engagement will feed into the detailed business case for Project Shapeshifter which is due to be presented to Government later this year. Should the detailed business case be approved, the project will late a big dep towards becoming a reality.

We are looking for new and innovative ways to externally fund the construction and ongoing operational costs of the equation. We are miniful that the cost connet fall solely on Napler ratipayers. As ouch, we see it being funded through a mix of channels — ranging from central government through to private funding from various channels, both here and overseas," says Antoinets Campbell.

Recap on the highlights of Project Shapeshifter

- Create a globally distinctive icon to amone, inspire and compet, that reco ects people with our aquatic environment, from m trench, klista - klital, ki to Mouna-mil-a-Kliva, to care for the well-being of our planet
- treach, hi star. At Int. At the Moune-min's Allows, to care for the veet-benny or our praner.

 Deliver a landmark conservation centre and contributing to research with learning at its core.

 Project cast will be determined through the final detailed business case. A \$10m investment will come from NCC over two years and the balance will be funded through a trick of public and private investment from both New Zealand and overseas.

 Adaptment with the objectives of Natarish: Harvis's Bay's Regional Development Strategy for connectic and social growth.
- A strong indicative business case that contributes financially, environmentally and culturally to the region
 Alignment with Napier City Council's Long-Torm Plun.

- Alignment with Napier City Council's song-term trace.
 Full business case process has stated and will be presented to Government later this year.
 Kay partners include Air New Zeeland, University of Violkato, Hawke's Bay Regional Council, Hawke's Bay Tourism and local livit. Key partners include Air New Zeeland, Univer Expanded facility earmanised to open in 2025.

| Estimated Project Shapeshifter timeline

Late 2019 Detailed business case submitted to Government and (hapefully) approved 2020-2021 Detailed design and concept development (including consultation), and funding partnerships secured

2022-2024 Construction

Redefined National Aquarium of New Zealand opens.

See the Project Shapeshifter page for more details.

7.August 2019

Appendix C -- Youth Forum Summary



Project Shapeshifter will marry indigenous knowledge and leading-edge science and technology through cross cultural partnerships, connecting us with our place in the Pacific to better understand our environment and care for our planet.

What is this Project Shapeshifter?

We are re-envisioning the role and purpose of the National Aquarium of New Zealand so that it can make a significant and positive contribution to our environment - from mountain top to deep ocean trench ki uta - ki tai, ki te moana hôhonu - to care for and improve the well-being of our planet and all who depend upon it.

Drawing inspiration from the Pacific's biggest, most famous problem solver Māui, we will be bold and adventurous in our vision to create a globally distinctive icon to amaze, inspire and compel. We want this to be a project that all of New Zealand can feel a sense of ownership for and be proud of and one that will play a significant role in conservation. Not just in New Zealand, but globally.

This is our opportunity to do something different. Something New Zealand can credibly do, where we can lead and inspire others. Something not just good for us, but good for the planet.

We are excited to share our vision, our ideas and our passion for this project with you, More importantly, we welcome your feedback on what role you believe such a facility should have in Aotearoa and our changing world, so that we can bring this vision to life and shapeshift the National Aquarium.

Māui was a rebel, who challenged the status quo. With Māui as our inspiration we ask that you engage with us, challenge us, share your ideas with us and join our shapeshifting journey.



Kia hora te marino Kia whakapapa pounamu te moana Kia tere te karohirohi

May the calm be widespread May the sea glisten as the greenstone and May the shimmer of summer dance across your pathway.

Project Shapeshifter Rangatahi | Youth Forum Initial Outcomes

"I want an aquarium that thinks about the animals by protecting and teaching about all. The argument of holding animals in captivity is always a problem. But if you have a section of the aquarium devoted to 'rescuing, rehabilitating and if possible releasing these animal's, then you can help the animals, the environment, people to learn and also to <u>Be Different!</u> Think about our future:)"

"Creating an aquarium where we, the youth, are challenging the generation before by showing innovation without hurting the environment and aquarium. As well as for our sea life own generation help with the action"

"I want an Aquarium where there are heaps of interactive experiences and learning opps. Also as teen friendly as possible would be cool."

What Is this Reporting On?

Project Shapeshifter held three rangatahi/youth sectoral engagement hui/forum at the Aquarium. The first, on 05.08.19 invited members of the Hastings Youth Council, Napler Youth Council and Hawke's Bay Environment Youth Council. The other two invited young people aged 12-24 years old to attend an evening (23.08.19) and weekend daytime event (24.08.19).

The events were promoted on social media and the project team reached out to national level youth networks including Young Enterprise, Asia Foundation Youth and Sir Peter Blake Trust Youth EnviroLeaders, who unfortunately could not attend an event in Hawke's Bay. All local intermediates and secondary schools were emailed invitations, in addition to community youth networks. A total of 51 young people attended across the three events.

What Happened

The project was introduced. The project narrative was presented and followed an opportunity for participants to respond to the kaupapa/narrative. A second presentation then covered youth programmes and initiatives offered by zoos, aquariums and museums globally, to prompt suggestions from participants about the kind of opportunities they would like implemented. A range of 'statements' from the presentation were discussed and participants were asked to sticker what they were excited by and not so interested in. The session was then wrapped up with some final thoughts for what participants wanted in a future aquarium.

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Summarisad Take Outer

- We must never assume all young people have a basic connection with nature. Some have not necessarily had the opportunity or motivation to engage or connect.
- have not necessarily had the opportunity or motivation to engage or connect.
 Real animals inspire awe and wonder, captured in the repeated askings of, 'Is it real?' as four young men walked through the Aquarium exhibits.

An icon of cultural significance

- There was enthusiasm for the expansion to be an opportunity to, "Put Napier on the map" so it was, "well known throughout NZ and the world". Also an acknowledgement that it could 'boost tourism' and offer 'increased employment in Napier/Hawkes Bay'.
- A lot of support for the aquarium to 'teach children the real stories of Maui', to
 'teach our tamariki about Tangaroa' and 'to have Māori myths and legends'. But
 caution was given to make sure the aquarium didn't give, 'Inaccurate representation
 of cultures that ends up being offensive'
- Need to make sure bicultural language use supports international visitors as, "M\u00e3ori words are hard for foreigners"

The building needs to embody sustainability

- It should be a 'Net neutral and carbon neutral aquarium. Adopting lifestyle-based café system [vegetarian and vegan] that doesn't have harsh impact on environment'
- An 'Eco building. The whole process must be environmentally friendly. It should be negative carbon, energy producing.'
- However, questions were repeatedly raised about the current location and, 'Will the building be protected against the predicted rising sea level?' and protected against risk of fsunami.
- Another young person cautioned of the risk that 'All the goals and money are not met. Make sure it is achievable'

Conservation, care and welfare

- The aquarium has a responsibility to inform visitors and 'Show that the animals are safe and been taken care of and have 'Better living conditions for animals'.
- It needs to be a 'Rescue and rehabilitation centre save animals and teach conservation!'
- There was also acknowledgement of need for visitors to engage appropriately through, "Exhibits where visitors can safely interact with fish/animals so that people can connect with the fish/animals rather than just looking at them."

Accessibility

- The aquarium must have reach so it can provide 'Learning opportunities for our rangatahi locally and nationally'
- Need to make sure than financial barriers do not prevent access 'It should be free for all kids and schools'
- Young people were aware of the needs of international visitors and the need for 'Billingual signs for tourists and all that. When they come in, they need to understand so they don't have to ask people for directions.'
 All visitors' access needs' should be catered to, including 'Audio / braille for people
- All visitors' access needs' should be catered to, including 'Audio / braille for people that are sensory impaired'

3|Page



The intersection of science, technology and mătauranga Măori

- There was keen interest that 'Throughout the exhibits, there is a clear relation of scientific findings to M\u00e4\u00f3ori culture'
- But there was a strong acknowledgement that the iwi stories presented must allow for the variances between iwi, 'Get a listening booth that you different iwi having their own stories. Bring different stories together. Understand the differences.' And the importance of gaining permission from iwi

But not just 'science'

- The whole place must inspire excitement 'Outside of the building needs to look more fun for kids'
- · There is a desire for, 'Public opportunities to create art works'
- Young people want exciting programming with suggestions including, 'At night 'Nights at the Aquarium', 'fly a drone game' (to catch whale snot)', 'VR voyaging on a waka experience (relying on the stars to navigate)', 'AR tsunami experience or scuba diving experiences' or even a '4D movie of a tsunami'.

Connection and interaction is important

- The visitor journey needs be understandable, 'If you could put all the similar exhibitions in one area as it is confusing with turtles next to the cray fish. The journey needs to make sense.'
- Exciting use of technology was desirable, like, 'Heaps of VR to explore the reefs and
 other things.', '3D map of trench and sea map.' and how technology could be used to
 show a future where we don't curb our current behaviours, such as showing, 'what it
 would be like if we keep using plastic.' Possibly even an exhibit that was 'A room
 where there's a rough scale of how much trash is in the ocean.'
- would be like if we keep using plastic. Possibly even an exhibit that was 'A room where there's a rough scale of how much trash is in the ocean'.

 The wow factor needs to be there 'interactive systems/stations for learning purposes that would engage an audience of all ages SOMETHING MEMORABLE'. Some examples given included, 'Large and life sized models that hang from the ceiling make you go wow!' and 'Something like a tunnel going through tank, 360 tunnel see top and boffom.' Water slides that went through tanks were also suggested numerous times!
- Touch tanks feature highly with 'I would like to see hands on experiences at the
 future aquarium.' Although some requests, such 'Kiwi' encounters come and hold
 Kiwi.', highlight the need to address what is appropriate contact in line with animal
 welfare standards. There was even a suggestion of 'Swimming in a large touch tank
 with raws'
- Education programmes should offer the same opportunities for different age groups 'Holiday programmes something for the older, high school range that links to natural
 environment'
- Opportunities for connection need to extend beyond the aquarium walls too 'Online local 'find me' activities so people know what species to look for in rockpools'

Offer exciting opportunities for youth

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- Need to offer chance, "Giving the youth an opportunity to express their opinions/experiences through art showcases and volunteering"
 "Volunteer exchanges. Get people from other aquariums to bring new ideas. Volunteers helping with every day running not just feeding."
 Young people must also be offered the opportunity to get involved in conservation work, "Getting students to help with conservation and doing stuff" and in conservation programmes. There was general acknowledgement that this needed to be outside the aquaritim in patient scores to. the aquarium in natural spaces too.
- Young people 'Like the idea of programmes that lead to work programmes. Education and employment.' Supporting other young people not in education. employment or training (NEETs)

What's Next?
The Community Strategies team at Napier City Council are running events to present the concept with neighbours and Friends of the Aquarium members.

More information is available at the Project Shapeshifter <u>website</u>* or please contact Project Leader Katherine Short, <u>katherine@terramoana.co.nz</u> | 022-108-3536

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Appendix D - Residents Meeting Summary

Project Shapeshifter – Nearby Residents Meeting National Aquarium of NZ

6-7pm, 10 September 2019

- · Invitation letter sent to 77 people (owners and occupiers)
- 12 residents attended
- Presentation provided by the team, including background to project and current narrative, followed by question and answer session.

Questions/Answers

Q. What will the exact total cost be?

A. We are looking at a number of demand scenarios as part of the business case, including low, medium and high estimates. We don't know the full estimated cost as yet – that's why we are preparing a full business case.

Q. You say there will be no effect on rates - isn't that a bit aspirational?
A. Ideally we are wanting to have no greater impact on rates. We would like to put the Aquarium into a trust so it will be more likely to attract funding from other sources, including central government.

Q. Is the entry fee likely to rise? Will people want to come here?

A. We are keen to look at a differential for locals. And to have the international market pay more.

Q. Do cruise ship passengers come through the Aquarium? What percentage is it?
A. It's about 15% and we want to build on that. The biggest drawcards are the kiwi and penguin exhibits.

Q. Marine Parade in the past was dead. Now we have all this great development along the length of it and see the positive impact this has had on the character and culture of Napier. This aquarium project has the potential to be something different and to have some great tangible impacts. The number of people using Marine Parade now is incredible compared to 10 years ago.

A. Thank you. Council's role is to invest in facilities to the benefit of Napier including economic and business, culture and social aspects. The MTG gets 320,000 visitors per year now. The Aquarium currently doesn't meet the national standard. Te Papa and other national institutions have no ticket price. Moving the Aquarium into a charitable trust will attract philanthropy and other investors. We need to change it up to what people care about and what they love. Nowhere else on the globe is telling the story about the ocean like this. Reducing the burden on Napier ratepayers is important, and to increase vitality, so this is good for both us and for tourists. Hawke's Bay is currently not on NZ Tourism's map.

Q, You mentioned this would be New Zealand's National Aquarium. Wasn't there one proposed for Wellington – would we end up with two?

A. We are aware that government has declined other applications to the PGF for aquaria; they have not been supported (including Nelson, Kaikoura, and Dunedin). Government has essentially reserved that space for us.

Q. Did the overseas architects indicate how big this would be?

A. Looking at a 5500 sq m footprint. About three times the size of this one.

Q. In which direction will the expansion go?

A. Hard to know at this stage. We do know that the round original part of the building is not fit for purpose and needs to go. Expansion area built in 2002 cost \$8m (\$20m in today's money) and there are some issues with it. We could potentially build nearer to town, but that's prime real estate so it makes most sense to go south. But it depends on a number of factors including the state of the ground, how to build it around what we have now, and the need to optimise the dollars.

Q. Will there be a height restriction?

A. There is a current restriction along here — which is probably not fit for requirements so we would need to look at changing it. I doubt we're talking doubling of the height. Probably not a good idea to try building below ground either. It is possible we will apply to put the height up a little bit, plus spread a bit.

Q. Shade could be an issue.

A. Yes, likely to be similar to what is there now. Resource consent would look at all environmental impacts, including light, shade, height and as neighbours you would be notified as affected residents.

Q. When you have the design ready will we be invited to come along to see it and have input?
A. Yes, when we've got something to show people we will do community-wide consultation and hold specific sessions for you as residents.

Final comments from neighbours

A national aquarium that has a NZ perspective – these two things are critical to attracting people from other parts of NZ and a unique point of difference for international tourists. Those two components together are excellent.

I lived through the original expansion here – it was mayhem with comings and goings, noise, dust etc. When it came to opening day I wasn't aware of a single neighbour that was invited; it was all the tourist operators and not us neighbours. It's great that you guys are keeping us in the picture even though there's a lot of balls in the air. We appreciate this.

Appendix E - Email Invitation to Friends of the Aquarium



Tell Us What You Think

Dear Friend of the Aquarium,

You and your family are invited to an informal Friends of the Aquarium event to tell us what you would like to see at a new aquarium.

In early August, you would have received an email from us updating you on the redevelopment of the National Aquarium of New Zealand. This project is called Project Shapeshifter, emblematic of Maui – the 'shapeshifter' and great East Polynesian ancestor-explorer of the Pacific Ocean. If we are to help solve the issues our world and its inhabitants face today, then our challenge is to be bold and adventurous like Maui – to be a shapeshifter and game-changer!

We have now spoken with a lot of people, including conservationists, Māori leaders, the tourism industry, research and education providers, and young people to hear their ideas about the redevelopment. You can hear their thoughts on what they would like to see in a redefined aquarium in this video.

For our Friends, we are holding two session times at the aquarium:

- Thurs 26 Sept 9.30-11am
- Sat 28 Sept 1.30-3pm

You can pop in at any time during these events. There will be interactive displays, information stations and fun activities for the kids. Please ask your children to bring along a drawing they can leave with us, of what they would like to see at a new aquarium. We would love to see what they have in mind – of course this is not compulsory.

The exciting concept for the aquarium expansion will have education and conservation at its heart. It will:

- House fascinating native species in extraordinary exhibits representing Aotearoa New Zealand's aquatic habitats
- · Showcase indigenous storytelling
- Marry indigenous knowledge with leading edge science and technology, so we can better understand and care for our aquatic environment
- Provide amazing hands-on experiences, connect people with wildlife and empower them to take real action to protect nature
- Make the invisible visible through the use of innovative technology that animates and inspires
- Connect locally, nationally and internationally to aspirational stories, conservation activity and exemplary care in zoos and aquariums

If you can't come along on either of these days, we will soon email you a link to a survey, which will give you another chance to share your thoughts on what a redefined aquarium should look like.

Your continued support is important to us and we look forward to seeing you at the aquarium during one of these events.

Kind regards

The National Aquarium of New Zealand Team







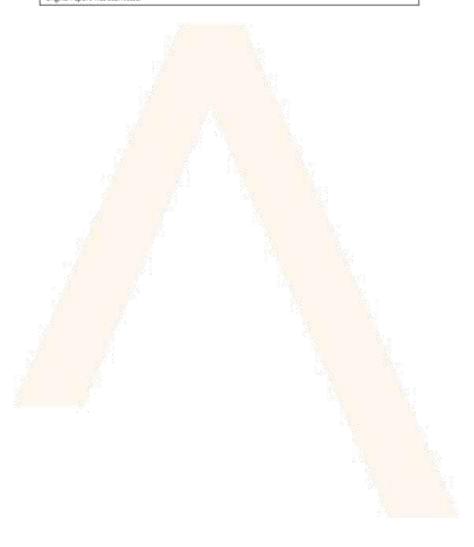
When you are an island nation the world looks like one big ocean with bits of land sticking out. ... It is.

James Bartram, Ocean Wise, Vancouver. Former teacher, Hastings Boys High



ORIGINAL REVIEW OF RGS - 30 SEPTEMBER 2019 UPDATED REVIEW OF RGS - 22 OCTOBER 2019

This Updated report was completed to accommodate additional information from interviews conducted after the original report was submitted.



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OUR PARTNERS AND AFFILIATES









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EXECUTIVE SUMMARY

This document assesses whether the private funding is available which, together with Napier City Council and Government funding could redevelop the current National Aquarium of New Zealand in Napier into a substantial aquarium and marine conservation organisation.

Our finding is that private funders will support the aquarium redevelopment if it:

- Be given a good Te Reo name
- Be accepted as a national institution and linking to key overseas institutions
- Be located in Napier but be truly national and serve the nation
- Showcase live marine species
- Contribute strongly to Hawke's Bay tourism and economy
- Showcase Maori knowledge, history and conversation practices
- Provide conservation education
- Change human behaviour in favour of conservation, and
- Take place in a significant, eco-friendly building.

Based on our research and the views expressed by interviewees and potential donors, we do not see that a single \$40,000,000 campaign will succeed at present.

However, assuming fundraising campaign can get underway without significant delay or public controversy this amount can be achieved in two successive campaigns each for \$20,000,000.

The stage one goal would seek to achieve \$20,000,000 from these constituencies and with these totals by source.

lwi, hapu and related business organisations	\$7,500,000
Lotteries grants	\$4,000,000
Additional Government sources	\$2,500,000
New Zealand charitable foundations and gaming trusts	\$1,500,000
Overseas Trusts and Foundations	\$1,500,000
Hawkes Bay and NZ individuals	\$3,000,000

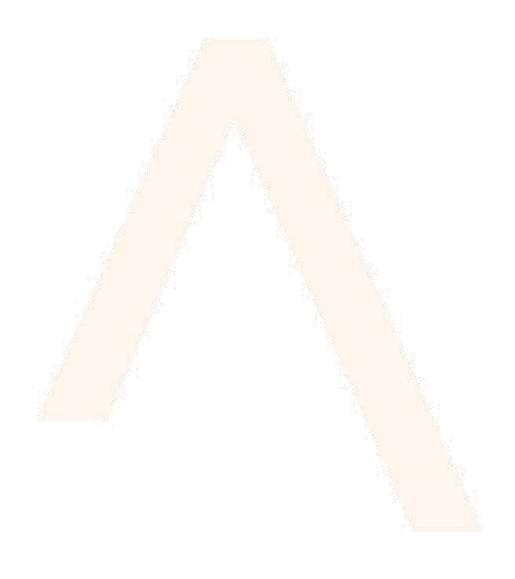
When the project moves to Stage 2 of the fundraising campaign for the remaining \$20,000,000 the project and campaign will be in much better shape to proceed and to capture people who are not enthused at present. By then it will have much greater definition, the governance structures will be in place, the leadership will be known, and the early funders will be well informed about the project. Stage 2 will seek further funding from some Stage 1 contributors, solicit new funding prospects, and will incorporate a major community fundraising event aimed at mass participation and developing a widespread sense of ownership of the national aquarium.

The Stage 2 fundraising campaign will also position the aquarium for ongoing funding through sponsorship, membership, ongoing grant applications and philanthropy.



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Further details of how the campaign will run, its risks and milestones are included in the Implementation Plan to be provided at the end of October 2019.



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2 INTRODUCTION

2.1 ASKRIGHT PROPOSAL/CONTRACT (JULY-OCTOBER 2019)

This is the first of two tasks assigned to AskRIGHT in this stage of the redevelopment of the National Aquarium of New Zealand, - the ShapeShifter Project.

This task revisits the Revenue Generation Study undertaken in 2017 and provides new insight into the feasibility of raising funds for the project by interviewing potential funders and seeking their views on a draft case for support.

The second stage, the Implementation Plan due at the end of October 2019 will continue the task of prospect research, revise the Case based on the feedback from interviewees, address other issues such as naming values and the proposed charitable entity and provide an implementation plan for the

If the project proceeds to fundraising following the announcement in November 2019 of Provincial Growth Fund support, AskRIGHT will implement the fundraising campaign.

For this task AskRIGHT had splendid cooperation of Council Chief Executive Wayne Jack and senior Council Officers, and from the Acting Mayor Faye White and enjoyed an excellent working relationship with the other consultants to the project, especially those from Terra Moana and PWC.

AskRIGHT is particularly indebted to the wide range of interviewees for their open and honest contributions without which this report would not be possible. These people are listed in the Appendix.

RGS REVIEW PROCESS 2.2

2.2.1 ASSUMPTIONS OF DRAFT RGS

The Draft RGS prepared in 2017 examined opportunities for external funding of the project estimated to cost \$48 million. That document assumed that early indications of support would remain in place and that some levels of support (especially from foundations and corporations) could be extrapolated from other sectors or from sponsorship theory.

That report suggested that the following funds might be realised for the project as it was then conceived.

From Government

Local Government: Hawkes Bay Councils	\$13,500,000
Central Government/MBIE	\$20,000,000
TOTAL GOVERNMENT	\$33,500,000
From other sources	
Lottery grants	\$5,500,000
Corporate Sponsorship	\$8,500,000



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Community Organisations - Trusts & Foundations

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\$1,140,000

Community Engagement & Fundraising \$150,000 TOTAL OTHER SOURCES \$15,290,000

Our assessment of the potential Revenue Generation has been in light of the current circumstances, which, although continuing to be refined, we have taken as a total expenditure of \$75,000,000 of which \$40,000,000 might need to be raised from beyond the first round Government and NCC contributions.

2.2.2 RISKS AND CHALLENGES

The risks and challenges of this task were monitored through the project and the risk profile was adjusted as required. At the project's conclusion the risk analysis was as shown in this table.

RISK IDENTIFICATION AND MITIGATION

Risk	Inserted by	BC project risk 1-10	2-bc risk 1-10	Consequence if not addressed	Mitigation Strategy	Controls to develop
No overarching plan being developed or managed for political and fundraising engagement	NCC	5	5	Confusion within NCC sub- contractor teams, inefficient sub- contract operations, missed opportunities, stakeholders getting multiple, or none at all, approaches	TML discussing with NCC strategy for conversations with relevant politicians	TML - AskRiGHT plugged into each early July. Use of engagement log.
Under-resourcing the implementation of fundraising campaigns and under-delivering on sponsorship partnership promises	NCC	1		Necessary funding is not secured Funding partners become disgruntled with the project	A dedicated resource is committed to fundraising and managing the corporate partner relationships	Stakeholder Management Plan Clear expectations in partnership agreements
Increased cost (including inflation) add significantly to fundraising target	NCC	1		Project stalls/defays	Secure funds in a timely manner; regular review of project costs An independent project manager should be appointed to oversee and	Revenue Generation Strategy, EHDD design process, Ask Right funding strategy

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Risk	Inserted by	BC project risk 1-10	2-bc risk 1-10	Consequence if not addressed	Mitigation Strategy	Controls to develop
					monitor the project budget	
Corporate/philanthro pic funder fatigue	NCC		2	Project stalls Necessary funding is not secured	Conversations with and in-depth research of funders and their influencers is critical to ensure there is a good fit with the project	Revenue Generation Strategy Stakeholder engagement
Reduction in garning trust funding opportunities	NCC		2	Necessary funding not secured	A diversified approach to funding to maximise the level of funding from various sources	Revenue Generation Strategy Stakeholder engagement
Sponsorship properties are overpriced	NCC		2	Necessary funding not secured	Test values with regular sponsors in Hawke's Bay Ensure values are based on an accepted valuation methodology	Revenue Generation Strategy Stakeholder engagement
Cost overruns of Sectoral Engagement outreach	NCC	1		Cost overruns for NCC	Don't raise expectations and be firm.	Keep careful tabs.
Close timeframe to competing capital fundraising campaigns in Hawke's Bay	NCC	1		Project delayed	Timeframes for major applications should be set so they are not competing with other local projects	Revenue Generation Strategy Community Engagement Strategy
AskRIGHT personnel become unavailable	AskRIGH T	Likelihood 1≃low, 5=high	Impact 1=low, 5=high	Delay in provision of services	AskRIGHT has high standards of HR practices in order to maintain high retention	As New Zealand's largest fundraising consultancy we can make others



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Risk	Inserted by	BC project risk 1-10	2-bc risk 1-10	Consequence if not addressed	Mitigation Strategy	Controls to develop
						available within the team quickly
			3	Loss of knowledge and relationship	Ensuring we have full knowledge management including frequent contact reports. Key relationships will be with two AskRIGHT personnel throughout the project.	
Napier City Council personnel change	AskRIGH T	2	4	Loss of continuity in communication with AskRIGHT personnel	Beyond AskRIGHT control	Agreements and monthly reports are in writing; second person designated as liaison in absence or key contact
Political interference	AskRIGH T	3	5	Actions taken that reduce fundraising effectiveness (e.g. premature or incorrect announcements)	Through NCC contact, we will keep the Council to agreed discipline	Adjust the agreed plan
Testing of Strategy proves lower than expected support	AskRIGH T	3	4	Fundraising target is less attainable, increased risk of failure	NCC develops alternate funding source	Revise strategy plans, dates, and/or fundraising target
Earthquake or other national disaster within New Zealand	AskRIGH T	1	3	Delays in securing appointments, funders change philanthropic priorities	Proceed as quickly as possible	Ensure strong relationships and written agreements for all support



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Risk	Inserted by	BC project risk 1-10	2-bc risk 1-10	Consequence if not addressed	Mitigation Strategy	Controls to develop
Project becomes focus of animal rights protests	AskRIGH T, TML NANZ	2	•	Unwanted publicity and tertiary recriminations reduce willingness of sponsors and companies to support the project	Be active in showing world- class animal welfare and seek appropriate accreditation; issues management and comm's plan in place	Implement communicatio ns plan
That partners restrict access to interviewees or prospective donors	AskRIGH T	2	4	Limitations on information and funding	Identify other interviewees and prospective donors	Early discussion with partners and deferral of donor choices to non-profit entity
Negative publicity or protest action against aspects of the project	AskRIGH T	3	4	Potential donors and sponsors unwilling to support the project	Careful, positive, media activity, addressing issues, d avoiding controversy	Implement Communicati ons Plan

Some of these risks remain considerations once the fundraising commences so will be included in the risk analysis with the Implementation Plan.

2.2.3 RESEARCH

Testing the likelihood that fundraising for large capital sums will be successful requires going beyond the theoretical review of funding opportunities which was used in the 2017 RGS. Fundraising Campaign Feasibility Assessment requires the steps undertaken for this project:

- 1. Development of a draft campaign case (used for testing)
- 2. Identification of potential funders and key influencers whose opinion can make a significant difference to the outcome of a capital campaign
- 3. Invitation to interview and interview of those willing and available within the timeframe
- 4. Analysis of interview responses
- 5. Identification and analysis of funding sources that were beyond the scope of interview

220 people were considered for the personal or organisational affiliations as potential interviewees. These people included high net worth individuals, leaders of relevant companies and business organisations, Trusts and Foundations, Māori iwi organisations and business entities, as well as



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international companies, Foundations, and nonprofit organisations. From this list 92 were invited in four stages to interview.

Thirty two interviews were completed in time for this updated report. Fifty percent of the interviews were conducted in person, and when this was not possible interviews were conducted by videoconference (19%) or telephone (31%).

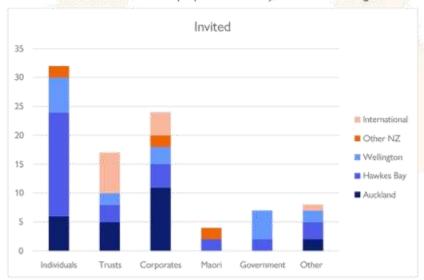
To provide Napier City Council with the most robust advice, this document has been updated with the statistics and changes in advice resulting from completion of the additional interviews.



2.2.4 THE INTERVIEWS AND INTERVIEWEES

INVITATIONS ISSUED

Most invitation were sent to people in their personal, foundation or corporate capacity, and as indicted here most invitations went to people in Hawkes Bay, Auckland or Wellington.



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Invitations went from the office of the Chief Executive of Napier City Council and were a joint invitation from the Chief Executive and the Acting Mayor. In a small number of cases - to secure interviews at short notice -- contact was initiated by AskRIGHT with a Council invitation following. A sample of the letter of invitation appears in the Appendix.

Protocols for inviting representatives of iwi were observed but meant that fewer invitations were sent and therefore fewer interviews were conducted during the available time period than we would have wished.

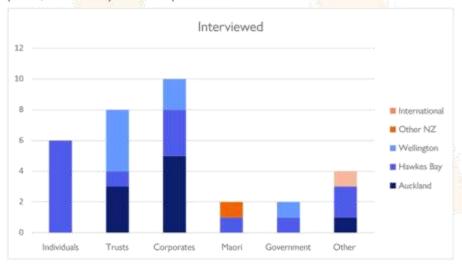
If the invitation to interview was declined the main reasons given were lack of time and the project (ShapeShifter) being outside the person or organisation's philanthropic scope. Some were indifferent to and some disagreed with the project as a whole. Obtaining access to some Government ministers and entities was difficult or not possible, and further attempts will be made during early stages of campaign implementation to engage with them.

In addition to the scheduled interviews AskRIGHT met with others who could provide useful information for the project and/or who could recommend people for interview.

INTERVIEWS CONDUCTED

As indicated above, 32 interviews were completed for this final report¹. People in Hawkes Bay responded well to requests for interview. Auckland HNW individuals were mostly not willing or available to be interviewed and overseas trusts are among the remaining interviews to be conducted early in the implementation phase.

The number of interviews with Maori organisations was small but the interviews were thorough and positive, and more are planned for implementation.

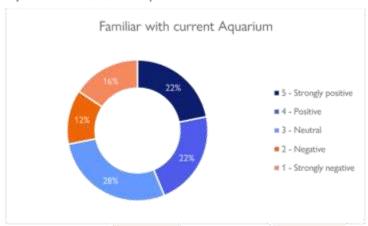


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¹ Graphs in this Updated version have been revised to reflect all interviews including those conducted following the original report.

INTERVIEWEES' FAMILIARITY WITH THE AQUARIUM

There was a good cross section of those very familiar, partly familiar and unfamiliar with the National Aquarium of New Zealand in Napier.



In response to this question many interviews expanded on their association with the aquarium. They are provided here in order of those who were most to least acquainted and slightly adapted to deidentify the respondents.

- · I remember it as a child and I have taken my grandchildren to visit.
- I have visited a few times, attended a wedding there, taken kids, and swum in the tank with the sharks on a birthday.
- I mainly know it as a parent from taking my children when they were younger.
- The (business) has a connection with the Aquarium ... I am aware of the proposed redevelopment.
- · Familiar but not been to it for a long time, at least 10 years ago
- This project is a waste of time and money. The whole thing is stupid and ridiculous. They shouldn't be doing it. I visited it as a kid and took my own children there but I haven't been for a long time.
- . I knew there was an aquarium in Napier but I have never been and I didn't know it was the National Aquarium
- I might have about 30 years ago.
- You don't hear much about it and what you do hear is negative comments against animals being locked up, although don't totally agree with that sentiment. The aquarium went from WOW to OK to "Oh is that still there".
- · I was surprised to hear that there was still an aquarium in Napier. I thought it had closed down when Marineland closed down.

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3 RGS REVIEW

3.1 THE CASE FOR SUPPORT

Interviewees were provided with an opportunity to read a confidential draft campaign case for support prior to the interview. There were a few minor changes to the document as agreement was reached on how some items would be expressed. The changes were minor. The draft case included in the Appendix was the final version and this was used for most of the interviews.

Interviewees were asked to rate various aspects of the document, to provide explanations for their choices, and in one case - regarding a preferred name for the facility - were asked to rank a series of options.

3.1.1 INTERVIEWEE RESPONSE -- IS IT COMPELLING?

Participants were asked what their impression was of the case document, in particular, to indicate how compellingly it provided a case for support.

39% of interviewees found the case positive or strongly positive. Their comments included: "aquariums are playing a crucial role globally re climate change and biodiversity loss", "every region needs something unique".



42% were neutral (rating 3 out of 5) on the document. Sometimes this was because they had not read the document. Their other comments were: "no understanding of what was there already", "nothing stood out", "not enough detail" and "not clear on benefit to the region".

3.1.2 RESPONSE TO KEY MESSAGES

Many interviewees commented on the need for more tourism in the region, some commented specifically on the design of the current aquarium building (mostly negative - and sometimes stressing the need for an extension or replacement to be "iconic" architecture.

Some interviewees outside of Hawkes Bay failed to see the national significance of the project "(It's) not my fight" said one.



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Many commented on the importance of the Māori narrative and/or important role of conservation education that the national aquarium could play.

These selected comments illustrate these points and others:

- The² fact that we have the 4th largest economic zone in the world, some of the most diverse fish species, are an island in the Southern Ocean - we have something to tell about the oceans, along with our history of the oceans.
- We are living in a world where environmental concerns are at the forefront of our minds. This project needs to focus on the environment and water to future-proof the Aquarium. The coming generation is hungry for that knowledge.
- We need people to understand the situation the ocean faces now. We need such an organisation to start the job. It's a big job - like the zoo and museum, without government support it won't be sustainable
- The document makes a compelling case for why this redevelopment is needed. However, fundraising is going to be the issue.
- I have worked for years in conservation. Aquarium. Zoos and aquaria are playing a crucial role globally re climate change and biodiversity loss. The biggest challenge is humanity's empathy for and understanding of natural systems. We need a social movement of masses of people making modest changes.
- The statement about the aquarium needing investment to stay relevant particularly resonates. The aquarium is looking dated and needs investment to be a relevant tourist attraction. ... The key ideas of tapping into sustainability. Maori culture and education draws on all of the key themes needed for the success of such an attraction. If these things weren't there, they'd be notably absent. Its high level, not enough detail, needs more on why it is needed.
- Not certain it is a compelling case it's a strong case but needs to be stronger for the amount of money involved. The Māui part of the story hugely appeals. This is important in recognising Māori aspects of history rather than the colonial story that has traditionally been told.
- Good document but not clear on benefit to the region hard part is cost and impact on local ratepayers.
- It makes sense but nothing stood out. The project is too restrictive and should broaden the base, for example to incorporate the existing planetarium. Napier is a small Centre and people tend to visit only
- Document was pretty light so hard for it to be compelling. Lacks detail from a funders point of view in terms of who needs this, who identified the need? Why is this a national project and where is the \$75m to be spent.
- There is reference to Kaupapa Māori in the case but how real/genuine is this? Lots of projects talk the talk but don't walk the walk in this area so the case needs to demonstrate how this is really happening.
- This has so many dimensions. The piece around conservation is very well argued. The argument for the economic benefit is not compelling, it is not a strong argument. As for tourism, we can't see it. If it was a

² Comments from additional interviews conducted after the prininal report and added to this Updated version have first word underlined.



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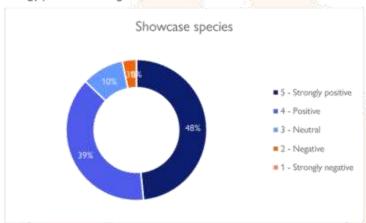
- purely research establishment it would be more compelling. The original concept had much stronger research element. Research and education are the necessities of this project.
- The scientific case is not advanced in the report. The Aquarium cannot exist in isolation and there needs to be closer connections with research institutes elsewhere in NZ. Is Napier the best place in the country for this Aquarium?

3.2 GOALS

Several questions drew interviewees into a conversation about what the priorities of the national aquarium should be.

3.2.1 SHOWCASE - SPECIES & EXHIBITS

There was overwhelming support for continuing to showcase marine species. 87% were positive or strongly positive in this regard.



The comments included:

- · As long as exhibits are kept with zoological best care.
- Very positive so long as it is indigenous species, and local fauna.
- Seems pivotal and must be designed around what tourists want.
- It is very important to have real live animals, especially marine species. Most people can see terrestrial animals in pristine or natural habitats, but not the diversity of life in the ocean.
- · It needs to be broader than exhibits, and it is very important to keep things fresh and relevant. constantly changing and updating and improving.
- Positive from an educational point of view
- Will they have penguins?
- Suggests that a rescue facility/medical centre for birds within the centre might be a strong attraction for
- It doesn't have to have all the species, focus on quality rather than quantity.

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- · If this is a traditional aquarium then fish are important but if it is to be a more modern concept then less important. If the old aquarium paradigm is perpetuated there is likely to be apposition from activists and may not sit well with the consumer.
- There is no place for kiwi in a modern concept aquarium this is just entertainment.

3.2.2 BOOST TOURISM AND ECONOMY

Perhaps reflecting the strong contingent of Hawkes Bay interviewees or the current role of the aquarium in Napier but those interviewed agreed strongly with the role of this development to boost tourism and the economy.



Those interviews did not see the role in tourism conflicting with other ambitions for the facility. Some of those seeing the importance of tourism also mentioned the need to grow its market.

- · There can be several objectives and they don't see them in conflict. ... Paid product experiences (not just free experiences) are very important for tourism and driving the economy. Being an all-weather facility, this is an opportunity to enhance the name and reputation of Hawkes Bay in people's minds. This will be reliant on the tourism office leading the way in including this in their proposition. Currently the Hawkes Bay proposition is a premium offering around food and beverage. How does the Aquarium fit into this proposition? The area is unique in having a wide range of high-quality products so how could the Aquarium fit into this? Could be around relationship with the sea and sustainability.
- For Napier it is very relevant and important
- Tourism is a welcome spin off but should not be the driver. Take a blank page and work out the best place in NZ to have the National Aquarium.
- · If it doesn't achieve this, it will be difficult to get people to invest in it. But benefits need to be broader than economic, need social and environmental impacts and benefits also.
- Rated as strongly positive as long as the benefit is for the right people Māori. Māori economic development is very important compared to general benefit and something the Tindall Foundation focus. If the benefit is more general, it is less important. Is there real ownership and long-term intergenerational benefit?



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- The case covers it well, especially for wet day activities for cruise ships, schools. Napier as a destination will become more attractive, especially if it gets an international airport.
- The economy of the region is the most important. ...Growth must be managed and sustainable to avoid over tourism.
- · It is good, but for tourism it needs to be interesting. Need things to attract people, they want to get close and touch the animals, without disturbing them.
- · Positive if done in the right way.
- This area is already swamped with tourists. They come for the Art Deco, wineries, restaurants. Mostly a lot of white middle class visitors who spend money.
- · This is not a primary reason to visit the area, but it might mean some people stay an extra night.

3.2.3 AWARENESS OF MAORI KNOWLEDGE, HISTORY AND CONSERVATION PRACTICES

The Maori elements of the case were very well received with 78% seeing this as positive or very positive. Of the others a small number (4% of the total) thought this was a negative element to the case.



These are some of the comments that accompanied the positive assessments.

- · Extremely important as there are not many opportunities to do this.
- · Indigenous ways of knowing offer a hopeful way forward. We can get back on track. Indigenousprotected areas are among the best protected areas on the planet.
- Local iwi is known for weaving important weave the stories through the proposition without making it a 'Disneyland' or theme park with no substance that needs to be updated every 4-5 years.
- Maori raped and pillaged the place when we got here and learned better over time. We now have knowledge to share.
- There is another wave of Māori expression of tourism happening throughout New Zealand so this is a vital component. Storytelling and being made comfortable as part of the culture.
- This makes it unique.

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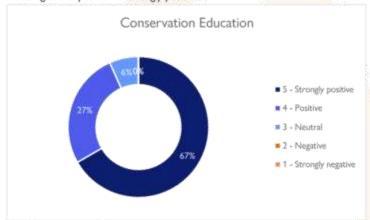
Māori are part of New Zealand and therefore are an important part of the story. Should focus on their relationship to the sea.

There were also comments that showed this inclusion is not easily accepted by all.

- · This is a nicety, not a necessity.
- This would not be a big deal. If it's relevant do it, and if you've got a good, big, relevant story. But people don't want it shoved down their throats.
- I don't want them having too much influence if they are not prepared to contribute financially. They have received heaps through settlement payments and need to invest some in these ventures.
- M\u00e4ori killed many species of animals and were not great caretakers of the land.
- Indifferent. Be careful, meaning be authentic, don't overdo it.

3.2.4 CONSERVATION EDUCATION

The strongest response of all was in favour of conservation education with 94% of interviewees assessing this as positive or strongly positive.



It is not surprising that these high ratings were accompanied by statements of the importance of conservation education and the role of a future aquarium in this.

- · Absolute must. You want people to walk out thinking about stuff they have seen/learned, and what they can do about it.
- I believe this is the most important/key component if this is going to be a national institute.
- Education is the silver bullet. It is young people who saved humanity during the ice-age who left the caves and took risks. Young people are a generation with nothing to lose. They shouldn't stand idly by and wait their turn. They have leadership capacity - especially indigenous youth.
- · It needs to be very targeted and not attempt to do too much, it should focus on water.
- There is a lot of conservation education, but not much on water. This will have a point of difference sea-based education. It will help our perception of the environment in and under the water.
- This is important to resonate with customers, would also expect the Aquarium to work closely with DOC (Department of Conservation).

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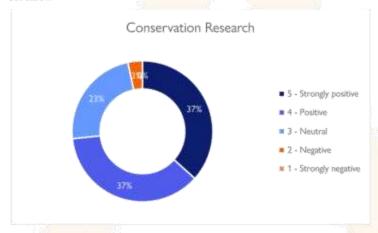
- · If it focussed on the oceans would be a 6 (out of 5 rating), if on water in general you're asking too much.
- · Education is a step beyond interpretation. It is how a society casts forward its values to the next generation. Education is about co-creation, collaboration and values. It needs to be experiential, multisensory and global -- with young people learning from each other.

But to show support was not universal

This is not necessarily the Aquarium's job - there are various bodies trying to do it including DOC and the Council. This needs to be coordinated so we are not reinventing the wheel.

3.2.5 CONSERVATION RESEARCH

Support for conservation research was strong, but not as strong as the case for conservation education.



The comments reflected particular areas of interest for research, and some questioning its overall value.

- . Depending on the type of research, should include how the oceans are being killed by humans. There should be research into the appalling habits of humans and how we can preserve the ocean. Anything we can do to make the planet better.
- · Focus on aquifer water security, not just general research into marine life. Quality of water is very important for Hawkes Bay
- Given we know so little in the grand scheme of things hugely important to ensure we are doing the
- · Research can and will happen anywhere, but education is needed. We need to reinforce the research that is already done.
- · Every university will have a more robust research program than an aquarium can have. If there is research, it should be field research related to the animals in your care (i.e. in the aquarium). There is a sense of urgency and we know enough to act. We don't know everything but we know enough to act and to build a constituency.



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- If it was ocean research, I would give it 6 (out of 5). Where is any ocean research done in New Zealand?
- Scientists all over the world are doing this. Are we re-inventing the wheel?
- Without knowing what the research is, it's hard to say how important it is and how it would be integrated.
- Recommend that the Centre needs a research institution nearby. Is Napier the best placed for this?
- This should add relevancy and learning opportunities, through applied aquatic research, perhaps alongside partners such as NIWA and or Cawthron Institute.

3.2.6 CHANGE HUMAN BEHAVIOUR RE ENVIRONMENT

With a level of support almost equal to that of conservation education and conservation research, there was great support for the role of the aquarium in changing human behaviour to benefit the environment.



Many comments alluded to changes in personal action as the purpose and intended goal of conservation education.

- I'd give it 6. We hope education achieves that. The education component is essential. Should have an auditorium and wheel in the school groups. All these goals are important. How can anyone say they are
- No point in education if it is not going to change behaviour. Entertainment is also important though to get people through the order and encourage repeat visits. If we want the next generation to change their behaviour. They need to initially be drawn in for entertainment (from parents' point of view etc).
- · There is no point so much of it does not effect change. Importing information is not sufficient.
- I suggest we don't have an Aquarium. Have taken visitors to Goat Island/Leigh Marine, they have a "touch tank", and information and lectures about the sea and animals. It is very interesting.
- This is very challenging but we need to lean into these challenges and it is a key part of the project
- We are our own worst enemies. When something becomes personal and affects us it becomes more



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- We need masses of people making modest changes
- We've only got one planet.
- It is a chance to become advocates.
- This is an important and desirable outcome but how this cannot be achieved from behind glass.
- This would need to come from an education point of view but how would it extend beyond local schools?
- This is important but not easy to do
- Once children are aware of environmental issues it will make a real difference and impact.
- We're hoping that by changing attitudes, people will love the ocean and care for it.
- Adding fun, adventure and an excuse to visit more than once.

3.2.7 Q7 OTHER ELEMENTS FOR THE CASE

An opportunity was provided to interviewees to additional comments of the effectiveness of the draft campaign message. This was introduced with:

This is the draft of a case for support that might be used to raise funds for the construction. Details of the building scale, cost and design will be added when they are known, is there anything else that should be added to this document for it to be more effective?

The comments included:

- The vision and passion for change need to come through
- The case needs a lot more detail ... needs to be more compelling
- Include that this centre is not weather dependent
- The project and the case need a strong advocate
- The document needs to convey more clearly what the main purpose of the centre is, and for the case to include a more commercial angle to it including the number of visitors that are forecast to visit the aquarium. Are there plans to take the aquarium into the digital world? Online portals? Will members of the aquarium be able to access the aquarium when not visiting and on-site via virtual reality technology?
- You need infrastructure to extend research and make it a research centre. What is special about the Napier marine environment? Why do you have a national aquarium in Napier? Does it have special environmental issues. I don't know of anything special.
- The limitations are around the focus on Bricks and Mortar. In order to be more compelling, the proposition could and should be much broader than aquarium building: actual waterways, actual species, living where they actually live. What if it was spread out across Maui's hook - virtual aquarium in riverbed and oceans.
- · How is this place going to engage people, win hearts and minds? Cape Sanctuary, for example, runs on a vision and is making step changes through a huge reliance on volunteers. This vision and passion for change needs to come through.
- The document needs more on the economic side, and benefits.
- How you will do things like conservation?
- You need to tell your story of the mountain top to the deep sea. It doesn't have legs at the moment.
- What will the education component be? How will you measure it?



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- The Aquarium is not the key the important part is the research, education and behavioural change.
- · I liked the planet, people, place"" concept.
- The project seems feasible and not unrealistic but you need to show what you want to achieve, why, and show your passion for it. You need a very strong advocate for it.
- Include that this centre is not weather dependent like some other tourist attractions in the area. Describe how the centre has hotels and other accommodation options in the nearby area (making it easy for visitors) to plan their trip. Visitors from the international cruise ships might be interested in knowing about this centre as well.
- The document should indicate a clear strategy on how the aquarium will be sustained in the long-term. I would like to see more focus on the purpose and function of the building -- marine conservation, etc -rather than the building itself. Focus on how we can use this place to make a stand.
- It is a well thought out and informative document but needs some poetic language like between the sea and sky'; needs poetic reveries rather than being too factual as it currently is.
- Need 3d imagery on an iPad to share with people. Better still would be virtual reality glasses-machine to promote it.

3.2.8 Q8 ARCHITECTURAL CONSIDERATIONS

The question on the building was led by acknowledgement that an overseas form has already been engaged.

An international architecture firm has been engaged to design the new aquarium in Napier that will be the centerpiece of the Centre. Are there architectural or other considerations that you would flag as important to this task?

The interviewees responses were mostly aimed at ensuring the building enabled the various goals of the project to be achieved.

- Are there any other options of where to rebuild so that it is safe and functional? Concerns about it being on an earthquake fault line by the sea. Must include building strengthening factors in plans. It must meet New Zealand building standards and any Council regulations.
- It needs to be bold, iconic, complimentary to the surrounding landscape, not monolithic and in harmony with the environment.
- Ensure space and a facility for school classes to gather/sit in front of the exhibits and learn about them not just glance and walk by. Aquaculture industry could be included with mussel (or salmon) farm exhibit, show what happens under water.
- It should feel like you've walked into a living environment both good and bad with how it could be in pristine condition contrasted with how it is full of pollutants. A seamless experience outside in. Areas to share knowledge - "marae-esq".
- You must integrate the Mãori cultural aspects into the centre
- It must stand the test of time be modern but not date too quickly from a tourism attractiveness point of view.
- It should be an iconic building for Napier and New Zealand. Napier's Sydney Opera House. It should look like it's in New Zealand, not LA, London or anywhere else in the world.



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- If it's a national centre should have research facilities, lecture and seminar rooms, themed rooms. Use environmentally sensitive materials.
- When I go to an Aquarium, I'm not aware or interested in the building. I only look at how interesting the content is. The Hong Kong Ocean Park has a pavilion with jellyfish, it is beautiful.
- If you're going to do it, it needs to be a meaningful and positive statement on its surroundings. If it is to be a national facility, it needs to be a national icon. I'm not sure \$75 million will do that.
- Is there a way to incorporate the beach or ocean? At the moment the aquarium is next to but not part of the ocean. Connect the building to the beach and ocean as they do in San Diego. Also needs numerous business purposes e.g. business events, meeting rooms etc.
- The building will need to be resilient, being on the ocean front. The original idea was to extend out into the sea. Is that still part of it?
- It needs to look nice but don't spend all the money on the building. It should be an 'eco' building, sustainable, using solar etc.
- It needs to feel as an integrated whole, not a lot of separate parts or spaces.
- There are several ways to fund this, and one is not to waste any on unnecessary things. It is sad and stupid that the Aquarium and Marineland were not built beside each other. Both were done by Council, and it would have saved \$millions if adjacent.
- So long as they fulfil the vision. Longevity will be important, should be a building that lasts 100 years. Use eco materials, and it's important how it is powered, insulated etc.
- Inside and out the place needs to feel like an active hub. You need to see people working. Researchers, animal caretakers, etc should not be hidden behind walls. Public needs to see the work being done. a good example of this is the Wellington Zoo where visitors can see the operating theatre through glass.
- The building must have stunning visual appeal that attracts people to go there and have a look. It must make the best of what you have including space and location. It must walk the talk including conservation by using recycled water.

3.2.9 Q9 RESEARCH AND OTHER ISSUES

Interviewees were asked if there were research issues that should be a priority for the expanded aquarium. Many of the comments related to conservation and education rather than to research topics. These responses included:

- Working with schools-training them [students] to be scientists of the future
- Technology, especially virtual reality devices to help tell the stories
- Conservation of diversity and economic species
- We should have school rooms, education for all ages right through tertiary and beyond.

Other comments address research priorities:

- . The global community has concern for 1) climate change and the impact on species and habitat 2) biodiversity 3) habitat change and destruction. Don't call it research. Call it conservation action. Research is elitist. Make it more practical and pragmatic. Have an emphasis on getting stuff done with
- You should emphasise the crisis of the oceans. We know very little about the marine environment.

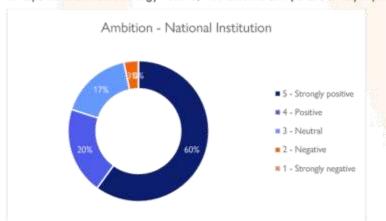


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- Keeping waterways clean. Maintaining fish and coral protection
- Water protection. Hawkes Bay has major issues with water and is doing a lot of work to improve waterways and quality of water. As an extension to this there should be research around water protection/quality, and a hospital,
- This could be an enabler for Hawkes Bay coordinating DOC, government departments, private enterprise, citizens. This could be a catalyst to bring them all together to find a single vision and strategy.
- Keeping the waterways clean. Maintaining fish and coral protection.
- Ocean research in New Zealand
- There are two key things in Hawkes Bay to address: fish stocks, and runoff from the land into the rivers. Pollution and sediment are problems, especially in Pandora Pond. The water quality is not good. Need to consider what is culturally important to hapu, and how to protect it.
- Making good use of technology, especially virtual reality devises to help tell the stories within the centre. Good story telling will be important.
- Preservation of marine environment
- Conservation of diversity and economic species. The economic benefit is important. Conservation is important but economic impact is important also. Should demonstrate what can you and I do at an individual level.

3.3 NATIONAL IMPORTANCE OF INSTITUTION/CENTRE

The interviewees were asked how important is it that this Centre have national status and remit? As the ambition is to be an important national institution like Te Papa, Waitangi Treaty Ground. Majority of respondents answered 'Strongly Positive'; 79% rated this as important or very important.



While those interviewed stressed the importance of being a national institution many also pointed to the challenges of getting to that level or being recognised as such. Most responses focused on the national status and some saw funding implications. Just a couple of people commented on the idea that a national aquarium connects with communities or projects across the nation.



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Interviewees' comments included:

- · Absolutely! If it isn't national it isn't sustainable. But it will have to be done really well. Te Papa is national in the capital city, with its own Act of Parliament, and funded by central government. Waitangi Treaty grounds are a significant historic site, that can't be changed or lost. What has the Aquarium in Napier got? It will need to be created or invented.
- Could it actually be an offshoot of Te Papa housing the marine elements? It would be pointless for Napier to have an aquarium purely for tourism and entertainment. It needs to be a national institution.
- For a project of this scale, to have a national status would be very smart and strategic. This greatly helps in elevating access to more funding.
- If the case is compelling, having a national facility is absolutely appropriate. It feels like it is fundamental for New Zealanders to be able to access the sea, therefore the environment is critical, it is a good fit for all New Zealanders. If you are going to do it, it needs to be a national facility
- It is very important to be recognised as a national institution as only national institutions receive media coverage. You can't have one in every town so it's important that this one is special. It exists there now so it should be Napier's right to have the new one.
- There can only be one National Aquarium therefore it is absolutely imperative that it presents and acts as such. Its current location is a negative, so it must earn national status. Because of its location it is and will be much harder to get Operational Funding
- Tourism is already booming and growing. More cruise ships, more people carning to events. The town is completely booked out this week for sporting events. If this brings more people, we will need more hotels, and workforce is already a difficulty. Airport has been a nightmare, but it is jet-capable.
- We currently don't really have one. Having a 'National' Aquarium will help the region. Maui is not only a New Zealand story but also a Pasifika one. Being 'national' will acknowledge and enhance its importance in the Pacific. It could become a major hosting place and identity for Pasifika people.
- Whangarei has the Hundertwasser gallery, Bay of islands promotes itself by its features, Wellington has Te Papa and is the capital, Napier has Art Deco but missed out in not insisting all new buildings around Marine Parade built in Art Deco style.
- The aquarium needs to have this status to justify the funding required but it wouldn't necessarily encourage people to go purely for that reason.
- The facility needs to show it is a critical piece of a global remit with different regions represented. There is a group listing a network of 12 aquaria for the United Nations Decade of the Oceans (from 2021). NANZ could play a credible role in a global coalition.
- It's good that it will be funded (in part) by the Government so that visitors can see parts of the centre
- It is not that important. Is Napier the best place to do this?
- There are pros and cons to this. A significant amount of funding will need to come from the local area and to achieve this, locals need to feel ownership, as the community does for the Hundertwasser Art. Gallery - this has received significant government funding but also needed a lot from the local area as although they are claiming to be national, the benefit is really for the local area more than anywhere else. Having said that, to be as successful as Te Papa would be fantastic but this has to be earned -



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where does the mandate come from? The Aquarium would need have connections with communities and projects across the whole of New Zealand to achieve this.

- This national dimension would be important to attract funding. The original proposal was to either refurbish or redevelop and included research on site.
- · It is very important that it is recognised as having national significance. It will hopefully be a pilgrimage for every New Zealander to visit.

For one person local issues stood out:

This (national status) is not a necessity. I'm sick of pandering to these people, when we've got huge problems to solve. Napier is beautiful in itself, It doesn't need this. They need to fix up their pipes. Napier has consent to put raw sewage into the Ahuriri estuary, and it's focusing on the Aquarium, instead of cleaning up its own act.

3.4 NAME — FUNCTIONAL DESCRIPTION

Interviewees asked to rank five suggested functional names for the aquarium were given this

Like Te Papa, it is thought that this Centre will have a Te Reo name, and a functional description. At present it is called 'The National Aquarium of New Zealand'.

The respondents were asked to rate alternatives to 'The National Aquarium of New Zealand'; the following have been ranked in order of preference as voted by the participants.

A few comments were made saying "do not like any" or "National Aquarium of New Zealand is the best of a bad bunch" and "one preferred not to comment until the appropriate lwi community had their input.

The order of preference from interviews was:

- 1. National Aquarium and Conservation Centre
- 2. National Aquarium of New Zealand
- 3. National Aguarium and Marine Conservation Centre
- 4. National Aquarium and Oceans Centre
- 5. Oceans Centre of New Zealand

Some interviewees stressed the importance of the Te Reo name. Comments included:

- . Definitely should be a Māori name and this should come from the local Māori people. The name should reflect the environment t eg mountains to the sea, maybe Aotearoa Moana.
- A Maori name is very important. Miranda changed the name to a Maori name.
- I don't dislike any of the names suggested. The name needs to fit scope of the project.
- This is an opportunity to think about a really powerful name. Perhaps a Maori word. A description that focuses on what type of sea life is found in the sea.
- It should be a Maori name like Te Papa. Needs to also be a catchy name like Te Like Waiora healthy water.



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- "National Aquarium and Marine Conservation Centre" is too long Marine is obvious and therefore doesn't need to be included.
- I suggest "National Marine Conservation Centre" as this speaks to the idea of connecting with projects around the country and the world. Aquarium sounds static but Conservation Centre gives the idea of something in action e.g. rescue centre, constantly changing exhibits. 'Oceans' options are too specific. I don't really like any of the names as they are unambitious - this should just be the tagline with a more interesting. Starship Children's Hospital is iconic.
- The "National Aquarium of New Zealand" is the best of a bad bunch. I am worried about the word aquarium. Could we focus of name be on water e.g. National Waters Centre to truly reflect mountain top to deep ocean trench?
- The 'marine' element appeals if the goal is to make people understand marine conservation.
- This is the last thing that should be done you've got the cart before horse.
- I would prefer not to comment until the appropriate lwi community have had a chance to comment.
- A name that becomes a battle cry, a song of affection and love, empathetic to creatures. The name is the brand

3.5 OWNERSHIP AND GOVERNANCE

Interviewees were asked what an effective governance regime might be considered for the Aquarium. Some respondents expected Council and Government to be involved in future governance, and some indicated the importance of charity status. Several other institutions were named as having good governance models.

Many interviewees stressed the importance of effective governance. Some saw the need for involvement of people from across the nation and several noted that financial support might be affected by the governance model or legal entity adopted.

Comments included:

- Strategy and vision are the most important
- The board should be made up of council and government reps
- Governance must be robust. Council does give the 'greatest vision' of governance so this is even more imbortant
- Credibility is required. It needs credible partnerships and individuals (running the organisation) with governance sitting over the top of that. I have no comment on what the legal entity would be to achieve that.
- Will philanthropic organisations build something owned by the council? They would be looking for what happens at exit - if the project folds later, where are assets transferred to? Some organisations are set up so that they would transfer to another charitable entity with similar aims and objectives. It would not be attractive if it reverts to the council.
- A Charitable Trust can do lots -- get funding etc that the Government will not.
- Government needs to commit a lot to this. Zoos, Museums and Aquariums are very expensive to run.
- It depends where funds come from. If this a nationally owned entity like Te Papa shouldn't it come under the Crown?



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- Te Papa would be the first one that comes to mind as an example. This wouldn't affect a grant application though.
- Strategy and vision are the most important. Council can be involved but sit outside as for the Rescue Helicopter Trust.
- The Board should be made up of Council and government reps as they will be running the facility at a loss and therefore be responsible for making up the shortfall.
- Who owns Te Papa? Herein lies the vexed issues of location and national importance. You have 2 options: A Charitable Trust to raise the capital and own the asset, but Operations should be run by another entity. The dilemma is asset replacement and enhancement. Depreciation will be enormous, and extremely difficult to fund adequately. This is a very good example of the need for a Private/Public sector partnership. The AUT Millennium project is a good example. The original asset was gifted to the crown and it became a national centre for sporting excellence. The Achilles heel is the huge operating costs. I don't see other councils getting behind it.
- Zealandia may be a model to consider.
- Omaha Air Museum in Blenheim which Peter Jackson helped to create.
- If it stands alone, separate from Government or Council, how will it be viable? The Port has just done a share float, could you do that? But what return on investment?
- It concerns me that Council owns it and decides its fate. Council has made some adverse decisions regarding MarineLand and the Skate Park. How can people trust them to make the right decisions here?
- There would be benefit in having national reps from around New Zealand. Skills for governance are most important, not filled with passionate people for the environment or science. It needs skill-based governance, not representatives.
- Get a covenant on the land of the aquarium and nearby water to become a pratected area so that you can walk the talk. Is there a local education partnership? It would be good to have youth leadership involved in governance - perhaps 1 or 2 positions for local youth. It would be good to have Maori as part of governance or co-management of the board.
- Needs to have the right balance between business acumen, academic expertise, local government, and iwi. Strong focus on integrity and also business strategy.
- Maybe a joint Board of government and community representatives. It would hate to see lots of money spent on paying a Board. It's Ok for the CEO to be paid but there should be good and generous Board members who give their time for free with just cost reimbursement,
- It must have appropriate legal status e.g. charitable trust. Robust governance is important and appropriate animal care standards be adhered to.
- lwi, stakeholders in research and education, young people as young directors or observers, national
- Should be a Crown Research Institute with parliamentary appointed governance members.



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3.6 LEADERSHIP

3.6.1 CHARITABLE ENTITY

Interviewees were asked who or what kind of person would make a good Trustee for the governing board of this institution, 14 individuals were nominated but there was no one whose name was mentioned often - there is no natural leader for this entity.

The confidential list of names will be provided later to those entrusted with governance selection.

Comments supported a skills-based approach to selection, along with iwi representation and fundraising ability. These comments included:

- · Must be a good leader with knowledge of managing this type of investment and ideally know something about the subject matter, not just a generalist manager.
- · Fundraising and establishment trustees need to be well connected to money in town but would be wrong for once the centre is operational and it's needs to be more business driven then. Would take a matrix approach to selection of trustees e.g. marine experience, governance, local benefit etc. Must all fit with the values and philosophy.
- High profile people with political sway. Must have strong iwi influence.
- Someone with a proven history of effective governance. We need an iconic New Zealander as a figurehead to give it the integrity. For example, Graeme Avery's standing being behind local sports projects gives confidence to funders.



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 Needs to be someone successful in both not-for-profit and commercial environments. Strong strategic background across multiples disciplines. Good communicator and lives the values of the aquarium. Ideally, a connection to the sea. Advocacy need to be a focus. Can't be a bureaucrat.

3.6.2 CAMPAIGN CHAIR/COMMITTEE

Respondents were then asked a few questions about Volunteer Fundraising Leadership.

To be successful in the fundraising campaign, high quality volunteer leadership will be needed. No selection is more important than that of Chair of the Campaign. The role of Campaign Chair is to make a significant contribution to the campaign, to recruit members for the campaign committee, and to be the public spokesperson for the campaign. What names would you put on a short-list for this role?

A total of 17 names were suggested, some several times. This list will prove invaluable during the fundraising stage.

The additional comments from interviewees mostly stressed the importance of the role and the challenge of it. One respondent saw it as mission impossible.

- · Need to add to that role that they are 'passionate' for this concept, needs to be a local and well respected. Don't know anyone for that in Napier.
- Someone who is passionate about the oceans
- I don't see that a short term 'hit and run' campaign group will work. Everyone has to have the will to make this happen, and to do their fair share. It is incredibly hard to get a team of volunteers to do that. The team needs to stay through the journey, beyond the campaign and opening for 2-3 years to see it operating
- Need people with different skill sets: conservation, education, Maori, business, finance.
- Suggests a person from Napier with a real passion for the centre would be best placed as Chair, with others from elsewhere to give a good balance and a national perspective.
- Needs to be from big money, has to be impressive.
- The likelihood of success is very low so no one will want the job and no one in their right mind would

Interviewees were also asked for their recommendations beyond the campaign chairs to committee members. These were described as "people who give to the campaign and are willing to ask others." for support. ... perhaps because of their links to other philanthropic families, to foundations, to Māori organisations, or to the business community?"

A total of 15 individuals were nominated as potential campaign committee members. These names will be a good starting point for future fundraising, but this is a modest level of nominations.

Where appropriate, interviewees were asked if they would consider a voluntary role in support of this campaign -- to personally give, and to ask 5-10 people to also support it. Of those asked, 11 said they would consider such a role and 10 would not.

3.7 FUNDING POTENTIAL AND PERCEPTIONS



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Interviewees were given the information that "This is a significant project with an expected total cost of \$75 million to build the Centre" and asked two questions: The first was "For this amount of money, and for the ambitions of the project, do you think this is an important development for the country?"

64% of interviewees were positive or very positive about the project with a total cost of \$75million and just 11% negative or strongly negative.



One of the interviewees commenting on the amount it might cost said: "Will this really achieve what you are hoping for? I wonder if \$75 million will be enough to create what you are envisaging."

The second part of this question indicated that \$40million of this amount would need to be raised from private support and asked. People were asked how confident they would be that \$40million could be raised. Confidence for this was less. 41% were positive or very positive this amount could be raised, one-third uncertain, and 26% was negative or very negative.



The comments on both topics were often cautious. Regarding the importance of the project at \$75million, positive comments sometimes were offered with conditions, suggestions or a call to focus. They included:



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- Maybe \$75 million will not be enough. It needs to be done properly and probably requires more funding.
- With the proviso it is truly national and nationally networked.
- \$75M, this is a huge amount of money to rebuild. It is an important development for the country as Grant really rates the NZ green and clean values. The redevelopment is an opportunity to change behaviour and to raise the profile of the country.
- Yes, if water conservation is the primary focus, it must compel change.
- Yes, and it's very important for the country that not everything is in the main cities. The provinces need things too for the good of the nation, including employment. Hawkes Bay also has EIT which is doing well.
- With current issues in society (social housing, pollution etc) it is important to look to the future as well. particularly if it incorporates the Maori world view into the project
- You need to do it well if you are going to do it at all. It is important for New Zealand as it is an ocean nation. Maybe get an America's Cup identity to front the campaign.
- Yes, since we are a nation surrounded by water
- Project is important for both the country and internationally.
- Other than the conservation issue it is difficult to answer. Would give it 5 (strongly positive) if you can compellingly articulate the value of the sea, ocean, conservation to NZ and the world. It needs to transcend other demands on society. If you have to prioritise poverty and the Aquarium, one has to deal with poverty. If you always chose hospitals before an aquarium you would end up by never having an art gallery.
- Don't know what extent the country wants or needs this but if Napier doesn't do it, another council or private entity will.

Cautious and negative comments focused on whether this should be a funding priority:

- With everything that the country has to do health, education, roads, housing it's very hard to tug at heart strings. It is very very hard. This is the trouble with the world - it has to create a new future. We have an aging population. We're in a confused period of history.
- · Depends on what's actually achieved and whether it leaves a legacy for generations to come but it is a huge amount of money.
- . The Regional Council has got \$160m. We've got lots to do. This is 'nutter stuff'. I'd like to put it into social housing and help the people. The Ahuriri estuary needs to be cleaned up and become a fantastic park (will cost \$20m). Napier has infrastructure issues, pipes, sewage. Napier city has a good balance sheet, but it doesn't do the work.

The interviewees' assessment of the likelihood of raising \$40million of private support for this project sometimes stressed the timeliness of this issue arising at a time of international interest in ocean health and the need for climate change action, and the need for the project to be seen as a truly international project within New Zealand.

 It will come down to: do people understand and get excited? For the outcomes envisaged, I think it is doable.



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- · It doesn't seem like too much of a challenge -- it is pretty modest in terms of international investments. Some US foundations might assist. These are all interested in international aspects, International shipping.
- Is it going to be unique? Is it going to be different versus other aquariums? Does it 'fit' with the interests of funders?
- It's a big ask, a huge amount of money. Get the banks and Hawkes Bay businesses involved, especially the fishing businesses.
- Only if it is national. Hawkes Bay has several millionaires...
- I'm a positive person. But it depends who is driving it, and also if you're looking internationally
- It has to be a national campaign and sold as a national project. That amount wouldn't come from Hawkes Bay. ... Conservation is sexy so now is a good time to raise funds for projects related to oceanography and climate change.
- · Hugely ambitious but don't have the experience to know if it is possible. Imagine would have to go international for it to be achievable.
- It will be a challenge as support will need to come nationally and even internationally but benefit will be seen as being received by the host community
- It will need to be a national campaign, even international. The Auckland Art Gallery raised much more. How much could be generated out of Hawkes Bay region? \$2m to \$5m?
- · This project is quite polarising. Also depends on how you sell it. It is highly dependent on the current (local) political climate. After the elections there's a risk that most of the stakeholders will be out of the council and project will cease.
- · It's an important project but this is a big ask
- Think that's 'a stretch' from philanthropic funders would need significant individual support.
- I am not very confident based on community funding model. \$276 million is available each year for the whole of New Zealand ... I expect the achievement of the target would be totally reliant an individuals.
- This is not going to happen. It's a joke, It's ridiculous. Havelock North has highest per capita in NZ, but I can't see anyone supporting it. Sir Graeme Avery has just raised \$16m and that was hard work. Cranford Hospice is the next cab off the rank for funding and we need that.
- For what it is as presented, not confident. It's a very tough ask. People will only give to that for which they have an empathy. You will need to find those people who identify with the oceans, and who are interested in marine life.
- There are many competing projects in the area including a \$6m to \$10m hospice campaign which is struggling and a \$15m regional sports park project which struggled. If it was in Wellington or Auckland it would be more likely to be successful.

3.7.1 POTENTIAL DONORS AND GIFT LEVELS

In assessing fundraising potential, interviewees were asked who they think might give at various gift levels and we also asked if they (personally or through the trust or company they represent) will consider a financial contribution and at what level.



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A little more than one-third of interviewees who responded indicated they would give financially to this project, one third would give it consideration and one third were unlikely to give or certain not to give.



After removing duplicates of nominated prospects, responses are summarised in this table.

Funding level	No of prospects nominated	Self-nominated
\$5,000,000 +	15 ³	1
\$1,000,000 to \$4,000,000	6	3
\$250,000 to \$750,000	10	0
\$100,000 to \$200,000	9	4
\$20,000 to \$75,000	5	1
Total	25	7

Interviewees made very helpful comments regarding funding, including:

Among those who indicated financial support for the project one indicated a willingness to advocate for support among iwi and related entities.

Two of those who were uncertain about their level of support for construction indicated a keenness to support ongoing operational costs - one specifically for the educational programmes

One of those uncertain of their support for construction indicated multi-million-dollar support if their interest moves from perhaps to certain.

One of those interviewed who represented a major corporation indicated that simple brand alignment would not be a sufficient driver of a sponsorship commitment.

Summaries of all interviews will be available to those leading the fundraising implementation.

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³ Some names mensioned at this level were identified generally as wealthy, but interviewees could not specify that they all had the capacity or interest to give at this top level. Research will be undertaken during Implementation to qualify the levels of giving capacity.

3.8 SOURCES OF FUNDING AND PROSPECTS

There is a confluence of events that can be harnessed to support a campaign for New Zealand's national aquarium. While few of these events are direct funding opportunities, they add weight to the importance of the ecological and climate issues that the aquarium addresses, portrays the urgency of the issues, sows the breadth of community interest, and demonstrates the timeliness of acting now.

These events include:

- Recognition in 2019 of the continent of Te Riu-a-Māui/ Zealandia
- Minderoo Foundation (Andrew and Nicola Forrest, Australia) committing \$100 million to ocean science and clean-up
 - Increasing oceans funding from US foundations
- New Zealand Ocean Foundation established in 2019
- United Nations Decade of Oceans Science for Sustainability (21021 to 2030)
- Being established, a consortium of 12 aquaria around the world to work with the UN Decade of Oceans
- The need for genuine relationship between fundraising results and building programme. The programme must genuinely need the money to proceed to the next stage.

3.8.1 GOVERNMENT FUNDING

For the purposes of this initial report we assume that \$35 million will be available from local and national government sources, including the Provincial Growth Fund to which application has already been made and which is due for announcement in November 2019. Some research responses did indicate that this goal should be extended to represent majority government funding for the project i.e. \$40 million or more.

Other Government funding sources will be explored during the fundraising implementation:

New Zealand Lottery Grants Board, including application for a Lottery Community Facilities Grant and application to the Lottery Environment and Heritage Fund, the Lottery Fund for Community Benefit Related to the 2021 America's Cup, and the Significant Projects Fund.

An expanded national aquarium with a strong emphasis on conservation and education and working closely with other environment-focused aquaria around the world can play an important part in the New Zealand Government's response to:

- The United Nations Decade of Ocean Science for Sustainable Development (2021-2030), and
- The Commonwealth Blue Charter (an agreement by all 53 Commonwealth countries to actively co-operate to solve ocean-related problems and meet commitments for sustainable ocean development)

Obtaining access to some Government ministers and entities was difficult or not possible, and further effort will be made during early stages of implementation. It is important to explore this further as several interviewees felt the government should be contributing a larger share of the total costs of the project.



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3.8.2 LOCAL GOVERNMENT FUNDING

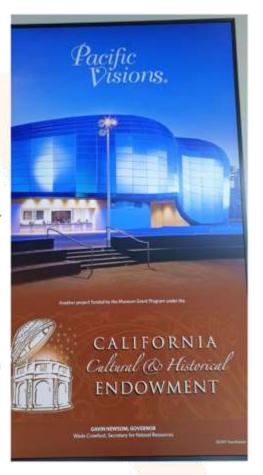
With local elections imminent testing amongst some people was inappropriate or not possible. The seeking of further local government support will resume in the early stages of campaign implementation. The relevant local government areas are Napier City Council, Hawkes Bay Regional Council, Hasting District Council and Central Hawkes Bay District Council.

3.8.3 CORPORATE FUNDING

The 2017 Revenue Generation Study scaled-up a level of corporate financial support that is unlikely to be achieved. Today, as our interviewees insisted, corporate sponsorship needs to deliver real corporate benefits. This might be possible for the Aquarium but it will come during operations not to help fund construction.

Corporate funding opportunities will still be identified and pursued but they will not figure prominently in the estimated results.

As a consequence, discussion of naming valuations will change character and may be considered more for donor recognition than corporate naming. Possibilities for donor recognition have blossomed with high quality digital donor boards such as that depicted here and below (Aquarium of the Pacific, Long Beach, California) being used to show the Board of Trustees, volunteers and donors.





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Trustees # Pacific Gary and Cindy Matsumoto Lance and Fay Adams Alvin and Sue Bartholomew Jan Mazyck Jill McCullough Tino and Martha Bernadett Rob McNeel and Ron Rulison Mark Bertrand and Robert Stanton Barbara Blackwell John Molina Josephine Molina and Heath Steve Bolkovatz Michelle Molina Jim and Liz Breslauer Jose and Brigitte Collazo Steve and Fran Conley Dom and Marge Decristofaro Alex and Margie Norman Beverly O'Neill Norm and Diane Delaterre Gary and Dawna DeLong John Penny and Chris Kurimo Jason DePetris Teresa Phillips Steve and Pilar Dobbs Dennis Poulsen John and Vickie Dupuy Alan and Wendy Puzarne John Fielder and Donita Van Horik Veronica Quintero Walt and Linda Florie Rod and Heidi Roddenberry Carla and Ryan Flynn Geof Garth Mary Rooney Daniel and Felicia Gilboa William and Diane Salter Allen and Charlotte Ginsburg John and Patricia Shadden Jeanne Sleeper **Bob Gordon** Daniel and Rebecca Siskin John and Elizabeth Hancock Jeffrey and Julia Headon Jean Smith Kyle Sullivan Val and Bob Hoffman Mariclare Suomi Michael and Diane Jensen Trini and Maria Jimenez Marvin Suomi Bryan Thacker Richard Katz Suzanne Kelley Ken Walker Don and Julie Knabe John and Patricia Wang Charles and Maureen Wil John and Joan Knight



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3.8.4 TRUSTS AND FOUNDATIONS

International Trusts, especially those in the USA are prospective for support. There are some US West Coast foundations with a track record in funding aquaria and ocean-related projects. These

- Pacific Conservation and Development Trust
- The David and Lucile Packard Foundation
- The Marisla Foundation
- Waitt Foundation
- The Campbell Foundation
- The Rockefeller Foundation
- Oak Foundation
- Pisces Foundation
- Gordon and Betty Moore Foundation

Additionally, the general mood of support can be seen by the establishment of Foundations Center oceans initiative.

A number of Community, Gaming and Private Trusts were researched. Dependent on their criteria for support, a few will contribute towards capital or building projects, and most are aligned with supporting operational programmes. These will be highlighted more clearly during the Implementation phase.

3.8.5 INDIVIDUAL AND FAMILY DONORS

Several high-net-worth people gave their time and opinions generously for this project. Some have established philanthropic interests. For some this project is a possibility and for others not. The choice of campaign leaders will make a significant difference to the successful solicitation of HNW individuals and families.

3.8.6 MAORI IWI, HAPU AND BUSINESS ENTITIES

Our two iwi interviews were very encouraging. Engagement and solicitation of these organisations takes a longer time than for some other entities as there are protocols of introduction to be observed. However, based on the initial interviews, and to the interviews of non-Maori which provided strong support for the inclusion of Maori knowledge and conservations practices in the redeveloped national aquarium, there is good reason for optimism of financial support from some iwi, hapu and their business related organisations (many of which are based on marine industries).

3.8.7 COMMUNITY ENGAGEMENT - COMMUNITY FUNDING

Community-based fundraising will be incorporated close to the end of the campaign. Such fundraising is less efficient than other fundraising forms, but important for developing a sense of ownership by people in the local area. Effective community fundraising used at the end of the campaign can also



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become a staple of ongoing fundraising and contribute to operational funding when the redeveloped aquarium is opened.

3.8.8 INTERNATIONAL AQUARIA AND RESEARCH ORGANISATIONS

Overseas aquaria and universities and other research organisation might point the Aquarium to funding sources and even facilitate introductions, but they are rarely sources of funding. More commonly they are a net cost.

Becoming part of an international consortia of aquaria and having endorsement or credentials from international bodies help give potential donors quality of the confidence of the activity.

During interviews potential donors signaled less interest in research than might have been expected. Some who favoured research wanted it confined to research on species that will be exhibited in the facility, others noted that there is already sufficient research to underpin the conservation actions that will improve ocean health and that is where the emphasis should be.

COMPETITION FOR FUNDS AND RISKS

Competition for funds mainly occurs with entities that have finite annual distributions. This includes lotteries, foundations, and some individuals. Other individuals and programmes have ability to increase their distributions or make multi-year commitments to fund favoured projects.

Major fundraising projects in Hawkes Bay -- toitoi Hawke's Bay arts and events centre in Hastings, Hawkes Bay Sports Park, Hastings and Cranford Hospice, being in arts, sports, and health sectors respectively are not viewed as significantly competitive with the aquarium for philanthropic funds.

Fundraising risks will be covered in the Implementation Plan. The key risk of note here is that aspects of greatest interest to potential funders are not given sufficient emphasis in the project design. Funders across constituencies had similar hopes that the redeveloped National Aquarium would:

- · Be accepted as a national institution and linking to key overseas institutions
- Be located in Napier but serve the nation
- Showcase live marine species
- Provide conservation education
- Change human behaviour in favour of conservation
- Showcase Maori knowledge, history and conversation practices
- Be given a good Te Reo name
- Contribute strongly to Hawkes Bay tourism and economy
- Take place in a significant, eco-friendly building.

The recommendation below is based on the assumption that the project can proceed to its next stage of development without significant delay or public controversy and bearing these hallmarks.



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4 RECOMMENDATION

4.1 RECOMMENDATION

This review of the revenue generation study tested whether \$40,000,000 could be raised beyond the expected initial government contributions. Our conclusion is that this amount cannot be raised in a single campaign with that goal, however, with appropriate focus, programs and governance and assuming the project can continue without significant controversy, then this amount could be raised in two successive campaigns, each for \$20,000,000.

We recommend that:

Napier City Council consider the campaign fundraising beyond initial government contributions in two parts, a stage 1 goal of \$20,000,000 and then a stage 2 goal of \$20,000,000.

The stage one goal would seek to achieve \$20,000,000 from these constituencies and with these totals by source.

lwi, hapu and related business organisations	\$7,500,000
Lotteries grants	\$4,000,000
Additional Government sources	\$2,500,000
New Zealand charitable foundations and gaming trusts	\$1,500,000
Overseas Trusts and Foundations	\$1,500,000
Hawkes Bay and NZ individuals	\$3,000,000

When the project moves to Stage 2 of the fundraising campaign for the remaining \$20,000,000 the project and campaign will be in much better shape to proceed and to capture people who are not enthused at present. By then it will have much greater definition, the governance structures will be in place, the leadership will be known, and the early funders will be well informed about the project. Stage 2 will seek further funding from some Stage 1 contributors, solicit new funding prospects, and will incorporate a major community fundraising event aimed at mass participation and developing a widespread sense of ownership of the national aquarium.

The Stage 2 fundraising campaign will also position the aquarium for ongoing philanthropic funding through sponsorship, membership, ongoing grant applications and philanthropy.

Further details of how the campaign will run, its risks and milestones are included in the Implementation Plan.

4.2 NEXT STEP: THE IMPLEMENTATION PLAN

Further details of how the campaign will run, its risks and milestones are included in the Implementation Plan. It includes Prospect Research, along with a revised Case, and consideration of naming values and charitable entity or entities that might govern the redeveloped national aquarium. The Implementation Plan will also address issues of timing, and the linking of the fundraising timetable and other key dates for the project.



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APPENDIX A: Invitation Letter to Interviewees

SHAPESHIFTER Redefining our National Aquarium

(Date) [Title] [First Name] [Last Name]

Project Shapeshifter - Redefining our National Aquarium

There is an exciting opportunity before us, to create an iconic destination that all New Zealanders will be proud of. A memorable experience that centres Actearoa New Zealand as the environmental champion for Papatiānuku planet earth and her oceans. The ultimate goal is to help reverse aquatic ecosystem damage and the impact that people have on our oceans, by changing behaviours through environmental education.

The expansion of the National Aquatium of New Zealand is known as Project Shapeshifter. This name is emblematic of Māui – the 'shapeshifter' and great East Polynesian ancestor-explorer of the Pacific Ocean. Our challenge is to be bold and adventurous like Māui – to be a shapeshifter and game-changer

We ask that you consider sharing your advice with us, so that we can secure the future of the National Aquarium, located in Napier. This incredible facility has the potential to become a nationally significant centre for conservation, education and research that can be accessed by

The current aquarium is restricted by building capacity and without a redevelopment, the facility will continue to lose its attractiveness and relevance. In order to advance conservation, education and engagement objectives that offer benefits locally, nationally and globally, a significant shapeshiff is needed.

In addition to financial contributions from the local council and central government, a project of this scale will require substantial private philanthropic and corporate support

As part of our preparation and due diligence, we are conducting a feasibility study to help ascertain the likelihood of securing the required funding. Your views on our new and exciting plans for the National Aquanum, would be of great value.

We would like to conduct a 40 to 60-minute interview with you that will be conducted by a consultant from AskRIGHT, an independent consultancy appointed by Napier City Council. This is to ensure a transparent process, enable frank opinions to be expressed, and to get the best information possible to guide us in this development

To be clear, we are not seeking funds at this stage, but are attempting to evaluate the likely success of the proposed development and fundraising campaign. We hope you will be able to provide us with this assistance. You will receive a call in the next week from a member of the AskRIGHT feam to arrange an interview, and provide you with all the background material that you require

Yours faithfully

Wayne Jack Chief Executive Napier City Council

Faye White Acting Mayor Napier City Council

projectshapeshater@napier.govt.nz

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APPENDIX B: List of interviewees

The names listed are those interviewed during the study, mostly individually, but some together. Others were invited but unable to interview during the study period and will be contacted during implementation.

Ric Athorne Sir Graeme Avery James Bartram Jonathan Bell Viv Bull Martin Cheer Peter Coman Breanna Cullen Lynne Dowling Rev Fr Tim Duckworth Livia Esterhazy

Colin Francis

Terry Goldfinch Rex Graham Rodney Green Erin Harford-Wright Ken Harris Nigel How Caroline Kermode Volker Kuntzsch Estella Lee Reuben Levermore Andy Lowe David MacKersey

Alasdair MacLeod John Martin Grant McBeath John McCarthy Carolyn Neville Kauahi Ngapora Tim Pankhurst Hamish Saxton Sir Richard Taylor Dave Tibby Rob Townsend Jonathan Wallace

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APPENDIX C: Draft Case for Support for Testing



Redefining the National Aquarium of New Zealand

AMAZE - INSPIRE - COMPEL

Earth is unique among the planets - the blue planet.

A little over 50 years ago, human beings saw for the first time the stark contrast between the grey barrenness of the moon and Earth, mostly covered with water. It is a place of habitation, a place where humans, plants and animals can live, flourish and thrive.

But Earth, our planet, needs action.



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The rapid rise of populations is increasingly detrimental to the delicate balance of nature. From mountain tops to the deep sea, the water that we depend upon for life is under threat, along with almost every living plant and creature that touches it. Our planet needs protection, and we have the opportunity to make a critically important contribution to that.

1. PLANET – PAPATÙÀNUKU

One Planet

The habitats that make up our planet are connected and reliant upon each other. The astonishing diversity of life on earth depends on these global connections. This is a critical moment for our planet. For the first time in our history, the global connections that all living things rely upon are breaking. But if we act quickly, we have the knowledge and the solutions to make our planet thrive again. The water we have and take for granted is under threat. The challenge is to innovate, problem solve, to care.





New Zealand has the opportunity to play a significant part in educating people about what each of us can do. The re-development of the National Aquarium provides an opportunity to deliver global leadership in grappling with some of our planets' most pressing issues, through a unique marriage of indigenous knowledge and science to address the decline, and in places collapse, of aquatic ecosystems.

We can raise awareness of the threats to our waterways and oceans, increase our scientific knowledge for the benefit of many, and educate, enable and promote sustainability within our own community, nationally, and globally. This is supported by Napier's unique position - where the Pacific and Southern Oceans meet.

Excellence in Conservation and Education

The redefined National Aquarium of New Zealand will be a centre of excellence showcasing positive practical efforts in freshwater, estuarine, coastal ecology and our oceans to improve aquatic environments and human wellbeing today and for future generations. I will be a leader in environmental education at all levels of and in the wider community.

The vision is bold and exciting -a vision to create an unforgettable, world-class aquarium and indigenous visitor experience of Aotearoa New Zealand that changes the way we understand, use and protect our aquatic environments for the better, and forever.



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Mātauranga Māori (Māori knowledge) underpinned by cosmogony, astronomy and the lunar calendar will bring to life the aquarium experience through linking traditional stories, practices and understanding of the environments in which our native fish and key bird species live. By drawing on this Māori world view from mountain headwaters out to the deep sea, we will create an unforgettable visitor experience, We will show how matauranga Maori and western science can coexist and reinforce one another to strengthen our relationships with the natural world and deepen our ability to be kaitiaki, to care for it.





2. PEOPLE - TÀNGATA

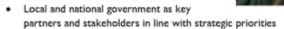
Engaging with Tangata Whenua

Critical to the success of this project is genuine engagement with tangata whenua. To enable the Māori world view to come to the fore, project teams include tāngata whenua to create a unique visitor experience and cement an ongoing partnership.

Partnerships

To realise its bold vision, a re-developed National Aquarium needs not only the support of the community, but also like-minded organisations nationally across research, the private sector and relevant branches of government. Key partnerships include:





- Research partnerships with New Zealand universities and other key players in academia, government and independents
- Education partnerships with schools and institutes engaged in programme offerings
- Relationships with leading aquariums around the world including Monterey Bay Aquarium USA, where programmes reach into the deep sea. They have demonstrated that a leading aquarium facility connected to changing visitor experiences, and the real-world wonder of the marine realm, can and will, change behaviour.



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- Work with Weta Workshop who have undertaken to review the design concept and other New Zealand firms that lead the world in animation, computer-graphics, and exhibition design/visitor experience
- Individuals, trusts and companies in funding the development, without whom the vision cannot become a reality

3. PLACE - WAAHI

National Aquarium History

In 1956, a local fish-keeping club began gathering some of their favourite specimens in the basement of Napier's War Memorial Hall. Believed to be the first aquarium in New Zealand, this was the seed that has grown into New Zealand's National Aquarium.

Twenty years later, the fish-keeping club moved to a purpose-built site on Marine Parade, where the Aquarium still resides today. By the year 2000 it was due for expansion and by 2002 had undergone an \$8 million redevelopment as well as being renamed National Aquarium of New Zealand, Te Whare Tangaroa o Aotearoa.





Not only is Napier the location of the current National Aquarium, it is also the unique location where the Pacific and Southern Oceans meet. This project has national, regional and global relevance given the Te Ao Māori foundation and including research, conservation and education initiatives throughout New Zealand.

National Aquarium staff have an international reputation for specialist knowledge, an advantage that will be built on through the implementation of a re-defined National Aquarium.

Tourism Opportunity

Hawke's Bay is experiencing steadily increasing numbers of domestic and international tourists, with growth in international visitor numbers particularly driven by Napier City visitation. This is predicted to be sustained in coming years and cruise tourism is also on the increase with forward bookings indicating continued growth. An expanded National Aquarium would offer an exciting experience with land, freshwater and sea creatures, not readily available in one place anywhere else in New Zealand.

In addition to direct visitor revenue, an expanded National Aquarium of New Zealand offers wider tourism benefits for Hawke's Bay and New Zealand such as:



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- Boosting the Hawke's Bay visitor experience and supplementing the range of wet weather options and options for families;
- An ideal visitor destination for cruise ship passengers given the proximity to the Port of
- Opportunities to partner with other attractions locally and nationally to create package options for particular visitor groups, e.g. education and conference packages;
- Appeal to specialist markets such as cultural tourism, research, education and conservation.
- Connecting attendees/visitors to real life conservation experiences across New Zealand

To achieve this, the new National Aquarium and Conservation Centre will draw on the talents of many creative and innovative experts and storytellers. The exhibits will amaze, inspire and compel all those who visit, leaving them with a better understanding of aquatic ecosystems from the mountains to the deep sea, their importance to human wellbeing and their critical conservation imperative. The visitor experience will be cutting edge, leaving people awestruck and inspired, motivated and informed, to care and do differently in their relationships with aquatic realms.





Economic Impact

From an investment perspective, the case for an expanded National Aquarium of New Zealand is compelling. A revitalised National Aquarium increases the opportunities for education, training, research and employment in the natural sciences and aquarium management for New Zealanders and particularly Hawke's Bay residents.

The new facility and business model will be financially sustainable and scalable, positively influence the regional and national economy and augment the tourism, education and science sectors within Hawke's Bay and throughout New Zealand through water ecology and conservation awareness.

4. THE PROPOSAL

The proposal is to redevelop the current National Aquarium in Napier, Hawkes Bay, New Zealand, with the objectives of becoming a leader in environmental education, a showcase for research and conservation activities and of course a unique tourist attraction.

Redefining our National Aquarium presents a unique opportunity to make a significant and positive contribution to our environment, from mountain top to deep ocean trench - ki uta ki tai. An engagement programme is currently underway working with partners, iwi, community and industry experts to get it right.



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Planet-Papatūānuku

Marrying indigenous knowledge with leading-edge science and technology - to help us better understand our environment and care for our planet.

To be a centre of excellence for land-to-sea environmental initiatives, education and research.

People - Tangata

To tell the stories of the people of Aotearoa New Zealand and their relationship with the land and sea, encouraging kaitiakitanga of our natural environment contributing to its conservation and sustainability.

To develop partnerships locally, nationally and obally to make the bold National Aquarium vision a reality.

Place - Waahi

To tell the stories of place and create a unique destination that draws audiences from across New Zealand and beyond, to engagewith our natural world, and receive an unforgettable experience.

To build a facility that is financially sustainable, positively influences the local and national economy and augments the tourism, education and science sectors within Hawke's Bay and throughout New Zealand.

The proposed development is estimated to cost \$75 million. The aim is to secure around half of this through public funding sources (government and councils) and the remainder through fundraising from companies, foundations and individuals. Public funds are now being sought and potential private funding is being tested. A charitable trust will be established for the operational management and governance of the redeveloped Aquarium.

The Time is Now

The last major upgrade to the current facility occurred in 2002 when the Aquarium underwent an \$8M extension and renovation including the addition of the 1.5 million litre Oceanarium and tunnel. A further upgrade to accommodate the penguins following the closure of nearby Marineland was undertaken in 2011.

The Aquarium is restricted in its activities by the current building capacity and without a redevelopment, the facility will begin to lose traction and relevance. In order to further conservation, education and engagement objectives that offer benefits, locally, nationally and globally, a significant shapeshift is needed.



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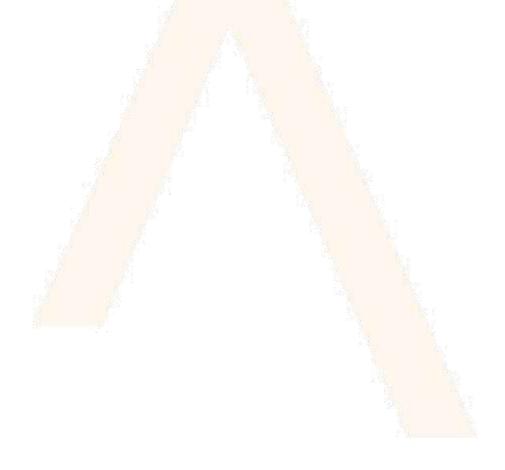
5. INDICATIVE TIMELINE

Following this period of community consultation, if support for the redefined National Aquarium of New Zealand concept is strong, the proposed indicative project timeline is as follows:

2018 - 2019 Community consultation

2019 - 2020 Funding secured 2021 - 2022 Construction

2023 National Aquarium of New Zealand reopens





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Te Matau-a-Māui – Hawke Bay

Māui, the Polynesian ancestor who fished up the North Island

The story begins with a day out fishing with his brothers...

The brothers, weary of Māui's antics, refused to give him any hook or bait so he used his own fishhook made from the jawbone of his grandmother. He then punched himself in the nose and smeared his blood on the hook to act as bait. Before long Māui caught a great fish that turned out to be the North Island of New Zealand.

The fish hook, according to legend, became the cape which now forms the southernmost tip of Hawke Bay.



The challenge is to be bold and adventurous like Māui - to be a shapeshifter and game-changer.

The vision is to redefine the National Aquarium of New Zealand and create an iconic centre that all New Zealanders will be proud of.

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APPENDIX D: Questionnaire

REDEFINING THE NATIO	NAL AQUAR	IUM OF NEW	ZEALAND		
INTERVIEWEE:			INTERVIEWE	ER:	
ORGANISATION:		34.3	⊠ In person-	☐ Phone	⊠ Zoom
DATE://	TIME:		NUMBER:		
☐ Hawkes Bay ☐ Auckland	⊠Wellington	South Island	☑ Other		
We are advising Napier City C Aquarium of New Zealand, bas feasibility of raising the private	ed in Napier b	ut serving the wh	ole country. W	e are testin	
The information you provide w profit entity that is established you would like any comment you 'not for attribution'.	to run the Cen	tre will also rece	eive a copy of o	ur interview	v notes. If
Many of our questions ask for with other responses. In these	STATE OF THE PERSON SHAPE				
DEMOGRAPHICS					
Interviewee is characterised as HNWI / Family Napier / Hawkes Bay re iwi or Māori organisatie New Zealand Foundatie Overseas Foundation New Zealand Company Overseas Company Government Departme 1. How familiar are you with telepositive 2. How familiar are you with telepositive 1 Strongly negative positive 1 Strongly negative Impressions OF THE CA	esident on on ent the current Nat 2 Negative [Napier and the	ional Aquarium i 3 Neutral [Hawkes Bay Reg 3 Neutral [n New Zealand? 4 Positive	5 Stron	
 Thinking of the draft document statement: "This document	makes a compe 2 Negative	elling case for wh	y this redevelop 4 Positive	ment is nee	ded"? ly positive
please give it a rating from o		5).		© AskRIC	5HT 53

	To showcase aquatic species, birdlife, and other live exhibits
	1 Strongly negative 2 Negative 3 Neutral 4 Positive 5 Strongly positive
	b. To boost tourism and the economy of the Napier Region
	1 Strongly negative 2 Negative 3 Neutral 4 Positive 5 Strongly positive
	 To create awareness of M\u00e4ori knowledge, history, and conservation practices
	1 Strongly negative 2 Negative 3 Neutral 4 Positive 5 Strongly positive
	d. To provide conservation education
	☐ 1 Strongly negative ☐ 2 Negative ☐ 3 Neutral ☐ 4 Positive ☐ 5 Strongly positive
	e. To foster conservation research
	1 Strongly negative 2 Negative 3 Neutral 4 Positive 5 Strongly positive
	f. To change human behaviour to benefit the environment
	☐ 1 Strongly negative ☐ 2 Negative ☐ 3 Neutral ☐ 4 Positive ☐ 5 Strongly positive
5.	The ambition is to be an important national institution like Te Papa, Waitangi Treaty Ground.
	How important is it that this Centre have national status and remit?
	1 Strongly negative 2 Negative 3 Neutral 4 Positive 5 Strongly positive
6.	Like Te Papa, it is thought that this Centre will have a Te Reo name, and a functional description.
	At present it is called 'The National Aquarium of New Zealand'. Please RANK each of these
	alternatives one (1) to five (5).
	Name 1: National Aquarium of NZ:
Na	me 2: National Aquarium and Conservation Centre:
	Name 3: National Aquarium and Marine Conservation Centre:
	Name 4: National Aquarium and Oceans Centre
	Name 5: Oceans Centre of New Zealand:
	What other names should be considered?
7.	This is the draft of a case for support that might be used to raise funds for the construction.
	Details of the building scale, cost and design will be added when they are known. Is there anything
	else that should be added to this document for it to be more effective?
В.	An international architecture firm has been engaged to design the new aquarium in Napier that
	will be the centrepiece of the Centre. Are there architectural or other considerations that you
	would flag as important to this task:
9.	The Centre will have a research programme in association with universities and research
	institutes, and also citizen scientist project across the country. Are there issues that you think
	should be a priority for the Centre? What are they?
G	OVERNANCE
Th	e expect that responsibility for the Centre will be vested in a Not-For-Profit company or trust, is will provide the governance for the Centre. The same entity or a supporting Foundation will by by the tax-deductibility for philanthropic support.

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- 10. Do you have a view of what the governance arrangements should be, or could you point to other New Zealand entities that have an effective governance regime that might be considered for this
- 11. Do you have in mind a person, or the kind of person, who would make a good Trustee for this entity?

VOLUNTEER FUNDRAISING LEADERSHIP

To be successful in the fundraising campaign, high quality volunteer leadership will be needed. No selection is more important than that of Chair of the Campaign. The role of Campaign Chair is to make a significant contribution to the campaign, to recruit members for the campaign committee, and to be the public spokesperson for the campaign.

12.	What	names	would	you	put	on	a	short-list	for	this	role	
-----	------	-------	-------	-----	-----	----	---	------------	-----	------	------	--

- 13. Beyond the Campaign Chair there will be a Campaign Committee. This will be people who give to the campaign and are willing to ask others for support. Who should be considered for a role on the campaign committee - perhaps because of their links to other philanthropic families, to foundations, to Māori organisations, or to the business community?
- 14. Would you consider a voluntary role in support of this campaign (to ask 5-10 people to contribute)? Yes No Perhaps Not asked Not answered

DONORS AND PROSPECTS

This is a significant project with an expected total cost of \$75 million to build the Centre.

15.	For this amount of money, and for the ambitions of the project	t, do you	u think this is a	n important
	development for the country?			

☐ 1 Strongly negative ☐ 2 Negative ☐ 3 Neutral ☐ 4 Positive ☐ 5 Strongly positive

16. We expect that \$40million of the \$75million cost will need to be raised by private support. How confident would you be that this amount could be raised?

☐ 1 Strongly negative ☐ 2 Negative ☐ 3 Neutral ☐ 4 Positive ☐ 5 Strongly negative ☐ 6 Strongly negative ☐ 6 Strongly negative ☐ 6 Strongly negative ☐ 7 Strongly negative ☐	gly positiv
---	-------------

To be successful in achieving its target, a campaign will need donors at these different gift levels pledged over three to five years.

\$5,000,000 - \$20,000,000

\$1,000,000 - \$4,000,000

\$250,000 - \$750,000

\$100,000 - \$200,000

\$20,000 - \$75,000

For the following, prompt by sector:

- HNWI / Family
- Napier / Hawkes Bay resident



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 Iwi or Măori organisation 	
 New Zealand Foundation 	
Overseas Foundation	
New Zealand Company	
Overseas Company	
Government Department	
17. Who do you think are prospects at each of these gift	levels?
a. \$5,000,000 - \$20,000,000	
b. \$1,000,000 - \$4,000,000	
c. \$250,000 - \$750,000	
d. \$100,000 - \$200,000	
e. \$20,000 - \$75,000	
18. Would you consider a gift to this Campaign if asked?	
Yes No Perhaps Not asked	☐ Not answered
19. What level of gift might you consider?	
 \$5,000,000 - \$20,000,000 	
• \$1,000,000 - \$4,000,000	
• \$250,000 - \$750,000	
• \$100,000 - \$200,000	
 \$20,000 - \$75,000 	
☐ Not asked ☐ Not answered	
CONCLUSION	
20. Finally, is there any advice or other comments you w	ould like me to pass on (about the project,
organisation, fundraising, community engagement, et	cetera)?

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Fundraising Campaign Implementation Plan for

NATIONAL AQUARIUM AND OCEAN CENTRE OF AOTEAROA-NEW ZEALAND

NZ should lead by example for ocean environment management. We have the 4th largest economic zone.

Volker Kuntzsch, CEO Sanfood Ltd, Trustee Southern Seabird Solutions Trust

We are living in a world where environmental concerns are at the forefront of our minds... The coming generation is hungry for that knowledge.

Nigel How, historian, artist, board member - Ngati Kahungunu, Chairperson - Wairoa Taiwhenua









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OUR PARTNERS AND AFFILIATES









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1 INTRODUCTION

AskRIGHT was engaged by Napier City Council in June 2019 to review the draft Revenue Generation Strategy (RGS) for the project now called the National Aquarium and Ocean Centre of Aotearoa New Zealand. There are two parts to this project. The first was to conduct a feasibility study to test the potential of a fundraising campaign in support of this project, and the second was the implementation plan. The RGS report was provided to Napier City Council on 30 September 2019, and with information from additional interviews conducted since that date, a revised report has been provided to Council as a companion to this document, the second part of the RGS review - the Campaign Implementation Plan.

During this process this has been known as Project Shapeshifter. Inspiration is being drawn from Maui in order to redefine the role and purpose of the National Aquarium and Ocean Centre and the challenge is to be bold and adventurous like him - to be a shapeshifter and gamechanger. The redeveloped facility will have a significant focus on conservation education, research, and action, as well as being an awe-inspiring tourist attraction. The working title for the redevelopment project, as described in this plan, is the "National Aquarium and Ocean Centre".

This Implementation Plan draws on the findings of the feasibility study and is structured on a key recommendation of the revised RGS - that the fundraising campaign should be undertaken in two stages, each for \$20,000,000. The two campaigns will take two years each, although there will be overlap with preparation for Campaign Stage Two undertaken during the final months of Campaign Stage One. The reason for two campaigns is because the findings of the feasibility study showed insufficient interest and support for a \$40 million campaign at this time. It was felt that after two more years of development there would be a greater knowledge of the project, along with more specific information on features that would attract a new cohort of supporters.

This document is the implementation plan developed for the currently known circumstances of the project. If the project receives a base of Government support to proceed to fundraising AskRIGHT and the volunteers recruited will implement the campaign according to this plan and adapt it for changing circumstances as necessary.

After initial comments, which relate to both campaign stages, this document provides separate details of implementation for the two campaign stages.

This Implementation Plan is one of several projects undertaken simultaneously by Napier City Council and selected suppliers. There has been effective communication between the groups to ensure the project developed in an agreed direction and to minimise differences in the advice provided for different aspects of the project. In naming the organisation and the key people with whom we had contact, we acknowledge their professionalism and extend our thanks to:

Napier City Council

- Wayne Jack, Chief Executive
- Drew Brown, Project Manager
- Antoinette Campbell, Director Community Services
- Charles Ropitini, Strategic Māori Advisor
- Debbie Beamish, Executive Assistant to CE

National Aquarium and Ocean Centre of New Zealand

- Adrian Fowler, Aquarium Director
- Rachel Haydon, Aquarium Project Lead



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Terra Moana Limited

- Tony Craig, Project Oversight
- Katherine Short, Project Lead
- Karl Wixon, Cultural and Creative Lead
- Karen Lo, Research and Data Management

EHDD

- Duncan Ballash, Aquarium Design
- ✓ Quyen Luong, Aquarium Design

AskRIGHT

The AskRIGHT team who contributed to the Feasibility Study and this Implementation Plan comprised:

- √ Daniel McDiarmid, Director
- ✓ Wayne McKenzie, Senior Consultant
- ✓ Wayne Evans, Senior Consultant
- ✓ Clare Bridle, Consultant
- Louise Walters, Consultant
- ✓ Victor Manawatu, Cultural Advisor
- Denise Aquino, Administrative Manager
- ✓ Emma Eastwood, Researcher

2 CAMPAIGN CRITICAL SUCCESS FACTORS

Capital Campaigns are the most complex form of large-scale fundraising. While planned in detail, they are constantly adjusted to meet changing circumstances. In planning and adjusting the campaigns, it is useful to be aware of the factors that are critical to campaign success. These factors are described in this section.

Prospective Donors

A campaign needs a list of people and organisations willing to fund the campaign who have sufficient interest in the case, capacity to give at the required levels, and a motivation to give to this campaign. The chief reason for undertaking the campaign in two stages is to enable immediate fundraising while acknowledging that some major supporters will only join the campaign when the project has more detailed plans.

The feasibility study identified a good level of interested donors, but continuing to develop the list of potential funders, engaging them, and seeking their philanthropy, grant, or sponsorship support are key activities of the campaign.

Inspirational Leaders

People give to people, not to organisations. A campaign requires leaders who are passionate for the cause, who make their own personal gift first, and who are willing to ask others to contribute. In many campaigns, these leaders come from the ranks of long-term substantial financial supporters of the organisation. As the current aquarium in Napier does not have an active fundraising programme or history of philanthropy, there is no pool of established people to draw from. Leaders of the campaign will come from those identified in the feasibility study and others who are drawn to the project.

Resources and Infrastructure

Project Shapeshifter has been likened to riding a bicycle while building it -- and, it is. Although the aquarium has been established at Napier for many years, the entity or entities that will have responsibility for building and running the National Aquarium and Ocean Centre have yet to be established. The decisions yet to be made about legal entities, governance, and selection of people to provide governance or trusteeship are important to fundraising because they will be important to those who consider providing substantial funding to the project. Advice from PWC on these matters has been incorporated in the Business Case.

Governance and Tax-Deductibility

A Charitable entity will be established to receive and steward the funds donated for this project, and, ultimately, one or more entities might be established for the construction and operation of the new facility. We expect the Charitable entity to take governance and oversight of the fundraising campaigns.

Effective governance does not itself attract funds to a project such as this, however inappropriate governance will be a deterrent to substantial contributions. Major funders often undertake due diligence processes when considering a major financial commitment and will consider the tax effectiveness of the entity, the experience and personal character of the people in the governing group, the appropriate mix of skills within the group, and the extent of personal philanthropic involvement of members of the governing body.

PWC has provided draft advice to Council on governance issues, reproduced here as Appendix A.



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The governing body of the charitable entity receiving, managing, and disbursing contributions need not be also responsible for the construction or running of the facility and programmes. These functions can be undertaken by one or more other groups as long as the responsibility of each entity and the relationships between them are clear.

It is important that the charitable entity receiving philanthropic and grant funds be one which provides comprehensive rebates from income tax for donors who are taxpayers in New Zealand and is an entity eligible to receive funding from charitable trusts in New Zealand. This entity will also need a relationship with similar bodies that provide tax relief to individual and grant funders in other jurisdictions, especially the United States of America. AskRIGHT can assist with the establishment of such entities or relationships with established giving vehicles offshore.

The final name of the facility is yet to be settled. Moana Tuatahi! - National Aquarium and Ocean Centre of Aotearoa New Zealand has recently been used, but it is not necessarily the final name.

The themes and names of the Campaigns are important to inspire and generate enthusiasm for the campaigns at all levels. It needs to attract and embrace people across the board to participate and support the project - not just those who live in the Hawkes Bay, but those who want the project to be completed and available for everyone.

The stingray figure has been used on artwork throughout this project but it is not decided if this will be the icon species for the facility in the future. Most aquaria adopt a single image (shark, octopus, etc.) as the visual theme, but this has not yet been decided for this redeveloped facility.

Case for Support

A Case for Support is the explanation of what those involved in this project are trying to accomplish through the campaign, why it needs and is deserving of support, how important it is for the community, and, especially how it will contribute to caring better for the planet. The Case is not about the Council needing money for the building; it arises from the need to create an outstanding ocean conservation and learning environment with opportunities for positive behaviour change.

The Case provides the reason for the campaign; it focuses heavily on the 'why', not just the 'what'. It must be clearly defined and articulated, and demonstrate the relevance, urgency, and importance of the project. The feasibility study tested a draft Case for Support with people from a range of donor-types (corporations, individual donors, foundations, lotteries officials, and others) and received comments that help inform the Case, which will be used in Campaign Stage One.

The final Case will reflect the Business Case developed by Terra Moana Ltd for Napier City Council and include information on construction phases to align with the fundraising campaign stages once this information becomes available.

The Case for Campaign Stage Two will refresh the messages of Stage One and provide greater details about the works that will be funded through the campaign. The Case follows a flow of information:

- √ Need
- Vision
- Solution
- Request for support



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The Case for Support will be used in whole or in part in any proposal prepared for an individual, trust, or group. These detailed gift requests are tailored towards the donor's specific interest in the cause and project, their preferred forms of giving, and their requirements for acknowledgement and recognition, but such proposals will always be consistent with the overall Case for Support.

A draft Case for Support was devised for the purposes of the Feasibility Study and RGS review. Since then, the project has developed significantly with designs and concepts being developed and an evolving narrative. For the purposes of a future fundraising campaign, the Case for Support will be updated and refreshed to include:

- Lessons learned from Feasibility Study and RGS review including interviewee feedback
- Information on specific exhibits, educational activities, research and conservation features
- Design imagery from Architects and other sources
- Breakdown of costings, project stages and benefits to various stakeholders
- Business plan and draft operating budget for completed Aquarium
- Consistent design look and feel alongside other project collateral
- Demonstration of partnerships in place with other Aquariums, research institutes and conservation organisations and how these will contribute to joint working and improved outcomes on key conservation issues
- More detailed understanding of how the project will authentically improve outcomes for Măori
- Specific elements required for certain audiences e.g. demand study outcomes for those with a commercial focus

The updated Case for Support will be available early in Campaign Stage One.

Resources

Other factors crucial to campaign success are the funds necessary for travel, events, prospect research, and consultant time to engage volunteers and donors and to liaise with Council and other stakeholders. The consultancy resources for the project have been established by Council tender. The costs apart from salaries or consultancy costs for a capital campaign will normally be 4% of the campaign target.



Impression of the Kororā (Little Blue Penguin) proposed enclosure!

³ Project Shapeshifter - Visitor Experience Concept Document, 2 October 2019



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2.1 THE CAMPAIGN METHOD

A key recommendation of the feasibility study was that the fundraising for this project be sought in two consecutive campaigns for \$20,000,000 each. The two campaigns will take two years each (four years combined), and the details of each proposed campaign are provided below.

Although described here as campaigns of \$20,000,000 (after allowing for funding from Napier City Council and anticipated funding from the Government's Provincial Growth Funding through the Ministry of Business, Innovation, and Employment (MBIE) these numbers might be restructured with a target of the total amount required and show Council and PGF input as early campaign contributions). This scaling-up of the campaign target can help lift the sights (and the financial contributions) of some supporters.

Once a campaign is underway, the progress of the campaign is a matter of public interest and it is important that there be a shared understanding of what contributions count towards the campaign target/s. AskRIGHT will provide Council or the governance entity with a recommended counting policy, which will include:

- Gifts, donations, and grants received for the Aquarium redevelopment
- Pledges made in writing
- Contributions in kind (received and valued according to a gift acceptance policy)
- Campaign assistance: e.g. professional assistance, printing that reduces campaign expenditure
- International philanthropy, and such philanthropists associated with New Zealand

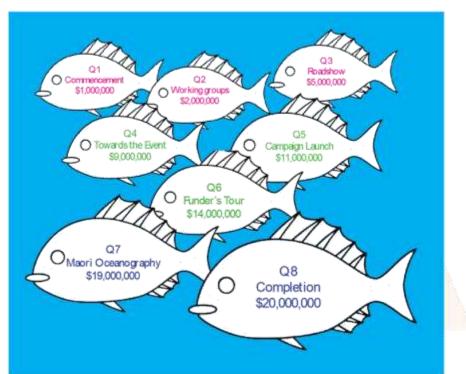
Fundraising campaigns do not operate on an equitable basis whereby everyone contributes the same amount. In practice, different funders have different financial capacity and levels of interest and respond accordingly to requests for support. In order to quickly build confidence, the fundraising campaigns (after an initial period of enlisting volunteers) will seek the largest gifts first, and then move to lower level gifts sequentially. In this way, a significant proportion of the target for each campaign is reached by the half-way point.

The illustration below shows the structure of each campaign and the cumulative goal that the campaign will strive to achieve. A Campaign Stage One Event (or, perhaps, a series of events in Napier, Auckland, and Wellington) will be held when between \$10m to \$12m has been raised to provide the impetus to achieve the gifts that will complete that stage. At this point, the emphasis changes from commencing the campaign to completing Stage One.

Each of the two-year campaigns has eight sections of three months each. This illustration shows the individual sections of Campaign Stage One and the cumulative totals expected by the completion of each section.

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CAMPAIGN STAGE ONE PHASES



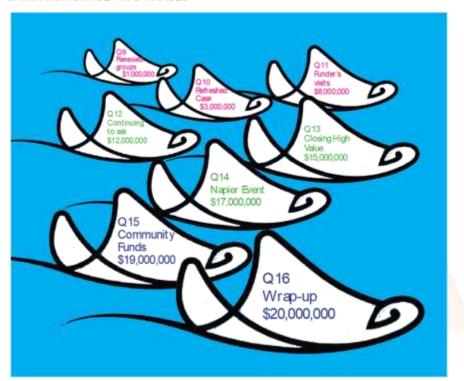
Q1	Commencement	\$1,000,000
Q2	Working Groups	\$2,000,000
Q3	Roadshow	\$5,000,000
Q4	Towards the Event	\$9,000,000
Q5	Campaign Launch	\$11,000,000
Q6	Funders' Tour	\$14,000,000
Q7	Māori Oceanography	\$19,000,000
Q8	Completion	\$20,000,000

Campaign Stage Two has several differences to Campaign Stage One - for example, the Campaign Event will be held in Napier only. This event will provide the impetus to raising the last \$5,000,000 while emphasising local support. The goal here is to complete the campaign through deep support from the Hawkes Bay region for this spectacular local facility of national and international significance.



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CAMPAIGN STAGE TWO PHASES



Q9	Renewed groups	\$1,000,000
Q10	Refreshed case	\$3,000,000
Q11	Funders' visits	\$8,000,000
Q12	Continuing to ask	\$12,000,000
Q13	Closing High-value	\$15,000,000
Q14	Napier Event	\$17,000,000
Q15	Community Funds	\$19,000,000
Q16	Wrap-up	\$20,000,000

Some of the key aspects of the campaign method are outlined in the next section.

2.2 STRATEGY

The overall strategy is a sequence of prospect identification, research, engagement, cultivation, and solicitation for high-value support for the campaign. This strategy applies particularly to individuals (including associated family trusts). Approaches to iwi, hapū, community trusts, and foundations



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(local and overseas) will normally be for support of some aspect of the project that best meets their terms or giving priorities. Businesses will mostly be engaged in sponsorship arrangements.

Financial support will be sought within New Zealand and overseas.

The approach is to enlist philanthropic leaders to the Campaign Working Groups and for consultants and Working Group members to engage prospects and to solicit support at the appropriate time and gift level. The solicitation request is to make a substantial commitment to be paid over a period of up to three to five years, which secures larger gifts than immediate cash payments.

In some respects, the campaigns are similar - for example, both campaigns will seek New Zealand charitable trusts gifts and Government support beyond the Provincial Growth Fund - but there are differences. Campaign Stage One will limit its corporate prospects to those in marine industries, while Campaign Stage Two will seek funds from a wide range of New Zealand corporations. Campaign Stage One has a greater emphasis on securing support form lwi and other Maori organisations, overseas foundations, and from wealthy individuals. Campaign Stage Two will end with a substantial effort to secure a broad base of (mostly lower-level) financial support from Napier city and the Hawkes Bay region to ensure that as many people as possible feel a vested interest in the redeveloped facility when it opens.

This campaign implementation is mindful of the need for establishing ongoing operational funding once the redeveloped facility is complete and open. We know that some prospects will identify more appropriately with operational activities (animal displays, educational programmes, and conservation projects), and some Trusts are permitted to support only project costs not capital. These prospects will be identified and made available to the Charitable entity responsible for managing the facility following the Campaign.

In capital campaigns, the purpose of events is not to raise money, but events can be useful in identifying potential funders, conveying information, and thanking supporters. Events for these purposes are used in both campaign stages.

2.2.1 PROSPECTS

The National Aquarium and Ocean Centre and Napier City Council do not have a large list of current or past donors from whom they can seek major gifts. A vital task, while preparing and implementing both campaigns, is to continue to identify more potential high-value donors. AskRIGHT research staff will assist with this vital task and maintain records of research to ensure the best possible information is available when needed.

The methodology for approaching each sector will be as follows:

- Māori iwi, hapū, and business entities: engaging local iwi then spreading the net wider
- Government Funding: through established practices for Provincial Growth Fund (MBIE), government departmental funding sources, and various Lotteries grants
- Local Government Funding: utilising established practices and existing relationships
- Trusts and Foundations: introduction to the project and following established practices for grant proposals
- Individual and family donors: research, engagement, information sharing, cultivation of interest, and personal face to face solicitation by one or more persons
- Marine Industries and Corporations: initial engagement followed by tailored proposals to suit donor interests and requirements



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- Local and national businesses: initial engagement followed by tailored proposals to suit donor interests and requirements
- Community Engagement Community Funding: capture the imagination and support of the wider public through appropriate activity and mass marketing.
- International Aquaria and research organisations: investigating opportunities and researching new potential donor sources.

2.2.2 NAMING AND RECOGNITION

It is important to encourage and recognise benefaction - honouring donors according to financial level of support and consistent with their wishes. Naming values for benefaction can be set in advance once details of facilities are clear, and thus form part of the negotiations for larger gifts.

To ensure clear understanding and good practice, all pledges and gift agreements will be in writing, and kept safely for reference as needed. A draft Gift Pledge Form is included as Appendix B.

Separate sponsorship agreements will be prepared for corporations as necessary. This will be most relevant for Stage Two and for ongoing operational support.

All gift pledges, payments, and sponsorship commitments will be recorded on a specialised fundraising database, which will be important for donor stewardship and follow-up by the Charitable entity following completion of the campaigns.

On a related matter, it is important that naming recognises benefaction, rather than being a signage right purchased by the funder. This is significant (and separate to corporate sponsorship processes), as naming for philanthropic gifts should always be the prerogative of the governing board of the Charitable entity, and done to express thanks to donors, promote generosity as an important quality, and avoid unintended GST liabilities. There should also be clarity about tenure of naming - whether for a limited time period or for the life of the funded facility (and never in perpetuity).

2.2.3 ROLES

The success of the campaign depends on the:

- Vision and leadership of the Campaign Chair and and supporting team
- Strong tangible support by the Council and staff
- Campaign team and champions, who give personally, make introductions, and solicit for support
- Widespread generous support of donors
- Professional fundraising activities of the consultants and staff of AskRIGHT

We expect that the Napier City Council will make key decisions affecting the structure and outcome of the campaign until the governing board of the Charitable entity is in operation. These decions will include:

- Approval of the Case for support and the target, project, and financial descriptions in the
- Selection of the Campaign Chair
- Naming values
- Campaign budget



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Policies including gift acceptance, naming for benefaction and sponsorship

The Campaign Chair plays a highly visible and influential role in delivering the campaign. It is a role that will be supported by a team and can also have support from one or more patrons. A Role Description for Campaign Chair is in Appendix C.

The Leadership Team (AskRIGHT Lead Consultant, Campaign Chair, and leaders of Working Groups) will be the primary advocates and fund raisers for the campaign. All members of the Working Groups will be active in fund-seeking. The responsibility of each Working Group member is to:

- Understand and wholeheartedly support the campaign objectives and responsibilities
- Avail themselves of training for solicitation
- Make a significant gift to the campaign that is commensurrate with their ability
- Help to identify potential donors
- Solicit gifts from assigned prospects

One or more patrons can lend mana to the project and be a short-cut to credibility for the campaign and the new Charitable entity. Patrons can also assist with prospect identification, make introductions, and host small events for high-value donors.

Ambassadors play a similar role within a distinct sector or geographic area. Ambassadors rarely meet as a group, except for major campaign events. Most communication with Ambassadors is done individually, as they are asked to help in specific ways.

2.2.4 COMMUNICATIONS

Effective communications are vital to campaign success and detailed items are included in the individual campaign implementation plans below. Early in each campaign, a detailed communications plan will be developed. It will include (in addition to the Case for Support):

- Details of the projects to be funded (building plans, design, cost, proposed uses, naming opportunities, timing, etc.)
- Preparation of collateral to support Campaign cultivation and solicitation (website, brochures, documents, video, tailored proposals for major gifts, etc.) by communicating the right messages, the right image and feel, and pitching to the right market
- Communications requirements of campaign events and functions
- Specific communications strategies for the Stage Two community phase
- Planning for donor thanks and acknowledgement, and for reporting progress of the project
- Addressing crisis communications for any event that could potentially impact the project negatively

2.2.5 REPORTING

Regular (bi-monthly) reports will be produced for the Council or Charitable Entity. The content of the reports will be determined at the commencement of the project, but we expect to include:

- Progress against Campaign Plan
- Prospect identification as per gift table
- Results to date: funds received as per the gift table and sector targets



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- People: volunteers, donors, and donor groups
- Events and collateral

The next sections provide the Campaign Plans for Campaign Stage One and Campaign Stage Two.



Impression of the proposed Mangō (Shark) and large species tank²

² Project Shapeshifter ~ Visitor Experience Concept Document, 2 October 2019



3 CAMPAIGN STAGE ONE

3.1 OBJECTIVES

This campaign has a series of related objectives that indicate what is to be achieved and how, working with the International Leaders Group.

- 1. Raise \$20,000,000 in financial commitments or acceptable in-kind contributions
- 2. Identify additional prospects for a further \$20,000,000 in Campaign Stage Two
- 3. Bring together a strong Campaign Team (Campaign Chair, Working Group leaders, and Working group members) to lead the Campaign
- 4. Achieve all commitments in writing and payable in five years
- 5. Seek high-value donors (businesses, communities, corporations, government, individuals and families, trusts and foundations, and organisations) for the Campaign
- 6. Adhere to the principle that all askers must make their own generous contribution to the Campaign prior to selecting prospects for personal approach
- 7. Achieve the result within the two years planned for Campaign Stage One
- 8. Raise funds within the ethics and good practice promoted by the Fundraising Institute of New Zealand and the Giving Institute at all times

3.2 CAMPAIGN TARGET AND SECTOR GOALS

The target is \$20,000,000. Even if the campaign target is scaled-up, as noted above, the effective target for this activity will remain at \$20,000,000.

The campaign is structured according to the sectors of prospects, and each has been assigned a goal. The sector goals shown here sum to more than \$20,000,000, so as to provide a small buffer in case any sector goal is not achieved.

CAMPAIGN STAGE ONE SECTOR GOALS

Prospect Sector	Sector Goal
lwi, hapū, and related business organisations	\$7,500,000
Lotteries grants	\$4,000,000
Additional Government sources	\$2,500,000
New Zealand charitable foundations and gaming trusts	\$1,500,000
Overseas Trusts and Foundations	\$1,500,000
Hawkes Bay and NZ individuals and families	\$3,000,000
Marine industries	\$1,500,000



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3.2.1 **CONTRIBUTION LEVELS**

The number and level of contributions required to achieve the target can be shown on a Gift Table.

The Gift Tables indicate the number of prospects needed at each gift level - based on the assumption that approximately one in four prospects will give at the level at which they are asked in the higher levels, and one in three at the lower levels. Below is the Gift Table for Campaign Stage One. In summary, 75 contributions are required from 240 prospective donors.

During Stage One, AskRIGHT consultants, and those who volunteer on Campaign Working Groups, seek contributions of \$50,000 to \$5,000,000 plus (although, to be conservative, we use \$4,000,000 as the highest level on the Gift Table).

GIFT TABLE FOR CAMPAIGN STAGE ONE: \$20,000,000 TARGET

Source	Amount	Number gifts required	Number prospects needed	Total in Range	Cumulative Total
Principal Gifts	\$4,000,000	1	4	\$4,000,000	54,000,000
	\$2,500,000	1	4	\$2,500,000	\$6,500,000
	\$1,500,000	1	4	\$1,500,000	\$8,000,000
	\$1,000,000	2	8	\$2,000,000	\$10,000,000
	Total Principal Gifts	5	20	\$10,000,000	
Lead Gifts	-				1
	\$750,000	3	12	\$2,250,000	\$12,250,000
	\$500,000	4	16	\$2,000,000	\$14,250,000
	\$250,000	5	20	\$1,250,000	\$15,500,000
	Total Lead Gifts	12	48	\$5,500,000	1
Major Gifts				***	
	\$150,000	6	18	\$900,000	\$16,400,000
	\$100,000	10	30	\$1,000,000	\$17,400,000
	\$75,000	20	60	\$1,500,000	\$18,900,000
	\$50,000	22	66	\$1,100,000	\$20,000,000
	Total Major Gifts	58	174	\$4,500,000	
Total all Gifts		75	240	\$20,000,000	

The illustration below shows it more pictorially. CAMPAIGN STAGE ONE Gifts required \$4,000,000 \$2,500,000 \$1,500,000 \$1,000,000 \$1,000,000 \$750,000 \$750,000 \$500,000 \$500,000 \$500,000 \$500,000 \$500,000 \$250,000 \$250,000 \$250,000 \$75,000 \$75,000 \$75,000 \$75,000 \$75,000 \$150,000 \$100,000 \$100,000 \$100,000 \$150,000 \$150,000 \$150,000 \$75,000 \$75,000 \$75,000 \$75,000 \$75,000 \$100,000 \$75,000 \$75,000 \$100,000 \$100,000 \$75,000 \$100,000 \$75,000 \$100,000 \$75,000 \$100,000 \$75,000 \$75,000 \$50,000 \$50,000 \$50,000 \$20,000 \$50,000 \$50,000 \$50,000 **50,00**0 \$50,000 \$50,000 \$50,000 \$50,000 \$50,000 \$50,000

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3.3 STRUCTURE AND PLAN FOR FUNDRAISING

Campaign success comes from a partnership between AskRIGHT consultants, and donor volunteers who solicit others, and Aquarium staff and other advisers. AskRIGHT will recruit the Campaign Chair and, with the Campaign Chair, will recruit volunteers for the Working Groups of the campaign. Each Working Group is focussed on a particular donor type. The members of each Working Group will be those who have made a financial commitment to the campaign and can identify, engage with, and solicit prospects for major gifts.

All honorary and voluntary roles are appointed for one campaign only - and will need recommitment if extending from Campaign Stage One to Campaign Stage Two. The Campaign Structure for Stage One is shown here:

3.3.1 CAMPAIGN STRUCTURE: STAGE ONE

		AskRIGH	T Consulting Te	am	
Honoured Leaders		Patrons		Ambassa	dors
Leadership Team	Ca	mpaign Chair, L	eaders of Worki	ing Groups, and Ask	RIGHT
Working Groups	HNW Individuals	NZ Trusts	Marine Industries	Government	lwi, Māori business

Throughout the campaign, there is a relentless, driven approach to engagement and asking for support. Fundraising results are optimised by asking through volunteers of the working groups whenever possible. The one prospect sector that does not have a working group is the "Overseas trusts and organisations" sector, which will be solicited by the Campaign Chair or consultants with the support of Aquarium staff or others.

The solicitation plan for all sectors in Stage One is shown here on a quarterly schedule. Note that the Working Groups forms its own sector; this gives emphasis to the solicitation of the Working Group members before they ask others.

3.3.2 CAMPAIGN STAGE ONE SOLICITATION PLAN

Time	Prospect Group Solicited							
	HNWI	NZ Trusts	O/S trusts, organisations	Marine Industries	Government	lwi, Mäori business	Working Groups	
Q1			1					
Q2	ř.	17.0		1				
Q1 Q2 Q3								
Q4								



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Time		240	Pro	spect Gr	oup So	licited	a a	
	HNWI	NZ Trusts	O/S trusts, organisations	Marine Industries	Government	íwi, Māori business	Working Groups	
Q5								Ñ,
Q6								
Q7			1				17.7	
Q8							V	. 1

While the table above shows the expected period of solicitation, extensive work goes on to ensure that these solicitations are successful at the level requested. The main supportive activities are listed below on a quarterly schedule, which integrates with the solicitation schedule above.

Commencement

The supportive tasks to be undertaken in Q1:

- Fundraising Budget submitted and approved
- Settle the campaign working group (WG) structure by prospect groups: expected to be WGs for Iwi and Māori businesses, Marine industries, NZ Trusts, Government, and HNW (High Net Worth) individuals and families
- Some prospects are engaged and solicited directly rather than with WG members: the WG members themselves and international foundation and overseas organisations.
- Recruit WWG chairs and members
- Establish requirement for policies and procedures: expected to include policies developed for gift and sponsorship acceptance, pledge periods, naming, recognition, procedures for liaison with Napier City Council (NCC) and governing entities, and processes for banking, receipting, and keeping donor records
- Provide update to all interviewees in the feasibility process and selected others
- Governing documents set for governing charitable entities and charity status achieved
- Campaign Chair recruited
- Intensive research into initial prospects and potential campaign leadership
- Collateral planned and available from Q2 and website planned and live from Q2
- Domestic grant applications calendar developed
- International grant applications calendar developed
- International roadshow site visits determined



Q2 Working Groups

In Q2, preparation is complete and fundraising begins. The supportive tasks to be undertaken in Q2:

- WG recruitment is completed
- Campaign name and the facility name are finalised
- Printed collateral is available
- Campaign website is completed and tested, including on-line giving and request for information
- Campaign video is in production
- Further prospect identification and engagement begins through WGs
- Processes for thanking donors, receipts, and reporting are finalised, approved, and continue through to the end of the campaign
- Systems for maintaining all donor records and contact reports are in place
- Charitable entity and governance arrangements are in place
- Contact and engagement of prospective donors in all categories are underway
- International roadshow arrangements (participants, location, logistics, travel arrangements, and funding, etc.) are in place
- Arrangements are in place for receiving off-shore contributions that meet the legal and taxstatus requirements of potential overseas funders

Q3 Roadshow

By Q3, all working groups are functioning and solicitation for major support is underway. A small group undertakes a roadshow to potential international funders (primarily USA and West Coast Canada). The supportive tasks to be undertaken in Q3:

- Campaign video is available for use
- Administrative and logistics support for all working group members and their solicitations continues throughout this quarter and to the end of the campaign
- Roadshow solicitations are followed up with proposals or agreements
- Government departments and programmes that are potential funders have been identified and a plan developed for each in conjunction with members of the Government WG
- Finalise the cities and venues for the campaign launch and begin the invitation list
- Identify potential funding partner/s and participant partner/s (such as Philanthropy New Zealand) for the Funders' Tour

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Towards the Event

In Q4, all solicitation continues. The upcoming Campaign Launch provides an added incentive for prospective donors to finalise their gift decisions. The supportive tasks to be undertaken in Q4:

- Develop the programme for the Campaign Launch
- Review the effectiveness of the campaign video and revise if required
- Support all solicitations that are being concluded prior to the launch
- Confirm venue, catering, media, and communications for the campaign launch
- Develop an invitation list and draft itinerary for the Funders Tour of aquaria and research facilities overseas

Q5 Campaign Launch

The campaign launch, early in Q5, helps to close solicitations ahead of the campaign announcement and acts as a springboard for solicitations in the final stages of the campaign. The supportive tasks to be undertaken in Q5:

- Deliver the campaign launch events for high positive impact on donors and prospects
- Prepare a substantial report to donors on progress to date of aquarium planning, programmes, etc., and issue this at the launch event and thereafter
- Support WG members in the weeks immediately following the campaign launch, as many prospective donors who attended the launch are solicited
- Finalise the invitation list for the campaign launch
- Make arrangements for the Funders Tour
- Update the website with information from the launch and changing the message to a "let's finish the campaign" message
- Finalise funding partner/s and participant partner/s (such as Philanthropy New Zealand or The Zoo and Aquarium Association Australasia) for the Funders' Tour
- Identify a group that will run and fund the Māori Oceanography Hui

O6 Funders' Tour

Q6 sees all forms of major gifts solicitation continued and grant applications decided. It also includes the Funders' Tour, which will take Government, private funders, and prospective funders to aquaria (and one or two zoos) in North America to meet and hear from administrators, board members, philanthropists, and scientists on different aspects of facility design, operations, and impact. Invited participants will fund their own participation in the event. The goal is to thank donors and to enlarge their vision for the work of aquaria leading to larger financial support (setting up for Campaign Stage Two), and also to explain the distinctive contribution that the National Aquarium and Ocean Centre will make (distinctive in location, Māori knowledge, and conservation projects) - each participant paying their own way. The supportive tasks to be undertaken in Q6:

- Support post-launch solicitations by members of all WGs
- Ensure the Tour is completed safely and with impact on participants



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- Finalise contributions from overseas trusts, foundations, organisations, and individuals for Campaign Stage One
- Prepare an update to donors on progress to date on ocean conservation issues, aquarium planning, programmes, timetable, and the study tour, and send the report

Q7 Māori Oceanography

This stage completes many of Campaign Stage One solicitations, including follow-up with all participants in the funders' study tour. It is also an opportunity to create greater awareness of Māori Knowledge. The supportive tasks to be undertaken in Q7:

- Be part of the Māori Oceanography Hui, involving and inspiring funders and potential funders (preparing for Campaign Stage Two)
- Provide any additional material required by New Zealand Trusts and Foundations prior to final decisions in Q8

Q8 Completion

This completes Campaign Stage One, with the last of domestic foundation applications decided in this quarter and Working Groups completing their work. The supportive tasks to be undertaken in Q8:

- Follow-up all who attend the Māori Oceanography Hui to identify additional funding that might be available for Campaign Stage One or Campaign Stage Two
- Prepare a further update to donors on progress on ocean conservation issues, aquarium planning, programmes, timetable, and the study tour and send the report
- Ensure all campaign information is complete and a full summary report prepared for the Governing entity
- Review the fundraising plan for Campaign Stage Two
- Review the Working Group structure and begin to recruit leaders for Stage Two Working Groups
- Have an acknowledgement and thank-you function for all major donors and all volunteers

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3.4 BUDGET CAMPAIGN STAGE ONE

Beyond the human component of fees for consultants, there will be additional Campaign expenses for Campaign Stage One. An indicative list of expenses includes:

- ✓ Collateral
- Campaign Brochure
- √ Campaign video
- Website development and updating
- Stationery
- Prospect events
- Meeting expenses
- Launch and closing events



Impression of the proposed Te Rau Ö Kiwa - Pacific Talking Circle

These expenses will total approximately 4% of the target and become part of the target raised. Some of these items (e.g. website set up) will have value through to the end of Campaign Stage

The next section is the implementation plan for the Campaign Stage Two. As the commencement of this plan is at least two years away, and the redevelopment of the aquarium will have much clearer definition at that time, this plan is subject to review closer to the commencement date.

³⁻Project Shapeshifter -- Visitor Experience Concept Document, 2 October 2019



4 CAMPAIGN STAGE TWO

4.1 OBJECTIVES

The situation for Campaign Stage Two will be substantially different. By this time, the project should have extensive detail on the design and intended animal displays, educational programmes, and conservation projects, and should find an audience of funders who will complete the aquarium funding to bring these elements to life. It will be near the end of the second year since United Nations proclaimed a Decade of Ocean Science for Sustainable Development (2021-2030), the charitable entities and governance of the facility will be settled, and the Napier aquarium's relationship with international organisations, overseas aquaria, and supporting charitable entities will be considerably developed.

Campaign Stage Two has a series of related objectives indicating what is to be achieved and how, working with the International Leaders Group.

- 1. Raise \$20,000,000 in financial commitments or acceptable in-kind contributions
- 2. Identify prospects that might provide funding support for the ongoing operations and projects of the National Aquarium and Ocean Centre
- 3. Bring together a strong Campaign Team (Campaign Chair, Working Group leaders, and Working group members) to lead Campaign Stage Two
- 4. Achieve all commitments in writing and payable within five years
- 5. Seek high-value donors for the Campaign
- 6. Adhere to the principle that all askers must make their own generous contribution to the Campaign prior to selecting prospects for personal approach
- 7. Fulfil all undertakings made by the campaign administration during Campaign Stage One
- 8. Use fundraising to develop widespread interest in and support for the National Aquarium and Ocean Centre
- 9. Achieve the result within the two years planned for Campaign Stage Two
- 10. Raise funds within the ethics and good practice promoted by the Fundraising Institute of New Zealand and the Giving Institute at all times

4.2 CAMPAIGN TARGET AND SECTOR GOALS

The target is \$20,000,000. Even if the campaign target is scaled-up, as noted above, the effective target for this activity will remain at \$20,000,000.

The campaign is structured according to the sectors of prospects, and each has been assigned a goal. As with Campaign Stage One, the sector goals shown here sum to more than \$20,000,000, so as to provide a small buffer in case any sector goal is not achieved.

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CAMPAIGN STAGE TWO SECTOR GOALS

Prospect Sector	Sector Goal
lwi, hapū and related business organisations	\$2,000,000
Lotteries grants	\$2,500,000
Additional Government sources	\$6,000,000
New Zealand charitable foundations and gaming trusts	\$1,500,000
Overseas Trusts and Foundations	\$1,500,000
Hawkes Bay and NZ individuals and families	\$1,000,000
National Companies	\$6,000,000
Hawkes Bay and Napier businesses	\$1,000,000
Local community fundraising in Napier and Hawkes Bay	\$500,000

4.2.1 CONTRIBUTION LEVELS

The number and level of contributions required to achieve the target can be shown on a Gift Table.

The Gift Tables indicate the number of prospects needed at each gift level - based on the assumption that approximately one in four prospects will give at the level at which they are asked in the higher levels, and one in three prospects will give at the lower levels.

Campaign Stage Two will require a substantially higher number of donors (and therefore a much higher number of prospects) than Campaign Stage One. Below is the Gift Table for Campaign Stage Two. In summary, 148 contributions are required from 462 prospective donors, plus many small contributions during the community phase (the last two quarters of Campaign Stage Two).

During Stage Two, AskRIGHT consultants, and those who volunteer on Campaign working Groups, seek contributions of \$50,000 to \$3,000,000 as shown on the gift table.

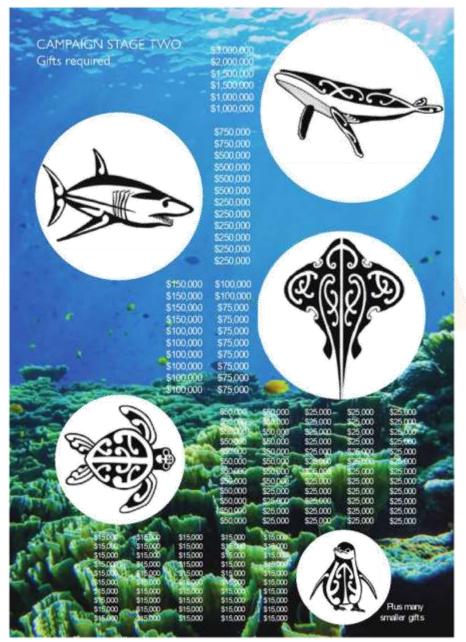
GIFT TABLE FOR CAMPAIGN STAGE TWO: \$20,000,000 TARGET

Source	Amount	Number gifts required	Number prospects needed	Total in Range	Cumulative Total
Principal Gifts	\$3,000,000	1	4	\$3,000,000	\$3,000,000
	\$2,000,000	1	4	\$2,000,000	\$5,000,000
	\$1,500,000	2	8	\$3,000,000	\$8,000,000
	\$1,000,000	2	8	\$2,000,000	\$10,000,000
	Total Principal Gifts	6	24	\$10,000,000	
Lead Gifts					
	\$750,000	2	8	\$1,500,000	\$11,500,000
	\$500,000	4	16	\$2,000,000	\$13,500,000
	\$250,000	6	24	\$1,500,000	\$15,000,000



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	Total Lead Gifts	12	48	\$5,000,000	
Major Gifts	\$150,000	4	12	\$600,000	\$16,400,000
	\$100,000	8	24	\$800,000	\$17,400,000
	\$75,000	8	24	\$600,000	\$18,900,000
	\$50,000	20	60	\$1,000,000	\$20,000,000
	\$25,000	40	120	\$1,000,000	\$1,000,000
	\$15,000	50	150	\$750,000	
	Other	many	many	\$250,000	
	Total Major Gifts	130+	390+	\$5,000,000	1-
Total all Gifts		148+	462+	\$20,000,000	



As this illustration shows, many more gifts are required for the Campaign Stage Two.



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4.3 STRUCTURE AND PLAN FOR FUNDRAISING

As for Stage One, campaign success in Stage Two will come from a partnership between AskRIGHT consultants, and donor volunteers who solicit others, and Aquarium staff and other advisers. AskRIGHT will recruit the Campaign Chair and, with the Campaign Chair, will recruit volunteers for the Working Groups of the campaign. Each Working Group is focussed on a particular donor type. The members of each Working Group will be those who have made a financial commitment to the campaign and can identify with, engage, and solicit prospects for major

All honorary and voluntary roles that served in the first campaign are refreshed (renewed or replaced) for Stage Two. The Campaign Structure for Stage Two is shown here:

4.3.1 CAMPAIGN STRUCTURE: STAGE TWO

		Ask	RIGHT Consul	ting Team		
Honoured Leaders	Patrons Ambassadors					
Leadership Team		Campaign	Chair, Leaders	of Warking Group	ps and AskRIGH	т
Working Groups	HNW Individuals	NZ Trusts	Companies	Government	iwi, Mâori business	Napier/HB Community Fundraising

As for Stage One, the campaign is a relentless, driven approach to engagement and asking for support. Fundraising results are optimised by asking through volunteers of the working groups whenever possible. The one prospect sector that does not have a working group is the "Overseas trusts and organisations" sector, which will be solicited by the Campaign Chair, or consultants with the support of Aquarium staff or others.

The solicitation plan for all sectors in Stage Two is shown here on a quarterly schedule. Note that the Working Groups has its own sector, which gives emphasis to the solicitation of the Working Group members before they ask others. Continuing Working Group members will have made a financial commitment during Campaign Stage One. Unless they make an additional commitment, it will not count towards the Campaign Stage Two target.

The Napier and Hawkes Bay Working Group (might be two separate groups) is different to the others, it does not seek large contributions, but it seeks to meet Objective 8 of Campaign Stage Two goals: "Use fundraising to develop widespread interest in and support for the National Aquarium and Ocean Centre".



CAMPAIGN STAGE TWO SOLICITATION PLAN

Time			(1	Prospect Group Solicited					
	HNWI	NZ Trusts	O/S trusts, organisations	Companies	Government	lwl, Maori business	Working Groups	Hawkes Bay & Napier Communities	
Q9									
Q10				1			10		
Q11			- 11				50		
Q12							7	No.	
Q13						All I		V 16.	
Q14									
Q15					1	7			
Q16					A	- V			

While the table above shows the expected period of solicitation, extensive work goes on to ensure that these solicitations are successful at the level requested. The main supportive activities are listed below on a quarterly schedule, which integrates with the solicitation schedule above. Less detail is provided here than for Campaign Stage One. Details of the supportive activity will be fleshed-out before the commencement of Campaign Stage Two.

09 Renewal

The supportive tasks to be undertaken in Q9:

- Enlist new Campaign Chair, leaders of working groups, and, if required, new patrons and ambassadors
- Support renewing working group (WG) members: some participants might change to a different WG and there will be at least one new WG (the Company's WG), which will seek corporate support from across New Zealand
- Stage Two fundraising budget submitted and approved
- Settle any revisions to the communications pieces (collateral, video, website) with updated campaign details, project description, and fundraising target
- Look at the new project descriptions in detail to identify domestic and international grant opportunities and prepare new grant calendars
- Develop full list of company prospects for the Company's WG and draft sample documents for corporate gifts and sponsorships
- Confirm properties available for sponsorship and naming, and the terms

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O10 New Case

In Q10, preparation for the new campaign is completed and fundraising begins. The supportive tasks to be undertaken in Q10:

- Produce the new communications pieces
- Prepare for a second roadshow to international funders and prospects
- Begin first grant conversations and applications for the Stage Two project/s
- Support all WGs, especially the members of the new Corporate WG, and the Government WG, as it identifies new funding opportunities within government

Q11 Roadshow II

By Q11, all working groups are functioning and solicitation for major support is underway. A small group undertakes a second roadshow to existing and potential international funders (primarily in the USA). The supportive tasks to be undertaken in Q11:

- Undertake a second roadshow to international funders and prospects conveying the work to date and the details of Campaign Stage Two - also, solicit ex-patriot New Zealanders and attend meetings of ocean conservations
- Campaign video is available for use
- Administrative and logistics support for all working group members and their solicitations continues throughout this quarter until the commencement of the community phase
- Enlist the members of the Napier and Hawkes Bay Working Group

Q12 Continuing to Ask

In Q12, all solicitation continues. The supportive tasks to be undertaken in Q12:

- Support solicitations in all sectors
- Plan the programme and communications for the Campaign Event in Napier aiming for widespread participation from individuals and organisations in Napier and the wider Hawkes Bay region
- Follow up remaining overseas funding opportunities from Roadshow II
- Finalise the community fundraising plan in conjunction with the Napier and Hawkes Bay Working Group

Q13 Closing High-Value

The local campaign event planned for Napier, early in Q5, helps to close local solicitations ahead of the campaign announcement and acts as a springboard to the community phase of the campaign. The supportive tasks to be undertaken in Q13:

Make all arrangements for the campaign Launch Deliver the campaign launch events for high positive impact on donors and prospects



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- Prepare the website with information for the upcoming local event and plan content to change the message to local support (Q14-Q15) and "let's finish the campaign" (Q16)
- Finalise all arrangements and communications for the Napier event and the community fundraising

Napier Event Q14

Q14 sees a change in campaign emphasis to community fundraising. Other sector fundraising is still supported, but the bulk of effort goes to the community phase with emphasis on community participation and building a sense of ownership and pride in the National Aquarium and Ocean Centre. The community phase aims to maximise public participation in the campaign. The exact form of fundraising during this phase will be considered carefully to ensure wide appeal and fundraising potential. It will involve more communication, digital and social media, and, possibly, peer-to-peer fundraising, Ideally, it would include activities that have a connection to the Aquarium, conservation, or ocean environment. The supportive tasks to be undertaken in Q14:

- Support the running of the event and the work of the Napier and Hawkes Bay WG
- Finalise contributions from overseas trusts, foundation, organisations, and individuals for Campaign Stage Two
- Prepare an update to donors on progress to date on ocean conservation issues, aquarium planning, programmes, timetable, and the study tour, and send the report

Q15 Community Funds

This period is focussed on community fundraising to build affiliation. The supportive tasks to be undertaken in Q15:

- Ensure safe effective conduct of all fundraising events, and collection of proceeds
- Collect information on participants with appropriate privacy permissions that enable the Aquarium in the future for information, membership, and fundraising purposes

Q16 Wrap-up

This completes the Campaign Stage Two and the campaigns overall. The supportive tasks to be undertaken in O16:

- Prepare a further update to donors on progress on ocean conservation issues, aquarium planning, programmes, timetable, and the study tour, and send the report.
- Ensure all campaign information is complete and a full summary report prepared for the Governing entity
- Have an acknowledgement and thank-you function for all major donors and all volunteers

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4.4 BUDGET CAMPAIGN STAGE TWO

Beyond the human component of fees for consultants, there will be additional Campaign expenses for Campaign Stage Two. An indicative list of expenses includes:

- Revisions to collateral, campaign brochure, and video
- Updating the website development and updating
- ✓ Prospect events, including Roadshow II
- Meeting expenses
- Napier event
- Support for community fundraising
- Events to thank and recognise donors and volunteers
- √ Travel

These expenses will total approximately 4% of the target and become part of the target raised.

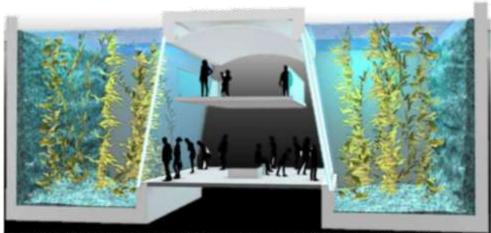
Campaign Stage Two benefits from some items funded in Stage One, but the community phase of Stage Two is the least efficient aspect of the fundraising and requires significant support for mass participation events.

5 CAMPAIGN REVENUE FORECAST

This table shows a summary of the expected revenue flow from successful campaigns. The assumptions for - and the details of - the calculation are provided in Appendix D.

ESTIMATED REVENUE FROM CASH AND PLEDGE PAYMENTS.

		Yeilto	Year 3	Year 4	Year'S		Year 2	Yearn	
Pledges	9,000,000	\$ 11,000,000	12,000,000	8,000,000		A	g &		
Run Total	\$ 9,000,000	\$ 20,000,000	\$ 32,000,000	\$ 49,000,000					
Pay- ments	\$ 3,000,000	\$ 5,266,667	\$ 7,535,556	\$ 8,355,555	\$ 6,111,110	\$ 4,888,889	\$ 2,955,556	\$ 1,333,334	\$ 533,334
Run Total	\$ 3,000,000	\$ 8,266,667	\$ 15,822,222	\$ 24,177,777	\$ 30,288,887	\$ 35,177,776	\$ 38,133,332	\$ 39,466,666	40,000,000



impression of Kelp tank, telling the stories of Hinemoana, (ocean goddess). Kelp is known as Hinemoana's hair4

⁶ Project Shapeshifter ~ Visitor Experience Concept Document, 2 October 2019



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RISK ANALYSIS

This risk analysis covers Campaign Stage One and Campaign Stage Two and will be updated quarterly throughout the campaigns.

RISK	UKEUH OOD 1=LOW, S=HIGH	IMPA CT 1=LO W, S=HIG H	CONSEQUENCE IF NOT ADDRESSED	MITIGATION STRATEGY	CONTROLS TO DEVELOP
Delayed start date which reduces impact of previous contact	***	4	Familiarity with the project diminishes and people lose confidence in the project's likelihood of success	AskRIGHT encourage Council to maintain contact with all those contacted during the feasibility study process	Fortnightly meeting with Council contact
Delayed or inadequate details of project to be funded through the Campaign Stages	2	4	Difficulty in maintaining timelines and momentum, risks failure to achieve target on schedule	Good communications with Council and other advisers and establishment of agreed schedule.	Fortnightly meeting with Council contact
Delayed or inadequate expenses budget	1	5	Inability to communicate effectively with potential funders leading to lower results.	Good communications with Council and with the Governance group of the Charitable entity when established	Fortnightly meeting with Council contact
Defay in establishing the Charitable entity and governance group and tax deductibility	2	4	Will delay some donors' decisions and will prevent some trust applications	Good communications with Council	Fortnightly meeting with Council contact and with other advisers (PWC?)
Delay or failing to achieve gift recognition or other policies or procedures	2	4	Will delay gift solicitations	Good communications with Council and with the Governance group of the Charitable entity when established	Fortnightly meeting with Council contact
Delay or dispute regarding name, imagery of the facility	2	4	Will delay gift solicitations	Good communications with Council	Fortnightly meeting with Council contact
Changes in AskRiGHT consultancy personnel	3	1	Need for introductions to contacts throughout the	Multiple AskRIGHT personnel involved with key contacts; and full details kept on campaign information system	AskRIGHT planning ensures other consultants are available.



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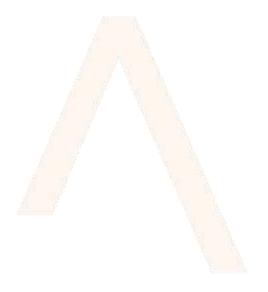
RISK	UKEUH OOD 1=LOW, 5=HIGH	IMPA CT 1=LO W, S=HIG H	CONSEQUENCE IF NOT ADDRESSED	MITIGATION STRATEGY	CONTROLS TO DEVELOP
			project, opportunities, stakeholders getting multiple, or none at all, approaches		
Delays in recruitment of Campaign Chair, working group leaders or members	2	4	Delays the implementation or puts more solicitation on consultants which diverts from other activities; gift commitments reduced or delayed	Early priority to engagement and recruitment of people for these positions	Included in bi- monthly report to Council (until establishment of Churitable entity)
Campaign Chair, working group leaders not performing their role well	2	5	Risks delay and reduces effectiveness of the campaign	Conversation with Lead Consultant (and Chair of Governing Entity) re clarity of role and performance. Improvement achieved or changed personnel.	Role descriptions provided as part of recruitment, monthly meetings and quarterly reviews.
Unexpected competitor for funds or competitive aquarium project in New Zealand	1	5	Damage to case for support and wider messaging	Stay attuned to possibility and respond early; create strong position early with support of Government and Māori leaders	include competitor analysis in bi- monthly report
Delays in achieving Mäori permissions re name, image, or support from key local iwi and other organisations	2	4	Delays the approaches to more distant iwi and other organisations	Work closely with Council and through AskRIGHT's cultural adviser	Include in bi- monthly report
Inability to secure donor recognition at the facility that meets funder requirements	1	4	Some contributions might not be made, or levels might be reduced	Donor recognition policies will be provided by AskRIGHT and agreement sought	Policy approval or noted by Council or governing entity
Potential funders deemed unacceptable sources of funds	1	4	Some solicitation would be unable to proceed and/or some offers of funds rejected	Gift and sponsorship acceptance policies to be agreed in advance providing as few limits as possible on funding sources of funds.	Policy approval or noted by Council or governing entity



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RISK	LIKELIH OOD 1=LOW, 5=HIGH	IMPA CT 1=LO W, 5=HIG H	CONSEQUENCE IF NOT ADDRESSED	MITIGATION STRATEGY	CONTROLS TO DEVELOP
				Policies provided by AskRIGHT and agreement sought	
Napier City Council personnel change	2	4	Loss of continuity in communication with AskRIGHT personnel	Beyond AskRIGHT control	Agreements and monthly reports are in writing; second person designated as liaison in absence or key contact
Political interference	3	5	Actions taken that reduce fundraising effectiveness (e.g. premature or incorrect announcements)	Through NCC contact, we will keep the Council to agreed discipline	Adjust the agreed plan
Earthquake or other national disaster within New Zealand	1	3	Delays in securing appointments, funders change philanthropic priorities	Proceed as quickly as possible	Ensure strong relationships and written agreements for all support
Project becomes focus of animal rights protests	2	4	Unwanted publicity and tertiary recriminations reduce willingness of sponsors and companies to support the project	Be active in showing world- class animal welfare and seek appropriate accreditation; Council issues management and comm's plan in place	Implement communications plan

APPENDIX A: Charitable Entity Report





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Antoinette Campbell Director Community Services Napier City Council

28 August 2019

Project Shapeshifter - National Aquarium

Dear Antoinette

1. Introduction

1.1 Further to our initial discussions and the aquarium governance workshop, this letter sets out our recommendations to Napier City Council (NCC) on the governance structure for the proposed expansion of the National Aquarium (the Aquarium). We have also outlined the legal steps required to implement the recommended structure and the tax implications arising from the structure.

Background

- 1.2 We understand that:
 - (a) NCC owns and currently operates the Aquarium on Marine Parade, Napier.
 - (b) NCC is in the process of developing a business case for the expansion of the Aquarium, and is consulting with relevant parties.
 - (c) The purpose of the new Aquarium will be to create an unforgettable world-class aquarium and indigenous visitor centre experience of Aotearoa New Zealand.
 - (d) It will be necessary to raise significant funds to finance the expansion and development of the new Aquarium.
 - (e) The intention is to establish an initial structure to allow for the funding of the redevelopment of the Aquarium and then:
 - (i) use that structure to develop the Aquarium; or

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Antoinette Campbell 28 August 2019

- donate those funds to a new structure to undertake the development and operation of the Aquarium.
- (f) NCC is seeking initial funding via a number of sources including, the Provincial Growth Fund, high net worth individuals, corporate sponsors, and central Government.
- (g) NCC will retain ownership of the land on which the Aquarium will be developed and will retain ownership of the building itself, including any extension of the existing building. The Aquarium would then be leased to the recommended operating entity.

2. Summary

- 2.1 In summary, we consider that:
 - (a) the establishment of a charity to raise funds for the Aquarium expansion:
 - is likely to attract more / larger donations as donors should be entitled to a tax deduction for their donations; and
 - (ii) could be more palatable to ratepayers, as they will see a separate entity raising the funds rather than NCC;
 - (b) the simplest structure would be for separate charitable trusts to be established to:
 - (i) seek funding for the development of the Aquarium (the Funding Trust); and
 - (ii) develop and operate the Aquarium (the Operating Trust),

the benefits of having separate charitable trusts are set out in Schedule 1;

- (c) NCC would need to put in place appropriate commercial arrangements to:
 - (i) lease the Aquarium structure to the Operating Trust; and
 - (ii) allow for the ongoing provision of ongoing services to the Operating Trust.
- (d) While NCC has noted the development of the Aquarium in its Long Term Plan 2018 2028 (Long Term Plan), as the Aquarium will be leased to a new charitable trust, NCC will need to either:
 - amend its Long Term Plan in accordance with the Local Government Act 2002 (LGA) before that lease is implemented; or

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Antoinette Campbell 28 August 2019

 defer the progressing of some aspects of the proposal until NCC puts in place its next long-term plan.

This is discussed in more detail in Schedule 3.

2.2 We have also set out the tax considerations in relation to the above, please see Schedule 2.

3. Next Steps

- 3.1 In accordance with this paper:
 - (a) this paper should be circulated and discussed with relevant decision makers at NCC;
 - (b) on the basis that our recommendation is approved, NCC should undertake the steps required to establish the Funding Trust – these would include:
 - retaining appropriate legal counsel to assist with drafting of the relevant trust deed, (we are uniquely positioned to provide tax and legal input and would of course be happy to assist);
 - determine who should be trustees for the Funding Trust (we consider that the trustees should have experience and relevant relationships to assist with the funding process); and
 - (c) once the Funding Trust has been established and fund raising is underway, NCC should turn its attention to the establishment of Operating Trust.

Once you have had a chance to consider, let us know and we suggest a call to discuss.

Yours sincerely

Phil Fisher phil.j.fisher@pwc.com Keegan Toft keegan.x.toft@pwc.com

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Schedule 1 - Legal considerations

Legal considerations

1.1 We have set out below some of the legal consideration / steps needed to establish the relevant charitable trusts.

Benefits of separate charitable trusts

- 2.1 We recommend that two separate charitable trusts be established:
 - the Funding Trust, which would be used exclusively in relation to funding the expansion (together with any other ongoing funding needs);
 - (b) the Operating Trust, which would be used in relation to the development / operation of the Aquarium.
- 2.2 The benefits of the Funding Trust as a separate charitable trust are:
 - (a) use of a charity to raise funds, will likely be useful when seeking to attract donations to the cause. Care will need to be taken to ensure the trust is eligible to be registered as a charity:
 - (b) the objectives and charitable purpose of the trust will be clear;
 - (c) establishing the Funding Trust could be done in a relatively quick manner;
 - (d) the Funding Trust could start to raise funds without NCC / stakeholders having to finalise the structure / governance of the Operations Trust;
 - (e) the Funding Trust could comprise trustees who have specialist skills, experience and/or standing in relation to raising funds. These trustees would not have to be removed and replaced as the Aquarium is developed and operated; and
 - (f) the Funding Trust could be used to raise additional funds to assist with the operation of the Aquarium or for further development.



3. Establishment of charitable trust

- 3.1 The first step required to implement the structure is to draft the trust deed, for both the Funding Trust and the Operating Trust. This will require confirmation of:
 - (a) the number of proposed trustees and who the proposed trustees will be:
 - for the Funding Trust, we would expect the trustees to have experience and relevant relationships to assist with the funding process; and
 - (ii) for the Operations Trust, we would expect that the trustees would comprise persons familiar with the operation / marketing of an aquarium, as well as local iwi representatives, environmental experts and those with experience in establishing a visitor centre.

We would envisage that a separate advisory board could be appointed from time to time to provide specialist advice in relation to the development / further development of the Aquarium. This advisory board would be appointed by, and be responsible to, the trustees. Other advisory boards could be appointed to provide specialist advice as and when required;

- (b) the objects of the trust as recommended, we consider that it would be preferable to have separate objectives relating to fund raising and development / operation of the Aquarium. These objects/purposes would need to be charitable (discussed below);
- (c) the powers of the trustees these are normally standard in nature, so please let us know if you have any special limitations / duties that should be imposed on the trustees.

Charitable trust board

- 3.2 As the trustees of charitable trusts are personally liable for the trust's debts and obligations, we would recommend the trustees of each charitable trust incorporate a charitable trust board.
- 3.3 The benefits of a charitable trust board are:
 - (a) the board will hold the trust property in its name and the trustees (now members of the board) will decide how the board should administer it to benefit the charitable purpose.
 - (b) the board, not the trustees, will enter into all obligations, and the board, not the trustees, will be sued if some default occurs.



3.4 To incorporate as a charitable trust board, NCC (as the establishing entity) must complete an application to be submitted to the Companies Office. We can assist with this process if you would like.

4. Registration

- 4.1 Each charitable trust will need to be registered with the Charities Services.
- 4.2 Applications can be completed on-line, and require providing certain information about the applicant charity, including the source of its funds, a reasonable estimate of the percentage of funds sourced and applied in New Zealand, a copy of its rules, and details of its charitable purpose and activities. The process will typically involve one round with the Charities Services requesting further information in relation to the charity and its activities.
- 4.3 Registration can take up to 3 to 4 months, depending on Charities Services' workload, and the extent of Charities Services' requests for any further information in relation to the charity. We can assist with the registration process if you would like.

5. Development / operation of the Aquarium

- 5.1 Once the fund raising is underway, NCC should turn its attention to the Operations Trust. This will not only include the establishment of the trust (taking into account the above), but NCC will also need to ensure that it has appropriate contracts in place to allow for:
 - (a) the lease of the land / building (see our comments in Schedule 3 regarding the need to amend NCC's long term plan);
 - (b) the development of the Aquarium; and
 - (c) any services to be provided from NCC to the Aquarium, these could include administrative services such as accounting etc.

6. Charitable status

- 6.1 In order to be a charity each of the relevant trusts will need to have a charitable purpose i.e. one that advances education or religion, relieves poverty, or is another purpose beneficial to the community. We assume that:
 - an entity established to raise funds for the Aquarium would likely have educational purposes as well as broader public benefit purposes; and

A While NCC will be responsible for establishing the relevant charitable trusts, these trusts once established will be independent of NCC.



- (b) an entity established to operate the Aquarium would also likely have educational purposes as well as broader public benefit purposes.
- 6.2 To confirm its status the entity would need to register with Charities Services.





Schedule 2- Tax implications

1. Tax Implications

- 1.1 We have discussed below the tax implications of the Funding Trust being established to raise funds, which shall then be gifted to the Operations Trust to be used for the expansion / operation of the Aquarium.
- 1.2 It is anticipated that the facility would be leased from NCC to the Operations Trust, which will undertake the development and operation of the Aquarium.

2. Charitable trusts

Tax consequences

- 2.1 For income tax purposes a charity is generally exempt from income tax, provided it is registered as a charitable entity under the Charities Act 2005 (i.e. it is registered with Charities Services). Care will need to be taken to ensure that any charitable trust is not a council controlled organisation (CCO) for income tax purposes, as this would exclude it from the income tax exemptions for charities deriving income and for charities carrying on a business.
- 2.2 A charitable trust will be a CCO under the Local Government Act if 1 or more local authorities control directly or indirectly 50% or more of the voting rights or the right to appoint 50% or more of the trustees, directors, managers of the entity. If a charitable trust is a CCO under above definition and it operates a trading undertaking for the purpose of making a profit it will also be a "council-controlled trading organisation" (a CCTO).
- 2.3 However, the definition of a CCO is different for income tax purposes. For an entity that is not a company, it will be a tax CCO if it is a CCTO or if it has control of at least 50% of voting rights or rights to appoint trustees etc in a company CCO or a CCTO.
- 2.4 If a charitable trust is established to raise funds for the project it will likely not be a tax CCO assuming it is not undertaking a trading activity. Therefore, its income should be exempt. However, if a charitable trust is established to operate the Aquarium and it has a profit making purpose then if local authorities control that trust it will likely be a tax CCO and unable to take advantage of the income tax exemption.
- 2.5 We note that if a CCTO is operating a trust in a financially prudent manner and running an operating surplus it does not necessarily equal a profit-making purpose see Court of Appeal decision in CIR v Wellington Regional Stadium Trust (2005) 1 NZTC 15,010. In that case a charitable trust was established to develop a stadium and its objectives included the administration of the stadium and assets "on a prudent commercial basis so that it is α



- successful, financially autonomous community asset". The Court held that this was not sufficient to make it a CCTO.
- 2.6 We recommend that if a charitable trust is used, the objectives are carefully drafted to ensure there is no profit-making purpose and that any profit is retained for charitable purposes.
- 2.7 In terms of seeking funds for the Aquarium, a charitable trust will likely be advantageous, as assuming it registers with Charities Services, donors should be entitled to a deduction for any donation for income tax purposes. This will likely make it easier to raise public donations.
- 2.8 Finally, we note that if a charity is established care will need to be taken to ensure that on winding up any surplus funds are used for charitable purposes, as otherwise charitable status will be jeopardised.

Role of the charity

- 2.9 Having separate charities in relation to the funding and development/operation of the Aquarium would allow any funds that are raised to be ring fenced in relation to Project Shapeshifter.
- 2.10 In relation to the Operating Trust:
 - (a) Any leasing arrangement or service arrangement between NCC and the charity would need to be carefully analysed to ensure that it does not jeopardise either parties exempt status – key to this would be whether the charity is a CCO.
 - (b) If the charity pays a fee to NCC for services, GST will need to be charged by NCC on invoices. Consideration will need to be given to whether the charity is obliged or chooses to register for GST.
 - (c) If the charity employs people directly, consideration will need to be given to employer obligations.
 - (d) If the charity is a registered charity, it should be exempt from FBT on any benefits provided to employees.

3. Alternative structures

- 3.1 We have also considered whether another type of structure, such as a company, could provide any benefit over and above those discussed above.
- 3.2 A company structure would provide a well understood entity with clear governance and accountability mechanisms. However, assuming it is not established for charitable purposes it



will be subject to income tax at 28% on any profits. Further, if the company is controlled by NCC it will be a CCO and any returns to council would also be taxable. On the flip side in that scenario if the CCO makes a loss that loss could be offset against any taxable income derived by NCC (assuming at least 66% control by NCC).

3.3 The key consideration however, is probably that the use of a company will likely impede the ability to raise public funds for the project.





Schedule 3 – Analysis of requirements for Strategic Assets

1. Application of Local Government Act

- 1.1 We have set out below our understanding of the application of the LGA to the proposed development of the Aquarium. For the purposes of this analysis, we note that NCC considers that the Aquarium is one of its strategic assets and that NCC has included information around possible development of the Aquarium in its Long Term Plan.
- 1.2 Section 97(1)(b) of the LGA restricts what actions a Council can undertake in relation to its "strategic assets" unless those actions have been expressly provided for in the Council's long-term plan. In particular, a Council cannot transfer the ownership or control of a strategic asset unless it is expressly provided for.²
- 1.3 Under the current proposal, we understand that NCC will lease the Aquarium structure (together with the underlying land) to a new charitable trust for the purposes of development / operation. While NCC has included information regarding the development of the Aquarium in its Long Term Plan, there is no mention of NCC leasing the structure and the underlying land to a new charitable trust.
- 1.4 Given the above, the application of the LGA (and whether NCC will need to amend its Long Term Plan) will hinge on whether a lease of the Aquarium (together with the underlying land) equates to transferring control of the Aquarium.
- 1.5 While the term "control" is not defined in the LGA, under general property law principles a lease would confer exclusive possession without any supervisory control. While this is not definitive, we consider that the prudent approach is to consider that the lease of the Aquarium would constitute a loss of control, and therefore a decision by NCC to lease the Aquarium should not be taken unless it is expressly provided for in its Long Term Plan.
- 1.6 Given the above, we are of the view that NCC should::
 - (a) not lease of the Aquarium (together with the underlying land) unless its current Long Term Plan is amended; or
 - (b) delay the lease of the Aquarium (together with the underlying land) to allow NCC to explicitly provide for the lease when preparing its next long-term plan.

² We note that historically section 97 of the LGA also restricted a Council from undertaking a decision to construct, replace, or abandon a strategic asset unless it was explicitly provided for in its long-term plan. This restriction was removed in 2010 when the LGA was amended.

APPENDIX B: Gift Pledge Form

Details of this draft Pledge Form will be amended when details of the Campaign, Charitable entity, and Charity Services number are known. This sample illustrates the content required on such a form.



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APPENDIX C: Role Descriptions

The task of Campaign Chair is as follows:

ROLE DESCRIPTION: CAMPAIGN CHAIR

Task

The Campaign Chair will be the key external person achieving the campaign goals established for the National Aquarium and Ocean Centre.

Time Period

For the duration of the Campaign: Stage One and Stage Two.

Appointment

The Campaign Chair is appointed by and is responsible to

Responsibilities

- Provide high level philanthropic vision and leadership to the Campaign
- Chair the Campaign Leadership Team that meets as required (normally monthly)
- ✓ Help identify and enlist 6-8 individuals to serve on the Campaign Leadership Team as Working Group Team Leaders
- Help identify potential donors for Principal and Leadership gifts
- Help Solicit Principal and Lead Gift commitments and overseas Foundations
- Advocate for the campaign and inspire others by speaking privately and at selected functions
- Inform Campaign Leadership Team reports to Napier City Council.

Support

The role is supported by the Campaign consultants, and others who will organise meetings, provide lists and relevant collateral, maintain effective communication, and follow through on all aspects of the Chair's and Working Groups' tasks.

The Campaign consultants will provide strategic support and advice to the Chair and will support the Campaign Working Groups with training and advice as required.

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APPENDIX D: Campaign Revenue Forecast

The following is an indicative cash flow for pledges and payments made during both Campaign Stage One, Stage Two, and combined. These are estimates based on the assumption that the campaign begins on 1/1/2020 and that one third of funds committed in the campaign are received when the commitment is made, one third is paid in three annual instalments commencing during the year the pledge is made, and the balance (one-third) is paid in five instalments commencing during the year the pledge is made.

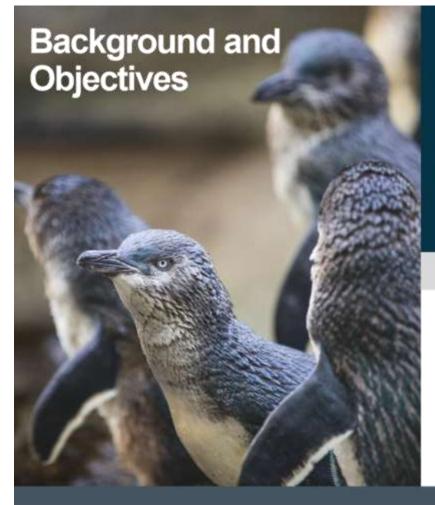
		2021	2022						
PLEDGES						74 /			
Q1		\$	\$	\$		1	1		
		2,000,000	1,000,000	3,000,000	- 4	- 4			
Q2	3,000,000	3,000,000	3,000,000	2,000,000	J.	W	7	100	
Q3	2,000,000	\$ 5,000,000	\$ 4,000,000	\$ 2,000,000		19			
Q4	4,000,000	1,000,000	4,000,000	1,000,000		7			
Sub Total	9,000,000	\$ 11,000,000	12,000,000	\$ 8,000,000	(W				į.
Run Total	9,000,000	\$ 20,000,000	\$ 32,000,000	\$ 40,000,000					
CASH AN	D PLEDGE P	AYMENTS							
Cash	\$					r		- 3	
	3,000,000								
3		1,000,000	1,000,000	1,000,000					
years									
5 years		\$ 600,000	\$ 600,000	600,000	\$ 600,000	600,000			
Cash		\$ 3,666,667							
3			1,222,222	1,222,222	1,222,222				
years									
5 years			733,333	733,333	\$ 733,333	733,333	5 733,333		
Cash			4,000,000						
3			4,000,000	\$	\$	\$			
years				1,333,333	1,333,333	1,333,333			
5				\$ 800,000	\$ 800,000	\$ 800,000	\$ 800,000	\$ 800,000	
years				5	800,000	904,400	800,000	800,000	
Cash				2,666,667					
3					\$	5	\$ 999.000		
years					888,889	888,889	888,889		
5					\$ 533,333	\$ 533,334	\$ 533,334	\$ 533,334	533,334
years					233,555	333,334	333,334	333,354	353,534
Sub	5	\$	5	5	Ś	5	5	\$	Š
Total	3,000,000	5,266,667	7,555,556	8,355,555	6,111,110	4,888,889	2,955,556	1,333,334	533,334
Run	3,000,000	\$ 8.266,667	\$ 15,822,222	\$ 24,177,777	\$ 30,288,887	\$ 35,177,776	\$ 38,133,332	\$ 39,466,666	40,000,000
Total	3,000,000	8,266,667	15,822,222	24,177,777	30,288,887	35,177,776	38,133,332	39,466,666	40,



20191105 National Aquarium and Ocean Centre Campaign Implementation Plan

S AskRIGHT 51









Terra Moana and the Napier City Council commissioned this research to gauge New Zealand public attitudes to converting the existing National Aquarium into an Ocean Centre in Napier.

KEY RESEARCH OBJECTIVES ARE TO UNDERSTAND...

- New Zealanders' current attitudes towards the marine environment, and participation in activities which happen in a marine environment
- Attitudes towards and interest in the National Aquarium/Ocean Centre concept, including specific features/exhibits and pricing
- Awareness, past visitation and expected visitation of the National Aquarium/Ocean Centre and other iconic NZ attractions

Methodology



Interviewing was carried out using Colmar Brunton's online panels.



The survey was carried out online.

The questionnaire was 10 minutes long.



Fieldwork was conducted from the 3rd to the 8th of October 2019.

Mid-way through fieldwork a reminder email was sent to people who had not completed or partially completed the survey.



The sample is representative of the New Zealand population aged 18+ years by age, gender and region. The maximum margin of error on the total group n=502 is +4.4% at the 95% confidence level.

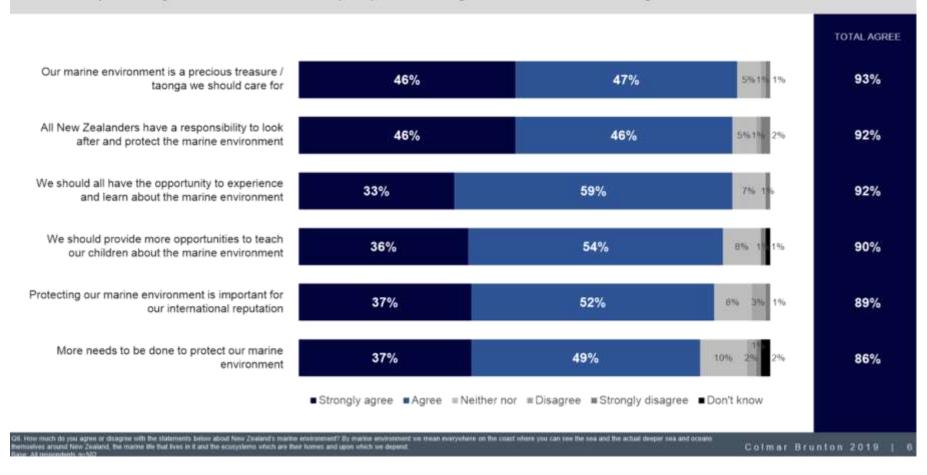
What do the New Zealand public think about a National Ocean Centre?



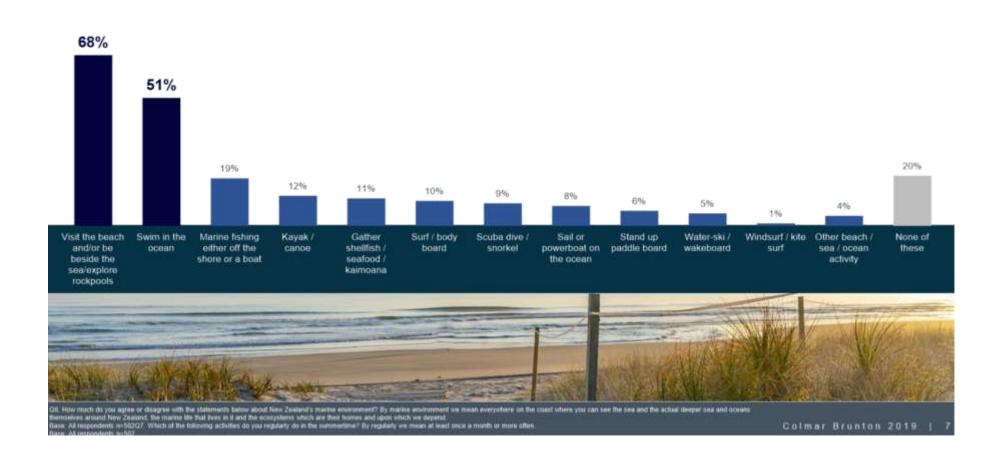
- Support for the National Ocean Centre is strong and broad based. This is
 not only a reflection of people's excitement about the draft concept but the
 strong relationship New Zealanders have with the marine environment, both
 attitudinally and in terms of the activities they engage in near, on or in the
 ocean. Our close proximity to the ocean and care for the environment is a
 fundamental driver of this.
- For many, this love and care for the ocean is not at all costs. It needs to be balanced against the health of the economy and growth. It is important for the project, assuming it gets the green light to proceed, to demonstrate value for money in terms of project costs to keep New Zealanders on side.
- The cultural story around Māori and Pacific Rim people has potential to be a strong differentiating factor for the centre, especially if it ties back to education and conservation.
- Intended visitation in the next five years is almost 5x higher for the National Ocean Centre (20%) compared to the current National Aquarium (4%). This reflects the level of interest and excitement in the proposed Ocean Centre rather than expectations around visitor numbers.



New Zealanders genuinely care for the marine environment and have a strong sense of guardianship. This deep feeling is universal across people of all ages, ethnicities and regions.



Eight out of ten New Zealanders participate in marine based activities in the summer months.



Our close proximity means our lives are inextricably linked to the ocean and the life it supports.

Ø

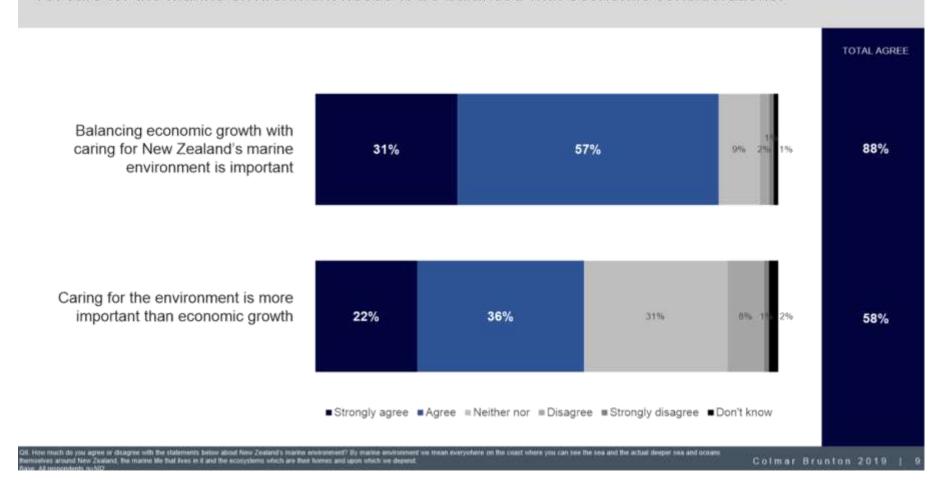
"We are a nation surrounded by the sea. We need to be aware of our ocean life and how we can protect it from pollution, climate change effects, etc."

"We are surrounded by the sea and its important that we respect it and look after it. To do that we need to learn about it and how we can help look after it and the animals that live in it." "We are surrounded by the ocean and many Maori myths and legends contain references to the ocean. It's part of our national identity."

"We are a country with a massive coastline - the sea is a source of food and lifestyle and entertainment."



Yet care for the marine environment needs to be balanced with economic considerations.



This is reflected in how some people feel about funding the National Ocean Centre.



"Knowledge and study of ocean doesn't have to be a national initiative, private organisations can/should also provide this."

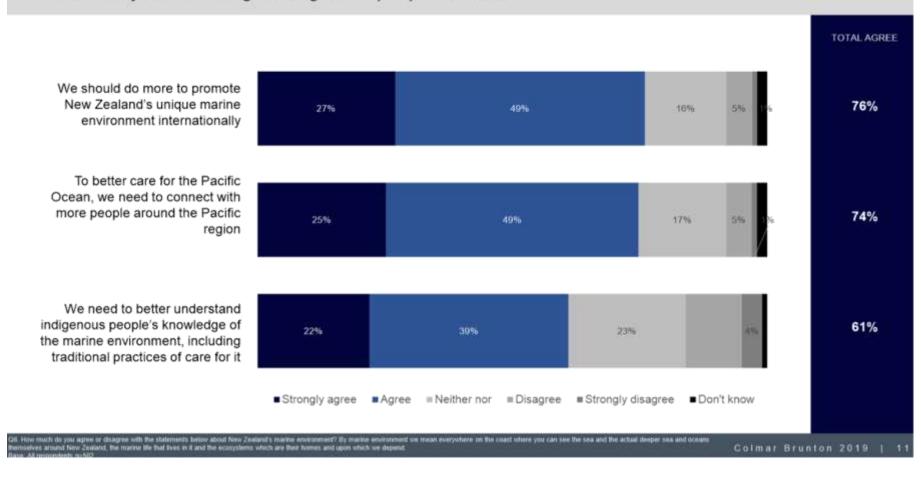
"New Zealand has more pressing issues to deal with than some tax payer funded thing that only a select few will see or have anything to do with."

"I think the money is better spent elsewhere like cleaning the ocean and maybe a few people that could go to schools teaching how to look after the ocean to our kids to guide the future."



Colmar Brunton 2019 |

Most members of the public also see strong value in promoting our unique marine environment internationally and listening to indigenous people to better care for it.



Education and knowledge aspects would be an important part of a National Ocean Centre.



"I think that it is important for NZ to have a place dedicated to its rich marine wildlife, as well as the extensive Maori / Polynesian cultures and how they interact with it. Being a country that's so close to the sea, and so culturally built on the sea (with Maui literally bringing the North Island up out of the water), I think that it is only fitting that we celebrate this more. I am unaware of any other sites in the country that focus as much on specifically Kiwi marine wildlife and cultures."

"New Zealand should have a national ocean centre so that our children are able to learn the important of keeping our oceans clean - ecosystem. It's so important to gain more knowledge about the wider perspective of our sea, culture traditions and our marine environment!"



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Concept introduction to respondents

INITIAL COMMENTARY

The Napier City Council want your feedback on a proposal to expand the current National Aquarium in Napier into a New Zealand Ocean Centre, including an aquarium.

The National Aquarium is a stand-alone building on the waterfront in Napier, where exhibits of marine plants and creatures are set up for visitors to view. The Napier Gry Council has the chance to transform the Aquarium into a world-class Ocean Centre offering much more than just marine exhibits. The proposed Ocean Centre could provide the opportunity to:

- get up close and hands on to the undersea world through live exhibits digital technology and animation
- Tearn about the threats to oceans and marine life
- learn what we can do to look after the health and well-being of our oceans, and the impact of conservation efforts
- learn about conservation projects that are going on around New Zealand and the Pacific
- experience what makes New Zealand's marine environment specia
- connect with other nations and indigenous people of the Pacific and learn about their views and understanding of the Pacific Ocean and its inhabitants.
- Jearn about stories of Maui that connect New Zealand with the Pacific
- gain an understanding of M\u00e4ori environmental knowledge which draws on M\u00e4ori astronomy, cycles of the lunar calendar and species
- learn about the different Maori deities of different domains of the natural world and their stories
- learn about our unique fishing history and how modern-day innovations are helping care for marine wildlife
- learn about other industries and uses of the sea e.g. the Navy

Click the arrow to view some draft concept drawings for the proposed Ocean Centre.











A selection of concept drawings and images were shown to people. Each image had a title which made it clear that these were draft drawings or proposed exhibits/experiences. People could zoom in on the images to view them in more detail.

FINAL COMMENTARY

The proposed Ocean Centre will be a place where iwi, government, industry and the community across science, conservation and business can work together to improve our understanding of the best ways to take care of our marine environments now and for future generations and support them to actively care.

Funding for the proposed New Zealand Ocean Centre would come from a combination of government, local government and private organisations.

Initial reactions to the concept are very positive.



"Love it, the present aquarium is great to visit once. This concept will have you going back repeatedly." "I think it looks a wonderful project and will provide a great information and learning centre for adults and children alike."



"I love it. Seems very unique because I haven't seen anything so devoted as that in New Zealand before."

"Fantastic and I would definitely support it and would visit."

"Very impressive and well planned this should be something that happens for NZ and it's visitors."

"I visited the Vancouver Aquarium in July. It has exhibits similar to those proposed and it was fantastic. I think it would be an asset."

"It sounds great. The exhibits look quite enjoyable and the seaweed garden area seemed like it would have the right aesthetic to just relax for a bit."

Q11a. What is your millial reaction to the idea of a National Ocean Centre and the draft concepts you have put seen? Base: All respondents no 502

There is overwhelming support for a National Ocean Centre with educational outcomes being a central element. A small number of people who are against it think the money would be better spent elsewhere.

"

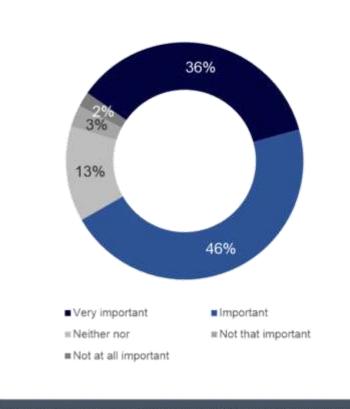
"I don't think this is as important as getting to grips with a declining economy."

"Money can be better spend on health issues."

"Seems like it is just a title, isn't clear what difference it would make."

"I think the money is better spent elsewhere like cleaning the ocean and maybe a few people that could go to schools teaching how to look after the ocean to our kids to guide the future."

"There are better ways to educate/inform people about our ocean. A visitor centre in Napier will not achieve this."



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"The idea of a place where science meets culture and the people is very important."

"To provide information and learning opportunities for students and adults alike so that a greater knowledge of the ocean that surrounds our country can be understood."

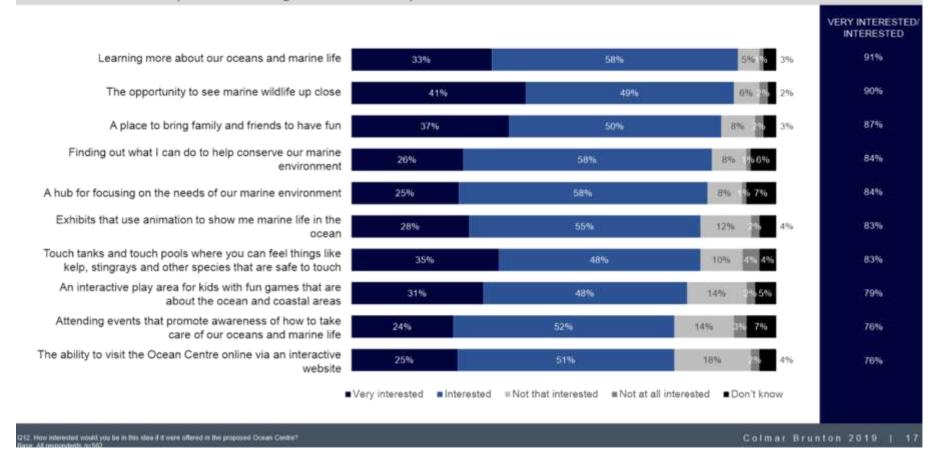
"We're surrounded by Ocean, and action needs to be taken to teach a out our relationship with it."

"It's important for people and children to understand the importance of our oceans."

"We need to be promoting conservation and educating people about the environment. Far more than we are currently."

Q11b. How exportant, or our exportant, do you think it is for New Zealand to have a National Ocean Centre? Q11c. You said it is janseer from Q11b) for New Zealand to have a National Ocean Centre. Why do you think that?

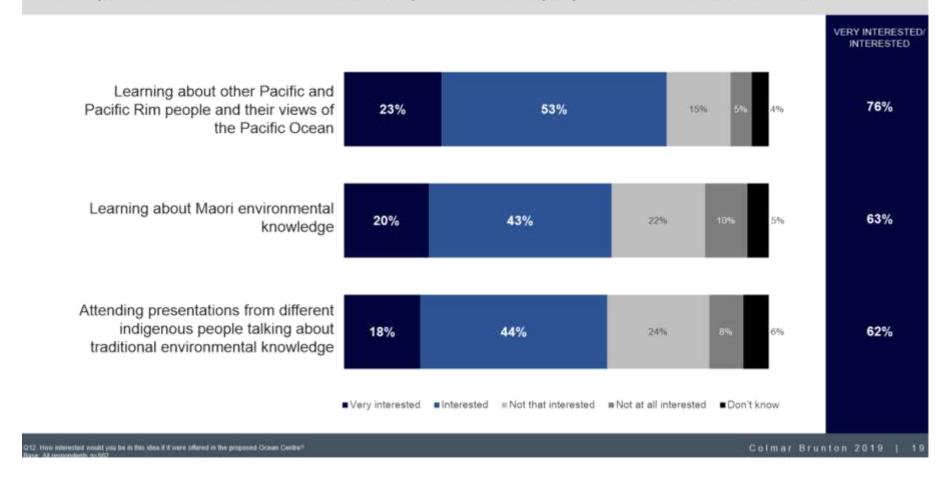
Interest in the proposed Ocean Centre offerings is high. Learning and education are prominent as well as the opportunity to see wildlife up close. There is a strong interest in conservation and environmental aspects. Having fun is also important!



"Because we are an island nation and are influenced so much by the sea which surrounds all our lands. The health of the ocean affects the health of people and the land and other inhabitants. A National Ocean Centre would be a great focal point and educator in making people see the beauty and yet the fragility of the ocean. It could help get people interested in being more aware and therefore more caring and involved with the protection of the ocean starting with small children being influenced to become scientists or environmentalists from just seeing a lovely coloured fish. The knowledge could be passed on to everyone, including tourists who hopefully, would be more respectful of our environment. Napier is already a tourist destination so getting visitors at centre would be easier"

"Our children are becoming too caught up in the sciences in a digital way that I fear they will never know the smell of the ocean or see a shell fish on a rock just above the low tide mark. They know the theory but haven't touched the reality. We are losing touch with nature which will be to our detriment. We need dedicated scientists to make it real for us again. Not scientists constantly distracted by funding applications and fearing redundancy (as in Te Papa) but men and women who are passionate and want to share their passion. Napier is the perfect environment to attract excellent staff and it's accessible and affordable for most people to visit."

Interest in cultural offerings is strong, despite being lower than other aspects. These are more esoteric for respondents to visualise and have most potential to uniquely differentiate the Ocean Centre.



Most people talk about the Māori cultural context. The broader Pacific Rim people aspect is not as strong but has the potential to surprise and broaden perspectives.



"Because we are surrounded by the ocean and we should grow up knowing and understanding the importance of that. Learning that in the Maori context makes it extra special."

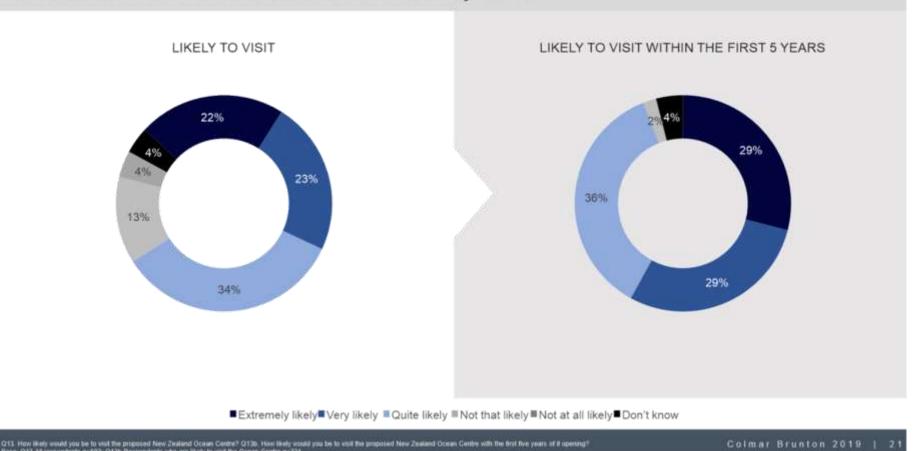
"We are a maritime nation surrounded by sea & part of the South Pacific region. New Zealand has a history with the sea both European & Maori and I think it is quite fitting to have a National Ocean Centre to help tell our story." "A great opportunity for kiwis and tourists to learn more about Kiwi marine life and our indigenous culture surrounding it"

"Tau kee = awesome. About time yet if pakeha had listened to kaitiaki maaori of recycling, replenishing, conserving taonga a ranginui me papatuanuku we could go 2 the natural resource"



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Intended visitation to the proposed Ocean Centre is high, with almost eight in ten likely to visit. The bulk of those within the first five years.

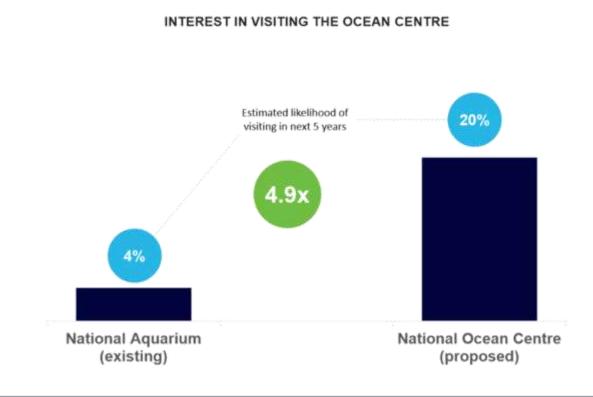


Interest in visiting the Ocean Centre (at concept stage) is 4.9x higher than the current aquarium.

Likelihood of visitation is calculated based on respondents "claimed" likelihood of visiting in the next 5 years (for the National Aquarium) and visiting within the first 5 years of opening (for the National Ocean Centre).

Based on some established rules of thumb, we convert the estimated likelihood for the extremely likely and very likely responses for the existing National Aquarium and the proposed Ocean Centre.

These percentages reflect general level of interest in visiting the aquarium and Ocean Centre.

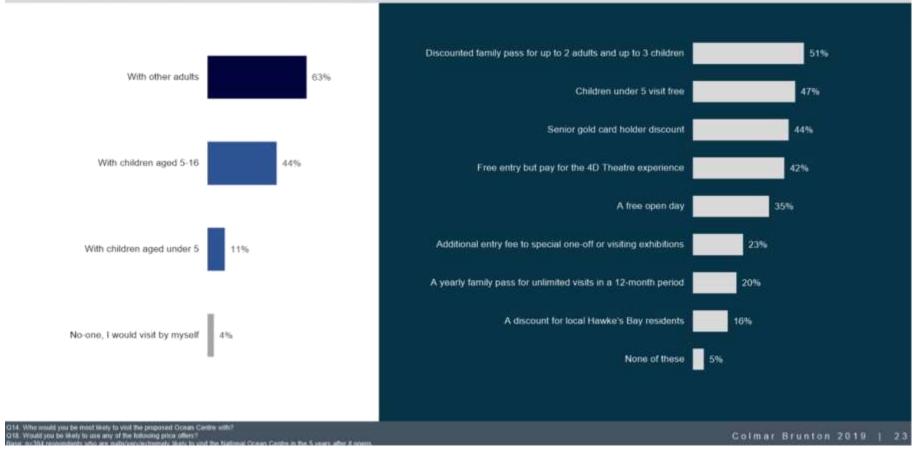


Q13b. How likely would you be to visit the proposed New Zasiand Ocean Centre with the first five years of it opening?

Basic Q13b Respondents who are likely to visit the Ocean Centre is 331 calibrated to visitor numbers achieved by the historial Aquatum and distillated to visit the existing aquatum.

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The majority of people are most likely to visit with others, nearly two-thirds with another adult and almost a half with children. A discounted family pass is the most appealing price offer, followed by children under 5 visit free and a senior gold card discount.



\$26 is the optimal price for an adult ticket, and \$14 is the optimal price for a child ticket. A higher price is possible with more information on exhibitions and complete visitor experience.



Other suggestions reflect the need for habitats to provide plenty of space for each species, ensuring pricing is moderate and an emphasis on education.

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"I would say don't make it so expensive that it is priced out of the reach of everyday working families. It looks to be a wonderful learning facility and it would be a shame if families were unable to visit and take advantage of it because it is priced out of their range. I would think moderate pricing will attract far more people to visit which is what you want and will still generate a good cash flow."

"Student discount."

"The importance of not littering at beaches."

"Coral and ocean plants. The kelp looks great, Exploration of NZ seabed and ocean trenches."

"Just need to make it extremely affordable for all so it draws more interest. The problem NZ has is there are places that are educational however is way to expensive to afford to attend. All NZ citizens should receive a discount and tourist pays a bit more."

"Have lots of eating places to derive income to help keep ticket prices down."

"Make sure your environment's for all species are of adequate size."

"Education about how to minimise the damage we do to the ocean e.g. covering the great pacific garbage patch with what is being done to help it at an international level but also what we can do at a local level."

"Safety for marine life i.e. don't have endangered species - I'd rather know they are still in the ocean."



ate: All (moondents no 507

Some offered suggestions to improve the proposal.



"It looks amazing! Would encourage me to visit Napier just to see that, (Although the penguins should be more separated and have some privacy away from the public as you can't trust public not to try to touch them etc unfortunately)."

"Great concept but not sure on Napier. It would have better public exposure in, say, Wellington or even expand Kelly Tarlton."

"Looks good as an island nation with a vast shoreline the country does need a significant marine museum/aquarium/educational centre."

"Looks very professional but worry about animal life being kept in captivity."

"It looks great I wonder if they have outreach so this education can reach nationwide."

"Love it! However a bit hesitate about keeping sting rays and penguins in enclosures so small."

"I think it looks very interesting. I especially like the opportunities to get close to the animals, and the whole open nature of the centre. My one concern is that I am unsure if the enclosures are large enough for the animals. While I admire the aesthetic, I have (admittedly uneducated) concerns about whether it may come at the expense of the animals' comfort."

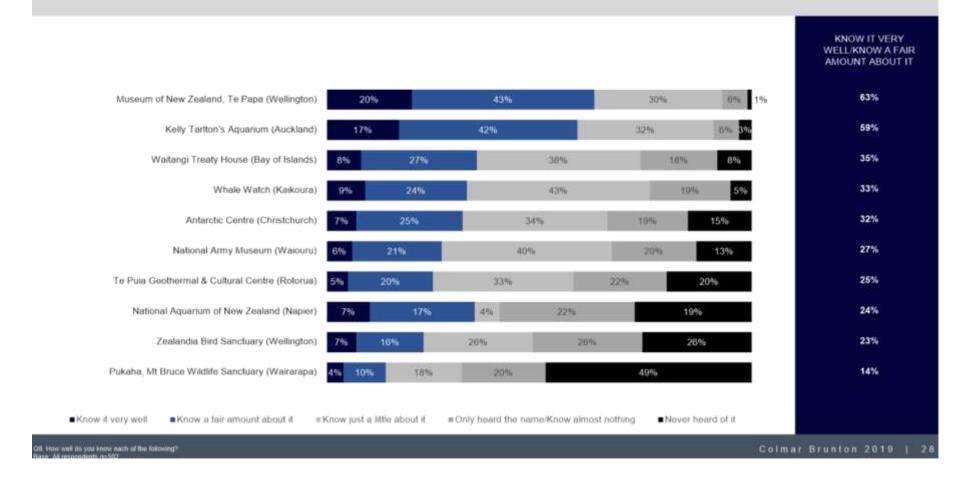


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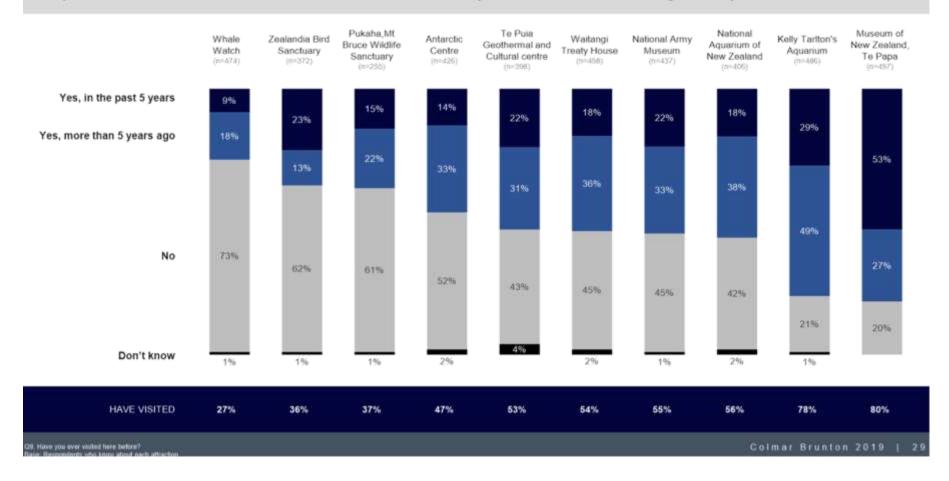
Q11a. What is your milliof reaction to the idea of a National Ocean Centre and the draft concepts you have self seen?



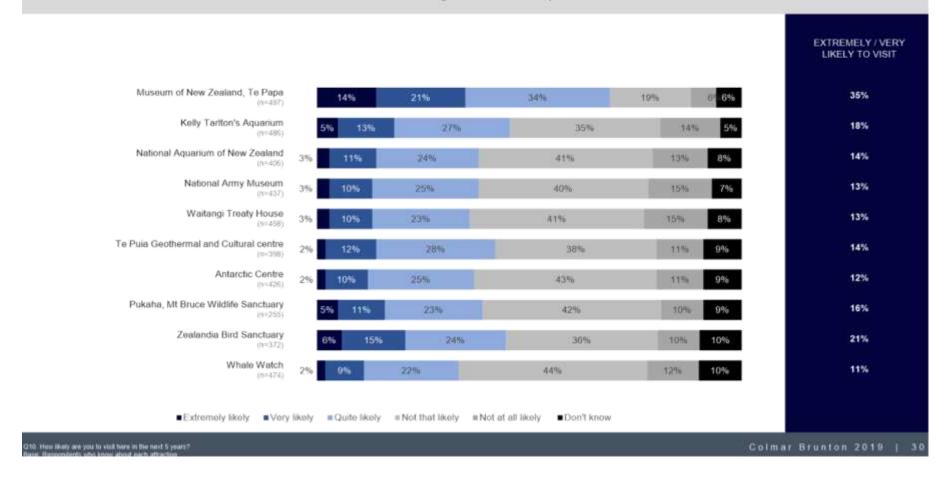
Te Papa and Kelly Tarlton's are the most well known New Zealand attractions. The National Aquarium

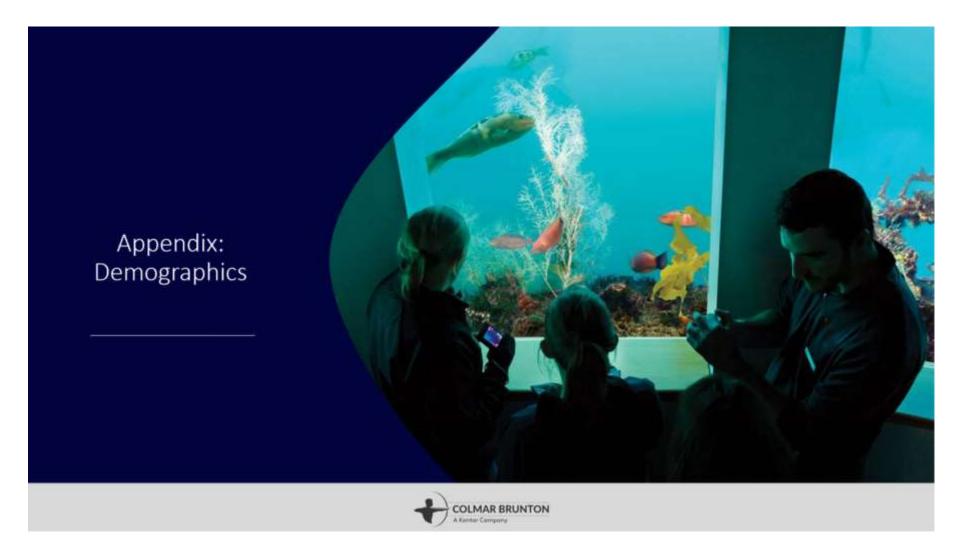


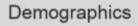
Te Papa and Kelly Tarlton's are also the most visited attractions. The existing National Aquarium in Napier is third most visited, in line with Waiouru Army Museum, the Waitangi Treaty House and Te Puia.

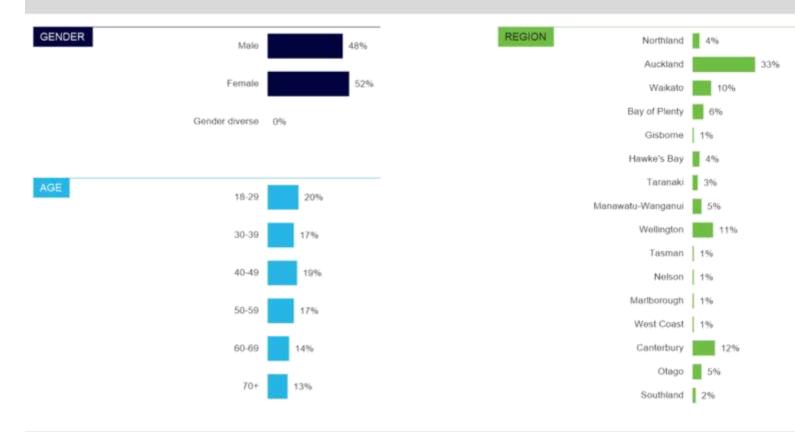


One-third of people are likely to visit Te Papa in the next 5 years, and one in five intend to visit Kelly Tarlton's. One in seven intend to visit the existing National Aquarium.

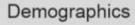








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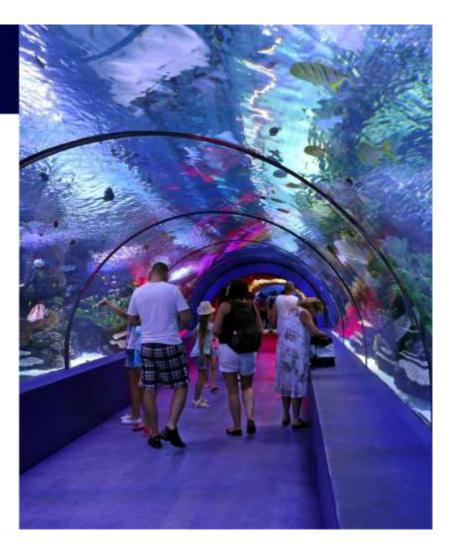
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Project Shapeshifter will marry indigenous knowledge and leading-edge science and technology through cross cultural partnerships, connecting us with our place in the Pacific to better understand our environment and care for our planet.

What Is this Project Shapeshifter

We are re-envisioning the role and purpose of the National Aquarium of New Zealand so that it can make a significant and positive contribution to our environment - from mountain top to deep ocean trench ki uta - ki tai, ki te moana höhonu - to care for and improve the well-being of our planet and all who depend upon it.

Drawing inspiration from the Pacific's biggest, most famous problem solver Māui, we will be bold and adventurous in our vision to create a globally distinctive icon to amaze, inspire and compel. We want this to be a project that all of New Zealand can feel a sense of ownership for and be proud of and one that will play a significant role in conservation. Not just in New Zealand, but globally.

This is our opportunity to do something different. Something New Zealand can credibly do, where we can lead and inspire others. Something not just good for us, but good for the planet.

We are excited to share our vision, our ideas and our passion for this project with you. More importantly, we welcome your feedback on what role you believe such a facility should have in Actearoa and our changing world, so that we can bring this vision to life and shapeshift the National Aquarium.

Māui was a rebel, who challenged the status quo. With Māui as our inspiration we ask that you engage with us, challenge us, share your ideas with us and join our shapeshifting journey.



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Kia hora te marino Kia whakapapa pounamu te moana Kia tere te karohirohi

May the calm be widespread May the sea glisten as the greenstone and May the shimmer of summer dance across your pathway.



Produced by Terra Moana Limited as part of Project Shapeshifter | Redefining the National Aquarium of New Zealand Detailed Business Case

Oct 2019



Project Shapeshifter Taiao Conservation Forum Initial Outcomes

"People will care for what they love" Ben Knight (Käpiti community marine facilitator)

"This is the most community-based aquarium design process I've witnessed" John Christiansen (EHDD Aquarium designers)

What is this Reporting On?

Project Shapeshifter held the first sectoral engagement hui/Forum on Wednesday 17.7.19 at Te Papa. Over 40 people were invited from across the conservation, environmental and sustainability spectrum in Aotearoa/New Zealand. A total of 37 people attended throughout the day.

Project Shapeshifter Engagement

Being a holistic project, the project team recognise that there are no strict boundaries between the relevant sectors that are needed to contribute for this Full Business Case to succeed. We have a process underway to ensure mana whenua and the wider lwi/Māori can contribute. We are also holding hui with the education and tourism sectors and smaller roundtable discussions with relevant researchers.

What Happened

The project was introduced. The project narrative was presented and followed by whakawhanaungatanga where people introduced themselves and responded to the kaupapa/narrative. Two presentations then covered the role of aquaria globally and especially in relation to conservation as well as the nature of the future world that the redefined National Aquarium of New Zealand needs to be cognisant of.

Summarised Take-Outs:

- Unanimous support from a diverse range of people for the intention to build a world class aguarium and aquatic conservation space
- That Aotearoa/New Zealand has a unique offering in doing so through the marriage of mātauranga Māori and western science.
- This process to engage communities of interest is a globally unique approach to designing such a facility.
- The critical role of synthesis in resolving today's complex social-environmental challenges and the need for dedicated synthesis facilities in Aotearoa/New Zealand.



- Strong agreement on the role that a national facility/aquarium is needed to play in being a 'hub' to support/collaborate with/provide space for/communicate between smaller, dispersed aquatic and marine conservation/citizen science projects.
- A home for all the various projects out there to tell their story.
- It must be honest exhibits (species specific or habitat/ecosystems) must truly represent actual environmental needs of animals in addition to being underpinned by strong, clear conservation action taken by Aquarium staff onsite, the organisation as a whole, our community (with Aquarium support) and it's partners
- Connection of people and place local, regional and national stories linked to environments and wildlife (through te ao Māori, science, history of Aquarium etc.)
- How can Project Shapeshifter reconcile the responses of specific target group's needs (and specific individuals within those) within the unified concept?
- The necessity to include youth views on the kaupapa.
- How to get perspectives on the "Fun & Edu-Entertainment" components?
- The hui clearly confirmed that the wider consultation approach is worthwhile.
- A place where people can see and learn about M\u00e4tauranga M\u00e4ori and its relevance with conventional science.
- The need for it to have the WOW factor to not only bring in numbers but initiate behavioural change.
- It's about love. Quote of the day for me was "People will care for what they love" Ben Knight.
 and the message to me was that our job is to get people to love aquatic life so they will feel a duty of care for it.
- It's about people. He tangata, he tangata, he tangata. It is all about people. To realise the
 vision we have will come down to relationships and the provision of a safe and inclusive place
 to engage.
- It's about place. Whether we focus on m\u00e4tauranga, science, ecologies it is all based placed.
 So whilst Project Shapeshifter's vision is national and Pacific it needs to be anchored in place based concepts and connections. So Project Shapeshifter's challenge is to serve many places from one place.
- Sustainable design is a given.

An invitee who couldn't come wrote the following which aligns well with these outcomes:

"I support the opportunity in front of us as described. We must be the voice of those who cannot speak - the flora and fauna of our aquatic ecosystems."

Our global leadership needs to be aspirational, focused on the changes we can make things that capture the hearts as well as the minds of all people:

- International centre of excellence / expertise recognised internationally for particular areas e.g. wetlands, deep sea exploration and mapping, migratory birds and fish. We have wonderful stories to tell.
- Advocacy on a global scale

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National centre:

- + Partnership with tangata whenua, science and innovation
- Central place to gather and share voices of flora and fauna in the aquatic ecosystem:
 - Be specialists in and celebrate the aquatic ecosystem how it works, its importance, how we can all care and nourish it.
 - Education leading edge, innovative. Think of Gallipoli expedition at Te Papa where the stories were told amidst the statistics and details
 - Convene and collaborate for debate and discussion
 - Bring national and international expertise together around particular issues e.g. wetlands
 - Citizen science examples and sharing
 - Examples of restoration, regeneration, protection successes and needs
 - Think about the 200 mile exclusive economic zone.
- Watchdog for aquatic ecosystems
- A platform for advocacy in business, local and central government focus on infrastructure that supports aquatic ecosystems
- Centre of expertise for animal in the aquatic ecosystem needing veterinary help. There are many small organisations doing this work in isolation throughout NZ and having a central place to develop expertise and advice would be invaluable.
 - Technology, its use and development is key
- Underwater ROVs small start-ups and doing a lot around the world.
- International focus and engagement
- New technologies latest globally and nationally, and provide opportunities to experiment; involve youth

Godwits as anc example

Take a species that engages our hearts, reflects who we are and exists between land and sea — one that resonates across the world. Godwits - battle against enormous odds and succeed in spite of their small size and environmental challenges; they just keep going.

They are the story of all New Zealanders as migrants to this land. They reflect us - small but undaunted by big challenges whether that is declaring ourselves nuclear free, winning world cups or going on our big OEs. And in doing so we cross political divides and bring people together for a positive common purpose e.g. North Korea.

What's Next?

There are other steps in the sectoral engagement process engaging with Mana whenua, education, tourism, and youth.

More information is available at the Project Shapeshifter website or please contact Project Leader Katherine Short, katherine@terramoana.co.nz | 022-108-3536

f https://www.napier.govt.nz/napier/projects/aquarium-expansion-project/



Project Shapeshifter Akoranga Education Forum Initial Outcomes

"We protect what we love and we protect what we value"

"Imagine the learning if my primary school could spend eight years being based from the new aquarium"

"I went to the aquarium for the first time on my 35th birthday as my whanau couldn't afford for me to go when I was a child"

Project Shapeshifter Engagement

Being a holistic project, the project team recognises that a weaving of ideas and information needs to happen from a range of sectors contributing as stakeholders for the Full Business Case to government to succeed.

There is a process underway to ensure mana whenua and wider lwi from around New Zealand can contribute. Hui have also happened with the conservation and tourism sectors, and smaller roundtable discussions will be held with relevant researchers.

The Akoranga education and learning hui was held on Friday 26 July at the Eastern Institute of Technology in Taradale, Hawkes Bay. Nearly 40 people were invited from across the formal and informal education & learning sectors, as well as many working in conservation education in Aotearoa/New Zealand. Throughout the day, about 35 people were able to participate.

What Happened

The project was introduced. The project narrative was presented and followed by whakawhanaungatanga where people introduced themselves and responded to the kaupapa/narrative. Two presentations then covered the role of aquaria globally and especially in relation to conservation as well as the future education and learning world with which the redefined National Aquarium of New Zealand will need to engage.

Summarised Comments

- New Zealanders, and especially Maori New Zealanders, have a great sense of place from where they were born and raised that goes beyond culture and community.
 There is a strong emotional connection to the native landscape and ecology of the specific region they are from.
- Unanimous support for the intention to build a world class aquarium and aquatic conservation education and learning space.
- That Actearoa/New Zealand has a unique offering in doing so through the marriage of matauranga Maori and western science. We need to 'walk the talk' with our



porposal and deliver something no-one else can that the current education system desires but cannot deliver.

- This process to engage communities of interest is a globally unique approach to designing such a facility.
- The value of being a convenor, being a place that brings together, provides access
 to, and creates a platform for, a wide range of amazing people doing amazing things,
 sharing their matauranga/knowledge/wisdom/insights/points of view.
- The new aquarium should stand at same level nationally as Te Papa does e.g.under an Act of Parliament.
- Can be a 'mothership' for Ki Uta ki te Tai (Mountains to Sea) learning and education nationally
- Galleries, Libraries, Aquaria, Museums and Zoos (GLAMZ) are all other spaces for learning alongside schools. It's time to start thinking beyond schools as the centre of education and learning to an ecosystem of learning including all these spaces equally. GLAMZ could take a leading role in developing this thinking.
- In addressing New Zealand's long tail of education underachievement, its vital to look at new and different ways of providing learning and education.
- Accessibility is key for low income communities and schools so these tamariki can also engage in new learning and education.
- Making the new aquarium accessible for everyone, not just those who can afford to pay, is vitally important. GLAMZ are so often 'whites only' spaces.
- Design all its space with learning and education in mind, specialist classrooms not necessarily needed for ECE and school children – apart from those with learning difficulties who may need quite spaces.
- Recognition that innovative 'hands-on' and experiential learning opportunities and programmes will be our point of difference and deliver value within the education system – and appeal to wider audiences.
- Ensure accessibility for all ages so those adults taking their tamariki to visit the
 aquarium can also learn alongside their young people. Older people know the things
 we have to now unlearn for the future.
- The aquarium needs to have a role in vocational education and training around marine and maritime related employment. Conservation & sustainability education for, & supported by, the fishing industry.
- Partnerships and collaboration nationally will be key to building the new aquarium's enagement in existing education & learning systems, as well as how it drives innovation in learning
- It's a really challenging project with a broad remit so partnerships will be key to its credibly delivery. An appropriate vehicle for delivery of access to all economic groups is needed.
- It must be honest exhibits (species specific or habitat/ecosystems) must truly
 represent actual environmental needs of animals in addition to being underpinned by
 strong, clear conservation action taken by Aquarium staff onsite, the organisation as
 a whole, our community (with Aquarium support) and it's partners.
- There needs to be fluidity between the 'inside' and 'outside'. Key criteria of any learning activity is that the Aquarium must connect to the outside world.
- The necessity to include youth views on the kaupapa. Some feedback suggesting already that seeing creatures caged or in tanks is not welcomed. The new design will be vital in this regard to engage young people.
- Students understand their agency in their learning already, adults need to help them ask the questions & then get out of the way.
- How to get perspectives on the "Fun & Edu-Entertainment" components?



- The need for it to have the WOW factor to not only bring in numbers but initiate behavioural change.
- It needs to amaze, inspire and compet
- Our global leadership needs to be aspirational, focused on the changes we can make
- things that capture the hearts as well as the minds of all people.

 Central place to gather and share voices & stories of flora and fauna in the aquatic ecosystem.
- New technologies latest globally and nationally, and provide opportunities to experiment

More information is available at the Project Shapeshifter website2 or please contact Project Leader Katherine Short, katherine@terramoana.co.nz | 022-108-3536

² https://www.napier.govt.nz/napier/projects/aquarium-expansion-project/



Project Shapeshifter Tāpoi Visitors Forum Initial Outcomes

What is this Reporting On?

Project Shapeshifter held focused workshops for National tourism industry agencies, (Wellington on 29th July 2019, Te Papa) and Hawke's Bay tourism industry stakeholders (August 6th, Napier conference centre.)

A total of 40 attended (16 Wellington, 24 Hawke's Bay).

Key representatives from New Zealand Tourism, Tourism Industry Actearoa (TIA), Department of Conservation (DOC), Hawke's Bay Tourism, Napier City Council NZ, Tourism Export Council and Detailed Business Case (DBC) consultant team members attended in Wellington. The Hawke's Bay hui had a range of tourism interests, operators, Napier City Council staff and DBC consultants.

Project Shapeshifter Engagement

Being a holistic project the project team recognises that there are no strict boundaries between the relevant sectors that are needed to contribute for this detailed business case to succeed. Prior to the visitor forum there has been engagement throughout July through hui and forums with Ngāti Kahungunu as mana whenua, and conservation, education and science stakeholders.

What happened at the Visitor Forums?

The Shapeshifter Project narrative was shared with the attendees. The presentation was designed to build on the previous forum findings including:

- The concept of a world-class aquarium and aquatic conservation space that embraces both science and matauranga Maori.
- A national facility/Aquarium that can be a hub to support/collaborate with/provide space for/communicate between smaller, dispersed aquatic and marine conservation/citizen science projects
- sustainably designed and operated.

Summarised Take-Outs from the Visitor Forum's

A key message from the visitor forums were the need to be clear on what the new aquarium is comprised of; clarity of concept is regarded as crucial. The Hawke's Bay forum was very optimistic about the role that the aquarium could play for tourism development for their region. They were very complimentary about the work undertaken to date for this project.

The four key areas discussed, and the key messages that emerged were:



How might the National Aquarium be a useful addition to New Zealand's visitor sector?

- There is a strong belief that a new National Aquarium would be beneficial to the New Zealand tourism sector and in particular to the domestic market.
- Hawke's Bay attendees could see the significant benefits of attracting domestic visitors to the Hawke's Bay and are confident that there are sufficient regional attractions to compliment the Aquarium

How might the National Aquarium attract markets specifically to Napier?

- Have an anchor experience that is simple, clear and accessible.
- Until there is clarity about the final product there was uncertainty about how one could grow the markets and by how much.
- There was general support in the potential for the cruise market to be interested in a revitalised National Aquarium however there are some perceived risks in the potential to disrupt the industry by moving the cruise market away from other attractions.
- There was a view that Napler/Hawke's Bay was very much a wine and art deco destination and that the aquarium may always be an add-on. Discussion ensued that noted the difficulty of moving awareness, or perceptions, far from the known. From a Hawke's Bay perspective there was a strong view the new aquarium would be an iconic attraction.
- There was discussion on pricing models including international, domestic and local (free).
- There was a shared view regarding the difficulty in shifting people from the main visitor routes, and that coordinated efforts to do so would be needed.

What are the key ingredients/services that the National Aquarium should include?

- Whilst the concept of mountains to the sea and into the oceans was shared with the stakeholders present there was not a lot of explicit uptake on this concept.
- The international market demand for iconic marine species of New Zealand that include whales, dolphins, penguins and seals was raised as an issue to consider and the question of how this might link and/or compete with nature-based experiences like Whale Watch Kaikoura.
- There is the potential to link relevant Hawke's Bay iwi tourism attractions including Ngā Ara Tipuna, the Pa network in Waipukarau/Rangitane/Mt Bruce, connections and the Te Angiangi Marine Reserve.
- There is strong perspective that the domestic and international markets are not seeking tamed iconic marine species, their preference is to engage in the natural environment.
- There was discussion on whether the revitalised national aquarium should be a home for Kiwi or not and suggestions that could, or should, be a separate companion experience in a different location with either charges included in a larger twin ticket price or be charged additionally/separately.
- Be innovative/creative and immersive in relation to storytelling.
- There was enthusiasm for doing a few things well and not trying to have all environments and species covered.
- Suitable facilities for visitors including café/ restaurant/ retail, however an acknowledgement that there is conference facility (350 person capacity) in Napier.
- A given was that there was a sustainable approach intended to all aspects of the Aquarium.



What are the risks to this project from a visitor industry perspective?

- To be as realistic as possible about the potential visitor use of the proposed National Aquarium (less than 360,000 per annum?).
- The Aquarium must have credibility in all aspects of conservation, education and lwl values. Will there be sufficient resources / exhibits to be a National Aquarium?
- That there was/is an expectation that the visitor entry fees and services could fund the
 operational expenses. There was caution around this.
- Need to consider the advantages/disadvantages of free entry with charging.
- · Napier is off the main visitor travel patterns.
- Not venturing too far away from what people know and expect e.g. changing the description away from 'Aquarium' to something unknown and unfamiliar.

The Next Steps

The Project Team are analysing all workshop and stakeholder engagement feedback to clarify and finalise the concept for a new National Aquarium. This in turn will significantly inform the detailed business case, due to be presented to Government in November.

We look forward to continuing our partnerships with key stakeholders and keeping you informed of progress.

If you or people and networks you know would like to contribute further, more information is available at the Project Shapeshifter website or please contact Project Leader Katherine Short, katherine@terramoana.co.nz | 022-108-3536

³ https://www.napier.govt.nz/napier/projects/aquarium-expansion-project/



Project Shapeshifter Rangatahi Youth Forum Initial Outcomes

"I want an aquarium that thinks about the animals by protecting and teaching about all. The argument of holding animals in captivity is always a problem. But if you have a section of the aquarium devoted to 'rescuing, rehabilitating and if possible releasing these animal's, then you can help the animals, the environment, people to learn and also to Be Different! Think about our future:)"

"Creating an aquarium where we, the youth, are challenging the generation before by showing innovation without hurting the environment and aquarium. As well as for our sea life own generation help with the action"

"I want an Aquarium where there are heaps of interactive experiences and learning opps.

Also as teen friendly as possible would be cool."

What Is this Reporting On?

Project Shapeshifter held three rangatahi/youth sectoral engagement hui/forum at the Aquarium. The first, on 05.08.19 invited members of the Hastings Youth Council, Napier Youth Council and Hawke's Bay Environment Youth Council. The other two invited young people aged 12-24 years old to attend an evening (23.08.19) and weekend daytime event (24.08.19).

The events were promoted on social media and the project team reached out to national level youth networks including Young Enterprise, Asia Foundation Youth and Sir Peter Blake Trust Youth EnviroLeaders, who unfortunately could not attend an event in Hawke's Bay. All local intermediates and secondary schools were emailed invitations, in addition to community youth networks. A total of 51 young people attended across the three events.

What Happened

The project was introduced. The project narrative was presented and followed an opportunity for participants to respond to the kaupapa/narrative. A second presentation then covered youth programmes and initiatives offered by zoos, aquariums and museums globally, to prompt suggestions from participants about the kind of opportunities they would like implemented. A range of 'statements' from the presentation were discussed and participants were asked to sticker what they were excited by and not so interested in. The session was then wrapped up with some final thoughts for what participants wanted in a future aquarium.

Summarised Take-Outs:

- We must never assume all young people have a basic connection with nature. Some have not necessarily had the opportunity or motivation to engage or connect.
- Real animals inspire awe and wonder, captured in the repeated askings of, 'Is it real?!' as
 four young men walked through the Aquarium exhibits.



An icon of cultural significance

- There was enthusiasm for the expansion to be an opportunity to, 'Put Napier on the map' so it was, 'well known throughout NZ and the world'. Also an acknowledgement that it could 'boost tourism' and offer 'increased employment in Napier/Hawkes Bay'.
- A lot of support for the aquarium to 'teach children the real stories of Maur, to 'teach our tamariki about Tangaroa' and 'to have Māori myths and legends'. But caution was given to make sure the aquarium didn't give, 'Inaccurate representation of cultures that ends up being offensive'.
- Need to make sure bicultural language use supports international visitors as, 'Māori words are hard for foreigners'

The building needs to embody sustainability

- It should be a 'Net neutral and carbon neutral aquarium. Adopting lifestylebased café system [vegetarian and vegan] that doesn't have harsh impact on environment'
- An 'Eco building. The whole process must be environmentally friendly. It should be negative carbon, energy producing.'
- However, questions were repeatedly raised about the current location and, 'Will the building be protected against the predicted rising sea level?' and protected against risk of tsunami.
- Another young person cautioned of the risk that 'All the goals and money are not met. Make sure it is achievable'

Conservation, care and welfare

- The aquarium has a responsibility to inform visitors and 'Show that the animals are safe and been taken care of and have 'Better living conditions for animals'.
- It needs to be a 'Rescue and rehabilitation centre save animals and teach conservation!'
- There was also acknowledgement of need for visitors to engage appropriately through, 'Exhibits where visitors can safely interact with fish/animals so that people can connect with the fish/animals rather than just looking at them.'

Accessibility

- The aquarium must have reach so it can provide 'Learning opportunities for our rangatahi locally and nationally'
- Need to make sure than financial barriers do not prevent access 'It should be free for all kids and schools'
- Young people were aware of the needs of international visitors and the need for 'Bilingual signs for tourists and all that. When they come in, they need to understand so they don't have to ask people for directions.'
- All visitors' access needs' should be catered to, including 'Audio / braille for people that are sensory impaired'



The intersection of science, technology and matauranga Māori

- There was keen interest that 'Throughout the exhibits, there is a clear relation of scientific findings to Māori culture'
- But there was a strong acknowledgement that the iwi stories presented must allow for the variances between iwi, 'Get a listening booth that you different iwi having their own stories. Bring different stories together. Understand the differences.' And the importance of gaining permission from iwi

But not just 'science'

- The whole place must inspire excitement 'Outside of the building needs to look more fun for kids'
- There is a desire for, 'Public opportunities to create art works'
- Young people want exciting programming with suggestions including, 'At night 'Nights at the Aquarium'', 'fly a drone game' (to catch whale snot)', 'VR voyaging on a waka experience (relying on the stars to navigate)', 'AR tsunami experience or scuba diving experiences' or even a '4D movie of a tsunami.

Connection and interaction is important

- The visitor journey needs be understandable, 'If you could put all the similar exhibitions in one area as it is confusing with turtles next to the cray fish. The journey needs to make sense.'
- Exciting use of technology was desirable, like, 'Heaps of VR to explore the reefs and other things.', '3D map of trench and sea map.' and how technology could be used to show a future where we don't curb our current behaviours, such as showing, 'what it would be like if we keep using plastic.' Possibly even an exhibit that was 'A room where there's a rough scale of how much trash is in the ocean'
- The wow factor needs to be there 'Interactive systems/stations for learning purposes that would engage an audience of all ages SOMETHING MEMORABLE'. Some examples given included, 'Large and life sized models that hang from the ceiling make you go wow!' and 'Something like a tunnel going through tank, 360 tunnel see top and bottom.' Water slides that went through tanks were also suggested numerous times!
- Touch tanks feature highly with 'I would like to see hands on experiences at the future aquarium.' Although some requests, such 'Kiwi encounters – come and hold Kiwi.', highlight the need to address what is appropriate contact in line with animal welfare standards. There was even a suggestion of 'Swimming in a large touch tank with rays'
- Education programmes should offer the same opportunities for different age groups 'Holiday programmes something for the older, high school range that links to natural
 environment'
- Opportunities for connection need to extend beyond the aquarium walls too –
 'Online local 'find me' activities so people know what species to look for in rockpools'



Offer exciting opportunities for youth

- Need to offer chance, 'Giving the youth an opportunity to express their opinions/experiences through art showcases and volunteering
- 'Volunteer exchanges. Get people from other aquariums to bring new ideas. Volunteers
- helping with every day running not just feeding.'
 Young people must also be offered the opportunity to get involved in conservation work,
 'Getting students to help with conservation and doing stuff and in conservation programmes. There was general acknowledgement that this needed to be outside the aquarium in natural spaces too.
- Young people 'Like the idea of programmes that lead to work programmes.

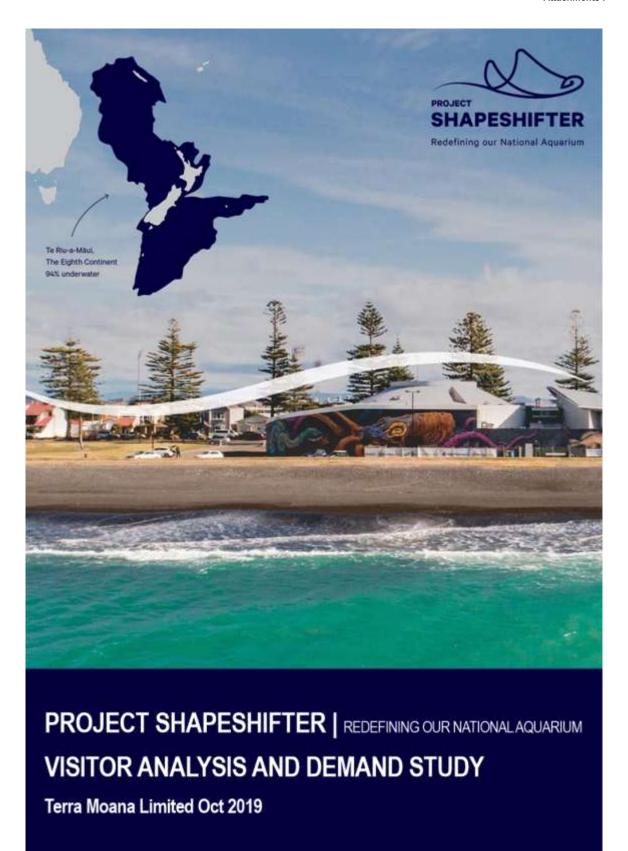
 Education and employment.' Supporting other young people not in education, employment or training (NEETs)

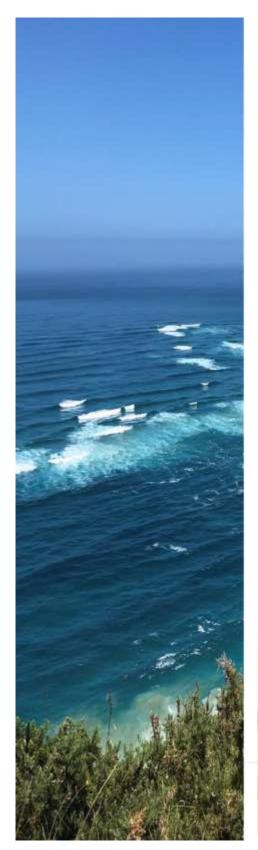
What's Next?

The Community Strategies team at Napier City Council are running events to present the concept with neighbours and Friends of the Aquarium members.

More information is available at the Project Shapeshifter website4 or please contact Project Leader Katherine Short, katherine@terramoana.co.nz | 022-108-3536

⁴ https://www.napier.govt.nz/napier/projects/aquarium-expansion-project/







Kia Whakapapa Pounamu te Moana

Kia Tere Te Karohirohi i mua i tô huarahi

May the calm be widespread

May the sea glisten as the greenstone)

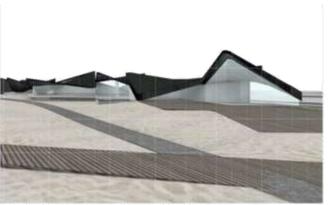
And may the shimmer of summer dance across your pathway

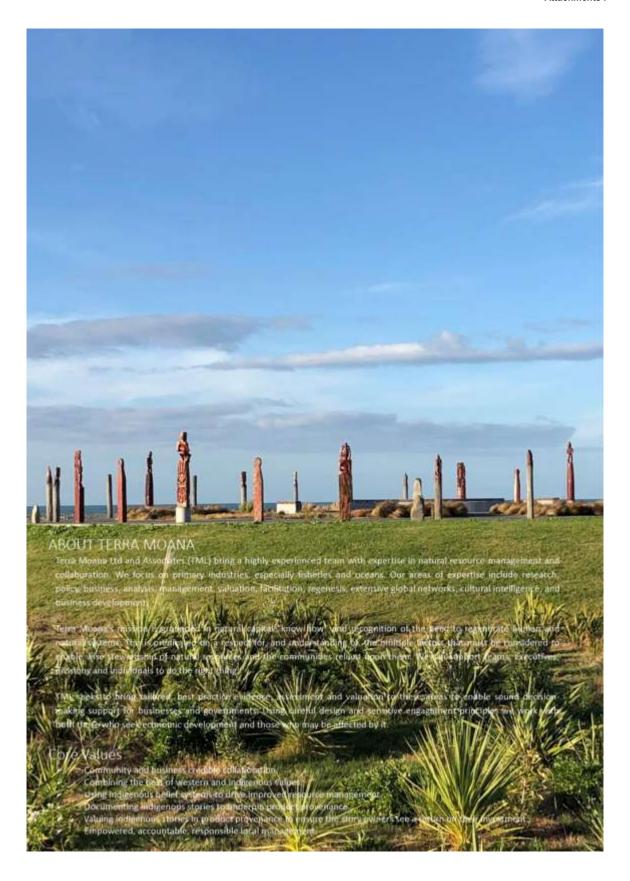
For more information:

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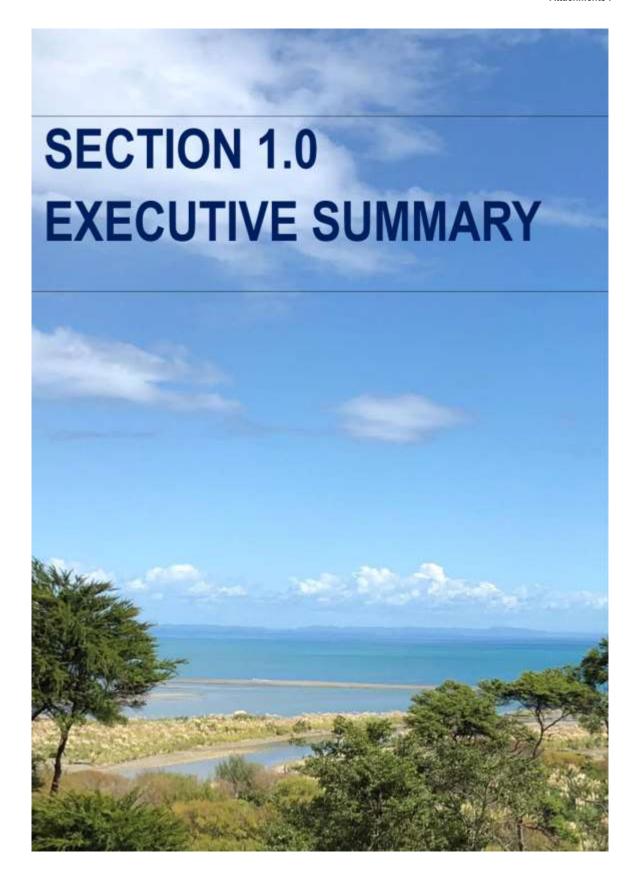


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1.0 Executive Summary

The building in question is labelled "National Aquarium of New Zealand" (NANZ) and yet to date, unlike any other "nationally" titled buildings, the aquarium has not been considered national. Rather it has been owned, operated and supported by the Napier City Council and its ratepayers.

In contrast, the National Museum (Te Papa) receives funding support, the National Army Museum is funded in part by NZDF (Army) who fund facilities maintenance and some other infrastructure as well as employ around 85% of the staff, similarly the National Ballet and National Orchestra also receive support as nationally important entities.

The question as to the status of, and therefore redefinition of any new aquarium and/or National Ocean centre plays a critical role in how one looks at a demand study in respect of local, regional and national growth strategies and the standard better business case return on investment models.

Figure 1: Proposed Artwork for National Aquarium NZ by EHDD (Aquarium Designers)



The **National Aquarium of New Zealand** opened in its current location in 1976. In its first year of operation it attracted 230,000 visitors at a time when the population of Napier was about 50,000. In its first 5 years of operation over 750,000 people visited. In 2002 the aquarium underwent an NZD \$8 million dollar extension and renovation which included the addition of a 1,500,000L oceanarium with a 50m acrylic tunnel.

The question of status and how New Zealanders looked at the National Aquarium was a vexed one and one the detailed business case (DBC) writers have explored. While clearly respected and valued within Napier and the Hawke's Bay the question remained "what might the national view look like"?

To test the national understanding and appetite for such a centre Colmar Brunton was commissioned to undertake an independent survey and the results were impressive (full report to be included with the DBC). Its key findings were;

Eight out of every ten New Zealanders have a direct connection with the ocean each year.



- If the proposed National Ocean Centre and Aquarium goes ahead, intended visitation in the next five years will be higher (46%) compared to the current National Aquarium (based on the concept drawings included in part of the survey).
- 92% of respondents agreed "We should all have the opportunity to experience and learn about the marine environment".

So strong and unified were the responses across the demographically and regionally representative respondents that Colmar Brunton believed that extending the survey numbers from the 502 to 1000 would have little impact to the margin of error +4.4% delivering a 95% confidence level. They also noted that respondents took time to add considerably more personal commentary than is common in such surveys.

The DBC development process also included key stakeholder hui (Education, Tourism, Conservation, Research, Māori, Youth and local community), and also discussions with philanthropists, companies and Trusts as part of the fundraising assessment) to gather feedback on the suggested narrative, design and purpose that evolved late in the formal process. An international leaders' group was also created and contributed to the business case.

So, while the demand study has followed standard estimation procedures for determining projected visitor rates that drive revenue, it is important that the reader bears the potential value of such a proposed entity across Treasury's livings standards framework also.

The following study includes three core components:

- 1. A review of the New Zealand Tourism market and sector
- 2. Comparative analysis of other New Zealand tourist attractions
- 3. Estimation of potential visitor numbers likely to visit the National Aquarium going forward.

1.1 Key Findings

- NZ Tourism growth has been extremely positive in recent years but recent events around Brexit and potential trade wars have growth shallowing out.
 - International arrivals growth grew 38.8% 2014-2018
 - o International spend growth grew 54.9% 2014 -2018
- The top five country of residence are 1) Australia 2) China 3) USA 4) United Kingdom and 5) Germany
- A recent customer survey by NANZ identified the top three countries by attendance at the National Aquarium as NZ Domestic 52.72%, Australia 10.62% and United Kingdom 7.85%.
- The potential visitor pools were divided up into local, domestic, international free and independent travellers (FITS) and cruise ship visitors.
- Group travel international visitors were not considered because of the standard routes that
 most take avoids this region.



1.2 Resulting Visitor forecasts

A trend (black dotted line) has been fitted to the visitor forecast using regression analysis and the standard deviation of variance about the trend has been calculated. The upper ("rosey") and lower ("bleak") scenarios are formulated being +/- three standard deviations from the trend.

Statistically there is a 99.7 percent probability that the visitor numbers will lie within the rosey-bleak range year by year.



Table 1: Visitor Forecast Projections

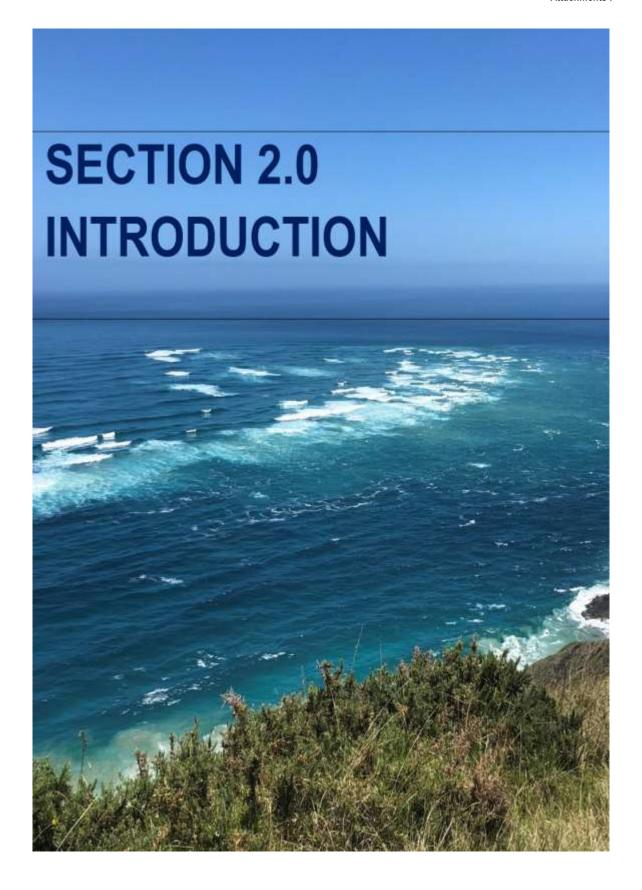
1.3 Recommended Ticket Pricing

The comparative analysis identified the not unexpected link between ticket price and the experiences provided by the operator. For the purposes of this exercise we used adult ticket prices as the baseline from which others are developed and these ranged from Te Papa (free) to Kaikoura Whale Watch at \$135 per person.

The paper also considered the need to consider affordability, particularly at a local level, and the enticement and attractiveness to visitors within the domestic market. Ensuring equity of access to local Hawkes Bay communities, all education providers and New Zealanders more generally needs further interrogation of the financial modelling and potential revenue generation streams

Given what was being proposed, it was considered reasonable to set adult prices at or near similar attractions i.e. Kelly Tarlton's in Auckland. Thus, this review recommends an adult price of \$39.00 per adult with Napier and Hastings residents receiving a 25% discount across relevant ticket pricing (i.e. family packages). Given the recent introduction of the International Tourist Levy an alternative price for tourists was not considered desirable for attracting those types of visitors to the proposed new entity.





2.0 Introduction

The purpose of this document is to describe a) the potential visitor demand for the proposed National Aquarium, in a revitalised form, versus other tourist attractions and experiences within New Zealand through, b) a comparative analysis of similar attractions nationally and internationally as benchmarks for scale and visitor experiences.

This report also considers the work within this context delivered through the Indicative Business Case (IBC) and importantly the report by Visitor Solutions (22nd Feb 2018) which highlighted several short comings in the IBC and factors that should be considered further.

Of critical importance, the Visitor Solutions report, stated: "The lack of clear visitor experience concept is a weakness that undermines the draft Indicative Business CaseThere are frequently referenced statements about public good, but with little hard headed reference to the experience that will make this aquarium a true attractor and financially viable". This has impacted and guided the development of the current detailed business case (DBC).

Optimal Planning Approach Actual Approach Concept Concept Statement Statement Preliminary Feasibility Feasibility **Full Feasibility Full Feasibility** Indicative Indicative **Full Feasibility Business Case Business Case Full Business Full Business** Case Case plementation nplementation **Design Phase Design Phase**

Figure 2: Optimal Visitor Attraction Planning Approach VS Approach Taken for Project Shapeshifter



Figure 2 highlights the shift in planning approaches and processes adopted in the DBC with many of the core components happening in parallel rather than sequentially namely;

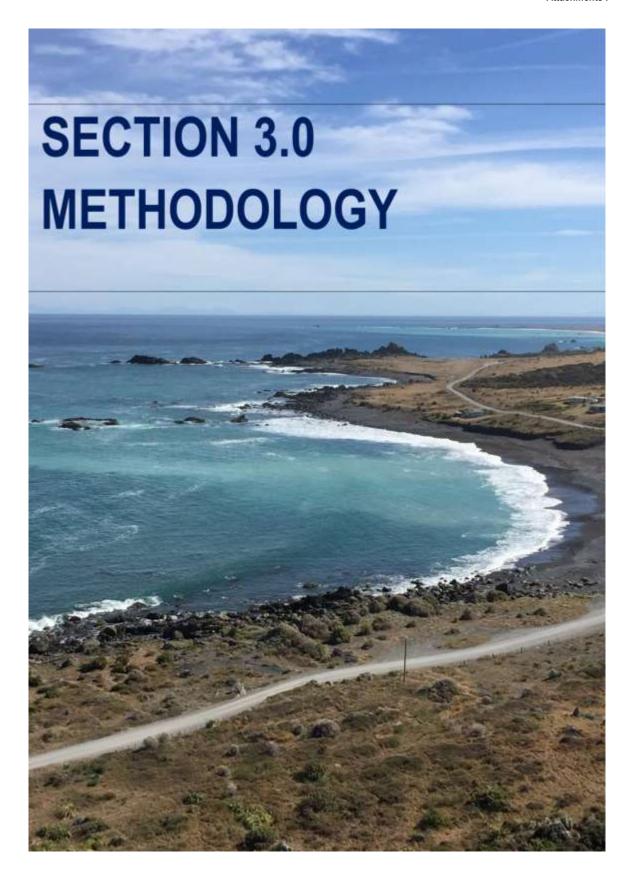
- 1. Sectoral Engagement.
- 2. Narrative design and confirmation.
- 3. Design / visitor experience alignment to narrative.
- 4. Narrative and concept design and experience market testing.
- 5. Integration of the above into building & landscape design components.
- 6. Assessment of the current building.
- Quantity survey testing of 2-6 above (concept and design feasibility aligned to potential costs).
- 8. Revenue generation strategy aligned with 2-6 above.
- 9. Detailed business case development.

The revised process has seen the introduction of consultation processes across key stakeholder groups namely Māori (Ngăti Kahungunu, and Hawke's Bay Whanau and Hapū), education, research, conservation, youth, local community, tourism and an international leader's group. These were complemented with an independent and statistically robust nationwide Colmar Brunton poll to test the national appetite for such a facility against the proposed narrative, design and experiential components.

This work has enabled the demand study to improve assessment of potential capture rates for the key cohorts of likely visitors a) International (Free and Independent Travellers (FIT) & Cruise), b) local, c) regional, and d) wider domestic numbers.

There are three main parts to the visitor analysis – firstly a tourism situation analysis secondly a market demand analysis and finally forecasting of visitor and pricing numbers.



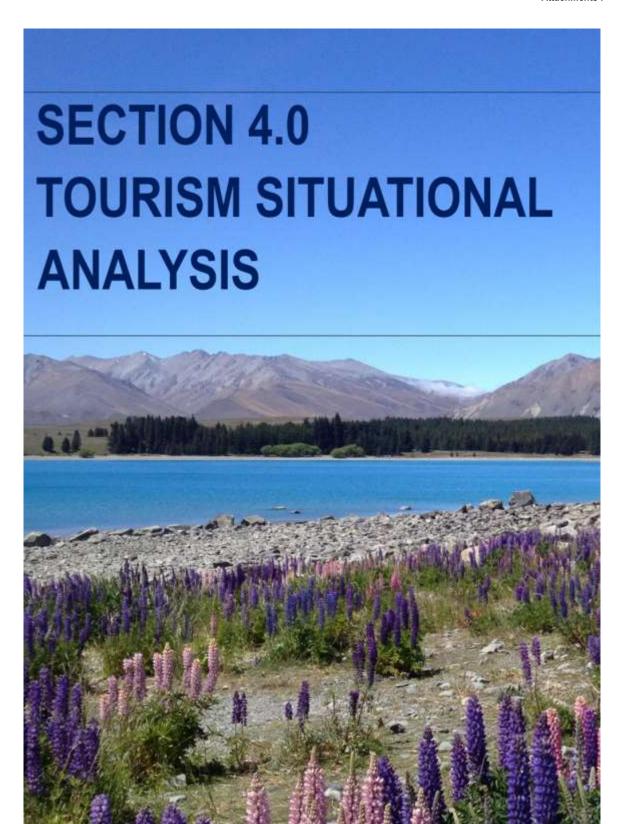


3.0 Methodology

The approach for assessing the potential demand for the use of the proposed new National Aquarium included:

- Review of indicative business case and associated reports to NCC on the proposal.
- Consultation with key stakeholders at the initial stage of concept and narrative development.
- Stakeholders were invited to workshops (July August 2019) that focused on the following sectors' expectations:
 - Măori (Iwi, Whanau and Hapû),
 - Conservation,
 - o Education,
 - o Research,
 - International Leaders
 - o Youth and,
 - Tourism
- A situational analysis of New Zealand tourism, trends and hard data of the tourism sector at international, national and regional levels
- An assessment of the relevant government visitor policies, plans, and regional economic development plans.
- A comparative analysis of international and New Zealand attraction data (including financials) with relevance to the market demand for the proposed new National Aquarium.
- Field visits to relevant attractions Monterey Bay Aquarium, Wellington Zoo, Auckland Museum, Te Papa, Zealandia, Kelly Tariton's.
- Preparation of relevant New Zealand demographic data and visitor numbers in relation to the National Aquarium.
- · Reviewing local, regional, national and international visitor numbers and projections.
- · Exploring the cruise ship market and projections.
- Exploring capture rates for each market segment.
- Qualitative interviews with operators of relevant international and national aquaria, and other iconic NZ visitor products e.g. Te Puia, Waitangi Treaty Grounds.
- · Development of potential market segments.
- · Preparation of visitor demand predications.
- · Development of entry pricing options.
- · Outlining key risk areas that could impact the project.
- Modelling of numbers.



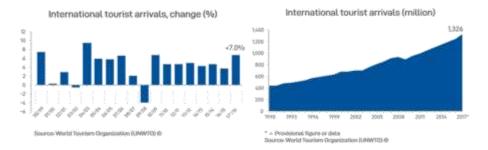


4.0 Tourism Situational Analysis

4.1 International Tourism

Tourism is growing globally. International tourist arrivals to New Zealand grew 7.0% in 2017, the highest increase since the 2009 global economic crisis and well above the UN World Tourism Organisation (UNWTO)'s long-term forecast of 3.8% per year for the period 2010 to 2020. A total of 1,326 million international tourist arrivals were recorded to destinations around the world, some 86 million more than in 2016. Growth was fuelled by the global economic upswing, resulting in strong outbound demand from virtually all source markets.¹

Table 2: International Tourism Arrivals



Notwithstanding the beginnings of some air travel slow down due to climate change concerns, the latest update to the 20 Year Air Passenger Forecast by the International Air Transport Association (IATA) shows that present trends in air transport suggest passenger numbers could double to 8.2 billion in 2037. Over the next two decades, the forecast anticipates a 3.5% compound annual growth rate (CAGR), leading to a doubling in passenger numbers from 2018 levels. According to IATA, aviation is growing. IATA suggests that a doubling of air passengers in the next 20 years could support 100 million jobs globally and notes two important trends. Firstly, there is a geographical reshuffling of world air traffic to the East. And secondly, they foresee a significant negative impact on the growth and benefits of aviation if tough and restrictive trade protectionist measures are implemented.²

The Asia-Pacific region will drive the biggest growth with more than half the total number of new passengers over the next 20 years coming from these markets. Growth in this market is being driven by a combination of continued robust economic growth, improvements in household incomes and favourable population and demographic profiles.

China will displace the United States as the world's largest aviation market (defined as traffic
to, from and within the country) in the mid-2020s. The rebalancing of China's economy
towards consumption will support strong passenger demand over the long term.

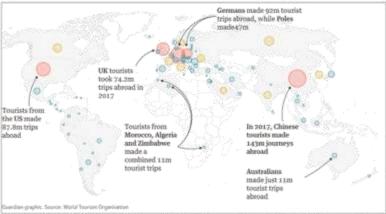
Source: PATA, IATA forecast predicts 8.2 billion air travellers in 2037, 2018, as sourced on - https://www.pata.org/lataforecast-predicts-8-2-billion-air-travelers-in-2037/#sthash.7vitjiTJ.dpuf



¹ UNWTO, UNWTO Tourism Highlights 2018 edition, 2018, as sourced on - https://www.e-unwto.org/doi/pdf/10.18111/9789284419876

- India will take 3rd place after the US, surpassing the UK around 2024.
- Indonesia is forecast to be a standout performer—climbing from the world's 10th largest aviation market in 2017 to the 4th largest by 2030.
- Thailand is expected to enter the top 10 markets in 2030, replacing Italy which drops out of the ranking.

Figure 3: Countries that provide the most visitors (2017)



Source: The Guardian, Global tourism hits record highs - but who goes where on holiday, July 2019, as sourced on https://www.fbeguardian.com/news/2019/jul/01/global-tourism-hits-record-highs-but-who-goes-where-on-holiday

Fastest growing aviation markets in terms of annual additional passengers from 2017 to 2037:

- China: 1 billion new passengers for a total of 1.6 billion
- US: 481 million new passengers for a total of 1.3 billion
- · India: 414 million new passengers for a total of 572 million
- · Indonesia: 282 million new passengers for a total of 411 million
- Thailand: 116 million new passengers for a total of 214 million

4.2 Regional Growth in 2037

- Routes to, from and within Asia-Pacific will see an extra 2.35 billion annual passengers by 2037, for a total market size of 3.9 billion passengers. Its CAGR of 4.8% is the highest, followed by Africa and the Middle East.
- The North American region will grow by a CAGR of 2.4% annually and in 2037 will carry a total of 1.4 billion passengers, an additional 527 million passengers.
- Europe will grow at a CAGR of 2.0% and will see an additional 611 million passengers. The total market will be 1.9 billion passengers.
- Latin American markets will grow by a CAGR of 3.6%, serving a total of 731 million passengers, an additional 371 million passengers annually compared to today.



- The Middle East will grow strongly with a CAGR of 4.4% and will see an extra 290 million passengers on routes to, from and within the region by 2037. The total market size will be 501 million passengers.
- Africa will grow by a CAGR of 4.6%. By 2037 it will see an extra 199 million passengers for a total market of 334 million passengers.

The three main trends that are reshaping and accelerating the growth in international travel are⁵:

The Rising Global Travelling Class

Growing income levels around the world are creating a new "travelling class." Households making \$20,000 USD or more per year account for 90% of spending on international travel and about four out of every five international travel today.

Global Aging

By 2025, travellers aged 65+ will more than double their international travel to 180 million trips, accounting for one in eight international trips globally. Older travellers can afford bigger trips and are more focused on comfort and health than saving money.

Increasing Connectivity

The forces of globalisation and technology are shrinking distances. Construction of more than 340 new airports is expected over the next decade, creating new routes and destinations that will make international travel easier and more convenient.

4.3 Tourism in New Zealand - the Numbers

Tourism is New Zealand's largest export sector. It is a major contributor to the New Zealand economy that will always be here and mostly, cannot go offshore. Tourism takes the lead in promoting New Zealand to the world. The brand positioning built by a vibrant tourism industry has become an important source of national confidence and identity and a front window for "Brand New Zealand". The clean and pure offer that is synonymous with New Zealand tourism has been widely adopted and used to promote New Zealand exports in a range of other industries as well.

The tourism industry delivers the following value to New Zealand's economy:

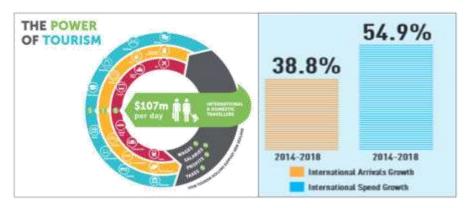
Tourism in New Zealand is a \$107 million per day and \$39.1 billion a year industry.
 International tourism delivers around \$44 million in foreign exchange to the New Zealand

²Source: VISA, Mapping the future of global travel and tourism, 2014, as sourced on https://usa.visa.com/dam/VCOM/global/partner-with-us/documents/global-travel-and-tourism-insights-by-visa.pdf



economy each day of the year. *Domestic tourism* contributes another \$63 million in economic activity every day.

- Total annual tourism expenditure has increased by \$11.9 billion or 44% in the past five years.
- The tourism industry directly and indirectly supports 13.5% of the total number of people employed in New Zealand. That means 365,316 people are working in the visitor economy.
- Tourism is New Zealand's biggest export industry, earning \$16.2 billion or 20.6% of New Zealand's foreign exchange earnings (year ended March 2018).

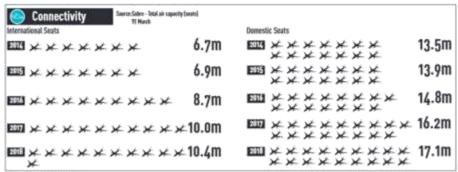


Source: TiA (2018)

4.3.1 Analysis of Current Visitors to New Zealand

Over the period 2015-2018, international arrivals to New Zealand grew by 38.8%, while international spend grew by 54.9%. International air connectivity has shown consistent growth over the last years.

Figure 4: International Air Connectivity

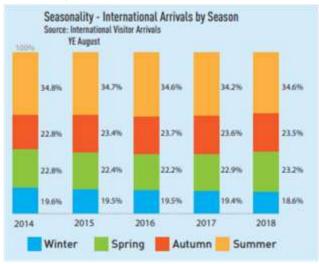


Source: TIA (2018)



Summer has always been and continues to be the most popular time of the year to visit New Zealand.

Figure 5: International Arrivals by Season



Source: TIA (2018)

4.3.2 International Visitor Arrivals

In the year ending (YE) June 2019, international visitor arrivals were up for the 7th consecutive year at 2.7%, reaching a total of 3,889,798 visitors. This was slightly down from the previous year which showed a growth of 3.8%. It is significantly down from the years 2016 and 2017 which showed a growth of 10.6% and 10.2% respectively. Please refer to the section on MBIE tourism forecasts for more information about visitor forecasts (Section 4.4.1).

Table 3: Annual Visitor Arrivals

YE ended June	Number	Change from	previous year	
re ended June	Number.	Number	Percent	
2009	2,411,396	-68,400	-2.8	
2010	2,501,264	89,868	3.7	
2011	2,501,303	39	0.0	
2012	2,635,726	134,423	5.4	
2013	2,636,896	1,170	0.0	
2014	2,786,826	149,930	5.7	
2015	2,991,854	205,028	7.4	
2016	3,310,390	318,536	10.6	
2017	3,648,204	337,814	10.2	
2018	3,786,927	138,723	3.8	
2019	3,889,798	102,871	2.7	

Source: Stats NZ, International Travel: June 2019



4.5 4.0 3.5 3.0 2.5 2.0 1.5

Figure 6: Annual visitor arrivals to New Zealand (in millions)

2010 Source: Stats NZ, International Travel: June 2019

1.0 0.5 0.0

2009

The following table shows the country of residence of the visitors to New Zealand.

2013

2014

2015

2016

2017

2018

2019

2012

Table 4: Country of residence of visitors to New Zealand

2011

		Change	2018/19				
	2015	2016	2017	2018	2019	Number	Percent
Total visitor arrivals (1)	2,991,854	3,310,390	3,648,204	3,786,927	3,889,798	102,871	2.7
	1	Top 30 cou	ntries of resi	dence			
Australia	1,285,632	1,365,440	1,450,624	1,471,248	1,514,599	43,351	2.9
China, People's Republic of	313,376	396,928	398,000	449,024	421,113	-27,911	-6.2
United States of America	233,344	257,536	325,472	337,280	366,972	29,692	8.8
United Kingdom	198,080	213,808	244,384	235,184	233,789	-1,395	-0.6
Germany	81,088	91,232	104,544	101,504	101,817	313	0.3
Japan	84,432	94,208	101,120	101,056	99,741	-1,315	-1.3
Korea, Republic of	60,608	75,088	83,344	93,744	87,318	-6,426	-6.9
Canada	50,512	55,472	65,984	68,640	73,626	4,986	7,3
India	42,672	48,368	55,696	66,960	65,296	-1,664	-2.5
Singapore	47,280	53,456	57,696	60,464	62,257	1,793	3.0
Hong Kong (SAR)	33,520	39,952	49,808	57,680	56,518	-1,162	-2.0
Malaysia	32,240	39,760	56,544	52,208	52,044	-164	-0.3
Taiwan	29,680	33,024	36,512	41,968	49,150	7,182	17.1
France	31,792	36,688	41,456	44,224	41,435	-2,789	-6.3
Fiji	24,768	27,024	28,336	29,664	32,661	2,997	10.1
Netherlands	21,600	23,504	28,128	30,320	30,788	468	1.5
Thailand	21,616	24,832	26,512	30,448	29,615	-833	-2.7



		- N	ear ended Ju	ne		Change	2018/19 Percent
	2015	2016	2017	2018	2019	Number	
Philippines	12,768	16,880	22,128	26,864	27,857	993	3.7
Samoa	19,632	22,016	24,160	24,672	27,803	3,131	12.7
Indonesia	15,408	17,824	24,064	26,416	26,471	55	0.2
French Polynesia	17,296	17,200	21,376	23,888	24,870	982	4.1
South Africa	16,368	18,368	19,712	19,648	24,599	4,951	25.2
Switzerland	18,432	20,512	23,136	22,848	22,190	-658	-2.9
Tonga	16,112	18,976	20,800	20,224	20,903	679	3.4
New Caledonia	17,136	18,096	19,360	20,624	20,373	-251	-1.2
Brazil	12,480	12,736	15,632	19,152	17,031	-2,121	-11.1
Argentina	4,032	11,456	16,864	23,296	15,962	-7,334	-31.5
Sweden	13,216	14,384	15,968	15,968	14,927	-1,041	-6.5
Spain	9,552	10,576	13,088	14,160	14,059	-101	-0.7
Denmark	9,936	11,200	12,816	13,392	13,702	310	2.3
		Region	of residence	e			W -
Oceania	1,427,184	1,517,280	1,615,200	1,640,752	1,693,492	52,740	3.2
Asia	707,024	856,144	932,416	1,031,424	1,002,385	-29,039	-2.8
Europe	448,448	490,512	568,576	563,296	561,152	-2,144	-0.4
Americas	315,600	354,176	444,800	470,784	496,469	25,685	5.5
Africa and the Middle East	41,344	44,368	49,728	50,784	55,042	4,258	8.4
Not stated	48,432	47,216	25,024	23,088	78,890	55,802	241.7

Source: Stats NZ, International Travel: June 2019

4.3.2.1 Travel purpose

The main travel purpose of visitors to New Zealand is to holiday, followed by visiting friends and family.

2,500 2,000 1,500 1,000 500 0 Conferences & conventions Visiting friends & relatives Holiday Education Business **×2019 *2015** ×2017 **#2016** ×2018

Figure 7: Main travel purpose of visitors (Year ended June 2015-19)

Source: Stats NZ, International Travel: June 2019



4.3.2.2 Age of visitors

Most visitors coming to New Zealand are between 25 and 34 years old.

Figure 8: Age of visitors (Year ended June 2015-19)

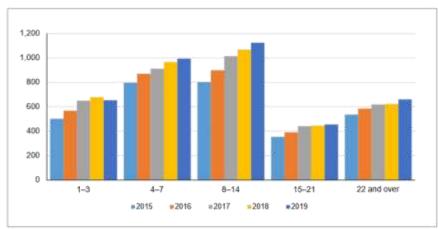


Source: Stats NZ, international Travel: June 2019

4.3.2.3 Length of stay

Most visitors stay for 8-14 days in New Zealand.

Figure 9: Length of stay of visitors (Year ended June 2015-19)



Source: Stats NZ, International Travel: June 2019

4.3.2.4 Port of arrival

Auckland airport is the most used port by international visitors to New Zealand, followed by Christchurch airport, Queenstown airport and Wellington airport.



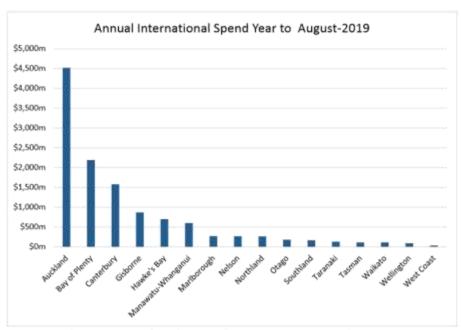
Table 5: Part of arrival for international visitors

Key characteristic		Year ended June						
	2015	2016	2017	2018	2019	Number	×	
Total visitor arrivals (1)	2,991,854	3,310,390	3,648,204	3,786,927	3,889,798	102,871	2.7	
Auckland airport	2,121,056	2,350,304	2,610,464	2,690,112	2,751,519	61,407	2.3	
Christchurch airport	438,080	477,520	511,184	554,496	551,616	-2,880	-0.5	
Queenstown airport	182,656	221,280	247,920	275,328	298,732	23,404	8.5	
Wellington airport	194,864	217,216	219,456	210,112	216,439	6,327	3.0	
Seaports	34,288	32,976	39,040	42,752	61,168	18,416	43.1	
Dunedin airport	11,904	10,240	7,424	7,104	7,736	632	8.9	
Hamilton airport	0	16	16	16	10	-6	-37.5	
Rotorua airport	5,008	0	16	16	0	-16	-100.0	

Source: Stats NZ, International Travel: June 2019

This is also consistent with international tourism spending of which the majority happens in the gateway destinations of Auckland, Christchurch, Queenstown and Wellington.

Figure 10: Dispersal of international tourism spending.



Source: Regional Tourism Estimates (MRTE), Ministry of Business, Innovation and Employment



4.4 New Zealand Visitor Forecasts

4.4.1 MBIE Tourism forecasts

According to the 2019 MBIE Tourism Forecasts⁴, visitor arrivals to New Zealand are expected to grow 4% a year, reaching 5.1 million visitors in 2025 — from 3.9 million in 2018. Total international spend is expected to reach \$15.0 billion in 2025, up 34% from 2018.

Australia is New Zealand's largest visitor market, providing more than 1.5 million visitors in 2018. The forecasts show that this market will continue to be healthy and looks set to grow 19% by 2025.

Another key market for New Zealand is China. In the current MBIE Tourism Forecasts, China visitor numbers are expected to grow 55% in the forecast period, increasing from 449,000 in 2018 to reach 696,000 by 2025. Australia will remain the largest market by spend, though Chinese spend will reduce that gap by 2025. However, Chinese visitors were down 10% for the first six months of 2019 and the trade war between the US and China is adding to market volatility.

Auckland International Airport aeronautical commercial general manager Scott Tasker noted slower growth in the domestic economy had prompted some Chinese consumers to put off overseas holidays or spend less on them. Some Chinese airlines are also consolidating services after adding seat capacity for several years and pricing flights to fill them. According to Tasker, New Zealand should not be surprised by the sharp slowdown in late 2018. The big drop in February 2019 – down 26% nationwide – reflects both the earlier timing of the Chinese New Year holiday in 2019 and the "stellar" New Year season in 2018. Even with the latest decline, Chinese arrivals this year will still be higher than in 2017. He says that the trends underlying Chinese arrivals in New Zealand remain strong. Passport numbers in China rose from 38 million, almost 3% of the population in 2012, to 129 million in 2016. Its outbound visitors are projected to reach 203 million by 2020, from about 130 million in 2017.

Chinese visitors appear increasingly confident to travel in New Zealand independently, hiring cars and seeing more of the country. The percentage travelling on group visas dropped to 33% in the year through January, down from 55% in 2015. Auckland International Airport's view is that China still remains a significant opportunity for growth of inbound visitors to New Zealand.⁵

4.4.2 Future Growth

According to MBIE's tourism general manager lain Cossar, the tourism growth rate could drop to between zero and 2% in the next six to 24 months fuelled by the rising uncertainty in the face of Brexit and the trade war between China and the United States. He remains confident though, that growth would return to 3% - 4%.6

Newsroom, Slowing China arrivals reinforce need for new tourism markets, 26 April 2019, as sourced on https://www.newsroom.co.nz/2019/04/26/555145/slowing-china-arrivals-reinforce-need-for-new-tourism-markets# * RNZ, International tourism slowdown fears ahead of New Zealand annual industry summit, 3 September 2019, as sourced on - https://www.rnz.co.nz/news/national/398009/international-tourism-slowdown-fears-ahead-of-new-zealand-annualindustry-summit



^{*}MBIE, 2019-2025 International Tourism Forecasts, May 2019, as sourced from - https://www.mbie.govt.nz/immigrationand-tourism/tourism-research-and-data/international-tourism-forecasts/2019-2025-international-tourism-forecasts/

According to the CE of Tourism Industry Aotearoa⁷, the tourism boom that New Zealand has been experiencing over the last few years is over. Now, New Zealand sees a 2% annual increase in visitor arrivals, and he predicts that this will continue to decline, with the possibility of 0% growth in 2019. This is in contrast to UNWTO's forecast of 3.8% and Cossar's view of somewhere between zero and 2%. Short term changes should be discounted in favour of long term trends.

4.4.3 Domestic Travel in New Zealand



Source: DGiT

According to the Domestic Growth Insight Tool (DGiT)⁸, there are 44,968,259 potential trips by domestic visitors. Of these total potential trips, 27,564,916 are day trips and 17,403,343 are potential overnight trips.

- The majority (61%) of these trips are by adults only, with only 31% adults with children.
- 90% of these trips are by road and only 10% by air.
- · The split between male and female is rather equal, with 52% female and 48% male.
- The majority (30%) is between the age of 35-49, followed by 50-64 (24%), 18-34 (23%) and 65+(22%).
- More than 30% (31%) are couples with no children, followed by couples with all children over 15 (15%) and couples with school aged children (11%).

A beach activity is the most popular activity for domestic travellers (37%), followed by shopping (27%), walking (23%), food and/or wine (23%), zoo or wildlife park (21%) and hot pools (20%).

Of those domestic travellers that do stay overnight, the majority prefer to stay with friends and family (23%), followed by a motel between \$100-\$249 (16%), and a hotel between \$100-\$249 (9%).

^{*}www.dgit.nz; DGiT is based on a survey of 6000 New Zealanders, targeting the leisure market. The interviews were carried out in September 2016. The sample was structured to be representative of the New Zealand population by age, gender and region.



^{*}Tourism ticker, Roberts: Tourism boom is over, growth to flatfine, 31 July 2019, as sourced on https://www.tourismticker.com/2019/07/31/toberts-boom-is-over-growth-to-flatfine/

The main barriers for domestic travellers are the weather (26%), the cost of travel (20%), the time taken to get there (20%), the cost of accommodation (18%) and traffic congestion (18%). The main triggers for domestic travel are general friends and family get togethers (41%), specific friends and family events such as a wedding, birthday or Christmas (38%), seeing or hearing about an activity they would like to do (29%), attending a specific event to watch, e.g. sport, festival or show (27%) and specials or cheap deals on accommodation (20%).

37% 27% Shopping 23% Walking 23% Food and/or wine (restaurants) Zoo or wildlife park 21% 20% Hot pools 18% Public museum or art gallery 16% Live performance of music 14% Watching a sport 12% Vineyard / wine trail Other natural attraction (e.g., 11% mountain, lake, river etc.) Swimming / surfing 11%

National park

Hike, trek or tramp

Salt-water fishing ____ Food and/or wine event

Scenic boat trip

Garden visit or flower show

Theme park or leisure park

Wildlife in their natural environ...

11%

11%

10%

10%

10%

10%

9% 8%

Figure 11: Most popular activities for domestic travellers

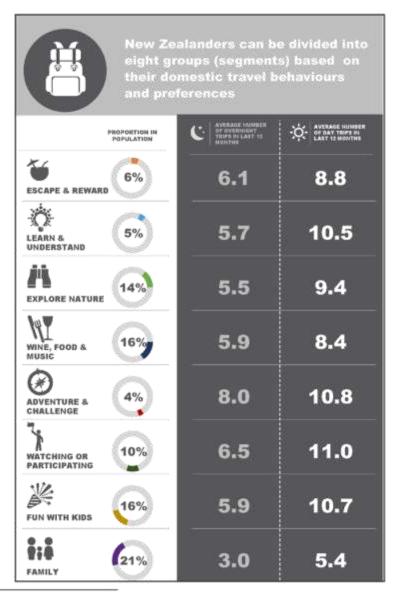
Activities

Source: DGiT



The following image shows the eight domestic traveller segments that can be distinguished in the New Zealand domestic market. 9

Figure 12: New Zealand domestic traveller market



*source: DGiT, Domestic Traveller Segments, as sourced on - https://dgit.nz/domestic-traveller-segments/



4.5 National Tourism Strategies and Frameworks

4.5.1 Tourism 2025 and Beyond

Tourism 2025 and Beyond is the New Zealand tourism industry's growth framework. It has been created by industry, for industry and keeps the tourism industry's focus firmly on growing our value to individuals, communities, the environment, the economy and our visitors. Its development is led by Tourism Industry Aotearoa.

Tourism 2025 and Beyond was launched in May 2019 and has a vision of 'Growing a sustainable tourism industry that benefits New Zealanders.' It is closely aligned with the New Zealand-Aotearoa Government Tourism Strategy, and takes a balanced scorecard perspective to:

- · Make sure our visitors are having great experiences.
- Make sure our communities are happy with and benefitting from tourism.
- Make sure our environment benefits from tourism, and,
- · Bring economic success.

Tourism 2025 & Beyond has four key goals -one for each of the main framework elements:

- Visitor International and domestic satisfaction of 95%.
- Community 90% of New Zealanders are happy with the level of tourism and support growth.
- Environment 90% of tourism businesses have Environmental Plans to measure and manage their carbon, waste and ecological footprint.
- Economic Annual tourism spend of \$50 billion by 2025.

4.5.2 New Zealand-Aotearoa Government Tourism Strategy

The government wants tourism growth to be productive, sustainable and inclusive. The goals of the New Zealand-Aotearoa Government Tourism Strategy are:

- · Tourism supports thriving and sustainable regions.
- · Tourism sector productivity improves.
- New Zealand-Aotearoa delivers exceptional visitor experiences.
- Tourism protects, restores and champions New Zealand-Aotearoa's natural environment, culture and historic heritage.
- · New Zealanders' lives are improved by tourism.

4.5.3 Department of Conservation's Heritage & Tourism Strategy

The Department of Conservation (DOC)'s vision is for New Zealand to be the greatest living space on earth| Kāore he wāhiituaatui a Aotearoa, heiwahinohoiteao. To do this, DOC organises its work around five outcomes:

- · The diversity of our natural heritage is maintained and restored.
- Our history is protected and brought to life.
- More people participate in recreation.
- More people engage with conservation and value its benefits.
- Conservation gains from more business partnerships.



DOC is planning to release its Heritage & Visitor Strategy later this year to guide a longer-term approach to visitor management. Through its three key components of 'Protect', 'Connect' and 'Thrive' it aims to sustainably manage visitors to protect and enhance the values of New Zealand's natural, cultural and historic heritage.

4.5.4 New Zealand Tourism Sustainability Commitment

Launched in 2017, the <u>New Zealand Tourism Sustainability Commitment</u> aims to see every New Zealand tourism business committed to sustainability by 2025 - its vision, *Leading the World in Sustainable Tourism* is based on four pillars: for the tourism industry to be sustainable — environmentally, socially and economically — it must:

- · Ensure tourism businesses are financially successful in the longer term.
- Protect and enhance the environment on which tourism businesses depend.
- Maintain and enhance support from local communities
- · Ensure our customers have outstanding experiences with all their tourism activities.

Its goal is that sustainability will become a genuine ethical underpinning of the tourism industry and its desire and expectation is that long term, sustainability will become a core value against which all decisions are tested. Financially sustainable businesses are able to invest in environmental and social sustainability, maintaining and enhancing New Zealand for future generations of residents and visitors. There are currently more than 1,400 out of 2,000 New Zealand tourism businesses that have signed up to the New Zealand Tourism Sustainability Commitment.

4.5.5 Tiaki Promise

<u>Tiaki</u> - <u>Care for New Zealand</u> is an initiative¹⁰ that actively encourages international and domestic travellers to act as guardians of Aotearoa. It encourages Kiwis and visitors alike to experience New Zealand in a way that keeps everyone safe, protects our environment, respects our culture and protects the country for future generations. Under the banner of Tiaki - Care for New Zealand, the Tiaki Promise outlines what travellers can do to care for New Zealand, travel safely and act as guardians of our land, waterways and oceans.

4.6 Cruise Market

While the cruise industry was only a small industry in 1989 with 4 million passengers globally, it is now a massive market with 27 million passengers worldwide in 2018.

Nationally, the New Zealand cruise market has also shown significant growth. In 2010, there were 100,000 cruise passengers, but by 2018-19 this grew to 349,000 and for 2019-20 this was expected to grow to 370,000 passengers. This is a 13% annual growth. 12

⁵¹New Zealand Cruise Association, Cruise tourism's contribution to the New Zealand economy 2018, as sourced on https://newzealandcruiseassociation.com/wp-content/uploads/2018/12/N2CA-Economic-Impact-Report-2018.pdf



^{**}Conceived and developed by Air New Zealand, the Department of Conservation, Local Government New Zealand, New Zealand M\u00e4ori Tourism, Tourism Holdings Ltd, Tourism Industry Actearoa and Tourism New Zealand.

Most New Zealand's cruise visitors are from Australia (116,700; 42%), followed by North America (65,900; 24%), New Zealand (44,700; 16%), Europe (34,500; 13%) and other (13,400; 5%).¹³

Cruise ship spending has risen every year since 2015, but the annual increase in YE June 2019 has been the biggest in both dollar and percentage terms. Since 2015, spending by cruise visitors has increased by 84% (%169.1 million). In 2019, spending by cruise visitors in New Zealand increased by 25% {+\$73.5 million}, following a 20% increase in 2018.²⁴

Cruise ship expenditure (\$ 000), year ended June 2015-19
600,000
500,000
400,000
200,000
100,000
Total
Visitor
Vessel

Figure 13: Cruise ship expenditure (Year ended June 2015-19)

Source: Stats NZ (2019)

Auckland and Tauranga had the largest total spending by port. In the YE June 2019, spending in Auckland totalled \$192.5 million (up 32%), with Tauranga recording \$90.3 million (up 35%). Dunedin surpassed \$60 million (up 26%).¹⁵

#2015 #2016 #2017 #2018 #2019

In the June 2019 year, the New Zealand Cruise Association recorded 176 ship voyages and 981 port calls (including an increasing number of overnights), up from 148 and 707 respectively in the 2018 year. Nearly 322,000 cruise ship passengers visited New Zealand in the YE June 2019, up 24% (62,000) from 2018.¹⁶

*4Stats NZ, Cruise traveller and expenditure statistics: Year Ended June 2019, August 2019, as sourced on https://www.stats.govt.nz/information-releases/cruise-ship-traveller-and-expenditure-statistics-year-ended-june-2019
*Sibid





¹⁵jbid

Cruise ship passenger counts, year ended June 2015-19

350,000
250,000
200,000
150,000
0
Arrivals
Departures
Unique arrivals(1)
Unique departures(1)
passengers(2)

2015 ### 2016 ### 2018 ### 2019

Figure 14: Cruise ship passenger counts (Year ended June 2015-19)

Source: Stats NZ (2019). (1) Travellers are counted only once each June year based on unique passport numbers. Travellers identified in multiple quarters within a June year. (2) Travellers are counted only once each June year based on unique passport numbers. This equates to unique arrivals plus unique departures, minus duplicates (so travellers who appear in both arrivals and departures are counted only once). Travellers identified as both crew and passengers are counted as crew only.

4.6.1 Cruise market in Napier

The cruise market has been an important segment of the Napier tourism industry for several years now.

Table 6: Cruise market in Napler

Napier		Y	Change 2018/19			
	2016	2017	2018	2019	Number	Percent
Passengers	80,062	88,262	101,781	116,779	14,998	15
Crew	32,402	37,618	43,972	50,339	6,367	14

Source: Stats NZ (2019)

Cruise spending in Napier showed significant growth over the last few years.

Table 7: Cruise ship expenditure in Napier

	1	YE June					Annual change			
	2015	2016	2017	2018	2019	2015/16	2016/17	2017/18	2018/19	
Cruise ship expenditure	19,255	16,311	19,180	26,972	28,406	-15.3	17.6	40.6	5.3	

Source: Stats NZ \$m (2019)

According to Napier Port Chief Executive Todd Dawson, there is strong demand for the Hawke's Bay experience. Cruise lines have been booking more Napier calls every year, and they wish to book more



and larger cruise vessels.¹⁷ A constraint is that, whilst the Port of Napier has many attributes for the cruise sector, the capacity of the port to handle more than 92 vessels is at a maximum. The port is building an additional wharf (number 6) which will be open in late 2022.¹⁸

4.6.2 Future Bookings

Future bookings for cruise ship visits to Napier are looking strong, with 88 visits planned between October 2019 and April 2020 and 92 for 2020-21.

Napier caters for a different range of cruise ships, with a diverse range of passenger and crew numbers. While small cruise ships with only 72 passengers and 20 crew come to Napier, there are also visits by massive cruise ships with more than 4,900 passengers and 1,500 staff.

4.7 Tourism in Hawke's Bay

Hawke's Bay's Regional Economic Development Strategy and Action Plan 2016 – Matariki (https://www.hbreds.nz/) is the defacto Hawke's Bay tourism strategy. A specific Hawke's' Bay tourism strategy is currently being planned.

Within the Matariki (2016) strategy there are seven key planks including 'Enhance Visitor Satisfaction and Increase Spend'.

The aquarium is being discussed at the 13 November 2019 and 5 December 2019 Matariki meetings with a proposed addition being:

Support the redevelopment of the National Aquarium, including the development of marine research, conservation, education and indigenous tourism, to create high-skilled science and education-based employment (proposed new clause at 4.3.e)

Furthermore, the proposed visitor focused product offerings are the potential of Mahia Peninsula's Rocket Lab (started in May 2017) and the development of a unique world class aquarium. The Matariki Strategy's visitor work areas are:

- Enhance visitor satisfaction and increase spend by:
 - Improving collaboration between organisations tasked with tourism product development and infrastructure spend and establishing a coordinated approach to developing tourism products and a programme of initiatives in order to optimise visitor spend in Hawke's Bay.
 - Developing a Māori-centred tourism group to increase the experience, the spend and employment opportunities e.g. space launch tourism at Mahia Peninsula.
- · Enabled by:
 - Improved collaboration between the tourism industry and educational institutes to improve staff training.

Personal communications, Port of Napier Cruise Activities Manager, Bruce Lockie, and Dave Bamford, 4 October 2019



¹⁷Hawke's Bay today, Cruise ship season kicks off in style, 2018, as sourced on - https://www.nzherald.co.nz/Hawke's-bay-today/business/news/article.cfm?c.id=15034588objectid=12146224

- Support and resources to continued collaboration between organisations responsible for events.
- The undertaking of a feasibility study for a Napier to Gisborne cycleway.

Hawke's Bay is known for its wineries, beaches and Art Deco architecture. Its Art Deco history and tours are a very popular reason to visit all year round. The annual Napier Art Deco festival in February is also very popular. The festival has over 200 events, including entertainment experiences, outdoor concerts, vintage car parades, fashions shows, dining experiences, Great Gatsby picnics and much more. Food and wine are a huge drawcard for the region and wineries, restaurants, farmers markets and food and wine tours are popular attractions in the region. Visitors are also attracted to the region for cycling and for watching the world's largest mainland gannet colony.¹⁹

4.7.1 Hawke's Bay by the numbers

The following section will provide information on the tourism statistics of Hawke's Bay, such as tourism spend and guest nights.

4.7.2 Tourism Spend

In the YE July 2019, RTO Hawke's Bay saw an annual visitor spend of \$663 million. This was slightly less than the annual visitor spending in RTO Nelson (\$671 million) and slightly more than RTO Lake Wanaka (\$573 million).

The majority of this spend was in Napier City (\$351m), followed by Hastings District (\$259m), Central Hawke's Bay (\$35m) and Wairoa District (\$19m).

Most of the total of \$663m total visitor spend was on:

Retail sales & Food & beverage Retail - alcohol, Accommodation other services food & beverages Retail - fuel & Cultural, Other passengers Other tourism other automotive recreation, & products transport gambling services products

^{**} Hawke's Bay Tourism, Tourism Terms, as sourced on - https://Hawke'sbaytourism.nz/home-2/tourism-toolkit/tourism-terms/



Domestic tourism is the largest market for the Hawke's Bay, with 75% of all tourism spend (\$494m) by New Zealanders. This is followed by Australia (\$52m), the UK (\$28m), the USA (\$25m), the rest of Europe (\$18m), the rest of Asia (\$13m), Germany (\$11m) and China (\$6m).

Total spending for year to July

\$650m - \$650m - \$550m - \$350m - \$350m - \$250m - \$200m - \$150m - \$150m

Figure 15: Total tourism spend (Year ended July 2009-2019)

Source: MRTEs (2019)

4.7.3 Commercial Accommodation Nights

For the YE June 2019 compared to the previous year, guest nights in the Hawke's Bay region increased by 1.7% to 1,232,570. While international guest nights decreased by 4.1% to 311,489, domestic guest nights increased by 3.8% to 921,081. The overall length of stay rose slightly from 2.28 nights to 2.31 nights.

Table 8: Commercial accommodation nights Hawke's Bay region

	Annual				
	YE June 2018	YE June 2019	% change		
Total guest nights	1,212,423	1,232,570	1.7		
- international	324,743	311,489	-4.1		
- domestic	887,680	921,081	3.8		
Hotels	213,267	222,127	4.2		
Motels/apartments	552,395	551,682	-0.1		
Backpackers	145,355	142,727	-1.8		
Holiday parks	301,407	316,034	4.9		

Source: Commercial Accommodation Monitor (Stats NZ)



4.7.4 Non-Commercial Accommodation Nights

For the YE April 2019, guest nights in Airbnb & HomeAway accommodation increased by 92% to 254,293 nights. For this same period, the total number of guests increased by 40% to 29,768 guests. Available listings peaked in February 2019 with 1,185 places to rent.²⁰

4.7.5 Total Visitors to Napier

According to the New Zealand Visitor Activity Forecast Tool, Napier City could attract the following potential visitor numbers²¹:

Table 9: Potential visitor numbers to Napier city, 2018-2025

Total visitors	2018	2019	2020	2021	2022	2023	2024	2025
Domestic	674,900	683,100	691,000	698,900	706,800	714,600	721,900	729,200
International	250,100	257,700	267,000	277,200	287,900	298,800	310,000	321,900

Source: New Zealand Visitor Activity Forecast Tool

As can be seen, for domestic visitors the following activities are the most popular:

- · museums/galleries
- · dolphins & and or whale watch programmes
- hot pools
- · food and/or wine events

For international visitors, the following activities are the most popular:

- National Parks
- museums/galleries
- · native birds
- · day walks

This suggests domestic and international visitors have rather different motivations to visit Napier.

4.8 Aguarium Market (International)

The Association of Zoos and Aquaria (AZA) has 121 member organisations in the USA and 5 outside the USA:

- 28 with turnover between US\$200,000 and US\$1.9m.
- 30 with turnover between US \$2m and US\$7m.
- 45 with turnover from US\$7m to US\$25m.
- 13 with turnover over > US\$26m

The top two categories align with current revenue and future projected revenue of the current and proposed aquarium for high level comparative analysis purposes.

https://Hawke'sbaytourism.files.wordpress.com/2019/06/hbt-presentation-to-industry-25-june-2019.pdf

²³ Please note "Potential customers" is an estimate of the number of Domestic and International visitors aged 15+ years who stay overnight in the region and have a preference for the selected activity.



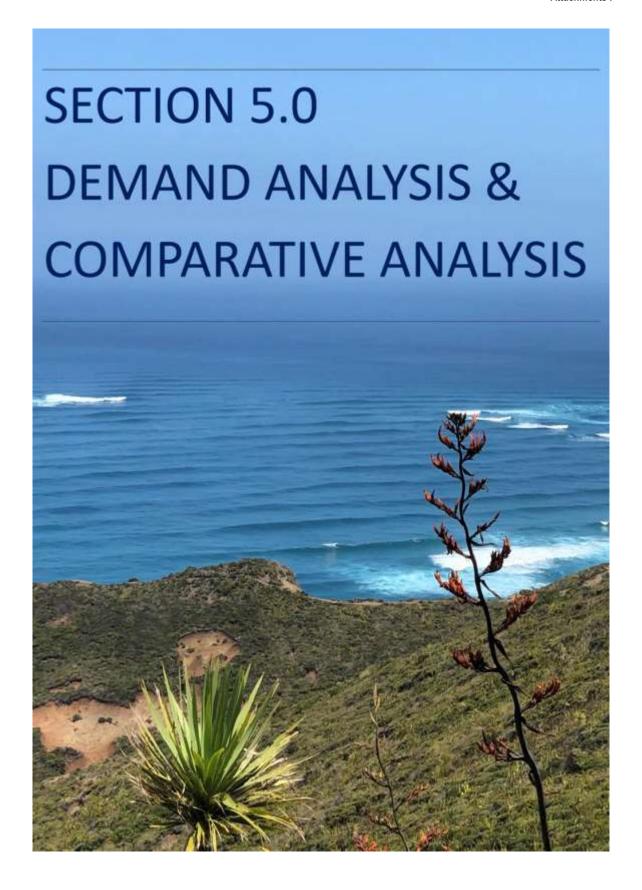
²⁶ Hawke's Bay Tourism, Hawke's Bay Tourism Update, June 25, 2019, as sourced on -

Key observations from the analysis was;

- From a governance perspective many entities are operated under an incorporated society / Trust / not-for-profit governance model.
 - Such governance models attract significantly higher rates of philanthropic support to that of privately owned or government owned and operated models.
- Those entities burdened with CapEx requirements associated with normal business return on investment models struggle financially.
- The focus of Zoos and Aquaria according to an October 2018 paper by the Detroit Zoological Society "It is now possible to view a future that embraces the well-being of individual captive exatic animals, as well as that of their species, and one in which professional zoos and aquariums are dedicated equally to advancing both.

There is currently only one other major aquarium in NZ, that of Kelly Tarlton's in Auckland and which will be explored in the NZ market section.





5.0 Market Demand Analysis

5.1 Tourism Stakeholders and Operators

A part of this demand analysis included interviews with several key tourism stakeholders and operators on markets, products and market trends. These included representatives from NZ Tourism, NZ Tourism Industry Association (NZTIA), major inbound tourist operators e.g. ID Destination, THL (Tourism Holdings Ltd), Nimons, Luxury Coaches, the Port of Napier and Hawke's Bay Tourism.

The main findings were:

- There is demand, both from domestic and international markets for quality regional attractions that have a strong cultural/iwi and conservation themes plus a 'wow' factor.
- Markets are receptive to paying for quality products with a charge of around \$50 a person for about an hour, at a great attraction.
- The markets will expect the new National Aquarium to refresh its exhibits every 5-6 years.
- There is strong potential growth in the international, New Zealand and Hawke's Bay cruise markets, with Napier being very popular with the inbound cruise operators.
- The Napier Port has constraints for cruise ships berthing at present (92 maximum a season).
 The Port will be at maximum capacity by 2020 2021 and be constrained until a new wharf (no 6) opens in 2022-2023.
- The revitalised National Aquarium of New Zealand should have a strong appeal for the cruise market. Currently, 6% of the Napier cruise passengers visit the Aquarium. This should increase under what is being proposed.
- The industry stakeholder's enthusiasm for the Shapeshifter concept became more positive as
 the development of this business case and the idea moved to being a clearly articulated
 concept with drawings and narrative.

5.2 Survey Results (Colmar Brunton)

Part of the DBC considerations was the level of understanding by New Zealanders of the nature, extent and status of the current aquarium. While it is called the National Aquarium of New Zealand, it was important as part of the DBC, to test local and national understanding of the nature and importance of a truly national entity and the appetite for what was being proposed. Colmar Brunton was commissioned to undertake an independent survey to test national awareness and appetite for a National Ocean Centre and Aquarium.

Key objectives of the research were to understand:

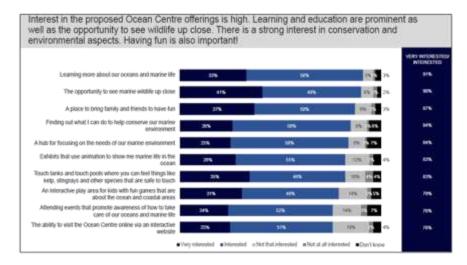
- New Zealanders' current attitudes towards the marine environment, and participation in activities which happen in a marine environment.
- Attitudes towards and interest in the National Ocean Centre and Aquarium concept, including specific features, exhibits and pricing.
- Awareness, past visitation and expected visitation of the National Ocean Centre and Aguarium and other iconic NZ attractions.



Key findings are:

- Support for the National Ocean Centre is strong and broad based. This is not only a
 reflection of people's excitement about the draft concept, but the strong relationship New
 Zealanders have with the marine environment, both attitudinally and in terms of the
 activities they engage in near, on or in the ocean. Our proximity to the ocean and care for
 the environment is a fundamental driver of this.
- For many, this love and care for the ocean is not at all costs. It needs to be balanced against
 the health of the economy and growth. It is important for the project, assuming it gets the
 green light to proceed, to demonstrate value for money in terms of project costs to
 encourage political support.
- The cultural story around Māori and Pacific Rim peoples has the potential to be a strong differentiating factor for the centre, especially in its intended education and conservation programming.
- Intended visitation in the next five years is significantly higher for the proposed National Ocean Centre and Aquarium (20%) compared to the current National Aquarium (4%).

The following slide from the report highlights community perspectives.



5.3 Potential Market Interest

To establish possible potential visitor numbers and the level of interest in the proposed new facility the process adopted the following methodology;

Identify the potential visitor pools:

International – Free and Independent travellers (FIT's)²²

22 New Zealand Visitor Activity Forecast Tool



- International Cruise visitors²³
- National Overnight stay visitors ²⁴
- Regional Visitors within 2 hours drive²⁵
- Local Visitors Napier and Hastings ³⁶

Confirm the possible level of sector-based "interest" and "support" (note actual numbers difficult to quantify)

- · Education sector
- Research sector
- Conservation sector

Understand wider revenue "opportunities" from the proposed new facility

- · Confirm conference/meeting/event potentials
- · Improved animal encounters and new tank experiences

5.3.1 Population and Visitor-based pools



²⁵ Stats NZ: Cruise ship traveller and expenditure statistics; Year ended June 2019

²⁶Stats NZ Census



²⁴ New Zealand Visitor Activity Forecast Tool

²⁵ Stats NZ Census

5.3.2 Sector Based Interest

5.3.2.1 Education





Figure 16:Participants at the Project Shapeshifter Education hui

The quotes below from the Education Sector Engagement describe the potential value of the proposed National Ocean Centre and Aquarium:

"We protect what we love, and we protect what we value."

"Imagine the learning if my primary school could spend eight years being based from the new aquarium."

"I went to the aquarium for the first time on my 35th birthday as my whanau couldn't afford for me to go when I was a child,"

The process for gathering evidence for the education and learning included:

- Research into global best practice in delivering innovative and future focussed education programmes in modern aquaria.
- Holding a huì attended by 35 national participants drawn from formal and informal education.
- Discussions with key organisations including the Ministry of Education, Te Papa, Enviro Schools, and the International Antarctic Centre.
- Discussions with an international leadership group of aquaria and museums about best practices and their education programmes.



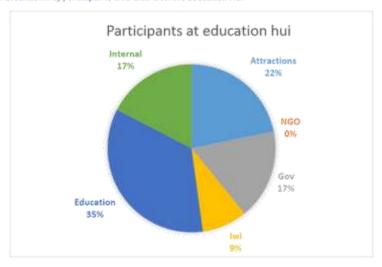


Figure 17: Breakdown of participants who attended the Education Hui

Education stakeholder feedback was that creating a new National Ocean Centre and Aquarium:

- would enable Ocean literacy as a foundational kaupapa understanding our individual and collective impacts on the ocean
- could showcase our unique offering of the marriage of mătauranga Măori and western science.
- is important and necessary for ongoing development of New Zealand's internationally regarded education system. Institutions like aquaria and museums (e.g. Te Papa) have an increasingly important role to play in facilitating student led critical enquiry learning. New Zealand is missing an important piece (aquatic ecosystems) of this learning ecosystem by not having a modern national aquarium.
- would provide high quality learning experiences enabling behaviour change in the way people interact with marine environments.
- could offer innovative curriculum aligned education programmes which give effect to the learning strands of the national curricula – Te Whariki, the New Zealand Curriculum, Te Marautanga o Aotearoa, and NCEA.
- could provide the opportunity to deliver formal and informal learning and education delivery that would be a world leading combination of matauranga Māori and western science.
- would require its design and spaces to all be available for learning and education experiences, albeit specialist teaching & research space would still be needed.
- would require an ability to deliver its education programmes into schools and tertiary
 education providers nationally via virtual classroom platforms and other online programmes



- should stand at same level nationally as Te Papa does e.g. under an Act of Parliament.
- can be a 'mothership' or national hub for Ki Uta ki te Tai (Mountains to Sea) learning and education nationally
- should sit alongside the Galleries, Libraries, Archives, Museums, Zoos and Aquaria (GLAMZA)
 as other learning spaces alongside schools i.e. an ecosystem of learning including all these
 spaces equally. GLAMZA could lead in developing this thinking.
- should be accessible for low income communities and schools so these tamariki can also engage in new learning and education.
- Could play a useful role in vocational education and training around marine and maritime related employment including conservation & sustainability education for, & supported by, the fishing industry.
- should showcase pathways to careers and skills development supported through volunteering, training and internships.
- should showcase partnerships and collaboration nationally to build the new aquarium's
 engagement in existing education & learning systems, as well as how it drives innovation in
 learning and with partnerships with tertiary and research institutions that will support
 participation in and contribution to research into critical marine issues challenging New
 Zealand
- must be honest exhibits (species specific or habitat/ecosystems) must truly represent
 actual environmental needs of animals in addition to being underpinned by strong, clear
 conservation action taken by Aquarium staff onsite, the organisation as a whole, our
 community (with Aquarium support) and its partners.
- must enable fluidity between the 'inside' and 'outside'. Key criteria of any learning activity is that the Aquarium must connect to the outside world.
- should include youth views on the kaupapa. Some feedback suggesting already that seeing
 creatures caged or in tanks is not welcomed. The new design will be vital in this regard to
 engage young people.
- education should be designed recognising that students understand their agency in their learning already, adults need to help them ask the questions & then get out of the way.
- have the WOW factor to not only bring in numbers but initiate behavioural change and amaze, inspire and compel.



5.3.2.2 Research

The research engagement process held a series of targeted group and institutional meetings both in person in Wellington, Napier and Dunedin (New Zealand Marine Sciences Society Conference) and nationally, virtually. Specific meetings were also held with Māori marine researcher group and Hawke's Bay Māori conservation and technology facilitators, as well as representatives from 27 organisations across Crown Research Institutes and agencies, NGOs, industry organisations and national networks such as the Science Communication Association of New Zealand.

Whilst research is largely conducted under contestable funding in New Zealand, the most commonly agreed science and research roles that the new National Ocean Centre and Aquarium could play are highlighted in the following diagram

Figure 18: Potential role of the new National Ocean Centre & Aquarium



5.3.2.3 Conservation

To determine the interest of the New Zealand conservation sector, outreach and engagement occurred with conservation leaders individually, by organisation and collectively in hui. A major hui was the "Te Taiao, Conservation Workshop" held at Te Papa where more than 18 different organisations and key individuals contributed from Victoria University of Wellington, WWF New Zealand, the Zoo and Aquaria Association, the Department of Conservation, Wellington Zoo Trust, Hawke's Bay Conservation Board, Science Communicators Association of New Zealand, Land Information NZ, and independent advocates from community organisations such as Guardians of the Kapiti Marine Reserve, as represented in the next figure.



Participants at conservation hui

Internal 17%

Academic 22%

NGO 28%

Figure 19:Breakdown of participants who attended the Conservation Hui

N.B. the 'Internal category includes Project Shapeshifter personnel from Napier City Council and the Terra Moana New Zealand consultancy team.

All participants in-principle supported the National Ocean Centre and Aquarium development concepts presented.

Figure 20: Participants at the Conservation Hui and their bright ideas





Key outcomes are below and aligned with overall sectoral feedback received throughout the process about what the facility should do:

- Unanimous support from a diverse range of people for the intention to build a world class aquarium and aquatic conservation space.
- Conservation education is critical to inspire, awe and enable



- That Aotearoa/New Zealand can uniquely marry matauranga Maori and western science.
- This process to engage communities of interest is a globally unique approach to designing such a facility.
- The imperative for a dedicated synthesis facility in Aotearoa/New Zealand to resolve today's complex social-environmental-economic challenges.
- Strong agreement on the need for a permanent natural resource management, collaboration hub between smaller, dispersed aquatic and marine conservation, citizen science projects, matauranga Maori, and formal science and research.
- . It's about love. Quote of the day: "People will care for what they love" Ben Knight.
- It's about people. He tangata, he tangata, he tangata. To realise the vision it's all about relationships and the provision of a safe and inclusive place to engage.
- It's about place. Whether we focus on m\u00e4tauranga, science, ecologies it is all place-based.
 Project Shapeshifter's challenge is to serve many places from one place.

Furthermore, a regionally focussed hui was held in Napier with the Hawke's Bay Regional Council catchment management and marine science teams, with local Māori environmental and community engagement, and with other conservation and environmental education facilitators.

Written endorsements have been received from WWFNZ, East Coast Labs, the Mountains to Sea Conservation Trust, Curious Minds (the Office of the Prime Minister's Chief Science Adviser), and the Hawke's Bay Biodiversity Trust has requested that it be able to rent space in the new collaboration space. Unequivocally there is support from the conservation sector for a National Ocean Centre and Aquarium. The key consistent questions raised were in relation to the site and issues of sea level rise and that the building be sustainably designed and built.

According to Nature Space, there are at least 120 coastal and marine conservation formal charities/NGOs in New Zealand. This does not systematically include Iwi, Hapū, or Whanau kaitiakitanga activities related to the coastal and marine environment. Across a subset of 22/120 organisations there, there are at least 420,000 Facebook followers, acknowledging that some people may follow more than one. That also does not include the recreational fishing community. The Experiencing Marine Reserves Program participation figures below from the Mountains to Sea Conservation Trust demonstrate the scale of community interest.



Table 10: Mountains to Sea Trust Experiencing Marine Reserves Program Valunteer Statistics

Year	Season	Region	Total participant#	Presentations	Action Projects	Volunteer hours	Media
2019	2018/2019	All Regions	37,369	339	306	12,112	24
2002- 2019	Grand Totals	All Regions	162,175	803	881	21,465	72

Furthermore, up to Sept 2018 87,000 people had participated in the associated Whitebait Connection program with an estimate of 15,000 of them having participated in the last year.

5.3.3 Philanthropic Feedback (Revenue Growth Strategy)

It is intended within the revenue generation strategy (RGS) that a fundraising campaign will also position the aquarium for ongoing philanthropic funding through sponsorship, membership, ongoing grant applications and philanthropy.

Response of interviewees (High Net Worth Individuals, Corporates, Trusts and Foundations, Iwi) were:

- · Showcase species and exhibits 83% positive, strongly positive
- · Boost tourism 87% positive, strongly positive
- · Mäori knowledge, history, conservation practices 81% positive, strongly positive
- Conservation Education 91% positive, strongly positive
- · Conservation Research 78% positive, strongly positive
- · Change behaviour re environment 91% positive, strongly positive

5.3.4 Conferences/Meetings/ Encounters

The sectoral engagement, notably of the conservation and research community showed very clear support for a permanent collaboration space for practitioners across aquatic conservation, marine and freshwater. There is very clear expression of the need for shared office "space" of community organisations (e.g. Hawke's Bay Biodiversity Trust) alongside researchers and mătauranga Măori practitioners in an active synthesis centre.

This could also provide further meeting/conference facilities for hire and for events and functions.

If an 'in-residence' programme is created, the Iwi Taketake (indigenous) visiting peoples would also need space.



5.4 Comparative Analysis

In this part of the analysis we looked at a range of attractions across the New Zealand landscape including Te Papa Tongarewa National Museum (Wellington), Waitangi Treaty Grounds (Bay of Islands), Te Puia Māori Cultural and Geothermal (Rotorua), the National Army Museum, (Waiouru), Kelly Tarlton's Aquarium (Auckland), Pukaha National Wildlife Centre (Wairarapa), Whale Watch Kaikoura & the Antarctic Centre (Christchurch).



Hobbiton was deliberately excluded on the basis that the Lord of the Rings trilogy had delivered a marketing tool few others could match (Tourism NZ estimates 19% of all visitors cite Lord of the Rings as the reason behind their visit).

The comparative analysis highlighted the relationship between population pools, key visitor numbers per entity and their geographical positioning to key tourist routes. Te Papa came out on top with 1,520,000 people and Te Puia at 550,000 people. Te Puia's figures are impressive when comparing the \$56 adult entry fee versus free entry to Te Papa. Te Puia is however on the organised tour group golden triangle {Hobbiton, Te Puia & Waitomo Caves} route and approximately 90% of visitors to Te Puia fit this category.



Table 11: Comparative Analysis of Key NZ National Attractions

Attraction	International Antarctic Centre	Kelly Tariton's Aquarium	National Aquarium	National Army Museum	Pukaha National Wildlife Centre	Te Papa Tongarewa National Museum	Te Puia Māori Culture & Geothermal	Waitangi Treaty Grounds	Whale Watch Kaikõura	Zealandia Ecosanctuary
Location	Christchurch	Auckland	Napier	Walouru	Wairarapa	Wellington	Rotorua	Bay of Islands	Kaikoura	Wellington
Visitor #'s to Attractions (Actual) 2017-18	140,000	450,000	144,846	49,000	40,000	1,520,000	550,000	Not willing	100,000	132,337
International	71%	30%	20%	80%	70%	50%	90%	Not willing	N/A	40%
Domestic rest of NZ	19%	20%	42%	20%	25%	36%	7%	Not willing	N/A	42%
Local (<1hr)	10%	50%	28%		5%	14%	3%	Not willing	N/A	18%
Status	Private	Private	Charitable Trust	Charitable Trust	Charitable Trust	Act of Parliament	Charitable Trust	Charitable Trust	Charitable Trust	Charitable Trust
Visitor #'s & Spend to A	ttractions (Pote	ntial)								
Local & Regional Population Pool (within 2 hours)	632,220	1,881,243	343,506	230,043	609,351	547,701	779,577	181,044	494,646	547,701
International visitor forecast 2019	1,275,000	2,211,300	286,900	241,100	850,700	850,700	1,093,300	386,600	1,275,000	850,700
Domestic NZ visitor forecast 2019	3,211,800	4,395,800	1,225,700	1,917,000	2,912,600	2,912,600	3,219,300	1,888,400	3,211,800	2,912,600
Cruise Visitors 2019	64,120	238,975	116,779	N/A	N/A	222,448	227,358	122,989	1,734	222,448
Cruise Visitor Spend 2019	\$53,687,000	\$192,505,000	\$28,406,000	N/A	N/A	\$59,202,000	\$90,261,000	\$20,970,000	N/A	\$59,202,000
Overnight Spend International 2019 PP	\$1,230	\$2,022	\$669	\$751	\$975	\$975	\$377	\$710	\$1,230	\$975
Overnight Spend Domestic 2019 PP	\$772	\$912	\$416	\$446	\$619	\$619	\$321	\$460	\$772	\$619
Highly Iconic for NZ	Α	A	A	В	В	A	A	А	A	В
On the main tourism axis	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes

Data has been sourced from Statistics New Zealand (Census & Cruise ship expenditure), New Zealand Visitor Activity Tool & Tourism New Zealand

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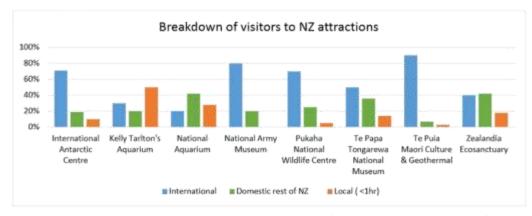
Cruise and international visitor forecast figures are robust however apportioning of potential "local" versus "domestic" New Zealand visitors was somewhat more subjective within the exercise as no clear data existed on the exact splits. We also applied a level of "reach" each facility might have across the regional and wider national landscape.

Figure 21: Number of visitors for key NZ attractions



Te Papa the highest visitors' numbers however there is no entry fee.

Figure 22: International, domestic and local visitors to key NZ attractions



Clearly the % of capture of potential market segments is important to revenue. Te Puia's international visitors make up 90% of all visitors whereas with the National Aquarium of New Zealand in Napier it is estimated that international visitors only account for 20% (including cruise ship) of overall visitor numbers.

This has implications for revenue estimates, ticket pricing and discounting considerations. Many of the organisations we analysed also apply special discount options for "locals" (sometimes free).

Whatever is finally developed will need to be of significant scale to attract visitors, year-round, from the standard tourist paths to visit Napier and Hawke's Bay.

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6.0 Forecasts - Visitors and Pricing

6.1 Potential Visitor Numbers

6.1.1 Analysis of Visitor Pools (Methodology)

Potential numbers and models were developed for the following key areas:

Identify key potential visitor pools:

- International Free an independent travellers (FIT's)²⁷
- International Cruise visitors²⁸
- National Overnight stay visitors ²⁹
- Regional visitors within 2 hours drive³⁰
- Local visitor Napier and Hastings

Identify relative pool growth projections:

- Population growth a conservative 2.1% national growth figure rather than the regional growth estimates of 5-10% ex Statistics NZ was applied.
- International FIT numbers a conservative 3% growth rate rather than the NZTE/Tourism NZ projections of 4-5% was applied.
- Cruise Ship Visitors a conservative 5% growth rate rather than the Cruise NZ prediction of 10% was used.

Establish baseline capture rates within pools and potential changes to capture rates going forward:

- Initially the capture rate for each pool was established. This proved rather difficult in areas
 other than the cruise ship visitor numbers which could be more easily separated from the
 total visitor numbers.
- Then a level of projected capture increase over time was applied across each pool.

Assess the impact of NANZ Improvements:

- · Introduce impact assessment on visitor numbers for initial opening interest increases,
- 5-yearly significant exhibit changes, and,
- 10-year major exhibit changes, consistent with international best practice.

³⁰ Stats NZ Census



²⁷ New Zealand Visitor Activity Forecast Tool

²⁸ Stats NZ: Cruise ship traveller and expenditure statistics: Year ended June 2019

²⁸ New Zealand Visitor Activity Forecast Tool

Key components of the modelling are below.

Table 12: Visitor forecasts, categories, trends and capture rates.

Potential visitor pools		Trend growth	2019	2021	2019 visitors	Capture	2021 Visitors	Capture		Overnight
		%pa	PVP No.	PVP No.	No.	96	No.	56		56
International FIT's		3.0%	286,900	304,372	17,440	6.1%	18,502	12.2%		40.0%
Hawke's Bay NA HB	-	2.1%	147,850	154,125	25,740	17.4%	26,832	17.7%		0.0%
Domestic < 2 hours	(1)	2.1%	156,080	162,704	22,644	14.5%	23,605	15.6%		0.0%
Domestic overnight		2.1%	1,225,700	1,277,720	60,155	4.9%	62,708	41.4%		100.0%
School		2.1%	30,699	32,002	6,978	22.7%	7,274	4.8%		0.0%
Cruise		5.0%	116,779	128,749	11,529	9.9%	12,711	8.4%		0.0%
Total			1,964,008	2,059,672	144,486		151,632	100.0%		
Post opening Δ capture & Δ growth rates		∆ capture	Year 1	Year 2	Year 3	Year 4	Year 5	Σ > trend g	Revamp	Revamp +1
		%pa	%pa	%pa	%pa	56pa	%pa	56	%pa	%pa
International FIT's	> trend g	2.0%	2.0%	4.5%	6.0%	7.0%	3.5%	25.1%	2.7%	1.8%
Hawke's Bay NA HB	> trend g	12.0%	23.9%	17.9%	7.9%	4.9%	3.9%	71.8%	10.7%	7.2%
Domestic < 2 hours	> trend g	5.0%	13.9%	13.9%	4.9%	3.9%	2.9%	45.5%	8.3%	5.6%
Domestic overnight	> trend g	1.0%	13.9%	13.9%	4.9%	3.9%	2.9%	45.5%	8.3%	5.6%
School	> trend g	12.5%	2.9%	2.9%	2.9%	2.9%	2.9%	15.4%	1.7%	1.2%
Cruise	> trend g	5.0%	15.0%	4.0%	2.0%	1.0%	0.0%	23.2%	2.4%	1.6%
		1	-			7	1			

Table 12 highlights the respective total pool numbers of visitors 2019 (1.964m) – 2021 (scheduled start date 2.059m), the current visitor numbers (144,000) to the aquarium the current capture rates (7.3% average), and the projected growth trend rate including projected % capture uplifts at the 5 and 10 year revamp periods. These additional visitors include higher capture rates for some populations and a demand "burst" followed by "decay" to the underlying trend after 5 years of opening and 2 years of a refreshed exhibit. These formed the basis of the following extrapolated annual modelling. We have projected visitor numbers based on trend growth in the underlying domestic population pools and overseas visitors (FIT and cruise).

The resulting visitor forecast (shown in orange) is our best estimate of the expected visitors to the new facility.



Table 13: Visitor Forecast Components

To formulate a valid range of expected visitors the following has been completed in Table 14 below. A trend (black dotted line) has been fitted to the visitor forecast using regression analysis and the standard deviation of variance about the trend has been calculated. The upper ("rosey") and lower ("bleak") scenarios are formulated being +/- three standard deviations from the trend. Statistically there is a 99.7 percent probability that the visitor numbers will lie within the rosey-bleak range year by year.

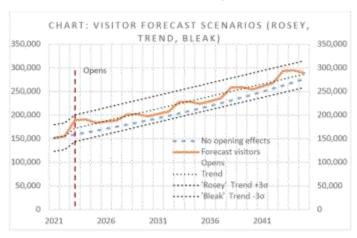


Table 14: Visitor Forecast Projections

The 68–95–99.7 rule describes the probability that the outcomes will lie within 1, 2 or 3 standard deviations of the mean of an approximately normal distribution.

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6.2 Ticket and Entry Pricing

When looking at potential entry pricing options it is important to consider the experiences that one might gain from visiting each of the entities outlined in the comparative table below. Each attraction was considered against the following criteria a) Adventure Tourism, b) Culture and Heritage, c) Nature and the Environment, d) New Zealand Uniqueness, and e) Wellness.

Table 15: Comparative Analysis of Key NZ National Attractions Entry Fees against Experience Category

Attraction	International Antarctic Centre	Kelly Tariton's Aquarium	National Aquarium	National Army Museum	Pukaha National Wildlife Centre	Te Papa Tongarewa National Museum	Te Puia Māori Culture & Geothermal	Waitangi Treaty Grounds	Whale Watch Kaikõura	Zealandia Ecosanctuary
Location	Christchurch	Auckland	Napier	Waiouru	Wairarapa	Wellington	Rotorua	Bay of Islands	Kaikoura	Wellington
Entry fees										
Adults	\$59.00	\$39.00	\$23.00	\$15.00	\$20.00	Free	\$56.00	\$50.00	\$135.00	\$21.00
Children	\$29.00	\$22.00	\$11.50	\$5.00	\$6.00	Free	\$28.00	Free (up to 18 yrs)	\$60.00	\$10.00
Family Pass (4)	\$149.00	\$105.00	\$62.00	\$35.00	\$50.00	Free	\$151.00	\$100.00		\$110.00
Category										
Adventure Tourism									Y	
Culture & Heritage	Y		У	Y		Y	Υ	Υ		
Nature and the environment	Y	Y	у		Υ	Y	Y		Υ	Y
New Zealand Uniqueness	Y		У	Y	Υ	Y	Y	Υ	Y	Y
Wellness							Y			

While relatively subjective, the assessment does highlight the link between price and the experience components on offer. Focusing on adult pricing as the catalyst for all other price options the Kelly Tarlton's ticket price of \$39 would seem positioned well against the matrix of pricing options vs experiences outlined in Table 15 (Te Papa \$0.00 (free) & Kaikoura Whale Watch \$135.00). It should be noted that Kelly Tarlton's (\$39), Te Puia (\$56) and Kaikoura Whale Watch (\$135.00) are all standalone commercial operations under various ownership models.

Nonetheless, what is being proposed in respect of a revitalised aquarium is significantly different to what Kelly Tarlton's currently offers justifying a competitive pricing point. In addition, there are important factors to be considered with ticket pricing around affordability locally and target levels that would entice and attract visitors from outside the region to visit the Hawke's Bay, Napier and the new National Aquarium.

As outlined in the Visitor Solutions report Hawke's Bay Regional income rates are slightly down on the remainder of the North Island and New Zealand wide averages.

Table 16: Median income in NZ by area

Median income measures by area	Median personal Income	Median Household Income	Median Family Income
Hastings District	\$26,500	\$55,900	\$64,600
Napier City	\$26,000	\$51,900	\$62,700
Hawke's Bay Region	\$26,100	\$53,200	\$62,800
Other North Island	\$27,300	\$58,850	\$67,700
New Zealand	\$28,500	\$63,800	\$72,700

Source Statistics New Zealand

Based on what is being proposed i.e. the nature of the overall attraction, scale and build costs it would not seem unrealistic to price the "Adult" entry level fee at, or just under, the \$39 per person charged by Kelly Tarlton's (see table below).

6.2.1 Local Discount Rate

Interestingly other attraction personnel spoken to as part of this analysis provided information on discounted options for locals and this report suggests the same approach be considered here. For instance, Pukaha National Wildlife Centre recently provided a 50% discount for locals and the visitor numbers for that category soared accordingly. However, this is not being suggested here.

In keeping with the trend of many of the other visitor attractions considered within the comparative analysis, this report recommends creating a 25% discount for Napier & Hastings residents. This has been included in the pricing models supporting the financial modelling and economic impact assessment.

Figure 23: NANZ Proposed Admission Pricing Comparison & Discount Factors

Adult admission price		GST Inc.	
Current	\$	\$23.00	\$20.00
Post opening	\$	\$39.00	\$33.91
Napier Hastings resident discount	%	25.0%	\$25.43
Events, conferences & other	% ad revenue	12.5%	

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Any discount is critical in understanding the impacts to ticket sales and therefore revenue. Table 17 identifies visitor category percentage of the total 100% visitors, and which is then translated into the percentage of actual ticket sales and a final percentage (%) relativity to the adult ticket price. (e.g. Domestic & FIT Students make up 6.05% of total numbers 6% of ticket sales and pay 91% of an adult price).

Table 17: Ticket Type Breakdown

	Category	Tickets	Tickets	
	% 2 visitors	% 2 visitors	% adult S	
Domestic & FIT	Ī			
Adult	42.50%	31.8%	100%	
Child	19.70%	14.8%	50%	
Infant	5.50%	5.6%	0%	
Student	3.18%	3.2%	91%	
Seniors	6.05%	6.0%	72%	
Family	0.00%	3.9%	270%	
	76.93%	65.28%		
Friends of the Aquarium				
Adult	4.70%	3.1%	283%	
Child	4.29%			
Infant	0.78%			
Family 1	0.00%	0.8%	413%	
Family 2	0.00%	0.8%	652%	
	9.77%	4.70%		
Schools				
Adult	1.88%	1.88%	43%	
Pre & primary	4.16%	4.16%	20%	
Secondary	1.14%	1.14%	28%	
SEND child	0.10%	0.10%	17%	
	7.28%	7.28%		
Cruise Visitors				
Adult	3.63%	3.63%	100%	
Child	0.38%	0.38%	50%	
Infant	0.02%	0.02%	096	
Student	0.10%	0.10%	91%	
Seniors	1.89%	1.89%	72%	
Family				
	6.02%	6.02%		
Total		100.00%	83.28%	

6.2.2 Recommendation

Following the above analyses, we recommend that the Adult Ticket Price be NZ \$39.00. The modelling of this in relation to aquarium income and overarching financial models is discussed further in the Detailed Business Case and the detailed spreadsheets will be available as appendices to the DBC.

END



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Antoinette Campbell Director Community Services Napier City Council

28 August 2019

Project Shapeshifter - National Aquarium

Dear Antoinette

1. Introduction

1.1 Further to our initial discussions and the aquarium governance workshop, this letter sets out our recommendations to Napier City Council (NCC) on the governance structure for the proposed expansion of the National Aquarium (the Aquarium). We have also outlined the legal steps required to implement the recommended structure and the tax implications arising from the structure.

Background

- 1.2 We understand that:
 - (a) NCC owns and currently operates the Aquarium on Marine Parade, Napier.
 - (b) NCC is in the process of developing a business case for the expansion of the Aquarium, and is consulting with relevant parties.
 - (c) The purpose of the new Aquarium will be to create an unforgettable world-class aquarium and indigenous visitor centre experience of Aotearoa New Zealand.
 - (d) It will be necessary to raise significant funds to finance the expansion and development of the new Aquarium.
 - (e) The intention is to establish an initial structure to allow for the funding of the redevelopment of the Aquarium and then:
 - (i) use that structure to develop the Aquarium; or



- donate those funds to a new structure to undertake the development and operation of the Aquarium.
- (f) NCC is seeking initial funding via a number of sources including, the Provincial Growth Fund, high net worth individuals, corporate sponsors, and central Government.
- (g) NCC will retain ownership of the land on which the Aquarium will be developed and will retain ownership of the building itself, including any extension of the existing building. The Aquarium would then be leased to the recommended operating entity.

2. Summary

- 2.1 In summary, we consider that:
 - (a) the establishment of a charity to raise funds for the Aquarium expansion:
 - is likely to attract more / larger donations as donors should be entitled to a tax deduction for their donations; and
 - (ii) could be more palatable to ratepayers, as they will see a separate entity raising the funds rather than NCC;
 - (b) the simplest structure would be for separate charitable trusts to be established to:
 - (i) seek funding for the development of the Aquarium (the Funding Trust); and
 - (ii) develop and operate the Aquarium (the Operating Trust),

the benefits of having separate charitable trusts are set out in Schedule 1;

- (c) NCC would need to put in place appropriate commercial arrangements to:
 - (i) lease the Aquarium structure to the Operating Trust; and
 - (ii) allow for the ongoing provision of ongoing services to the Operating Trust.
- (d) While NCC has noted the development of the Aquarium in its Long Term Plan 2018 2028 (Long Term Plan), as the Aquarium will be leased to a new charitable trust, NCC will need to either:
 - amend its Long Term Plan in accordance with the Local Government Act 2002 (LGA) before that lease is implemented; or



 defer the progressing of some aspects of the proposal until NCC puts in place its next long-term plan.

This is discussed in more detail in Schedule 3.

2.2 We have also set out the tax considerations in relation to the above, please see Schedule 2.

3. Next Steps

- 3.1 In accordance with this paper:
 - (a) this paper should be circulated and discussed with relevant decision makers at NCC;
 - (b) on the basis that our recommendation is approved, NCC should undertake the steps required to establish the Funding Trust – these would include:
 - retaining appropriate legal counsel to assist with drafting of the relevant trust deed, (we are uniquely positioned to provide tax and legal input and would of course be happy to assist);
 - determine who should be trustees for the Funding Trust (we consider that the trustees should have experience and relevant relationships to assist with the funding process); and
 - (c) once the Funding Trust has been established and fund raising is underway, NCC should turn its attention to the establishment of Operating Trust.

Once you have had a chance to consider, let us know and we suggest a call to discuss.

Yours sincerely

Phil Fisher phil.j.fisher@pwc.com Keegan Toft keegan.x.toft@pwc.com



Schedule 1 - Legal considerations

Legal considerations

1.1 We have set out below some of the legal consideration / steps needed to establish the relevant charitable trusts.

Benefits of separate charitable trusts

- 2.1 We recommend that two separate charitable trusts be established:
 - the Funding Trust, which would be used exclusively in relation to funding the expansion (together with any other ongoing funding needs);
 - (b) the Operating Trust, which would be used in relation to the development / operation of the Aquarium.
- 2.2 The benefits of the Funding Trust as a separate charitable trust are:
 - (a) use of a charity to raise funds, will likely be useful when seeking to attract donations to the cause. Care will need to be taken to ensure the trust is eligible to be registered as a charity:
 - (b) the objectives and charitable purpose of the trust will be clear;
 - (c) establishing the Funding Trust could be done in a relatively quick manner;
 - (d) the Funding Trust could start to raise funds without NCC / stakeholders having to finalise the structure / governance of the Operations Trust;
 - (e) the Funding Trust could comprise trustees who have specialist skills, experience and/or standing in relation to raising funds. These trustees would not have to be removed and replaced as the Aquarium is developed and operated; and
 - (f) the Funding Trust could be used to raise additional funds to assist with the operation of the Aquarium or for further development.



3. Establishment of charitable trust

- 3.1 The first step required to implement the structure is to draft the trust deed, for both the Funding Trust and the Operating Trust. This will require confirmation of:
 - (a) the number of proposed trustees and who the proposed trustees will be:
 - for the Funding Trust, we would expect the trustees to have experience and relevant relationships to assist with the funding process; and
 - (ii) for the Operations Trust, we would expect that the trustees would comprise persons familiar with the operation / marketing of an aquarium, as well as local iwi representatives, environmental experts and those with experience in establishing a visitor centre.

We would envisage that a separate advisory board could be appointed from time to time to provide specialist advice in relation to the development / further development of the Aquarium. This advisory board would be appointed by, and be responsible to, the trustees. Other advisory boards could be appointed to provide specialist advice as and when required;

- (b) the objects of the trust as recommended, we consider that it would be preferable to have separate objectives relating to fund raising and development / operation of the Aquarium. These objects/purposes would need to be charitable (discussed below);
- (c) the powers of the trustees these are normally standard in nature, so please let us know if you have any special limitations / duties that should be imposed on the trustees.

Charitable trust board

- 3.2 As the trustees of charitable trusts are personally liable for the trust's debts and obligations, we would recommend the trustees of each charitable trust incorporate a charitable trust board.
- 3.3 The benefits of a charitable trust board are:
 - (a) the board will hold the trust property in its name and the trustees (now members of the board) will decide how the board should administer it to benefit the charitable purpose.
 - (b) the board, not the trustees, will enter into all obligations, and the board, not the trustees, will be sued if some default occurs.



3.4 To incorporate as a charitable trust board, NCC (as the establishing entity) must complete an application to be submitted to the Companies Office. We can assist with this process if you would like.

4. Registration

- 4.1 Each charitable trust will need to be registered with the Charities Services.
- 4.2 Applications can be completed on-line, and require providing certain information about the applicant charity, including the source of its funds, a reasonable estimate of the percentage of funds sourced and applied in New Zealand, a copy of its rules, and details of its charitable purpose and activities. The process will typically involve one round with the Charities Services requesting further information in relation to the charity and its activities.
- 4.3 Registration can take up to 3 to 4 months, depending on Charities Services' workload, and the extent of Charities Services' requests for any further information in relation to the charity. We can assist with the registration process if you would like.

5. Development / operation of the Aquarium

- 5.1 Once the fund raising is underway, NCC should turn its attention to the Operations Trust. This will not only include the establishment of the trust (taking into account the above), but NCC will also need to ensure that it has appropriate contracts in place to allow for:
 - the lease of the land / building (see our comments in Schedule 3 regarding the need to amend NCC's long term plan);
 - (b) the development of the Aquarium; and
 - (c) any services to be provided from NCC to the Aquarium, these could include administrative services such as accounting etc.

6. Charitable status

- 6.1 In order to be a charity each of the relevant trusts will need to have a charitable purpose i.e. one that advances education or religion, relieves poverty, or is another purpose beneficial to the community. We assume that:
 - an entity established to raise funds for the Aquarium would likely have educational purposes as well as broader public benefit purposes; and

A While NCC will be responsible for establishing the relevant charitable trusts, these trusts once established will be independent of NCC.



- (b) an entity established to operate the Aquarium would also likely have educational purposes as well as broader public benefit purposes.
- 6.2 To confirm its status the entity would need to register with Charities Services.





Schedule 2- Tax implications

1. Tax Implications

- 1.1 We have discussed below the tax implications of the Funding Trust being established to raise funds, which shall then be gifted to the Operations Trust to be used for the expansion / operation of the Aquarium.
- 1.2 It is anticipated that the facility would be leased from NCC to the Operations Trust, which will undertake the development and operation of the Aquarium.

2. Charitable trusts

Tax consequences

- 2.1 For income tax purposes a charity is generally exempt from income tax, provided it is registered as a charitable entity under the Charities Act 2005 (i.e. it is registered with Charities Services). Care will need to be taken to ensure that any charitable trust is not a council controlled organisation (CCO) for income tax purposes, as this would exclude it from the income tax exemptions for charities deriving income and for charities carrying on a business.
- 2.2 A charitable trust will be a CCO under the Local Government Act if 1 or more local authorities control directly or indirectly 50% or more of the voting rights or the right to appoint 50% or more of the trustees, directors, managers of the entity. If a charitable trust is a CCO under above definition and it operates a trading undertaking for the purpose of making a profit it will also be a "council-controlled trading organisation" (a CCTO).
- 2.3 However, the definition of a CCO is different for income tax purposes. For an entity that is not a company, it will be a tax CCO if it is a CCTO or if it has control of at least 50% of voting rights or rights to appoint trustees etc in a company CCO or a CCTO.
- 2.4 If a charitable trust is established to raise funds for the project it will likely not be a tax CCO assuming it is not undertaking a trading activity. Therefore, its income should be exempt. However, if a charitable trust is established to operate the Aquarium and it has a profit making purpose then if local authorities control that trust it will likely be a tax CCO and unable to take advantage of the income tax exemption.
- 2.5 We note that if a CCTO is operating a trust in a financially prudent manner and running an operating surplus it does not necessarily equal a profit-making purpose see Court of Appeal decision in CIR v Wellington Regional Stadium Trust (2005) 1 NZTC 15,010. In that case a charitable trust was established to develop a stadium and its objectives included the administration of the stadium and assets "on a prudent commercial basis so that it is α



- successful, financially autonomous community asset". The Court held that this was not sufficient to make it a CCTO.
- 2.6 We recommend that if a charitable trust is used, the objectives are carefully drafted to ensure there is no profit-making purpose and that any profit is retained for charitable purposes.
- 2.7 In terms of seeking funds for the Aquarium, a charitable trust will likely be advantageous, as assuming it registers with Charities Services, donors should be entitled to a deduction for any donation for income tax purposes. This will likely make it easier to raise public donations.
- 2.8 Finally, we note that if a charity is established care will need to be taken to ensure that on winding up any surplus funds are used for charitable purposes, as otherwise charitable status will be jeopardised.

Role of the charity

- 2.9 Having separate charities in relation to the funding and development/operation of the Aquarium would allow any funds that are raised to be ring fenced in relation to Project Shapeshifter.
- 2.10 In relation to the Operating Trust:
 - (a) Any leasing arrangement or service arrangement between NCC and the charity would need to be carefully analysed to ensure that it does not jeopardise either parties exempt status – key to this would be whether the charity is a CCO.
 - (b) If the charity pays a fee to NCC for services, GST will need to be charged by NCC on invoices. Consideration will need to be given to whether the charity is obliged or chooses to register for GST.
 - (c) If the charity employs people directly, consideration will need to be given to employer obligations.
 - (d) If the charity is a registered charity, it should be exempt from FBT on any benefits provided to employees.

3. Alternative structures

- 3.1 We have also considered whether another type of structure, such as a company, could provide any benefit over and above those discussed above.
- 3.2 A company structure would provide a well understood entity with clear governance and accountability mechanisms. However, assuming it is not established for charitable purposes it



will be subject to income tax at 28% on any profits. Further, if the company is controlled by NCC it will be a CCO and any returns to council would also be taxable. On the flip side in that scenario if the CCO makes a loss that loss could be offset against any taxable income derived by NCC (assuming at least 66% control by NCC).

3.3 The key consideration however, is probably that the use of a company will likely impede the ability to raise public funds for the project.





Schedule 3 – Analysis of requirements for Strategic Assets

1. Application of Local Government Act

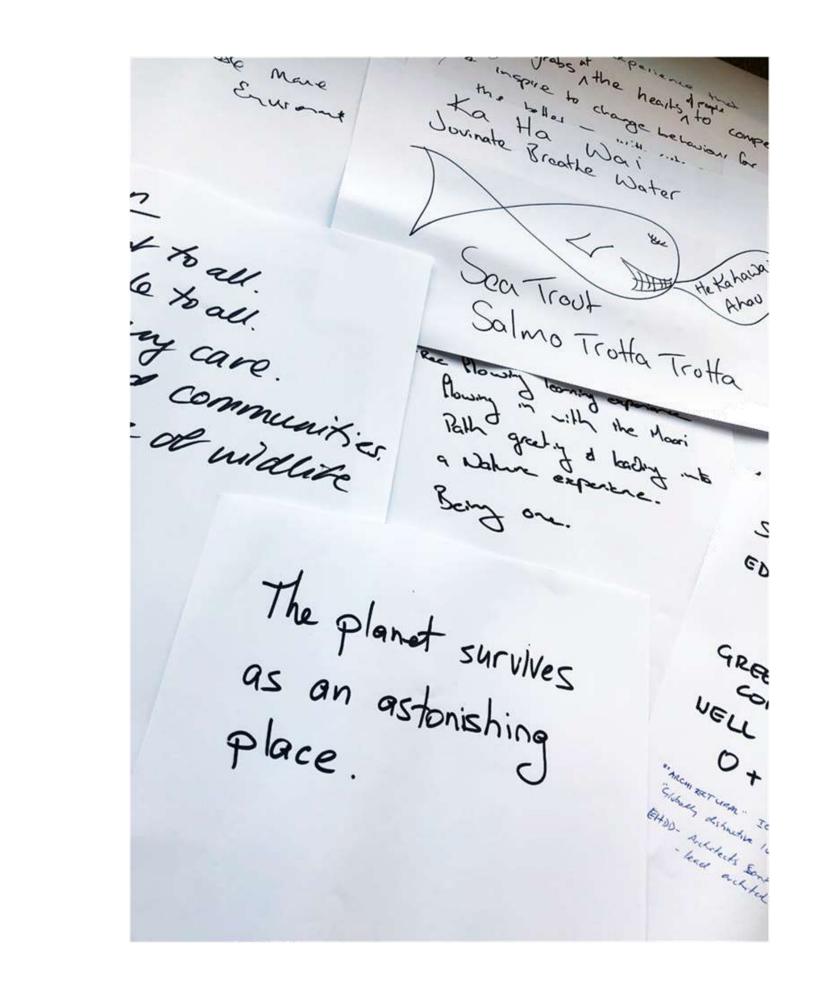
- 1.1 We have set out below our understanding of the application of the LGA to the proposed development of the Aquarium. For the purposes of this analysis, we note that NCC considers that the Aquarium is one of its strategic assets and that NCC has included information around possible development of the Aquarium in its Long Term Plan.
- 1.2 Section 97(1)(b) of the LGA restricts what actions a Council can undertake in relation to its "strategic assets" unless those actions have been expressly provided for in the Council's long-term plan. In particular, a Council cannot transfer the ownership or control of a strategic asset unless it is expressly provided for.²
- 1.3 Under the current proposal, we understand that NCC will lease the Aquarium structure (together with the underlying land) to a new charitable trust for the purposes of development / operation. While NCC has included information regarding the development of the Aquarium in its Long Term Plan, there is no mention of NCC leasing the structure and the underlying land to a new charitable trust.
- 1.4 Given the above, the application of the LGA (and whether NCC will need to amend its Long Term Plan) will hinge on whether a lease of the Aquarium (together with the underlying land) equates to transferring control of the Aquarium.
- 1.5 While the term "control" is not defined in the LGA, under general property law principles a lease would confer exclusive possession without any supervisory control. While this is not definitive, we consider that the prudent approach is to consider that the lease of the Aquarium would constitute a loss of control, and therefore a decision by NCC to lease the Aquarium should not be taken unless it is expressly provided for in its Long Term Plan.
- 1.6 Given the above, we are of the view that NCC should::
 - (a) not lease of the Aquarium (together with the underlying land) unless its current Long Term Plan is amended; or
 - (b) delay the lease of the Aquarium (together with the underlying land) to allow NCC to explicitly provide for the lease when preparing its next long-term plan.

² We note that historically section 97 of the LGA also restricted a Council from undertaking a decision to construct, replace, or abandon a strategic asset unless it was explicitly provided for in its long-term plan. This restriction was removed in 2010 when the LGA was amended.



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Introduction

This document is a capture and playback of the *National Aquarium* of *New Zealand* governance workshop held on the 1st of August 2019. The workshop was held in relation to obtaining funding for the development/operation of the National Aquarium of New Zealand (Project Shapeshifter), and included discussion and creating content around the vision for the aquarium, social lean canvas, and governance considerations.

Background

Napier City Council has signalled its intention to develop the existing national aquarium into a world class aquarium and indigenous visitor centre. To enable this, Napier City Council will seek funding through the Provincial Growth Fund and from other interested stakeholders. While a number of discussions have taken place, the structures to be put in place to raise the funds, and to develop/operate the aquarium, have not yet been decided.

Workshop

With the above in mind, we designed and delivered a half day workshop that brought together key individuals from Napier City Council, the current Aquarium, and other stakeholder groups and organisations.

The purpose of this workshop was to understand where the National Aquarium is at, where it wants to go, and possible governance structures. We did this by:

- Understanding the current state of work being done.
- Sharing our visions for the aquarium.
- Exploring and drafting the future business facets of the aquarium through the social lean canvas.
- Agreeing on a definition of governance.
- Exploring how governance can be applied to the aquarium.

Once the attached PwC Tax and Structuring memorandum has been reviewed, and the form of the governance structure is finalised, further consultation and/or workshops may want to be considered to establish who is in which governance roles. Additionally content for the PGF application could be co-designed with stakeholders, such as iwi and funders, on how the future aquarium will benefit the province and Aotearoa New Zealand.

We would like to thank all participants for attending and sharing their thoughts and conversation.

He rau ringa e oti ai - Many hands make light work.

Purpose & objectives

ALIGN ON THE FUTURE PATH OF THE NATIONAL AQUARIUM

PURPOSE

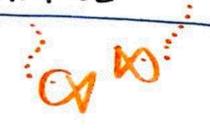
UNDERSTAND
NHERE WE ARE
AT, WHERE WE
WANT TO GO,
& POSSIBLE
GOVERNANCE
STRUTURES

0

OBJECTIVES

UNDERSTAND THE CURRENT STATE OF WORK BEING DONE

SHARE OUR VISION FOR THE AQUARIUM & ALIGN ON ITS PURPOSE



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EXPLORE DRAFT
THE FUTURE
BUSINESS FACETS
OF THE AQUARIUM

DEFINE & AGREE ON A DEFINITION OF GOVERNANCE UNDERSTAND WHAT WE NEED TO DO NEXT

EXPLORE HOW
THE AGREED
DEFINITION OF
GOVERNANCE CAN
BE APPLIED TO
THE AGUARIUM

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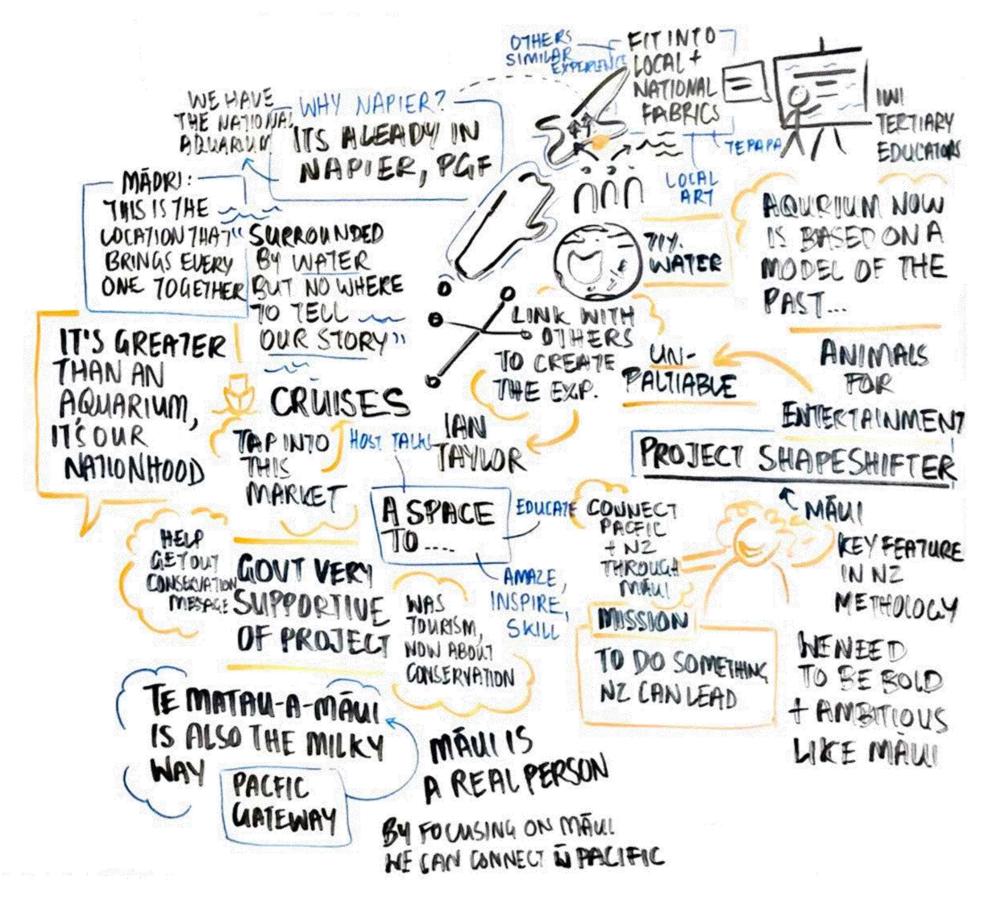
Sustainable Napier Committee - 13 February 2020 - Attachments



NANZ's purpose, mission & vision

THE FUTURE WORLD VISION PURPOSE PARAMOUNT -> SUSTAINABLE TO CREATE AN UNFORGETTABLE DOLPHINS RESEARCH THE WORLD+ MAVE 10 WORLD-CLASS AQUARIUM & CENTRE SAVE DOUPHINS BE SAVED FLORISHING INDIGENOUS VISTOR EXPERIENCE "THE PLANET ENVIRONMENT US+ WILDLIFE SURVIVES AS LEADS THE OF AOTEAROA NEW ZEALAND. A AMAZING WAY FORWARD ALL 2001, PLACE" MULTIPLE AQUARIUMS FUNCTIONS MISSION HAKA TO STAND CENTRE OF orc. REJUVENAT CHANGING THE WAY WE EXCELLENCE POTENTAL BEING ONE THE REASON UNDERSTAND, USE & PROTECT DONORS FACUT FOR BEING HAS W NATURE OUR AQUATIC ENVIRONMENTS THAT CHANGES TO BE 10 GET THE HEART PEOPLE'S THE WORLD TO FOR THE BETTER, & FOREVER. EDUCATIONAL OF PEOPLE" BEHANIOUR TAKEADION EXPERIENCE" BUILDING SUSTAMABLE SENFOOD PEOPLES EXPERIENCE ACTION LOW IMPACT THAT IS PUN" BOTH THE ON ON ENVIRON BWLD+ LAND RECOGNITION OF BUILDING THE OCEANS >= IMPORIANCE"

Antoinette Campbell Presentation

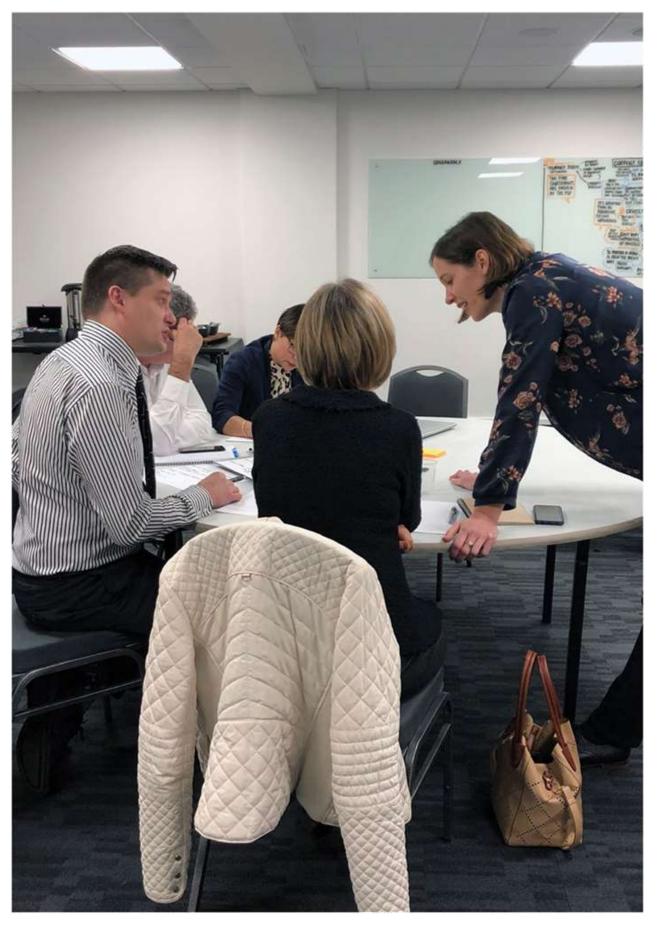


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Item 1
Attachments K

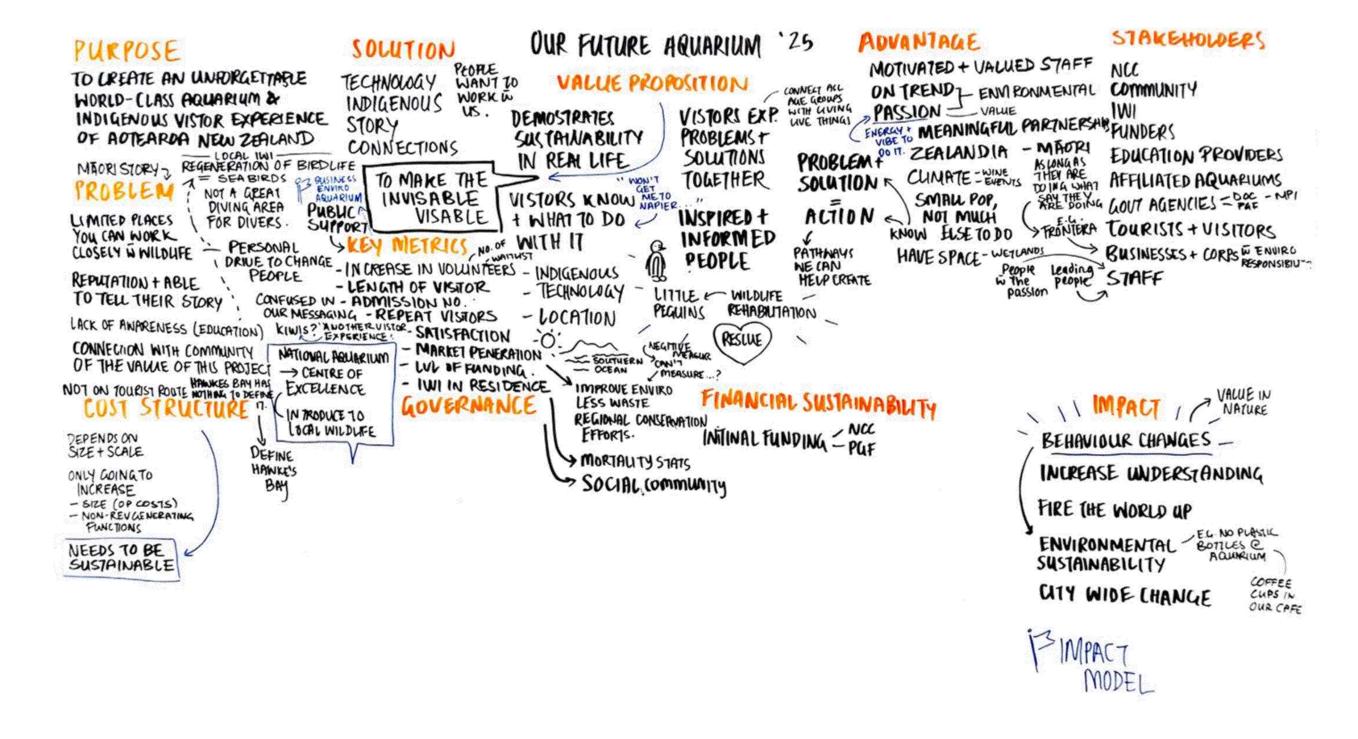




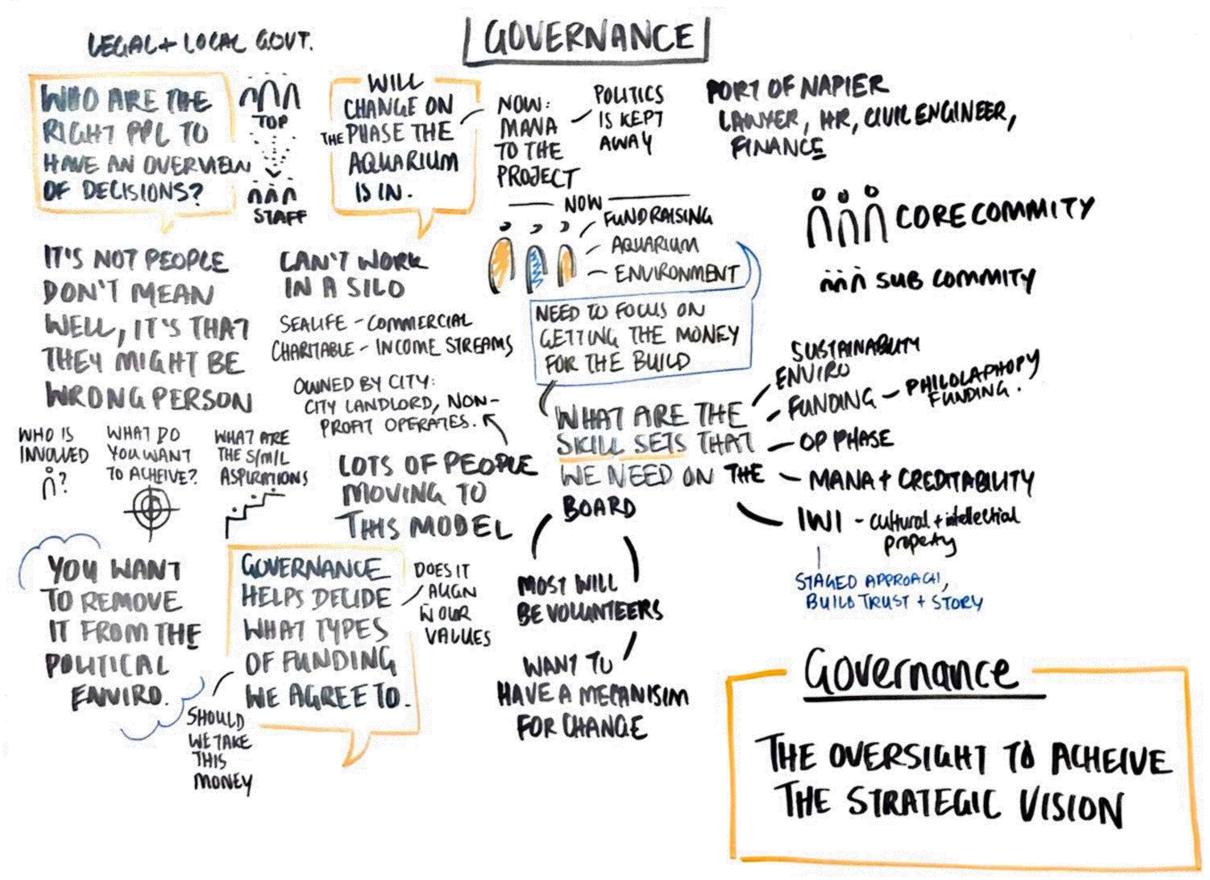


Purpose	Purpose					
Problem What are the biggest problems? Note these are specific problems faced by the stakeholders not the overarching problems that arise in the purpose section.	Solution What solution will deliver the value proposition to stakeholders? Key metrics What key numbers will tell you whether NANZ is succeeding?	Value proposition What single or multiple propositions remove the by the stakeholders? High level concept A one-liner explaining exists.	value e problems faced	Advantage Why will NANZ succeed?	Stakeholders Who are NANZ's key stakeholders? NCC Community Iwi Funders Schools & other education providers Overseas affiliated aquariums	
Cost structure How much will it cost to deliver the aquarium to an operational level?			inability inability model - ongoing income, e.g. visitors, cafe, events lividuals or organisations contributing additional fur			
Governance Funding structure - who is involved? Operational structure - who is involved?			Impact What social or environs outcomes will be meas	mental impact will result and who are the beneficia ured.	ries? Include defined metrics for how these	

Social lean canvas



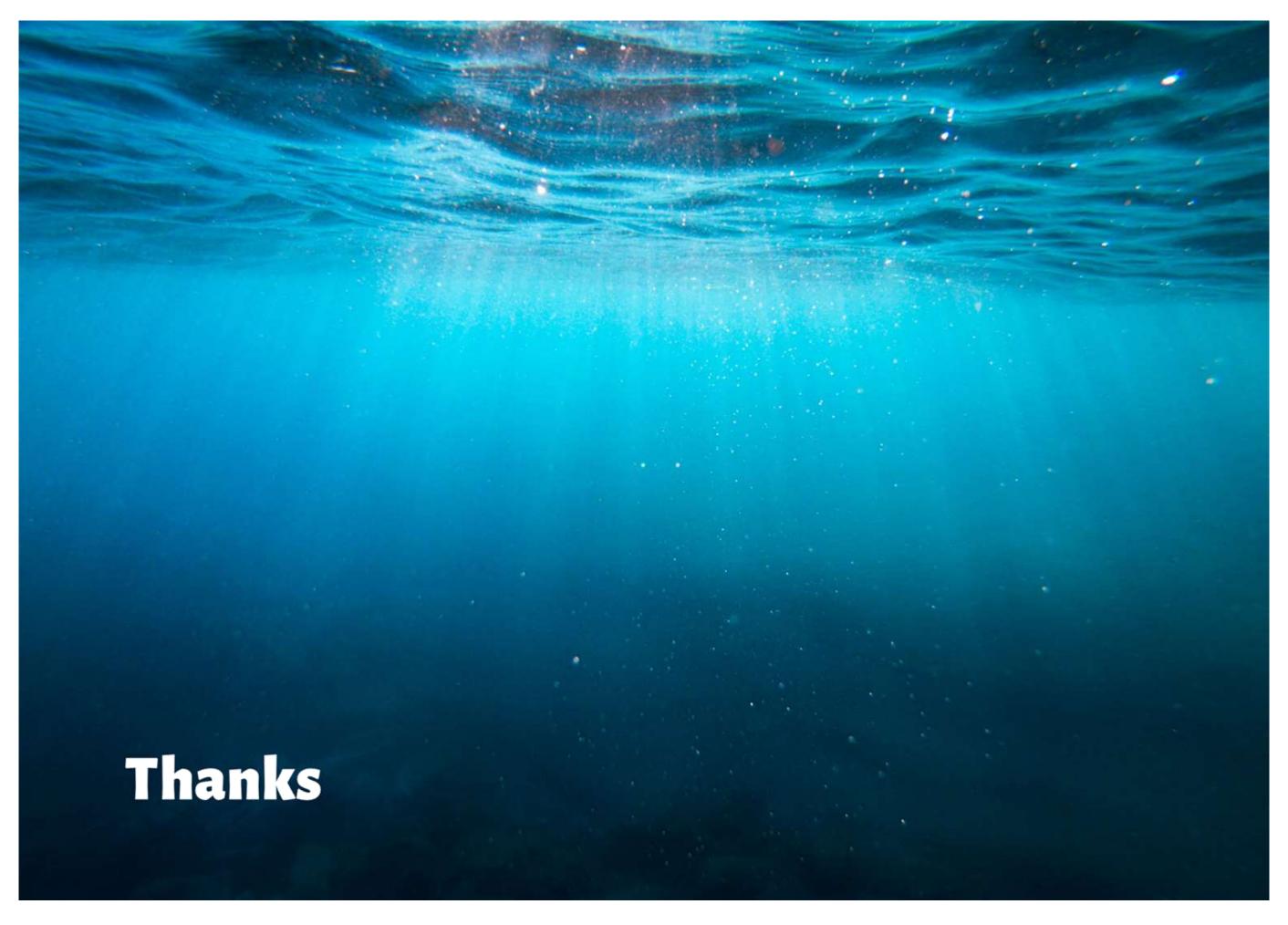
Governance





Sustainable Napier Committee - 13 February 2020 - Attachments







The Proposed New National Oceans Centre and Aquarium: A Strategic Review of Research Opportunity

Vince Kerr for Terra Moana Ltd. October 2019 with input from Rachel Haydon, National Aquarium of New Zealand and Katherine Short, Terra Moana.

The Changing and Challenging Landscape of Research in New Zealand

Dr Wendy Larner, President of the Royal Society of New Zealand recently laid down a path and called for change in the way that we do research in New Zealand that is highly relevant to how Project Shapeshifter proposes the new National Aquarium and Oceans Centre of New Zealand contributes to research.

"Taking the example of climate change, we know even the climate scientists argue the major research challenges are now regulatory, social and behavioural, requiring new relationships and new modes of working. This is driving both a new emphasis on interdisciplinarity and a new imperative for cross-sectoral working. One result is that co-design is increasingly commonplace in funding calls and research initiatives like our National Science Challenges, marking an aspiration for collectively produced knowledge. New funding streams are opening up, designed to promote collaborative endeavours and co-production between researchers and external stakeholders. Co-design research is also the aspiration that underpins ambitions for mātauranga Māori. Research excellence comes in multiple forms, particularly in an era of impact and advancement. This shift towards engagement and relevance that is challenging established conceptions of research excellent in what is often known as a 'grand challenge world'.

The proposed National Aquarium and Oceans Centre in Napier is a bold new step for New Zealand to offer a powerful way to engage visitors with the Ocean around us and its connections with our land. Surely it is time for us as a country to be much more focused on our Ocean. Making connections with researchers, showcasing leading research findings, bringing groups together to share experience and solutions are all part of the proposed concept.

In our consultation with the research sector we explored these ideas and concepts and discussed how the Aquarium could support and inspire participatory science alongside cultural learning and partnership with Maori. We listened to leading researchers views about the potential of the Aquarium and the challenges they face in their changing research landscape. To summarise their response, they were enthusiastic about the concept and the potential to add value to their work in especially science communication to better address our collective challenges ahead.

This Report

Terra Moana was contracted to prepare the detailed business case for the proposed new National Aquarium of New Zealand, in Napler. This report examines the role of science and research for the proposed new Aquarium. It outlines the process undertaken to collect stakeholder views on strategic directions for the project and the opportunities and benefits which could result from it.

From this recent work, as well as the considerable body of existing strategic science work in the Region, recommendations are outlined to aid the business planning and design processes.

Summary

The research engagement process held a series of targeted group and institutional meetings both in person in Wellington, Napier and Dunedin (New Zealand Marine Sciences Society Conference) and nationally, virtually. Specific meetings were also held with Māori marine researchers and Hawke's Bay Māori conservation and technology facilitators, as well as representatives from 27 organisations across Crown Research Institutes and agencies, NGOs, industry organisations and national networks such as the Science Communication Association of New Zealand. The full list of entities follows.

Whilst research is largely contestably funded in New Zealand, the common views about the science and research roles that the new National Aquarium and Ocean Centre could play are:

- A permanent place to showcase the marriage of matauranga Maori and western science.
- A national home for drones (i.e. a technology library), especially for cetacean surveys.
- A place to showcase real-time research (remote technologies) and outcomes through bestpractice science communication methods and technologies.
- A place to collaboratively design and deliver citizen science initiatives.
- A place to inform, deliver and conduct behavioural change social science.
- Enable synthesis of what we already know across western science and matauranga Maori to better care for aquatic ecosystems.
- + A permanent collaboration hub.

The Research Engagement Process

This process occurred over a tight three-month time frame and has run in parallel with a much larger review process of the aims, scope and aspirations of the Aquarium. This review project was named *Project Shapeshifter*. Napier City Council stated that the aim was to:

- Create a globally distinctive icon to amaze, inspire and compel, that reconnects people
 with our aquatic environment, from mountain top to deep ocean trench, kl uta ki tai, ki te
 Moana-nui-a-Kiwa, to care for the well-being of our planet; and,
- . Deliver an iconic conservation centre that contributes to research with learning at its core.

From its outset, Project Shapeshifter sought to explore what a truly modern aquarium that would feature our unique Pacific position from many perspectives, geographically, culturally, have a conservation education focus, and play an active role in finding solutions to our pressing environmental challenges. It is this future orientated approach, built from a marriage of western science and environmental values, with the leading edge of Kaupapa Māori and mātauranga Māori, that provided the backdrop and challenge to our consultation process with science stakeholders.

Background to Science Work in the Region

It is essential to recognise that an ambitious project like the proposed new National Aquarium and Ocean Centre does not arise out of a vacuum in terms of identifying science needs, gaps, opportunities and potential benefits of future work. This report comments on a regional perspective and emphasises that the story of the regional efforts to map out a future path for science work and that sits within a well-developed national science context e.g. the major marine science research institutes, (CRIs and Universities) and the National Science Challenges. ¹

National Science Challenges website: https://www.mble.govt.nz/science-and-technology/science-and-innovation/funding-information-and-opportunities/investment-funds/national-science-challenges/

Hawke's Bay has been fortunate to have a great deal of strategic work completed in the last decade which attempts to identify key science needs and gaps and environmental challenges. In addition, the Region has made good progress in planning new initiatives to address its environmental aspirations. This body of work provides many opportunities for the Aquarium project to collaborate and add value to things already planned or happening in the Region. The substance of this regional context, and body of scientific and planning work, was often raised in our consultation as a framework from which to view potential roles and involvement in the Aquarium project.

The following is indicative of the research and planning work occurring in the region:

Biodiversity Strategic Planning

- Hawke's Bay Biodiversity Strategy. Taiao Ora, Tangata Ora, working Together for Better Biodiversity, (Hawke's Bay Regional Council, 2015)
- Hawke's Bay Biodiversity Strategy Action Plan, (Hawkes Bay Regional Council, 2017)

Biodiversity background technical reports

- Guiding Coastal and Marine Resource Management: The Coastal Special Interest Group Research Strategy. (Berkett et al., 2015)
- Hawke's Bay Marine Information: Review and Research Strategy (Haggit, 2016)
- Hawke's Bay Marine Information Research needs: Discussion Document for Working Group Meeting (Haggit, 2017)

HBRC/NCC/EIT/University of Waikato

In discussions with these entities, we learnt about the seven-year collaboration to create an academic Chair of integrated Catchment Management, based in Hawke's Bay. There is no Hawke's Bay University and the University of Walkato (UoW) has committed to growing its presence in the region. NCC contributes financially to this.

The University of Waikato has relationships with each of the organisations in a 'hub and spoke model', (with UoW as the hub) as well as a growing network of links across these organisations, and beyond, to better serve the region.

The HBRC Chair of Integrated Catchments, Dr Edgar Burns is now in post. From La Trobe University (Melbourne), he has lived in Hawke's Bay previously and his first tasks are to meet a wide range of regional and national stakeholders to begin linking with specific communities in catchments that will be the subject of initial work. He and UoW/EIT are also actively identifying student research opportunities, aligned with his sociology expertise (i.e. research with a "people and the environment" focus which marries well with the aquarium as a social science facility.

EIT is establishing new tertiary qualifications in Environmental Management (land-and-water sustainability focus), and UoW is partnering with them to develop a pathway for learners to progress through qualifications (Levels 3-4) to Levels 5,6 and 7, including through to postgraduate study. UoW/EIT is wanting to develop collaborative research that compliments the focus on UoWs academic programmes delivered in HB (environmental management, environmental science, sustainability).

HBRC's CEO James Palmer also noted that a corollary marine scientist would be a logical extension of this collaboration into the marine realm and which could potentially be based in the new National Aquarium.

Consultation Process

At the outset, we sought to meet collectively with stakeholders on Project Shapeshifter and the development of its design goals and business planning process. The relevant, major institutions made it clear that this was problematic logistically and because of the tight time frames. We redesigned the research engagement and held meetings with interested groups via e-conferencing or in person at their institutions. This was well received and afforded us the advantage of focused conversations that explored individual and institutional responses to the proposals and their potential engagement.

To identify participants, we carried out two email communications with key contacts across institutions involved in marine and catchment restoration work including the major Universities and Crown Research Institutions and a number of follow up phone calls were made. This included a targeted Maori researcher conversation and separate process for Hawke's Bay Region researchers and community environmental facilitators.

Each consultation dialogue opened with a short summary of Project Shapeshifter's aims and vision. Then, participants were offered a series of open-ended questions designed to elicit their responses to the proposal and their potential collaboration interest. Specifically, we asked them to talk about what they thought were pressing research gaps that could in some way be addressed through the Aquarium project and improved science research sector collaboration. These discussions, where possible, also led to discussions related to the design of the Aquarium and specific types of projects or programming that could be developed.

The list of organisations involved in the consultation is presented in the Appendix.

Key Stakeholder Responses

Crown Research Institutes and Government Science Initiatives

NIWA – we talked with several leading researchers involved in science challenges and the General Manager of Communications and Marketing. Overall, the response was enthusiastic and postitive. NIWA desires to continue to support and engage with the project potentially leading to a MOU to evolve and define the partnership if the proposal proceeds. NIWA has invested heavily in science communication partnerships with Museum projects (Otago and Te Papa) and others active in the ocean space like the Peter Blake Trust and Kelly Tariton's. Given their diverse research interests and specific aims and outputs relating to the science challenges, their commitment to science communication, research outreach and participatory science, they responded with excitement to the scope and aims of the National Aquarium project. They particularly like the concept of building a permanent Ocean Hub centred around the new Aquarium and Oceans Centre which could bring groups together from around New Zealand to showcase science outputs and research outcomes. For NIWA there is huge demand to develop this area of their work alongside their commitments to supporting community and Māori science initiatives. (Supportive email provided)

GNS – we talked with several key staff who initially thought that most of their work was not particularly aligned with what they perceived as the space the Aquarium would occupy. However, once we were discussing the Ocean Hub concept of the Aquarium as a place to showcase and support important science work and outcomes, communicate and foster collaboration, they saw that perhaps there would be opportunities for collaboration. We discussed their need to communicate research results to the public generally around how geological process impact on coastal processes and therefore coastal communities. Given the large potential impact of Earthquakes, Tsunami and sea level rise, there are science communication challenges that GNS is focused on and investing in currently, including through actively partnering with Te Papa. We committed to continue to explore opportunities for collaboration as the project develops. (Supportive email provided)

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Landcare Research – we had discussion with one researcher involved in the Sustainable Seas Science Challenge focusing on investigating and supporting the potential to integrate matauranga Maori and western science approaches to coastal management and conservation. There was great interest in the Ocean Hub concept and the possibility to support work nationally, to collaborate and showcase new findings and best practice. They were keen to look further into these collaboration potentials as they develop.

Department of Conservation - we met their Director General who considered the conservation education focus likely for collaboration, and a number of technical staff and managers with a focus on science opportunities, and science communication and outreach. Following a lengthy process, DOC wrote to inform us that while they encouraged their staff to input into our process and meetings, they would input directly to MBIE as part of the PGF agency review process only. From following up with MBIE, we understand that this was only commenting on Napier City Council's request for further Project Shapeshifter development funding, and, despite follow up, we have not had a qualitative nor substantive response from DOC. From their education, technical and regional staff we received a clear message that there was great need to foster collaboration around marine conservation science and to develop new ways of supporting and engaging in participatory science with communities and Māori kaitlaki groups.

Curious Minds – We had several discussions with Dr Victoria Metcalfe (National Coordinator of Participatory Science) and the popularly named Curious Minds Project. We were updated on the exciting projects that have been born via an \$8.5 million investment in this programme. We believe its direction and the learnings from it are a perfect template for the Aquarium's focus of building an Ocean Hub program. Below quotes Dr Metcalfe's support for the proposal.

"I note with interest the proposal for a rebuild of the National Aquarium in Napier. There is a strong need to grow and develop this practice of community science and it also sits well alongside the concepts of kaitlakitanga and kaupapa Māori. The National Aquarium could take a strong leadership role in this space, through facilitating and acting as a hub and developer/supporter of community projects. This could be incorporated into the outreach and engagement strategy for the Aquarium and aligned with the experiential aspect of people being with the marine life. The Aquarium staff would also have a valuable role to play."

Plant and Food Research - through Terra Moana's involvement in the Precision Seafood Harvesting project with Plant and Food Research, support and interest was expressed by Plant and Food researchers.

Industry Organisations

Aquaculture New Zealand – we had discussions with the CEO and Technical Manager who contacted us wanting to express their interest in the project. Following information sharing, their position is that they welcomed the possibility in future to collaborate and potentially support the Aquarium project if there was an opportunity to showcase some of the positive contributions the Aquaculture industry was involved in to develop sustainable practice in their sector.

Seafood New Zealand – the project has been preliminarily introduced to Seafood New Zealand and the CEO Tim Pankhurst expressed interest in the Seafood sector being positively reflected in the facility. Terra Moana's Tony Craig (seafood sector) visited Monterey Bay Aquarium during the project and was impressed with the fair reflection of sustainable seafood there.

Informal correspondence and conversations with Precision Seafood Harvesting, x-craft, and Boxfish indicated interest in showcasing their technologies in the visual displays.

Universities

Waikato University and Eastern Institute of Technology - see above.

Otago University, Auckland University, Victoria University and Auckland Institute of Technology – talks were held with research staff at each of these institutions. There was a distinct commonality in the responses received, summarised collectively below. There was a view expressed that the potential to carry out research projects at the Aquarium facility was limited because the site was to varying degrees remote from their facilities, students and staff, Additionally, it was pointed out that in each case they were investing in their own facilities (NIWA is also) and that often research they did require carefully controlled conditions and 'purpose-built lab facilities'. With that caveat, they all said that there would be, from time to time, special research activities or projects that could be carried out at the Aquarium as a first preference. Examples suggested were projects that benefited from large tanks and opportunity for diver interaction. Research applications mentioned were tagging studies, monitoring method testing, monitoring technology development, behaviour studies and social research based on the Aquarium program. One particularly novel proposal was for the Aquarium to become the home for marine drone technologies in New Zealand (i.e. for habitat and cetacean surveys). All staff consulted were also positive and supportive of the Ocean Hub concept and the potential opportunity to showcase their research findings.

Hawke's Bay Research Organisations and Practitioners

Several meetings and discussions were held with staff of the East Coast LAB Project and Hawke's Bay Regional Council. Importantly, Napier City Council and specifically the current Aquarium project manager have strong links with these organisations. Their experience and input has significant helped to shape the project. They have repeatedly expressed their priority and commitment to collaborate with the Aquarium project to 'develop content linked to natural hazards and preparedness through general exhibits'. They have proposed examples of science in progress and planned that would create content suitable to support innovative exhibitions around environmental challenges and preparedness. They support the development of an Ocean Hub at the Aquarium to foster opportunities in citizen science and collaborations between local scientists.

Museums and Zoos and Aquariums

Te Papa, Auckland and Dunedin Museums - We had various visits and discussions with Museum staff and managers. We received unanimous support from these organisations and a willingness and eagerness to collaborate with the proposed project as it evolves. We were very impressed with the sharing of best practice in terms of the creation and management of highly successful exhibitions and visitor experience. We were updated on what they considered the leading social research findings on the future of modern museums and aquariums to be. These will be important collaborations for the future of the project and offer great potential to add value.

Zoos and Aquariums - The Zoo and Aquarium Association (ZAA) of New Zealand is working more closely together to bring greater purpose to their facilities. Two relevant points include that there has been a wero given to the Department of Conservation on the role such facilities could or should play in captive breeding of native species into the future, as well as ZAA members are seeking to build capability in matauranga Maori which has taken encouragement and expertise from Project Shapeshifter.

NGO's

WWF, Mountains to Sea Conservation Trust, The Royal Forest and Bird Society - In discussion with these three environmental organisations there were strong messages of support

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for the Aquarium proposal. They emphasised the need to have an independent centre to facilitate collaboration supporting conservation and ecological science, and community engagement projects nationally and more generally, not just in marine. They felt strongly this was a significant gap in New Zealand and urgently needed along with the emphasis on Pacific and Māori cultural engagement. Especially WWF and MTSCT are keen to support and collaborate with the Ocean Hub concept based at the Aquarium.

Summary of the Opportunity and Potential Benefits

Opportunity - research projects carried out in the Aquarium facility

There was wide agreement that while the opportunity was not large in terms of the number of researchers involved and scope, it remains an important and significant opportunity that it is important to get right. The tank habitats will be the largest in New Zealand and the South Pacific with state-of-the-art maintenance and animal health equipment and programs.

Potential benefits – as stated by the researchers the Aquarium facility could greatly benefit some research projects and provide opportunities to conduct science that would be not possible or far more expensive to do in the Ocean. There are many new technologies emerging in research that could fall into this category. Having this sort of hands-on activity at the Aquarium in addition to scientists in residence could great enhance the visitor experience.

Opportunity – Developing an Ocean Hub concept incorporating a central Mountains to the Sea (MtS) Theme

There was unanimous agreement that this is a significant need and gap currently in New Zealand. Whilst there are many examples of MtS/Ki Uta Ki Tai initiatives nationally, there is nothing that visualises the progress that is being made nationally to inspire the public that their contributions to and efforts in these initiatives matter.

Potential benefits – This is very hard to quantify as it does not currently exist in New Zealand however what we can clearly see is a future scenario where science communication, expanding the participatory science platform and fostering collaboration across communities regions and sectors is essential and will undergo significant growth representing investment in the 10's of millions of dollars.

The downstream benefits of this socially, economically, and environmentally are also hard to predict but it is safe to say this is a much larger number. Like leading modern Aquariums around the world, the redesigned National Aquarium and Ocean Centre proposal is building a plan of how to do this, with an emphasis ultimately on making a difference in the environment in which it serves. This has the potential to emerge as a significant set of outcomes, and additionally, it can become the fuel to the fire to attract visitors to the Aquarium and enhance the visitor experience. This will come about from the enhanced engagement with staff and collaborators and creative exhibits showcasing the leading edge of environmental work in New Zealand. The potential size of the collaboration in numbers of people involved budgets etc, is very large when you consider the combined science funding of the University and Crown Research and education sectors. Increasingly, the public uptake of research findings is becoming a key challenge and objective.

Social Research/Science Opportunity and Benefits

A key role that the National Aquarium of New Zealand must play is to encourage visitors to support and participate in real conservation action and research.

A huge area for opportunity for this action is working with scientific staff to support existing, and develop new, citizen science initiatives. Citizen science is a means to engage the public in

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scientific practice and research, supporting them to help collect and analyse data in collaboration project with professional scientists.

Citizen science allows hands-on, meaningful contribution to, and understanding of, scientific research. The benefits to the public are increased understanding of 'science', immersion in an issue to learn about environmental issues, the building of a scientific or conservation 'identity' – i.e. that they are someone who can 'do science and conservation', in addition to help build values aligned to biophillia, the desire or need to connect with life. Researchers benefit from an increased amount of data collected on, or for a project and broader impacts achieved from their work, such as community engagement.

There are existing New Zealand citizen science initiatives to support, such as University of Otago's Marine Metres Squared programme, the Sustainable Coastlines Litter Intelligence Programme, New Zealand Ocean Acidification Observing Network (NZOA-ON), amongst others, but there is considerable opportunity to collaborate with scientific staff and deliver more. Locally, Hawkes Bay Regional Council scientific staff have expressed a desire to collaborate on initiatives such as presence/absence of targeted marine species in order to better invest their time and resources.

Additionally, there is huge potential for research the investigate real 'learning' in aquarium contexts and external natural environments where programmes are delivered, as well as benefits to mental health and wellbeing associated with 'bluescapes'. A better understanding of key elements of experiences that result in a better range of outcomes from the participant will help refine and hone delivery to maximise desired experiences.

From the Aquarium's perspective, aspirational outcomes for our visitors aim to foster a connection to nature, or 'nature connectedness'. This being one's identity and the role nature plays in it, how they identify a sense of oneness between themselves and the natural world (Wright & Matthews, 2015). This connectedness helping develop a range of cognitive, affective and social outcomes.

Research has shown that particular values associated with 'biophillia', or the desire or need to connect with life (Kellert & Wilson, 1993; Perkins, 2010), provide significant pathways to nature connectedness. Specifically, sustained nature connectedness can be developed by participation in activity that allows 'contact' (the act of engaging with nature through the senses); 'beauty' (engaging with personally pleasing aesthetic qualities in nature, like shape, colour and form); 'meaning' (using nature to help communicate concepts not easily expressed); 'emotion' (recognising and embracing the feelings that occur when engaging with nature); and 'compassion' (extending self to include nature, fostering concern for other life that motivates understanding and cooperation) (Lumber et al. 2017).

Additionally, research with children has identified four major dimensions important to children's connection to nature; enjoyment of nature, a sense of oneness, empathy for creatures and a sense of responsibility (Cheng & Monroe, 2012). It is imperative that these elements are incorporated as guiding principles when developing exhibits and visitor programming to have the best likelihood at fostering nature connectedness in our visitors, or the conditions that foster nature connectedness. But in order to understand the efficacy of any, research and evaluation is an integral part of the process.

It is the responsibility of the National Aquarium of New Zealand to help its visitors, partners and communities to foster, empower, educate and inspire opportunities to develop nature connectedness, no matter where a person is on their life's journey. But, in order to understand <a href="https://doi.org/10.1001/journey-inspire-inspi

environmental and conservation education community to better understand where and how to invest resources, how to partner and collaborate on shared activity for the most desired outcomes for our participants.

This obviously aligns well with, and presents significant research opportunities for, the newly appointed UoW/HBRC/NCC/EIT Chair in integrated Catchment Management which has a social science focus.

Recommendations

The summaries of the Science Stakeholders have highlighted key potentials and associated benefits. We will simply list these and are in complete agreement with these stakeholder consensus views.

- Science research projects conducted at the Aquarium are a limited opportunity but unique, potentially important and valuable. Science in residence opportunities would provide for valuable enhancement of staff and visitor engagement and experience and help to build a positive culture at the Aquarium.
- The Ocean Hub concept and Mountains to Sea theme is universally and enthusiastically supported by science stakeholders and there is a belief that the public good and benefits to science and the sector could be significant at a National scale.
- There is significant strategic value in the Aquarium becoming a home for support and collaboration in participatory science regionally and nationally alongside embracing a partnership with Pacific and Māori practitioners and scientists

Pursuing Excellence at the Aquarium

To achieve its aims, the Aquarium has placed importance on striving for the highest level of animal welfare and personally engaging staff and visitor in this goal and experience. Associated with this is developing a culture of service to the community and the environmental sector through the Ocean Hub concept.

We commend the staff and Napier City Council for their efforts to date and vision. A key recommendation from us is to encourage investment in the staff, especially the key managers and formation of a leadership team approach and culture. The people at the Aquarium and their organisational culture will be the making or breaking of this project. The stated goals will not be easily achieved, but we can see clear models overseas where modern Aquariums are achieving these lofty goals and large resulting benefits. Staff will need to be supported at every turn to build the sort of positive culture required to succeed and become a sustainable program of national significance. Aquariums are quite unique environments and require a great deal of commitment to achieve excellence. One example that stands out internationally is Monterey Bay Aquarium, where they have invested heavily on building a large volunteer staff that support the professional staff. Both groups regularly train together which builds the team culture and is constantly upskilling and engaging challenging all involved. It is an exciting future.

Acknowledgements

We would like to warmly thank all the stakeholders who gave up valuable time and offered many valuable insights in support of this consultation process at short notice. A special thankyou to the Napier City Council staff involved who made significant contributions. Thanks also to the Terra Moana team who helped in many ways throughout the process.

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Appendices

Appendix: List of Organisations Consulted

Universities and Crown Agencies

- 1. University of Auckland
- 2. University of Waikato
- 3. Auckland University of Technology
- 4. Otago University
- 5. Victoria University
- 6. Eastern Institute of Technology
- 7. Department of Conservation
- Office of the Prime Minister Science Advisor Curious Minds and Participatory Science Platform
- 9. GNS Science
- 10. Landcare Reasearch
- 11. NIWA
- 12. Plant and Food Research
- 13. Ministry for the Environment

Zoo and Museum

- 14. Wellington Zoo
- 15. Te Papa Museum
- 16. Auckland Museum

NGO's

- 17. Royal Forest and Bird Society
- 18. Mountains to Sea Conservation Trust
- 19. WWF New Zealand

Industry Organisations

- 20. Aquaculture New Zealand
- 21. Seafood New Zealand

Hawkes Bay Region

- 22. East Coast Labs
- 23. Hawkes Bay Regional Council
- 24. Hawkes Bay Biodiversity Trust

Other

- 25. Science Communication Association of New Zealand
- 26. New Zealand Marine Sciences Society
- 27. Marlborough Marine Futures



TE WHARE TANGAROA O AOTEAROA NATIONAL AQUARIUM OF NEW ZEALAND

CULTURAL CASE

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Redefining our National Aquarium

Nāwai te tarawhai ka uru kei roto. e taea te whakahoki?

Who can remove the barb of the stingray, once it has entered in?

This whakatauki proverb is said in a situation where there is no turning back, when the path that has been struck or action taken is irreversible.

We have explored widely, thought deeply, and been guided by pükenga experts, to develop the Cultural Case for Project Shapeshifter, giving birth to a proposal that has a Māori heart and a Māori back-bone; a proposal with strong kaupapa Māori. As the whakataukī says, the barb has entered and the desire for Tangaroa to speak to mankind through his whanau has sprung forth.

Project Shapeshifter has adopted the symbol of the tarawhai stingray as representing Te Ika-a-Māui The Fish of Māui pulled from the sea. This great tarawhai was a shapeshifter just as Māui was, and like Mäui, we seek to Shapeshift the National Aquarium of New Zealand, to be culturally fit, nationally and globally resonant and relevant, and future proof.



Te Matau-a-Māui / Fish-hook of Māui Symbolises the double anded fish-hook of Milui, Hawke's Bay, fashioned from the jawbone of his grandmother Muniangiawherum. Located where Milui foul-hooked the Whai in its Pilkau / Wing. The jumbone, or Keuse, also makes reference to Milori fore regarding knowledge, te Keuse Rungs, te Kause Raro – both upper and lower jaw knowledge, both spetitual and practical.

Ngutu-Kura Represents Body & Mind and the passing down of oratory from generation to generation.

A pattern that represents speed and movement, back nd forth, here referencing the grace and speed of oment of the Whai and how water moves around it.

The chosen colours of Purple and Green, reference the Paua, or Abalone shell, an important icon for Ngāti Kahungunu.



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1 WĀHANGA TUATAHI: TE KAUPAPA CULTURAL FOUNDATIONS

1.1 Timatanga kõrero Opening words

The following opening words have been provided by Nigel How, principal advisor to Project Shapeshifter appointed by, and on behalf of, Ngāti Kahungunu lwi Inc.

They describe the relationship between key deities, domains of the natural world, and phenomena associated with them, stemming from the separation of Ranginui, the sky-father, and Papatūānuku, the earth mother, by their son Tāne, to create this world of light in which we live.

Not all of Tane's siblings were happy with this separation, and as children of Tane we bear some of the responsibility for his actions and our subsequent actions that impact upon his siblings and in turn their children, such as his brother Tangaroa, god of the ocean, and his children reflected in the many species that live in the ocean.

It provides a world view that places us in a position of responsibility for due care and consideration of the consequence of our actions. This system recognises that where there is a hara (transgression of that responsibility), there is utu (a negative consequence).

These words help 'set the scene' in regard to a Māori world view, and more particularly one based on Takitimu teachings, regarding the state of our ocean and its relationship to people and other domains of the natural world, a view that can sit comfortably next to science.

"I would like this opportunity to put before the case more knowledge of our old people - my clients.

Our Kawa is permanent and is based on the lives of the Gods. Our Kawa is unchanging and neverending.

I really need to stress, on behalf of my clients and their Takitimu teachings, that 4 environmental domains exist, they are:



- Ranginui (stratosphere upwards into outer-space).
- Te Taiao (the space we know as the area above physical water that we humans inhabit).
- Te Taimoana (the space within physical water).
- Papatūānuku (land both above and below physical water).

My clients desire that I explain further.

Rangi and Papa maintain the mauri cycle of water through evaporation and rain. They do this to sustain their children and mokopuna. They also do this as a never ending expression of their love for each other and their offspring. There is k\u00f6rero about snow, hail, frost, sleet, mist, fog and other air-born phenomenon, but that is best left in order not to prolong this hearing. Evaporation and rain will be the parts I adhere to in this case.

The two spaces in-between Rangi and Papa were created by their children after they were separated. Tane created the Taiao, so he and his siblings could stand up straight and live their own lives. Tane did this act from his own physical exertions, happiness and stubbornness. This process involved much heaving and breathing, which created steam (which was part of how he implanted mauri into Hineahuone, the mother of mankind, to bring her to life from clay ... but I digress). Tangaroa created the moana from his own tears and sadness due to the separation of his parents.

Importantly - both of these 'in-between' domains contain water, the universal mauri (life essence). Both also contain air, which is another mauri and knowledge sharing session altogether. So we have the Tai-ao (as the oxygen we breath contains water but it is not solid until rain forms) and Tai-moana (physical water which contains oxygen but not in the same state as in the Tai-ao). There is no oxygen above our ao ie: outer-space has no oxygen. That is why the Taiao is a separate space from Ranginui.

My clients, our old people, go on...

They wish you to know the freshwater lakes, streams, rivers and wetlands are formed from the collective tears of Rangi, they are the love of Rangi caressing his beloved Papa. The freshwater springs and underground reservoirs is Papaüäanuku cherishing and holding the loving gift of her husband, which she releases to nurture their descendants who live with her. The loving heat Papa generates, with assistance from Te Rå (another körero), causes evaporation, which is how she nurtures their children who decided to live either with their father or in-between both parents.

Te Taimoana was created from their crying child Tangaroa, who covered most of his mother with his sadness then created his own world within it. Te Taiao was created from their forthright child Täne, who covered what was left exposed of his mother with his creations.

My clients wish you to know that because of the actions of the descendants of Tane, us pesky humans, Tangaroa has stepped up his lamentations which has given effect to what is part of a wider environmental experience. Rising sea levels. This is Tangaroa's attack on Tane, assisted quite ably by Tawhirimatea (god of winds) - who himself is finding it hard to breath. These two brothers are working together.

It is all a simple yet complex expression of love and sibling relationships, which keeps us all alive yet threatens our very existence.

Embedded within this korero is understanding of the delicate balancing act between environmental domains, that 'us pesky humans' are now seeking to understand faced with the consequences of our actions and recognising the need to step up and take responsibility for the healing needed.

1.2 Whakatakinga Introduction

The business case for Project Shapeshifter is underpinned by strong cultural foundations anchored philosophically in Te Ao Māori *The Māori Worldview*, and geographically in Te Matau-a-Māui *The Hook of Māui*.

The origins of the people of Te Matau-a-Māui originate from the ocean, reflected in oral history and encapsulated in whakapapa *genealogical connectedness* and pūrākau *legendary stories* of eponymous ancestors, their great ocean voyages, and their descendants who settled on the jawbone of the goddess Murirangawhenua, grandmother of Māui.

Te Matau-a-Māui Hawke's Bay today is home to many people of many nations, however for the indigenous people, the connection with the past is strong. Tängata whenua of Te Tairāwhiti *The East Coast* have a common ancestry from Māui Tikitiki-a-Taranga, who is said to have arrived to Aotearoa at least 1000 years ago on the waka Nukutaimemeha.

The first Nations to inhabit this land were the Patupairehe, Turehu, Hakuturi, Maeroero, Mawene and various taniwha spiritual shapeshifter guardian present on this land, with the Ponaturi nation and other taniwha inhabiting the sea. With an inherent distrust in mankind, the youngest of all living forms, and a distain for our loud and invasive ways, these Nations kept to themselves as they do today. They are still here.

Since the time of Māui mankind has travelled and inhabited these lands, following the star-path set by Māui himself.

It is said Kupe observed people from his waka vessel living in this place when he came here in pursuit of his giant wheke octopus. Those who first came from the pacific islands were astounded by the abundance of this place. It took time for them to learn to live with the land, rather than rape it for their own needs. Humankind can be a selfish and short-sighted species at times. Our one salvation is the ability to learn from our mistakes.

Since Māui and Kupe to now, there have been definitive migrations across Te Moana-nui-a-Kiwa *The Great Ocean of Kiwa* to settle and populate Aotearoa, becoming the Māori Nation. Some of those early settlers to follow Māui were Toi Kairākau and his grandson Whatonga of the waka Kurahaupō (arrived circa 1150AD). Whatonga had three wives, one of whom was Hotuwaipara. After some time at Nukutaurua, Whatonga and Hotuwaipara settled at Te Kauae-a-Māui *Cape Kidnappers* where Hotuwaipara gave birth to a son, Tara Ika *Fish Spine* – so named as Hotuwaipara was pricked by the spike of a nohu *rock cod* shortly before he was born.

The people of the Kurahaupō settled on the Heretaunga plains, but they were not the only people that had found the location attractive, there were already groups there; Te Tini a Awa, Ngāti Mahu, Ngāti

Māmoe, and Ngāti Ira. Each had their own territories. The descendants of Whatonga and Hotuwaipara, togther with his son Tara, and his grandson Rangitāne, settled Heretaunga, Pôrangahau, Tāmaki, Takapau, Manawatū west of the ranges, and Te Whanganui-a-Tara present day Wellington.

Over 200 years or so, these early settlers established themselves in Actearoa, intermarrying with the original inhabitants and exploring their new island home. It is said that the whenua *land* claimed the people rather than the people claiming the whenua. **Centuries of settlement and observation of the natural world fostered a society that was instrinsically linked to the environment; underpinned by a unique cosmogeny, astronomy and meteorology.**

With permanent trade routes established and regular voyaging taking place across Te Moana-nui-a-Kiwa, the pathway was open for further migration to Actearoa as competition for resources across Polynesia began to see an increase in warring island tribes. This is the the background context to the next wave of migration and fleet of waka that dominate Māori history today - the so called 'great fleet' of Tainui, Te Arawa, Horouta and Te Waka Tapu o Takitimu to name a few.

For the people of Te Tairāwhiti and Te Waipounamu it was Te Waka Tapu o Takitimu that would shape modern history and the inception of the predominant eastern seaboard tribes of Ngāti Kahungunu, Ngāti Ranginui, Ngāi Tahu and Ngāti Porou.

Te Waka Tapu o Takitimu is perhaps one of the most sacred waka to sail, having traversed the Pacific for some centuries prior to its arrival here, continuing to traverse the waters surrounding Aotearoa and Te Waipounamu to its final resting place, recognised in the name of the Takitimu ranges in west southland. Only specially selected chiefs, priests and tribal gods of strength were fit to embark on the Takitimu and no cooked food would be carried for its journey in respect of the the tapu the vessel carried.

As with the great voyaging waka, a number of Takitimu tohunga *priests* settled around Te Matau-a-Māui, implanting the sacred mauri *spiritual essence* for birdlife and sealife, and establishing whare wānanga *schools* of *learning*. Their teachings pertaining to cosmogeny, astronomy, meteorology and biology have been passed down, and added to, through the generations to this day. Within these knowledge systems lie the science and worldview of Te Ao Māori, often encapsulated in stories and shared through wānanga, whakapapa, pūrākau, and perpetuated through te reo rangatira me ôna tikanga *the Māori language and its customary lore, protocols, conventions and practices*. Even knowledge of the origins of the universe and our planet are encapsulated in these teachings, outlined in the stages of Te Uenuku, Te Pō, Te Weu, Te Kore and Te Aka.

Te Uenuku is 'The Big Bang' and refers to the universe starting with a flash of energy in all of the colours of the rainbow, followed by Te Pō, a place where the new energy existed quietly, having a rest as it were, after being born, before Te Weu when the new energy began to form itself, creating a new

thread of existence leading to Te Kore, a place where the energy was manipulating itself, where it's potential was being realised, through to Te Aka, where the energy created the right atmosphere for the universe to start growing, to Te Tipu, the start of universal expansion.

The knowledge these ancestors carried from Hawaiiki, continued to be supplemented with new knowledge as their descendants rapidly adapted to their new land; were shaped by it, and learned to live in balance with it. The culture of these ancestors was one of dynamic adaptation, entrepreneurialism and rapid adoption of new practices to work natural resources. Central to survival, settlement and growth, was knowledge of the natural world, or pūtaiao Māori science, more generally referred to under the label mātauranga Māori traditional knowledge systems.

Pūtaiao is the science borne of intimate inter-generational connection and acute observation of the natural world, accumulated and passed down through generations.

The first appearance and use of the term 'Mātauranga Māori' appeared in Sir Apirana Ngata's letter published in the Māori newspaper 'Te Pīpīwharauroa' in 1900. Sir Apirana defines Mātauranga Māori using symbolism strongly rooted within the Māori worldview of fishing and nets, and describes it as:

"a modern term for a body of knowledge that was brought to these islands by Polynesian ancestors of present-day Māori. Here this body of knowledge grew according to life in Antearoa and Te Wai Pounamu".

Consistent with his symbolic referencing to fishing and nets, he described Mătauranga Măori and western knowledge as two different fishing grounds, and advocated for fishing where they meet, believing the greatest value was to be gained by drawing from both.

The Polynesian and pacific oceanic people's stories of origin feature some of the greatest sailors, navigators, astronomers, scientists and philosophers; stories of people equally comfortable on land and sea, whose teachings and knowledge encompassed ocean, land, sky and species, as inextricably intertwined.

The indigenous stories of Polynesia are only just coming to the fore as the world comes to know the great feats of the pacific voyagers and navigators. Although the stories are lesser told, the richness and amazement equal those of Greek mythology, stories of gods, demi-gods, their human offspring, their deeds and feats and their knowledge of the universe and our natural world. Whilst our children have been learning and watching movies about Neptune, Poseiden, Hercules, Zeus and Archillies, we have our very own here, borne of the ocean.

It is on this basis Project Shapeshifter takes a 'Moana Tuatahi' 'Ocean First' position in order to rebalance what has become a land-centric view of the ocean. Even in Te Ao Măori, this is true as Māori have become more distant and disconnected from their oceanic origins, commonly referred

to as tangata whenua people of the land. The term tangata moana people of the ocean, is rarely heard, and the term mana moana tends to be used when seeking to secure rights and authority over ocean space for customary or commercial fisheries practices.

Project Shapeshifter has extended this Moana Tuatahi philosophy to the proposed visitor journey, starting from the dark depths of the ocean, progressing towards the coastal domain and into the tidal zone. Unashamedly designed 100% through the Māori worldview, this approach is underpinned by the commonly described stages of Māori creation and particularly Te Whānau Marama – the genealogy of the family of light:

Wahanga	Whakaaro	Wahanga	Whakaaro
Te Kore	The state of existence – the vast ages of darkness	Te Moana	The ocean including its dark depths
Te Pö	The realm of creation – the first ever glimmer of light	Te Whanga	The near coast and lighter environment of shallower depth
Te Pö-Tahuri- mal-ki-Taiao	The realm of growth – the turning towards the revealed world	Te Taiao	The tidal and freshwater areas.
Te Whaiao ki Te Ao Marama	The realm of understanding and enlightenment – the glimmer of dawn to the longstanding light	Te Ao Marama	The physical world of light and world of learning, encompassing the sky, the stars and the moon

This framing connects Tangaroa, Lord of the Ocean, with his father Ranginui and mother Papatūānuku, and takes visitors on a journey from ocean, to land, to sky, the three key domains encapsulated through pūtaiao.

The challenge of re-thinking and re-developing the National Aquarium 100% through the Māori worldview is to consider that the ocean rests on Papatūānuku – the ocean bed is land covered with water. The value of water in its many forms is core to Project Shapeshifter as the perpetual love of Ranginui and Papatūānuku:

"It is said that the tears of of Ranginui nourish his beloved Papatūānuku throughout their permanent separation. Rain is the gift of love from Sky Father. Earth Mother treasures this gift, storing and releasing it so she may nourish and sustain all who dwell with her. In the primordial heat generated by their love, the tears return to Sky Father cleansed and he is sustained by all that his tears have done for his love and their offspring. Sky Father cries again for his beloved and this is the cycle of an ancient, permanent love which sustains all it encompasses."

Water is everything. Water is the great mauri of our existence as it sustains all living entities, whether we acknowledge them as living or not. Every rock, tree, every animal has a mauri which is nourished by the great mauri water. Water carves and shapes the landscape and in doing so our lives, loves and losses. Water carries nutrients and cleanses and when it can do no more it returns energy permeating through life. Water is the greatest mauri of all. Water is everything – it is the lifeblood of our universe.

So rather than adopting the traditional focus of aquaria, on the ocean domain only, we seek to reconnect these domains of ocean, land and sky, to both understand the ebbs and flows of nature throughout seasons, but as a holistic framing for environmental care, mirroring what we are now witnessing in phenomena like the impacts of climate change on the ocean, land and species where the healing of the sky can lead to healing of the ocean and land.

1.3 Pūtaiao Mãori Science

At the heart of the proposal is pūtaiao *Māori science*. Māori scientific knowledge, is not an isolationist body of knowledge, it does not partition one piece or body of knowledge from another, it understands how things are inter-connected. In modern times we might consider this 'systems thinking', or 'eco-system' based science. It is a body of referrential knowledge in a system where all parts inform each other in ways that deliver understanding and insights rare in more isolationist, compartmentalised and lineal systems of thinking – as has been perpetueated in the prevailing western academic model of learning.

These insights and understandings, referred to as māramatanga enlightenment, go beyond the simple concept of 'knowing', to reading, inferring, feeling, sensing and understanding, in a holistic way. They build on collected, collective inter-generational wisdom, to deliver acuity of thought and focus for action.

So, as we look out to Te Moana-nui-a-Kiwa, The Great Ocean of Kiwa – The Pacific Ocean, an ocean from which we once gazed upon the land, an ocean in crisis, it is important we remember our oceanic origins, that we place the ocean first in our thinking, and that we draw on both Pacific indigneous knowledge systems, and modern science to find solutions, that we go fishing between these two great oceans of knowledge.

In July 2019 in Noumea, at the conclusion of the first of nine global meetings on the United Nations "Decade of the Ocean", the head of the UN body responsible for ocean conservation, Vladimir Ryabín, said, "Indigneous Pacific knowledge can help define the science needed to save the ocean". This is a strong indicator of the future trajectory for how we tackle environmental challenges on a global scale. Perhaps a starting point, is contained in the Takitimu teachings regarding water and the ocean domain, as provided by Nigel How: "Karakia, or incantations, are the verbal formula used to protect, enhance, reduce and stabilise Tapu sacred and restricted and Noa free from tapu or restriction, depending on the situation. Water was used in certain karakia ceremonies. Incantations came in many forms, were based on the relationships of Atua and were designed to maintain universal balance. For example, the Atua Tāne god of the forest and Tangaroa god of the sea disagreed over separating their parents Ranginui sky father and Papatūānuku earth mother. Tangaroa has resented Tāne ever since he forced his parent's separation, and extends that resentment to humankind as the offspring of Tāne. Tangaroa will take any opportunity he can to abduct the offspring of Tāne, especially when we hunt and consume his offspring - the many creatures of the ocean."

It is often said, 'never turn your back on Tangaroa', warning us to be wary of the wrath of the ocean god, lest he find the opportunity to attack us.

"Humankind manages this love-hate relationship through incantation to their brother Rongo, who is the peacemaker. Traditionally when humankind set off over water for travel or fishing, incantations evoked the diplomatic nature of Rongo to keep peace between his brothers, and thus keeping humankind safe. These blessings were enforced after safe passage with incantations and offerings of genuine respect to Tangaroa for the tolerance accorded to humankind under the influence of Rongo. As humankind consume their own relatives (marine life), these incantations also invoked the necessary placations to maintain balance in the cosmos."

"In regards to the sea, it is through the angst suffered by Tangaroa over the separation of his parents that he surrounded himself in his own tears and created a world within them as part of his healing process. Humankind bear the reminder of this cycle through our own salty tears — a gift from Tangaroa to remind us of how to suffer and how to heal. This is why openly crying is a traditionally accepted expression of grief, love and healing. Tears remind humankind of what our ancestor Tâne did and how his brother Tangaroa coped with the situation."

These stories remind us to respect the ocean, and to respect its gifts, of the need to exercise caution in our relationship with it, the need to balance the relationship between land and sea, and how our own beahaviour and emotions connect to it.

Project Shapeshifter seeks to strengthen, uplift and share the diverse matauranga knowledge of ocean, sky and land, throughout the exhibits alongside modern science and wider indigenous pacific knowledge, to provide an opportunity to share multiple points of view in understanding and caring for the ocean and its inhabitants.

It is proposed this knowledge spanning and connecting ocean, sky and land, will also be brought to life by augmentation through development of a 4D immersive theatre experience that will make this largely 'invisible' knowledge visible, as well as through programmes, interpretive exhibits, story-telling and floor guides.

Project Shapeshifter will provide a platform for sharing and engaging in this body of knowledge, knowledge held by pükenga experts and kaitiaki traditional guardians.

The knowledge associated with the ocean and land tends to be held by kaitiaki associated with particular places, especially those involved in mahinga kai *customary* food gathering practices. The knowledge associated with the sky regarding meteorology, astronomy, cosmology and lunar environmental calendar, tends to be held by descendants of those töhunga and students of such knowledge, as well as Māori researchers and practitioners, including those involved in ocean voyaging and navigation.

In close proximity to the National Aquarium site is Te Ātea-a-Rangi, the Māori star compass located at Waitangi Reserve at the mouth of the Ngaruroro river. A second, known as Te Mātai Whetū, is located at Hakikino in Waimārama, which was also the location of a whare wānanga established by tōhunga who arrived with Te Waka Tapu o Takitimu. In addition, Te Matau-a-Māui voyaging trust is located close by in Ahuriri providing ocean voyaging waka experiences.

Local experts have been involved in the development of the Project Shapeshifter proposal and are excited by the opportunity to create a place for the sharing and further development of this knowledge, particularly the opportunity for Māori to engage with it as well as the opportunity to link this knowledge base with other indigenous knowledge systems around the Pacific, alongside modern science.

It is anticipated and expected that this will provide a focussed and collaborative opportunity to drive new levels of understanding and care for our ocean and its inhabitants.

1.4 Märamataka Environmental Calendar

A key dimension of pūtaiao science of particular relevance to Project Shapeshifter, is Te Māramataka The Māori Environmental Calendar. Te māramataka makes reference to the moon, stars, seasons, weather, and movement of species. It guides when to plant, when to fish, when to harvest, when to travel, when to procreate and also when not to do these things. Te māramataka guides seasonal practices in sync with the ebbs, flows and cycles of nature.



There are a number of key events in te māramataka that can provide a basis for changing programmes in the National Aquarium, such as Te Matau-a-Māui Scorpius, Puanga-rua Rigel, Whānui Vega and Te Huihui-a-Matariki Pleiades. The modern day revival of Matariki new year celebrations has become nationally prominent thanks to the efforts of Ngāti Kahungunu who catalysed the recent practice and popularity of celebrating Matariki annually in a public way.

Te Huihui-a-Matariki as an event and celebration, provides an opportunity to present new programmes and events that provide a deeper view into pūtaiao and te māramataka. It also provides another point of pacific connection as the star cluster has different names and meaning throughout across the Polynesia and the pacific rim.

Te maramataka provides a platform for people to reconnect with the seasonality of nature, and seasonal practices, as well as providing rich stories for programmes, events, story-telling and celebrations.

1.5 Püräkau Legendary Stories

"He pükenga wai he nohonga tängata, he nohonga tängata he pükenga körero."

"When waters converge and pool, people come together, when people come together, conversation flows."

As a culture with a rich oral tradition, Māori knowledge is encapsulated in, and perpetuated through, story-telling. Project Shapeshifter provides a platform to share such stories.

There are many stories that can be shared, from very site specific local stories such as that of Pānia the famous mermaiden of Ahuriri, through to wider Māori and Pacific narratives. This project seeks to focus on those narratives that provide the greatest potential for both a local and site specific narrative, as well as a wider Māori and Pacific Narrative. It seeks to embrace stories that connect the Pacific, including stories of species.

1.5.1 Māui Tikitiki-a-Taranga

The Māui narrative is known throughout the Pacifica nations. Māui lived an extraordinary life which is still recalled and discussed today. Many of his deeds explain the Pacifica mindset and his presence in whakapapa genealogy details how each island nation relates to each other. Māui has been cast by Disney in the movie 'Moana', taking Māui to the masses and raising the profile of Pacific narratives strengthening the power and potential of such stories. The movie is estimated to have cost US\$150-175m, and has to date netted US\$643.3m at the Box Office.

And the meaning of Maui's name? Ma = for. Ui = question. Maui = for questioning. That is, Māui questioned our world for the enlightenment of you and I. So in the context of our quest to drive new levels of understanding and care for our ocean, it is not only the story of Māui, but that questioning and challenging spirit of Māui, that we seek to foster in the reshaped National Aquarium.

That spirit is well described by the late Dr Ranginui Walker in his book 'Ka whawhai tonu mätou'.

'He was quick, intelligent, bold, resourceful, cunning and fearless, epitomising the basic personality structure idealised by Maori society.

As a heroic figure, Māui served as a model to all teina (junior children) and in particular the last-born, that provided they had the determination and qualities displayed by Māui, they too could succeed in life.' Māui was born premature and his body was wrapped by his mother Hina Taranga in a top-knot of her hair and cast into the ocean, hence his name Māui Tikitiki-a-Taranga. He was found in the ocean by ocean spirits who wrapped him in seaweed, and nurtured him back to health until he returned to the land and his family as a young man.

Māui is credited with many daring feats, including slowing down the sun, capturing fire, and perhaps most importantly to this place, discovery of Aotearoa, perpetuated as the hauling of 'Te Ika-a-Māui' from 'Te Waka-a-Māui'.

As the story goes, Maui sought out the help of his goddess grandmother Murirangawhenua who gifted her jawbone that he fashioned into the magic hook with which he caught this giant fish, a tarawhai stingray.

"Māui wanted to go fishing but his older brothers would not help or take him. One day he visited his grandmother and she gave him her jawbone to use as a fish-hook. Because his grandmother was a goddess, her jawbone contained special powers.

Māui hid in the bottom of his brother's fishing waka and when they were far out to sea at their fishing grounds Māui came out of hiding. Maui did not like the fishing ground where they were as the special powers of his hook told him to travel more. He made his brothers travel further and further out to sea.

When Maui was happy with a place to fish at, his brothers would not share their fishing bait with him. His brothers were angry because Maui made them travel so far. So, Maui hit his own nose causing it to bleed. He used his own blood as bait on the special hook from his grandmother and then threw the hook into the sea.

Măui caught a huge fish - a giant stingray."

You can see the outline of Te Matau-a-Māui Hawke's Bay extending from Te Kauae-a-Māui Cape Kidnappers at the southern end, to Waikawa Portland Island at the northern end, a double barbed hook. Some say the Bay was made in the shape of the special hook as a reminder of how the land was fished-up. Others say the hook fell and turned into the land surrounding the bay, the land that we live on today.

Wellington is Te Üpoko-o-te-lka The Head of the Fish. The Wairarapa coast line is Te Aho-a-Māui The Fishing Line of Māui, in navigational terms meaning that one draws their waka along the line towards the hook. One could ask why the hook and line is on the wing of the fish, the explanation is that fish was caught through a foul hooking:

"Te Whakapunake a te matau a Māui-tikitiki-a-Taranga"

"Where the hook of Māui-Tikitiki-a-Taranga foul-snared"

When Maul caught his great fish, the special hook did not catch the stingray in the mouth. Instead, it 'foul-snared' the fish in its side. The short name for the mountain is Whakapunake, which means 'to foul-snare'.

For Polynesian's the traditional viewpoint of Aotearoa was quite different to what we see in modern maps today. In regards to Polynesian migration and the establishment of trade routes, Te Matau a Māui is a significant landmark and is synonomous with the hauling up of land; as in the land is pulled towards the waka as a fisherman typically reels in a fish.

1.5.2 Te Moana-nui-a-Kiwa The Great Pacific Ocean of Kiwa

Te Moana-nui-a-Kiwa, or in some Pacific dialects 'Kiva', plays a central role in the proposal as referring to a focus on the whole Pacific Ocean including Pacific Islands and Pacific Rim nations. Kiwa is one of several male divine guardians of the ocean in the traditions of some East Coast iwi.

In some traditions the first wife of Kiwa was identified as Parawhenuamea, ancestress of streams that flow from the land to the sea and of fresh water generally. The second wife of Kiwa was Hinemoana, a personification of the sea. Kiwa and Hinemoana had a number of children, the names and numbers of their children vary in different accounts. One version names ten children and for most of these, gives details about the creatures they gave rise to:

- 1. Pipihura ancestor of the cockle.
- 2. Te Uru-kahikahika -- source of eels, lampreys and frostfish.
- 3. Wharerimu ancestor of seaweed.
- 4. Hine-tapiritia ancestor of certain molluscs and oysters.
- 5. Te Raengawha origin of sea urchins, as well as various fishes.
- 6. Te Kiri-pakapaka origin of the snapper and the gurnard.
- 7. Whatu-maomao whose offspring include the grouper, kingfish, and kahawai.
- 8. Te Kohurangi
- Kapuwai
- Kaiwahawera, ancestor of the octopuss.

1.5.3 Atua Mäori Māori Deities

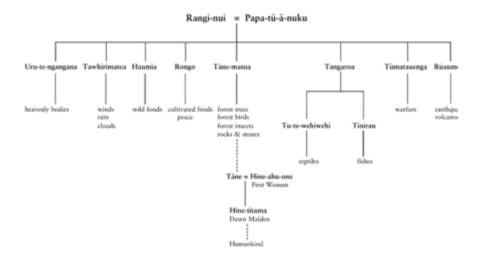
The Māori order of the natural world is assembled and understood by way of whakapapa genealogical connectedness, relating to deities of environmental domains. Project Shapeshifter primarily focusses on three of the deities; Tangaroa god of the ocean, Hinemoana the ocean goddess and Ranginui the sky father. These deities focus on the ocean, coastal and tidal area, and sky. The next extension beyond these deities takes in the domains of Parawhenuamea the goddess of fresh-water, Tâne god of the forests and man, and Papatūānuku the earth mother.

These deities govern different environmental domains and eco-systems. Their stories encapsulate principles relating to those eco-systems and our place in that as human beings, reminding us that these creatures of the natural world are our older siblings and deserving of respect.

Takitimu teachings tell us that some 70 children of Ranginui and Papatūānuku are all males. They mated with elements imbued with female energy to create the rich tapestry of whakapapa which unites out universe.

Alongside modern western science, this whakapapa provides an alternative framework for understanding the relationship between species, and between species and people, a framework rich in story and narrative which from a visitor point of view can support memory retention and emotional impact.

The sharing of these stories and the principles of care the convey, can be shared within the Aquarium habitats and eco-systems of this different environmental domains.



1.5.4 Ngä Waka o Neherä The Ancient Ocean Voyaging Vessels

The stories of first arrivals by ocean voyaging canoes, are stories that both span and connect us back to our Polynesian roots and Pacific exploration, as well as providing a platform for sharing stories of celestial navigation, the connections with species, particularly migratory species and species that acted as guides and guardians of those voyages, such as tohora whales and wheke octopus.

Central to the local cultural fabric is Te Waka-a-Māui Nukutaimemeha, the Te Waka-a-Whatonga Kurahaupō, and Te Waka Tapu o Takitimu. These three waka represent three strata of time and three distinct migratory settlement periods. The feats of these ancient ocean voyaging vessels are only fully becoming understood and appreciated in modern New Zealand and Pacific society.

Core to the voyaging story is the association with migratory species and celestial navigation.

The Scorpio group of stars in the sky is also called Te Matau a Maui, which means 'The Hook of Maui'. The shape of the stars not only looks like a scorpion, they also look like a fish-hook.

During a certain period of the year, when you travel over the sea to Aotearoa from the North, these stars guide your way here. As you get closer to Aotearoa, the bottom of the group of stars gets closer and closer to the horizon, which is where the sea meets the sky. When the bottom of the hook touches the horizon, it appears to touch the land. The land that it appears to touch is Whakapunake, so it looks like that Aotearoa is being fished up by a giant star hook.

So, Maui's giant hook made of stars in the sky, created from the special jawbone of his goddess grandmother, actually hooks the land out of sea – right on the frowning cliff of Whakapunake.

1.5.5 Honu Turtle

There are stories relating to many species that feature across the Pacific, perhaps one that is worth noting here is the honu *turtle*.

First Nations of North America refer to the North American continent, and in some cases the whole planet, as Turtle Island. In versions of the creation story shared by First Nations, the planet was flooded by the creator and many creatures sought to dive down to retrieve earth on which land animals could survive. After many tried and failed, and some refused to try, the brave Muskrat dived down and retrieved earth but on returning died, the Turtle then seeing the ultimate sacrifice being made by the Muskrat offered its shell to place the earth on and thus rose out of the ocean creating the North American continent. If you look at the North American continent you can see the shape of the turtle with the flukes extending out at the north west as Alaska, north east as Newfoundland, south east as Florida, south west as the Baja peninsula, and the tail as Mexico.

In Tahiti the turtle is considered Lord of the Ocean, and in some Pacific narratives people travelled on the back of giant turtles. By some the Turtle also represents Tûmatauenga, the god of war.

To the Chinese, the tortoise is sacred and symbolises longevity, power, and tenacity. It is said that the tortoise helped Pangu (also known as P'an Ku) create the world: the creator goddess Nuwa or Nugua cuts the legs off a sea turtle and uses them to prop up the sky after Gong Gong destroys the mountain that had supported the sky. The flat plastron and domed carapace of a turtle parallel the ancient Chinese idea of a flat earth and domed sky. For Chinese the tortoise symbolises the universe. Quoting Pen Tsao, "the upper dome-shaped part of its back has various signs, which correspond with the constellations on the sky, and this is Yan; the lower part has many lines, which relate to the earth and is the Yin."

The tortoise is one of the 'Four fabulous animals', the most prominent beasts of China. These animals govern the four points of the compass, with the Black Tortoise the ruler of the north, symbolizing endurance, strength, and longevity.

Japanese culture adopted from China the myth of four Guardian Beasts, however, the turtle has developed a more independent tradition than the other three prominent beasts of China. The *minogame* (養亀), which is so old it has a train of seaweed growing on its back, is a symbol of longevity and felicity. According to traditional Japanese beliefs, the tortoise is a haven for immortals and the world mountain, and symbolizes longevity, good luck, and support. It is the symbol of Kumpira, the god of seafaring people.

1.6 Te Whānau-a-Tangaroa The Family of Tangaroa

The proposal has been based on identifying taonga species from Te Whānau-a-Tangaora *The Family of Tangaroa*, those species of intrinsic cultural value that are best able to bring to life the cultural narratives and conservation messages to be shared.

Whilst there are many species included in this list, some key ones that have been elevated as symbolising aspects of the narrative and domains include the tarawhai stingray, tohorā whale, honu turtle, mango shark.

The following was developed as a preliminary list of taonga species, those species of cultural significance, to guide species selection.

Honu - Turtle

Kororă - Little Blue Penguin

Kekeno - Fur seal

Tohorā - Whale

lka - Fish

Kahawai - Sea Trout

Mako - Shark

Mangopare - Hammerhead Shark

Whai - Short-tail Ray, Long-tail Ray, Eagle Ray

Pätiki - Flounder

Paara - Frost-fish

Tämure - Snapper

Wheke - Octopus

Waitai - Coastal Water

Tuna - Longfin Eel

Īnanga, Kökopu, Köaro - Whitebait, Galaxids

Crustaceans

Wai Koura - Freshwater Crayfish

Koura - Crayfish

Mātaitai - Shellfish

Păua - Abalone

Kina - Sea Urchin

Pipi - Paphies australis

Kuku - Mussels

Tuangi - Cockle

Mare koroua - Freshwater Pipi

Kākahi - freshwater mussels

Rimu - Seaweed

Karengo - Red Seaweed - Porphyra species

Rimurimu

Rimurapa - Bull Kelp

Manu - Birds

Kuaka - Bar-tailed Godwit

Titi - Sooty Shearwater

Kuia - Grey faced petrel

Tākapu - Gannet

Kötare - Kingfisher

Maunga, Ngähere, På Toka - Mountain, Forest and Rocks

Tuatara

Weta

Pekapeka

Katipô

1.7 Whare Wananga House of Learning

When Ruawharo arrived in Aotearoa many centuries ago, he came on the waka Takitimu. Ruawharo was very clever and knew much information. Mäui was his ancestor and Ruawharo knew the history of Te Ika-a-Māui, of Whakapunake and Te Matau-a-Māui.

Waikawa (also known as Koura and Portland Island) was chosen by Ruawharo as the spot to establish a special university which he called Ngā-heru-mai-tawhiti. Ruawharo chose Waikawa as this place for the university because Māui had smeared his hook with his own blood for bait. To the elders, a person's blood is very sacred. As Waikawa is the barb of the hook, it was made sacred through the blood of Māui being smeared over it.

Project Shapeshifter has essentially been conceived as a whare wananga, a house of learning, a place where learning is spiritual, cultural, intellectual, experiential, and practical.

This where wannings is open to all, a place for knowledge sharing and exchange, a place where knowledge systems come together to generate new levels of understanding and insight, a place where knowledge systems test each other, to find truth and meaning and to guide conservation action.

As a whare wananga Project Shapeshifter provides a platform for all indigenous people of the Pacific to contribute their knowledge systems for better questioning of our ocean environments.

1.8 Whakaahua Building Design

Design provides the opportunity to give expression of project concepts and narratives through built form and interpretive design and artistic expression.

1.8.1 Cultural Landscape

The site, building, and exhibit design, provides the opportunity for the visible expression and articulation of the cultural landscape of the location, making reference to local people, stories and places, referencing past, present and future. This has informed both site and building design, as well as design of the visitor experience and habitats.

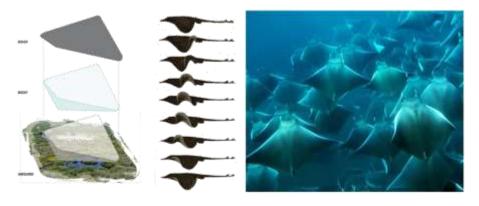
The design team have referenced the past in designing for the future.

1.8.2 Hoahoanga Architectural Design

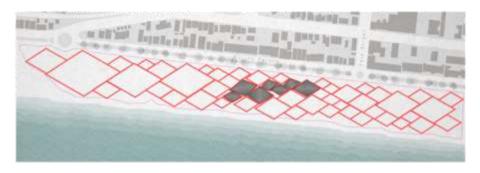
The building design has been developed through collaboration between ARAHIA and San Francisco based Aquarium Designers EHDD, informed by a Ngäti Kahungunu Design Wänanga.

The design acknowledges nature as the source of toi Māori, and Tangaroa as the source of toi whakairo carving arts. The building design references a school of tarawhai stingray, as central to the Māui narrative, and links this with the exterior landscape inspired by the pātiki flounder design, both are diamond form and a grid that mimics the patterns found in braided rivers and the ocean floor.

The building and procession through the site has also been designed to accommodate powhiri formal welcome, whilst not trying to replicate the image of an archetypal marae atea ceremonial courtyard or whare whakairo ceremonial carved house.









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1.8.3 Toi Wheako Experience Design

The visitor journey / experience design is underpinned Mãori cosmogeny, referencing the Mãori creation story and a Pacific centred narrative.

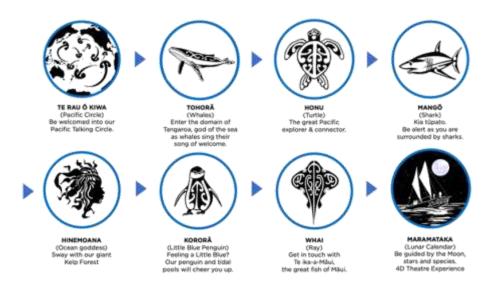
The experience takes visitors through the following sequence and domains:

Wahanga	Whakaaro
Aramoana	On arrival to the site, visitors are guided towards the ocean on a path that
Ocean pathway	then provides for processional entry to the building.
	In doing so it seeks to provide people with a connection to Te Whanganui-a-
	Ruawharo Hawke Bay, seeking to connect them with the rhythms, sights
	and smells of the ocean – to connect with Tangaroa and Hinemoana.
Te Waharoa-a-Kiwa	The processional entry provides for gathering in accordance with tikanga for
The Gateway of Kiwa	the purposes of powhiri. As visitors proceed down the path they will be able
	to assemble or pause at Te Waharoa o Kiwa, gateway of Kiwa, to denote entry to the Pacific Ocean.
Te Rau-o-Kiwa	On entering the building you enter Te Rau-o-Kiwa, our Pacific Talking
The talking circle of	Circle. Te Rau-o-Kiwa is designed as a space for welcome and ceremony,
Kiwa	a place for convening all corners of the Pacific, designed in the universal
	and ancient form of a talking circle, as was once held in front of the houses of chiefs.
	Te Rau-o-Kiwa immerses you in the Pacific Ocean, surrounded by carved
	pou representing, and carved by, Pacific Rim and Island indigenous
	peoples, interspersed with digital panels that surround you in the
	underwater world of the island and nations – with underwater video
	featuring their taonga species and korero. Each will have their own pou
	rakau, talking stick, which they will uplift when they are 'in the house'.
	All voices have a right to speak and be heard in this place.
	When required, this functions as a ceremonial space, when not, it forms
	part of the visitor experience.

Te Wā-a-Tangaroa	The first 'experience' you will encounter is descending to the dark depths of
Ocean domain	the ocean, where you will be surrounded by the sights and sounds of
	whales enhanced with taonga püoro and augmented story telling.
	You will progress through this domain towards the coast and transition into
	the domain of Hinemoana, first encountering honu turtles, in our sub-
	tropical reef tank, enabling the telling of a Pacific wide story of connections,
	then on to our shark and ray tank.
Te Tai-a-Hinemoana	You will next encounter our near shore environment and be wowed and
Coastal domain	mesmerised by the hair of Hinemoana, a giant swaying kelp forest teeming
	with marine life.
	You will then emerge from the ocean into the tidal domain. Te Tai-ao, where
	you will arrive under a cascading wave to tidal pools and on to Penguin
	tanks and rock pools, until reaching our tarawhai stingray touch tank where
	the story of Te Ika-a-Māui is brought to life.
Parawhenuamea &	Future expansion of the Aquarium will extend into the domains of
Tâne	Parawhenuamea, the goddess of fresh-water where you will encounter
Freshwater & Forest	inanga, wai koura and other fresh-water species, and into the forest domain
	of Tane, where you will encounter Kiwi and Tuatara.
Rangi	Finally, you will enter the domain of Rangi, the sky-father, in a 4D
Sky domain	immersive theatre experience that will bring matauranga Maori to life.
	You will lie back in reclining seats in a dome theatre where the night sky
	and lunar calendar can be brought to life, linking with our ocean and land
	domain – sharing stories of seasonality and the migration of species.
	It also provides the opportunity to bring to life stories of pacific migration
	including celestial navigation and to feature calendar events such as
	Matariki – bringing them to life through augmented digital story-telling,
	sound, air, water and movement.
	Journal and Hotel Miles

A preliminary series of tohu symbols have been developed to mark these domains along the visitor journey, drawing on Māori & pacific metaphor.

The designs have developed in an anthropomorphic style to give them some persona that can be easily read, rather than drawing too heavily on toi tawhito traditional arts that require cultural literacy to interpret. They integrate some simple Māori design elements to create a distinctive 'Kiwi' aesthetic, with the exception of the tarawhai stingray as a central cultural design element which draws more explicitly on Māori design sensibility as a key tohu symbol for Te Ika-a-Māui.



It is anticipated further tohu need be developed for Tangaroa, Parawhenuamea, Tane and Papatüänuku, as future stages extend into fresh-water and forest systems.

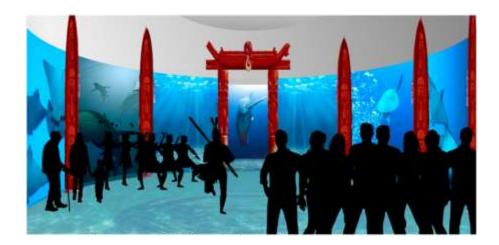
1.8.4 Toi Māori Māori Arts & Design

Scope exists for a wide range of Măori creative disciplines to be applied, outlined briefly below:

Ngā Toi	Creative discipline	Opportunity
Mahi-a-te-rehia,	Performing Arts,	To provide performances for events, functions and
Haka, Waiata	Haka and Waiata	formal occasions. To draw on narratives from
		waiata tawhito pertaining to the environment.
Toi Püoro	Musical Arts	Opportunity to produce bespoke soundscapes for
		key sensory experience spaces as well as utilisation
		for events and functions. To amplify sounds of
		nature through taonga püoro.
Tai Tawhito	Traditional Arts:	Development of Waharoa, Te Rau-o-Kiwa and other
	Whakairo	key cultural elements.
	Raranga	
		Opportunity for development of a site to grow
		weaving resources in the landscape and use for
		weaving practices.
Toi Ataata	Contemporary Arts	Contemporary arts to embellish spaces and
		integration in interpretive content.
Toi Hangarau	New creative	Digital media, social content and new media.
	technologies	
Toi Rerehiko	Digital Arts &	Digital Arts and Animation to augment stories.
	Animation	
Whakaahua	Design: Product,	Development of all visual content from brand, to
viridikadiriud	Graphic,	marketing, print, and online content.
	Photography,	Development of interpretive content and
	Videography	experiences.
	Tiviovgraphty	enperiorities.
Hoahoanga	Architecture &	Co-design of Architecture and site design including
	Landscape	landscape.

1.8.5 Toi o Ngã lwi Taketake Indigenous Arts & Design

Te Rau-o-Kiwa, the Pacific Talking Circle, proposes the carving of 12 pour from around the Pacific Rim, providing the opportunity for each to carve their own pou and creative exchange, whist cementing their connection with the Ocean Centre and Aquarium.





1.9 Täonga Tuku Iho Cultural Intellectual Property

Of critical importance to mana whenua of Te Matau-a-Māui is the safeguarding and protection of taonga tuku iho intergenerational knowledge in the form of whakapapa, pürākau, mātauranga, me toi Māori genealogy, stories, knowledge and art.

Project Shapeshifter proposes to develop a robust system for managing and protecting Māori Cultural Intellectual Property that recognises the ownership of such property as deemed by whakapapa, but also recognises how to balance such matters in regard to tapu sacred and noa ordinary.

The cultural narrative contained within this document is used by kind permission of Ngäti Kahungunu lwi Inc. and Wairoa Museum with attribution to Nigel How, appointed to Project Shapeshifter to represent the interests of Ngäti Kahungunu.

There is a current whole of government review of Intellectual Property Law being undertaken by MBIE that is giving consideration as to how to give effect to the recommendations of the Waitangi Tribunal in regard to the WAI262 claim.

1.9.1 WAI262 Indigenous Flora & Fauna, & Māori Cultural and Intellectual Property Rights

The WAI262 claim regarding Indigenous Flora and Fauna and more broadly Măori Cultural & Intellectual Property is one of the most widest reaching of Waitangi Claims and provides a framework and direction for managing Māori Cultural & Intellectual Property.

It includes indigenous flora and fauna and all derivate works including mātauranga Māori. It describes two classes of property being 'taonga works' and 'taonga derived works', being essentially inherited works and more contemporary works inspired by or including taonga elements. In both cases it refers to the role of kaitiaki as deemed by whakapapa. There is still a lot of work to be done to resolve how to apply the findings of this report, but it will need to be translated into organisational policy and practices in regard to all indigenous flora and fauna, cultural narratives and designs.

The sentinel report 'Ko Actearoa Tenei' provides the basis for developing this.

1.10 Ngã Pou Āhua Core Values

For Project Shapeshifter to give effect to Kaupapa Māori, it will need to 'walk the talk' when it comes to key cultural values that underpin these concepts. These values will need to be explored and defined more clearly, but two key concepts required are Tiaki Moana and Manaakitanga.

1.10.1 Tiaki Moana Ocean Care

Tiaki Moana, simply refers to care of the ocean, but within a Māori cultural context extends to how that care is provided and undertaken. It will be important that all staff understand these concepts and act as Kaitiaki, custodians, whilst recognising in many case there are particular kaitiaki for particular species based on their association with them on a site specific basis.

1.10.2 Manaakitanga Respect, Generosity and Care

Manaakitanga is about the extension of respect, care and hospitality to others, internally and externally, in a way that respects and uplifts their mana, and in doing so uplifts you own mana by the way they in turn speak of you.

Manaaki manuhiri, or visitor care is required at the heart of how the National Aquarium operates, and reflected in the full brand framework of the facility.

1.10.3 Ako Reciprocal Learning

Ako recognises learning as a never-ending multi-dimensional journey that recognises everyone as learners, including kaiako teachers.

As a value, this means valuing enquiry, exploration, experimentation and innovation. This aligns with the ethos of Māul For Questioning and clearly demarks the National Aquarium as a whare wananga house of learning.

1.10.4 Mana Whenua - Mana Moana Prestige of Land and Sea

The National Aquarium will recognise mana whenua and mana moana, that is the authority of indigenous peoples over their customary land and ocean territories. This will be important in relation to all species and in the way they are interpreted, for example if a turtle has come from Tonga, then Tonga would guide how it is cared for and how its story is interpreted.

The expression of mana whenua starts with recognising this in the National Aquarium itself, acknowledging local hapū and iwi as kaitiaki for the site, whilst creating a platform that allows others to exercise their tikanga as occasion demands.

A practical 'blueprint' for this is the 'iwi in residence' programme at Te Papa, which recognises the mana of the Iwi in residence by allowing them to exercise their tikanga on the Marae for the period they are in residence. For the Centre this could be applied when hosting Iwi taketake as well, providing the opportunity for Pacific nations to exercise their tikanga, their customs and practices.

1.11 Tikanga Customary Protocol

Giving effect to kaupapa Māori requires recognising and creating the appropriate platform for the exercise of tikanga in terms of customary protocols and practices.

Of key importance, is the ability to powhiri, or to provide a customary welcome ceremony. This has been catered for in the site and building design in terms of procession of entry from the carpark, a space for visitors to gather, a path to proceed to a waharoa gateway, an open atea courtyard in front of the main building and entry, and on entering Te Rau-o-Kiwa provides the space for powhiri and whalkorero formal speeches of exchange and connection.

Te Rau-o-Kiwa has been conceived as a talking circle as a more common and widely used spatial blueprint for such exchange, a format Māori used prior to the more modern archetypal wharenui and marae ātea ceremonial courtyard which created a more rectilinear format. This processional and spatial sensibility is embedded in the design DNA but expressed in a contemporary way.

As outlined above, tikanga may change when occasion dictates to accommodate different Pacific nations, but will be underpinned by the local kaitiaki creating the platform for this to occur.

1.12 Huanga Beneficial Outcomes

Whilst the commercial viability and feasibility of Project Shapeshifter will rest on the commercial and economic potential of the project, Mäori expect a wider range of non-commercial cultural benefits, some of which is mapped below based on the proposed areas of focus.

Wahanga	Whakaaro
1.2. Pútaiao	To share and make accessible current knowledge, ensuring its survival
Mãori Science	and growth for future generations.
	To collaborate with scientists to explore and cross-reference matauranga
	Māori with western science.
	To connect, share and compare with other indigenous knowledge systems
	to widen our collective mătauranga.
	To become leaders in indigenous environmental knowledge, providing
	opportunities for convening and hosting forums in Te Matau-a-Māui, as
	well as exchange and placements offshore.
	To secure opportunities for research and research funding.
	To encourage and enable the application of matauranga Maori in
	environmental projects, planning and agenda.
	To gain wider public acceptance of Māori knowledge systems and ability
	for its inclusion in environmental planning and projects.
1.3. Märamataka	To share and make accessible māramataka knowledge, ensuring its
Mäori	survival and growth for future generations.
Environmental	To support and promote revival of traditional knowledge and practices.
Calendar	To provide a platform for developing and hosting forums and events.
	To provide a strong annual programme of natural events and
	environmental interpretation.
1.4. Pürakau	Provides an opportunity to share, value, and 'normalise' an indigenous
Legendary	worldview, a shift from being relegated to, and devalued by being
Stories	described as 'myths and legends', to recognition of the knowledge,
	principles and values they espouse to guide modern behaviour and action.
	Provides an opportunity to elevate our local and wider Pacific narratives, in
	doing so building awareness of, and pride in, our cultural landscape.
	Opportunity to forge stronger Pacific connections through weaving together
	our narratives.
	Opportunity to provide a focal point for the Hawke's Bay regional story and
	regional promotions.

Wahanga	Whakaaro
1.5. Te Whanau-	This provides an opportunity to shine a light on specific species of cultural
a-Tangaroa The	value and to share cultural stories and values in regard to those species,
Family of	while creating a platform for research and care.
Tangaroa	
1.6. Whare	This will provide a platform for sharing and developing matauranga which
Wänanga House	in turn will enable better access to knowledge and research to inform
of Learning	environmental care, as well as policy and planning.
	It also provides an opportunity for the education system to engage with
	mătauranga Măori beyond what is currently possible in the education
	system.
1.7 Whakaāhua	This provides an opportunity for the engagement of Māori creatives in the
	The provided an opportunity for the original or that the original or the original or
Design	establishment and ongoing development of the site, building, interpretive
	design and scope for commission and arts exchange with other indigenous nations.
	nagons.
1.8. Taonga Tuku	Provide a platform for the development and application of contemporary
tho Cultural &	'best practices' in creature care and cultural and intellectual property
Intellectual	management and protection, creating a blueprint for others to follow.
Property	
1.9. Ngã Pou	This provides an opportunity to deeply embed Māori and wider indigenous
Ahua Core	, , , , , , , , , , , , , , , , , , , ,
Values	values in creature and visitor care in a respectful way.
vaides	
1.10. Tikanga	Provides a platform for the expression of culture and normalisation of
Customary	cultural practices in a significant public domain, including opportunity for
Protocols	cultural performances and activities when hosting.

2 Section Two: Mana Ōhanga Cultural Economic Case

In addition to cultural benefits, Project Shapeshifter seeks to deliver explicit opportunities, and tangible benefits for Mãori economic development.

2.1 Whakangao Investment

2.1.1 Investment opportunities

A range of potential Māori investment opportunities exist.

Opportunity	Description
Ownership	The potential for NCC to provide an lwi or PSGE investor a long term license to
	occupy the site would pave the way for ownership of the building by Māori interests,
	securing the opportunity to provide a long term lease to an operating entity who
	would take responsibility for the fit-out and operations.
	This would provide for a long term stable investment.
Co-ownership	As above, a mixed ownership model between NCC, an lwi, PSGE, or other Māori
	investor, could provide an opportunity for co-ownership, whereby each would retain
	an interest and stake in the success of the facility.
Mixed	The opportunity exists to consider a mixed ownership model, rather than a co-
ownership.	ownership one. For instance Māori could invest in developing and operating the 4D
	Theatre, with an upfront investment of \$6.8m and potential annual revenue of \$3m
	(based on conservative 150,000 visitors per year at an average entry fee of \$20).
Hospitality &	As the cultural hosts for the site, mana whenua can be provided the opportunity to
Retail	contract lease and operate all site hospitality and/or, retail services.
	This could include operations of the onsite café, catering for forums and events,
	providing external catering services, operating retail spaces.
Tourism	An opportunity exists to develop and invest in new Tourism opportunities that could
	be based onsite or offsite, or link with existing tourism offerings.

2.1.2 Potential Investors

The following potential investors have been considered and exploratory discussions had.

Potential investors	Description	Status / likelihood
Ngāti Kahungunu	The tribal authority or its	Support the project and will consider
lwi Inc / KAHC	Commercial Holdings company.	investment opportunities if the case stacks
	NKII manage all commercial	up and partnership model is right to ensure
	fisheries assets on behalf of the	controlling shares and decision making
	lwi and their Holdings Company	ability.
	invests in other areas of	
	commercial activity, including	
	Takitimu Fisheries.	
PSGEs	There is a number of post treaty	They will most likely seek cultural as well as
	settlement entities within the	commercial returns and look for deals that
	Ngăti Kahungunu fabric who	assure employment for whanau.
	may consider investment.	Some are more investment ready than
		others and shown interest in the project, in
		particular the Heretaunga Tamatea
		Settlement Trust.
Other Iwi / Māori	Once local opportunities have	This has not been formally explored,
entities / private	been offered and secured or	however some thought has been given to
	declined, wider iwi and Māori	lwi in the Tourism and property domains.
	investor opportunities can be	
	explored.	
	1	1

2.2 Mahi / Employment

With a Māori heart, and a Māori back-bone, success of the proposed Oceans Centre and Aquarium will be dependent upon having the right cultural competence and capability on staff.

The following needs are anticipated, from a Maori perspective.

Potential Roles	Need			
GOVERNANCE				
MANA	Directorships / co-governance.			
WHAKAHAERE	Representation from Măori / mana whenua			
GOVERNANCE	Guidance from kaumatua / elders			
KAIWHAKAHAERE	Co-management, providing cultural leadership			
EXECUTIVE	Indigenous Strategic Relations leadership.			
	lwi relations.			
	Kaupapa Măori leadership: Creature Care, Education, Conservation, Story,			
	Manaaki, Content etc.			
KAIMAHI	Executive assistant to the Māori exec team.			
STAFF	Kaltiaki Moana / Ocean Care Cultural leadership.			
	Kairāngahau Kaupapa Māori / Kaupapa Māori Research.			
	Kaiako / learning facilitators, particular Māori Medium education.			
	Kaikõrero / head story teller – pürakau leadership.			
	Kaiarahi / Cultural Guides for visitors and staff.			
	Kaiwhakaahua - Kaimahi Toi / Creative capability in design, story,			
	interpretation, te reo, witing etc.			
	Kaimamanaaki / Hosts			
	Kaitautoko / support staff.			

In addition to the potential roles charted above, there is a range of secondary contractors that can be engaged using a preferential policy towards Māori providers e.g. electrical, plumbing, cleaning etc.

It is proposed staffing be part of a partnership agreement with Mana Whenua to identify:

- · Mäori specific roles.
- · FTE targets / staffing ratios.
- Cultural competency frameworks.
- Career & Professional Development pathways.
- Volunteer development & employment pathways.
- Preferred contractor arrangements.
- Secondments / internships / exchanges.

2.3 Õhanga Tāpoi Visitor Economy

The key cultural elements of the proposed Oceans Centre and Aquarium position it as providing a cultural experience in addition to its focus on environment and conservation. This presents opportunity to leverage this as a connector and enabler for regional Māori Tourism growth.

2.3.1 Local Mäori Tourism

A recent Māori Tourism development project initiated and undertaken by ARAHIA, supported by Te Puni Kökiri, engaged with Māori Tourism businesses across the Ngāti Kahungunu rohe from Wairarapa to Māhia and further north into Turanga nui-a-Kiwa Gisborne.

Eight half day workshops were delivered in four locations. There were 91 attendees across the eight workshops, including 53 unique attendees representing 38 businesses at various stages of development and a data base of 91 people involved in Tourism was established.

As part of the workshops, attendees had the opportunity to identify business and regional development needs as well as collaboration opportunities, as summarised below.

Location / region	Business Support Needs	Regional development needs	Collaboration opportunities
Gisborne / Tairawhiti	Business planning. Membrang across a range of areas of seperties. Use of computer and social media for marketing. General business coaching / membrang.	Mentoring / fraining in areas of business and four-sim development. Building a peer support network between operators. Collective marketing infrastructure and connectivity e.g. road. nal. airport, port and intended.	Collective marketing. Listing with similar ventures - apportunities for sackaging and briding.
Mahia / Wairoa area	Support with business strategy, planning and Health & Safety. Opportunities to visit and learn from successful Mison Tourism / Hospitality businesses.	Packaging tours / groducts / experiencies. How to structure a 'collective' model or approach for regional collaboration e.g. cross-booking. Need for 'familia' to each others businesses to identify apportunities for collaboration. Get locals to support & buly local.	Shared forum / communications to keep each other up to date and familiar with what is happening in local tourism & hospitality sector and share opportunities. Setablish a local food producers network for both retail satis opportunity but also cross-business supply. Link better with information centres.
Napier / Hastings Ahurir / Heretaunga	Multiple businesses identified quits secolds needs in their own business, ranging from concept development, business case support, to access to expertise. Desire expressed for more professional development workshops like this. In some cases support is needed with legal issues of challenges.	Growing profile of Maon tourism and greater visibility and connectivity. Rukking stronger regional story fathic, Need to strengthen networks with each other to support each other and share experiences.	Overwhelmingly ottendees seek appointment to 'package' and cross service offerings, given the range of operators a non-competing parts of the eco-system e.g. from economodation, to transport, to cultural experiences, to arts and nature experiences.
Masterton / Walrarapa	Project / opportunity scoping & business case development e.g. support with concept development, feasibility analysis etc. Access to funding for business development to business case stage.	Better linkages between operators, mana wherea, Marke, community, councils and I-sites. Better marketing / profile.	'86 uta ki tai' package i.e. link up experiences from mourdais top, to urban, arts and Marie out to coast & fishing. Púkaha as a point of linking to other local MSori experiences.

It identifies some clear needs to support at a regional level Project Shapeshifter can seek to address:

- Building a stronger regional tourism story and fabric.
- Growing profile and visibility of Māori Tourism offerings.
- Fostering better linkages.
- Collective Marketing.

- Packaging of tours / products.
- Establishing a F&B network and packaging.
- Mountain top to sea experiences.

As a potential iconic attraction for Hawke's Bay, the proposed Ocean Centre & Aquarium would be well positioned to fulfil many of these needs and act as a connector and enabler for Māori Tourism growth. The Hawke's Bay Tourism RTO has already shown strong support and interest in the facility and for its potential to shape the regional tourism story and narrative on Māui, front-footing a Māori story as leading regional promotion. This presents a significant opportunity to weave together a regional Māori Tourism fabric and package offerings.

2.3.2 Enabling, Linking and Leveraging Opportunities

The proposed Oceans Centre and Aquarium can provide a much needed 'hub' for Māori Tourism acting as a portal to a wider Māori Tourism offering that has alignment with the core kaupapa of the Centre, including, but not limited to:

- Åtea-a-Rangi: The M\u00e4ori Star Compass at Waitangi Reserve.
- Te Waka-a-M\u00e4ui Voyaging Trust: Providing waka vayaging experiences.
- Waimarama Māori Tours at Hakikino Pā: Providing a link to the stories of the arrival of the Takitimu waka, whare wānanga and a mātai whetū star compass made from toka boulders.
- Napier M\u00e4ori Tours at \u00f6t\u00e4tara P\u00e4: Bringing to life local cultural narratives through walking tours, such as the story of Pania and Moremore.

Project Shapeshifter provides the opportunity to offer package tours and concessional tickets, and can act as a booking agent on behalf of allied Māori operators.

There are also Māori operators that can be linked to providing:

- Taxi Services.
- Personal guided tours.
- Accommodation.
- Arts tours.

The anticipated visitor numbers to a redeveloped National Aquarium creates a valuable market channel for Māori operators who could use the site as a booking and pick-up point as well as potentially deliver programmes through the centre.

Project Shapeshifter also provides the opportunity to build regional cultural narratives for current operators can leverage to grow both the regional and Māori tourism profile e.g. Māui, Takitimu, Tangaroa etc.

2.3.3 Potential Cultural Tourism Opportunities

The scope of the proposal also provides the opportunity to develop new companion tourism offerings leveraging the focus on conservation, education, species and the opportunity to develop companion experiences e.g. guided tours of wetland regeneration projects, tour of Ahuriri estuary sharing local mătauranga knowledge.

2.4 Hokohoko Trade

The opportunity will be available to run or license the retail space in the facility and to develop product for it, as well as sell current products through it e.g. Ngã Toi Arts, Publications, Merchandise etc.

2.5 Manaaki Hospitality

The opportunity will be available to run, license of lease the hospitality functions including the café / restaurant space, event catering and use of the kitchen facilities to service external needs.

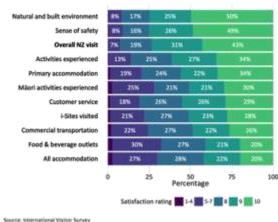
In addition it creates a platform for the provision of entertainment and hosting of events on a commercial basis.

APPENDIX 1: MÃORI TOURISM DATA

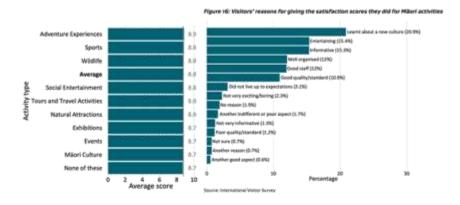
Visitor satisfaction levels

International visitor satisfaction levels for Māori activities do not rate as highly as their overall satisfaction levels, skewed slightly by exceptional levels of satisfaction with our natural and built environment which are largely non-commercial activities, but higher than satisfaction levels with geneal customer services.

Behind the scenes we understand that satisfaction levels of Māori activities is much higher when the experience is interactive, not observation. The key drivers of satisfaction are derived from opportunities to learn about the culture, entertainment and information.





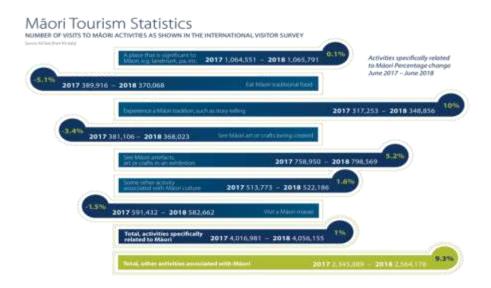


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Māori Tourism Growth

Is being driven by experiences and story-telling. Growth is much slower in more passive and observational activities, such as seeing arts being made which is declining in participation.

Traditional foods geneally do not rate well, however contemporary Māori producers of more popula food and beverages are popular, e.g. Māori wine producers, seafood, Mānuka Honey etc.

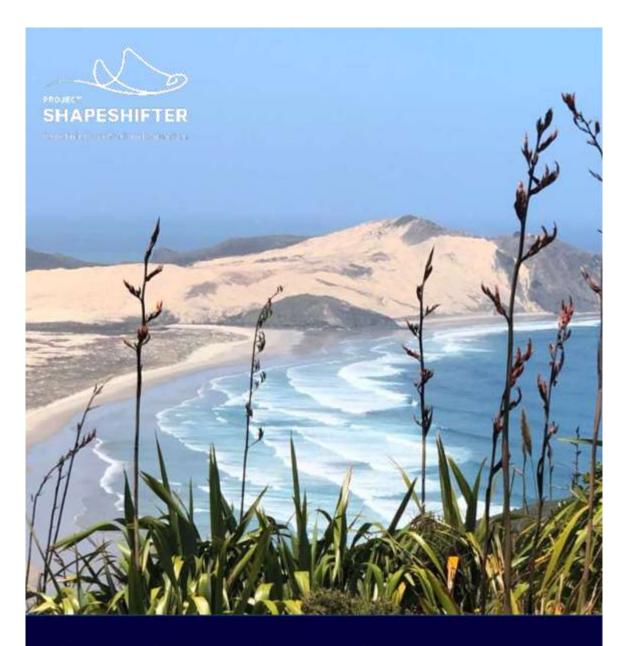


	Number of visits, year ended:			Percantage change	
	Dec-14	Dec-15	Dec-16	2014-2015	2015-2016
Activities specifically related to Māori	3,144,934	3,466,142	3,896,658	10:2%	12.4%
Other activities associated with Māori	1,810,105	1,969,321	2,285,269	8.8%	16.0%
All activities related to, or associated with, Māori	4,955,039	5,435,463	6,181,927	9.7%	33.7%
All activities (Mäori and non Mäori)	30,796,791	33,442,939	39,276,179	8.6%	17,4%

Satisfaction with different Māori activities

(Scale: 10=Extremely satisfied, 1=Not at all satisfied)

Aspect	Average rating 2016	Average rating 2013-2015	Change in rating
Eat Mãori traditional food	8.44	8.40	0.04
See Māori artefacts, art or crafts in an exhibition	8.20	7.90	0.30
Visit a Māori marae	8.11	8.10	0.01
Experience a Māori tradtion, such as story-telling	8.08	8.50	-0.42
Some other activity associated with Māori culture	7.97	7.80	0.17
See Mäori arts or crafts being created	6.72	7.40	-0.68



National Aquarium and Oceans Centre of New Zealand

Inspiring Awe, Wonder, Excitement and Action

Terra Moana Limited November 2019



DRAFT v 7, 4,11,19

Purpose

This draft document is a compilation, reference and holding space for the conservation kaupapa intended for Project Shapeshifter, and potentially to inform the new Trusts.

Project Shapeshifter is redefining the National Aquarium of New Zealand. The clear message emerging from across New Zealand is that a National Aquarium is valued and a National Ocean Centre is urgently needed — Moana Tuatahi - a place where the oceans' needs come first.

It has been developed by the Project Shapeshifter Terra Moana and National Aquarium of New Zealand team. It has been developed cognisant that there is a complete Cultural Case and would be integrated with that to reflect modern and effective conservation kaupapa and practice.

Whakatauki

E rere kau mai te awa nui nei
Mai I te kāhui maunga ki Tangaroa
Ko au te awa
Ko te awa ko au
The river flows
From the mountains to the sea
I am the river
The river is me.

"Even if you never have the chance to see or touch the ocean, the ocean touches you with every breath you take, every drop of water you drink, every bite you consume.

Everyone, everywhere is inextricably connected to and utterly dependent upon the existence of the sea."

Sylvia Earle, Scientist, Ocean Explorer



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Introduction

Passion matters

People who work with and care for wildlife are passionate. Passion is motivational, infectious and engaging. Passion is also enviable, people want to feel it and be inspired by it.

WAZA Conservation Strategy is our ultimate guide.

'The failure to act more forcefully and effectively will threaten the business model [of zoos and aquariums] and social licence that allow our institutions to exist and thrive'

Lee Ehmke, President WAZA (2013-2015) (In WAZA Conservation Strategy 2015 pg. 9)

'Project Shapeshifter' is reshaping and redefining the future of the National Aquarium of New Zealand located in Napier, New Zealand. To do this we have taken stock of the present and engaged widely in developing a proposal for a future-fit Aquarium that will place the wellbeing of the Ocean and its inhabitants, at the centre of everything it does.

Water covers 71% of the Planet with the Pacific Ocean covering over 30%. Every second breath we take is oxygen produced by life in the oceans. The ocean and its inhabitants are in crisis with the effects of climate change and acceleration of species extinction. We need to act. We are not separate from the natural world and our well-being is intricately linked with that of the ocean.

An Ocean Centred View

- · We want to drive new levels of understanding, commitment and care for our oceans.
- People care for what they value and love, so we want people to fall in love with the ocean and its inhabitants.
- To do this, we seek to develop a place and programmes that will amaze, inspire, connect and compel people to action.
- Our wide engagement affirmed the need, and support for, a revitalised National Aquarium, combined with a new Ocean Centre. This should be a place where people come to connect with the ocean and with each other, a place where indigenous knowledge, science and technology converge to enable new levels of understanding and care.
- The vast expanse of the Pacific will be brought to life through species, people and stories that bind us together.

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The need to understand connectedness, and also connect

A connection to nature, or 'nature connectedness', refers to one's identity and the role nature plays in it, how they identify a sense of oneness between themselves and the natural world (1).

An unintentional outcome of the scientific revolution has been greater disconnection with nature (2,3), as humans see themselves as above or separate from nature (4,5), particularly as humans increasingly live in urban settings, away from natural environments (6). Understanding the diversity and interconnection of non-human life is crucial to comprehending humanity as a part of nature (7).

'Many Indigenous peoples understand that humans are not separate from the rest of nature. All are one. When humans think about how to care for the Earth, we must begin with the recognition that we ARE nature, we are of the Earth, all beings are connected and we are one.'

Charles, et al. (2018). Pp. 20. (8)

"Indigenous Pacific knowledge can help define the science needed to save the ocean".

Vladimir Ryabinin. Executive Secretary

Inter-Governmental Oceanographic Commission of UNESCO

The evolution of the National Aquarium of New Zealand will create opportunities for visitors to begin this process of reconnection, or to strengthen connections, with wildlife and the natural world. Key to this is learning from indigenous cultures, principally matauranga Mäori, 'the knowledge, comprehension or understanding of everything visible and invisible existing in the universe'. Te Ao Mäori, or Mäori world view, puts Maori as part of natural systems in addition to being kaitiaki, or guardians, for that system (9). By learning from indigenous cultures and connecting this knowledge to scientific knowledge, we will build new knowledge, respect and understanding.

So many (if not all!) of the conservation stories and issues the aquarium will convey have human behaviour and activity at the root. A change in human behaviour is the means to resolve these issues, to whatever degree we can. Research has suggested that *knowledge* of the environment may only account for as little as 2% of uptake of pro-environmental behaviours, whereas a *connection* to nature links to 69% uptake (10).

Research has also shown that particular values associated with 'biophillia', or the desire or need to connect with life (11,12), provide significant pathways to nature connectedness. Specifically, sustained nature connectedness can be developed by participation in activity that allows 'contact'



(the act of engaging with nature through the senses); 'beauty' (engaging with personally pleasing aesthetic qualities in nature, like shape, colour and form); 'meaning' (using nature to help communicate concepts not easily expressed); 'emotion' (recognising and embracing the feelings that occur when engaging with nature); and 'compassion' (extending self to include nature, fostering concern for other life that motivates understanding and cooperation) (13).

Additionally, research with children has identified four major dimensions important to children's connection to nature; enjoyment of nature, a sense of oneness, empathy for creatures and a sense of responsibility (14). It is imperative that these elements are incorporated as guiding principles when developing exhibits and visitor programming to have the best likelihood at fostering nature connectedness in our visitors, or the conditions that foster nature connectedness.

It is the responsibility of the National Aquarium of New Zealand to help its visitors, partners and communities to foster, empower, educate and inspire opportunities to develop nature connectedness, no matter where a person is on their life's journey. This connection is the only way that we can help effect real, tangible behaviour change and connection that will help us tackle the conservation challenges we face, and potentially, also support better well-being outcomes for communities overall.

The animals we home are engaging, and in the new facility, will create 'wow' moments and connections all by themselves. It is our job to ensure that we provide opportunities for 'close encounters' and appropriate hands-on, interactive experiences for our visitors to spark or build this excitement and connection. However, we need to help continue this connection outside the aquarium walls. Whether through our own programming, or by linking our visitors to the activity of partners and 'friends', real nature-based experience is key. Not only do these experiences help our visitors understand that our aquarium species advocate for real issues faced by their wild counterparts, they reinforce the 'connectedness' of life out in real environments – with them (humans) a part of it.

This means continuing the current National Aquarium programming such as Rocky Shore Study, where visitors are taken out into the wonderful, wild, wet of local rocky shore environments, but also supporting regional and national initiatives such as the Mountain to Sea Trust's Experiencing Marine Reserves programme, or the University of Otago's Marine Metres² programme.



Change Is Upon Us

Climate change, the 'change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.'. (15) is happening. There is clear evidence supporting present and predicted future changes in our environment with far-reaching effects.

A lot of us live close to the sea. The UN reports that over 600 million people, or approximately 10 per cent of the world's population, live in coastal areas located less than 10 meters above sea level. Additionally, almost 2.4 billion people, or approximately 40% of the world's population, live within 100 km of the coast (16). And there's trouble on the horizon.

Higher rates of melting ice from the Greenland and Antarctic ice sheets, continued loss of glaciers and warmer ocean waters (which expand and fill larger volumes) have caused the faster rising of global mean sea level (GMSL) in recent decades. Add to this the increases in tropical cyclone winds and rainfall, extreme waves, and we have exaggerated extreme sea level events and coastal hazards (17).

Recent reports such as those produced by Goldman Sachs Global Markets Institute, continue to warn of "significant" potential risks linked to more frequent storms, higher temperatures, rising sea levels, and storm surges, to some of the world's largest cities. Blunt warnings on the risks of potential future climate events include more frequent, more intense, and longer-lasting heatwaves; destructive weather events, including storms, winds, flooding and fires; changing disease patterns as migrating warmer climates brought disease with them; shifting agricultural patterns and food shortages and immense pressure on the availability and quality of water for humans, livestock and crops (18).

But there is much to hope. Inspirational figures, such as Sweden's 16 year old climate activist Greta Thunberg, are taking stage, helping not only to raise awareness, but galvanising action by rousing passion, frustration and urgency to these issues. On Friday 20th September 2019, the Global Climate Strikes saw an estimated 4 million people take part in over 2,500 events scheduled in over 163 countries on all seven continents. People ARE taking notice, learning, talking, committing to change and demanding solutions-focused leadership.

Overall, this report finds many reasons for optimism, but much work remains. It's clear that business as usual simply isn't good enough anymore. We must do more – much more – in areas related to mitigation, adaptation, and the finance to support all of this work. And we must do it quickly.

The Heat Is On: Taking Stock of Global Climate Ambition (2019) Pg. 5. (19)



Public Engagement in Research & Conservation

A key role that the redefined National Aquarium and Ocean Centre of New Zealand must play is to encourage visitors to support and participate in real conservation action. The aim being to empower our visitors by encouraging them to 'take back some control' of an environmental situation that seems increasingly out of reach. — One action at a time, one day at a time. We must help demonstrate and visualise the impact of daily 'better choices' through sharing success stories of our own actions and those of our visitors and partners.

Each animal homed in the new National Aquarium and Ocean centre will tell a real-world conservation story. This also links to conservation efforts supporting national level strategy, such as the New Zealand Biodiversity Strategy (and each regional counterparts). Meaningful, enduring partnerships are imperative to this action, knowing how aquarium staff and our visitors can support action and when.

A huge area for opportunity is working with scientific staff to support existing, and develop new, citizen science initiatives. Citizen science is a means to engage the public in scientific practice and research, supporting them to help collect and analyse data in collaboration project with professional scientists.

Citizen science allows hands-on, meaningful contribution to, and understanding of, scientific research. The benefits to the public are increased understanding of 'science', immersion in an issue to learn about environmental issues, the building of a scientific or conservation 'identity' – they are someone who can 'do science and conservation', in addition to help build values aligned to biophillia. Researchers benefit from an increased amount of data collected on or for a project and broader impacts achieved from their work, such as community engagement.



Project Shapeshifter

To marry indigenous knowledge with leading edge science and technology through cross-cultural partnerships connecting us with our place in the Pacific to better understand our aquatic environment and care for our planet.

MISSION | Grow, nurture, Inspire and achieve care for our oceans.

HOW | Nurture connection so people fall in love with the oceans and creatures within.

Why | People care for what they love.

Importance

- . Water covers 71% of the planet. The Pacific covers more than 30%.
- · Every second breath we take is oxygen produced by life in the oceans.
- · Our well-being is inextricably linked with water.

What

- · Provide a physical presence for the voice of our oceans.
- · Bring to life indigenous knowledge and practice and connect people and nature.
- Showcase our special marine life, its environment and our connections to it.
- Educate, inspire, connect and empower action to better care for aquatic ecosystems.

How

Showcase New Zealand's unique culture, wildlife and environments through storytelling, visual display, interactive technology, animal care, and accessible hands-on immersive experiences.

With

- · Show the wonder of our oceans through real and virtual experiences.
- · Innovatively tell the stories of ocean life.
- · Powerfully tell our New Zealand stories.
- Showcase Pacific cultures.
- Provide a permanent collaboration facility to:
 - o understand the needs of people and oceans,
 - bring together people from community, industry, science and government,
 - enable design, foster innovation, and support implementation of effective solutions.



The Visitor Experience

This will be the only place in the world where:

- visitors can travel from mountain tops to ocean trenches through an amazing array
- · of real and virtual exhibits and experiences,
- · indigenous and contemporary science and knowledge systems come to life.

Narrative

New Zealanders feel a strong sense of connection and pride to our place. Yet many of us are distanced from the environmental consequences of our choices.

That needs to change. We need to connect with our environment to care for the well-being of the planet and people.

Our planet is in crisis; eco-systems are collapsing; species extinction is accelerating. Around the world and here in New Zealand, youth are protesting for climate change action. Local councils are declaring climate emergencies. People are demanding solutions and leadership.

It might sound like a problem that's too big to be solved, but solutions are out there and just need to be applied.

New Zealand can do something about it. Something different, something that we can do better than anywhere else in the world, something that we can lead, that others will look to us for. Something that's not just good for us, but good for our communities and the creatures we share the planet with.

We're drawing inspiration from the Pacific's biggest, most famous problem solver; Mäui, the shapeshifter and great Polynesian ancestor explorer of the Pacific Ocean, to redefine the role and purpose of the National Aquarium of New Zealand.

Many people are familiar with the legend of Māui. The South Island is Te Waka-a-Māui (his canoe) and the North Island is Te Ika-a-Māui (the fish of Māui), that he landed with a hook fashioned from his grandmother's jaw bone. It's important that we reference the many legends of Māui from Māori and other Pacific cultures as touch stones and connectors, expanding the story beyond our shores.

Maui's infamy is reflected in the chosen name for the world's newest continent 'Te Riu-a-Māui / Zealandia' that speaks to his view over and under the water of our oceanic landscape.

The expansion of the aquarium is known as *Project Shapeshifter: Redefining our National Aquarium*. This name is emblematic of Māui. Our challenge is to be bold and adventurous like Māui – to be a shapeshifter and game-changer. Our vision is to create a globally distinctive icon to amaze, inspire and compel. A place where we share our unique Pacific narrative and story of Māui with the world.

Project Shapeshifter marries indigenous knowledge and leading-edge science and technology through cross cultural partnerships, connecting us with our place in the Pacific to better understand our environment and care for our planet.

The redefined National Aquarium and Ocean Centre will be a place for learning and sharing knowledge and experiences that connect the Pacific and New Zealand through Māul, from Hawke's



Bay – Te Matau-a-Māui – the fishhook of Māui. It will be real. It will be a place for hands-on, interactive experiences, it will make the invisible visible, showcasing and utilising technology, that shares incredible stories of amazing species, understanding and knowledge and showcases innovation. It will home live animals with the utmost care in high quality habitats, meeting high standards of animal welfare. It will also connect people with conservation in action, enabling them to support real conservation outcomes. It will be a place for research where Mātauranga Māori and science converge. Because Māui was a rebel, it will be a place where the status quo is challenged. A safe place, where open debate is fostered.

Redefining our National Aquarium presents a unique opportunity for this generation to make a significant and positive contribution to our environment. To impact on New Zealand's freshwater and marine resource use and conservation, from mountain top to deep ocean trench, and on critically endangered species.

Shapeshifting the National Aquarium, with Māui as its voice and protagonist to inspire change and drive our conservation efforts is the right solution, in the right place at the right time. With a planet that is 71% water, water is life. With every second breath that we take coming from oxygen produced by the oceans, water is life. With human bodies that are 60% water, water is life. With all life on earth depending on water, water is life. Their and our well-being are intricately linked to water.

We're asking our partners, iwi and industry experts to redefine what will be on offer at our aquarium, to join us on our shapeshifting journey, and to be inspired by Māui. We want this to be a project that all of New Zealand can feel a sense of ownership of and can be proud of, and one that will play a significant role in conservation and care for our planet.

SHAPESHIFTER

The Core Purpose

Inspire Awe, Wonder, Excitement and Action

'Learning' encompasses a range of outcomes as a result of an experience. There are a number of models that outline what learning 'is' or can be, that cover the domains of cognitive (knowledge or 'knowing stuff'), psychomotor (skills or 'doing stuff') and affective (emotions/attitudes or 'feeling stuff') learning.

Presently, the primary motivations for visiting the National Aquarium of New Zealand are it is 'fun to visit' and visitors want to 'see animals'. Zoos and aquariums offer wonderful social opportunities for fun and enjoyment, and a careful balance that must be struck for this with the serious conservation messaging that is increasingly a responsibility. Visitors need to feel they are informed or issues, but also armed with the motivation and steps they can make to individually and collectively make a difference.

Leading zoos and aquariums around the world aim to inspire, motivate and engage their visitors into committing to and acting in ways that support the species, habitats and ecosystems they home. There is a common understanding that awareness raising (knowing stuff) alone does not result in behaviour change (doing stuff), but rather support for the nurturing and development of positive attitudes and values towards wildlife and nature (feeling stuff) can help foster required action. Additionally, visitors come with their own prior knowledge and cultural perspectives, and space must be given for them to react and connect in their own way, relevant to them.

We need:

- To empower inspirational staff who can share their passion and experiences with our audiences (Allow staff to be involved in conservation partnerships in-situ. Motivates staff and gives them such credible, passionate stories)
- Exhibits that clearly represent natural environments, address cultural considerations and meet animal welfare standards
- Programming that informs, but more importantly excites and inspires our visitors about the natural world and the issues faced
- To give direction on realistic, achievable action that can be taken by ourselves and our visitors, and find ways of measuring this collective action where possible
- Build and foster partnerships as we cannot do all this alone!
- Understand the importance of evidencing our impact, or contribution to impact, to give credibility to our work (from breeding programmes to training programmes, bodies involved in community conservation projects to money spent on action!)



Conservation

Global Conservation Context

Notes only.

- · Our planet is in crisis & eco-systems are collapsing
- · Projected loss of 17% of marine life by 2100 due to climate change
- . Every 1°c increase in ocean temp = 5% drop in mass of sea animals
- · People are demanding solutions, leadership and action
- · Many solutions do exist and just need to be applied
- · Containing nature for entertainment has become unpalatable
- · Plastics in the ocean are pervasive
- · Aquaria need to adapt and shape-shift to become relevant and of value

New Zealand Conservation Context

- Clear national focus on freshwater aquatic ecosystem conservation and recovery
- 4th largest EEZ globally
- · Less than 1% marine area fully protected
- · New Zealand Biodiversity Strategy refresh underway
- · Strong marine heatwaves evident last 5 years.
- · Seabird capital of the world

SHAPESHETER

WAZA Conservation Strategy

With more than 700 million visitors annually passing through the gates of zoos and aquariums of the world, affiliated through regional associations of the World Association of Zoos and Aquariums (WAZA), zoological facilities have an unrivalled platform to engage the general public in conservation. In addition, it is well known that through their living collections, zoological institutions contribute significantly to conservation research. The breadth of research carried out by zoos and aquariums is truly impressive, from behaviour science to visitor learning, and the impact of such research on conservation is well recognised. This research is fundamental to the protection and preservation of our most endangered species.

And yet, given the scale and immediacy of the global conservation challenges we all face—none more than the extinction crisis already upon us—we cannot expect our zoos and aquariums to carry the burden of conservation within their gates alone. The WAZA Conservation Strategy Committing to Conservation: The World Zoo and Aquarium Conservation Strategy, outlines the key role zoos and aquariums can play in supporting conservation in the wild. It serves as a crucial reminder that visitors who better understand the connection with conservation in the wild are more likely to support the work of zoos and aquariums. The Strategy is also an important tool for practitioners to use as they endeavour to bridge the worlds of zoos and aquariums and the wild.

The WAZA Conservation Strategy notes that when visitors understand that zoos and aquariums are working to save animals in the wild, their support of us improves dramatically. Therefore, the zoological community needs to demonstrate our commitment to protect species in the wild, while delivering the very best in 21st century animal care and guest experience.

Zoo and aquaria conservation commitments also help to bolster the perception of zoos and aquariums in the minds of government officials who enact and enforce the laws that affect their operations. Caring for animals as the core function of the staff of these facilities and it is critical that the highest priority is given to increasing zoo and aquaria commitment to the conservation of wild populations. This focus emphasises why these facilities exist as they are have become active partners in field conservation, working collaboratively with communities, other zoological facilities and similar conservation-orientated organisations, while still being informal learning centres that inspire visitors to connect with the natural world.

Zoos and aquaria are cultural and tourism assets that provide compelling visitor experiences. Learning and inspiration are only the first steps by which extinction is fought and ultimately animals can be protected in their wild habitats. The mission of zoos and aquaria is not fulfilled until they change people's attitudes and behaviours, and they become exemplary advocates for conservation.

SHAPESHIFTER

WAZA CONSERVATION LEADERSHIP



Step 1: Inform

Educate year governing authorities and seeff about the status of wild populations of automia on a regular and requiring facts, and demonstrate have an expense can play a materiality rate in revenue; the declares.



Step 2: Mission

Judies the returns a takened and intering, plan of your zonin exposition to exclude a shock attention for your restriction extente a higher purposes—whitely taxesseration planlight that your restriction will interest resource to the affect, a plan for creating culture of conservation beyond stell convenience, generating and exclude and disconsisting speciments are proposed for appointing to



Step 3: Budget

Assess how much your institution converts quants on built consuments according to the WAZA deletions of consumerstion, and burnhouse that with similar regional testifications.



Step 4: Revenue

What with staff to therify distincted streams of necessities can be used for held conservation programme. Ideally, these we present generated both interests, (from specifing buildings and security and amortally (without dome or assessment build).



Step 5: Partnerships

Language resources by collaborating and partnering wit other produced institutions, conservation regardents contracted learning, government agencies and high-natworth individuals that share our passion for product and conservation.



Step 6: Priorities

Mentify and printing special which alone you to deliver communities receives that clearly demonstrate the separate the animals is some and apparticies have an our ability to one shade while counterparts. Consent your extends to half communities with personal stories of representational communities, both financially and with staff in purities.



Step 7: Communication

Develop a communications plan that is positive and preactive about prior commitments and actions. Galterial impacts of independent spokespersors to deliver conservation stocked to materia, the greater community and orders.

WAZA RECOMMENDATIONS

- Develop an institution-wide conservation strategy that integrates conservation actions into every aspect of operations, including protection and preservation of natural habitat for native species around the grounds of the institution.
- Develop an operational budget that supports conservation over the long term (e.g. at least 3% of annual operating budget) and is not solely dependent on external donations (soft money).
- Partner with other biodiversity institutions in order to implement proven best practices and with conservation organisations to maximise efforts outside of the facility, especially identifying trusted conservation organisations that will be responsible for implementing conservation action on the ground to which multi-year support can be provided.
- Liaise with and make use of the existing formalised WAZA partnerships with international conservation bodies, liaise with government agencies to bring about transformations that rely on legislative change, and utilise individual staff skills to support conservation programmes.
- Use a rigorous selection procedure to make sure that the best conservation effort is being made for the money available and reassess each project to report the impact on biodiversity that has been gained.



AQUARIUM CONSERVATION PARTNERSHIP

The Aquarium Conservation Partnership (ACP) is a first-of-its-kind collaboration of aquariums formed to increase our collective impact on ocean and freshwater conservation.

Together, ACP member aquariums advance science-based conservation goals by leveraging our unique assets, including our scientific expertise, our reach with the public, our business leadership, and our credibility with decision makers. These assets set us apart from other conservation actors and present opportunities for aquariums to add value to a range of conservation initiatives at the local, state and international level. ACP was launched in 2016 by Monterey Bay Aquarium, Shedd Aquarium and National ACP Aquarium. Since then.

Since 2016, ACP aquariums have taken the following actions: Launched a consumer campaign to reduce demand for single-use plastic. • Committed to reducing single-use plastic in our retail and food service operations. • Took action at the local, state and federal level to advance plastic pollution policies. • Championed new and defended existing National Marine Monuments and Sanctuaries. • Promoted strong, science-based U.S. fishery management policy.

- · Endorsed a new federal seafood traceability program.
- Helped secure new international protections for sharks and mobula rays.

membership has grown to 22 aquariums, all of which are accredited by the Association of Zoos and Aquariums. ACP members commit to implementing a Conservation Action Agenda, which includes specific goals and outcomes, and a timeline for action. The primary goal of ACP is to work together to reduce the sources of ocean and freshwater plastic pollution through a mix of consumer, business, and policy strategies. ACP also serves as a "strategic table" for aquariums to take coordinated action on other conservation goals, including: increasing ocean and freshwater ecosystem protection; and improving the sustainability of fisheries and aquaculture. ACP is a source of information and analysis on these issues, as well as a forum for dialogue between aquariums and external partners. ACP is not intended to be a public facing entity; all actions are taken on behalf of the members themselves, either individually or with other aquariums.

SHAPESHIFTER

Project Shapeshifter Conservation Priorities

- · Raise awareness, educate, inspire
- · Take action to address climate change
- · Influence leadership for the environment
- · Reduce plastic pollution/reduce land-based pollution entering aquatic systems
- · Reconnect people with wildlife
- Reconnect people with nature.
 - o Through doing that, enable healing of individuals, society etc.
- · Connect people with science and culture
- · Exemplary practice for captive management?

Key Conservation Messages

Each species held needs to represent key conservation messaging associated with the challenges and issues its wild counterparts face e.g. keep dogs on leads, pick up litter, support restoration, do your own restoration, recycle, make environmental consumption choices (credible eco-labels, offset travel), live and work by the 6Rs.

- · Supporting, not competing with, in situ conversation work
- Model these values and attitudes in aquarium operations.
 To be completed.



The Species

Species on display must be underpinned by clear rationale for its inclusion in the collection.

Display for entertainment purposes has long been unpalatable, so species must be the ambassadors for their wild counterparts, representing key issues and needs that an audience would unlikely have the chance to experience otherwise.

Key criteria to meet that builds this rationale are:

- The species represents a wild population/habitat/ecosystem facing a real conservation threat or issue we can talk about
 - Climate change, habitat loss, predation....
 - Is this a taonga species? Taonga species are native birds, plants and animals of special cultural significance and importance to Māori')
 - What is its IUCN status?
 - Is it a DoC Threatened Species Listing?
- · It can be housed appropriately to meet species and welfare standards
 - o Appropriate environmental conditions can be replicated
 - Zoo Aquarium Association (ZAA), Dept. of Conservation (DoC), Environmental Protection Authority (EPA)/Ministry of Primary Industries (MPI) Zoo Containment Facilities?
 - Cultural considerations?
- It can be housed for an appropriate visitor/animal experience
 - Visibility nocturnal, crepuscular, reclusive?
 - Social or single species?
- · We have access to the staff experience and skill required for its husbandry and care
- What conservation outcome can the Aquarium support with this species?
 - o In situ conservation efforts to support wild populations or habitats?
 - Ex situ breeding programmes for release in situ?
 - Ex situ breeding programmes for advocacy in captivity?
 - Rehabilitation programmes for release?
 - Rehabilitation programmes for advocacy in captivity?
 - Or, there is a research need that requires captive management of the species (for a period) to support this work. (Considerations for inclusion in a closed system within the facility to ensure release is not compromised)
- There is opportunity for <u>staff to support conservation work</u> with this species
- There is clear <u>action and kaitiakitanga</u> (guardianship/stewardship) this species needs that our visitors can support



- What are individual daily behaviours or actions to foster, family, community, national level?
- There are opportunities to <u>support existing or new social or biological research</u> that this species represents
- Consideration are there <u>legal or permitting requirements</u> for this species?
 - MPI/Ministry of Fisheries Special Permit requirement?
 - DoC permit required?
 - o MPI import Health Standard? (Exists or is needed?)
 - EPA Approval containment facilities?
 - o Australian import conditions (for export to Australia)?

Species

Taonga Species / Draft List	Live Animals?
Some animated/interactive not live	
	Frogs (4 NZ ones)
Marine Mammals	- Archey's
Kororă / little blue penguin	- Hamilton's
Kekeno / Fur seal	Tuna (smaller pelagics? Skipjack? Not BFT)
Tohoră / Whale	
Waitai / Coastal Water	Freshwater Species
Tuna / Eel – specoifically long-fin	Tuna (eels)
Inanga / Kokopu / Koaro (Whitebait / Galaxids)	Banded and Giant Kokopu (not together)
Crustaceans	Koura
Wai Koura / freshwater crayfish	FW mussels
Koura / crayfish	
Shellfish	Shellfish
Paua / Abalone	
Kina / Sea Urchin	Mudflat assemblage (with shellfish?)
Pipi / Paphies australis	
Kūtai / Mussels	Temperate reef assemblage (Pania's reef)
Tuangi / Cockle	100.7
Freshwater pipi? (can't find reference for name)	Brachiopods
Käkahi / freshwater mussels	
Rimu / Seaweed	Seaweeds
Karengo / Red Seaweed - Porphyra species	



Rimurimu	- The kelp/kina/fish/koura					
Rimurapa / Bull Kelp	assemblage, Marine reserves!					
Manu / Birds	***					
Kuaka / bar-tailed godwit	Algae e.g. corraline					
Titî / Sooty Shearwater	4 hull keln (link to Massi processing) — link					
Kuia / Grey faced petrel	4 bull kelp (link to Maori preserving) – link to					
Takapu / Gannet						
Pukeko	Black coral, snake stars					
Kotare / Kingfisher	Red corals					
Ika /Fish	Gorgonian fans, soft corais					
Kahawai						
Mako / Shark	Penguins					
Mango Pare / Hammerhead Shark	 Little blues – easy Yellow Eyed/Hoiho?? 					
Whai / Stingray (Short-tail, Long-tail, Eagle Ray / Whai Kea)	- Tellow Eyed/Hollio??					
Pätiki / Flounder	Rocky Pools/Littoral shore					
Paara / Frost-fish						
Tämure / Snapper	Nudibranchs					
Wheke / Octopus	Seahorses					
Mountain / Forest / Rock (Pa toka / rocky environ?)						
Tuatara	Terrestrial					
Weta	Kiwi					
Katipô (sand dunes)	Tuatara					
	Gecko's and skinks					



Sustainability and Conservation Policy

The core purpose of the National Aquarium and Ocean Centre is conservation and education. The new ownership/fundraising and operational Trusts will need clear Sustainability and Conservation policy and messaging to be credible and attract philanthropic donations covering at least the following matters:

- · Sustainable building
- The animal collection
- · Sustainable procurement
 - o Anything the facility buys e.g. Food, power, uniforms, equipment
- · Waste Management
 - o The 6Rs
 - Ticketing systems
 - Onsite composting
- Operational systems
- Carbon Footprint
 - o Carbon Zero? Is it possible?
- · Transport, staff
- Integrate practices
 - Release e.g. eels
 - Values of how to operationalise those
 - The values of all Partnerships how the aquarium demonstrates leadership through its partnerships and guides partners to be more sustainable and effective for conservation. For example Monterey Bay Aquarium's Seafood Watch Programme is world leading and takes a respectful approach to the seafood sector.



References and links

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Consultants meeting
Stakeholder engagement
Iwi engagement
Workshop
PGF/MBIE
Council seminar

NCC - Napier City Council staff TML - Terra Moana Ltd

EHDD - EHDD Architecture (USA)

Date	Meeting	Subject	Who
13-14 May 2019	Meetings	Project Initiation	NCC & TML
21 May 2019	Meeting	Comms workshop planning	TML & NCC
21 May 2019	Meeting	Socialisation of concept	TML, NCC & Trevor Moeke (NZ Treasury Principal Maori Advisor)
24 May 2019	Zoom call	Project Shapeshifter planning	NCC & TML
5 June 2019	Call	International Aquarium Outreach	NCC & Jerry Schuber (Aquarium of the Pacific)
7 June 2019	Meeting	Meeting with Te Papa	NCC, TML & Te Papa (Arapata Hakiwai, Frith Williams, Victoria Essen)
11 June 2019	Zoom call	Shapeshifter project update	NCC (Antoinette) & TML (Katherine)
13 June 2019	Workshop	Full day strategy meeting with Terra Moana	NCC, TML team (Tony Craig, Katherine Short, Karen Lo, Karl Wixon, Dave Bamford, Vince Kerr, Perya Short)
13 June 2019	Workshop	Session with Auckland Zoo CEO Karen Fifield	NCC & TML team, Karen Fifield
14 June 2019	Meeting	Aquarium discussion with Minister Nash, Al Morrison, Alex Matheson & Nigel Bickle	NCC, TML, Mr Nash, Morrison, Matheson & Bickle
14 June 2019	Meeting	Aquarium discussion with Minister Jones	NCC, Mr Jones
14 June 2019	Meeting	Aquarium discussion with NKII Takitimu Seafoods	NCC, TML, Chrissie Hape, Hori Reti
17 June 2019	Zoom call	Friday Debrief	NCC & TML
17 June 2019	Zoom call	Research call	TML & Uni Walkato
20 June 2019	Meeting	Contract finalisation and discussion	NCC & TML
24 June 2019	Zoom call	NANZ Risk Managment	NCC & TML
25 June 2019	Zoom call	With Duncan Ballish, EHDD (Aquarium Designers, USA)	NCC, TML & EHDD
25 June 2019	Conference	NZ Tourism Regional Roadshow	NCC Charles - Distribution of marketing collateral to NZ Tourism's regional roadshow.
1 July 2019	Meeting	Project Shapeshifter Presentation to Mãori Consultative Committee	NCC, Karl Wixon & Maori Consultative Committee
2-3 July 2019	Conference	NZMSS	TML @ NZ Marine Sciences Seminars promoting Project Shapeshifter. Meeting various research leaders - Uni Otago
1 July 2019	Meeting	Cultural Design	NCC, TML, Ian Taylor - Research Animation
3 July 2019	Council Seminar	Project Shapeshifter Seminar with Councillors	NCC, Karl Wixon & NCC Councillors
3 July 2019	Call	HB Tourism	TML & Hamish Saxton
5 July 2019	Meeting	Meeting Te Papa Te Taio Exhibit Project Manager	TML & Raewyn Cummings
8 July 2019	Meeting	Kelly Tarltons	NCC, TML & KT staff

9 July 2019	Meeting	Meeting with Anne Haira (MFE)	NCC, TML, MFE
11 July 2019	Zoom call	NANZ Narrative	NCC, AskRight, NCC
12 July 2019	Meeting	NANZ financials	NCC, TML
16 July 2019	Meeting	Meeting with DOC	TML & Lou Sanson
17 July 2019	Workshop	Shapeshifter - Conservation workshop	NCC, TML, Karl Wixon, NCC Councillors & various Conservators
18 July 2019	Meeting	Meeting Chair of Tourism HB	TML & George Hickton
19 July 2019	Zoom call	Comms call	NCC, TML, Karl Wixon & Reputation Matters
22 July 2019	Meeting	Meeting with EHDD in Wellington	TML & EHDD
23 July 2019	Meeting	Meeting with Universities NZ for education sector engagment	TML & Universities NZ
24 July 2019	Workshop	NANZ introduction design and business case	NCC, TML, EHDD
25 July 2019	Workshop	Shapeshifter - Research workshop	NCC, TML, Karl Wixon, NCC Councillors & various Conservators
25 July 2019	Meeting	Collaboration and Process Planning	TML, Karl Wixon, EHDD & AskRight
26 July 2019	Workshop	Shapeshifter - Education workshop	NCC, TML, EHDD, Askright, Ministry of Education HB, Te Papa, NCC Councillors & various Educators
26 July 2019	Presentation	Presentation to Ngati Kahungunu	NCC & TML
29 July 2019	Workshop	Shapeshifter - Tourism workshop (Wellington)	Tourism stakeholders
2 August 2019	Zoom call	NANZ Comms	NCC, TML, Karl Wixon & Reputation Matters
5 August 2019	Workshop	Shapeshifter - Youth Councils	NCC, Napier Youth Council, Hastings Youth Council, HB Environment Youth Council
6 August 2019	Workshop	Shapeshifter - Tourism workshop	NCC, TML & Tourism stakeholders
7 August 2019	Zoom call	NANZ Education	TML, Mountains to Sea,
8 August 2019	Zoom call	International Aquarium Outreach	TML, Vancouver Aq
9 August 2019	Zoom call	NANZ Preliminary Animal Collection and Exhibit Concept Review	TML, EHDD
19 August 2019	Zoom call	Concept design discussions	NCC, TML & EHDD
21 August 2019	Meeting	NANZ Cultural	TML, Trevor Moeke
23 August 2019	Workshop	Shapeshifter - Youth workshop 1	NCC, TML, Karl Wixon, NCC Councillors & Interested youth
24 August 2019	Workshop	Shapeshifter - Youth workshop 2	NCC, TML, Karl Wixon, NCC Councillors & interested youth
27 August 2019	Zoom call	International Leaders Group call	NCC, TML & Aquarium Directors in UK
28 August 2019	Zoom call	International Leaders Group call	NCC, TML & Aquarium Directors in USA
28 August 2019	Meeting	Research opportunities discussion	NCC, TML, & Curious Minds
28 August 2019	Meeting	Research opportunities discussion	NCC, TML, & DoC
29 August 2019	Meeting	Research opportunities discussion	NCC, TML, & NIWA
29 August 2019	Meeting	Formal Education opportunities discussion	NCC, TML, & Ministry of Education
3 September 2019	Workshop	Project Shapeshifter cultural design workshop in Wairoa	NCC, Pereri King, Hawaiki King, Jenny Mauger, Jacob Scott, Phil Belche
4 September 2019	Meeting	Meeting with Nigel How to share the outputs of 3 September workshop	NCC, Nigel How (NKII)
4 September 2019	Meeting	Aquarium discussion Adrian Fowler and Tony Craig	NCC, TML
5 September 2019	Zoom call	International Aquarium Outreach	NCC, TML & Brad Irwin (UK)

6 September 2019	Zoom call	Aquaculture sector outreach	TML, Aquaculture NZ
6 September 2019	Zoom call	Maori researchers outreach	TML, Mapri Researchers NZ
6 September 2019	Call	NZ Tourism	TML & Bruce Bassett TIA
10 September 2019	Meeting	Residents meeting at Aquarium	NCC
11 September 2019	Phone call	James Gibson, CEO Blake Trust NZ	TML
11 September 2019	Meeting	Catch up on Project Shapeshifter with Cameron Osmond, MBIE	NCC & MBIE
13 September 2019	Presentation	Presentation to Matariki REDS ESG	NCC & Matariki REDS ESG
13 September 2019	Zoom call	Conservation discussion	NCC, TML
18 September 2019	Meeting	Steve Menzles - Flinch Marketing, UN Decade of the Oceans	TML
20 September 2019	Zoom call	Architecture/ exhibit /Māori design update (2 hour presentation)	NCC, TML, & EHDD
20 September 2019	Meeting	Project Shapeshifter Update to Minister Nash, Al Morrison & Nigel Bickle	NCC, TML, Mr Nash, Morrison & Bickle
22 September 2019	Meeting	Ngāti Pārau hui	NCC
24 September 2019	Presentation	Taradale Retired Servicemen Association (RSA)	NCC (Project Lead)
26 September 2019	Meeting	Friends of the Aquaium pop up	NCC & Friends of the Aquairum
28 September 2019	Meeting	Friends of the Aquaium pop up	NCC & Friends of the Aquairum
28 September 2019	Meeting	Friends of the Aquarium pop up (2)	NCC & Friends of the Aquairum
29 September 2019	Call	Cruise Tourism	TML & IDNZ Daniela Varbanova (Cruise Manager)
29 September 2019	Call	Tourism	TML & Shane Vuletich (Fresh Info)
2 October 2019	Call	Cruise Tourism	TML, Katle Nimons (GM of Nimons Buses)
2 October 2019	Meeting	HB Research opportunities discussions	NCC, TML, HBRC science staff
2 October 2019	Meeting	HB Research opportunities discussions	NCC, TML, Paul and Jenny Mauger
2 October 2019	Call	Tourism	TML & Annie Dundas (ex GM HB Tourism)
3 October 2019	Çall	Cruise industry	TML & Bruce Lochie (Napier Port Cruise Manager)
3 October 2019	Meeting	HB Research opportunities discussions	NCC, TML, Univ of Walkato, EIT, HB Biodiversity, Our Seas Our Future (HB), Enviroschools, Jenny Mauger
4 October 2019	Meeting	James Gibson, CEO Blake Trust NZ & Kelly Young, Education Director	TML
4 October 2019	Call	Tourism	TML & Travis Donaghue (THL/Waitomo)
4 October 2019	Zoom call	Aquarium financials discussion	NCC, TML
7 October 2019	Call	Tourism	TML & TIA/Tourism NZ re: progress
8 October 2019	Zoom call	Project Shapeshifter NZ Aquarium (UK)	NCC, TML, & UK Aquarium Directors
October 2019	Meeting	Ongoing partnership with East Coast Life at the Boundary (LAB)	NCC (Project Lead), ECLAB Project Leader, HBRC Team Leader Hazard Reduction
8 October 2019	Zoom call	International Leaders Group call	NCC & Aquarium Directors in UK
10 October 2019	Phone Call	Alex Webb, Senior Communications & Marketing Manager, Marine Stewardship Council, Sydney Office	TML .
11 October 2019	Zoom Call	International Leaders Group call	NCC, TML & Aquarium Directors in USA
18 October 2019	Zoom call	Architectural design presentatio of renderings	NCC, TML, EHDD & AskRight

2 November 2019	Meeting	Concept presentation to mana whenua	NCC .
6 November 2019	Council Seminar	Induction Seminar: Project Shapeshifter - Aquarium Business Case	
27 November 2019	Council Seminar	Business Case Financials Seminar	NCC, TML, AskRIGHT and Councillors

alc Japier City Council Jational Aquarium DRAFT Jaster Integrity: Ok Jive scenario: Baseline		Start date End date Period no		01-Jul-21 30-Jun-22 2 Cons							30-Jun-29				
1 Timing and indexation															
Flags															
Construction Start flag Active flag End flag Counter	[0,4] [0,4] [0,4] Length of construction [0,4] S Year(s)	1	1	2	3	4	5	-6 34 10	-05 -04 -05 -05	31- +- 	*	05 10* 10*	*	*	15 16 16
Operation Start flag Active flag End flag Counter	[0.1] [0.1] [0.1] [0.1] Length of operation [0.3] 25 Year(s)		** ** **	*	*	* :	1	2	3	4	5	6	7	8	9
Refurbishment Fit-out replacement Visitor seasonality period	[0,1] #Nutn		*	*		•	- 1	-	2	3		2	3	4	5
Exhibition refurbishment Visitor seasonality period	{0,X} #Nom		95 W.	*	*	*	- 1		2	3	4	5	6	7	8
Operational cost adjustment	96		100.0%	100.0%	100.0%	100.0%	66.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Indexation															
No indexation CPI @ 1% CPI @ 2.8% CPI @ 3% CPI @ 4% CPI @ 5% Visitor growth @ 5% FTEs @ 3.5% Capex @ 5.4% Staff	9% 6% 9% 9% 9% 9% 9%		1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.01 1.03 1.03 1.04 1.05 1.00 1.00	1.00 1.02 1.06 1.06 1.08 1.10 1.00 1.11	1.00 1.03 1.09 1.09 1.12 1.16 1.00 1.00 1.17	1.00 1.04 1.12 1.13 1.17 1.22 1.02 1.00 1.23 1.00	1 00 1.05 1.15 1.16 1.22 1.28 1.04 1.04 1.30	1.00 1.06 1.18 1.19 1.27 1.34 1.06 1.07 1.37 0.96	1.00 1.07 1.21 1.23 1.32 1.41 1.09 1.11 1.44	1.08 1.25 1.27 1.37 1.48	1.00 1.09 1.28 1.30 1.42 1.55 1.13 1.19 1.60	1.00 1.10 1.32 1.34 1.48 1.63 1.16 1.23 1.69	1.00 1.12 1.35 1.38 1.54 1.71 1.18 1.27 1.78	1.00 1.13 1.39 1.43 1.60 1.80 1.21 1.32 1.87
Whole of life costs															
Mid-period factor Discount factor	Factor Factor		0.50 0.96	1.50 0.89	2.50 0.82	3.50 0.76	4.50 0.71	5.50 0.65	6.50 0.61	7.51 0.56	8.51 0.52	9.51 0.48	10.51 0.45	11.51 0.41	12.51
2 Summary															
Operating cashflow															
Revenue	\$1000	280,370	*	+	*	+	4,369	6,655	6,631	6,898	7,165	7,778	8,012	8,092	8,495
Opex Opex EBITDA	\$'000	(425,329)	(507)	(577)	(716)	(651)	(6,508)	(9,614)	(9,444)	(9,697)			(12,578)	(12,746)	(13,328)
EBITDA margin	96	(144,959)	(507) -%	(577) -%	(716) -%	(651) -%	(2,139) (48.9%)	(2,958) (44.4%)	(2,813) (42.4%)	(2,799) (40.6%)	(2,836) (39.6%)	(4,437) (57.0%)	(4,566) (57.0%)	(4,654) (57.5%)	(4,833) (56.9%)
EBIT EBIT margin	\$1000 \$1000 %	(100,562) (245,521)	(507)	(577)	(716)	(651)	(1,547) (3,686) (84.4%)	(1,550) (4,508) (67.7%)	(1,550) (4,363) (65.8%)	(1,550) (4,350) (63.1%)	(1,550) (4,386) (61.2%)	(1,924) (6,361) (81.8%)	(1.924) (6,490) (81.0%)	(1,924) (6,578) (81.3%)	(1,924) (6,757) (79.5%)
Tax	\$'000	*													*

Operating cashflow	\$500	(144,959)	(507)	(577)	(716)	(651)	(2,139)	(2,958)	(2,813)	(2,799)	(2,836)	(4,437)	(4,566)	(4,654)	(4,833)
Investing cashflow															
Construction capex	\$'000	(77,508)	(500)	(14,120)	(28,167)	(23,545)	(11,015)	(160)							
Minor refurbishment capex	\$1000	(12,566)		(· · · · · · · · · · ·	,,	+	4			*	(1,871)	*	*		*
Major refurbishment capex	\$'500	(10,489)	+						-	*		-	*	+	
Investing cashflow	\$100	(100,562)	(500)	(14,120)	(28,167)	(23,545)	(11,015)	(160)	*	*	(1,871)	-	*		*
Financing cashflow															
Debt drawdown for construction	\$,000	25,453			4,542	12,531	6,325	878	794	383	-	φ.	_	-	
Equity drawdown for construction	\$1000	18,613	*	*	*	*	*	*		18,613		*	*		
Fundraising cash	\$'000	65,000	5,633	14,047	20,456	12,098	5,500	3,922	2,144	933	267	**	*	×	· .
Use of reserves	\$1000	4,626	44	651	3,976	6.4000	(0.00)	(ama)	éron ab	in and	+	44	~		~
Interest	\$'000 \$'000	(3,388)		*	(91)	(432)	(809)	(878)	(794)	(383)	-	*	36.	*	*
Principal repayment Subtotal excl. distributions	\$ 500	(25,453) 84,852	5,633	14,697	28,883	24,196	11,015	(3,762)	(2,144)	(19,546)	267	*	*	-	*
Additional cash injection	\$'000	165,296	+	4	0	0	2,139	2,958	2,813	2,799	4,440	4,437	4,566	4,654	4,833
Financing cashflow	\$000	250,148	5,633	14,697	28,883	24,196	13,154	3,118	2,813	2,799	4,707	4,437	4,566	4,654	4,833
Net cashflow	\$'000	4,626	4,626	*		-		+	-	+			-	-	
FCFE.	\$'000	(160,670)	4,626	4	(0)	(0)	(2,139)	(2,958)	(2,813)	(2,799)	(4,440)	(4,437)	(4,566)	(4,654)	(4,833)
Capital costs	\$ TO 1	(200,000)			(*)	(-)	(4, 140)	(0,000)	(0,010)	(2,,00)	(-, -, -, -,	(-).14.3	(1,0110)	(1,000)	(1,000)
Construction															
Raw construction costs															
New building	\$'000	30,387	*	7,597	12,914	7,597	2,279	-41	.74		+	+	4	. in	346
Refurbish existing building	\$'000	5,400	*	1,350	2,295	1,350	405	Pr	**	*	*	*	*	+	~
External exhibit space	\$'800	1,163	*	291	494	291	87		*		*	w	*	×.	19.
Decanting/ relocation costs	\$'000	400	÷	100	170	100	30	,46		*	+	*	+	*	4
Professional fees 14%	\$'000	5,400	-	1,350	2,295	1,350	405	24	**	*			26		
FF&E Themed fitout deisgn / content	\$'000	1,500 3,160	*	375 790	638 1,343	375 790	113 237			*		*	*	*	
Marine specialist fitout	5'900	13,850		7.30	3,463	6,925	3,463							*	
Demolish existing building	\$'800	558			3,103	140	279	140	-	4			4.		-
Consent costs	\$'000	400	200	133	67		+	-	-44	~	+		+		46.
Landscaping	\$'000	2,013	46	*	*	1,006	1,006		×.	*		*		- 4	40
Revenue Gen Strategy	\$'000		**	×	9.	~	*	**	-4	160	*	*	-		- ei
Revenue generation fee Financial systems (point of sale, inhouse financial)	\$'000	250				*	250	Ψ.	-0						
Establishment /Mobilisation costs	\$'000 \$'000	250 260	*			-	250 260	*					-		
Staff Office Infrastructure ie desk and iT costs/ netwo		225					225								
Comms and Marketing Budget pre opening	\$'000	100	*	*		*	100	+	*		*				
Public Consultation	\$'000	75	*		-		75		~			~	*		-4.
Animal Relocation Costs	\$7000	50	*	*	*	*	50	19	*	*	*	*	+		*
New animal recovery programme	\$'000	75	+	*		- 10	75	-de	- 4	Ar.	**	in	+	-	
Costs of IBC& DBC to date	\$'000 \$'000	300	300						*		*		*		*
Total	4.400	65,565	500	11,986	23,678	19,923	9,338	140			*	+	*	+	€
Real capital costs	A7400		20.00	44.000	NA AND	10.000		شو ي.							
Construction	\$1000	65,565	500	11,986	23,678	19,923	9,338	140	*	*	-	+	*	*	*
Total Total	\$7000	7,000	500	1,750	2,975	1,750	525 9,863	140	*	*	*	*	+	*	+
Check	[0,1] \$'900	72,565	300	13,736	26,653	21,673	3,863	140	-	k-	*	*	*		41
C	Indexation														
Construction capex spend profile															
Real	\$'000 CPI @ 2.8%	72,565	500	13,736	26,653	21,673	9,863	140	*	*		-	-	-	~
		72,565 4,943 77,508	500	13,736 385 14,120	26,653 1,513 28,167	21,673 1,872 23,545	9,863 1,152 11,015	140 21 160	* **			er er		- «	*

Refurbishment																
Fit-out replacement	Indexati	ion Refurbishment cost														
Real	\$1000 CPI @ 2.		7,500	*	-	*		7	*	+	M*	1,500	*	- 4	*	
Nominal	\$,080		12,566			*	*	*		-4	*	1,871	*	-		*
Exhibition refurbishment	Indexati	ion Refurbishment cost														
Real	5'000 CPI @ 2.	8% 3,160,000	6,320		-		+	4	-	4	ų.	*				
Nominal	\$'000		10,489		-		*	*			+	~	*		*	*
Total refurbishment capex																
Real Nominal	\$'000 \$'000		13,820 23,054	*	*	*		+		*	*	1,500		*	*	*
(Applied to	26 AA4A		23,034									1,071				
Summary																
Real capex																
Construction	\$1000		72,565	500	13,736	26,653	21,673	9,863	140		-		~	~	~	+.
Minor refurbishment Major refurbishment	\$'000 \$'600		7,500 6,320		*		+		*		+	1,500	*	*	*	*
Total nominal capex	\$ 000		86,385	500	13,736	26,653	21,673	9,863	140	-4	+	1,500	*	+	+	+
Manipul canan			-													
Nominal capex Construction	\$2000		77,508	500	14,120	28,167	23,545	11,015	160		-		*.	10		*
Fit-out replacement	\$1000		12,566	*	+	*	*	*				1,871		**		w
Exhibition refurbishment Total nominal capex	\$000		10,489 100,562	500	14,120	28,167	23,545	11,015	160		7.	1,871	*	*		
	the thefacts		100,502	500	* 7/2600	20,207	5,000	**,010	200			2,07 2				
Depreciation																
Original capex																
Opening balance	\$'000 Useful I		27 500	F00	500	14,620	42,787	66,332	75,801	74,411	72,860	71,310	69,760	68,210	66,660	65,110
Additions Depreciation	\$1000 50 Year \$1000	(8)	77,508 (38,751)	500	14,120	28,167	23,545	11,015 (1,547)	160 (1,550)	(1,550)	(1,550)	(1,550)	(1,550)	(1,550)	(1,550)	(1,550)
Disposal	\$7000		(38,757)	+	+	+.	-	+		4	4-		*	-		.*
Subtotal	\$1000			500	14,620	42,787	66,332	75,801	74,411	72,860	71,310	69,760	68,210	66,660	65,110	63,560
Fit-out replacement	Useful I	ife														
Opening balance	\$1000 5 Year((s)		96.	*	٠		4		-16	+		1,871	1,497	1,123	748
Additions Depreciation	\$'000 \$'000		(9,315)	*						-	+	1,871	(374)	(374)	(374)	(374)
Disposal	\$1000		(3,250)	*	×			+		ri i	Ve-	+			-	~
Subtotal	\$300			-	+	*		+	-0	47	+	1,871	1,497	1,123	748	374
Exhibition refurbishment	Useful I	ife														
Opening balance	\$1000 10 Year	(s)		-	+			+	- 9	4	+	-	*			*
Additions Depreciation	\$'000 \$'000		(7,507)		*					т.	*		*			*
Disposal	\$7000		(2,982)	+		+		+	*	*	+	+	4	*		4
Subtotal	\$'000			-	+	-		*	**	-10			*	*		781
Summary																
Depreciation Disposal			55,573 44,989		~		*	1,547	1,550	1,550	1,550	1,550	1,924	1,924	1,924	1,924
Total depreciation & disposal	\$ 900		100,562		+	-	-	1,547	1,550	1,550	1,550	1,550	1,924	1,924	1,924	1,924
A Bayrania																
4 Revenue																
Visitors																3
Underlying visitor growth																
Adult	96			-96	-96	-96	-96	-96	47.8%	(3.7%)	1.4%	1.3%	6.8%	0.2%	(2.1%)	2.5%
Child Infant	% %			-% -%	-% -%	-% -%	-96 -96	-96 -96	47.8% -%	(3.7%)	1.4%	1.3%	6.8% -%	0.2%	(2.1%)	2.5%
Student	%			-96	-96	-96	-96	-%	47.8%	(3.7%)	1.4%	1.3%	6.8%	0.2%	(2.1%)	2.5%
Seniors	96 96			-96 -96	-96	-%	-96	-96	47.8%	(3.7%)	1.4%	1.3%	6.8%	0.2%	(2.1%)	2.5%
Family Schools, Adult	96			-%	~96 ~96	-% -%	-96 -96	-96 -96	47.8% 47.8%	(3.7%)	1.4%	1.3%	6.8% 6.8%	0.2%	(2.1%) (2.1%)	2.5% 2.5%
Schools, Pre & primary	196			-0/6	-96	-%	-%	-9/0	47.8%	(3.7%)	1.4%	1.3%	6.8%	0.2%	(2.1%)	2.5%
Schools, Secondary	%			-96	-96	-96	-96	-96	47.8%	(3.7%)	1.4%	1.3%	6.8%	0.2%	(2.1%)	2.5%

Schools, SEND child Friends, Adult Friends, Family 1 Friends, Family 2 No ticket visitors [Visitor type 15]	96 96 96 96 96			-%6 -%6 -%5 -%6 -%6		-96 -96 -96 -96 -96	-96 -96 -96 -96 -96	-96 -96 -96 -96 -96	-% 47.8% 47.8% 47.8% 47.8%	.% (3.7%) (3.7%) (3.7%) (3.7%)	-% 1.4% 1.4% 1.4% 1.4%	-% 1.3% 1.3% 1.3% 1.3%	6.8% 6.8% 6.8% 6.8%	0.2% 0.2% 0.2% 0.2% 0.2%	(2.1%) (2.1%) (2.1%) (2.1%) (2.1%)	-% 2.5% 2.5% 2.5% 2.5% -%
Visitors Adult Child Infant Student Seniors Family Schools, Adult Schools, Pre & primary Schools, Secondary Schools, Send Child Friends, Adult Friends, Family 1 Friends, Family 2 No ticket visitors [Visitor type 15]	#Norm	Visitors in current year 50,245 13,722		50,245 13,722 4,696 12,065 5,555 70 5,148 1,410 192 709 485 38,458	50,245 13,722 4,696 12,065 5,555 70 5,148 1,410 192 709 485 38,458	50,245 13,722 4,696 12,065 5,555 70 5,148 1,410 192 709 485 38,458	50,245 13,722 4,696 12,065 5,555 70 5,148 1,410 - 192 709 485 38,458	50,245 13,722 4,696 12,065 5,555 70 5,148 1,410 192 709 485 38,458	74,263 20,281 6,941 17,832 8,211 104 7,609 2,084 283 1,047 717 56,842	71,497 19,526 6,683 17,168 7,905 100 7,326 2,007 273 1,008 690 54,725	72,529 19,807 6,779 17,415 8,019 102 7,431 2,036 277 1,023 700 55,515	73,456 20,061 6,866 17,638 8,122 103 7,526 2,062 280 1,036 709 56,224	78,434 21,420 7,331 18,834 8,672 110 8,036 2,201 299 1,106 757 60,035	78,627 21,473 7,349 18,880 8,693 110 8,056 2,207 300 1,109 759 60,182	76,980 21,023 7,195 18,484 8,511 108 7,887 2,160 294 1,086 743 58,922	78,938 21,558 7,378 18,955 8,728 111 8,088 2,215 301 1,113 762 60,421
Total visitors Visitor based revenue	#N(m)	132,756	5,997,854	•	-		•	132,756	196,216	188,908	191,633	194,083	207,236	207,745	203,393	208,568
Real admission revenue Adult Child Infant Student Seniors Family Schools, Adult Schools, Adult Schools, Secondary Schools, Secondary Schools, SEND child Friends, Adult Friends, Family 1 Friends, Family 1 Friends, Family 2 No ticket visitors [Visitor type 15] Local resident discount Total real revenue	\$1000 \$1000 \$1000 \$1000 \$1000 \$1000 \$1000 \$1000 \$1000 \$1000 \$1000 \$1000 \$1000 \$1000 \$1000 \$1000	Ticket price 33.9 17.0 31.0 24.3 91.4 14.7 6.6 9.6 5.9 95.8 140.1 221.2	76,984 10,512 					1,704 233 145 294 508 1 34 14 - 18 99 107 - (330) 2,827	2,518 344 215 434 751 2 50 20 27 147 159 (487)	2,425 331 207 418 723 1 49 19 26 141 153 (469) 4,023	2,460 336 210 424 733 2 49 20 27 143 155 (476)	2,491 340 213 429 742 2 50 20 27 145 157 (482) 4,134	2,660 363 227 458 793 2 53 21 	2,666 364 459 795 2 53 21 	2,611 356 223 450 778 2 52 21 28 152 164 (505)	2,677 366 228 461 798 2 54 21 29 156 169 (518)
Adult Child Infant Student Seniors Family Schools, Adult Schools, Pre & primary Schools, Secondary Schools, Secondary Schools, SenD child Friends, Family 1 Friends, Family 2 No ticket visitors [Visitor type 15] Local resident discount Total nominal revenue	\$7000 \$7000 \$7000 \$7000 \$7000 \$7000 \$7000 \$7000 \$7000 \$7000 \$7000 \$7000 \$7000 \$7000 \$7000 \$7000	Price Indexation CPI @ 2.8%	126,603 17,287 					1,903 260 162 328 567 1 38 15 21 111 120 (368) 3,158	2,891 395 247 498 862 2 58 23 31 168 182 (559)	2,862 391 244 493 853 2 57 23 31 167 180 (554)	2,984 407 255 514 889 2 60 24 174 188 (577) 4,952	3,107 424 265 535 926 2 62 25 34 181 196 (601) 5,156	3,410 466 291 587 1,016 2 68 27 37 199 215 (660) 5,659	3,515 480 300 605 1,048 2 70 28 205 221 (680) 5,832	3,537 483 302 609 1,054 2 71 28 28 206 223 (684) 5,870	3,729 509 318 642 1,111 2 75 30 40 217 235 (721) 6,187
Retail shop sales Real Nominal Food and beverage sales Real	\$'000 \$'000	\$ per visitor Price indexation 1.82 CPI @ 2.8% \$ per visitor Price indexation 1.30 CPI @ 2.8%	10,925 17,967 7,768	**	*		•	242 270	357 410 254	344 406 245	349 424 248	354 441 251	377 484 268	378 499 269	370 502 263	380 529 270

Staff
NANZ Director
Staff @ 150K
Staff @ 120K
Staff @ 110K
Staff @ 90K
Staff @ 75K
Staff @ 72K
Staff @ 70K

Nominal	\$'000		12,775		*	٠		192	292	289	301	314	344	355	357	376
Conference rental sales Real Nominal	\$'000 \$'000	% of ticket sales	######################################	*	÷.	*	*	÷	107	~	e.	.m W	**	*	*	16. 60
Summary Total real revenue Total escalation Total visitor based revenue	\$'000 \$'000 \$'000		146,437 94,383 240,820		# 7	16 17 16	+ + + + + + + + + + + + + + + + + + + +	3.241 379 3,620	4.791 709 5,500	4,612 831 5,443	4,679 998 5,676	4,739 1,171 5,910	5,060 1,428 6,487	5.072 1.613 6,685	4,966 1,763 6,728	5,092 2,001 7,093
Other revenue																
Real revenue Sleepovers, animal encounters, and educational ever [spare] [spare] [spare] [spare] [spare] [spare] [spare] [spare] [spare]	\$'000 \$'000 \$'000 \$'000 \$'000 \$'000 \$'000	Year one value 1,007	24,828	* * * * * * * * * * * * * * * * * * * *	**	***		671	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007
[spare] [spare] [spare] [spare]	\$1000 \$1000 \$1000 \$1000			** ** **	*	*		*	*	-di -di -di	*	*	**	*	*	*
Nominal revenue Sleepovers, animal encounters, and educational ever [spare]	\$'000 \$'000 \$'000 \$'000 \$'000 \$'000 \$'000 \$'000 \$'000 \$'000 \$'000	Inflation profile CPI @ 2.8%	39,550	4			0 &	749	1,007	1,007	1,007	1,007	1,007	1,007	1,364	1,402
Total revenue Total other revenue Total other revenue	\$'000 \$'000 \$'000		24,828 14,722 39,550	*	7 A	*	+	671 78 749	1,007 149 1,156	1,007 181 1,188	1,007 215 1,221	1,007 249 1,255	1,007 284 1,291	1,007 320 1,327	1,007 357 1,364	1,007 395 1,402
Total revenue Escalation Total nominal revenue	\$'900 \$'000 \$'000		171,265 109,105 280,370	:	*	* **	+ 0	3,912 457 4,369	5,797 858 6,655	5,619 1,013 6,631	5,685 1,212 6,898	5,745 1,420 7,165	6,066 1,712 7,778	6,079 1,933 8,012	5,972 2,120 8,092	6,099 2,396 8,495
5 Opex Labour																

No indexation
Staff

Staff

Staff Staff Staff Staff Staff

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Staff @ 65K Staff @ 60K Staff @ 55K Staff @ 55K Staff @ 50K Staff @ 45K Staff @ 38K Staff @ 0K Staff @ 50K Staff @ 50K Staff @ 50K Volunteers Total staff	8 Staff 8 Staff 13 Staff 1 Staff 24 Staff 6 Staff - Staff - Staff - Staff - Staff - Staff - Staff 1 Staff 2 Staff - Staff			0 		8 8 8 8 13 13 13 1 1 1 24 24 6 6 6 6	8 8 13 0 23 6 - - - 144 228	8 8 13 0 23 6 - - - 146 231	8 8 13 0 23 6 - - - 148 234	8 8 14 1 25 6	8 8 14 1 25 6 6 - - - 159 250	8 8 13 1 24 6 	9 9 14 1 25 6
Real labour costs	Starting salary												
NANZ Director	150,000	3,700	* *	*		100 150	150	150	150	150	150	150	150
Staff @ 150K	150,000	4,584		w	-9	100 150	144	146	148	158	159	155	159
Staff @ 120K	\$ 120,000	3,667	* *	-	-	80 120	116	117	119	127	127	124	128
Staff @ 110K	110,000	13,445	* %	4		293 440	424	430	435	465	466	456	468
Staff @ 90K	90,000	24,752	* *	*		540 810	780	791	801	855	858	840	861
Staff @ 75K	75,000	13,751	* *	-	*	300 450	433	439	445	475	476	466	478
Staff @ 72K	72,000	1,100	~ ~	~	+	24 36	35	35	36	38	38	37	38
Staff @ 70K	70,000	10,695	* *	4		233 350	337	342	346	370	371	363	372
Staff @ 65K	65,000	15,890	~ ~	*		347 520	501	508	514	549	551	539	553
Staff @ 60K	5 60,000	14,668		*		320 480	462	469	475	507	508	498	510
Staff @ 55K	55,000	21,849		*		477 715	688	698	707	755	757	741	760
Staff @ 50K Staff @ 45K	\$ 50,000 \$ 45,000	764 32,315	* *	*	*	17 25 705 1,058	24 1,018	24 1,033	25 1,046	26 1,117	26 1,120	26 1,096	27 1,124
Staff @ 38K	\$ 38,000	6,967		-		152 228	220	223	226	241	241	236	242
Staff @ 0K	30,000	0,507				132 220	220	223	220	242	4.5-3	230	4.46
Staff @ 0K	š ·	-	-	*	*		-04	781	580	*	*	.19	-4
Staff @ 0K	5		* *	*		* *	-8	*	46.	*	*	*	*
Staff @ 0K	\$	-		*			-			100	-	*	
Staff @ 0K	\$	-	* *	*	-	+ *	*		*	*	*	*	4
Volunteers	500	2,292	4 ×	+	*	50 75	72	73	74	79	79	78	80
Total real labour costs	\$	170,438		*	- 3,	738 5,607	5,403	5,479	5,547	5,913	5,927	5,806	5,950
Nominal labour costs													
	Salary indexation	5.894		-		112 172	177	182	187	192	198	203	209
NANZ Director	CPI @ 2.8%	5,894 7,539		*		112 172 112 172	177 170	182 178	187 185	192	198	203	209
NANZ Director Staff @ 150K	CPI @ 2.8% CPI @ 2.8%	7,539	* *	*		112 172	170	178	185	203	209	211	222
NANZ Director Staff @ 150K Staff @ 120K	CPI @ 2.8% CPI @ 2.8% CPI @ 2.8%	7,539 6,031	* *	*	-0	112 172 89 138	170 136	178 142		203 162	209 167	211 169	222 178
NANZ Director Staff @ 150K	CPI @ 2.8% CPI @ 2.8%	7,539 6,031 22,114	* * * * * * * * * * * * * * * * * * *	*	*	112 172 89 138	170	178	185 148	203	209	211 169 618	222 178 651
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K	CPI @ 2.8% CPI @ 2.8% CPI @ 2.8% CPI @ 2.8%	7,539 6,031	* * * * * * * * * * * * * * * * * * *	*		112 172 89 138 328 505	170 136 500	178 142 521	185 148 543	203 162 596	209 167 614	211 169	222 178
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 75K Staff @ 72K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809		*	*	112 172 89 138 328 505 603 930 335 517 27 41	170 136 500 920	178 142 521 960	185 148 543 999 555 44	203 162 596 1,097 609 49	209 167 614 1,130 628 50	211 169 618 1,138 632 51	222 178 651 1,199 666 53
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 75K Staff @ 72K Staff @ 70K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590			*	112 172 89 138 328 505 603 930 335 517 27 41 261 402	170 136 500 920 511 41 398	178 142 521 960 533 43 415	185 148 543 999 555 44 432	203 162 596 1,097 609 49 474	209 167 614 1,130 628 50 488	211 169 618 1,138 632 51 492	222 178 651 1,199 666 53 518
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 95K Staff @ 75K Staff @ 72K Staff @ 70K Staff @ 65K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134			*	112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597	170 136 500 920 511 41 398 591	178 142 521 960 533 43 415 616	185 148 543 999 555 44 432 642	203 162 596 1,097 609 49 474 704	209 167 614 1,130 628 50 488 726	211 169 618 1,138 632 51 492 730	222 178 651 1,199 666 53 518 770
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 75K Staff @ 72K Staff @ 72K Staff @ 65K Staff @ 65K Staff @ 60K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124				112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551	170 136 500 920 511 41 398 591 545	178 142 521 960 533 43 415 616 569	185 148 543 999 555 44 432 642 592	203 162 596 1,097 609 49 474 704 650	209 167 614 1,130 628 50 488 726 670	211 169 618 1,138 632 51 492 730 674	222 178 651 1,199 666 53 518 770 711
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 75K Staff @ 72K Staff @ 70K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 65K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935				112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821	170 136 500 920 511 41 398 591 545 812	178 142 521 960 533 43 415 616 569 847	185 148 543 999 555 44 432 642 592 882	203 162 596 1,097 609 49 474 704 650 968	209 167 614 1,130 628 50 488 726 670 998	211 169 618 1,138 632 51 492 730 674 1,004	222 178 651 1,199 666 53 518 770 711 1,059
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 75K Staff @ 72K Staff @ 72K Staff @ 70K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 55K Staff @ 55K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256				112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29	170 136 500 920 511 41 398 591 545 812 28	178 142 521 960 533 43 415 616 569 847 30	185 148 543 999 555 44 432 642 592 882 31	203 162 596 1,097 609 49 474 704 650 968 34	209 167 614 1,130 628 50 488 726 670 998 35	211 169 618 1,138 632 51 492 730 674 1,004 35	222 178 651 1,199 666 53 518 770 711 1,059
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 75K Staff @ 72K Staff @ 72K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 60K Staff @ 55K Staff @ 50K Staff @ 45K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148				112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214	170 136 500 920 511 41 398 591 545 812 28	178 142 521 960 533 43 415 616 569 847 30 1,253	185 148 543 999 555 44 432 642 592 882 31 1,305	203 162 596 1,097 609 49 474 704 650 968 34 1,432	209 167 614 1,130 628 50 488 726 670 998 35 1,476	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 75K Staff @ 75K Staff @ 70K Staff @ 70K Staff @ 65K Staff @ 65K Staff @ 60K Staff @ 55K Staff @ 38K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256				112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29	170 136 500 920 511 41 398 591 545 812 28	178 142 521 960 533 43 415 616 569 847 30	185 148 543 999 555 44 432 642 592 882 31	203 162 596 1,097 609 49 474 704 650 968 34	209 167 614 1,130 628 50 488 726 670 998 35	211 169 618 1,138 632 51 492 730 674 1,004 35	222 178 651 1,199 666 53 518 770 711 1,059
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 95K Staff @ 72K Staff @ 72K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 55K Staff @ 55K Staff @ 55K Staff @ 38K Staff @ 38K Staff @ 0K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148				112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214	170 136 500 920 511 41 398 591 545 812 28	178 142 521 960 533 43 415 616 569 847 30 1,253	185 148 543 999 555 44 432 642 592 882 31 1,305	203 162 596 1,097 609 49 474 704 650 968 34 1,432	209 167 614 1,130 628 50 488 726 670 998 35 1,476	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 95K Staff @ 72K Staff @ 72K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 55K Staff @ 55K Staff @ 38K Staff @ 38K Staff @ 38K Staff @ 0K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148				112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214	170 136 500 920 511 41 398 591 545 812 28	178 142 521 960 533 43 415 616 569 847 30 1,253	185 148 543 999 555 44 432 642 592 882 31 1,305	203 162 596 1,097 609 49 474 704 650 968 34 1,432	209 167 614 1,130 628 50 488 726 670 998 35 1,476	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 75K Staff @ 72K Staff @ 70K Staff @ 65K Staff @ 65K Staff @ 60K Staff @ 55K Staff @ 50K Staff @ 38K Staff @ 38K Staff @ 0K Staff @ 0K Staff @ 0K Staff @ 0K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148				112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214	170 136 500 920 511 41 398 591 545 812 28	178 142 521 960 533 43 415 616 569 847 30 1,253	185 148 543 999 555 44 432 642 592 882 31 1,305	203 162 596 1,097 609 49 474 704 650 968 34 1,432	209 167 614 1,130 628 50 488 726 670 998 35 1,476	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 95K Staff @ 72K Staff @ 72K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 55K Staff @ 55K Staff @ 38K Staff @ 38K Staff @ 38K Staff @ 0K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148				112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214	170 136 500 920 511 41 398 591 545 812 28	178 142 521 960 533 43 415 616 569 847 30 1,253	185 148 543 999 555 44 432 642 592 882 31 1,305	203 162 596 1,097 609 49 474 704 650 968 34 1,432	209 167 614 1,130 628 50 488 726 670 998 35 1,476	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 75K Staff @ 75K Staff @ 70K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 60K Staff @ 50K Staff @ 38K Staff @ 38K Staff @ 0K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148 11,459				112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214 170 262	170 136 500 920 511 41 398 591 545 812 28 1,202 259	178 142 521 960 533 43 415 616 569 847 30 1,253 270	185 148 543 999 555 44 432 642 592 882 31 1,305 281	203 162 596 1,097 609 49 474 704 650 968 34 1,432 309	209 167 614 1,130 628 50 488 726 670 998 35 1,476 318	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485 320	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566 338
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 75K Staff @ 72K Staff @ 72K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 55K Staff @ 35K Staff @ 38K Staff @ 45K Staff @ 0K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148 11,459				112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214 170 262	170 136 500 920 511 41 398 591 545 812 28 1,202 259	178 142 521 960 533 43 415 616 569 847 30 1,253 270	185 148 543 999 555 44 432 642 592 882 31 1,305 281	203 162 596 1,097 609 49 474 704 650 968 34 1,432 309	209 167 614 1,130 628 50 488 726 670 998 35 1,476 318	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485 320	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566 338
NANZ Director Staff @ 150K Staff @ 120K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 75K Staff @ 75K Staff @ 70K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 60K Staff @ 55K Staff @ 50K Staff @ 38K Staff @ 38K Staff @ 0K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148 11,459				112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214 170 262	170 136 500 920 511 41 398 591 545 812 28 1,202 259	178 142 521 960 533 43 415 616 569 847 30 1,253 270	185 148 543 999 555 44 432 642 592 882 31 1,305 281	203 162 596 1,097 609 49 474 704 650 968 34 1,432 309	209 167 614 1,130 628 50 488 726 670 998 35 1,476 318	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485 320	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566 338
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 90K Staff @ 72K Staff @ 72K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 55K Staff @ 55K Staff @ 55K Staff @ 0K Staff @ 38K Staff @ 0K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148 11,459	w		- 4,	112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214 170 262 56 86 174 6,437	170 136 500 920 511 41 398 591 545 812 28 1,202 259	178 142 521 960 533 43 415 616 569 847 30 1,253 270	185 148 543 999 555 44 432 642 592 882 31 1,305 281	203 162 596 1,097 609 49 474 704 650 968 34 1,432 309	209 167 614 1,130 628 50 488 726 670 998 35 1,476 318	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485 320 	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566 338
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 75K Staff @ 72K Staff @ 72K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 55K Staff @ 55K Staff @ 50K Staff @ 38K Staff @ 38K Staff @ 0K Staff @ OK	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148 11,459			- 4,	112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214 170 262 56 86 174 6,437	170 136 500 920 511 41 398 591 545 812 28 1,202 259	178 142 521 960 533 43 415 616 569 847 30 1,253 270	185 148 543 999 555 44 432 642 592 882 31 1,305 281	203 162 596 1,097 609 49 474 704 650 968 34 1,432 309 	209 167 614 1,130 628 50 488 726 670 998 35 1,476 318 	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485 320 	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566 338
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 97K Staff @ 72K Staff @ 72K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 55K Staff @ 55K Staff @ 38K Staff @ 38K Staff @ 0K Staff @ 55K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148 11,459 3,769 280,128	w		- 4,	112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214 170 262 56 86 174 6,437	170 136 500 920 511 41 398 591 545 812 28 1,202 259 85 6,377	178 142 521 960 533 43 415 616 569 847 30 1,253 270	185 148 543 999 555 44 432 642 592 882 31 1,305 281 	203 162 596 1,097 609 49 474 704 650 968 34 1,432 309 102 7,581	209 167 614 1,130 628 50 488 726 670 998 35 1,476 318 	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485 320 	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566 338
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 975K Staff @ 72K Staff @ 72K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 55K Staff @ 50K Staff @ 38K Staff @ 38K Staff @ 0K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148 11,459	w		- 4,	112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214 170 262 56 86 174 6,437	170 136 500 920 511 41 398 591 545 812 28 1,202 259	178 142 521 960 533 43 415 616 569 847 30 1,253 270	185 148 543 999 555 44 432 642 592 882 31 1,305 281	203 162 596 1,097 609 49 474 704 650 968 34 1,432 309 	209 167 614 1,130 628 50 488 726 670 998 35 1,476 318 	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485 320 	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566 338
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 97K Staff @ 72K Staff @ 72K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 55K Staff @ 55K Staff @ 38K Staff @ 38K Staff @ 0K Staff @ 55K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148 11,459 3,769 280,128	w		- 4,	112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214 170 262 56 86 174 6,437	170 136 500 920 511 41 398 591 545 812 28 1,202 259 85 6,377	178 142 521 960 533 43 415 616 569 847 30 1,253 270	185 148 543 999 555 44 432 642 592 882 31 1,305 281 	203 162 596 1,097 609 49 474 704 650 968 34 1,432 309 102 7,581	209 167 614 1,130 628 50 488 726 670 998 35 1,476 318 	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485 320 	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566 338
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 90K Staff @ 975K Staff @ 72K Staff @ 72K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 55K Staff @ 50K Staff @ 38K Staff @ 38K Staff @ 0K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148 11,459 3,769 280,128	w		- 4,	112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214 170 262 56 86 174 6,437	170 136 500 920 511 41 398 591 545 812 28 1,202 259 85 6,377	178 142 521 960 533 43 415 616 569 847 30 1,253 270	185 148 543 999 555 44 432 642 592 882 31 1,305 281 	203 162 596 1,097 609 49 474 704 650 968 34 1,432 309 102 7,581	209 167 614 1,130 628 50 488 726 670 998 35 1,476 318 	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485 320 	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566 338
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 110K Staff @ 75K Staff @ 75K Staff @ 72K Staff @ 70K Staff @ 65K Staff @ 65K Staff @ 60K Staff @ 55K Staff @ 50K Staff @ 38K Staff @ 0K Staff @ 10K Staff @ 1	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148 11,459 3,769 280,128	w		- 4,	112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214 170 262 56 86 174 6,437 738 5,607 437 830 174 6,437	170 136 500 920 511 41 398 591 545 812 28 1,202 259 	178 142 521 960 533 43 415 616 569 847 30 1,253 270 89 6,647 5,479 1,168 6,647	185 148 543 999 555 44 432 642 592 882 31 1,305 281 	203 162 596 1,097 609 49 474 704 650 968 34 1,432 309 	209 167 614 1,130 628 50 488 726 670 998 35 1,476 318 	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485 320 	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566 338
NANZ Director Staff @ 150K Staff @ 120K Staff @ 110K Staff @ 110K Staff @ 75K Staff @ 75K Staff @ 72K Staff @ 70K Staff @ 65K Staff @ 65K Staff @ 65K Staff @ 55K Staff @ 55K Staff @ 38K Staff @ 38K Staff @ 0K	CPI @ 2.8%	7,539 6,031 22,114 40,709 22,616 1,809 17,590 26,134 24,124 35,935 1,256 53,148 11,459 3,769 280,128	w		- 4,	112 172 89 138 328 505 603 930 335 517 27 41 261 402 387 597 357 551 532 821 19 29 787 1,214 170 262 56 86 174 6,437	170 136 500 920 511 41 398 591 545 812 28 1,202 259 85 6,377	178 142 521 960 533 43 415 616 569 847 30 1,253 270 89 6,647 5,479 1,168 6,647	185 148 543 999 555 44 432 642 592 882 31 1,305 281 	203 162 596 1,097 609 49 474 704 650 968 34 1,432 309 7,581	209 167 614 1,130 628 50 488 726 670 998 35 1,476 318 105 7,812	211 169 618 1,138 632 51 492 730 674 1,004 35 1,485 320 	222 178 651 1,199 666 53 518 770 711 1,059 37 1,566 338

<u>Marketing</u> Real Nominal	\$'000 \$'000	% of admission revenue 7.5%	9,581 15,756	*	*		.9	212 237	313 360	302 356	306 371	310 387	331 424	332 437	325 440	333 464
<u>Café purchases</u> Real Nominal	\$1000 \$1000	% of F&B sales 62.1%	4,823 7,931					107 119	158 181	152 179	154 187	156 195	167 214	167 220	164 222	168 234
Summary Total real other variable opex	\$'000		20,150		Ar.	*	*	446	659	635	644	652	696	698	683	701
Total escalation Total nominal other variable opex	2000		12,988 33,138	*	+	-		52 498	98 757	749	137 781	161 813	196 893	222 920	243 926	275 976
Total nominal other variable opex	2 000		33,130					490	737	749	701	013	093	920	920	970
Other opex																
Real other opex		Year one value														
Tourism Capital Fund T/F	\$7000	204	5.022	*	*	*	*	120	204	20.4	204	204	204	204	204	20.4
Energy Aquarium renewals	\$'000 \$'000	204 52	5,032 1,291	*	*		*	136 35	204 52	204 52	204 52	204 52	204 52	204 52	204 52	204 52
Animal costs (health, food etc.)	\$1000	102	2,516	<		<u>.</u>		68	102	102	102	102	102	102	102	102
All other	\$'000	250	6,167	+				167	250	250	250	250	250	250	250	250
Education IT and resource development & delivery	\$1000	75	1,850	*	*	*		50	75	75	75	75	75	75	75	75
[spare]	\$1000		-	*	*	*	+	+	*	*	*-	+	-ty	+	*	4:
[spare]	2,000		-	40	19	16		- 0	*	4	10-	+		**	76	*
[spare]	\$7000		-	*	.~			*	-16	-9	*		*	*		
[spare] [spare]	\$,000		-	~	-	*		*	-	*				-		*
[spare]	\$1000			4		-		4	*		×	-		4		
[spare]	\$'000	*	-	4				4	-9	10.	6-					
[spare]	\$1000		- 3	*	*			*			*		-	-		*
[spare]	\$1000		-	40	*	*		+	*	*	0-	*	**	+	*	· e
Revenue generation strategy	\$,000		1,488	225	249	301	266	197	137	73	31	9	-	+	*	*
Revenue generation fee	\$'000		1,860	282	312	376	333	246	171	91	38	11	ero.	rre	cco	rro
Insurance [spare]	2,000		13,779	*	-	*		372	559	559	559	559	559	559	559	559
Maintenance	\$'000		36,122		-			372	559	559	559	559	1,676	1,676	1,676	1,676
Total real other opex	\$'000		70,105	507	561	678	599	1,644	2,108	1,964	1,870	1,820	2,918	2,918	2,918	2,918
Nominal other opex		Inflation profile														
Tourism Capital Fund T/F	\$1000	CPI @ 2.8%	8,016	*	*	*	*	152	224	241	240	254	262	200	226	204
Energy Aquarium renewals	\$'000 \$'000	CPI @ 2.8% CPI @ 2.8%	2,057	-				152 39	234 60	241 62	248 64	254 65	262 67	269 69	276 71	284 73
Animal costs (health, food etc.)	2,000	CPI @ 2.8%	4,008	*	H	*	+	76	117	120	124	127	131	134	138	142
All other	\$7000	CPI @ 2.8%	9,823	-				186	287	295	303	312	321	330	339	348
Education IT and resource development & delivery	\$'000	CPI @ 2.8%	2,947		*		*	56	86	89	91	94	96	99	102	104
[spare]	2,000	CPI @ 2.8%	-	*	*	34	0.	+	*	-86		*	*	*	4.	*
[spare]	\$1000	CPI @ 2.8%	-	*	>-		+	-	*/ar		W-		elf	~	*	
(spare)	\$,000,5	CPI @ 2.8% CPI @ 2.8%	-	*	*						Ψ.				ν.	
[spare] [spare]	\$,000	CPI @ 2.8%														
[spare]	\$1000	CPI @ 2.8%	-	+	+						ψ.			4		
[spare]	\$'900	CPI @ 2.8%	-	*	~	*		+	*	-4	*			*		*
[spare]	\$7000	CPI @ 2.8%			*	*	+	+	+	rice .	-	.00	*	*	*	4.
[spare]	\$'000	CPI @ 2.8%	*	*	*	*	*	7	*	*	A ¹	48	or or	9	*	40
Revenue generation strategy	\$7000	CPI @ 2.8%	1,600	225	256	318	289	220	157	86	37	11	*	-		
Revenue generation fee Insurance	\$'000	CPI @ 2.8% CPI @ 2.8%	2,000	282	321	398	362	275 416	196 641	107 659	47 678	13 697	716	736	757	778
[spare]	\$,000	CPI @ 2.8%	21,545					410	041	039	0/0	037	110	730	/3/	770
Maintenance	\$'000	CPI @ 2.8%	59,664	w-	*	*		416	641	659	678	697	2,149	2,209	2,271	2,334
Total nominal other opex	\$'000		112,064	507	577	716	651	1,836	2,420	2,318	2,269	2,270	3,741	3,846	3,953	4,064
Summary																
Total real other opex	\$1000		70,105	507	561	678	599	1,644	2,108	1,964	1,870	1,820	2,918	2,918	2,918	2,918
Total escalation	\$1000		41,959	*	16	38	52	192	312	354	399	450	823	928	1,036	1,146
Total nominal other opex	\$'000		112,064	507	577	716	651	1,836	2,420	2,318	2,269	2,270	3,741	3,846	3,953	4,064
Summary																
Total real opex	\$1000		260,693	507	561	678	599	5,827	8,374	8,002	7,993	8,019	9,527	9,543	9,407	9,568
Escalation	\$1000		164,636	4	16	38	52	681	1,240	1,442	1,704	1,983	2,688	3,035	3,339	3,759
Total nominal opex	\$,000		425,329	507	577	716	651	6,508	9,614	9,444	9,697	10,002	12,215	12,578	12,746	13,328

ax																
BIT	\$7000		(245,521)	(507)	(577)	(716)	(651)	(3,686)	(4.508)	(4,363)	(4,350)	(4,386)	(6,361)	(6.490)	(6,578)	(6,
nterest BT	000'2		(3,388)	(507)	(577)	(91) (807)	(432)	(809)	(878)	(794) (5,156)	(383)	(4,386)	(6,361)	(6,490)	(6,578)	(6,
				4	4	4	4-4		4-24	(-2,,		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	4	(-,,	4-1	4-7
ax	5 000 Z8.0%			(142)	(162)	(226)	(303)	(1,259)	(1,508)	(1,444)	(1,325)	(1,228)	(1,781)	(1,817)	(1,842)	(1
x loss account																
pening balance	\$1000		(0.004	4.40	142	304	529	833	2,091	3,600	5,043	6,369	7,597	9,378	11,195	13
osses accrued osses used	\$,000		69,694	142	162	226	303	1,259	1,508	1,444	1,325	1,228	1,781	1,817	1,842	
osing balance	\$300			142	304	529	833	2,091	3,600	5,043	6,369	7,597	9,378	11,195	13,037	1
ax to pay	\$'000		-	-	*	~	*	*	*	-	*	٠	-	-		
onstruction financing																
otal funding																
construction costs	\$1000 Opex funded until		(77,508)	(500)	(14,120)	(28,167)	(23,545)	(11,015)	(160)	4	**	*			.*	
pex costs funded during construction	\$ 000 FY24		(2,451)	(507)	(577)	(716)	(651)	(41.016)	free?	*		+	*	*	*	
onstruction costs	\$,000		(79,959)	(1,007)	(14,697)	(28,883)	(24,196)	(11,015)	(160)	~	*	~	*	*		
epayment flag ebt flag	[0,1] Debt repayment year [0,1] FY28	Debt tenor 8 Year(s)		٠		*	٠	+	**	~			*			
undraising		-														
apier City Council	\$'000		10,000	*	5,000	5,000	-	-	~	-	*	*	*	*	*	
overnment (PGF)	\$1000		15,000	E 622	2,635	7,500	4,865	E 500	2.022	2.144	022	267	*	+	*	
skRight fundraising dditional funding	\$'800 \$'800		40,000	5,633	6,411	7,956	7,233	5,500	3,922	2,144	933	267		*		
otal	\$ 900		65,000	5,633	14,047	20,456	12,098	5,500	3,922	2,144	933	267	*	+	-	_
undraising cash account																
pening balance	\$'000		CF 000	F 622	4,626	3,976	42.000	E 500	2.022	2114	022	267	267	267	267	
njections construction spend	\$'000 \$'000		65,000 (57,893)	5,633 (1,007)	14,047 (14,697)	20,456 (24,431)	12,098 (12,098)	5,500 (5,500)	3,922 (160)	2,144	933	267	*	*		
ebt repayment	\$'000		(6,840)	frience	(44,037)	(entert)	(15,020)	(0,000)	(3,762)	(2,144)	(933)	*	-	*		
losing balance	\$1000			4,626	3,976	-	-4		-0	-10	+	267	267	267	267	
onstruction shortfall after spending cash	\$'000		(22,065)	0	0	-4451.501	-12098.27	-5515.441	0	0	0	0	0	0	0	
ebt																
occount Opening balance	\$'000						(4.543)	(17,073)	(23,398)	(20,514)	(19,163)					
rawdown	\$1900		(25,453)			(4.542)		(5)525)								
epayment from fundraising	\$'000		6,840	-	-	-			3,762	2,144	933		· ·	-		_
epayment from other equity	\$7(00)		18,613	*	19	K			*	-4	18,613	*	- 04		76	
osing balance verage balance	\$'800 \$'900			*	-	(4,542) (2,271)	(17,073) (10,808)	(23,398) (20,235)	(20,514) (21,956)	(19,163) (19,838)	(9,582)		*	*		
nterest	\$ 7000 4.0%		3,388	46	N.	91	432	809	878	794	383	+	*	4	*	
dditional drawdown required	\$'000			~		(0)	(0)	(0)	(0)	(0)				-	*	
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100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1 00 1.14 1.43 1.47 1.67 1.89 1.23 1.36 1.98 1.09	1.00 1.15 1.47 1.51 1.73 1.98 1.26 1.41 2.08	1.00 1.16 1.51 1.56 1.80 2.08 1.28 1.46 2.19 1.20	1.00 1.17 1.56 1.60 1.87 2.18 1.31 1.51 2.31	1.00 1.18 1.60 1.65 1.95 2.29 1.34 1.56 2.44	1.00 1.20 1.64 1.70 2.03 2.41 1.37 1.62 2.57	1.00 1.21 1.69 1.75 2.11 2.53 1.39 1.68 2.71 1.36	1.00 1.22 1.74 1.81 2.19 2.65 1.42 1.73 2.85 1.36	1.00 1.23 1.79 1.86 2.28 2.79 1.45 1.79 3.00 1.34	1.00 1.24 1.84 1.92 2.37 2.93 1.48 1.86 3.17 1.37	1.00 1.26 1.89 1.97 2.46 3.07 1.52 1.92 3.34	1.00 1.27 1.94 2.03 2.56 3.23 1.55 1.99 3.51 1.55	1.00 1.28 1.99 2.09 2.67 3.39 1.58 2.06 3.70 1.55	1.00 1.30 2.05 2.16 2.77 3.56 1.61 2.13 3.90 1.53	1.00 1.31 2.11 2.22 2.88 3.73 1.65 2.21 4.11 1.57	1.00 1.32 2.17 2.29 3.00 3.92 1.68 2.28 4.33 1.61
13.51 0.35	14.51 0.33	15.51	16.51 0.28	17.51 0.26	18.51 0.24	19.51	20.51	21.51 0.19	22.51 0.18	23.52	24.52 0.15	25.52 0.14	26.52 0.13	27.52 0.12	28.52
8,919	9,918	10,224	10,332	10,854	11,405	12,696	13,096	13,244	13,925	14,643	16,315	16,842	17,046	17,937	18,879
(13,939)	(15,286)	(15,749)	(15,963)	(16,708)	(17,491)	(19,221)	(19,816)	(20,091)	(21,049)	(22,058)	(24,286)	(25,056)	(25,416)	(26,656)	(27,963)
(5,020) (56.3%)	(5,368) (54.1%)	(5,526) (54.0%)	(5,631) (54.5%)	(5,853) (53.9%)	(6,085) (53,4%)	(6,525) (51.4%)	(6,720) (51.3%)	(6,847) (51.7%)	(7,125) (51.2%)	(7,415) (50.6%)	(7,972) (48.9%)	(8,214) (48.8%)	(8,370) (49.1%)	(8,719) (48.6%)	(9,085) (48.1%)
(1,924) (6,944) (77,9%)	(2,432) (7,800) (78.6%)	(2,432) (7,958) (77.8%)	(2,432) (8,063) (78.0%)	(2,432) (8,285) (76.3%)	(2,432) (8,518) (74.7%)	(2,496) (9,020) (71.0%)	(2,496) (9,215) (70,4%)	(2,496) (9,343) (70.5%)	(2,496) (9,620) (69.1%)	(2,496) (9,911) (67.7%)	(2,713) (10,684) (65.5%)	(2,713) (10,927) (64.9%)	(2.713) (11,083) (65.0%)	(2,713) (11,432) (63,7%)	(47,702) (56,787) (300.8%)
*	4	7		*	+	4.	*	+	*	+	*	+	-	*	.9

(5,020)	(5,368)	(5,526)	(5,631)	(5,853)	(6,085)	(6,525)	(6,720)	(6,847)	(7,125)	(7,415)	(7,972)	(8,214)	(8,370)	(8,719)	(9,085)
(2.149)	-	-	-	-	(2.466)	-	-	-	-	(2.931)	-	-	-	-	(2.250)
(2,148) (4,525)				-	(2,466)			-		(2,831) (5,964)					(3,250)
(6,673)	-	-	-	-	(2,466)	-	-	-	-	(8,795)	-	-	-	-	(3,250)
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	-	-	-	-	-		-	-					-	-	-
11,692	5,368	5,526	5,631	5,853	8,551	6,525	6,720	6.847	7,125	16,210	7,972	8,214	8,370	8,719	12,335
11,692	5,368	5,526	5,631	5,853	8,551	6,525	6,720	6,847	7,125	16,210	7,972	8,214	8,370	8,719	12,335
	-	-	-	-		-		-	-	-	-				
(11,692)	(5,368)	(5,526)	(5,631)	(5,853)	(8,551)	(6,525)	(6,720)	(6,847)	(7,125)	(16,210)	(7,972)	(8,214)	(8,370)	(8,719)	(12,335)
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1,500		*	*	*	1,500		*		*	1,500		*		*	1,500
2,148	*		-	*	2,466	*	40		*	2,831		*	*	*	3,250
3,160			*		**	4	w	- 30	40	3,160	26-	100	40	an an	4
4,525	4.		*	*		4	41	-9	٠	5,964		*	*	*	
4,660	+	*	*	39	1,500	*	w	as a	*	4,660	×			40	1,500
6,673	-		•	-	2,466		-	-	•	8,795		-	•	•	3,250
1,500	*	*	*	*	1,500	*	*	+ +	*	1,500		*	*		1,500
3,160 4,660		-	-	*	1,500	*	*	*	-	3,160 4,660	*		*		1,500
2,148 4.525	*			*	2,466	4	-	-	*	2,831 5,964	-				3,250
6,673	*	*	7	*	2,466	*	*		*	8,795	*	*	*	*	3,250
3,560	62,009	60,459	58,909	57,359	55,809	54,259	52,708	51,158	49,608	48,058	46,508	44,958	43,408	41,857	40,307
(1,550)	(1,550)	(1,550)	(1,550)	(1,550)	(1,550)	(1,550)	(1,550)	(1,550)	(1,550)	(1,550)	(1,550)	(1,550)	(1,550)	(1,550)	(1,550
52,009	60,459	58,909	57,359	55,809	54,259	52,708	51,158	49,608	48,058	46,508	44,958	43,408	41,857	40,307	-
374	2,148	1,718	1,289	859	430	2,466	1,973	1,480	986	493	2,831	2,265	1,699	1,132	566
2,148 (374)	(430)	(430)	(430)	(430)	2,466 (430)	(493)	(493)	(493)	(493)	2,831 (493)	(566)	(566)	(566)	(566)	3,250 (566 (3,250
2,148	1,718	1,289	859	430	2,466	1,973	1,480	986	493	2,831	2,265	1,699	1,132	566	(3)2.50
	4,525	4,072	3,620	3,167	2,715	2,262	1,810	1,357	905	452	5,964	5,367	4,771	4,175	3,578
4,525	(452)	(452)	(452)	(452)	(452)	(452)	(452)	(452)	(452)	5,964 (452)	(596)	(596)	(596)	(596)	(596
4,525	4,072	3,620	3,167	2,715	2,262	1,810	1,357	905	452	5,964	5,367	4,771	4,175	3,578	(2,982
1,924	2,432	2,432	2,432	2,432	2,432	2,496	2,496	2,496	2,496	2,496	2,713	2,713	2,713	2,713	2,713
1,924	2,432	2,432	2,432	2,432	2,432	2,496	2,496	2,496	2,496	2,496	2,713	2,713	2,713	2,713	44,989
2.6%	9.8%	0.3%	(2.0%)	2.6%	2.6%	9.7%	0.4%	(1.9%)	2.6%	2.6%	9.6%	0.5%	(1.8%)	2.7%	2.7
2.6%	9.8%	0.3%	(2.0%)	2.6%	2.6%	9.7%	0.4%	(1.9%)	2.6%	2.6%	9.6%	0.5%	(1.8%)	2.7%	2.79
	-96	-% 0.3%	(2.0%)	-% 2.6%	-% 2.6%	-% 9.7%	-% 0.4%	(1.9%)	2.6%	-% 2.6%	-% 9.6%	-% 0.5%	(1.8%)	-% 2.7%	2.7
-96	9.8%		A SHALL ALL AND A	(B) (1977) F M	BOND 110			(1.9%)	2.6%	2.6%	9.6%	0.5%	(1.8%)	2.7%	2.7
	9.8% 9.8%	0.3%	(2.0%)	2.6%	2.6%	9.7%	0.4%	£4.2703	4.107.70	8,10,70	2000	010770	(4.0.70)	2.770	A-12
-% 2.6%			2	2.6% 2.6%	2.6% 2.6%	9.7%	0.4%	(1.9%)	2.6%	2.6%	9.6%	0.5%	(1.8%)	2.7%	
2.6% 2.6% 2.6% 2.6%	9.8% 9.8% 9.8%	0.3% 0.3% 0.3%	(2.0%) (2.0%) (2.0%)	2.6% 2.6%	2.6% 2.6%	9.7% 9.7%	0.4%	(1.9%) (1.9%)	2.6% 2.6%	2.6% 2.6%	9.6% 9.6%	0.5% 0.5%	(1.8%) (1.8%)	2.7%	2.7
2.6% 2.6% 2.6% 2.6%	9.8% 9.8%	0.3% 0.3%	(2.0%) (2.0%)	2.6%	2.6%	9.7%	0.4%	(1.9%)	2.6%	2.6%	9,6%	0.5%	(1.8%)	2.7%	2.7

2.6% 2.6% 2.6% 2.6% 2.6%	-% 9.8% 9.8% 9.8% 9.8%	-% 0.3% 0.3% 0.3% 0.3%	-96 (2.0%) (2.0%) (2.0%) (2.0%)	-% 2.6% 2.6% 2.6% 2.6%	2.6% 2.6% 2.6% 2.6% 2.6%	-% 9.7% 9.7% 9.7% 9.7%	-% 0.4% 0.4% 0.4% 0.4%	(1.9%) (1.9%) (1.9%) (1.9%) (1.9%)	2.6% 2.6% 2.6% 2.6% 2.6%	2.6% 2.6% 2.6% 2.6% 2.6%	9.6% 9.6% 9.6% 9.6%	0.5% 0.5% 0.5% 0.5%	-% (1.8%) (1.8%) (1.8%) (1.8%)	-% 2.7% 2.7% 2.7% 2.7%	-% 2.7% 2.7% 2.7% 2.7%
80,953	88,850	89,131	87,357	89,618	91,946	100,859	101,255	99,355	101,974	104,673	114,752	115,298	113,275	116,321	119,462
22,108	24,265	24,341	23,857	24,474	25,110	27,544	27,652	27,133	27,849	28,586	31,338	31,488	30,935	31,767	32,625
7,567	8,305	8,331	8,165	8,377	8,594	9,427	9,464	9,287	9,532	9,784	10,726	10,777	10,588	10,873	11,166
19,438	21,335	21,402	20,976	21,519	22,078	24,218	24,313	23,857	24,486	25,134	27,554	27,685	27,200	27,931	28,685
8,951	9,824	9,855	9,659	9,909	10,166	11,152	11,195	10,985	11,275	11,573	12,688	12,748	12,524	12,861	13,209
114	125	125	123	126	129	141	142	139	143	147	161	162	159	163	168
8,294	9,104	9,132	8,951	9,182	9,421	10,334	10,375	10,180	10,448	10,725	11,758	11,813	11,606	11,918	12,240
2,272	2,494	2,501	2,452	2,515	2,580	2,831	2,842	2,788	2,862	2,938	3,221	3,236	3,179	3,265	3,353
309	339	340	333	342	351	385	386	379	389	399	438	440	432	444	456
1,142	1,253	1,257	1,232	1,264	1,297	1,422	1,428	1,401	1,438	1,476	1,618	1,626	1,598	1,641	1,685
781	858	860	843	865	887	973	977	959	984	1,010	1,108	1,113	1,093	1,123	1,153
61,963	68,007	68,222	66,865	68,595	70,377	77,199	77,502	76,048	78,053	80,119	87,833	88,251	86,703	89,034	91,438
213,892	234,757	235,498	230,812	236,786	242,937	266,487	267,533	262,512	269,433	276,564	303,195	304,637	299,293	307,341	315,639
2,745	3,013	3,023	2,963	3,039	3,118	3,420	3,434	3,369	3,458	3,550	3,892	3,910	3,842	3,945	4,051
375	411	413	405	415	426	467	469	460	472	485	531	534	525	539	553
234 473 818 2 55	257 519 898 2	258 521 901 2 61	253 510 883 2 59	259 524 906 2	266 537 929 2 63	292 589 1,019 2 69	293 592 1,023 2 69	288 580 1,004 2 68	295 596 1,031 2 69	303 611 1,058 2 71	332 670 1,160 2 78	334 674 1,165 2 78	328 662 1,145 2 77	337 680 1,176 2 79	346 698 1,207 2 81
22	24	24	23	61 24	25	27	27	27	27	28	31	31	30	31	32
30 160 173	176 190	33 176 190	173 186	33 177 191	34 182 196	37 199 215	200 216	36 196 212	37 201 218	38 207 223	42 227 245	42 228 246	41 224 242	43 230 248	236 255
(531)	(583)	(585)	(573)	(588)	(603)	(662)	(664)	(652)	(669)	(687)	(753)	(756)	(743)	(763)	(784)
4,556	5,000	5,016	4,916	5,043	5,174	5,676	5,698	5,591	5,738	5,890	6,458	6,488	6,374	6,546	6,723
3,931	4,43S	4,574	4,608	4,860	5,126	5,780	5,965	6,017	6,349	6,700	7,550	7,799	7,876	8,315	8,778
537	606	625	629	664	700	789	815	822	867	915	1,031	1,065	1,075	1,135	1,199
335	379	390	393	415	437	493	509	514	542	572	644	666	672	710	749
677	764	788	794	837	883	996	1,028	1,037	1,094	1,154	1,301	1,343	1,357	1,432	1,512
1,172	1,322	1,363	1,374	1,449	1,528	1,723	1,778	1,793	1,892	1,997	2,250	2,324	2,348	2,478	2,616
2	3	3	3	3	3	4	4	4	4	4	5	5	5	5	5
79	89	92	92	97	103	116	120	121	127	134	151	156	158	167	176
31 42 229 247	35 48 258 279	36 49 266 288	50 268 290	52 283 306	55 299 323	62 337 364	47 64 348 376	48 65 351 379	68 370 400	72 390 422	81 440 475	84 454 491	85 459 496	90 484 523	95 511 553
(760) 6,523	(858) 7,360	(885) 7,590	(891) 7,647	(940) 8,065	(992) 8,506	(1,118) 9,592	(1,154) 9,899	(1,164) 9,985	(1,228)	(1,296)	(1,460) 12,529	(1,508) 12,941	(1,523) 13,070	(1,608) 13,797	(1,698) 14,566
390	428	429	420	431	443	485	487	478	491	504	552	555	545	560	575
558	629	649	654	690	727	820	847	854	901	951	1,072	1,107	1,118	1,180	1,246
277	304	305	299	307	315	345	347	340	349	358	393	395	388	398	409

	397	448	462	465	490	517	583	602	607	641	676	762	787	795	839	886
	*	100 100	*	**	**	*	** **	40 40	100 00	*	*	70 77	*	10) 40	*	19) 194
=	5,222 2,255 7,478	5,732 2,705 8,437	5,750 2,951 8,700	5,635 3,131 8,766	5,781 3,464 9,245	5,931 3,819 9,750	6,506 4,489 10,995	6,532 4,816 11,347	6,409 5,037 11,446	6,578 5,499 12,077	6,752 5,991 12,744	7,402 6,959 14,362	7,438 7,397 14,834	7,307 7,675 14,982	7,504 8,312 15,816	7,706 8,991 16,698
	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007
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_	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007
	4,000	4,000	*****	4,000	*,***	*,***	*****	x,	*,	4,447	*,***	4,000	2,007	2,007	*****	*****
	1,441	1,482	1,523	1,566	1,610	1,655	1,701	1,749	1,798	1,848	1,900	1,953	2,008	2,064	2,122	2,181
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_					*	-			-	*			-		*	*
	1,441	1,482	1,523	1,566	1,610	1,655	1,701	1,749	1,798	1,848	1,900	1,953	2,008	2,064	2,122	2,181
	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007
_	435	475	517	559	603	648	694	742	791	841	893	946	1,001	1,057	1,115	1,174
=	1,441	1,482	1,523	1,566	1,610	1,655	1,701	1,749	1,798	1,848	1,900	1,953	2,008	2,064	2,122	2,181
	6,229	6,738	6,756	6,642	6,788	6,938	7,513	7,538	7,416	7,585	7,759	8,409	8,444	8,314	8,510	8,713
_	2,690 8,919	3,180 9,918	3,467 10,224	3,690 10,332	4,067 10,854	4,467 11,405	5,183 12,696	5,558 13,096	5,828 13,244	6,340 13,925	6,884 14,643	7,906 16,315	8,398 16,842	8,732 17,046	9,427 17,937	10,166 18,879
=	0,323	3,320	20/221	10,002	10,031	227100	22,030	20,030	2072.11	207320	2 1/0 10	10,010	10/012	217010	21/331	20,075
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	1 4	1 5	5	5	5	5	5	5	5	5	6	6	6	6	6	6
	10 7	11 7	11 7	11 7	11 7	11 7	12 8	12 8	12 8	12 8	13 8	14 9	14 9	14 9	14 9	14 10
	1	1	1	1	1	1	1.	1	1	1.	1	1	1	1	1	1
	5	6	6	6	6	6	7	7	7	7	7	8	8	8	8	8

	9	10	10	9	10	10	11	11	11	11	11	12	12	12	13	13
	9	10	10	9	10	10	11	11	11	11	11	12	12	12	13	13
	14	16	16	15	16	16	18	18	17	18	18	20	20	20	20	21
	1	1	1	1	1	1	1.	1	1	1	1	1	1	1	1	1
	26	28	28	28	28	29	32	32	31	32	33	36	36	36	37	38
	7	7	7	7	7	7	8	8	8	8	8	9	9	9	9	10
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	164	179	180	176	181	186	204	205	201	206	211	232	233	229	235	241
_	258	283	284	278	285	293	321	322	316	324	333	365	367	360	370	380
		450	150	150	450	150	****	450	****	****	***		150	150	450	
	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
	164 131	179 144	180 144	176 141	181 145	186 149	204 163	205 164	201 161	206 165	211 169	232 185	233 186	229 183	235 188	241 193
	480	526	528	518	531	545	598	600	589	604	620	680	683	671	689	708
	883	969	972	953	977	1,003	1,100	1,104	1,084	1,112	1,142	1,252	1,258	1,236	1,269	1,303
	491	538	540	529	543	557	611	614	602	618	634	695	699	686	705	724
	39	43	43	42	43	45	49	49	48	49	51	56	56	55	56	58
	382	419	420	412	422	433	475	477	468	481	493	541	543	534	548	563
	567	622	624	612	628	644	706	709	696	714	733	804	807	793	814	836
	523	574	576	565	579	594	652	654	642	659	677	742	745	732	752	772
	779	855	858	841	863	885	971	975 34	957	982	1,008	1,105	1,110	1,091	1,120	1,150
	27 1,153	30 1,265	30 1,269	29 1,244	30 1,276	31 1,309	34 1,436	1,442	33 1,415	34 1,452	35 1,491	39 1,634	39 1,642	38 1,613	39 1,656	40 1,701
	249	273	274	268	275	282	310	311	305	313	321	352	354	348	357	367
	6.10	200	***		****			~~*		-	200		****			-
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	*		*	**	*	*		-	*	*		+	+	*	*	
	-			in.	*	**	***	100	4.60	400	***	***	***	***	***	***
_	6,098	90 6,678	90 6,699	6,569	6,735	6,906	7,561	7,590	7,450	7,643	7,841	8,581	8,622	8,473	8,697	8,927
	0,090	0,070	0,099	6,365	0,733	6,506	7,361	7,590	7,450	7,043	7,041	0,301	0,022	0,4/3	0,097	0,327
	215	221	227	233	240	247	253	261	268	275	283	291	299	308	316	325
	215 234	221 264	227 272	233 274	240 289	247 305	253 344	261 355	268 358	275 378	283 399	291 450	299 464	308 469	316 495	325 523
	234 187	264 211	272 218	274 220	289 232	305 244	344 275	355 284	358 287	378 303	399 319	450 360	464 372	469 375	495 396	523 418
	234 187 687	264 211 775	272 218 799	274 220 805	289 232 849	305 244 896	344 275 1,010	355 284 1,042	358 287 1,051	378 303 1,109	399 319 1,170	450 360 1,319	464 372 1,362	469 375 1,376	495 396 1,453	523 418 1,534
	234 187 687 1,264	264 211 775 1,427	272 218 799 1,471	274 220 805 1,482	289 232 849 1,563	305 244 896 1,649	344 275 1,010 1,859	355 284 1,042 1,919	358 287 1,051 1,935	378 303 1,109 2,042	399 319 1,170 2,155	450 360 1,319 2,428	464 372 1,362 2,508	469 375 1,376 2,533	495 396 1,453 2,674	523 418 1,534 2,823
	234 187 687 1,264 702	264 211 775 1,427 793	272 218 799 1,471 817	274 220 805 1,482 823	289 232 849 1,563 868	305 244 896 1,649 916	344 275 1,010 1,859 1,033	355 284 1,042 1,919 1,066	358 287 1,051 1,935 1,075	378 303 1,109 2,042 1,134	399 319 1,170 2,155 1,197	450 360 1,319 2,428 1,349	464 372 1,362 2,508 1,393	469 375 1,376 2,533 1,407	495 396 1,453 2,674 1,486	523 418 1,534 2,823 1,568
	234 187 687 1,264 702 56	264 211 775 1,427 793 63	272 218 799 1,471 817 65	274 220 805 1,482 823 66	289 232 849 1,563 868 69	305 244 896 1,649 916 73	344 275 1,010 1,859 1,033 83	355 284 1,042 1,919 1,066 85	358 287 1,051 1,935 1,075 86	378 303 1,109 2,042 1,134 91	399 319 1,170 2,155 1,197 96	450 360 1,319 2,428 1,349 108	464 372 1,362 2,508 1,393 111	469 375 1,376 2,533 1,407 113	495 396 1,453 2,674 1,486 119	523 418 1,534 2,823 1,568 125
	234 187 687 1,264 702 56 546	264 211 775 1,427 793 63 616	272 218 799 1,471 817 65 636	274 220 805 1,482 823 66 640	289 232 849 1,563 868 69 675	305 244 896 1,649 916 73 712	344 275 1,010 1,859 1,033 83 803	355 284 1,042 1,919 1,066 85 829	358 287 1,051 1,935 1,075 86 836	378 303 1,109 2,042 1,134 91 882	399 319 1,170 2,155 1,197 96 931	450 360 1,319 2,428 1,349 108 1,049	464 372 1,362 2,508 1,393 111 1,084	469 375 1,376 2,533 1,407 113 1,095	495 396 1,453 2,674 1,486 119 1,155	523 418 1,534 2,823 1,568 125 1,220
	234 187 687 1,264 702 56	264 211 775 1,427 793 63	272 218 799 1,471 817 65	274 220 805 1,482 823 66	289 232 849 1,563 868 69	305 244 896 1,649 916 73	344 275 1,010 1,859 1,033 83	355 284 1,042 1,919 1,066 85	358 287 1,051 1,935 1,075 86 836 1,242	378 303 1,109 2,042 1,134 91	399 319 1,170 2,155 1,197 96	450 360 1,319 2,428 1,349 108	464 372 1,362 2,508 1,393 111	469 375 1,376 2,533 1,407 113	495 396 1,453 2,674 1,486 119	523 418 1,534 2,823 1,568 125
	234 187 687 1,264 702 56 546 812	264 211 775 1,427 793 63 616 916	272 218 799 1,471 817 65 636 944	274 220 805 1,482 823 66 640 952	289 232 849 1,563 868 69 675 1,003	305 244 896 1,649 916 73 712 1,058	344 275 1,010 1,859 1,033 83 803 1,193	355 284 1,042 1,919 1,066 85 829 1,232	358 287 1,051 1,935 1,075 86 836	378 303 1,109 2,042 1,134 91 882 1,311	399 319 1,170 2,155 1,197 96 931 1,383	450 360 1,319 2,428 1,349 108 1,049 1,559	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214	469 375 1,376 2,533 1,407 113 1,095 1,626	495 396 1,453 2,674 1,486 119 1,155 1,717	523 418 1,534 2,823 1,568 125 1,220 1,812
	234 187 687 1,264 702 56 546 812 749 1,116 39	264 211 775 1,427 793 63 616 916 845 1,259	272 218 799 1,471 817 65 636 944 872 1,299	274 220 805 1,482 823 66 640 952 878 1,308	289 232 849 1,563 868 69 675 1,003 926 1,380 48	305 244 896 1,649 916 73 712 1,058 977 1,455 51	344 275 1,010 1,859 1,033 83 803 1,193 1,102 1,641 57	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87
	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152	344 275 1,010 1,859 1,033 83 803 1,193 1,102 1,641 57 2,427	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686
	234 187 687 1,264 702 56 546 812 749 1,116 39	264 211 775 1,427 793 63 616 916 845 1,259	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414	274 220 805 1,482 823 66 640 952 878 1,308	289 232 849 1,563 868 69 675 1,003 926 1,380 48	305 244 896 1,649 916 73 712 1,058 977 1,455 51	344 275 1,010 1,859 1,033 83 803 1,193 1,102 1,641 57	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87
	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152	344 275 1,010 1,859 1,033 83 803 1,193 1,102 1,641 57 2,427	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686
	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152	344 275 1,010 1,859 1,033 83 803 1,193 1,102 1,641 57 2,427	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686
	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152	344 275 1,010 1,859 1,033 83 803 1,193 1,102 1,641 57 2,427	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686
	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152	344 275 1,010 1,859 1,033 83 803 1,193 1,102 1,641 57 2,427	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686
	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651 356	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862 402	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935 417	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041 440	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152 464	344 275 1,010 1,859 1,033 83 803 1,193 1,102 1,641 57 2,427 523	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505 540	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527 545	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666 575	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813 607	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170 684	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275 706	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307 713	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491 753	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686 795
	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651 356	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862 402	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935 417	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041 440	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152 464	344 275 1,010 1,859 1,033 803 1,193 1,102 1,641 57 2,427 523	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505 540	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527 545	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666 575	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813 607	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170 684	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275 706	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307 713	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491 753	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686 795
_	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651 356	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862 402	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935 417	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041 440	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152 464	344 275 1,010 1,859 1,033 83 803 1,193 1,102 1,641 57 2,427 523	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505 540	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527 545	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666 575	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813 607	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170 684	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275 706	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307 713	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491 753	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686 795
_	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651 356	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862 402	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935 417	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041 440	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152 464	344 275 1,010 1,859 1,033 803 1,193 1,102 1,641 57 2,427 523	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505 540	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527 545	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666 575	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813 607	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170 684	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275 706	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307 713	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491 753 248 18,330	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686 795
_	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651 356	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862 402 132 9,830	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935 417	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041 440	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152 464	344 275 1,010 1,859 1,033 803 1,193 1,102 1,641 57 2,427 523	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505 540	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527 545	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666 575	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813 607	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170 684	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275 706	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307 713	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491 753 248 18,330	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686 795
_	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651 356	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862 402 132 9,830	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414 	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935 417 	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041 440	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152 464	344 275 1,010 1,859 1,033 83 803 1,193 1,102 1,641 57 2,427 523 	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505 540	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527 545 179 13,305	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666 575 	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813 607	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170 684 	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275 706	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307 713 235 17,372	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491 753 248 18,330	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686 795
_	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651 356	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862 402 132 9,830	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935 417	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041 440	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152 464	344 275 1,010 1,859 1,033 803 1,193 1,102 1,641 57 2,427 523	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505 540	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527 545	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666 575	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813 607	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170 684	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275 706	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307 713	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491 753 248 18,330	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686 795
	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651 356	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862 402 132 9,830	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414 	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935 417 	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041 440	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152 464	344 275 1,010 1,859 1,033 83 803 1,193 1,102 1,641 57 2,427 523 	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505 540	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527 545 179 13,305	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666 575 	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813 607	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170 684 	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275 706	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307 713 235 17,372	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491 753 248 18,330	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686 795
_	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651 356	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862 402 132 9,830	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414 	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935 417 	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041 440	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152 464	344 275 1,010 1,859 1,033 83 803 1,193 1,102 1,641 57 2,427 523 	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505 540	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527 545 179 13,305	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666 575 	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813 607	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170 684 	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275 706	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307 713 235 17,372	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491 753 248 18,330	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686 795
_	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651 356 	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862 402 9,830 6,678 3,152 9,830	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414 	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935 417 137 10,218	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041 440 	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152 464 153 11,352	344 275 1,010 1,859 1,033 803 1,193 1,102 1,641 57 2,427 523 172 12,777	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505 540 178 13,185	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527 545 179 13,305	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666 575 189 14,031	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813 607 200 14,798	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170 684 225 16,649	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275 706 232 17,195	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307 713 235 17,372	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491 753 248 18,330 8,697 9,634 18,330	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686 795 261 19,344 8,927 10,416 19,344
	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651 356 	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862 402 	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414 	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935 417 	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041 440 	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152 464 153 11,352	344 275 1,010 1,859 1,033 803 1,193 1,102 1,641 57 2,427 523 172 12,777 7,561 5,216 12,777	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505 540 178 13,185	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527 545 179 13,305	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666 575 189 14,031	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813 607 	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170 684 	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275 706 232 17,195	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307 713 235 17,372 8,473 8,899 17,372	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491 753 248 18,330 8,697 9,634 18,330	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686 795 261 19,344 8,927 10,416 19,344
	234 187 687 1,264 702 56 546 812 749 1,116 39 1,651 356 	264 211 775 1,427 793 63 616 916 845 1,259 44 1,862 402 9,830 6,678 3,152 9,830	272 218 799 1,471 817 65 636 944 872 1,299 45 1,921 414 	274 220 805 1,482 823 66 640 952 878 1,308 46 1,935 417 137 10,218	289 232 849 1,563 868 69 675 1,003 926 1,380 48 2,041 440 	305 244 896 1,649 916 73 712 1,058 977 1,455 51 2,152 464 153 11,352	344 275 1,010 1,859 1,033 803 1,193 1,102 1,641 57 2,427 523 172 12,777 7,561 5,216	355 284 1,042 1,919 1,066 85 829 1,232 1,137 1,694 59 2,505 540 178 13,185	358 287 1,051 1,935 1,075 86 836 1,242 1,147 1,708 60 2,527 545 179 13,305	378 303 1,109 2,042 1,134 91 882 1,311 1,210 1,802 63 2,666 575 189 14,031	399 319 1,170 2,155 1,197 96 931 1,383 1,277 1,902 67 2,813 607 200 14,798	450 360 1,319 2,428 1,349 108 1,049 1,559 1,439 2,144 75 3,170 684 225 16,649	464 372 1,362 2,508 1,393 111 1,084 1,610 1,486 2,214 77 3,275 706 232 17,195	469 375 1,376 2,533 1,407 113 1,095 1,626 1,501 2,236 78 3,307 713 235 17,372	495 396 1,453 2,674 1,486 119 1,155 1,717 1,585 2,361 83 3,491 753 248 18,330 8,697 9,634 18,330	523 418 1,534 2,823 1,568 125 1,220 1,812 1,673 2,492 87 3,686 795 261 19,344 8,927 10,416 19,344

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719 310 1,029	789 372 1,161	791 406 1,197	775 431 1,206	796 477 1,272	816 526 1,342	895 618 1,513	899 663 1,561	882 693 1,575	905 757 1,662	929 824 1,754	1,019 958 1,976	1,023 1,018 2,041	1,006 1,056 2,062	1,033 1,144 2,176	1,060 1,237 2,298
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146	150	154	159	163	168	172	177	182	187	193	198	203	209	215	221
358	368	378	389	400	411	422	434	446	459	472	485	499	513	527	542
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2,400	2,467	2,536	2,607	2,680	2,755	2,832	2,911	2,993	3,077	3,163	3,251	3,342	3,436	3,532	3,631
4,178	4,295	4,415	4,539	4,666	4,796	4,931	5,069	5,211	5,357	5,507	5,661	5,819	5,982	6,150	6,322
2,918	2,918	2,918	2,918	2,918	2,918	2,918	2,918	2,918	2,918	2,918	2,918	2,918	2,918	2,918	2,918
1,260 4,178	1,377 4,295	1,497 4,415	1,621 4,539	1,748 4,666	1,879 4,796	2,013 4,931	2,151 5,069	2,293 5,211	2,439 5,357	2,589 5,507	2,743 5,661	2,902 5,819	3,065 5,982	3,232 6,150	3,404 6,322
1,110	172.50	7,110	11000	1,000	41.30	17332	3,003	JALL	3,551	System	3,001	37023	37302	3/230	- OFFIE
9,734	10,385	10,408	10,262	10,448	10,640	11,374	11,406	11,250	11,465	11,688	12,518	12,563	12,396	12,647	12,906
4,204	4,901	5,341	5,701	6,260	6,851	7,847	8,409	8,841	9,584	10,371	11,769	12,493	13,020	14,009	15,058
13,939	15,286	15,749	15,963	16,708	17,491	19,221	19,816	20,091	21,049	22,058	24,286	25,056	25,416	26,656	27,963

(6,944)	(7,800)	(7,958)	(8,063)	(8,285)	(8,518)	(9,020)	(9,215)	(9,343)	(9.620)	(9,911)	(10,684)	(10,927)	(11,083)	(11,432)	(56,78
(6,944)	(7,800)	(7,958)	(8,063)	(8,285)	(8,518)	(9,020)	(9,215)	(9,343)	(9,620)	(9,911)	(10,684)	(10,927)	(11,083)	(11,432)	(56,787
(1,944)	(2,184)	(2,228)	(2,258)	(2,320)	(2,385)	(2,526)	(2,580)	(2,616)	(2,694)	(2,775)	(2,992)	(3,060)	(3.103)	(3,201)	(15,90
14,929 1,944	16,873 2,184	19,057 2,228	21,286 2,258	23,543 2,320	25,863 2,385	28,248 2,526	30,774 2,580	33,354 2,616	35,970 2,694	38,664 2,775	41,439 2,992	44,431 3,060	47,490 3,103	50,593 3,201	53,79 15,90
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6,873	19,057	21,286	23,543	25,863	28,248	30,774	33,354	35,970	38,664	41,439	44,431	47,490	50,593	53,794	69,69
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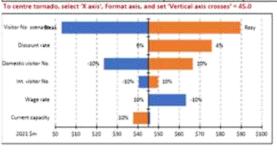
Sustainable Napier Committee - 13 February 2020 - Attachments Item 1 Attachments Q

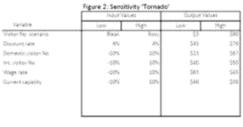
RESULTS & SENSITIVITY TESTS

Future certainty-equivalence coefficient 594 or 10 0.0% Not Applied Total \$183 -5143 Economic & social (6.0% pre-tax real discount rate) \$117 Economic value 2021 Sm Less DD&A economic value Resultant economic value 2021 See Social outcomes 2021 Sm Less DD&A social outcome Resultant social outcomes 2021 Sm \$179 5116 Operating costs Capital costs 2021.5m Economic costs 2021 Sm Social outcomes &economic value create: 2021 Sm Social & economic benefit: cost rotio 8:0 Social & economic net benefit cost ratio SEVIC 0.3

Sensitivity analysis Social outcom	es &economic value	created			
Variable	State case	Varietien	- NPV	Change from h	are care
Base case value, 2021 Sm	545	%	2021 Sm	2021 Sm	- 5
Discount rate	6%	-2%	\$76	\$31	68%
		-4%	\$119	\$74	165%
Visitor No. scenario	Expected	Rosy	590	\$45	99%
(trend ± 3a)		Bleak	53	-542	-93%
Domestic visitor No.	100%	10%	\$67	\$22	48%
		-10%	523	-522	-48%
International visitor No.	100%	10%	550	55	10%
(F/T and Cruise)		-10%	540	-55	-10%
Exhibit life, years	5	1	546	51	2%
	1	~1	\$45	-50	0%
Fitout life, years	10	1	\$46	51	2%
		-41	545	-50	0%
Napier Hastings res. disc	25%	0%	550	55	11%
Average wage, 5 pa	564,000	10%	\$45	50	0%
	T T	1,007	250	610	4460

Displace Lyde		Yorker No. sonraide	
4%	545	300%	54
-65	579	3379	58
.254	5119	345	- 8
Domestic visitor No.		impersational visitor N	ų.
392%	345	100%	54
332%	567	3305	:09
325	521	10%	59
Evidence cours		From the years	
- 1	345	30	54
- 6	545	10	54
4	546	7	545
Nazier Hastings es. di	PC.		
25.0%	545		
35.09	947		
2.0%	350		
Average vage, Size		Somfattable (aming)	NOWS TO
64,000	545	185,000	54
46,800	561	305,500	58
57,209	952	366.500	34





A 10% percent variation in domestic visitors is associated with ±522 million variation in value.

An estimated \$45million of combined economic and social value is attributable to the project.

There is net contribution of \$40 million from increased economic activity associated with visitors.

There is a net contribution of -\$174million associated with the social outcomes for visitors, staff and volunteers.

Capital and operating costs are -5174 million. The benefit: cost ratio is 1.26x.

omfortable carrying capacity

The range of values is \$3 million to \$90 million in 2021\$ terms across six standard deviations (99.7 percent chance) of visitor numbers (mean 2 three standard deviations). Lowering the discount rate from 6% percent pa to 4% percent pa would increase the value from 545 million to \$76 million.

			Continues			Operation	
Impact Measure		H5 region	Rest of NC	Total NC	Häregion	Remoting	Total NZ
GDP							
Direct	Sm:	512	511	523	512	\$6	\$17
Indirect	Sm:	513	\$30	543	54	52	56
Induced	\$m	56	59	515	52	51	53
Total	Sm.	\$31	\$50	581	517	\$9	526
Employment							
Direct	576	164	221	385	92	0	92
Indirect	-178.	180	159	339	40	10	-49
Induced	F76	66	155	221	21	4	25
Total	478	410	535	944	152	14	166
Household Income				- 1			
Direct	\$100	- 55	55	\$10	\$\$	50	\$5
Indirect.	Sm	54	58	512	52	51	53
Induced	Sm	51	55	56	51	51	51
Total	Sm	511	517	528	57	51	58

- Cenerate 531 million of regional GDP, with a further SS0 million of national GDP for a total of 581 million.

 Generate regional employment of 410 FTE, with 535 FTE employed elsewhere for a total of 544 FTE.
- Estimated to boost regional household incomes by \$11 million p.a. and national incomes by \$28 million p.a.

- Generate \$17 million p.a. of regional GDP, with a further \$9 million p.a. of GDP for a total of \$26 million.

 Generate regional employment of 152 FTE, with a further 14 FTE employed elsewhere for a national total of 166 FTE.

 Estimated to boost regional household incomes by \$7 million p.a. and national household incomes by \$8 million p.a.

ASSUMPTIONS & INPUTS Switches

Management					040000000						
WORKINGS	ten Units	Laterial Value	1944	No. 70	CASH FLOW						
Year ended 30 June	Year	2021			2021	2022	2023	2024	2025	2026	2027
Year No. Months in year	Year No. months		57%		Year 0	Year 1	Year 2	Year 3 0	Year 4	Year 5	Year 6
Mid-year discount adj.	17777	0.5	9178		0	0.5	1.5	2.5	3.5	4.5	5.5
Real cost escalation	40										
Capital goods	Npa Npa	0.8% 3.0%			1,000 1,000	1,004 1,005	1.012 1.019	1.020 1.025	1.028	1:037 1:046	1.045
Discount rates											
PSDR6N	New	5.0%			1.000	0.971	0.916	0.864	0.816	0.769	0:726
PSDR4%	Spa	4.0%			1,000	0.981	0.943	0.907	0.872	0.838	0.806
Future certain-equivalent coefficient	New	0.0%	10		1,000	1.000	1,000	1.000	1.000	1.000	1.000
Visitors	Steen Units	George Valve	Yatin	No. IV	2021	2022	2025	2024 3	2025	2026 5	2027
Facility opens flag	Swie	2025			0	6	o	0	1	8	0
Facility operating flag		2025			0	0	0	10	3.	3	1
Potential visitor pool	No. pa	Trend g	2021		204 172	212 502	322,908	333 506	342,574	202.001	363,436
International FIT's Hawkes Bay NA HB	No.px	3.0% 2.1%	304,372 154,125		304,372 154,125	313,503 157,362	160,666	332,596 164,040	167,485	352,851 171,002	174,593
Domestic <2 hours	No.pa	2.1%	162,704		162,704	166,121	169,610	173,171	176,808	180,521	184,312
Domestic overnight	No. pa		1,277,720		1,277,720	1,304,552	1,331,948	1,359,919	1,388,477	1,417,635	1,447,405
Schools Cruise	No.pa No.pa	2.1% 5.0%	32,002 128,749		32,002 128,749	32,674 135,186	33,360 141,946	34,061 149,043	34,776 156,495	35,506 164,320	36,252 172,536
Total potential visitors	No. pa	2,019	2,059,672		2,059,672	2,109,398	2,160,437	2,212,829	2,266,614	2,321,835	2,378,534
Trend visitors by origin	4	Capture rate	2023	0							
International PIT's Hawkes Bay NA HB	No.pa No.pa	5.7% 17.0%	17,355 26,207	1.9% 5.7% 2.9% 8.9% 17.0% 8.5%	17,355 26,207	17,876 26,757	18,412 27,319	18,965 27,893	19,534 28,479	20,120	20,723
Domestic <2 hours	No.ps	14.2%	23,055	11.1% 14.2% 7.1%	23,055	23,539	24,033	24,536	25,053	25,579	26,116
Domestic overnight	No.px	4.0%	61,244	-0.8% 4.8% 2.4%	61,244	62,531	63,844	65,184	66,553	67,951	69,378
Schools	No.pa	22.7%	7,274	14.6% 22.7% 11.4%	7,274	2,427	7,583	7,742	7,905	8,071	8,240
Total potential visitors	No pe	10.2%	13,110	18.1% 10.2% 5.1%	13,110 148,245	13,765	155,645	15,176 159,498	15,935 163,458	167,529	17,568
		promonenta						2448.20		A	
Impact of opening one-off change in International FIT's	s capture rate No. sa	2 cepture 2 0%	į.	1	٥	ó	0	ø	391.	402	414
Hawkes Bay NA HB	No.pa	12.0%			0	0	0	0	3,417	3,489	3,562
Domestic <2 hours	No. pa	5.0%			0	0	0	0	1,253	1,279	1,306
Domestic overnight	No.pa No.pa	1.0%			0	0	0	0	666	680	694
Schools Cruise	No. pa	12.5% 5.0%			0	0	0.0	0	988 797	1,009	1,030 878
Total	No pe	TWO CONTRACTOR OF THE PERSON O			0	0	9	0	7,511	7,695	7,885
					-						
Impact of opening (manual input if	date shifts from 2	2023) 2025			Lookup referen	ices			4	5	6
International FIT's	Nipe	2025	[gerroren and a second	ces			2.0%	4.5%	6.0%
International FIT's Hawkes Bay NA HB	Nos Nos	2023) 2025	Ę		gerroren and a second	ces			2.0% 23.9%	4.5% 17.9%	6.0% 7.9%
International FIT's Hawkes Bay NA HB Domestic <2 hours	Nipe	2023) 2025	(3	gerroren and a second	ces			2.0% 23.9% 13.9%	4.5% 17.5% 13.9%	6.0%
International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic overnight School	Nipa Nipa Nipa Nipa Nipa	2023) 2025	Ę.	1	gerroren and a second	ices		1	2 0% 23.9% 13.9% 13.9% 2.9%	4.5% 17.5% 13.9% 13.9% 2.5%	6.0% 7.9% 4.9% 4.9% 2.9%
International FiT's Hawkes Bay NA HB Domestic <2 hours Domestic overnight	Nipa Nipa Nipa Nipa	2023) 2025	Ę.	1	gerroren and a second	ces	1		2.0% 23.9% 13.9% 13.9%	45% 17.5% 13.9% 13.9%	6.0% 7.9% 4.9% 4.9%
International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic overnight School Cruse Impact of exhibit renewal	Nipa Nipa Nipa Nipa Nipa	2025) 2025	Ī.		gerroren and a second	ces	1		2 0% 23.9% 13.9% 13.9% 2.9%	4.5% 17.5% 13.9% 13.9% 2.5%	6.0% 7.9% 4.9% 4.9% 2.9%
International FIT's Hawkes Bay NA HB Domestic C-2 hours Domestic overnight School Cruise	Nipa Nipa Nipa Nipa Nipa	2025	Made		gerrores and a second	-1.5	-1.4	-4.2	2 0% 23.9% 13.9% 13.9% 2.9%	4.5% 17.5% 13.9% 13.9% 2.5%	6.0% 7.9% 4.9% 4.9% 2.9%
International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic overnight School Cruse Impact of exhibit renewal Display renewal flag	Nipa Nipa Nipa Nipa Nipa	2030	Panel State of the		Lookup referen		<1.4 0	·1.2	2 0% 23.9% 13.9% 13.9% 2.9% 15.0%	4.5% 17.5% 13.5% 13.5% 2.5% 4.0%	6.0% 7.9% 4.9% 4.9% 2.9% 2.0%
International FIT's Hawkes Bay NA HB Domestic C-2 hours Domestic C-2 hours Cruise Impact of exhibit renewal Display renewal flag Indicator Display renewal flag Impact of exhibit renewal	Nipa Sipa Nipa Sipa Sipa	2030 5 y Reveno	early Amang 41		Lookup referen	-1.5	.0	0	2.0% 23.9% 13.9% 13.9% 2.9% 15.0%	4.5% 17.5% 13.9% 13.9% 4.0%	6.0% 7.9% 4.9% 4.9% 2.9% 2.0%
International FIT's Hawkes Bay NA HB Domestic C-2 hours Domestic C-2 hours Cruise Impact of exhibit renewal Display renewal flag indicator Display renewal flag Impact of exhibit renewal International FIT's	Nipa Sipa Sipa Sipa Sipa Sipa	2030 5 y Revens 2.7%	Revamp +1]		Lookup referen	-1.6	0.0%	0.0%	2.0% 23.9% 13.9% 2.9% 15.0%	4 5% 17.5% 13.9% 2.5% 4.0%	6.0% 7.9% 4.9% 4.9% 2.9% 2.0%
International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic overnight School Cruise Impact of exhibit renewal Display renewal flag Indicator Display renewal flag Impact of exhibit renewal International FIT's Hawkes Bay NA HB	Nipa Nipa Nipa Nipa Nipa Nipa No.pa	2030 5 y Recurs 2.7% 10.7%	Revano +1 1.8% 7.2%		-1.8 0 0.0%	-1.6 0 0.0% 0.0%	0.0%	0.0%	2.0% 23.9% 13.9% 2.9% 15.0%	4.5% 17.9% 13.9% 2.9% 4.0%	6 0% 7.9% 4.9% 4.9% 2.9% 2.0%
International FIT's Hawkes Bay NA HB Domestic C-2 hours Domestic C-2 hours Cruise Impact of exhibit renewal Display renewal flag indicator Display renewal flag Impact of exhibit renewal International FIT's	Nipa Sipa Sipa Sipa Sipa Sipa	2030 5 y Revens 2.7%	Revamp +1]		Lookup referen	-1.6	0.0%	0.0%	2.0% 23.9% 13.9% 2.9% 15.0%	4 5% 17.5% 13.9% 2.5% 4.0%	6.0% 7.9% 4.9% 4.9% 2.9% 2.0%
International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic overnight School Cruise Impact of exhibit renewal Display renewal flag indicator Display renewal flag Impact of exhibit renewal International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic <2 hours Domestic overnight Schools	Nipa Nipa Nipa Nipa Nipa Nipa Nipa Nipa	2030 5 y Revero 2.7% 10.7% 2.3% 8.3% 1.7%	Revamp +1 1.8% 7.2% 5.6% 5.6% 1.2%		-1.8 0 0.0% 0.0% 0.0% 0.0%	-1.6 G 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0%	2.0% 23.9% 13.9% 2.9% 15.0%	4 5% 17.9% 13.9% 2.9% 4.0%	6 0% 7 9% 4 9% 4 9% 2 9% 2 0% 0 0% 0 0% 0 0%
International FiT's Hawkes Bay NA HB Domestic C-2 hours Domestic C-2 hours Domestic overnight Schoor Cruise Impact of exhibit renewal Display renewal flag Indicator Display renewal flag Impact of exhibit renewal International FiT's Hawkes Bay NA HB Domestic <2 hours Domestic cvernight	Nipa Sipa Nipa Nipa Sipa Sipa Sio pa No pa No pa	2030 5 y Revens 2.7% 10.7% 8.3% 8.3%	Revamp +1 1.8% 7.2% 5.6% 5.6%		-1.8 0 0.0% 0.0% 0.0% 0.0%	-1.5 6 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0%	2.0% 23.9% 13.9% 2.9% 15.0% -1.0 0.0% 0.0% 0.0%	4.5% 17.5% 13.5% 2.5% 4.0%	6.0% 7.9% 4.9% 4.9% 2.9% 2.0% 0.0% 0.0% 0.0%
International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic cvernight School Cruise Impact of exhibit renewal Display renewal flag indicator Display renewal flag Impact of exhibit renewal International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic <2 hours Domestic overnight Schools	Nipa Tipa Tipa Nipa Tipa Tipa Tipa No. pa No. pa No. pa No. pa	2030 5 y Revero 2.7% 10.7% 2.3% 3.3% 1.7% 2.4%	Reump+1 1.8% 7.2% 5.6% 5.6% 1.2% 1.6%		-1.8 0 0.0% 0.0% 0.0% 0.0%	-1.6 G 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0%	2.0% 23.9% 13.9% 2.9% 15.0%	4 5% 17.9% 13.9% 2.9% 4.0%	6 0% 7 9% 4 9% 4 9% 2 9% 2 0% 0 0% 0 0% 0 0%
International FIT's Hawkes Bay NA HB Domestic C-2 hours Domestic C-2 hours Domestic overnight Schoor Cruise Impact of exhibit renewal Display renewal flag indicator Display renewal flag Impact of exhibit renewal International FIT's Hawkes Bay NA HB Domestic S-2 hours Domestic C-2 hours Domestic C-2 hours Cruise	Nipa Nipa Nipa Nipa Nipa Nipa Nipa Nipa	2030 5 y Revero 2 7% 10.7% 2.3% 8.3% 1.7%	Revamp +1 1.8% 7.2% 5.6% 5.6% 1.2%	No. Pol. Sen.	2.8 0 0.0% 0.0% 0.0% 0.0% 0.0%	-1.5 G 0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	2.0% 23.9% 23.9% 2.9% 15.0% -1.0 0.0% 0.0% 0.0% 0.0%	4 5% 17.5% 13.5% 2.5% 4.0% -0.8 0.0% 0.0% 0.0% 0.0% 0.0%	6.0% 7.9% 4.9% 4.9% 2.9% 2.0% 0.0% 0.0% 0.0% 0.0%
International RT's Hawkes Bay NA HB Domestic C-P hours Domestic C-P hours Domestic C-P hours Domestic Cruise Impact of exhibit renewal Display renewal flag Indicator Display renewal flag Impact of exhibit renewal International RT's Hawkes Bay NA HB Domestic K-P hours Domestic Vernight Schools Cruise Base case total visitors and scenario Base case total visitors by origin International RT's	Nipa Nipa Nipa Nipa Nipa Nipa Nipa Nipa	2030 5 y Recurso 2.7% 10.7% 3.3% 1.7% 2.4%	Arramp+1 1.8% 7.2% 5.6% 5.6% 1.2% 1.6%	1	2.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	-1.5 0 0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	2.0% 23.9% 13.9% 2.9% 15.0% -1.0 0.0% 0.0% 0.0% 0.0% 0.0%	4 5% 17.9% 13.9% 2.9% 4.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0	6 0% 7 .9% 4.9% 4.9% 2.9% 2.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0
International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic vernight School Cruise Impact of exhibit renewal Display renewal flag indicator Display renewal flag Impact of exhibit renewal International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic overnight Schools Cruise Base case total visitors and scenarios Base case total visitors by origin International FIT's Hawkes Bay NA HB	Nipa Nipa Nipa Nipa Nipa Nipa Nipa Nipa	2030 5 y Recurso 2.7% 10.7% 3.3% 1.7% 2.4%	Arramp+1 1.8% 7.2% 5.6% 5.6% 1.2% 1.6%	1	-1.8 0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	-1.6 0 0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	2.0% 23.9% 13.9% 2.9% 15.0% -1.0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	4 5% 17.9% 13.9% 2.9% 4.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0	6 0% 7 .9% 4 .9% 4 .9% 2 .9% 2 .0% 0 .0%
International FIT's Hawkes Bay NA HB Domestic C-P hours Domestic C-P hours Domestic C-P hours Domestic C-P hours Display renewal flag Impact of exhibit renewal Display renewal flag Impact of exhibit renewal International FIT's Hawkes Bay NA HB Domestic C-P hours Domestic covernight Schools Cruise Base case total visitors and scenario Base case total visitors by origin International FIT's Hawkes Bay NA HB Domestic C-P hours	Nipa Nipa Nipa Nipa Nipa Nipa Nipa Nipa	2030 5 y Recurso 2.7% 10.7% 3.3% 1.7% 2.4%	Arramp+1 1.8% 7.2% 5.6% 5.6% 1.2% 1.6%	1	2.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	-1.5 0 0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	2.0% 23.9% 23.9% 2.9% 15.0% -1.0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0	4 5% 17.9% 13.9% 2.9% 4.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0	6 0% 7.9% 4.9% 4.9% 2.9% 2.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0
International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic vernight School Cruise Impact of exhibit renewal Display renewal flag indicator Display renewal flag Impact of exhibit renewal International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic overnight Schools Cruise Base case total visitors and scenarios Base case total visitors by origin International FIT's Hawkes Bay NA HB	Nipa Nipa Nipa Nipa Nipa Nipa Nipa Nipa	2030 5 y Recurso 2.7% 10.7% 3.3% 1.7% 2.4%	Arramp+1 1.8% 7.2% 5.6% 5.6% 1.2% 1.6%	1	2.8 0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	-1.6 0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	0.5% 0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	2.0% 23.9% 13.9% 2.9% 15.0% -1.0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0	4 5% 17.9% 13.9% 2.9% 4.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0	6 0% 7 .9% 4 .9% 4 .9% 2 .9% 2 .0% 0 .0%
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International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic vernight School Cruise Impact of exhibit renewal Display renewal flag indicator Display renewal flag indicator Display renewal flag indicator Display renewal flag Impact of exhibit renewal International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic overnight Schools Cruise Base case total visitors by origin International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic overnight Schools Cruise Total	Nipa Nipa Nipa Nipa Nipa Nipa Nipa Nipa	2030 5 y Recurso 2.7% 10.7% 3.3% 1.7% 2.4%	Revamp +1 1.8% 7.2% 5.6% 5.6% 1.2% 1.6% Open.	1	2.8 0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.	-1.5 G 0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.	2.0% 23.9% 23.9% 2.9% 15.0% -1.0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0	4 5% 17.9% 13.9% 2.9% 4.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0	6.0% 7.9% 4.9% 4.9% 2.9% 2.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0
International FIT's Hawkes Bay NA HB Domestic C-Phours Domestic C-Phours Domestic C-Phours Domestic Cruise Impact of exhibit renewal Display renewal flag Indicator Display renewal flag Impact of exhibit renewal International FIT's Hawkes Bay NA HB Domestic C-Phours Domestic C-Phour	Nipa Nipa Nipa Nipa Nipa Nipa Nipa Nipa	2030 5 y Recurso 2.7% 10.7% 3.3% 1.7% 2.4%	Revamp +1 1.8% 7.2% 5.6% 5.6% 1.2% 1.6% Open.	1	2.8 0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.	-1.5 G 0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.	2.0% 23.9% 23.9% 2.9% 15.0% -1.0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0	4 5% 17.9% 13.9% 2.9% 4.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0	6.0% 7.9% 4.9% 4.9% 2.9% 2.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0
International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic vernight School Cruise Impact of exhibit renewal Display renewal flag indicator Display renewal flag indicator Display renewal flag Impact of exhibit renewal International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic overnight Schools Cruise Base case total visitors and scenario Base case total visitors by origin International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic <2 hours Domestic overnight Schools Cruise Total Above trend g visitors Visitor No. scenarios Trend 'Rosey'	Nipa Nipa Nipa Nipa Nipa Nipa Nipa No pa	2030 5 y Reverse 2.7% 10.7% 2.3% 8.3% 1.7% 2.4% Limitup Value 1.5 Sensitivity bits. 1.1	Reverse +1 1.35% 7.2% 5.6% 5.6% 1.2% 1.6% Ustre Com.	Total 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	-1.8 0.0% 0.0% 0.0% 0.0% 0.0% 0.00 0.0 0.0 0	-1.6 0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.00 0 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.	2.0% 23.9% 13.9% 2.9% 15.0% -1.0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0	4.5% 17.9% 13.9% 2.9% 4.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0	6.0% 7.9% 4.9% 4.9% 2.9% 2.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0
International FIT's Hawkes Bay NA HB Domestic C-Phours Domestic C-Phours Domestic C-Phours Domestic Cruise Impact of exhibit renewal Display renewal flag Indicator Display renewal flag Impact of exhibit renewal International FIT's Hawkes Bay NA HB Domestic 42 hours Domestic overnight Schools Cruise Base case total visitors by origin International FIT's Hawkes Bay NA HB Domestic 42 hours Domestic overnight Schools Cruise Cruise Cruise Domestic 42 hours Total Above trend g visitors Visitor No. scenarios Trend	Nipa Nipa Nipa Nipa Nipa No. pa No. pa No. pa No. pa No. pa	2030 5 y Revens 2.7% 10.7% 2.3% 2.3% 2.4% 2.4% Southly Value 1	Reveno +1 1.3% 7.2% 5.6% 5.6% 1.2% 1.6% Option Option 45,882	No. Sty. Sen. Tetal	1.8 0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.	-1.5 0 0.0% 0.0% 0.0% 0.0% 0.0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.	2.0% 23.9% 13.9% 2.9% 15.0% -1.0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0	4 5% 17.9% 13.9% 2.9% 4.0% -0.8 0 0.0% 0.0% 0.0% 0.0% 0.0% 2028 3 21.445 38.395 22.445 38.395 39.570 9.343 18.271 196.216 25,667	6 0% 7 .9% 4.9% 4.9% 2.9% 2.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0
International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic vernight School Cruise Impact of exhibit renewal Display renewal flag indicator Display renewal flag indicator Display renewal flag Impact of exhibit renewal International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic overnight Schools Cruise Base case total visitors and scenario Base case total visitors by origin International FIT's Hawkes Bay NA HB Domestic <2 hours Domestic <2 hours Domestic overnight Schools Cruise Total Above trend g visitors Visitor No. scenarios Trend 'Rosey'	Nipa Nipa Nipa Nipa Nipa Nipa Nipa No pa	2030 5 y Reverse 2.7% 10.7% 2.3% 8.3% 1.7% 2.4% Limitup Value 1.5 Sensitivity bits. 1.1	Reverse +1 1.35% 7.2% 5.6% 5.6% 1.2% 1.6% Ustre Com.	Total 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	-1.8 0.0% 0.0% 0.0% 0.0% 0.0% 0.00 0.0 0.0 0	-1.6 0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.00 0 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.	2.0% 23.9% 13.9% 2.9% 15.0% -1.0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0	4.5% 17.9% 13.9% 2.9% 4.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0	6.0% 7.9% 4.9% 4.9% 2.9% 2.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0
International FIT's Havkes Bay NA HB Domestic Chours Domestic Overnight Schoot Cruise Impact of exhibit renewal Display renewal flag indicator Display renewal flag indicator Display renewal flag Impact of exhibit renewal International FIT's Hawkes Bay NA HB Domestic Cahours Domestic overnight Schools Cruise Base case total visitors by origin International FIT's Hawkes Bay NA HB Domestic Cahours Domestic Cahours Domestic Cahours Domestic Cahours Total Total Total Total Total Total Total Total Total Rosey 'Sleak' Figure input Fig	Nipa Nipa Nipa Nipa Nipa Nipa Nipa Nipa	2030 3 y Reviews 2.7% 10.7% 2.3% 3.3% 1.7% 2.4% South-yo Verbin Lensitivity tex. 1 1 1	Revamp +1 1.35% 7.2% 5.65% 5.65% 1.2% 1.65% Usture Oom.	Total 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1.8 0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.	-1.6 0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 151.895 188,602 115,187	0.9% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0 0.0	0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.	2.0% 23.9% 13.9% 2.9% 15.0% -1.0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0	4 5% 17.9% 13.9% 2.9% 4.0% -0.8 0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	6.0% 7.9% 4.9% 2.9% 2.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 10.
International FIT's Hawkes Bay NA HB Domestic C-P hours Domestic C-P hours Domestic C-P hours Domestic Descript School Impact of exhibit renewal Display renewal flag Impact of exhibit renewal international FIT's Hawkes Bay NA HB Domestic C-P hours Domestic C-P	Nipa Nipa Nipa Nipa Nipa Nipa Nipa Nipa	2030 3 y Reviews 2.7% 10.7% 2.3% 3.3% 1.7% 2.4% South-yo Verbin Lensitivity tex. 1 1 1	Revamp +1 1.8% 7.2% 5.6% 5.6% 1.2% 1.6% 1.2% 1.6% 45,882	Total 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	-1.8 0 0.0% 0.0% 0.0% 0.0% 0.0 0 0 0 0 0 0 0 0	-1.6 G	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0 0.0	0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.	2.0% 23.9% 23.9% 2.9% 2.9% 15.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	4 5% 17.9% 13.9% 2.9% 4.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0	6.0% 7.9% 4.9% 4.9% 2.9% 2.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0
International FIT's Havkes Bay NA HB Domestic C-Dhours Domestic C-Dhours Domestic C-Dhours Domestic C-Dhours Domestic C-Dhours Domestic C-Dhours Display renewal flag indicator Display renewal flag Impact of exhibit renewal International FIT's Havkes Bay NA HB Domestic <2 hours Domestic overnight Schools Cruise Base case total visitors by origin International FIT's Havkes Bay NA HB Domestic <2 hours Domestic overnight Schools Cruise Base case total visitors by origin International FIT's Havkes Bay NA HB Domestic <2 hours Domestic <2 hours Toronestic overnight Schools Cruise Total Above trend g visitors Visitor No. scenarios Trend 'Rosey' 'Beak' Figure input Opens Overnight visitors	Nipa Nipa Nipa Nipa Nipa Nipa Nipa Nipa	2030 3 y Reviews 2.7% 10.7% 2.3% 3.3% 1.7% 2.4% South-yo Verbin Lensitivity tex. 1 1 1	Revamp +1 1.5% 7.2% 5.6% 5.6% 1.2% 1.6% Oprice Oprice 0 and 1.1 1.3 45,882	Total 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1.8 0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.	-1.5 0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0 0 0 0	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0 0.0	0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.	2.0% 23.9% 13.9% 2.9% 15.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	4 5% 17.9% 13.9% 2.9% 4.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0	6.0% 7.9% 4.9% 4.9% 2.9% 2.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 10.

Sustainable Napier Committee - 13 February 2020 - Attachments
Attachments Q

Base year (ended June)		2021	-1					556	62	
Mid year or end year discounting		Mid						765	- 100 No.	
Use future certain-equivalent coefficient Economic impacts for		7th						PETABLE	PE side	
Activate Monte Carlo Risk Analysis		No								
Visitor forecast elements		3 capture	å growth	Exhibit						
		On	Qn	On				OA	09	
Visitor forecasts, categories & admission	prices	k-nin-d								
Potential visitor pool		Frend growth	3019	5052	2019 visitors	Capture		Salases	f	Overright
international FiT's		New	286,900	9VP No. 304,372	No. 16,359	5	No. 17,355	11.7%		40.0%
Hawkes Bay NA HB		2.1%	147,850	154,125	25,140	5.7% 17.0%	26,207	17.7%		0.0%
Domestic <2 hours		2.1%	156,080	162,704	22,116	14.2%	23:055	15.6%		0.0%
Domiestic overnight		2.1%	1,225,700	1,277,720	58,751	4.8%	61,244	41.3%		100.0%
School:		2.1%	30,699	32,002	6,978	22,7%	7,274	4.9%	I	0.0%
Cruise Total		5.0%	1,964,008	2,059,672	11,891	10.2%	13,110	8.8%		0.0%
Post opening & capture & & growth rates		à capture	Year 3	Year 2	Year 3	Year 4	Year 5	Extress g	60% Ferans	Reviewy +1
		New	Spa	No	Nex	Nea	Nya	- %	Tips	New
International EIT's Hawkes Bay NA HB	s-trendig s-trendig	2.0% 12.0%	23.9%	4.5% 17.9%	5.0% 7.9%	7.0%	3.5%	25.1% 71.8%	2.7%	1,8% 7,2%
Domestic <2 hours	> trend g	5.0%	13.9%	13.9%	4.9%	3.9%	2.9%	45.5%	8.3%	5.6%
Domestic overnight	- trendig	1.0%	13.9%	13.9%	4.9%	3.9%	2.9%	45.5%	8.3%	5.6%
School	strendig	12.5%	2.9%	2.9%	2,9%	2.9%	2.9%	15.4%	1.7%	1.2%
Cruise	> tiening	5.0%	15.0%	4.0%	2.0%	1.0%	0.0%	23.2%	2.4%	1.6%
		Canegory	Tickets	Tickets	l		1	Valter	Category	SROL
Domestic & FIT		%1vistes	N2 values	Netrics	l	SROI Categor	ies.	post	%2 violen	category
Adult		33.2%	33.2%	100%		Adult.	165			
Child		10.2%	10.0%	50%		Resident		74.5%	49.4%	36.8%
infant		6.1%	0.0%	0%		Non-reside	ent	20:6%	82.4%	16.9%
Student		3.4%	3.4%	91%		Total Adult		95.1%		53.8%
Sérviors		6.3%	6.8%	72%		Child				
Family		17.4%	4.0%	270%		Resident		24.5%	28.1%	20.9%
Friends		77.2%	57.3%			Non-reside School	HOS.	20.6% 4.9%	6.9% 100.0%	1.4% 4.9%
Adult		4.7%	0.1%	283%		Total Child		100.0%	490.070	27.2%
Child		0.4%	0.1%	002.1		Total visitor	s .			81.0%
infant		0.7%	0.0%					Visitor	Prices as N	
Family 1		0.5%	0.5%	413%			1	ticies	phylip	
Family 2		2.7%	0.4%	652%		Ticket catego	iry			
Pakanta.		9.0%	1.1%			Adult:		37.8%	100%	
Schools Adult		0.5%	0.1%	43%		Child Infant		10.3%	50%	
Pre & primary		3.9%	3.9%	20%		Student		3.5%	91%	
Secondary		1.1%	1.1%	28%		Seniors.		9.1%	72%	
SENO child		0.0%	0.0%	12%		Family		4.2%	270%	
		5.4%	5.0%			Schools, Adul		-0%	43%	
Cruise		4760		****		Schools, Pre		4%	20%	
Adult Child		4.2% 0.4%	4.6% 0.4%	100% 50%		Schools, Seco Schools, SENI		1%	28% 17%	
Infant		0.0%	0.0%	0%		Friends, Adul		0.1%	283%	
Student		0.2%	0:2%	91%		Friends, Fami		0:5%	413%	
Seriors		2.2%	2.2%	72%		Friends, Fam		0.4%	652%	
Family		0.9%	0.2%			Total % of vis	itors	71.0%		
		8.4%	7.6%						Priors as %	
Total		100:0%	71.1%			Admission ti	ket revenue	by category	ofweldt	
						Adult		.,	66%	
Napier Hastings resident admission disco	unt	2018	2021			Child & stude	et		20%	
Resident population (2021)	NOom &FIT	147,850	157,362	22.35		Family			6%	
Adult Child & student	76770446-05277	51.9% 25.6%	81,705 40,225	55.1% 27.1%		Schools Friends			7% 1%	
Crito a student		77.5%	121,930	82.2%		Admission tic	ket revenue		100%	
SIANZ General company Delivers										
NANZ Development Drivers Adult admission price		GIT mc.	#165T				Income fax celou	later		
Current	\$	\$23.00	\$20.00				Threshold	Celling	SVTR	To in range
Post opening	\$. \$39.00	533.91			,	50	\$14,000	10.5%	51,470
Napier Hastings resident discount	%	25.0%	\$25.43	29.25			\$14,001	548,000	17.5%	\$5,950
Events & other	Sixti revenue	22.0% kr.gst			_		548,001	570,000	30.0%	56,600
Per capita spending at NANZ Food & beverage	s	-	ex GS7 \$1.30	0/R0 52%	VA opetrip. 48%		570,001	515,999	33.0%	*****
Merchandise	3	\$1.49 \$2.09	51.82	45%	55%		564,000 Attacase disc	osable income		\$12,220 \$51,780
Staff & volunteers		32.00	Searl	72.79	2017	Į.		T disposable in		\$45,027
		\$64,000					Disposable in			70%
Staff wages	5 рр. рч				inactive					
Staff wages Volunteer expenses	2 ургун 2 ургун	\$600			TELEGRAPH					
Volunteer expenses: Staff No.	Speps	\$600 Employees	Valunteers			w in line with	visitor no.			
Volunteer expenses Staff No. Current	Speps No.	\$600 Employees 72	0		Staff No. gro		visitor no.			
Volunteer expenses Staff No.	Speps	\$600 Employees 72 87	Valunteens 0 150 to year 5	Hours /week			visitor no.			
Volunteer expenses Staff No. Current Post opening Maintenance	Spinya No. No.	\$600 Employees 72 87	0 150	Hours /week	Staff No. gro 18.75		visitor no.			
Volunteer expenses Staff No. Current Post opening Maintenance Inputs for counterfactual	Spinya No. No.	\$600 Engloyees 72 37 1.0%	0 150	Hours /week	Staff No. gro 18.75		visitor no.			
Volunteer expenses Staff No. Current Fost opening Maintenance Inputs for counterfactual Comfortable carrying capacity	Spepa Ne. Ne. Ne. Ne.	\$600 Employees 72 87	0 150	Hours /week	Staff No. gro 18.75		visitor no.			
Volunteer expenses Staff No. Current Post opening Maintenance Inputs for counterfactual	Speps No. No. No. No.	\$600 \$myloyees 72 87 1.0%	0 ISO to year S	Hours/week 5 3.0%	Staff No. gro 18:75 from year 6					
Volunteer expenses: Staff No. Current Post opening Maintenance Imputs for counterfactual Comfortable carrying capacity Other operating costs	Spype No.	5600 Employees 71 27 1 0% 185,000 6.8%	0 150 to year 5	Hours/week 5 3.0%	Staff No. gro 18:75 from year 6	FIE				
Volunteer expenses Staff No. Current Post opening Maintenance Inputs for counterfactual Comfortable carrying capacity Other operating costs Exhibits counterfactual Social Outcomes Social outcomes per capita	Spype No.	\$600 Employees 72 37 1.0% 185,000 8.8% \$150,000	0 150 to year 5	Hours/week 5 3.0%	Staff No. gro 18:75 from year 6	FIE		âttribution	Total COSA	2
Volunteer expenses Staff No. Current Post opening Maintenance Inputs for counterfactual Comfortable carrying capacity Other operating costs Exhibits counterfactual Social Outcomes Social outcomes Social outcomes per capita Enjoyment by:	Spape No. No. No. No. No. No. No. No. Norethue Spa Uprated from	\$600 Employees 72 37 1.0% 185,000 8.8% \$150,000	0 150 to year \$	Mours /week 5 3 Oh Annual spend	Staff No. gro 18.75 from year 6 f on exhibits o	FTE on existing fac	dity Displacement			gt sa d
Volunteer expenses Staff No. Current Post opening Maintenance Inputs for counterfactual Comfortable carrying capacity Other operating costs Exhibits counterfactual Social Outcomes Social outcomes per capita	Spype No.	\$600 Employees 72 37 1.0% 185,000 8.8% \$150,000	0 150 to year 5	Hours / week 5 3.0% Annual spend	Staff No. gro 18.75 from year 6	FTE	idity	Attribution 12%	Total 006A 26% 38%	2 2 3 4

Social Outcomes						- Westerle	2021	2022	2023	2024	2025	3026	2027
Base case total visitors by age & residen	D195	brotsp	1958	10004	566	Pi-Sin	0	1	2	3	4	\$	
Adult	40												
Resident	No.pa No.pa			36.8%			0	0	0	0	48,917	72,300	69,607
Non-resident Total Adult	1700 3000			16.9% 53.8%			0	0	0 0	0 0	22,480 71,397	33,226 105,526	31,988 101,596
Child				2200				*			(Appear	*******	4104,000
Resident	No. pa			20.9%			0	0	0:	0	27,772	41,048	39,519
Non-resident	No.pa			1.4%			0	0	0	0	1,884	2,784	2,680
School	No.pk			4.9%			0			0	6,514	9,628	9,269
Total Child Total visitors	No.pe			27.2% 81.0%			0	0	0	0	36,170 107,567	53,460 158,986	51,469 153,064
Escalation base for staff No. calculation	109.360			97,036			o	5	0	0	196,216	130,209	0
Staff	No.	1	196,216	87 No	0.		0	Φ	0	0	58	\$7	83
Volunteers	No.	- 1	196,216	150						0	101	150	144
Total Staff & Volunteers	740						0	Đ	0	0	159	237	227
Social Outcomes		At 9%											
Enjoyment													
Adult visitors	Smpa Smpa	3	\$37.66				\$0	50	50	50	52,688,911	\$3,974,267	53,826,249
Child visitors Total Enjoyment	Smar	4	\$34.69			524	\$0 \$0	50 50	\$0 50	\$0 \$0	\$1,254,664 \$3,943,576	\$1,854,420 \$5,828,688	\$1,785,354 \$5,611,603
Connect to marine environment.	Smpa	\$	\$\$6.40			521 565	50	50	50	50	\$6,066,620	\$8,966,592	\$8,632,639
Engagement with learning	Smer	- 6	523.34			\$100	50	50	50	50	\$844,108	\$1,247,610	\$1,201,144
Civic pride													
Adult visitors	Serge	8	586.38				\$0	50	\$0	50	\$4,225,484	56,245,354	\$6,012,751
Child visitors	Smpa	9	556.72				50	\$0	50	50	51,944,806	52,874,465	52,767,408
Total Civic pride Environmental awareness	Smpa Smpa	10	\$15.68			532 5101	\$0 \$0	50 50	50 50	50 50	56,170,290 51,686,593	59,119,818 52,492,820	58,780,159 52,399,977
Job satisfaction & opportunities	Smar	40	243.90			2404	20	30	30	30	31,606,333	36,456,000	34,333,377
Job satisfaction	Smale	11	544,230				50	50	\$0	\$0	57,032,623	\$10,482,588	\$10,040,285
Career opportunities	Smps	12	552,031				50	50	50	50	53,017,811	54,526,717	\$4,318,592
Total Job satisfaction & opportunities	Smpk					\$50	50	\$0	50	50	\$10,050,434	\$15,009,309	\$14,358,877
Total Social Outcomes	Smga					\$166	50	50	50	50	\$28,761,621	\$42,664,833	\$40,984,399
Family and construct and ADD 6.5													
Social outcomes net of DD&A Enjoyment	1	Tetal DD&A											
Adult visitors	Smar	3		26%			\$0	50	\$0	50	5686,210	\$1,014,233	5976,459
Child visitors	Smaa	. 4		18%			50	50	50	50	5229,227	\$338,803	5326,184
Total Enjoyment	5mpk						50	50	50	50	5915,437	\$1,353,096	\$1,302,643
	Connect t		5		26%			50	50	50	\$0	\$1,550,628	52,291,861
Engagement with learning	Smpa Smpa	6		20%			50	50	50	50	\$165,445	\$244,532	5235,424
Civic pride Adult visitors	Smps	á		31%			50	50	50	50	\$1,316,661	\$1,946,052	\$1,873,573
Child visitors	Smaa	9		26%			50	50 50	50	50	\$510,317	\$754,260	5726,168
Total Civic pride	Sm.pk						50	50	50	50	51,826,978	\$2,700,312	\$2,599,741
Environmental awareness	Smpa	10		80%			50	50	\$0	50	51,349,274	\$1,994,256	51,919,982
Job satisfaction & opportunities	Smore												
Job satisfaction	Smpa Smpa	11		55%			50	50	50	50	53,867,942	55,765,424	55,522,157
Career opportunities Total Job satisfaction & opportunities	Smak	12		43%			50 50	50	\$0 \$0	50 50	51,309,730 55,177,672	\$1,964,595 \$7,730,019	51,874,269 57,396,426
Resultant Social outcomes net of DD&A	Smak					586	50	50	50	50	59,434,807	\$15,572,782	\$15,746,076
						1							
Economic Value Creation					-		2021	2022	2523	2024	2025	3026	2027
/be/n	Q10b	Lesting	795/6	1866	No.	PV.3H	9	1	2	3	4	3	
Base case total visitors	No.ya						٥	.0	b	0	132,756	196,216	188,906
Overnight visitors	No. pa						0	ő	0	0	56,767	86,748	82,468
Cruise ship visitors	No pa						0	0	0	0	13,133	18,271	18,816
A de cal control and de calco			delic restaurant	Marin Marin									
Admission tickets Adult	No. tiskets		38%	50 anish perion 100%			٥	.0	0	0	50,245	74,263	71,497
Child	No. tickes		10%	50%			0	ő	0	0	13,722	20,281	19,526
Infant.	No. ticheto		2%	0%			o o	0	0	0	0	0	0
Student	No. tickets		4%	91%			0	0	0	0	4,696	6,941	6,683
Seniors	No. sickets		9%	72%			0	٥	0	0	12,065	17,832	17,168
Family	No. ticketo		4%	270%			0	0	0	0	5,555	8,211	7,905
Schools, Adult	No. tickets No. tickets		.0%	43%			0	0	0.	0	20	104	100
Schools, Pre & primary Schools, Secondary	No. tickets		4% 1%	20%			0	0	0	0	5,148 1,410	7,609 2,084	7,326
Schools, SEND child	No. tickets		0%	17%			ō	0	0:	ė.	2,740	0	2,007
Friends, Adult	No. tickets		0%	283%			0	0	0	0	192	283	273
Friends, Family 1	No. ticketo		1%	413%			0	0	0:	0	709	1,047	1,006
Friends, Family 2	No. tickets		0%	652%			.0		0	. 0	485	717	690
Total tickets sold	No. bolets		71%				0	0	0	0	94,298	139,374	134,183
Admission ticket revenue			r	Adult 5									
CONTRACTOR STATES A MANUAL CONTRACTOR OF THE PERSON OF THE	\$		- 1	533.91			50	50	\$0	\$0	\$3,157,056	\$4,666,195	54,492,407
Admission ticket revenue by category			8,4							-			- 4-1-4
Adult	5		66%	55.1%			\$0	śa	50	50	52,088,478	\$3,086,815	52,971,849
Child & student	5		20%	27.1%			\$0	50	50	50	5616,635	5911,399	5877,455
Family	\$ \$		6%				\$0	50	50	50	5185,994	\$274,903	5264,665
Schools Friends	5		2% 1%				50 50	50 50	50 50	50 50	5219,568 546,381	5324,526 568,551	\$312,440 \$65,998
→ 0.5400 (Mile)	5		479				34	30	39	-30	A40,301	209,331	292,770
Admission ticket revenue	3		100%				50	\$0	\$0	50	\$3,157,056	\$4,666,195	54,492,407
Sess Napier Hastings resident admission d	5	-25.0%					:50	50	50	50	-5329,594	\$487,147	-5469,004
Food & beverage	\$		\$1.30				50	50	50	50	\$172,006	5254,228	5244,759
Merchandise	\$		51.82	200			50	50	50	50	5241,270	5356,601	5343,320
Events & other	5			22.0%			50	50	50	50	5694,552	\$1,026,563	\$988,330

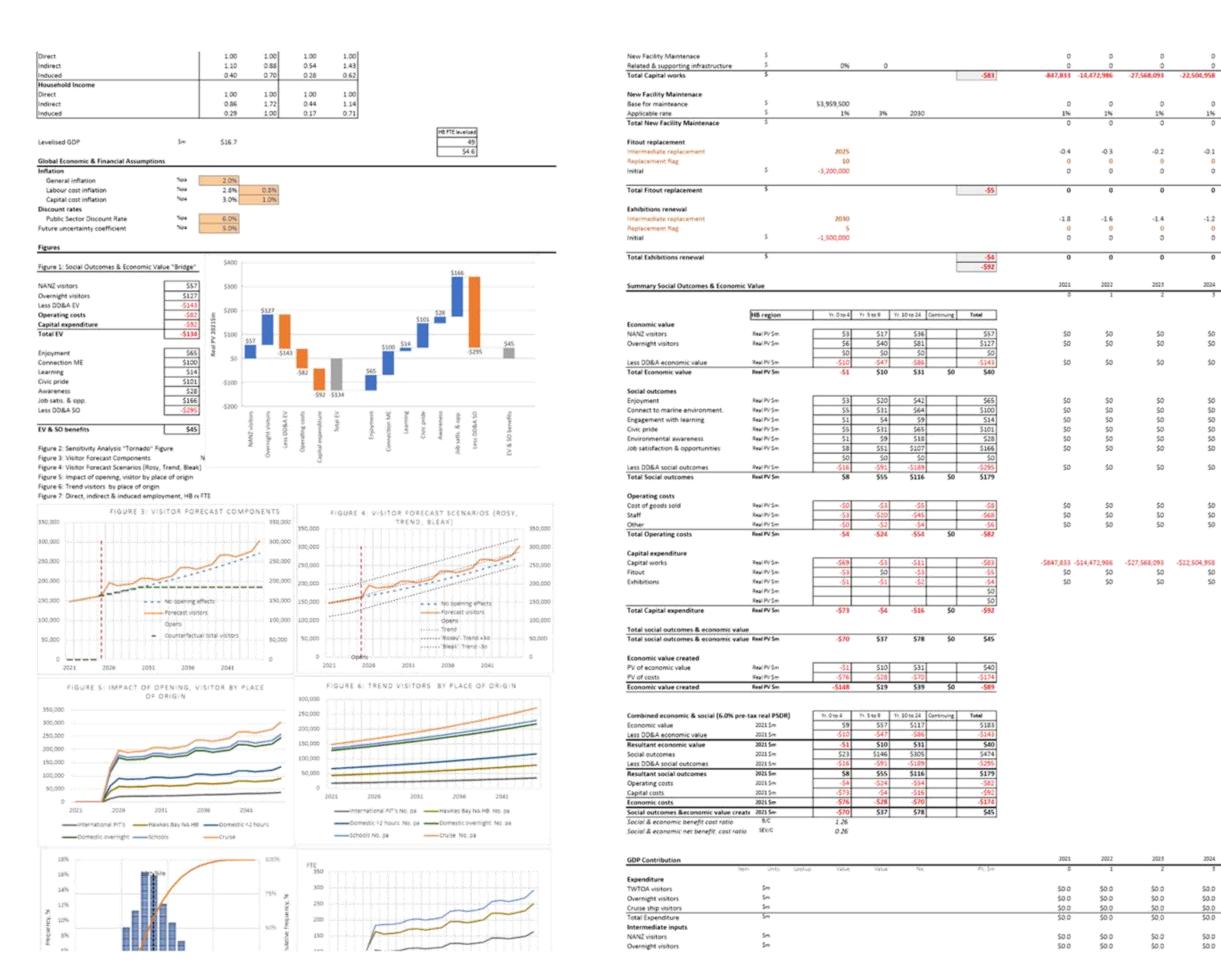
Sustainable Napier Committee - 13 February 2020 - Attachments

Attachments Q

Connect to marine environment.	Sacas		AN.	\$56.73	556.40	64%	0%	29%	26%	5
Engagement with learning	Spope		DHM	523.48	\$23.34	65%	0%	44%	20%	
Civic pride										7
Adult visitors	5,00,00		Resident adult	586.91	\$86.38	59%	0%	24%	31%	9
Child visitors	Sprine		Resident shild	557.07	\$56.72	59%	0%	36%	26%	
Environmental awareness	Spoja Spoja		All Stuff	515.68	515.68	20%	0%	0%	80%	10
Job satisfaction	Spope		Staff	\$44,393 \$52,983	\$44,230 \$52,031	45% 30%	0%	38%	55% 43%	12
Career opportunities		2 5	4	374,703	552,052	2007	\$	\$	10	**
Michael Process Michigan In Phys. Phys.	Nicker season	upraised from 2055	Lusinavius 2021	w/de	nan kese kitisa	ts NZ damentic tra	anna elektron (standara	antican habita carac	eader 98 March	ones.
Visitor Guest Nights & Day Trips	1000				-	-		my my man year		****
Average length of stay	rights	1.6		Contract of the Assessment of the Contract of		one 2019, Napier	Oty			
Spending by overnight visitors		Specifies	090	Contrib.	Jahour/Output	VA/Queput				
Spending category Accommodation	Spenday	\$69.25	49%	51%	26%	50%				
Transport	Spenday	519.67	40%	60%	28%	59%				
Food & beverage	Suerday	\$34.66	52%	48%	31%	45%				
Retail	Spenday	\$14.96	45%	55%	32%	54%				
Entertainment	Spenday	\$11.62	59%	41%	32%	41%				
Other	5 per day	\$0.00	53%	47%	22%	46%				
Total Spending by overnight visitors	Spenday	\$150.16		51%	29%	50%				
Daily spending by cruise ship visitors	599	5243.25	1	48%	31%	46%				
Capital & operating costs										
Excluding GST		(5 - 20	SHAFE							
No. months trading in first year		8	2025							
Commencement & completion		2021	2022	2023	3 2024	4 2025	5 2026	6 2027	y 2028	¥ 2029
New building	5	50		512,914,348		\$2,279,003	50	50	50	50
Refurbish existing building	5	50		52,295,000		\$405,000	50	50	50	50
External exhibit space	5	\$0	5290,700	\$494,190	\$290,700	587,210	50	50	50	50
Decanting/ relocation costs	5	50	\$100,000	5170,000	5100,000	\$30,000	50	50	50	50
Professional fees 14%	\$.50		\$2,295,000		\$405,000	50	50	50	50
FF&E	3	50	\$375,000	5637,500	\$375,000	5112,500	50	50	50	\$0
Themed fitout design / content	\$	50		\$1,343,000	\$790,000	\$237,000	50	\$0	50	50
Contingency 10%	5	50	51,750,000		51,750,000	5525,000	50	50	50	50
Marine specialist fitout	s	.\$0 .\$0	50 50	\$3,462,500	\$6,925,000 \$139,500	53,462,500	\$0 \$139,500	\$0 \$0	50 50	50 50
Demolish existing building Consent costs	5	\$200,000	\$133,333	50 566,667	5139,500	\$279,000 50	2139,500	50	50	50
Landscaping	5	50	50	\$0:	\$1,006,250	51,006,250	50	50	50	50
Revenue Gen strategy	5	\$225,888	\$256,444	5318,222	\$289,333	\$220,000	\$156,889	585,778	\$37,333	\$10,667
Revenue generation Fee	\$	5422,500	\$480,833	5596,667	\$542,500	\$412,500	5294,167	5160,833	570,000	\$20,000
Commissioning						\$1,035,000				-
Total construction cost & initial fitout Computative	5				522,504,958 565,393,871		\$590,556 \$76,480,389.5	\$246,611 76,727,000,5	\$107,333 76,834,333,5	\$30,667 76 865 000
Cumulative		\$847,833	\$15,320,819	542,888,912	565,393,871	575,889,833				
Cumulative Display.rennwal	Sm Sm		\$15,320,819	542,888,912	565,393,871 yearly renews	575,889,833 : vi				
Cumulative	\$m	\$847,833	\$15,320,819	\$42,888,912 \$ 10	S65,393,871 yearly renews yearly renews	575,889,833 : N				
Cumulative Display.rennwal	\$m	\$847,833	\$15,320,819	\$42,888,912 \$ 10	565,393,871 yearly renews	575,889,833 : N				
Cumulative Display reminal Fitout	\$m	\$847,833	\$15,320,819	\$42,888,912 \$ \$0	565,393,871 yearly renews yearly renews	575,889,833 : N N				
Cumulative Display removal Fitout New building	Sm Sm	\$847,833	\$15,320,819 \$1.50 \$3.20	542,888,912 5 10 HB region	S65,393,871 yearly renewal yearly renewal storated main or Rest of NZ	\$75,889,833 (al al Overseas				
Cumulative Display removal Fitout New building Refurtish existing building	\$100 \$100 \$100 \$100 \$100 \$100 \$100 \$100	\$847,833 2030 530,386,700	\$15,320,819 \$1.50 \$3.20 40%	542,888,912 5 10 10 H8 region 30%	S65,393,871 yearly renewal yearly renewal stimated must or Rest of N2 50%	575,889,833 :				
Cumulative Display removal Fitout New building Refurbish existing building External exhibit space Decanting/ relocation costs	\$100 \$100 \$100 \$100 \$100 \$100 \$100 \$100	\$847,833 2030 \$30,386,700 \$8,400,000 \$1,162,800 \$400,000	\$1.50 \$1.50 \$3.20 \$3.20 40% 7% 2% 1%	542,888,912 5 10 htt region 30% 50% 70% 100%	S65,393,871 yearly renewally renewall trimated must be Rest of NS S0% 30% 30% 0%	575,889,833 : si iii Dominess 20% 0% 0%				
Cumulative Display renewal Fitout New building Refurbish existing building External exhibit space Decanting/relocation costs Professional fees, 1495	\$100 \$200 \$3 \$ \$ \$ \$ \$	\$847,833 2030 530,386,700 53,400,000 51,162,800 5400,000 55,400,000	\$1.50 \$3.50 \$3.20 40% 7% 2% 1% 7%	\$42,888,912 \$ 10 htt region 30% 50% 70% 100% 70%	S65,393,871 yearly renewal yearly renewal timates must or Rest of NE 50% 30% 30% 0% 30%	575,889,833 csl st st Directors 20% 20% 0% 0%				
Cumulative Display remewal Fisout New building Refurbish existing building External exhibit space Decanting/relocation costs Frofessional fees 14% FF & E	\$100 \$200 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2	\$847,833 2030 \$30,386,700 \$5,400,000 \$1,162,800 \$400,000 \$1,500,000	\$1.50 \$3.50 \$3.20 40% 7% 2% 1% 7% 2%	542,888,912 5 10 8 H8 region 30% 50% 70% 100% 70% 70%	S65,393,871 yearly renewa yearly renewa timates must or Rear of NE 50% 30% 30% 30% 30% 30% 30%	575,889,833 c pl ki Domineus 20% 20% 0% 0% 0%				
Cumulative Display removal Fitout New building Refurbish existing building External exhibit space Decanting/ relocation costs Professional fees 14% FF & E Themed fitout design / content	\$100 \$100 \$100 \$100 \$100 \$100 \$100 \$100	\$847,833 2030 \$30,386,700 \$5,400,000 \$1,162,800 \$400,000 \$1,500,000 \$3,160,000	\$1.50 \$3.50 \$3.20 40% 7% 2% 1% 7% 2% 4%	542,888,912 5 10 8 H8 region 30% 50% 70% 100% 70% 75%	565,393,871 yearly renewal yearly renewal stimules imact or Rest of NC 30% 30% 30% 30% 30% 30% 30%	575,889,833 : sl sl li Overseus 20% 0% 0% 0% 0%				
Cumulative Display remewal Fitout New building Refurbish existing building External exhibit space Decanting/relocation costs Professional fees 14% FF & E Thermed fitout design / content Contingency 10%	\$100 \$100 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4	\$847,833 2030 \$30,386,700 \$5,400,000 \$1,162,800 \$400,000 \$1,500,000 \$3,160,000 \$3,160,000	\$1.50 \$3.50 \$3.20 40% 7% 2% 1% 7% 2% 4% 9%	542,888,912 5 10 6 HB region 30% 50% 70% 100% 70% 75% 70%	565,393,871 yearly renewal yearly renewal stimated imact or Rest of NC 50% 30% 30% 30% 30% 30% 30% 30% 30% 30% 3	575,889,833 :				
Cumulative Display renewal Fitout New building Refurbish existing building External exhibit space Decanting/ relocation costs Professional fees 14% FF & E Thermody design / content Contingency 10% Marine specialist fitout.	\$100 \$100 \$100 \$100 \$100 \$100 \$100 \$100	\$847,833 2030 \$30,386,700 \$1,162,800 \$400,000 \$1,500,000 \$1,500,000 \$1,60,000 \$1,3850,000 \$13,880,000	\$1.50 \$3.20 \$3.20 40% 7% 2% 2% 49% 188	542,888,912 5 10 8 H8 region 30% 50% 70% 100% 70% 70% 70% 70% 70%	565,393,871 yearly renews yearly renews stimates must or Rest of N2 50% 30% 30% 30% 30% 30% 30% 30% 30% 30% 3	575,889,833 1 st st Overseas 20% 20% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%				
Cumulative Display renewal Fitout New building Refurbish existing building External exhibit space Decanting/ relocation costs Professional fees 14% FF & E Thermed fitout design / content Contingency 10% Marine specialist fitout Demoilsh existing building	2000 \$000 \$200 \$200 \$200 \$200 \$200 \$200	\$847,833 2090 \$30,886,700 \$5,400,000 \$1,162,800 \$400,000 \$1,500,000 \$3,160,000 \$7,000,000 \$1,550,000 \$3,550,000	\$1.50 \$1.50 \$3.20 40% 7% 2% 1% 7% 2% 4% 9% 18%	542,888,912 5 10 10 10 10 10 10 10 10 10 10 10 10 10	565, 393, 871 yearly reneway yearly reneway stimates make or lear of No. 30% 30% 30% 30% 30% 30% 30% 30% 30% 30%	575,889,838 : sl ii				
Cumulative Display remewal Fitout New building Refurbish existing building External exhibit space Decanting/relocation costs Professional fees 14% FE & E Themed fitout design / content Contingency 10% Marine specialist fitout. Demolish existing building Consent costs	\$100 m	\$847,833 2030 \$30,386,700 \$1,162,800 \$400,000 \$1,500,000 \$1,500,000 \$1,60,000 \$1,3850,000 \$13,880,000	\$1.50 \$3.20 \$3.20 40% 7% 2% 2% 49% 188	542,888,912 5 10 8 H8 region 30% 50% 70% 100% 70% 70% 70% 70% 70%	565,393,871 yearly renews yearly renews stimates must or Rest of N2 50% 30% 30% 30% 30% 30% 30% 30% 30% 30% 3	575,889,833 1 st st Overseas 20% 20% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%				
Cumulative Display renewal Fitout New building Refurbish existing building External exhibit space Decanting/relocation costs Professional fees 14% FF & E Themed fitout design / content Contingency 10% Marine specialist fitout Demoish existing building Consent costs Landscaping	\$P\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$847,833 2030 \$30,386,700 \$5,400,000 \$1,162,800 \$400,000 \$1,500,000 \$1,500,000 \$1,385,000 \$13,850,000 \$400,000 \$400,000	\$1.50 \$1.50 \$3.20 40% 7% 2% 4% 9% 18% 18%	542,888,912 5 10 Ittl: region 30% 50% 70% 70% 70% 30% 70% 100%	565,393,871 yearly renews yearly renews Ren of K2 50% 30% 30% 30% 30% 30% 30% 30% 30% 30% 3	575,889,838 : si				
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Cumulative Display remewal Fitout New building Refurbish existing building External exhibit space Decanting/ relocation costs Professional fees 14% FF & E Themed fitout design / content Contingency 10% Marine specialist fitout Demoishe existing building Consent costs Landscaping Revenue generation strategy Revenue generation strategy Revenue generation fee Commissioning Total construction cost & initial fitout GIDP contribution Labour content Base for maintenace Construction employment per 51m outpu Related & supporting infrastructure nec	\$P\$	\$847,833 2090 \$3,0386,700 \$5,400,000 \$1,162,800 \$400,000 \$1,500,000 \$1,500,000 \$13,850,000 \$2,012,800 \$1,600,000 \$2,012,800 \$1,600,000 \$1,035,000 \$1,035,000 \$1,035,000 \$1,035,000 \$1,035,000 \$1,035,000 \$1,035,000 \$1,035,000	\$15,320,819 \$1,500 \$	542,888,912 5 10 10 10 10 10 10 10 10 10 100% 70% 70% 70% 70% 100% 70% 100% 90% 90% 90% 90% 90% 90% 90% 90% 90%	\$65,393,871 yearly renewitivated injusted from the second from	575,889,833 cs si	718 region	Seen of NZ		
Cumulative Display remewal Fitout New building Refurbish existing building External exhibit space Decanting/ relocation costs Professional fees 14% FF & E Thermed fitout design / content Contingency 10% Marine specialist fitout Demoish existing building Consent costs Landscaping Revenue generation strategy Revenue generation fee Commissioning Total construction cost & initial fitout GDP contribution Labour content Base for maintenace Construction employment per \$1m outpu Related & supporting infrastructure nec Economic Impacts Assessment	\$P\$	\$847,833 2090 \$5,400,000 \$1,162,800 \$400,000 \$1,500,000 \$1,500,000 \$1,600,000 \$1,850,000 \$400,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,000,000 \$	\$15,320,819 \$1,500 \$1,5	542,888,912 5 10 10 10 10 10 10 10 10 100 70% 70% 70% 100% 90% 90% 90% 100% 90% 90% 100% 90% 100% 90% 90% 90% 90% 90% 90% 90% 90% 90%	\$65,393,871 yearly renewitive and yearly some and yearly	575,889,833 cs si	718 region	Seen of NZ		
Cumulative Display renewal Fitout New building Refurbish existing building External exhibit space Decanting/relocation costs Professional fees 14% FF & E Themed fitout design / content Contingency 10% Marine specialist fitout Demolish existing building Consent costs Landscaping Revenue generation strategy Revenue generation fee Commussioning Total construction cost & initial fitout GDP contribution Labour content Base for maintenace Construction employment per \$1m output Related & supporting infrastructure nec Economic Impacts Assessment Construction	\$P\$	\$847,833 2090 \$3,00,000 \$1,162,800 \$400,000 \$1,500,000 \$1,500,000 \$13,500,000 \$2,012,500 \$400,000 \$2,012,500 \$1,600,000 \$1,035,000 \$	\$15,320,819 \$1,500 \$	542,888,912 5 10 10 10 10 10 10 10 10 100% 70% 7	\$65,393,871 yearly renewit yearly renewit yearly renewit yearly renewit storated in year of NZ Son	575,889,833 cs si	718 region	Seen of NZ		
Cumulative Display renewal Fitout New building Refurbish existing building External exhibit space Decanting/ relocation costs Professional fees 14% F8 & E Thermed fitout design / content Contingency 10% Marine specialist fitout Demolish existing building Consent costs Landscaping Revenue generation strategy Revenue generation fee Commissioning Total construction cost & initial fitout GIDP contribution Labour content Base for maintenace Construction employment per \$1m outpu Related & supporting infrastructure nec Economic Impacts Assessment Construction	\$P\$	\$847,833 2090 \$30,386,700 \$5,400,000 \$1,162,800 \$400,000 \$1,500,000 \$1,500,000 \$13,880,000 \$2,012,500 \$2,012,500 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,000 \$1,000,000 \$	\$15,320,819 \$1,500 \$1,5	542,888,912 5 10 6 10 6 10 7 10 7 10 7 10 7 10 7 10 7 10 7 10 7	\$65,393,871 yearly renew/ yearly renew/ yearly renew/ stimated inside of Best of N2 50% 30% 30% 30% 30% 30% 30% 30% 30% 30% 3	575,889,833 cs si	78 regon	Seen of NZ		
Cumulative Display remewal Fitout New building Refurbish existing building External exhibit space Decanting/ relocation costs Professional fees 14% FF & E Thermed fitout design / content Contingency 10% Marine specialist fitout Demoish existing building Consent costs Landscaping Revenue generation strategy Revenue generation fee Commissioning Total construction cost & initial fitout GDP contribution Labour content Base for maintenace Construction employment per \$1m outpu Related & supporting infrastructure nec Economic Impacts Assessment	\$P\$	\$847,833 2090 \$5,400,000 \$1,162,800 \$400,000 \$1,500,000 \$1,500,000 \$1,600,000 \$1,850,000 \$400,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,600,000 \$1,000,000 \$	\$15,320,819 \$1,500 \$1,5	542,888,912 5 10 10 10 10 10 10 10 10 100 70% 70% 70% 100% 90% 90% 90% 100% 90% 90% 100% 90% 100% 90% 90% 90% 90% 90% 90% 90% 90% 90%	\$65,393,871 yearly renewitive and yearly some and yearly	575,889,833 cs si	78 regon	Seen of NZ		
Cumulative Display remewal Fitout New building Refurbish existing building External exhibit space Decanting/ relocation costs Professional fees 14% FF & E Thermed fitout design / content Contingency 10% Marine specialist fitout Demoish existing building Consent costs Landscaping Revenue generation strategy Revenue generation fee Commissioning Total construction cost & initial fitout GDP contribution Labour content Base for maintenace Construction employment per S1m outpu Related & supporting infrastructure nec Economic Impacts Assessment Construction	\$P\$	\$847,833 2090 \$3,0386,700 \$5,400,000 \$1,162,800 \$400,000 \$1,500,000 \$13,850,000 \$7,000,000 \$13,850,000 \$2,012,500 \$1,600,000 \$1,035,	\$15,320,819 \$1.50	542,888,912 5 10 10 10 10 10 10 10 10 10 10	\$65,393,871 yearly renewity yearly renewity yearly renewity yearly renewith yearly renewith the second of the seco	575,889,833 cs si	78 regon	Seen of NZ		

Total revenue	\$					50	50	\$0	50	\$8,935,290	55,816,440	55,599,812
Direct & indirect inputs per 5 output	- :		-45%		40	\$0	\$0	50	\$0	-\$497,437	-\$735,222	-\$707,840
Value added Staff	5	\$64,000			-58	\$0 \$0	\$0 50	\$0 \$0	\$0 \$0	\$3,437,852 -\$3,816,980	\$5,081,218 -55,771,273	\$4,891,973 -55,549,975
Other	3	301,000	-6.75%			50	50	50	50	5344,338	-5508,939	-5489,984
Operating surplus (gross)					-56	50	50	\$0	50	-5723,465	-51,198,994	\$1,147,985
Ourselable strikes exceeding												
Overnight visitor spending Accommodation	5	\$69	2			50	50	SO	50	\$6,957,850	\$10,632,662	\$10,107,979
Transport	\$	\$20	2			50	50	50	50	51,976,327	\$3,020,131	52,871,098
Restaurants & entertainment	3	\$46	2			\$0	50	50	50	\$4,650,264	57,106,316	\$6,755,646
Retail & other	- 5	515	2			50 50	50	50 50	50 50	\$1,503,300 \$15,087,740	52,297,273	52,183,911
Total Overnight visitor spending Direct & indirect inputs per 5 output	š	\$150	-49%			50	50	\$0	50	-57,387,992	\$23,056,382 -\$11,289,986	521,918,634 -510,732,867
Value added	3				-5122	\$0	50	\$0	50	\$7,699,747	\$11,766,396	\$11,185,767
		A				4		4.				****
Cruise ship visitor spending	\$	\$243.25	-52%			\$0 50	\$0 \$0	\$0 \$0	50 50	\$3,194,586 \$1,649,665	\$4,444,383 -52,295,052	\$4,576,859 -52,363,463
Direct & indirect inputs per 5 output Value added	-;-		10.2%		-583	\$0	50	50	\$0	\$1,544,921	\$2,149,330	52,213,397
					1		**			0.1,0.1,0.11		
						****	Lette .		****		2427	****
Counterfactual	m into	Leatur Talue	Value	704	Pi-3m	2021	2002	2023	2024	2025	2026	2027
		4444	(9090	1.00	7-15 year	-			-	-	-	*
Counterfactual total visitors	No.px	185,000				٥	0	0	0	163,458	167,529	171,713
Couterfactual International FIT's	No. year	11.7%	40%			٥	0	0	0	7,655	2,845	8,041
Couterfactual Domestic overnight	No. pa	41.3%	100%			0	. 0	. 0	0	67,529	69,211	70,940
Counterfactual overnight visitors Counterfactual cruise ship visitors	No. pa No. pa					0	Ď Ď	0	0	75,184 15,935	77,056 16,732	78,981 17,568
Counterfactual staff	No pe	148,245	72			0		0	0.	29	81.	83
4 5 7 5 7 5 7 5		4	m. 2 A									
Admission tickets	No. tiskets	51 (Vision) 1 38%	100%	520.00		0	٥	0	0	61,865	63,406	64,990
Adult Child	No. tidets	10%	50%	530.00		0	0	0	0	16,895	17,316	17,748
Infant	No. Holens	0%	0%	50.00		ō	p	0	0	0	0	0
Student	No tidats	4%	91%	518.16		0	0	0	0	5,783	5,927	6,075
Semiors	No. tickets No. tickets	9%	72%	254.36 258.92		0	0	0.	0	14,855	15,225	15,605
Family Schools, Adult	No. tickets	4%	270% 43%	38.75		0	Ó	0	ů.	6,840 87	7,011	7,186 91
Schools, Pre & primary	No. Nichels	4%	20%	59.65		0	0	0	0	6,339	6,497	6,659
Schools, Secondary	No. tickets	1%	28%	35.65		D.	p	Ð	0	1,736	1,279	1,824
Schools, SEND child	No. tickets No. tickets	0%	17%	135.48 156.32		0	0	0	0	0	0	0
Friends, Adult Friends, Family 1	No. tidieto	0% 1%	283% 413%	582.63		0	0	0	0- 0	236 873	242 894	248 917
Friends, Family 2	No tickets	0%	652%	\$250.48		0	0	0	0	597	612	627
Total tickets sold	No. tidotts	71%		514.07		0	0	0	0	116,106	118,997	121,969
Material and a solution of columns		_	desir 5									
Admission ticket revenue	5	-	\$20.00			50	50	50	\$0	\$2,292,443	\$2,349,531	52,408,215
Admission ticket revenue by category		6				,,,,	,,,	, , ,		34,434,434	444777	4-4-1-4-1
Adult	\$ \$	66%				50	50	50	50	51,516,513	51,554,278	51,593,100
Child & student							50	50	50			5470,372
Yearite		20%				50				\$447,759	5458,909	
Family Schools	\$	6%				\$0	50	50	\$0	\$135,057	\$138,420	5141,877
Family Schools Friends	\$											
Schools	\$ 3	6% 7%				\$0 \$0	50 50	\$0 \$0	50 50	\$135,057 \$159,436	\$138,420 \$163,406	5141,877 5167,488
Schools Friends Admission ticket revenue	\$ \$ \$	6% 7% 1% 100%				\$0 \$0 \$0 \$0	50 50 50	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$135,057 \$159,436 \$33,678 \$2,292,443	\$138,420 \$163,406 \$34,517 \$2,349,531	5141,877 5167,488 535,379 52,408,215
Schools Friends Admission ticket revenue Food & beverage	\$ \$ \$	6% 7% 1% 100% \$2,30				\$0 \$0 \$0 \$0	50 50 50 50	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$135,057 \$159,436 \$33,678 \$2,292,443 \$211,785	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,059	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481
Schools Friends Admission ticket revenue Food & beverage Marchandise Events & other	5 5 5 5 5	6% 7% 1% 100%	0%			\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$135,057 \$159,436 \$33,678 \$2,292,443	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,069 \$304,466 \$0	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0
Schools Friends Admission ticket revenue Food & beverage Merchandise	\$ \$ \$ \$ \$	6% 7% 1% 100% \$2,30	0%			\$0 \$0 \$0 \$0 \$0 \$0	50 50 50 50 50	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$135,057 \$159,436 \$33,678 \$2,292,443 \$211,785 \$297,068	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,059 \$304,466	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070
Schools Friends Admission ticket revenue Food & beverage Merchandise Events & other Total revenue	\$ \$ \$ \$ \$ \$	6% 7% 1% 100% \$2,30				\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$135,057 \$159,436 \$33,678 \$2,292,443 \$211,785 \$297,068 \$0 \$2,801,296	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,069 \$304,466 \$0 \$2,871,085	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,942,766
Schools Friends Admission ticket revenue Food & beverage Marchandise Events & other	5 5 5 5 5	6% 7% 1% 100% \$2,30	0% -45%		529	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$135,057 \$159,436 \$33,678 \$2,292,443 \$211,785 \$297,068 \$0	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,069 \$304,466 \$0	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0
Schools Friends Admission ticket revenue Food & beverage Merchandise Events & other Total revenue Direct & Indirect inputs per \$ output Value added Staff	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	5% 7% 1% 100% 52.30 51.82			529	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50	\$135,057 \$159,436 \$33,678 \$2,292,443 \$211,785 \$297,068 \$0 \$2,801,296 \$2,801,296 \$2,572,810 \$5,198,989	\$138,420 \$163,406 \$163,4517 \$2,349,331 \$217,069 \$304,466 \$5,2871,055 \$2,871,055 \$2,871,055 \$2,676,880 \$5,373,254	\$141,877 \$167,488 \$35,379 \$2,408,215 \$722,481 \$312,070 \$0 \$2,942,766 -240,024 \$2,702,742 \$5,549,975
Schools Friends Admission ticket revenue Food & beverage Merchandise Events & other Total revenue Direct & indirect inputs per \$ output Value added Staff Exhibits	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	5% 7% 1% 100% 53.30 51.82	-45%		529	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50	\$135,057 \$159,436 \$33,678 \$2,792,443 \$211,785 \$297,068 \$0 \$2,801,296 -228,485 \$2,572,810 \$5,198,989 \$5155,316	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,059 \$304,466 \$50 \$2,871,055 -234,175 \$2,666,880 \$533,254 \$516,869	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,942,766 -240,024 \$2,702,742 \$5,549,975 \$138,438
Schools Friends Admission ticket revenue Food & beverage Marchandise Events & other Total revenue Direct & indirect inputs per \$ output Value added 5saff Exhibits Other	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	5% 7% 1% 100% 52.30 51.82				\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50	\$135,057 \$159,436 \$33,678 \$2,292,443 \$211,785 \$297,068 \$0 \$2,801,296 \$28,485 \$2,572,810 \$55,138,969 \$55,316 \$55,316 \$572,810	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,059 \$304,466 \$0 \$2,871,055 -234,175 \$2,636,880 -55,373,254 -515,889 \$251,217	\$141,877 \$167,488 \$38,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,942,766 \$2,702,742 \$2,702,742 \$5,549,975 \$438,418 \$257,490
Schools Friends Admission ticket revenue Food & beverage Merchandise Events & other Total revenue Direct & indirect inputs per \$ output Value added Staff Exhibits	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	5% 7% 1% 100% 52.30 51.82	-45%		529 -518	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50	\$135,057 \$159,436 \$33,678 \$2,792,443 \$211,785 \$297,068 \$0 \$2,801,296 -228,485 \$2,572,810 \$5,198,989 \$5155,316	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,059 \$304,466 \$50 \$2,871,055 -234,175 \$2,666,880 \$533,254 \$516,869	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,942,766 -240,024 \$2,702,742 \$5,549,975 \$138,438
Schools Friends Admission ticket revenue Food & beverage Marchandise Events & other Total revenue Direct & indirect inputs per \$ output Value added Staff Exhibits Other Operating surplus (gross) Overnight visitor revenue	\$ 95 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5	54,000 5150,000	-45%			\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50	50 50 50 50 50 50 50 50 50 50 50	50 50 50 50 50 50 50 50 50 50 50 50	\$135,057 \$159,436 \$33,678 \$2,792,443 \$21,785 \$297,068 \$0 \$2,801,296 -228,485 \$2,572,810 -55,198,989 \$155,316 \$245,213 \$31,026,608	\$138,420 \$163,406 \$34,517 \$2,349,331 \$217,059 \$304,466 \$50 \$2,871,055 -234,175 \$2,646,880 -55,373,254 \$156,889 \$253,213	\$141,877 \$167,488 \$85,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,942,766 -240,024 \$2,702,742 -55,549,975 \$136,438 \$257,492 \$3,263,162
Schools Friends Admission ticket revenue Food & beverage Merchandise Events & other Total revenue Direct & indirect inputs per \$ output Value added \$taff Exhibits Other Operating surplus (gross) Overnight visitor revenue Accommodation	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	564,000 \$180 \$1.80 \$1.80 \$1.80	-45% -9%			\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50	\$135,057 \$159,436 \$33,678 \$2,292,443 \$211,785 \$297,068 \$0 \$2,801,296 \$28,485 \$2,572,810 \$51,589,998 \$51,538,938 \$52,572,810 \$52,608	\$138,420 \$163,406 \$145,517 \$2,349,531 \$217,059 \$304,466 \$0 \$2,871,055 \$2,871,055 \$2,616,880 \$53,73,254 \$515,869 \$251,217 \$53,144,460 \$9,444,717	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,942,766 -240,024 \$2,702,742 -55,549,975 -5154,488 \$257,492 \$3,268,162
Schools Friends Admission ticket revenue Food & beverage Merchandise Events & other Total revenue Direct & Indirect inputs per \$ output Value added Staff Exhibits Other Operating surplus [gross] Overnight visitor revenue Accommodation Transport	\$ 95 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5	564,000 \$180,000 \$180,000	-45% -9%			\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	50 50 50 50 50 50 50 50 50 50 50 50 50 5	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$135,057 \$159,436 \$33,678 \$2,792,443 \$211,785 \$297,068 \$0 \$2,801,296 \$2,801,296 \$2,801,296 \$51,98,989 \$5155,316 \$5245,213 \$31,026,608	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,059 \$304,466 \$0 \$2,871,055 -234,175 \$2,663,254 \$2,573,254 \$253,217 \$3,144,460 \$5,373,254 \$253,217 \$3,144,460	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,242,766 \$2,702,742 \$5,549,975 \$158,438 \$2257,499 \$3,263,162 \$9,680,620 \$2,749,710
Schools Friends Admission ticket revenue Food & beverage Merchandise Events & other Total revenue Direct & indirect inputs per \$ output Value added \$taff Exhibits Other Operating surplus (gross) Overnight visitor revenue Accommodation	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	564,000 \$180 \$1.80 \$1.80 \$1.80 \$64,000 \$150,000	-45% -9%			\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50	\$135,057 \$159,436 \$33,678 \$2,792,443 \$211,785 \$297,068 \$0 \$2,801,296 \$2,801,296 \$2,572,810 \$515,316 \$5245,213 \$53,026,608	\$138,420 \$163,406 \$34,517 \$2,349,331 \$217,059 \$304,466 \$50 \$2,871,055 -234,175 \$2,666,880 -55,373,254 \$316,869 \$251,217 \$3,144,460 \$5,444,717 \$2,682,704 \$6,312,336	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,742,766 -240,024 \$2,702,742 \$5,549,975 \$136,436 \$257,492 \$3,263,162 \$9,680,620 \$2,749,710 \$6,470,021
Schools Friends Admission ticket revenue Food & beverage Merchandise Events & other Total revenue Direct & indirect inputs per \$ output Value added Staff Exhibits Other Operating surplus (gross) Overnight visitor revenue Accommodation Transport Restaurants & entertainment Restail & other Total Overnight visitor revenue	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	564,000 \$180,000 \$180,000	-45% -9%			\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	50 50 50 50 50 50 50 50 50 50 50 50 50 5	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$135,057 \$159,436 \$33,678 \$2,792,443 \$211,785 \$297,068 \$0 \$2,801,296 \$2,801,296 \$2,801,296 \$55,198,989 \$5155,316 \$52,52,608 \$9,215,234 \$2,617,520 \$6,158,981 \$1,910,026 \$1,991,026	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,059 \$304,466 \$0 \$2,871,055 -234,175 \$2,663,254 \$2,573,254 \$253,217 \$3,144,460 \$5,373,254 \$253,217 \$3,144,460	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,702,742 \$2,702,742 \$2,702,742 \$3,263,162 \$3,263,162 \$3,263,162 \$3,263,162
Schools Friends Admission ticket revenue Food & beverage Marchandise Events & other Total revenue Direct & indirect inputs per \$ output Value added Staff Exhibits Other Operating surplus (gross) Overnight visitor revenue Accommodation Transport Restaurants & entertainment Retail & other Total Overnight visitor revenue Direct & indirect inputs per \$ output	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$64,000 \$180 \$1.80 \$1.80 \$1.80 \$64,000 \$150,000	-45% -9%		-518	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	50 50 50 50 50 50 50 50 50 50 50 50 50 5	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$135,057 \$159,436 \$33,678 \$2,792,443 \$211,785 \$297,068 \$2,801,296 \$2,801,296 \$2,801,296 \$2,572,810 \$2,572,810 \$2,572,810 \$2,673,316	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,059 \$304,466 \$50 \$2,871,055 -234,175 \$2,666,880 \$255,217 \$3,144,460 \$9,444,717 \$2,682,704 \$6,312,356 \$2,040,603 \$20,400,603 \$20,400,384 \$520,028,601	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,242,766 -240,024 \$2,702,742 \$2,702,742 \$3,5449,975 -5156,488 -5257,492 \$3,263,162 \$4,700,021 \$2,091,576 \$20,991,977 \$20,979,088
Schools Friends Admission ticket revenue Food & beverage Merchandise Events & other Total revenue Direct & indirect inputs per \$ output Value added Staff Exhibits Other Operating surplus (gross) Overnight visitor revenue Accommodation Transport Restaurants & entertainment Restail & other Total Overnight visitor revenue	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$64,000 \$180 \$1.80 \$1.80 \$1.80 \$64,000 \$150,000	-45% -9%			\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	50 50 50 50 50 50 50 50 50 50 50 50 50 5	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$135,057 \$159,436 \$33,678 \$2,792,443 \$211,785 \$297,068 \$0 \$2,801,296 \$2,801,296 \$2,801,296 \$55,198,989 \$5155,316 \$52,52,608 \$9,215,234 \$2,617,520 \$6,158,981 \$1,910,026 \$1,991,026	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,059 \$304,466 \$0 \$2,871,055 \$2,871,0	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,702,742 \$2,702,742 \$2,702,742 \$3,263,162 \$3,263,162 \$3,263,162 \$3,263,162
Schools Friends Admission ticket revenue Food & beverage Marchandise Events & other Total revenue Direct & indirect inputs per \$ output Value added Staff Exhibits Other Operating surplus (gross) Overnight visitor revenue Accommodation Transport Restaurants & entertainment Retail & other Total Overnight visitor revenue Direct & indirect inputs per \$ output	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$64,000 \$180 \$1.80 \$1.80 \$1.80 \$64,000 \$180,000	-45% -9%		-518	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	50 50 50 50 50 50 50 50 50 50 50 50 50 5	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$135,057 \$159,436 \$33,678 \$2,792,443 \$211,785 \$297,068 \$2,801,296 \$2,801,296 \$2,801,296 \$2,801,296 \$2,572,810 \$2,572,810 \$2,673,316	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,059 \$304,466 \$50 \$2,871,055 -234,175 \$2,666,880 \$255,217 \$3,144,460 \$9,444,717 \$2,682,704 \$6,312,356 \$2,040,603 \$20,400,603 \$20,400,384 \$520,028,601	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,242,766 -240,024 \$2,702,742 \$2,702,742 \$3,5449,975 -5156,488 -5257,492 \$3,263,162 \$4,700,021 \$2,091,576 \$20,991,977 \$20,979,088
Schools Friends Admission ticket revenue Food & beverage Marchandise Events & cother Total revenue Direct & indirect inputs per \$ output Value added Staff Exhibits Other Operating surplus (gross) Overnight visitor revenue Accommodation Transport Restaurants & entertainment Retail & other Total Overnight visitor revenue Direct & indirect inputs per \$ output Value added Cruise ship visitor spending Direct & indirect inputs per \$ output	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$64,000 \$1,8	-45% -9%		-518 5114	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$125,057 \$159,436 \$233,678 \$2,270,443 \$211,785 \$297,068 \$2 \$2,801,296 -228,485 \$2,572,810 -55,198,929 \$155,316 \$245,213 \$3,026,608 \$9,215,234 \$2,617,520 \$6,158,981 \$19,910,026 \$19,982,761 \$5,784,930 \$10,197,830 \$3,876,140 \$2,001,616	\$138,420 \$163,406 \$34,517 \$2,349,331 \$217,059 \$304,466 \$50 \$2,871,035 -234,175 \$2,646,880 -55,373,254 \$316,869 \$251,217 \$3,144,460 \$5,444,717 \$2,682,704 \$6,312,336 \$20,406,608 \$20,400,384 \$10,451,783 \$4,069,947 \$2,101,696	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,702,742 \$2,702,742 \$5,549,975 \$136,436 \$257,492 \$3,263,162 \$9,680,620 \$2,749,710 \$6,470,021 \$2,091,576 \$10,279,088 \$10,712,840 \$4,273,445 \$2,206,781
Schools Friends Admission ticket revenue Food & beverage Marchandise Events & other Total revenue Direct & indirect inputs per \$ output Value added Staff Exhibits Other Operating surplus (gross) Overnight visitor revenue Accommodation Transport Restaurants & entertainment Restal & other Total Overnight visitor revenue Direct & indirect inputs per \$ output Value added Cruise ship visitor spending	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$64,000 \$1,8	-45% -9% 2 2 2 2 2 2		-518	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	50 50 50 50 50 50 50 50 50 50 50 50 50 5	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$135,057 \$159,436 \$33,678 \$2,792,443 \$211,785 \$297,068 \$0 \$2,801,296 \$2,801,296 \$2,801,296 \$2,572,810 \$2,572,810 \$2,572,810 \$2,572,810 \$2,617,510 \$4,152,346 \$2,617,510 \$4,152,346 \$2,617,510 \$4,152,346 \$2,617,510 \$4,152,346 \$2,617,510 \$4,152,346 \$2,617,510 \$4,152,346 \$2,617,510 \$4,152,346 \$2,617,510 \$4,152,346 \$2,617,510 \$4,152,346 \$2,617,510 \$4,152,346 \$4,152,3	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,059 \$304,466 \$50 \$2,871,055 \$2,666,880 \$255,217 \$53,344,460 \$53,373,254 \$156,869 \$255,217 \$3,144,460 \$53,373,254 \$156,869 \$256,2704 \$6,312,356 \$20,400,608 \$20,400,364 \$20,003,601 \$10,451,783 \$4,069,947	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,742,766 -340,024 \$2,702,742 \$3,549,975 -5158,438 \$257,499 \$3,263,162 \$3,263 \$3,263 \$3,263 \$3,263 \$3,263
Schools Friends Admission ticket revenue Food & beverage Marchandise Events & cother Total revenue Direct & indirect inputs per \$ output Value added Staff Exhibits Other Operating surplus (gross) Overnight visitor revenue Accommodation Transport Restaurants & entertainment Retail & other Total Overnight visitor revenue Direct & indirect inputs per \$ output Value added Cruise ship visitor spending Direct & indirect inputs per \$ output	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$64,000 \$1,8	-45% -9% 2 2 2 2 2 2		-518 5114	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$125,057 \$159,436 \$233,678 \$2,270,443 \$211,785 \$297,068 \$2 \$2,801,296 -228,485 \$2,572,810 -55,198,929 \$155,316 \$245,213 \$3,026,608 \$9,215,234 \$2,617,520 \$6,158,981 \$19,910,026 \$19,982,761 \$5,784,930 \$10,197,830 \$3,876,140 \$2,001,616	\$138,420 \$163,406 \$34,517 \$2,349,331 \$217,059 \$304,466 \$50 \$2,871,035 -234,175 \$2,646,880 -55,373,254 \$316,869 \$251,217 \$3,144,460 \$5,444,717 \$2,682,704 \$6,312,336 \$20,406,608 \$20,400,384 \$10,451,783 \$4,069,947 \$2,101,696	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,702,742 \$2,702,742 \$5,549,975 \$136,436 \$257,492 \$3,263,162 \$9,680,620 \$2,749,710 \$6,470,021 \$2,091,576 \$10,279,088 \$10,712,840 \$4,273,445 \$2,206,781
Schools Friends Admission ticket revenue Food & beverage Marchandise Events & cother Total revenue Direct & indirect inputs per \$ output Value added Staff Exhibits Other Operating surplus (gross) Overnight visitor revenue Accommodation Transport Restaurants & entertainment Retail & other Total Overnight visitor revenue Direct & indirect inputs per \$ output Value added Cruise ship visitor spending Direct & indirect inputs per \$ output	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$64,000 \$1,8	-45% -9% 2 2 2 2 2 2		-518 5114	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$125,057 \$159,436 \$233,678 \$2,270,443 \$211,785 \$297,068 \$2 \$2,801,296 -228,485 \$2,572,810 -55,198,929 \$155,316 \$245,213 \$3,026,608 \$9,215,234 \$2,617,520 \$6,158,981 \$19,910,026 \$19,982,761 \$5,784,930 \$10,197,830 \$3,876,140 \$2,001,616	\$138,420 \$163,406 \$34,517 \$2,349,331 \$217,059 \$304,466 \$50 \$2,871,035 -234,175 \$2,646,880 -55,373,254 \$316,869 \$251,217 \$3,144,460 \$5,444,717 \$2,682,704 \$6,312,336 \$20,406,608 \$20,400,384 \$10,451,783 \$4,069,947 \$2,101,696	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,702,742 \$2,702,742 \$5,549,975 \$136,436 \$257,492 \$3,263,162 \$9,680,620 \$2,749,710 \$6,470,021 \$2,091,576 \$10,279,088 \$10,712,840 \$4,273,445 \$2,206,781
Schools Friends Admission ticket revenue Food & beverage Merchandise Events & other Total revenue Direct & indirect inputs per \$ output Value added \$taff Exhibits Other Operating surplus (gross) Overnight visitor revenue Accommodation Transport Restaurants & entertainment Retail & other Total Overnight visitor revenue Direct & indirect inputs per \$ output Value added Cruise ship visitor spending Direct & indirect inputs per \$ output Value added Economic value created net of DD&A NANZ admission & retail	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$64,000 \$1,8	-45% -9% 2 2 2 2 2 2		5114 529 528	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$135,057 \$159,436 \$33,678 \$2,792,443 \$211,785 \$297,068 \$0 \$2,801,296 \$2,801,296 \$2,801,296 \$51,989,99 \$5155,316 \$245,213 \$3,026,608 \$9,215,234 \$2,617,520 \$61,58,981 \$1,991,026 \$19,902,761 \$57,984,930 \$10,197,830 \$3,876,140 \$2,001,616 \$1,874,525	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,059 \$304,466 \$0 \$2,871,055 -234,175 \$2,663,254 \$51,56,869 \$253,217 \$5,344,460 \$5,373,254 \$156,869 \$253,217 \$5,344,460 \$5,373,254 \$1,562,704 \$6,312,356 \$2,040,608 \$2,04	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,702,742 \$2,702,742 \$2,702,742 \$3,263,162 \$3,263,1
Schools Friends Admission ticket revenue Food & beverage Marchandise Events & cother Total revenue Direct & indirect inputs per \$ output Value added Staff Exhibits Other Operating surplus (gross) Overnight visitor revenue Accommodation Transport Restaurants & entertainment Restail & other Total Overnight visitor revenue Direct & indirect inputs per \$ output Value added Cruise ship visitor spending Direct & indirect inputs per \$ output Value added Economic value created net of DD&A NANZ admission & retail Overnight visitors	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$64,000 \$1,8	-45% -9% 2 2 2 2 2 2		\$114 \$114 \$29	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$135,057 \$159,436 \$33,678 \$2,792,443 \$211,785 \$297,068 \$52,801,296 \$2,801,296 \$2,801,296 \$2,572,810 \$51,98,989 \$155,316 \$245,213 \$3,026,608 \$9,215,234 \$2,617,520 \$6,158,981 \$1,991,026 \$19,902,761 \$51,992,761 \$5	\$138,420 \$163,406 \$34,517 \$2,349,531 \$217,059 \$304,466 \$50 \$2,871,055 \$2,636,880 \$52,871,055 \$2,636,880 \$52,871,055 \$2,636,880 \$525,217 \$3,144,460 \$5,372,256 \$2,040,602 \$2,040,602 \$2,040,603 \$10,451,783 \$4,069,947 \$2,101,696 \$1,968,251	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,742,766 \$2,702,742 \$5,549,975 \$15,549,975 \$156,470,021 \$2,749,710 \$6,470,021 \$2,091,576 \$10,279,088 \$10,712,840 \$4,273,445 \$2,206,781 \$2,206,781 \$2,206,781 \$2,206,781 \$2,206,781 \$2,206,781 \$2,206,781 \$2,206,781 \$2,206,781 \$2,206,781 \$2,206,781 \$2,206,781 \$2,206,781
Schools Friends Admission ticket revenue Food & beverage Marchandise Events & other Total revenue Direct & indirect inputs per \$ output Value added Staff Exhibits Other Operating surplus (gross) Overnight visitor revenue Accommodation Transport Restaurants & entertainment Retail & other Total Overnight visitor revenue Direct & indirect inputs per \$ output Value added Cruise ship visitor spending Direct & indirect inputs per \$ output Value added Economic value created net of DD&A NANZ admission & retail Overnight visitors Cruise ship visitors Cruise ship visitors	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$64,000 \$1,8	-45% -9% 2 2 2 2 2 2		523 523 523 523 543	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	50 50 50 50 50 50 50 50 50 50 50 50 50 5	\$125,057 \$159,436 \$233,678 \$2,270,443 \$211,785 \$297,068 \$297,068 \$20 \$2,801,296 \$2,801,296 \$2,572,810 \$5199,929 \$155,316 \$2,617,520 \$6,158,981 \$1,991,026 \$19,982,761 \$5,764,930 \$119,982,761 \$5,764,930 \$119,982,761 \$5,764,930 \$119,982,761 \$5,764,930 \$119,7830 \$3,876,140 \$2,001,616 \$1,874,525	\$138,420 \$163,406 \$34,517 \$2,349,331 \$217,059 \$304,466 \$50 \$2,871,055 -234,175 \$2,646,880 -55,373,254 -516,869 -5251,217 -53,144,460 \$5,444,717 \$2,682,704 \$6,312,336 \$20,480,384 \$10,480 \$10,480,384 \$10,480,384 \$10,480,384 \$10,480,384 \$10,480,384	\$141,877 \$167,488 \$35,379 \$2,408,215 \$222,481 \$312,070 \$0 \$2,702,742 \$5,549,975 \$156,450 \$2,749,710 \$6,470,021 \$2,091,576 \$10,279,088 \$10,712,840 \$4,273,445 \$2,066,664
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Sustainable Napier Committee - 13 February 2020 - Attachments Item 1 Attachments Q



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Project Managemen	t Strate	gy	
Approved by			
Department	Council-wid	de	
Original Approval Date		Review Approval Date	
Next Review Deadline	-	Document ID	841787
Relevant Legislation	Local Gove	ernment Act	
NCC Documents Referenced		nagement Policy, Procurement Pol s Policy, Significance and Engager	

Purpose

NCC has implemented a Project Management Policy. This document describes the Project Management Strategy referenced in the Policy. This Project Management Strategy aims to implement the Project Management Framework (PMF), defined in this strategy, which has been developed to meet project management requirements.

Project Management Requirements

The PMF supports capture and management of appropriate detail to enable NCC to efficiently forecast and prioritise resource investment needs and delivery of approved projects. Requirements are:

- 1. Identify a need (service level gap or risk) and a time when the need must be met
- 2. Relate those needs to a Community Outcome and Strategic Goal in the Long Term Plan
- 3. Describe what options have been considered for meeting the need
- 4. Describe what will happen if the need is not met (service risks)
- 5. Select a preferred solution
- 6. Programme the preferred solution (scope, schedule and budget) with other NCC-wide planned work
- 7. Execute the work needed
- 8. Derive the benefit (eliminate service level gap or risk)
- 9. Report on the effectiveness and efficiency of the way the need was met

Project Management Risks

The requirements listed above are met by implementing the Project Management Framework. Without such a framework NCC runs the risk of incurring inefficiencies in execution such as:

- a) Poor justification of needs.
- Needs not being identified in a timely manner putting service levels and the delivery of other planned work at risk should the unplanned work be a higher priority.
- c) Projects not being coordinated across NCC based on risk and value to the ratepayer.
- Information documenting the lifecycle of the need and its resolution not being created in a consistent manner.

- e) Information not retained in a consistent manner for reuse and integration into other management or governance processes.
- f) NCC not being able to demonstrate delivery of services and infrastructure in compliance with the Local Government Act and its amendments.

Project Management Framework

The PMF is a methodology and collection of 'tools' used for identification, definition and delivery of investment needs (i.e. to support management of projects). It consists of this document; project workflows and reporting in Sycle; cost tagging and reporting in MagiQ Project Accounting and MagiQ Performance; templates, models and user guides posted on the NCC intranet; and folders and files in shared drives and InfoSource.

The PMF aligns with the annual and long term planning processes.

Sycle

NCC has implemented an enterprise management system called Sycle, used in parallel with financial reporting and document management, to meet project management requirements. Sycle connects community outcomes, strategic goals, strategies and actions with projects; and is also used to manage individual and organisational performance metrics, and strategic and operational risks.

The PMF workflow processes implemented in Sycle and associated systems:

- a) Provide a single corporate-wide process to manage the identification, development, programming, and execution of projects required to implement NCC strategies efficiently, effectively, and defensibly.
- Defines, documents, and implements business management information and decision making processes for all projects.
- Allows for information gathered and maintained within the framework to support and inform the Long Term Plan, Annual Plan, and Annual Report.
- d) Enables the investment of financial and human resources to be directly related to the strategies, objectives, and priorities of the Long Term Plan and Annual Plan.
- e) Enables the investment of financial and human resources to be managed and reported in accordance with the Local Government Act.
- f) Enables active monitoring, reporting, and management of projects.
- g) Can be audited, reviewed, and modified to meet business needs as deemed necessary from time to time to ensure consistent organisational investment management.

Project Types

A project:

- 1. is a temporary endeavour
- 2. has a beginning and an end
- 3. has unique deliverables that are products, services or results

Service requests and Business As Usual (BAU) requests for supply of goods are <u>not</u> projects and are managed as work orders and purchase orders respectively. The Financial Delegations Policy and Procurement Policy apply to work orders, purchase orders and projects.

Two project types (programmed projects and unprogrammed projects) with different project lifecycle phases have been configured in Sycle. Each project phase is separated by a decision gateway requiring approval from the defined level of management to ensure appropriate lifecycle governance. Tasks or work elements within each phase will be identified, budgeted, scheduled, monitored and controlled using project management best practice.

Use of two project types streamlines review and approval by governance committees, and provides managers with clear direction with regards to approved budgets. Project types also provide a filter for long term planning whereby only programmed projects are reviewed during Long Term Plan (LTP) planning and

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consultation. Note that details of all projects (programmed and unprogrammed) are maintained in Sycle and available at any time; and unprogrammed projects are still required to follow best practice project management methodology as outlined below. The table below outlines project types.

Project Type	Unprogrammed	Programmed
Description	An unprogrammed project is a project that does not require programming (see below for more details on programming).	A programmed project is a project that requires programming i.e. it has a 'programme' phase where it is reviewed by appropriate governance groups and included in the LTP (see below for more details on programming).
Exceptions	-	Where a need is identified that must be addressed within the current three year LTP period the proposed project will be programmed via an exception process.
Risk Framework	Individual Project Risk Log	NCC Risk Framework
Review and Approval	Approved at Tier 3 level or above. Internal approval at the management level designated by the DFA Policy.	Reviewed by appropriate governance groups and approved at Tier 2 level or above. Internal approval at the management level designated by the DFA Policy.
Sponsor	Tier 3 manager or above	Tier 2 manager or CE
Phases	Initiate Define Plan & Execute Transfer & Close	Initiate Programme Plan & Execute Transfer & Close

The table below outlines the criteria for project types. A project may meet one or more of the criteria listed.

Significance*	Low	High
impact	No workload impact on others or reduces workload	Significant potential for workload impact – could disrupt BAU activities or require additional capacity and governance to manage
Complexity	1or 2 disciplines	2 or more disciplines
Cost	\$20,000 to \$50,000	More than \$50,000
Reputation	Departmental	Organisational
Timeframe	2 weeks to 3 months	Not time related
External None or a single contract Contracts		Yes
Visibility	1-2 business units	2 or more
Project Type	Unprogrammed	Programmed
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^{*} Refer to the Significance and Engagement Policy

Unprogrammed Project

The figure below provides an overview of phases and approval gateways in an unprogrammed project.



The table below provides descriptions of phases in an unprogrammed project.

Phase		Description
Initiate	Project Sponsor	Identify and define a need
Define	Project Sponsor	Define project delivery
Plan & Execute	Project Manager	Detailed planning and execution of tasks
Transfer & Close	Project Manager	Handover to operators, project review and close

All phases include a monitor and control component based on recognised project management best practices, to support project governance.

The table below outlines approval gateways for unprogrammed projects.

	Gateway	Approval	Description
*	Gateway 1	Project Sponsor	Acknowledges the project is sufficiently developed for it to progress to definition.
0	Gateway 2	Tier 3 (or above) Manager	Approval to proceed to Plan & Execute. The approver is responsible for ensuring that the project has been adequately defined and can be delivered alongside the approved programme of work for programmed projects.
•	Gateway 3	Project Manager	Responsibilities can now be transferred to operations.
•	Project Close	Project Sponsor	Acknowledges that all deliverables and final reporting have been received, and closes the project. Once closed it will no longer be reported in the Project Register.

Programmed Project

The figure below provides an overview of phases and approval gateways in a programmed project.



The table below provides descriptions of phases in a programmed project. All phases include a monitor and control component based on recognised project management best practices.

Phase	Responsible	Description
Initiate	Project Sponsor	Identify and define a need.
Programme	Project Sponsor	Review by appropriate governance groups. Capture of rating and comments for use during long term planning.
Plan and execute	Project Manager	Detailed planning and execution of tasks.
Transfer and close	Project Manager	Handover to operations, project review and close

The table below outlines approval gateways for programmed projects.

	Gateway	Approval	Description
•	Gateway 1	Project Sponsor	Acknowledges the project is sufficiently developed for it to be considered for programming.
Gateway 2	Gateway 2	Tier 2 Manager	Acknowledges that the project has been reviewed by appropriate review groups in the programming phase and has been approved for inclusion in LTP planning.
			Projects that are deemed of high risk or benefit can be programmed within the current LTP via an exception process (see below).
*	Gateway 3	Manager Design & Projects	Acceptance by the Manager Design & Projects indicates that the project will be resourced for delivery according to the programming phase recommendation.
0	Gateway 4	Project Manager	Responsibilities can now be transferred to Operations.
*	Gateway 5	Project Sponsor	Acknowledges that all deliverables and final reporting have been received, and the project can be closed

Programming

The objective of the **Programming** phase is to ensure best value for the community and as such comprises review by a number of governance groups to:

- · Endorse the Project Sponsor's recommendation
- Provide recommendations on project scope (i.e. split into smaller projects, combine with other proposals, or change scope for additional benefits)
- . Capture rating and comments to support prioritisation of projects during long term planning
- · Programme projects for resourcing and budget setting

A project may be reviewed in the programming activity more than once (e.g. if programming recommends combining or splitting an initiative the project returns to the Initiate phase).

The figure below shows the governance groups responsible for review at the programming phase. For more details refer to Appendix A. Note that other ad hoc governance groups will review projects as required.



LTP Planning

Programming is a regular activity based on the meeting frequency of review committees (it is not a triennial long term planning process). For a project to be included in the LTP it must be at the appropriate gateway:

- Projects that are programmed to commence the Plan & Execute phase in LTP FY1 must be at Gateway 3 + 10% Design in FY3 Q3 for LTP consultation and immediate project start following LTP Approval
- Projects that are programmed to commence the Plan & Execute phase in LTP FY2 or LTP FY3
 must be at Gateway 2 in FY3 Q3 for LTP consultation
- Projects that are programmed to commence after LTP FY3 must be at Gateway 2 in FY3 Q3 for LTP consultation; AND will be reviewed again (programmed) at least once prior to development of the next LTP

Refer to Appendix B for more details.

During programming, programmed projects are given a priority rating and description of value based on community well-being. Project details, the priority rating and value comments are used to filter and prioritise projects for consultation and review during LTP planning.

Exceptions

Where a need is identified that must be addressed within the current three year LTP period, the proposed project will be programmed on a case-by-case basis by SLT. Exceptions programming is based on the defined need and recommended solution, and includes budget review and reprioritisation of existing projects to ensure adequate funding and resourcing.

Strategic Alignment

All projects must align with Community Outcomes and Strategic Goals approved in the LTP. This alignment is captured by linking projects in Sycle with actions or tasks in the Planning module of Sycle.

Project Cost Tracking

Project Managers are responsible for tracking costs:

- 1. The project schedule is set up in Sycle and then copied into MagiQ Project Accounting.
- 2. Transactions in the general ledger are then tagged:
 - When a Purchase Order is created in Approval Plus the Project Manager or Project Administrator selects the appropriate project task number
 - When a Progress Claim Payment is entered in MagiQ Enterprise (Creditors) the Creditors Administrator selects the appropriate project task number
 - Labour costs posted from the MagiQ Job Costing system to MagiQ Enterprise are reported and then manually tagged in the GL using a maintenance form
- Project Cost reports are available in MagiQ Performance and summary costs are automatically imported into Sycle on a daily schedule for Project Status Update reports.

Costs are captured and reported only for programmed projects managed by the Design & Projects Team. (This is due to technical constraints with the MagiQ Project Accounting and Job Costing applications.)

Project Documents

Project templates and user guides for programmed projects are stored in InfoSource:

https://MagiQeDRMS.edrms/docs/Projects/Design%20and%20Projects/PMF%20Webpage%20Content

And published on the PMF intranet page:

http://source.ncc.govt.nz/index.php?option=com_wa&pg=11&itemid=525

Tender documents and contracts are stored in InfoSource:

https://MagiQeDRMS.edrms/docs/Contracts

Documents related to programmed projects are stored in infoSource:

https://MagiQeDRMS.edrms/docs/Projects/Design%20and%20Projects

Supporting documents for unprogrammed projects are stored in InfoSource in the appropriate business unit folder structure.

PMF Implementation

The Manager Design & Projects is responsible for developing and implementing this Project Management Strategy with support from Business Excellence & Transformation. Implementation includes configuration of Sycle workflows and financial integration, development of user material, a series of training sessions, user support and regular presentations to the Senior Leadership Team and Corporate Management Team to ensure management level support and user buy in. For full details refer to the project "PRUID100197 Sycle — User Uptake" in Sycle.

Adoption of the PMF is a lengthy process as it involves significant change across NCC. Communication of the PMF concept has been in progress since early 2018 and commenced with the development of an Excel spreadsheet, used as a proof of concept prior to configuration of workflows and cost capture processes. Change management tasks include group and one-on-one training and support in different areas of the PMF (e.g. roles & responsibilities, work breakdown structure, cost management, risk management) as well as ongoing communication at management level (in parallel with rollout of the planning module in Sycle).

High level benefits of Sycle are improved visibility, capability, accountability and risk management. For individuals a user-friendly application, improved resourcing and prioritisation across projects, and a consistent, repeatable process will reduce current frustration, promote better communication and improve project management skills.

Resource availability, particularly at management level, is a significant risk to the implementation as this could result in delay in full adoption and loss or skewing of the vision for change.

Definitions

Term	Definition
Need	A deficiency in current or future ability to meet LTP objectives and goals and the action required that is supported by a NCC budget holder. This person is defined as the Sponsor
Project	A temporary endeavour to resolve a need with a definite beginning and end. It has unique deliverables that are products, services or results. Although repetitive elements may be present in some projects, this repetition does not change the fundamental uniqueness of the project.
	Examples may include, but are not limited to: physical works; design and construction projects; new infrastructure; development of, or introduction of, a significant plan, publication or strategy; business improvements and systems; new or modified services; involve grant applications, community projects and events.
	More than one project may be required to address a need and fully implement its solution. However, completion of each project must result in a complete and useable deliverable.
	If the need does not meet these criteria it is defined as an Initiative which may or may not be managed in Sycle

Review

The review timeframe of this policy will be no longer than every 3 years.

Document History

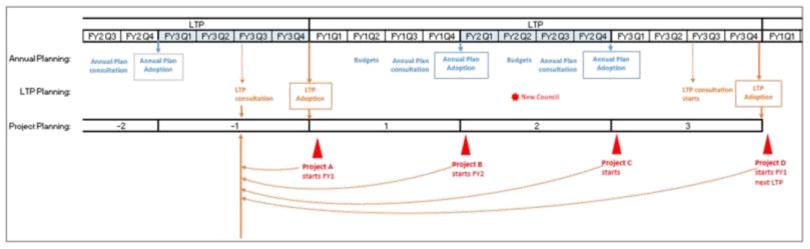
Version	Reviewer	Change Detail	Date
0.0.2	Jon Kingsford	First draft	22/07/2019
0.0.3	Jon Kingsford	Updated draft	16/10/2019
1.0.0	Jon Kingsford	First Release	23/10/2019

Appendix A: Governance Groups

Governance Group	Area of Authority	Project Type	Responsibility	Action
SLT	Strategic	Programmed	Projects align with Strategic Goals and Community Outcomes Community value is optimal Council/Community consultation is appropriate Project resources and budgets are managed in line with BAU resources and budgets	Approve Gateway 2
Mega-projects Governance Group	Strategic	Mega-projects	Oversight of mega-projects Support risk management for mega-projects Adequate consultation for decision-making at a strategic level for mega-projects	Endorse approval of Gateway 2 Review project status throughout project lifecycle
Information Systems Steering Group	Tactical	All projects with an IS component	Projects adhere to IS Principles and align with the IS Strategy and Roadmap Ensure IS and business resource requirements are adequately planned Priority setting for any projects not listed in the IS Roadmap	Endorse approval of Gateway 2
Projects Steering Group	Tactical	All projects	Scope optimises community value Ratings and comments for prioritisation of projects are fair and consistent across all projects Resource requirements are communicated across NCC Project type is correct so that approvals and risk management are appropriate Projects align with NCC transformation initiatives	Endorse approval of Gateway 2
infrastructure Steering Group	Tactical	Infrastructure projects	Resource management, project prioritisation and budgeting is managed across Infrastructure business units and assets Projects are scheduled in compliance with asset management processes	Endorse approval of Gateway 2

Governance Group	Area of Authority	Project Type	Responsibility	Action
Manager Projects and Design	Quality	Projects managed by the D&P team	Adequate detail has been provided to progress the project to Plan & Execute Design & Projects resources have been assigned Identify and mitigate common or recurring project risks Costs are tracked The PMF is used consistently	Review projects and educate or escalate as required Approve Gateway 3
Manager Business Excellence and Transformation	Quality	Unprogrammed projects	The PMF is used consistently Projects align with NCC transformation initiatives	Review projects and educate or escalate as required No formal approval
Risk and Assurance Lead	Quality	All projects	Project risks are defined and managed consistently and appropriately	Review project risks for all projects and educate or escalate as required No formal approval
Project Board	Project	Individual project	Provide decision-making, guidance and support at a project level	Review Project Status Report
Project Manager	Project	Individual project	Management and reporting of the individual project (time, cost, quality, risks)	Provide Project Status Report

Appendix B: LTP Planning



Project A: Projects that are programmed to commence the Plan & Execute phase in LTP FY1 must be at Gateway 3 + 10% Design in FY3 Q2 for LTP consultation and immediate project start following LTP Approval

Project B: Projects that are programmed to commence the Plan & Execute phase in LTP FY2 must be at Gateway 2 in FY3 Q2 for LTP consultation

Project C: Projects that are programmed to commence the Plan & Execute phase in LTP FY3 must be at Gateway 2 in FY3 Q2 for LTP consultation

Project D: Proposals that are programmed to commence after LTP FY3 must be at Gateway 2 in FY3 Q2 for LTP consultation; AND will be reviewed again (programmed) at least once prior to development of the next LTP



NATIONAL AQUARIUM OF NZ - STAGE 1 WORKS BUSINESS CASE BUDGET : SEPTEMBER 2019

Total Cost Summary

GFA: Gross floor area Rates current at September 2019

	and the second second	GFA m2	Cost/m2	Total Cost
Α	NEW BUILDING	3,702	8,208	30,386,700
В	REFURBISH EXISTING BUILDING	1,974	2,736	5,400,000
C	DEMOLISH EXISTING BUILDING	1,400	399	558,000
D	EXTERNAL EXHIBIT SPACE	646	1,800	1,162,800
Ε	LANDSCAPING			2,012,500
F	DECANTING/RELOCATION COSTS			400,000
G	PROFESSIONAL FEES 14%			5,400,000
н	CONSENT COSTS			400,000
1	ESCALATION TO 2023 9%			4,170,000
j	FF&E			1,500,000
K	MARINE SPECIALIST FITOUT			13,850,000
L	THEMED FITOUT DESIGN/CONTENT			3,160,000
M	CONTINGENCY 10%			7,000,000
Ν	ANIMAL RELOCATION/ACQUIRE			Excl.
	GST Excluded			
		Total Cost		\$75,400,000

The above budget allowances are based on the Conceptual design information provided by EHDD. The design information and area schedules have been reviewed and we have made considered and reasonable assumptions in terms of structure, external shell and interior fitout. The budget allowances are based on current cost assessments with a separate Escalation allowance included within the overall estimate to account for likely cost movement through to completion of the project.

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NATIONAL AQUARIUM OF NZ - STAGE 2 WORKS BUSINESS CASE BUDGET : SEPTEMBER 2019

Total Cost Summary

GFA: Gross floor area

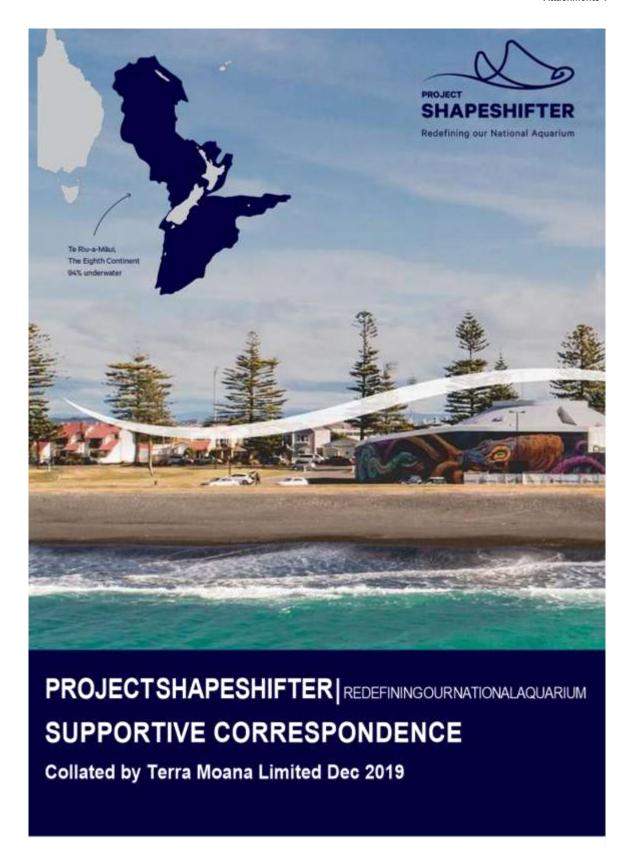
Rates current at September 2019

		GFA m2	Cost/m2	Total Cost
Α	EXTERNAL EXHIBIT SPACE	155	1,800	279,000
В	OCEANS CONFERENCE CENTRE	150	7,000	1,050,000
C	DEEP SEA EXHIBIT BUILDING	500	7,000	3,500,000
D	ADMIN BUILDING	1,200	6,000	7,200,000
Ε	LANDSCAPING			1,600,000
F	PROFESSIONAL FEES 14%			1,910,000
G	CONSENT COSTS			120,000
н	ESCALATION TO 2028 15%			2,350,000
1	FF&E			300,000
1	MARINE SPECIALIST FITOUT			3,200,000
К	THEMED FITOUT DESIGN/CONTENT			6,800,000
L	CONTINGENCY 10%			2,891,000
M	ANIMAL RELOCATION/ACQUIRE			Excl.
	GST Excluded			
		Total Cost		\$31,200,000

The above budget allowances are based on the Conceptual design information provided by EHDD. The design information and area schedules have been reviewed and we have made considered and reasonable assumptions in terms of structure, external shell and interior fitout. The budget allowances are based on current cost assessments with a separate Escalation allowance included within the overall estimate to account for likely cost movement through to completion of the project.

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A. Office of the Prime Minister's Chief Science Advisor



Office of the Prime Minister's Chief Science Advisor

Kaltohutohu Mătanga Pūtalao Matus ki te Pirimia

Dr Victoria Metcalf National Coordinator Participatory Science Phone: +64 (27) 809-4028 Email: v.metcalf@auckland.ac.nz

9 October 2019

To Whom It May Concern:

Redevelopment of National Aquarium: Project Shapeshifter

For nearly the last 5 years I have been managing the Participatory Science Platform (PSP) as its National Coordinator. The PSP was implemented as a flagship initiative as part of the A Nation of Curious Minds Strategic Plan, commonly branded as <u>Curious Minds</u>. This initiative seeks to engage communities, educators and scientists to work together on locally meaningful projects.

Participatory science is a form of citizen science that democratises the science process and is at the very least co-created with the community at every step. In many cases our projects are initiated by the community. Certainly the community is involved at every step of the science process and the project has to be locally relevant to them. We have funded over 120 diverse community science projects in the last 4 years in the three regions we operate in: South Auckland, Otago and Taranaki. Many of these involve the incorporation of tikanga and Mätauranga Māori.

Many of the projects are environmentally or sustainability focused, but our projects also span all areas of science and technology. There have been quite a number of marine-based projects, including *Project Reef Life*, *Project Hotspot* and *Sediment and Seashores*.

Most of our projects involve young people and many of the projects involve schools. This way of working really suits young people and empowers them to be agents of change, as well as really engaging them with their learning. A key feature of these projects is communication of the outcomes back to their community and more broadly, through a wide variety of medium.

We have seen strong interest in this approach, not just from within the regions we currently operate in, but across New Zealand, as people recognise that this is 1) a valid and effective way of conducting science; 2) that it can empower communities and help them solve local issues or explore

PIACSA website: www.pressa.ec.ns Twitter@ChiefScAdvisor Instagram@na_chief_science_edvisor

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opportunities; 3) that it is an effective means of science engagement; and 4) that it recognises multiple sources of knowledge. A significant number of our projects involve iwi or hapu trusts.

Our projects have won local and national awards, impacted on policy and featured in local and central government reports and plans.

I note with interest the proposal for a rebuild of the National Aquarium in Napier. There is a strong need-to grow and develop this practice of community science and it also sits well alongside the concepts of kaitiakitanga and kaupapa Māori. The National Aquarium could take a strong leadership role in this space, through facilitating and acting as a hub and developer/supporter of community projects. This could be incorporated into the outreach and engagement strategy for the Aquarium and aligned with the experiential aspect of people being with the marine life. The Aquarium staff would also have a valuable role to play.

The recently redone Natural History permanent exhibition in Te Papa, Te Taiao | Nature illustrates a small step in this direction. In the Ngã Kaitiaki | Guardians area, where there are four video screens, each plays four videos about an initiative somewhere in New Zealand to help the environment/conservation. There's also information on the website and links to the videos. Visitors are encouraged to go to the Collaborate website to volunteer for a nature project anywhere in New Zealand. The National Aquarium could build on this concept but also play a more active role.

We have found that that hub functionality and good mentorship, and relationship building are critical to success. Often in regions, there are people enthusiastic to engage in these kinds of projects, but that support function is absent, which makes it harder for projects to establish and flourish. Sharing between projects is also key, and a means to share outputs and outcomes, as it allows synergies to be identified and leads to a reduction in duplicative efforts and sharing of resources/methodologies.

I see community science as a key approach moving forward, and we see similar trends in other countries. I'm really pleased that in Project Shapeshifter they are considering incorporation of just such an approach and I would support this. There are many significant environmental challenges facing us, and being able to take action at the community level is very empowering for people and helps us make local, tangible change.

Yours faithfully

PMCSA website: www.pmcsa.ac.nz Twitter@OniefSciAdvisor Instagram@nz. chief_science_advisor

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B. Moana NZ

Hoons New Zealand

1-3 Bell Asenue. Mt Wellingson, Austriand 1050-PG Sox 445, Shortland 3t Austral 1140, New Zeolono

v = 464 9 302 1520 W means on nz



25 November 2019

Mayor Wise Napier City Council 215 Hastings Street Napier

Dear Mayor Wise

Moana New Zealand would like to express its support for Project Shapeshifter and the redesign of the National Aquarium of New Zealand.

Magna New Zealand is an integrated seafood company and the largest Māori owned seafood business. We are the only Māori commercial entity owned by all lwi nationally. As such our interests in New Zealand's grand marine estate are significant and important to Māori commercially and economically.

In terms of our operations Moana New Zealand partners with NISSUI to co-own Sealard. Moana New Zealand has a significant share of North Island finfish fisheries, the majority of wild paua and farmed oysters nationally, owns the only paua farm and also a food processing facility in Palmerston North packing wild paua and ready to eat meals. As an Iwi owned business our values are manaakitanga, whakatipuranga, whakapapa and kaitiakitanga.

You may already be aware that Moana New Zealand began a determined sustainability journey in 2013. More information is available at www.moana.co.nz/responsibility. We are proud that Sealord has a significant share of its seafood sustainably certified under the Marine Stewardship Council and our paus form is certified under the Aquaculture Stewardship Council. These achievements along with the Main Dolphin Protection Plan we have with WWF-New Zealand and Sanford, strengthens the on-going partnership Moana New Zealand has with WWF-New Zealand. We are also partners in the industry Open Seas platform which gives clear advice about the state of the rest of New Zealand's commercial fisheries, i.e. those not MSC certified.

For a number of years Moana has been fortunate to be supported in our sustainability journey by Terra Moana who we understand are facilitating the Project Shapeshifter Detailed Business Case process. We wish to lend our support to this important kaupapa as we see great potential in a refreshed aquarium that educates, inspires and motivates care for the oceans by all, including marine sector industries. Could it also be a venue where we might showcase our efforts to bring kaitiakitanga and sustainability to life? We welcome an opportunity to explore this with you.

Regards,

Steve Tarrant

CEO

C. Hawke's Bay Regional Council

Meeting Note 25 July 2019, at HBRC

James Palmer, CEO Hawkes Bay Regional Council.

Katherine Short, Terra Moana, on behalf of Napier City Council and Project Shapeshifter, Re-defining the National Aquarium of New Zealand.

KS updated JP about the revised narrative. Mountains to sea is a new proposition since the Indicative Business Case. JP agreed with its intent and recognised the value of extending it into the deepsea. HBRC and UoW have appointed a new Integrated Catchment Management (ICM) Chair position. To be announced shortly.

That ICM recognises the HB freshwater policy priority. KS/JP discussed the value of complimenting that post with one from a marine perspective. JP signalled the potential for that within HBRCs Annual and Long-Term Planning and which could begin 2020, and which could potentially augment the Aquarium intent.

KS raised the potential of a National Oceans Centre housing such a post, plus other collaborative working and convening space, and that whether the aquarium could serve such a Centre has been mooted at the Ministerial level.

JP mentioned the passion that Cr Neil Kirton has for the marine environment and a marine research facility although the potential role of the aquarium hasn't been apparent in this space to date.

JP raised the historical NCC under-investment in local infrastructure, particularly stormwater and sewage, and the importance of demonstrably prioritising the fixing of such issues if credibility to undertake a project such as the aquarium were to be gained. KS responded how a project like the aquarium could build a different political mandate and awareness of the importance of caring for aquatic systems and thus be able to increase investment in such things – approaching it from a different direction.

JP raised the challenges relating to the HB 5 council collaboration / or sometimes lack of on various things and the importance of the 5 councils backing this at a regional level.

KS introduced that tourism is intended an outcome of a strong focus on conservation education rather than first place purpose.

HBRC would prioritise science staff and equipment, such as a marine research and monitoring vessel for Hawkes Bay — in contrast to any fundraising that may be done for the aquarium. There is also a case for a mobile laboratory e.g. in a shipping container. KS mentioned the 'aquavan' idea that Uni. Otago and Marine Metres Squared runs and how such a facility could compliment these too here.

JP mentioned that if expectations of local spend are reasonable, or even better someone else is paying for it, HBRC would be likely to support it – subject to the political process.

HBRC would welcome the creation of capability "on our doorstep"

Especially in relation to environmental education. HBRC already runs Enviroschools, is plugged into the curriculum, LEOTC etc.

JP questioned whether another building is a priority? Although there is understanding of the multiple values a truly modern aquarium could provide for the arts, science, culture, education, well-being etc.

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KS/JP agreed that the IBC had some important gaps in it. It looked like there was significant expectations for funding from ratepayers. KS clarified the model is evolving and professional fundraisers are now involved.

JP noted that \$50million is a significant sum for Hawkes Bay when there are other very genuine needs that many would argue are a higher priority. JP mentioned the agreed 5 council focus is housing, social inclusion, freshwater and climate change. KS acknowledged the aquarium could address the latter three.

JP offered that conceptually wouldn't it be awesome if the aquarium included mătauranga, marine science and rounded out our marine offering nationally beyond the mostly production mindset we have of the marine environment.

JP added that as Hawkes Bay has an existing one to build on is a powerful starting point. There are many reasons why it's potentially a good idea. Be careful though about visitor expectations particularly locals, if it's charged for. Splash Planet is a good example to learn from. A project like this would need additional tourists directed to the bay and national agreement to do that.

JP raised that the waterfront location requires caution given the coastal hazards working group. KS mentioned that the US aquarium designers EHDD are mindful of this.

JP commented on the potential of this project to transform consciousness across many of the environmental interactions humans have, as undoubtedly significant. If it crowds in research and technology, hasmātauranga as a foundation, raises awareness of, and teaches us how to care for the environment and biodiversity, it's potential is obviously significant and very positive.

Important to have a distinct research proposition.

Important too to spread tourists regionally more deliberately.

The shift in focus is helpful to have refreshed and further conversation with the regional council.

Environmental education is a good starting point but we need to understand if an expensive facility is what we need, given our small regional economy and population

D. World Wildlife Fund NZ

From: Livia Esterhazy <lesterhazy@wwf.org.nz>
Sent: Wednesday, 25 September 2019 10:00 AM
To: Katherine Short <katherine@terramoana.co.nz>

Cc: Lucy Jacob jacob@wwf.org.nz>; Alice Cameron <acameron@wwf.org.nz>; Tony Craig

<tony@terramoana.co.nz>; Aroha Spinks <aspinks@wwf.org.nz>

Subject: Re: Project Shapeshifter

Kia ora Katherine,

Thank you so much for the information provided on this project.

We've had a great discussion with the team internally and we are really happy to say yes WWF will support this project with one caveat.

The caveat is: The aquarium needs to be at the highest level standards for aquariums, particularly in the care of any living marine creatures.

I'm sure you'll both appreciate the importance of this for WWF and I'm also sure it will be part of the project given your involvement.

Anyway, happy to discuss as the project progresses.

Thanks again for getting in touch and thrilled to be taking part in this important mahi,

Ma te wa,

Liv

E. New Zealand Oceans Foundation

New Zealand Oceans Foundation, Wellington 6035, www.oceansnz.com

27 October 2019

Těná Koe

Papaki kau ana ngā tai o mihi ki a koutou katoa. Pari nui atu ana te ākau o te manaaki, o te tautoko ki ngā moana o te ao.

As a maritime nation Aotearoa needs a world class aquarium to focus on Conservation, Education and Research. The New Zealand Oceans Foundation is delighted to support Project Shapeshifter – a project that is set to deliver such centre of study.

We need a place that tells the story of the sea. A place that connects New Zealanders, young and old with the realities of their vast maritime estate. Developing a national awareness of our role as guardians and stewards of our maritime environment is essential in the evolution of our sense of national identity and our very destiny as a nation. The National Aquarium must do nothing less than to change the way that we see ourselves and our country.

We are the inheritors of deep seafaring traditions from our founding peoples. The wisdom of all New Zealanders will need to be drawn on as we work as a country to create a place to learn about our marine environment, the riches that it supports, the fragile nature of its existence and the central role that the sea has to life on this planet. Maori as well as Pakeha, young and old, the well-established and the newly arrived all have a part to play in creating this taonga, that will showcase our marine sciences and technology for the benefit of all New Zealanders, our neighbours in the region and our oceans.

Project Shapeshifter is a challenge too large for any one organisation to embrace. Instead it will require a nationwide commitment to bring it to life.

Ngā mihi nui,

John Martin Executive Director

F. East Coast Lab

From: Kate Boersen <kate.boersen@eastcoastlab.org.nz>

Sent: Wednesday, 16 October 2019 9:46 AM

To: Rachel Haydon <rachel.haydon@nationalaquarium.co.nz>

Cc: Lisa Pearse < lisa.pearse@hbemergency.govt.nz>

Subject: Support of new development

Hi Rachel,

Thanks for the update last week. It was really great to be able to see the concept designs and learn about the concept in more detail. Answers to the questions you posed are below.

We see value in the proposed development to:

- · Bring together people
- Bring science to life
- Increase science literacy
- · Highlight value of mataurangi maori
- Showcase NZ's unique environment
- Advocate for sustainability
- · Champion environmentalism

We see value including in the proposed exhibits information on earth science, hazard & preparedness information to weave into the narrative information about our hazards & risk as well as bring bring together people to share science.

This could be achieved though including information on:

- The Ring of Fire and how NZ came to be where it is in relationship to the rest of the Pacific (Great Pacific Ocean)
- How New Zealand lies on the boundary of two tectonic places the interactions between these two plates is what has shaped NZ (Great Pacific Ocean)
- · Sharing the story Rauamoko, god of volcanoes and earthquakes (Great Pacific Ocean)
- Highlighting the Hikurangi trench offshore NZ, a obvious physical feature on our seafloor (Great Pacific Ocean: Deep sea trench)
- The impact of the movement of the Hikurangi subduction zone, NZ largest and most active fault (both subsidence and uplift) on shaping the seafloor and therefore marine life (Great Pacific Ocean: Deep sea trench)
- Sharing the story of Moremore (appearing as Shark or Stingray) to warn of earthquakes and tsunami (Be alert)
- Importance of NZers understanding the whole environmental system of their and consider the hazards they face (including latest science understandings)

We'd provide in kind support through time to work with you to weave information on the above topics into the general exhibit or temporary exhibit – we'd most likely be able to cover costs of any temporary exhibit.

We'd also be keen to work together to develop:

natural hazard focused citizen science projects – one project a year.

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- · education programmes
- · work spaces for scientists we'd take up to 160 hours of research space a year
- host science focused events we'd host up to five events a year

We'd also be happy to support you look at hazard risk mitigation measures for the redevelopment given it is in a high hazard location & will have large numbers of visitors to keep safe eg. Vertical evacuation structure

Our support would be conditional on:

- · Having an education programme
- · Using our logo
- · Having an event space to share research
- · Having a temporary exhibit

Cheers, Kate

Kate Boersen

Project Leader | East Coast LAB (Life at the Boundary)

159 Dalton Street | Private Bag 6006 | Napier 4142 | 021 20 96796 | 06 833 5475





G. Mountains to Sea Conservation Trust

Postal: 539 Rockell Rd, RD1 Hikurangi 0181,

Whangarei

Email: info@emr.org.nz Phone: (09 4338205

Websites: www.mountainstosea.org.nz www.whitebaitconnection.co.nz

www.emr.org.nz

Facebook: www.facebook.com/emr.mtsct www.facebook.com/whitebaitconnection



Memo to Napier Agaurium Shapeshifter Project

From Mountains to Sea Conservation Trust

Re: Notes on MTSCT membership and participation

Sept 11, 2018 - Sept 11 2019

We have brought together some information on our programs to inform research and analysis Napier Aquarium expansion proposals. We hope this is helpful.

Mountains to Sea Conservation Trust is a non-profit based in Northland which has been running our two branded programs Experiencing Marine Reserves (EMR) and Whitebait Connection (WBC) since 2002. We have been steadily expanding our delivery and systems and staff to cover many regions in New Zealand. For more information on these two programs and the Trust please visit our websites (see links below).

Along with this summary report we have supplied you with a master analysis spreadsheet for the EMR program and Google Analytical Reports for our three websites for last 12 month period.

EMR participation summary

Table 1 shows a summary of the data held in the 'EMR OVERALL DATABASE 2018-19 Season' file provided. There are a number of sheets in this excel file which display the data in a number of different ways.

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Table 1 Participation figures in the Experiencing Marine Reserves Program

Year	Season	Region	Total participant s numbers	Presentations	Action Projects	Volunteer hours	Media
2019	2018/201 9	All Regions	37,369	339	306	12,112	24
2002- 2019	grand totals	All Regions	162,175	803	881	21,465	72

Whitebait Connection Participation

We are currently compiling figures for the WBC program so can not supply a spreadsheet with exact numbers but we can offer a summary of approximate numbers for this last year and the total number for the years up to 2018.

Up to Sept 2018 87,000 people had participated in the WBC program. There is an estimated number of 15,000 people who have participated in this last year.

Our social Media profile

Experiencing Marine Reserves

Facebook

https://www.facebook.com/emr.mtsct/

4,472 likes, 4,711 people follow this page

website summary

www.emr.org.nz (see reports)

users 7,517

sessions 10,0475

pages/session 2.38

page views 24,892

returning visitors 70.9%

Whitebait connection program

https://www.facebook.com/whitebaitconnection/

1,026 likes

1,080 people follow

https://www.whitebaitconnection.co.nz

Users 3,707

sessions 5,007

pages/session 2.46

page views 12,328

returning visitors 86.3%

How to Kit a marine reserve proposal website

https://www.howtokit.org.nz/ (see reports)

Users 1,739 Sessions 2,187 Pages/session 1.62 Page views 3,553 Returning visitors 79%

A Note on the MTSCT experience

Since its beginnings in 2002 the Trust has been focused on creating a unique experiential event for young people, the school and community. Our philosophy is that these real experiences in the environment connect people young and old with the natural world and it is this connection that inspires people to benefit from education and to be open to values and behaviour change. We have always struggled to fund what we would like to offer, but over the years we have been successful with our approach and seen modest growth consistently to the point now where we are well know and recognised by funders. However even with this success we are sure we could grow and serve our purpose on a much larger scale if greater resources were available. We suggest this is crucial point to consider when looking at our stats. What you see is what has been achieved with absolutely limited funding. We have never had the luxury of fully paid managers or strategic positions. Our national program leaders are still on short-term contracts and regularly still do time consuming small one-off funding applications in their free time. We have never had a marketing or funding manager or admin position. Our chairman and board of trustees remain volunteers. We are addressing these growth issues currently in order to be sustainable and support the large need out there we can see. Our point for raising this issue is that in our opinion to understand the need for and the benefits possible from what we do you could easily take these numbers and multiply them by x10 or more if resources were available.

Benefits beyond the formal program participation numbers

MTSCT gets involved in many engagement and action programs around the country in marine and freshwater. Many action programs arise from the enthusiasm and awareness our programs generates. These projects range from marine reserve campaigns to traditional rahui in the marine side to major catchment and freshwater restoration projects and research. It is a large portfolio of largely volunteer efforts that we maintain to help these many projects succeed. This is not expressed in our participation numbers, however for us this is the end goal. There is a very large environmental gain associated with this spin-off benefit reaching far beyond what we ourselves could achieve. We have not to date sat down to quantify this overall benefit, as often we only actively participate in the beginning stage of these projects, but this sort of analysis in theory could be done.

Vince Kerr

for the Mountains to Sea Conservation Trust Trustee

H. University of Waikato

From: Bruce Clarkson < bruce.clarkson@waikato.ac.nz >

Sent: Wednesday, 23 October 2019 11:33 AM

To: Belinda Sleight

belinda.sleight@waikato.ac.nz>; Katherine Short

<katherine@terramoana.co.nz>

Cc: Christopher Battershill christopher.battershill@waikato.ac.nz; iain.maxwell@hbrc.govt.nz; Cameron Burton cameronb@napier.govt.nz; Drew Brown drewb@napier.govt.nz; Rachel Haydon rachel.haydon@nationalaquarium.co.nz; Tony Craig tony@terramoana.co.nz; vince@kerrandassociates.co.nz

Subject: RE: Research Report

Thanks for your comments Belinda. They accurately and succinctly describe the current state of play for UOW in Hawkes Bay.

From: Belinda Sleight < belinda.sleight@waikato.ac.nz>

Sent: Wednesday, 23 October 2019 11:23 AM
To: Katherine Short katherine@terramoana.co.nz

Cc: Bruce Clarkson < bruce.clarkson@waikato.ac.nz>; Christopher Battershill

<christopher.battershill@waikato.ac.nz>; iain.maxwell@hbrc.govt.nz; Cameron Burton <cameronb@napier.govt.nz>; Drew Brown <drewb@napier.govt.nz>; Rachel Haydon <achel.haydon@nationalaquarium.co.nz>; Tony Craig <tony@terramoana.co.nz>;

vince@kerrandassociates.co.nz Subject: Re: Research Report

Morena Katherine,

Thanks for the opportunity to comment on the research report prepared as part of Project Shapeshifter. I believe that there is a broad opportunity for the National Aquarium to play a role in better communication of science and for visitor engagement and education both in a general sense, and also through pursuing specific initiatives (e.g. citizen science opportunities), exhibitions (e.g. temporary displays of research results and impacts), and outreach (e.g. learning outside the classroom, etc). I agree that the potential for research within the facility is small, but there is still opportunity for this (and I will be keen to see how we can develop this together over time).

My major feedback is to clarify the paragraph on HBRC/NCC/EIT/UoW (Page 3). The way this reads currently, it appears to be a collaboration of all four organisations. This is not quite the reality. UoW has relationships with each of the other organisations and, I assume, they will have agreements in place between each other (or at least a history of working together in various initiatives, projects, etc). So, from my (UoW-centric) point of view, I have a 'hub and spoke model', with UoW as the hub, although it is definitely my intention to develop it as a network of links across all of those organisations and more, as this sevres the organisations and the region better.

The update on the Integrated Catchments partnership between HBRC and UoW is that the HBRC Chair of Integrated Catchments has started his role (Monday) - this is Dr Edgar Burns, who arrived from La Trobe University (Melbourne), having lived in Hawke's Bay previously. His first tasks are to meet a wide range of regional and national stakeholders, and will also begin linking with specific communities in catchments that will be the subject of initial work. He and I are also actively identifying student research opportunities, these being aligned with his sociology expertise (so, research with a "people and the environment" focus).

EIT is establishing new tertiary qualifications in Environmental Management (land-and-water sustainability focus), and we are partnering with them to develop a pathway for learners to step up from lower level qualifications (Levels 3-4) to Levels 5,6 and 7, and beyond (postgraduate study). AS

per the 'network' comment above, I am wanting to develop collaborative research that compliments the focus on our academic programmes delivered in HB (environmental management, environmental science, sustainability).

Apart from that, I note that you have Plant and Food Research as an industry organisation (Page 5), whereas this is a CRI and should be placed in the Government organisations/CRIs section above it.

I am heartened to read of NIWA's interest in the National Aquarium; we have an existing relationship with them (in freshwater), and I would be interested in discussing with them the potential for collaboration in Hawke's Bay that the National Aquarium provides.

I hope that these comments help. I look forward to hearing of the project's success! Belinda



Belinda Sleight | Director Hawke's Bay | University of Waikato PO Box 12023 | Napier 4114 | New Zealand waikato.ac.nz/hawkes-bay | mob: 022 049 6346

Eastern Institute Technology

From: Amelia McQueen < AMcQueen@eit.ac.nz>

Sent: Friday, 4 October 2019 11:13 AM

To: Katherine Short <<u>katherine@terramoana.co.nz</u>>; Rachel Haydon <<u>rachel.haydon@nationalaquarium.co.nz</u>>; <u>vince@kerrandassociates.co.nz</u>

Subject: Response and ideas from yesterdays 'local voice' session

Hello Rach, Katherine and Vince,

Great session yesterday and thank you for putting it together.

There are some things that I want to emphasise and elaborate on from the session. Going away and thinking about ideas and discussions always helps. I understand there are budget constraints and that there will be opportunities in other phases of design and building but here are some things which may need highlighting particularly from a local and national scale:

Science and research:

I do believe there is a good argument for a 'scientist in residence'. I am not sure who you have canvassed for feedback but I would have thought if you talked to scientists on the ground (which not only have a passion for research but also like engaging with public - Mike Joy?) they would jump at the chance to have 6 -12 months working on their science and sharing with public groups.

To attract scientist, it wouldn't necessarily require a 'state of the art' laboratories but a good solid wet lab and dry lab with the ability to show students dissections, stuff under the microscopes etc would be essential. This would be a GAP if the aquarium did not have this - not only on the research front but also the education front. There is possibly to work with EIT for more detailed research analysis as they do have quite a range of equipment. Rachel - we need to look at the labs for you to gauge this.

Tied in with research is the fact that there is a GAP in biodiversity knowledge (marine and freshwater) in HB (as with other places in NZ). This would be a great opportunity to have a researcher 'solve bits of the puzzle' in their field of expertise (and great for BiodiversityHB and HBRC) and share it with the public (Bioblitzs during the year and wowing people about things they did even knew existed). DOC and Govt should be right behind this with the new biodiversity strategy.

Mt to the sea concept:

Great way to pull in the biodiversity of NZ/HB - very important to be told and a Govt/DOC focus at the moment with the new biodiversity strategy (halt the decline in wetlands etc...)

Rivers need to be viewed as a system beyond the boundaries of just the river banks - wetlands, springs (flows into and out of groundwater), groundwater, estuaries and brackish water - biodiversity in these systems are huge and sadly under threat .. the aquarium can tell this little known story... and it shouldn't be a on-the-side exhibit.

This is very important on a local and national scale. Every town/city in Hawke's Bay is associated with at least one river:

Waipawa and Waipukurau has the Tukituki and Waipawa, Havelock North has the Karamu stream, Hastings has streams dissecting across it and bordered by the Tukituki and Ngaruroro, Hamoana and Te Wananga are at the river mouth of the Tukituki, Clive has the old Ngaruroro (Clive River) and just up the road the River mouth of the Ngaruroro and Tutaekuri, Taradale has the Tutaekuri (which use to run into Te Whanganui a Orotū (Ahuriri lagoon).. Huge amount of Māori history with this area and Ötātaral).

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Napier has Ahuriri lagoon and Esk river Wairoa has the mighty Mohaka

... almost every person in Hawke's Bay acrosses one to two rivers or streams every day going to work.

The importance of rivers and the awareness of what is below the surface is so important and as HB one of the few places where there is braided river systems (Tukituki, Waipawa, Ngaruroro and Tutaekuri) - their story must be told ...the ground water, the braids, the back-waters, lagoons and estuaries, the seasonal dynamics and the linkages with the marine environment (abiotic and biotic)... Braided rivers and a rare ecosystem nationally and internationally.

Learning social science/Forums:

Great opportunities to link in with Emily Nelson EIT who is working on this theme at the moment with the Ötätara environment learning centre. Also wellbeing groups in EIT might be worth linking into.

Space for Forums is a must for the aquarium with good ppt facilities/ and ability to have seating arrangement

Vocational training:

Skippers and other marine skills - Link in with Mark Oldershaw EIT to discuss marketing opportunities!!!

New 'Environmental management' degree may cover some skills e.g. monitoring and data collection... Belinda Slight will be able to elaborate on this.

Long-winded I know but hope this is useful information.

Cheers, Amelia

Dr Amelia McQueen

Lecturer, Facilitator of the Environmental Education Forum

School of Viticulture and Wine Science

Eastern Institute of Technology

J. SPCA

From: Christine Sumner < christine.sumner@spca.nz>

Sent: Friday, 8 November 2019 3:08 PM

To: Rachel Haydon < rachel.haydon@nationalaquarium.co.nz > Cc: 'Katherine Short' < ratherine@terramoana.co.nz >

Subject: RE: Project Shapeshifter

Hi Rachel

Thanks for following up from our meeting on October 30, 2019. As discussed in our meeting, SPCA does not endorse organisations, therefore, we cannot offer a letter of support or acknowledgement. However, we would very much appreciate staying in contact to further discuss your organisation's efforts to improve animal welfare. Your ZAA accreditation is well-received.

As mentioned in our meeting, the following efforts can help improve the welfare of captive animals:

- Identifying welfare 'hotspots' with your facility design and program. This includes close
 encounters between animals and humans. SPCA does not support these types of activities for
 wild animals, including captive ones, therefore, we urge you to reconsider or minimise the
 potential welfare compromise with these types of activities. Any interaction that claims to
 educate or engage the public should be supported with evidence. Equally important is
 evidence that these programs are promoting positive welfare of the animal.
- Focus on the individual experience of the animal. Every animal has their own personality,
 experiences, and interests; therefore meeting their behavioural, physical, and health needs
 will be a unique experience. Staff who work with captive animals may have intimate
 knowledge of the individuals, and should be encouraged to use this to help guide facility and
 program design and subsequent evaluation. Behavioural observations, enrichment, and
 training are key aspects of promoting positive animal welfare (as opposed to avoiding negative
 welfare) for animals in captivity.
- Consistent with an evidence-based approach to improving animal welfare, evaluate facility
 design and programmes (including enrichment and training) to ensure the animal's welfare, in
 particular, their behavioural, physical, and health needs are met; if this is not the case, adjust
 facility of programme to better address animal welfare.

Please let me know how I can be of further assistance and best wishes with the new facility, Christine

K. THL – Tourism Holdings Limited

From: Grant Webster < grant.webster@thlonline.com > Subject: RE: THL advise re the new Napier Aquarium

Date: 30 September 2019 at 6:26:04 AM NZDT To: Dave Bamford < dave@davebamford.co.nz>

Cc: Jo Allison < Jo. Allison@THLONLINE.com>, Travis Donoghue

<Travis.Donoghue@waitomo.com>

Hi Dave,

Thanks for the email, I hope you are well.

I have copied in Jo Allison our COO and Travis Donoghue our GM for Waitomo who would be best to provide thoughts.

My initial comment would be that we need more regional tourism attractions, so it would be positive however driving volume in the short term will be hard, within five years I would think this proposal can get to 300k visitation at around \$65 entry price.

Jo and Travis will have their own views.

Cheers Grant

X-craft

Hi Katherine,

yes, certainly would be a good place to showcase footage from drones and perhaps offer a way to connect the various operators who work in this sector.

I think one issue is that the drone industry already has some well establish professional and quasiprofessional hubs for connectivity already. That is not to say there isn't an opportunity to set up a core hub for wildlife or sea life orientated practitioners.

I can see a very practical use of using drones to do seashore surveys and gather footage and displaying this. Is this the sort of thing you mean?

Unmanned systems of course go well beyond aircraft (drones) and you will know of the multiple unmanned surface and subsurface platforms currently operating, such as the now famous "sail drone" platform which has been making headlines as it circumnavigates around the Antarctic. X-craft has its own sea craft and we will be launching a 6m boat for operations with NIWA acoustic surveys in the first months of next year. There is a lot of interesting stories to be told with these systems too.

Ngã Mihi Philip



M. Sally Carson University of Otago

On 29/11/2019, at 16:34, Sally Carson <sally.carson@otago.ac.nz> wrote:

Hi Katherine - sorry for delay in getting back to you - I have had a quick look at the document and it looks fantastic. I see many areas for collaboration and ways that we could partner to extend projects to raise awareness and understanding of New Zealand's unique environment. I am impressed with your approach to draw organisations together and work collaboratively, and although this creates many challenges... the potential outcomes are far reaching. So from the far south... we will you luck in your funding bit and look forward to working on future projects.

Cheers Sally

SALLY CARSON - DIRECTOR - NEW ZEALAND MARINE STUDIES CENTRE

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Review of

'Measuring the Value Created by Auckland Museum's Moana - Moana - My Ocean: A Social Return on Investment (SROI) Analysis'. This is a technical report (no. 14) by Auckland Council, published in 2014.

For: Tony Craig, Terra Moana Ltd By: Marjan van den Belt, PhD

23 August 2019

Executive summary

This think piece reflects on the role of a Social Return on Investment (SROI) in the context of developing a business case for a national aquarium. Conventional economic tools are discussed in contrast to ecological economics approaches. SROI can be viewed as one tool that extents a Cost Benefit Analysis (CBA) toward social and environmental values by finding proxy monetary values. The distinctions of an SROI are discussed and the SROI methodology allows to appease to more conventional and ecological economic application, depending on HOW it is used. The Living Standards Framework and how a possible national aquarium could be aligned with the Living Standards dashboard is also illustrated as a hypothetical example. In conclusion, a spectrum from vision to conventional highlights different roles and interpretations of a SROI. One does not have to call it a SROI and capture more of less social, cultural and environmental values in other ways.

However, given society's trajectory toward including social and environmental outcomes beyond economic impact, a business or existence case for a nationally significant project should clearly embrace these wellbeing aspects. If SROI is the appropriate tool, is context and audience dependent.

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Background

Tony Graig (Terra Moana Ltd) requested a review of 'Measuring the Value Created by Auckland Museum's Moana - Moana - My Ocean: A Social Return on Investment (SROI) Analysis'. The review would be filtered through a lens of relevance for the National Aquarium Business Case currently under development under leadership of TML. The review is intended as a 'think piece'. Two days of effort are allocated to address the following questions:

- How conventional economic thinking might view or question such a paper?
 Define those views and possible answers to them
- How such a view might align with the Living Standards Framework
 How applying this within the full business case analysis process is justifiable against these standards
- How this sits with the current political trajectory.

How might conventional economic thinking view or question a SROI paper?

For the purpose of this think piece, a divisive approach is taken to explore the differences in underlying worldview and associated tools and terminology; hence the generic 'conventional economist'. It is acknowledged that the differences are often more fluid across a spectrum of perspectives.

Conventional economic thinking tends to focus on specific value propositions for which there is an identifiable monetary exchange. To make comparison between projects possible, Net Present Value (NPV) is calculated. However, many indirect market and non-market or non-monetary impacts are difficult to monetize. Conventional economists have a few solutions to this conundrum.

First, invoke a ceteris paribus clause, which means 'assume all else equal'. This is a mindset to keep the scope manageable and focus on marginal changes. In a stable situation, this clause is more acceptable than in a highly interconnected and rapidly changing world. In complex situations, the conventional economist often adjusts the timeframe for the calculation and places 'everything else' in a narrative.

Secondly, externalities are all positive and negative impacts that a business or economic activity has on third parties. Such externalities are often found in the social and environmental domains. A conventional economist is likely to refer externalities to the public sector to set the container for appropriate behaviour in the market place. Persisting externalities means that a private economic activity is a free rider receiving a societal subsidy. Society is left in a sub-optimal state. In practice, an economic activity ignores externalities at its own and others peril from a systems perspective. Similarly, opportunities arise from expanding or changing the conventional economic perspective.

An Ecological Economics perspective is fundamentally rooted in a biophysical reality of living on a finite planet. It recognises that economic activities have collectively grown to exceed planetary boundaries and the capacity of ecosystems to carry humans are our artefacts. This perspective is also deeply concerned about social/cultural fairness and distribution or resources. Finally, this perspective tends to use a systems approach with the aim to redesign economies, institution and economic agents to align with more desirable socially and ecologically desirable outcomes.

New tools such as Social Return on Investment (SROI) emerge to bridge these perspectives. The remainder of this section discusses some conventional economic tools in relation to the specific SROI. The purpose is to identify similarities or extensions in concept that may be disguised by using different words.

Conventional Economic tools and language in relation to SROI

Conventional economics uses the term *Return on Investment (ROI)* as a measure of how an investment performs in dollar terms. A simple ROI calculated as (Benefits – Costs)/Costs, unless explicitly stated, it does not take into account the time it takes to realise the gains, the risk it is exposed to or the benefits it creates. ROI is primarily used to compare projects. Therefore, a ROI is not necessarily a return in terms of value. Even within a private company a division with a lower ROI compared to the next, can be of higher value to the company.

ROI is but one measure in a family of ratio measure, such as Return on Equity and Return on Assets. In the case of the *Moana - My Ocean*, the executive summary is able to report: "The value created by *Moana - My Ocean* exceeded the investment into the development of the exhibition, such that for every \$1 invested, \$4.66 of social, environmental and economic value was created."

Other tools in the conventional economic tool box that are related to the interface of ROI and SROI are:

Net Present Value (NPV) is closely linked to ROI in capital budgeting. It accounts for the time value of money by using cash flows and a discount rate. It reveals a time preference for pay back of an investment. A high discount rate is equivalent to prioritising early consumption or a short pay-back-period. A lower discount rate respects 'consumption' at a later stage and aligns closer with public sector projects. Ecological Economists often argue for mixed and/or negative discount rates, especially when restoration efforts are considered. My Ocean used a 4% discount rate for its monetized, non-market social impacts.

Cost-Benefit Analysis (CBA) is a process used to analyse a decision. ROI is the ratio calculation based on a CBA. CBA is most accurate and appropriate when used on Short term, discreet, direct, tangible costs and benefits. The cost can be based on historic evidence or quotes. When dealing with complex challenges, the intangible, indirect, long term costs and anticipated benefits are harder. Setting the scope for a CBA may reveal an underlying risk tolerance or risk aversion and worldview. From an Ecological Economics perspective, a CBA is not as objective as it may appear. It depends on what is defined to be in and out of scope (ceteris paribus). Because most systems are interlinked, double counting quickly becomes a

concern and therefore, a system design approach becomes more suitable when decision stakes are high and uncertain.

Cost Effectiveness Analysis (CEA) is an economic outcome-based approach. A particular outcome is envisioned and the least cost pathways are analysed. For example, if a National Aquarium is envisioned for a maximum of \$100 Million dollar. What kind of aquarium or aquaria network in NZ would deliver the biggest impact?

Contingent Valuation (CV) is a survey approach to assess the Willingness to Pay for particular well-defined outcomes. The survey technique is similar to that used in the SROI for the Exhibition albeit aimed at a satisfaction and likelihood that a visit has a lasting social impact.

Value Ranking and Opportunity Cost are additional examples of valuation approaches that are regularly applied in benefit transfers economic contexts. These methods are also serving the SROL

Multiplier effects are generally used in a macro-economic context to illustrate how an intervention may stimulate the demand and/or relevant economic factors. In essence, it is the (Keynesian) economist way of considering indirect effects beyond a particular stimulus. Multiplier effects also apply at a regional level, especially for large projects. Similarly, intangible impacts described in the SROI ripple through time.

Social Return on Investment

Social Return on Investment (SROI) is an outcomes-based measurement tool. It offers a systematic assessment. It helps businesses and organisations to quantify and/or qualify social, environmental and economic values associated with there efforts. SROI is developed from a conventional CBA and Social Accounting. 'An SROI analysis produces a narrative of how an organisation creates and destroys value in the course of making change in the world, and a ratio that states how much social value (in £) is created for every £1 of investment.' NEF Consulting¹. In first instance, SROI goes out of its way to not include direct economic values. It aims to avoid double counting and instead be complementary to economic analysis. This is appropriate when SROI is performed as a snapshot. However, Integrated Accounting, the current gold standard for integrated reporting, merges these fields seamlessly.

Static and dynamic SROI

There are two type of SROI. An evaluative, ex post, SROI is conducted after the event and based on actual outcomes of an intervention that has taken place. These are useful when a project is running and outcomes data is available. When a project is in planning stage an ex ante, forecasted, SROI can be undertaken in the planning stages to assess the anticipated or likely impact and outcomes. A predictive SROI can be followed up when actual data becomes available, to evaluate if the anticipated value was added or not. Both are can be part of a continuous improvement, adaptive management cycle².

https://www.nefconsulting.com/ Accessed on 8 August 2019

² Evaluative and anticipatory SROI used for continuous improvement is akin to Action Research, where the outcome of an intervention is anticipated and described in detail along with the proposed evaluation method. After the intervention, the evaluation method is both duly applied as well as critically assessed for learnings.

Similarly to a financial ROI in a business, SROI has to be viewed in context. Both may be equally useless as a number on their own. When hard numbers is sought, this may be a sign of a particularly corporate-driven worldview, instead of a purpose-driven worldview. Clarifying this difference in worldview may aid the development processes through constructive, creative tension. For example, a conventional ROI is used to compare with other investments, where SROI is more often used to ensure impact of the particular project. Like a traditional CBA, a SROI can be performed behind a desk or as part of a participatory process. As a desk based SROI has the benefit of maintaining control on how the evidence or anticipation is presented. A participatory SROI helps stakeholders understand the social (and environmental) value of the enterprise. SROI strikes a balance between accounting and learning about stakeholder values.

As with all participatory approaches³, a dialogue can help assess the needs, expectations and values of stakeholders. A SROI may help bridge and mediate the language between financial and social objectives among stakeholders. New ways of communicating about impacts or new stakeholders may reveal themselves during the process. It can therefore me used in strategic planning and adaptive management. SROIs can be quality assured by certified by organisations, such as the SROI Network; *Moana - My Ocean* was quality assured in this way.

SROI can be applied with a focus on social impacts and/or environmental impacts. Moana - My Ocean covers social and environmental impact of direct stakeholders. It is important to exert care when SROI includes environmental or ecological impacts. SROIs the environmental aspects are either likely to be underserved or overstated. In My Oceans Exhibit, the Total Value of Environmental impacts is \$1,596,980⁴ or about 18% of the total impact value. This refers to an 'increased public awareness of environmental issues faced by the marine environment, leading to behaviour change that is likely to support improved environmental outcomes.'

The valuation is done by estimating the relative impact of *Moana - My Ocean* on changing visitors' attitudes and behaviours, compared to other environmental awareness-raising campaigns. As a proxy, the survey contained two questions, resulting in 'Moana - My Ocean increased adult visitors' desire to support the creation of marine reserves (32% 'a lot', 41% 'a moderate amount', 21% 'a little bit', and 5% 'not at all')'

Furthermore, the intention and 'likelihood of picking up rubbish on beaches, or in town to prevent rubbish going down drains and out to sea (35% 'a lot', 33% 'a moderate amount', 24% 'a little bit', and 8% 'not at all').' These results where the basis for the expert to rate the environmental impact 10x the cost of the PR effort for the Hauraki Gulf.

A Public Relations (PR) effort to raise awareness of the Hauraki Gulf had recently costed \$199,000. The expert involved in that PR effort was given the collated data from the survey (72,000 adults). The expert rated the impact of the Exhibit 10 times larger than the impact

Other examples of participatory processes are Participatory Rural Appraisal/ Participatory Learning for Action, Mediated Modelling, Social Learning, Outcome Mapping, Developmental Evaluation.

⁴ It is unclear why the Total Value is \$1.9 Million in Appendix H and \$1.5 Million in the summary table. I wonder if the NPV calculation is inserted here. An alternative explanation could be that, as stated, the actual behaviour change can not be verified against the intentions. Therefore, the Total Value is assumed the same as the Net Present Value.

of the PR campaign. Hence, the cost of the PR campaign was multiplied by 10 as a proxy for additional perceived intangible value generated by *Moana - My Ocean*. A source of critique could be that the environmental value is highly sensitive to the opinion of one expert. However, if a region is attuned to the overall social and environmental impact it wishes to generate, multiple comparable might be established over time. Alternatively, the impact of the educational component of the National Aquarium proposal will presumably be set up with a strong impact projection and outcome monitoring. The National Aquarium proposal could also learn from the 'room for improvement section' of My Oceans Exhibit. Practical engagement is suggested to give form to environmental engagement.

Conventional economic views and possible answers to the My Ocean SROI

Table 1 summarizes hypothetical views and possible answers

Conventional economics view	Possible answers from SROI perspective
SROI has no relevance for an economic evaluation, because there is no market for those values.	SROI are equivalent relevant values with an approximation of monetary values that are often used in the economic tool box, such
	as Contingent valuation, Benefit transfer methods are common practice.
SROI doesn't allow me to compare investments.	True. Neither would you use ROI as the only ratio to compare investments. SROI is best used for specific investment.
SROI seems an arbitrary methodology.	Failure to perform due diligence on the soft assets of an investment always come at the peril of the investor, for which there are no failsafe approaches either. The more you do it, the better you get at it.
SROI can be helpful in revealing externalities and blind spots	Correct.
The discount rate of 4% is too low.	This reveal a time preference and worldview. If the public project is to compete with commercial investments, it can be regarded as too low. If the public project is aligned with systemic changes, transitioning and restoration of damaged ecosystems, it may be too low.

A reflection from **Regan Solomon**, manager who signed of the Moana SROI for Auckland Council, observed that there isn't much difference with a CBA. A SROI may add a layer of benefits that are outside the CBA, if a CBA chooses to include much of the benefits. He observed that one may have CBA's that include social, cultural and environment costs/ benefits which might also be collaborative etc... SROI is more explicit about the collaboration but also focus on the 3 well beings. Maybe too the SROI states and counts the social outcomes themselves whereas a CBA includes a monetized social view.

In summary, the Moana - My Ocean is an example of and ex post evaluation of social impact, translated into dollars. It is careful to not use traditional economic/profit indicators, such as (tickets sold x visitors) for the exhibition. The SROI deliberately extends to social and environmental impacts that are outside the market and yet influence. Indeed, a for-purpose organization has a wealth of information and opportunity for continuous improvement to glean from a SROI. It's likely an essential tool for continuous improvement and understanding of the audience and context in which the organization aims to also stay economically viable.

How such a (SROI) view might align with the Living Standards Framework

It is increasingly recognized that economic indicators alone are not a viable foundation for the wellbeing of a society, a business, a country or the world for that matter. Wellbeing generally depends on a complex set of characteristics in four broad domains. These domains are broadly social/cultural, environmental/ecological and economic in nature. Ecological Economics historically distinguished natural, social, human and man-made capital. As the four capitals are used in specific applications, they have changed. Around 2010, NZ Treasury launched the Living Standards Framework (LSF) to help craft more impactful, cohesive policies, rules and regulations for the outcome of wellbeing. It chose natural, social, human and built&financial capital⁵ as its primary domains. Fragmentation between those domains can easily lead to policies, rules and regulations that are counter-productive or leading to unintended consequences.

The LSF is useful in addressing the social, natural, human and built capital domains at a national scale. However, while a step in the right direction, the worldview currently applied in the LFS remains one of weak sustainability, where there the capitals co-exist side by side without a methodology to interlink the domains. This is evident from Figure 1. On the left is the Ecological Economics representation of the four capitals. The current LSF is presented as inter-woven capitals. This is an upgrade from the original LSF where the capitals were

S Many Ecological Economists consider Financial Capital as a Human Capital. In this view, the financial system is a human institution. While associated with built or man-made capital as a facilitator thereof, there is a risk that financial capital is confused with productivity.

presented side by side. However, the He Ara Waiora workstream in the Tax Working Group (2018) within Treasury took their cues from Ecological Economics perspective and instead presented social, human and financial/built capital as a sub-set of natural capital. This reflects a worldview of strong sustainability, recognizing that the natural capital is the foundation within which the other capitals need to be embedded. In this view, there is a limit in the substitutability of built/financial and human capital (e.g. technology) for natural capital. Tikanga values are integrated on the right in the figure.

Figure 1 Worldview and LSF



Source: van den Belt, 1 August 2018 presented at EDS Conference 'Green light or light green?'

From the LSF as a philosophical framework, Treasury has recently developed a Living Standards dashboard. A raft of indicators in the domains of social, natural, human and financial&built capital have been presented. It seems to be important that the indicators are comparable to OECD averages. Several indicators seem far fetched as representations for the capitals, but it is a start. There does not seem to be a capacity to systemically interlink the chosen indicators. The LSF continues to signal that social, human and environmental values are on par with economic values.

SROI highlights social (including educational) and environmental impacts. Following is a rough attempt to map the five categories of SROI of *Moana - My Ocean* to the LS Dashbord (Table 2). A blank space indicated that the LSF indicator is not relevant, uncertainty of the reviewer (because she has not been to the Exhibition) or nothing comes to mind as a relevant future opportunity. The possible relevance of this comparison for a National Aquarium proposal is 'just a thought', in an attempt to align, extend and bridge toward the LSF through a possible SROI effort. This potential has better chance of realization if some form of a SROI is used as an integrated management tool, instead of a snap shot.

Table 2: LSF Dashbord, SROI and potential for alignment

Living Standards Dashboard	My Oceans Exhibit SROI	Potential relevance that a	ĺ
		future National Aquarium	l

		could add to the LS
		Dashboard
Natural Capital	Environmental impact	Environmental and Eco system Impact
Biodiversity and Genetic		Unclear if this includes
resources (threatened		marine biodiversity
species)		-
Forest and soil biomass		Carbon sequestration of the
(carbon sequestration)		ocean
Safe drinking water (access)		Expand the narrow
		definition to safe water
		from mountains to the sea
Natural hazards regulation		Expand to ecosystem
(wetlands)		approach from wetlands to
		include, beach/dunes,
		mangroves, salt marshes,
		seagrass
Sustainable food production		Marine based food sources
(soil tests)		
Social Capital	Social impact	Social and Cultural impact
Discrimination	Maori and Pacifica were	Indigenous connection and
	underrepresented in the	storytelling
	visitors	
Perceived corruption		fairness
Sense of belonging	Main contribution	Extend to practical
		engagement and synthesis
Trust in each other		Overcoming and
		perseverance in a changing
		environment
Trust in government		Help improve the LSF
		indicators 😉
Human Capital	Social/Education impact	Better institutions for a
		regenerative economy
Cognitive skills		Relationship with nature
Education	Main contribution	Main contribution and
		extend
Life expectancy		Health nature, healthy
*		people
Non-communicative		Process desired
deceases		
Financial and built Capital	Deliberately excluded from SROI	Integrated reporting
Household Net Worth	Visitor profile?	Visitor profile?
Multi factor productivity		Net primary production
		related to economic
		productivity – a ratio?

Net intangible fixed assets	A national aquarium would
Net international	likely be included Attract regenerative
investment position	investment propositions?
Total Crown Net Worth (%of GDP) ⁶	A national aquarium would likely be included
Total Net fixed assets per capita	Share value of every NZ-er in the EEZ as national capital.

LSF remains a contentious framework and policy tool, given its recent review. It is arguably a step in the right direction but continues to miss the mark and the big opportunity in more than one way. All change to overcome engrained systemic dysfunctionality takes time. Clearly, there are also perspectives that have no time for the LSF.

Side note: While not requested, it should also be noted that an alignment exercise of relevance, value and impact could be extended to Aotearoa Indicators (AI). AI is produced and maintained by Statistics NZ. The purpose is different from the LSF and alignment among the indicator sets in different departments is not always clear. Furthermore, the United Nations Sustainable Development Goals are a forward set of voluntary goals and targets. This work is maintained by MFAT. What these indicator frameworks have in common is that Marine natural capital is wholly underrepresented in the application of all relevant frameworks in NZ. A National Aquarium could possibly contribute to more capacity and/or effort going toward marine indicators and socialization thereof.

Applying the LSF within the full business case analysis process

It should be clear from the previous discussion that coming to a specific number for a SROI is indicative, but missing the overall point of a SROI. The exact numbers of an SROI can always be questioned, as they equally can be questioned with any conventional economic tool. 'The point of SROI calculation isn't necessarily to justify capital investment, it's to understand value creation through capital allocation.", says Jed Emerson⁷.

Similarly, the LSF is useful in addressing the social, natural, human and built capital domains at a national scale.

While this isn't the place to review the LSF, a successful National Aquarium would have two opportunities. First, to demonstrate the pathways of how this national asset improves the indicators in the LS dashboard. Secondly, over time it could in return be helpful in improving the LFS and the associated dashboard.

⁶ Total Crown Net Worth (%of GDP) Mining etc resources seem to be valued here, rather than under natural capital, despite the definition of natural capital.

⁷ https://www.sopact.com/perspectives/social-return-on-investment-calculation accessed on 10 August 2019

How this sits with the current political trajectory.

Wellbeing is increasingly becoming the focus of this government. This year the Ardern-led Labour Coalition government released its first 'wellbeing budget'. New Zealand drew international attention for this move. The highlights of this budget are clearly aimed at improvement of social (e.g. supporting Maori and Pasifika aspirations), human (e.g. mental health, innovation, vocational training and apprenticeships) and natural capital (e.g. climate, sustainable land use and freshwater). Investment in financial and built capital (e.g. start-up capital) is geared toward a transformation of the economy. The capital investment in hospitals can be allocated both to built capital, as well as human capital.

There seems to be an alignment between the wellbeing budget and the LSF at a conceptual level and in intent. However, there is a weak link between the wellbeing budget and the LSF dashboard. A slightly better alignment between the wellbeing budget and Aotearoa Indicators is likely found. Unfortunately, alignment for any business case should probably still be found in policies, rules, regulation, roadmaps (environment and biodiversity), funding sources (e.g. provincial growth fund) and the evolving research strategies (e.g. MBIE). In the absence of a clear and generally accepted outcome framework, national infrastructure development remains at the whims of who-is-who.

Gross Domestic Product (GDP) and the growth thereof are still the fallback position under the wellbeing veneer. In this transitioning period, the task of any value proposition has to be dual. It has to appease the conventional economist that there is no negative financial result. In addition, there also has to be an increasing substantiation of the intangible values. The LSF does not yet provide this backbone. The He Ara Waiora view of the LSF is not accepted as mainstream. This seems to be a shortcoming in using the LSF for the National Aquarium project, which does seem to hold Maori values high.

However, while acknowledging the shortcomings, ANY application to Treasury should include a positive reference to the LFS. An effort to align with the LSF – at least in principle and in concept - will be unlikely sway a decision regarding a business case. However, the absence of such an attempt would be noticed.

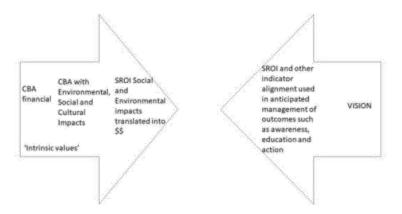
Does a SROI justify/compensate for an economic loss? Such a situation would put the SROI under intense scrutiny and every single step and decision in the SROI is likely to be validated. The reviewed *Moana – My Ocean* SROI report can not be directly transposed to the National Aquarium business case. However, it can be solidly argued that positive intangible values have a monetary equivalent to several stakeholders. The exact amount is open for discussion. This discussion is not relevant until the business case undertakes its own forward looking SROI or a retrospective SROI at a later time. Most benefit is likely to be derived when SROI (working toward integrated reporting) becomes an integral aspect of how the prospective aquarium has an outward influence and impact as well as state of the art internal, adaptive management practices. If successful, a National Aquarium may instead inspire the capacity building behind a more useful LSF.

Conclusion

A business case for an aquarium might be better referred to as 'an existence case'. The first question is if there is a cohesive shared vision for bringing a national aquarium into existance. What potential would be unlocked in terms of awareness raising, education and a platform for positive change in our relationship with the ocean? It has to start with vision, because a public good like an aquarium (similar to Te Papa) are seldom money generating business propositions. However, the more benefits are demonstrated, the more sponsorship is likely to be attracted, until the value proposition is deemed viable and gives people with hands on purses sufficient confidence for funding to flow.

A vision that resonates is critical. Furthermore, confidence needs to be developed in the governance of the process of building (CAPEX) and operating (OPEX). Between these extremes is a grey area. Figure 2 represents the tension between vision and the financial reality of who pays for it.

Figure 2 from business case to existence case



A very conventional economist could want a CBA and broadly refer to any non-financial values as 'intrinsic values', appreciating that people who might never visit the aquarium could still appreciate that it exists. The focus is on CAPEX and OPEX of the project.

A less conventional economist would be open to extending the CBA with a narrative of social, cultural and environmental values, either with a narrative of potential measurable outcomes.

The role of the SROI can be assumed absorbed in an extended CBA or be performed separately to enhance the social and environmental benefits, by finding comparable proxies to express such benefits in monetary terms. An Ecological Economist is more likely to start and appreciate the importance of a vision that brings together a variety of people behind a common cause. A CBA is one (and not the first) part of the trajectory toward bringing it into existence. SROI and other indicator can be back casted from this vision. What are the outcomes we would want to measure (similar to SROI) to help us manage the outfit for expanding benefits? For example, table 2 shows a potential alignment between an envisioned national aquarium and the its contribution to the Living Standards Dashboard.

The context will determine where on the spectrum from financial CBA to vision the business or existence case should be made. Most likely, it straddles the spectrum as multiple stakeholders and possible funders are involved. Such is more an art (and political) than a science, even though conventional economists might claim otherwise.

Napier's Aquarium 1957–2017



Michael Fowler

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Also by Michael Fowler:

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Dedicated to the memories of Les Mills, whose idea started it all, and Gordon Dine (1927–2015), the aquarium's first curator.

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Les Mills Credit: Ian Mills

Chapter 1: Enthusiastic amateurs 1957

Louis Hay and Stanley Natusch were appointed as honorary architects to the Napier Reconstruction Committee to rebuild Napier after the 1931 Hawke's Bay earthquake. They noted, in 1933, an area of land which was "a triangular block, bounded by the [Marine] Parade, Herschell Street and Browning Street". Within this area, Hay and Natusch proposed an aquarium.¹

Napier architect E A Williams (1875–1962) and his son Laurie, also expressed an interest in establishing an aquarium in Napier in the 1930s.²

However, nothing would come of these plans.

Les Mills' shop fish tanks and a doctor's tropical fish book

Shoe retailer Les Mills had moved his Napier store in late 1954 from Emerson Street to Hastings Street, underneath the Masonic Hotel building.³

His son Ian explained:

Dad, right from the word go, wanted to have a fish tank in the children's shoe department. The fish tank was 3 feet by 18 inches high by 18 inches wide [91cm by 46cm by 46cm] and was full of goldfish.⁴

This tank of goldfish proved to be most popular. A year after its installation, a customer, Mrs Russell, remarked to Les Mills: "You don't want goldfish in that tank, you want tropical fish." Her husband, Dr Russell, had a book on tropical fish and she offered to bring it into the store the next day — which she did. The book was William T Innes's Exotic Aquarium Fishes and it is still in the aquarium's collection.

Father and son studied the book, and Les instructed Ian: "You'd better go down to Wellington and get some of these fish." Les then handed Ian £20 (2018: \$1,000), which in those days was a substantial amount of money.

While Ian caught the railcar to Wellington to purchase tropical fish from three contacts he had been given, his father cleaned out the goldfish tank and installed water heating.

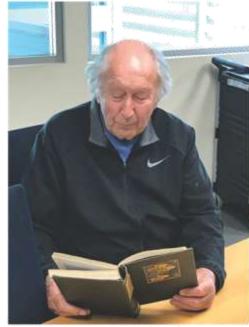
The tropical fish tank in the shoe store would become an object of curiosity and fascination to customers and the owners would talk "nothing but fish to customers".

"Right Ho! Les, here is £500 — you put an aquarium there"

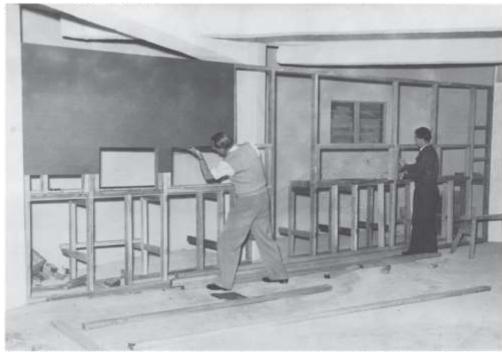
Les Mills was a member of the Thirty Thousand Club (Club), a service club in Napier, which was founded in 1912.

At a Club meeting in early 1957, Les mentioned that the basement of the War Memorial Hall, which was being built on Marine Parade, would make an excellent location for a public aquarium. ¹⁰ President Fred Browne agreed: "Right Ho! Les, here is £500 — you put an aquarium there." ¹¹





Ian Mills at the National Aquarium of New Zealand in July 2018, perusing the book that started it all, William T Innes's Exotic Aquarium Fishes. Credit: Michael Fowler



Russ Spiller and Ian Mills prepare the timber framing for the tanks in the War Memorial Hall basement. Gredit: Barbara Dine Collection

A Club deputation approached Napier City Council about the possibility of an aquarium in mid-February 1957. Mayor Peter Tait said their proposal would be given "full consideration".¹²

A letter sent on 19 February 1957 by Club Secretary J V Wallis, to Napier City Council Town Clerk L P (Pat) Ryan, confirmed the Club was interested in establishing a public aquarium in the basement of the War Memorial Hall. The Club would offer £500 (2018: \$24,800) towards the cost.¹³

The Council's Finance Committee met with the Club on 26 February 1957, with the Club's intention stated to create an aquarium with tropical fish and "unusual specimens" provided by local fishermen.¹⁴

Gathering support...

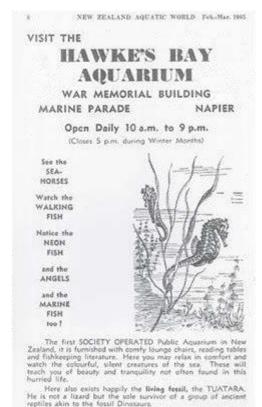
An advert was placed in *The Daily Telegraph* and the *Hawke's Bay Herald-Tribune* for 1 and 2 April 1957, to establish interest in the proposed War Memorial Hall aquarium. The advert (as shown) requested people to "Please roll up!" to the Thirty Thousand Club rooms in Market Street, Napier on 3 April at 8pm.

Directly above this notice was another, addressing members of The Hawke's Bay Aquarium and Water Garden Society Inc. (Society) to meet at the same time and place to discuss the reorganisation of the Society, which had gone into recess in 1953, 13 and to "meet a group of citizens interested in the organisation of the proposed aquarium. News and views of existing proposals." 16

At the meeting, Les Mills, addressed the 11 members of the Society in attendance. For reasons of privacy, he suggested the members go to an adjoining room and discuss if they wanted to disband their organisation or continue but with a complete reorganisation. They didn't take long to decide that they wanted to join the other 16 people in attendance to reform the Society, through which they would pursue an aquarium in the War Memorial Hall basement.

New officers were elected for the Society, including Fred Browne of the Club as President¹⁸ and Les Mills as Chairman.¹⁹ Gordon Dine, a Society member who would become the first curator of the aquarium, was also voted on to the committee.²⁰





There are no profits, your admissions are used for operating mass and to continually obtain better displays.

A leaky start

At the opening of the War Memorial Hall on 14 July 1957, Ian Mills, Tony Dennis, Jack Dallimore and Gordon Dine had arranged three three-foot long (900mm) fish tanks in the foyer. Fish tanks of that era consisted of iron frames, glass sides and putty holding them all together. Unfortunately, two of the hastily constructed tanks leaked and the volume of water flooded the downstairs ladies' toilet. 22

On 24 July 1957, Society Chairman Les Mills wrote to the Council for permission to use part of the War Memorial Hall basement for an aquarium. This area contained a kitchen and supper room. ²³

Mayor Peter Tait and two Councillors (the Aquarium Sub-committee), met members of the Society on 8 August and discussed an agreement to operate the aquarium.

The Council would give permission for the aquarium to go ahead in the basement, and would receive the £500 grant from the Club and own the equipment, but the Society would manage and control it. Admission charges would set at sixpence for children (\$1.20) and one shilling and sixpence for adults (\$3.60). The Society would handle the money and pay maintenance and other costs. Any surplus went to the Council each year, but would be used to expand the aquarium. Electricity would be free of charge to the Society.

The Society was not allowed to admit the public to the basement when it was required by any hirer of the building.²⁴ The Society did not agree with having to share the basement with hirers. The Council responded by advising "that the basement would not be let more than necessary".²³ However, the hiring of the basement area to other groups would be an ongoing source of frustration for both the Council and Society.

Ian Mills, Russell Spiller, Jack Dallimore and W P Macmillan began constructing the fish tanks for the basement aquarium under the guidance of Gordon Dine, who was a joiner at F & R Smith. Many Napier firms helped with materials and professional services, including plumbing, electrical and timber supply companies.²⁶

In less than a year since the idea was first proposed, Napier would have its aquarium.

Chapter 2:

Napier's first public aquarium 1957–1963

Opening

Napier Mayor Peter Tait, Les Mills, Chairman of the Hawke's Bay Aquarium and Water Garden Society (Inc.) (Society), Fred Browne of The Thirty Thousand Club, and Napier Member of Parliament J G Edwards were the dignitaries at the opening of the aquarium in the basement of the War Memorial Hall on 14 December 1957.

Twenty glass panels of varying sizes were laid out in the basement, with the water temperatures for the colourful tropical fish controlled by "the latest heating devices". A variety of fish were chosen, ranging from "large, black and unhandsome lizard types to graceful, highly coloured, tropical species".²

When Mayor Peter Tait declared the aquarium open, he said "The way cities obtained tradition and expansion was by citizens volunteering to work for the good of the community and expecting no monetary reward." He prophetically said the War Memorial Hall basement aquarium would likely be outgrown, 3 but his prediction that the Society would have their own premises in five or ten years' time was overly optimistic. 4

Mayor Tait, who initially had reservations about a public aquarium, had said to Gordon Dine and Ian Mills: "Who would pay a shilling or sixpence to see fish in a glass jar?" He would, however, prove in future years to be a strong advocate for the aquarium. Napier City Council Town Clerk Pat Ryan, and City Treasurer Bill Cormack, would also be avid supporters. Ian Mills stated in 2018 that without the help of all these men, he believed the aquarium in its present form would not exist today.³



Peter Tait Credit: Michael Fowler Collection

Three days after the aquarium opened, Honorary Secretary of the Society Frank Logan, who had taken over from Colin Manson in October 1957,6 said in a letter to Pat Ryan that 1,200 people had been to see the aquarium and £50 (2018: \$2,415) was taken in admissions.7 Frank requested that Napier City Council put in lights to the main aquarium entrance and install a Zip water heater for sterilising aquarium equipment,8 which they did.

In the first month of opening, there was an average paid attendance of 1,529 people per day. Queues at times formed outside the door, and on Boxing Day, 3,700 people visited. Other attractions on Marine Parade, such as the new boating lake and Mardi Gras festival were seen to have benefitted from people visiting the aquarium.⁹

The man in charge

Gordon Dine, who had supervised construction of the fish tanks and been behind the aquarium project from the beginning, turned to Ian Mills when they were locking up the aquarium basement in December 1957, asking "Who is going to run this place?"

Ian replied: "I don't know who is going to do it after hours in a haphazard type arrangement." "I'd like to," said Gordon. "Don't be a bloody fool, you have a good job as a foreman joiner," said Ian. 10

But his heart was with the aquarium, so Gordon resigned to become curator when the Society offered him the job at a salary of £900 (\$43,500) per annum. He would start paid employment on 1 February 1958.

When Gordon handed his resignation to F & R Smith, his boss told him to "leave your tools here, you'll be back in a couple of weeks". Around 1967 he reflected on his decision: "I gave up my job as a foreman-joiner and took the gamble. Little did I think it would build up to what it is today." ¹²

As a boy Gordon was taken by his uncle to an aquarist's home in Hastings, "and I became fascinated with the fish in the dozen or so ponds around the house. I arrived home with a couple ... and that's how it all started."

Gordon was a self-taught aquarist, but received help early on from others who had expertise, such as Arthur Twigg, a manual telephone operator in Palmerston North, who had tropical



The aquarium's first curator, Gordon Dine. Credit: Daily Telegraph Negatives VISOTVI-4539 JPG (Image (Electronic))

fish knowledge. ¹³ Gordon would also pore over books, attend conferences and travel overseas on study trips. ¹⁴

Around the time Les and Ian Mills put tropical fish in their store, Gordon had tropical fish at home in Napier.¹⁵

A return to his old job as a joiner never occurred, as Gordon would be Aquarium Curator for 30 years, retiring in 1987.

An instant success

Frank Logan wrote to Pat Ryan to inform him that by 18 February over 34,000 people had seen the aquarium since its opening on 14 December. He would communicate tirelessly with the Council over many years, petitioning for improvements to the aquarium, finding a receptive ear in Town Clerk Pat Ryan and Mayor Peter Tait, and a mostly supportive Council.

Both Mayor Tait and Pat Ryan were in regular contact with Aquarium Curator Gordon Dine to monitor its progress.

Pat Ryan, whose Council office in those days was on the corner of Marine Parade and Tennyson Street, regularly visited the aquarium. Gordon recalled the town clerk popping in most mornings while eating a stick of celery and saying a brief "hello" before going back to work. 17

Early aquarium exhibits and a large tank

Publicity Officer for the Society, Mrs E J Logan (Frank's wife), described the aquarium in an article for Aquatic World appearing in March 1958: "Swimming away in many various sized tanks are tropical and cold-water fishes, Axolotls (Mexican walking fish), seahorses, octopus, and numerous salt water fish and anemones." She also noted that local fishermen, as they had promised, were assisting in supplying fish. The Thirty Thousand Club, who she described as the Society's "Fairy Godmother", provided 12 lounge chairs. ¹⁵

Realising that repeat visits would ensure the long-term success of the aquarium, the Society wanted to install two or three large marine tanks that would enable them to "provide an everchanging display". 19

Losses of fish were occurring, as the tanks — which required continual aeration — were not getting enough compressed air. Two one-eighth inch diameter plastic tubes which connected to a small aerator pump were proving to be unreliable, and the pump had recently stopped in the dead of night. The Society wished to use the War Memorial Hall's sewerage compressor by connecting an air pipe line downstairs to the aquarium. These requests, as well as fixing a roof drainage pipe and broken windows, and creating a comfortable room for the door attendant, were granted by the Council, but the large marine tanks required further discussion. The second content is the second content of the door attendant, were granted by the Council, but the large marine tanks required further discussion.

Frank Logan outlined the fears of the Society for the aquarium when corresponding to Pat Ryan in March 1958: "The present exhibition of small cold water and tropical fish, cannot for long hold the interest of local residents."

He outlined arrangements made with overseas pilots to fly fish from the Great Barrier Reef and local fisherman to supply them if larger marine tanks could be accommodated. The Society understood they were allowed additional space of 44 feet (13m) and cited where this had been promised by the Council. The Council, however, did not agree with the Society's interpretation and felt there was a misunderstanding about the extra space.²²

After the Council Publicity Officer, Jock Stevenson, and the War Memorial Hall caterer calculated that increasing the aquarium size would not adversely affect the basement's supper room, the Society was given permission in June 1958 to install a large marine tank.²⁵ Pat Ryan wrote to Frank Logan confirming this, but also stated: "There will be no further allocation of space to your Society, and when the basement is required by virtue of engagements of the hall, your society shall remove all show cases, furniture and other equipment to the area allocated to you."²⁴

Sad news, success and hard work

The Society's annual report for the first period of trading in September 1958 began with the sad news that Chairman Les Mills had passed away after a brief illness in October 1958. His original idea to create an aquarium in the basement had met with success, and fortunately he was able to witness that before he passed away.

Society President Fred Browne stated in the annual report that the smaller basement aquarium was established to create public interest to stimulate demand for a larger one. The Society's mission was now clear: "... to provide an aquarium building specially designed and equipped to enable an attractive and up-to-date Hawke's Bay aquarium to be established in Napier".

Fred reported 72,000 people had visited the aquarium since the opening, and as a result the finances were healthy indeed. The Society, which had started less than a year before, now had assets of £2,165 (\$99,000). This most famous visitor came in November 1958: Prime Minister Walter Nash, , together with some members of his Cabinet.

Curator Gordon Dine was kept very busy, working up to 60 hours per week. Catching food to feed the animals was quite a task and he donned waist-high waders to do this four days a week. There was a live food supply of crustaceans from the brackish water (saline water, where fresh water mixes with seawater) in the drains bordering the airport, and these could survive for up to two weeks in holding tanks.²⁷ Most of the catch was deep frozen, but some were kept alive for immediate consumption. Also popular on the menu at the aquarium was daphnia — commonly known as the waterflea. Ten pounds (4.5kg) of water fleas provided 15 days of food. Waterfleas were eventually imported from the United States.²⁶

Other people were required to operate the busy aquarium, and in addition to Gordon, there were a few paid door attendants, and many volunteers — including Gordon's retired father Bill Dine, who was there on Sundays and was known as the "shark on the door". He volunteered until 1976, "retiring" the day before the concrete was poured for the new aquarium building.²⁹

Tanks extension, growing pains, a new home wanted

The aquarium ran at times by the "seat of its pants". Gordon had secured some tropical fish from Fiji, but the cargo had not made the connecting flight to Napier. Ian Mills received a surprise visit at his shoe store from Gordon, saying "we are driving to Auckland now to pick up the fish". There was only a short stop at Auckland Airport for a cup of tea before they drove back.³⁰

In September 1958, Frank Logan wrote to the Council asking that a bequest given to Council be put towards the development of a purpose-built aquarium in Napier and a penguin colony. No action, however, was taken on this — but talk of a separate building would continue for some time.

When the aquarium first opened in December 1957, the Council had paid for electricity, but that arrangement would end after one year. The Society requested in October 1958 that the Council continue to pay for the electricity, but the answer was not what they wanted to hear. The Council said they would review this after receiving the Society's financial results. In the interim, Council offered the city electrical engineer to assist in reduction of consumption due to "the abnormally high use of power". 33

The Society made a profit of £1,333 (\$61,000),33 and the Council refused to pay for electricity the next year.

A large marine tank measuring 14 feet long, 6 feet high and 5 feet wide (4.2m by 1.8m by 1.5m) was approved for installation in June 1958 by Council and began operating in late January 1959. It was funded out of the Society's profits. This tank would be shifted to the purpose-built aquarium building in 1976.

Ian Mills caught two large jellyfish at Westshore and put them in the large marine tank. Both of these managed to plug the tank's two outlet holes, causing an overflow which flooded the basement floor. Gordon Dine, who was in the Napier Municipal Theatre audience at the time, was requested from the stage to urgently go to the aquarium to help.³⁴

Ongoing difficulties were being experienced by the Society with hirers of the War Memorial Hall basement supper room. This boiled over in February 1959 when the Society mentioned difficulties in a letter to Council as follows.³⁰

When the supper room was required the aquarium had to close — and door takings were suffering. Hirers would often set up the supper room with tables and chairs during the aquarium's opening hours. Visitors coming to the entrance and seeing them would not enter.

There was a potential loss of revenue when those attending functions at the basement supper room could view the aquarium exhibits for free.

The lighting in the basement was poor, and the Society had purchased additional lighting. They were being criticised for not allowing these lights to be used for functions.

When both the basement and ballroom on the floor above were hired, the caretaker cleaned the basement last, which meant the Society normally had to clean up the area before opening the aquarium in the morning.

Damage was occurring to the Society's furniture, and a recent vandalism act meant air supply from the compressor was cut off to the tanks, leading to losses of fish. Liquor was poured into the seahorse tank, and "it took a whole day's attention to save these attractive little creatures". (Curator Gordon Dine had noticed the seahorses acting strangely the next morning. A patron had tipped alcohol into the tank, making the seahorses, well, rather tipsy. 36)

Shop items, such as postcards and books, had been taken and used when the Society did not have enough notice to put them away beyond reach when the basement was hired out.

The front door of the aquarium had been left open following evening functions, and heavy smoking was leaving a film of tobacco on the surface of the tanks.³⁷

Secretary Frank Logan wrote to Pat Ryan that they were not complaining, "as we realise that in dealing with a mixed public such happenings must be expected". 36

Frank did offer some suggestions to alleviate the problems, such as rubber stamping the supper room booking slips with: "The use of the basement is subject to the rights of the Aquarium Society and hirers must arrange directly with the Aquarium curator any matters which may affect the aquarium operations and pay any additional charges required." This, it appears, did not occur. Mr W Atherfold had designed and made some partition screens to close off the aquarium from the supper room, which Gordon painted.

Gordon would remove these for a fee for hirers of the basement.

The basement of the basement of the basement.

The Council, however, was "concerned about the position at the War Memorial" and sought a meeting to discuss establishing a new site for the aquarium.⁴¹

Despite the frustrations of the basement aquarium it was a success and the Society welcomed its 100,000th visitor on 22 March 1959, Mr J McNamara of Wellington. 22

A salt water well

When curator Gordon Dine needed fresh salt water for the aquarium tanks, he rowed out beyond the breakers in a flat-bottomed punt to anchor a hose to draw sea water. In rough weather it was impossible for Gordon to put a hose out to sea. A better solution was needed, and others, including Ian Mills, felt the current method was putting Gordon at risk.

The solution was an idea from Society member Russ Spiller to sink a concrete pipe 4 feet in diameter and 20 feet long into the foreshore near the high tide mark and connect this to a plastic pipe under the shingle to the aquarium. The Council agreed to this in late 1959, but it wasn't completed until August 1962.

Gavin Black arranged for the concrete sump to be made by Hume's in Hastings. It was about 6m high, with slots in the side and no bottom to it. A lid on top prevented shingle from blocking the sea water entry points. It was sunk beneath the shingle at the high tide mark, with the idea that salt water entered the sump either through the bottom or the slots. Russ Spiller convinced the Society that as long as the pipe was above the papa or rock layer, the sea water would not be mixed with freshwater. A pump at the bottom of the well pushed the salt water to the aquarium through a pipe. The well pump would fail periodically and they would have to lower electrician Roy Mills into the sump to repair it.

However, rough seas would push the sump lid off and shingle would go into the well, blocking it. Ian Mills and Gordon Dine would often be in their underpants in freezing weather bucketing out the shingle. 49 Once the Napier Fire Brigade assisted by pumping out shingle using a Cooper Climax car engine — which did the work in 20 minutes. 30

Before the present-day shingle build up on Marine Parade foreshore, unusually heavy seas would on occasion flow into the War Memorial Hall basement.⁵¹ Gordon Dine would put sandbags outside the aquarium door to prevent this.⁵²



Aquarium Curator Gordon Dine would be a familiar sight in his underpants in connection with the salt water sump on the Marine Parade foreshore. On this occasion it was installing it, on others clearing shingle out of it in rough seas.

Credit: Barbara Dine Collection

The Society outlined in October 1959 their ideas about an aquarium building. A building footprint of 100 feet by 156 feet (47.5m by 30.5m) would contain a large foyer with an office, an attractive set-up of water lilies, tropical ferns and the like, a display of tropical and coldwater fish divided between fresh and saltwater specimens, an attractive penguin colony, with a large seal or shark pool alongside, a limited display of amphibian and land reptiles, and a laboratory and research quarters. The location they thought best would be just north of the War Memorial Hall.²⁰

The second year of the Society's financial results were not as good as the first year. Their surplus was £458 (\$20,000) — down from £1,333 (\$61,000). An approach was again made to the Council to pay the electricity costs — which had amounted to £386 (\$17,500) in the second financial year. With the novelty factor of the aquarium waning, takings were down and other sources of income were being developed. The Society wanted to cap the annual electricity account payable to the Council's municipal electricity department at £100 (\$4,500) per year — but the Council wasn't interested. The city electrical engineer had inspected the aquarium and said the Society could save 50% of their power account if they followed his suggestions.⁵⁴

It appeared all the problems with the War Memorial Hall basement aquarium would soon disappear. A planned redevelopment of Marine Parade was held up while the Council decided upon a site for an aquarium. ⁵⁵

The concept of an aquarium building was approved by the Council in May 1960.⁵⁶
Discussions were being held with the curators of the Van Kleef Aquarium in Singapore and Waikiki Aquarium, Hawaii as to the best design for a purpose-built aquarium.⁵⁷

However, celebrations would be premature, as this would be the first of many false starts for an aquarium building over the next 13 years.

The Society, through Frank Logan, outlined in July 1960, as they had in 1959, in great detail to the Council what they wanted to see in a new aquarium. As well as fish tanks the complex should include kiwis, koala bears, seals, a shark pool, a penguin pool, and a dolphin and porpoises pool. They wanted this site as close as possible to the outdoor skating rink, which was near the Soundshell. ⁵⁵ What was described by the Society was, in effect, a combined aquarium and marineland.

An article appeared in *The Daily Telegraph* in July 1960 stating the aquarium was hoped to be attached to a new Napier civic administration block. Fin May 1960, the Napier City Council had purchased a site on Hastings Street.

A few days after this article, the Society wrote to the Council wanting "a concrete proposition to be placed before Council for the development of the Hawke's Bay Aquarium". The main site under consideration in early 1960 was north of the municipal saltwater baths (where Ocean Spa is now), and then this changed (albeit briefly) to be part of the new Napier civic block in Hastings Street.

After many suggestions for the aquarium site were considered, Council decided on one south of the War Memorial Hall "between the car parking area and the boating lake". Excited at the decision, Frank Logan once again listed a lengthy description of what they wanted in an aquarium. The recent capture of an octopus by local skin divers and an influx of 500 people on one day to see the specimen was an indication, the Society believed, "of the appeal of the aquarium to the public". 60

An outline sketch of a planned aquarium building for Napier was made public in June 1962. The architectural drawings would be based on a plan submitted by Dr Alec Frederick Fraser-Brunner, curator of the Van Kleef Aquarium in Singapore. ⁶¹ The Council resolved in May that they would appoint Laurie Williams as architect and ask him to supply plans and a preliminary cost. ⁶²

Laurie Williams would not submit the aquarium building plans as invited to by the Napier City Council, as he was apparently too busy. But he did have a verbal discussion about them in May 1962 with the eventual architects, McLachlan and Stemson from Auckland.65

Frank Logan had hoped the aquarium building would be finished by the end of 1963; however, this proved too optimistic.

After six years of successful operation of the basement aquarium, paid visitor numbers for the year ended 30 September 1963 were 80,317.

But big changes were about to occur, which would further set back any immediate hopes of an aquarium building.

George Townshend Credit: Napier City Council

Chapter 3:

The Hawke's Bay Aquarium and Planetarium Board 1964–1971

Fish in the municipal baths

Architects McLachlan and Stemson's plans for an aquarium building were discussed on 2 April 1964 by the Napier City Council and the Hawke's Bay Aquarium and Water Garden Society Inc. — who agreed they were suitable.

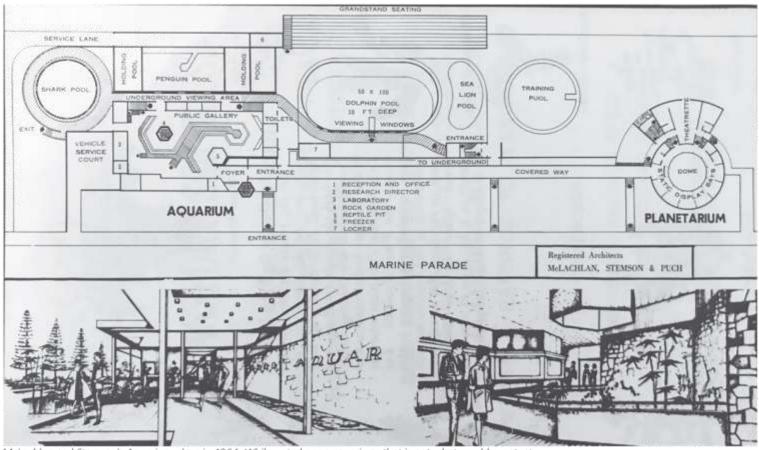
The complex would not only include an aquarium building, but also outside pools for sharks, dolphins, penguins and sea lions. The Holt Planetarium would also be on site. The Society would take care of the loan servicing for the aquarium building, and the Council was to consider how it would raise the funds to build it.¹

While discussions about the aquarium building were occurring, a significant development which would have an impact on the aquarium was when Napier City Councillor George Townshend thought it a good idea to put fish, marine life and sharks in the saltwater Marine Parade Municipal Baths.² The Council agreed in April 1964 to allow this.³

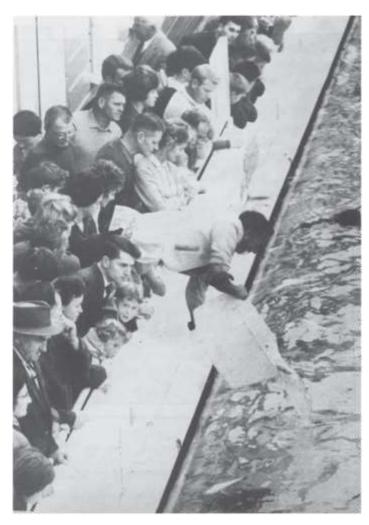
The salinity of the pool was barely 50% of normal seawater, which would cause problems for the longevity of fish, until the aquarium pumped in sea water into the baths.

On 16 May 1964, the baths opened to the public and contained fish caught out in Hawke Bay, including a six-foot-long seven gilled shark.⁶

The venture was a success, judging by the crowds that flocked to the baths, and George Townshend then turned his attention towards putting dolphins in the display. However,



McLachlan and Stemson's Aquarium plans in 1964. While noted as an aquarium, that is not what would eventuate. Credit: Napier City Council



opposition to the use of the baths for keeping animals quickly grew, and technical difficulties with water quality and pumping systems were causing problems for the animals' health. In addition, the terms of the Council's lease of the land from the Napier Harbour Board stated that it would be used for a swimming facility. Various swimming and lifesaving clubs, the Napier Citizens and Ratepayers Association and the Hawke's Bay Motel Association all protested to the Napier Harbour Board about this breach of the lease terms. The Council decided to end the temporary marineland and by July 1964 the baths were once again in use as public pools. The animals were released back to sea, and the dolphin idea was shelved.

Through the brief flirtation with the public baths as an outdoor aquarium, Mayor Peter Tait became very interested in dolphins — believing Napier could have possibly New Zealand's greatest tourist attraction with a dolphin show. He led a group to Australia to in July 1964, seeking to secure dolphins for Napier after being told the ones in Hawke Bay were not the best to be trained.

Council then approved, on 21 July, £6,000 (2018: \$245,000) for a temporary dolphin pool to be built on Marine Parade as part of an aquarium complex.⁵ Delays with the Australians catching dolphins meant a local boat caught the first dolphin, Daphne, in Hawke Bay in January 1965.⁹

The Municipal baths on Marine Parade became a temporary marineland in May 1964. Its fleeting life, which ended in July that year, was enough to get mayor Peter Tait thinking about dolphins, which put an end to an aquarium building in the 1960s.

Hawke's Bay Aquarium and Planetarium Board

With a dolphin pool planned, things began to get serious, so the Council wished to create a Board to control the project of the new aquarium building and planetarium. The new Board would include four members of the Hawke's Bay Aquarium Society.

Therefore, the Council requested in July 1964 that the Hawke's Bay Aquarium Society become legally incorporated, as they would not enter into an agreement with them until this was done. ¹⁰

Interestingly, correspondence with Council regarding the aquarium from 1957 to 1964 was from the Hawke's Bay Aquarium and Water Garden Society Inc., but the annual accounts and financial transactions for the aquarium were in the name of the Hawke's Bay Aquarium Society — which is what the Council wanted to be incorporated.

In November 1964 the Hawke's Bay Aquarium and Planetarium Board (Board) was established. This would mean that control and funds for the aquarium would now go to the new Board.¹¹

In addition to four members of the Society, other Board members were Napier City Council representatives and one person from the Planetarium Society, which ended up being the Town Clerk, Pat Ryan. The Planetarium never went ahead at the aquarium building.

The Council had tried to make this Board a statutory one by an Act of Parliament in 1965, which would assign it powers outside of Council, but the Government refused, saying the Council had enough powers to do what they wanted with the Board under its own right. ¹² Council then decided to incorporate the Hawke's Bay Aquarium and Planetarium Board, which happened in 1965. ¹³

Dolphin Pools and a Marineland

The first business of the Board in November 1964 was a fundraising campaign for the aquarium building.

Enough money was raised, including generous pledges from Sir Lewis Harris and his daughter, to construct a dolphin training pool in January 1965. The Hawke's Bay Aquarium Society Inc. (Society) had such enthusiasm for the dolphin pool, believing that this was the first step towards an aquarium, that they donated £1,000 (\$41,000) from their funds. ¹⁴

However, the Society's hopes for an aquarium, as part of the McLachlan and Stemson plans, would be dashed.¹³

The funds raised towards an aquarium building were prioritised for what would become Marineland, and the aquarium component of the plan would later be dropped. Tolphin fever had well and truly taken over.



What about our aquarium building?

During 1966, the Society, in particular member Ian Mills, urged the Board to progress an aquarium building.

At a Board meeting on 3 September 1968, Ian Mills presented a three-dimensional model of an aquarium. He (and others also shared his view) was upset that the pursuit of Marineland had meant the promised aquarium was neglected. Chairman Peter Tait agreed. George Townshend responded that "essential development work was required at Marineland which could not be deferred in favour of a new aquarium".

Society President and Board member Frank Logan also believed Marineland "was more important".

The dolphin training pool in 1965, at what would become Marineland. Credit: Napiler City Council The meeting, however, decided that the building of an aquarium should be given priority. U

An article in *The Daily Telegraph* on 5 September featured Ian Mills with his aquarium model, alongside Deputy Chairman of the Board, George Townshend smiling at the model. It was announced in the article that an aquarium would possibly be completed within 18 months. George stated the Board had made "a policy decision to build a new aquarium, although a number of details were still to be worked out". 15

In 1969, the Society was still pushing the Board for progress on building plans, and were awaiting aquarium curator Gordon Dine's return from a fact-finding trip in North America and Canada before deciding their next move. The Society members felt that Marineland had received sufficient funding to get running, and now it was their turn.¹⁹

New plans were prepared in 1970 by McLachlan and Stemson and submitted in March by the Society to the Board.²⁰ In October a discussion was held on how to finance this building.²¹ And by November, Chairman Peter Tait said the next step was for Council to approach the Loan Board for finance.²² However, the Council were not financially able to service a loan. Robert Fenton and Company had said they could advance \$200,000, but it appeared no costings or planning had been done apart from the architect's design. ²³

In a controversial move, the Council had decided in 1971 to explore putting put a domed building, designed by Council architect Len Speight, in the vicinity of the Soundshell and Colonnade on Marine Parade to serve as an aquarium. This would require demolition of them both.²⁴

Strong public opposition to the plan to demolish the Soundshell meant the dome building would not go ahead.



Ian Mills developed his own model of an aquarium, and shows George Townshend in September 1968. Credit: The Daily Telegraph

Chapter 4: A home at last 1972–1989

After the failed plans to put the aquarium on the site of the Soundshell, the Napier City Council provided a new site on Marine Parade between Marineland and the Gilray Reserve, with the blessing of the Hawke's Bay Aquarium and Planetarium Board (Board).¹

It had been a sore point for some members of the Hawke's Bay Aquarium Society Inc. (Society) — especially Ian Mills — that this had taken so long, and finally it looked as though a building would soon be planned.²

This choice of site was not popular with the Marineland manager, John Allen, who wanted the two facilities on one site. He argued to the Council that this would save costs, for example by having one ticket office, one educational officer and shared services such as electricity.⁵

Mayor Peter Tait was not in favour of this. His reasoning was there would be two attractions people could visit. By separating them, he hoped that in the future the area between Marineland and the new aquarium would be filled with activities.

The Napier City Councillors were keen on a circular aquarium building, similar to City Architect Len Speight's dome-shaped design for the Soundshell area. Therefore, Len designed one in similar fashion. It would match the shape of the War Memorial Hall, thus providing some symmetry at each end of Marine Parade. However, Town Clerk Pat Ryan expressed reservations over the cost of a circular building compared to a regular shaped one.⁵

The cost and financing

A cost report and initial design for the circular aquarium were presented in February 1973 to the Council. The \$300,000 (2018: \$3.8 million) required could be borrowed from the Bank of New Zealand.⁶ It was hoped the building would be finished in Napier's centennial year of 1974,⁷ but this would not occur.

The successful tenderer for the aquarium building was Gemini Pepper Limited from Wanganui, and a contract was let on 8 May 1974 for \$248,602 (\$2.8 million)⁵. The estimated cost for the whole project, including the internal fitout, was \$504,000 (\$5.8 million).⁹

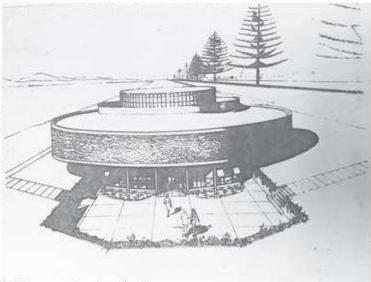
The project would have been more expensive, if it weren't for volunteer labour, including that of Aquarium Curator Gordon Dine, and the Society's Ian Mills. 10 Aquarium staff Rob

Yarrall and Warren Walker would look after the War Memorial aquarium, but would join Gordon every third week at the new site. Ten "periodic detention boys" also assisted with the internal construction.¹¹

By October 1975, the total cost of the aquarium had risen to \$585,000 (\$5.9 million)¹² from a \$567,000 (\$5.7 million) estimate in June,¹³ and the Board now had to find the shortfall. The Board decided to involve the community more in the fundraising and approach the Government for funding.¹⁴ Despite believing their attempt would be unsuccessful, they travelled to Wellington anyway to enquire.¹⁵ Five years earlier the New Zealand Tourism Board said they had no funds to help with the dome aquarium.¹⁶ It would be no different this time, and the Government said no.¹⁷

The cost estimate for the building as at December 1975 was \$594,000 (\$5.3 million), and this would increase to around \$650,000 (\$5.6 million). 18

As at 3 December 1976, the Napier City Council City Treasurer advised the Town Clerk that the completed aquarium was financed by:19



Architect Len Speight's circular aquarium building Credit: Napier City Council

Sales of sections in Piramal West \$240,000

Loan Bank of New Zealand \$350,000

Donations (with some to come) \$60,000

\$650,000



The new aquarium under construction. Credit: Napier City Council

The aquarium building

Many of the ideas for the new aquarium, such as a tidal pool seen in San Francisco, came from Gordon Dine's overseas trip in 1969 to America, Canada and Fiji. There he visited about 12 major aquariums and several smaller ones, 20 with his flights sponsored by Air New Zealand. 21

Fundraising included an illegal raffle run by Ian Mills, who was summoned to the police station and told by the chief inspector, with a wry smile, "Don't do that again." Such was the public spirit for the aquarium.

Gordon took another overseas trip in 1974 to gather more ideas for the aquarium.²³

The building was opened on 10 December 1976 by Lewis Harris, a generous benefactor to Napier. It had been hoped that Jacques Cousteau, famed French underwater explorer and co-developer of the aqualung would open the aquarium.

A large oceanarium containing 575,000 litres of water was on the ground floor, and the sea water was replaced at a rate of 4,500 litres per minute. There were 12 viewing windows of 3m by 1m and the plate glass used was 3cm thick. The glass was imported from St Helens in England at a cost of \$3,000 (\$23,000) each. Plate glass had the advantage of holding together if it cracked.²⁴

Twenty-five varieties of fish, with as many as 40 in each school, would be at home in the oceanarium, and all were caught in Hawke Bay. 25 (Gordon Dine did most of the catching using his own boats, including the 16-foot *Optimist*, which he built himself. 26 27 Crabs, starfish, sea eggs and many other creatures would complement the fish. 26

The bow of the Farina, a trawler which was gutted by fire in 1975, formed part of the oceanarium display.²⁹

Gordon Dine spent 10 months making all of the 36 smaller fish pools for the aquarium. ⁵⁰ In an innovation that Victoria University and other aquariums around the country would be interested in, ⁵¹ he created the pool shells out of polystyrene. This was specially manufactured for the aquarium and was much denser than the type used for domestic purposes, such as chilly bins. It was 10cm thick, coated with fibreglass cloth and given three coats of resin, with the last coloured blue.



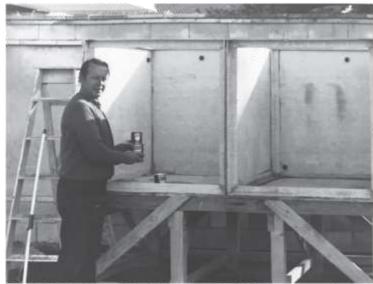
Curator Gordon Dine taking a hands on approach to the construction of the aquarium. Here he is in the oceanarium.

Credit: Barbara Dine

Polystyrene had the advantage of being light, providing insulation to reduce heat loss and would not corrode. Most of the smaller fish pools were located on the ground floor.

When it came to transfer the fish, they were placed in containers which were floated in the new pools for several hours to get them used to the new environment and then released.³⁵

The ground floor of the aquarium would also contain a wave action pool, which surged over a pile of rocks with 2727 litres of seawater every three minutes. Marine creatures found in the surf zone would populate this.



Curator Gordon Dine creating his polystyrene tanks for the new aquarium.

Credit: Barbara Dine collection

A surge tank replicated the incoming and outcoming tide at a more controlled pace than the wave action pool.³⁴

Native fish would swim in a 29m environmental stream, and a turtle tank would exhibit these creatures. 35

The major attraction on the ground floor would be the home for the most famous resident – the 2.7m long crocodile, Davy. To transport him from his basement aquarium pen, his jaws were tied up, he was blindfolded and put in a long box, and 10 men carried him. On arrival, he wandered out of the box and settled into his new home quite easily.³⁶

On the second floor of the aquarium were small fish tanks and a trout pool. The third floor, not yet developed, would contain reptiles, including tuatara, and a "camera obscura" which would allow viewers to see the whole of the Marine Parade through a system of reflecting mirrors projected onto a wall.³⁷

The water requirements for the aquarium were diverse, as natural seawater, heated seawater, fresh water, heated fresh water and domestic water were all required. About 72,000 litres an hour was pumped through the various water systems in the aquarium.[™]

A supply of fresh water was achieved by drilling on the foreshore to a depth of 270 feet (82m).³⁹

Ian Mills spent many years voluntarily creating hand-drawn and painted art work depicting the many varieties of sea life in the aquarium. These were placed at the top of the tanks in the old aquarium, from 1968, by using illuminated light boxes, and were transferred to the new aquarium. 40 Ian completed over 450 of the coloured pictures and if one of the varieties died in the tank, he simply took the picture out of the light frame. 42

At the time of the new aquarium opening, there were four permanent staff and dozens of volunteers helping.

In the first year after the aquarium opened, visitor numbers of 230,082 were recorded. 63

Life at the new aquarium

In July 1977 a publicity photographer placed a 1000-watt light near the plate glass and cracked a pane. The aquarium had to close for a month while it was replaced as the oceanarium had to be drained.⁴⁴

New arrivals which created quite some publicity in January 1978 were 18 man-eating South American piranhas. They would be kept in permanent quarantine and all of their used water would be chlorinated to kill any possible offspring. The piranhas were later swapped for 18 seahorses from Cleveland Zoo in Ohio.



The camera obscura was installed on the aquarium's third floor in 1978 by a Lower Hutt firm. Panoramic images of Marine Parade were projected on the floor using a telescopictype extension.



The light frames, slightly obscured, above the tank. Credit: Michael Fawler Collection

The aquarium building won a tourism design award in November 1978.45

By 1986, the \$350,000 Bank of New Zealand loan to build the aquarium had been repaid.40

Drawings of Piranha by Ian Mills that were used in the light frames above the tanks. Gredit: Michael Fowler photo



Davy the crocodile — a star attraction and local celebrity at the aquarium.

Credit: Barbara Dine collection

Twenty years after Davy came to the aquarium, he died in December 1986. During an autopsy, two vets found 26 coins, 14 beach pebbles and a carpet tack in his digestive tract — as well as a light bulb, 30 which all led to his premature death. He had grown to a length of 3.2m. 51

After 30 years of service to the Napier Aquarium, Gordon Dine retired in November 1987, and in the 1989 New Year's Honours he received the Queen's Service Medal for his contribution.²²

Rob Yarrall replaced Gordon as Aquarium Curator. 53

Some months before Gordon's retirement, he and Ian Mills set about creating in Gordon's garage a 6.7m shark out of plywood, polystyrene and plaster, which they coated with fibreglass, painted a dirty white and grey, and fitted with plastic teeth. After this was built, the men turned their attention to creating a 4.7m seahorse, and a 2.7m stingray was later added. Both of these models were placed on the outside of the aquarium building.³⁴ ⁵⁵

They were later removed from the building and sold by public auction in April 2007.36

By 1989, the aquarium's annual attendance had reduced to $75,424^{57}$ — a drop of two-thirds since the opening year.

At that time, new Napier Mayor Alan Dick and his Councillors began to grapple with how to stem the financial losses of the Marine Parade attractions — Marineland in particular — and this would lead to more changes affecting the aquarium.



The stingray, shark and seahorse created by Gordon Dine and Ian Mills. Credit: Michael Fowler Collection

Chapter 5:

Crossroads and ideas needed 1990-1998

The Napier City Council had announced early in 1989 that they were going to set up three state owned enterprises (SOEs) on the recommendation of consultants Fleet and Partners. One of these SOEs would manage the Council's tourist operations. But this would not be implemented by the incoming Council elected later in 1989, who engaged Auckland-based P A Consultants. They also recommended disbanding the Hawke's Bay Marineland and Aquarium Board (formerly the Hawke's Bay Aquarium and Planetarium Board).

Councillor Harry Lawson, Chairman of the Council Development Committee, proposed in December 1990 a \$600,000 (2018: \$1 million) building extension to the aquarium. A redesign of the entrance, fixing the badly positioned souvenir shop, renovating the toilets, providing more education and research rooms, a coffee shop and better access for the disabled were on a wish list. Councillor Lawson said this would "rectify a number of problems which were seen as the cause of the aquarium's declining popularity with Napier people and tourists".

Sitting atop the planned extension to the aquarium building would be a giant green octopus. If kids were in a car driving past, Harry commented, "how could they resist something like the octopus?"³



Harry Lawson and creator of the model, George Spence, with the proposed octopus on the aquarium building.

Credit: Hawke's Bay Herald-Tribune

At a March 1991 meeting of Council's Finance and Policy Committee, Mayor Dick wasn't quite sure about the octopus, but all the other recommendations caused no issues. It was decided to leave the recommendations until new Tourist Operations Manager Kit Nixon started in May 1991. Nothing, however, would come of the giant octopus or other items proposed.



Credit: Napier City Council

Destination Napier

A Sub-Committee of Council, the Tourism Trading Board, was established in 1991, to which Kit Nixon would report.³

The Tourism Trading Board would take over from the Hawke's Bay Marineland and Aquarium Board, which was dissolved on 18 March1992. By this time the Marineland and Aquarium Board not only had control of Marineland and the aquarium, but also other Marine Parade attractions, such as the boating lake.

It was not a popular decision with the Hawke's Bay Marineland and Aquarium Board.7

The last Chair of the Marineland and Aquarium Board, Shelia Belshaw, noted the various challenges over her 11 years of involvement. Trading, for both Marineland and the aquarium, had been challenging and the "problem of earning sufficient money to keep the attractions solvent seemed fraught with difficulties despite many attempts to do so in the late 1980s".

The trading name of Tourism Trading Board was changed to Destination Napier on 26 March 1992, with "A Touch of the Mediterranean" as its slogan.

The board of Destination Napier, which was the same as the previous Tourism Trading Board, included Councillors Anne Tolley and Arthur Spence, businessmen Ken Gilligan (Chairman) and Neville Smith, and Doreen Smith from the Hawke's Bay Aquarium Society Inc. Mayor Alan Dick and Council Chief Executive Trevor Bates were ex-officio members.⁹ It would have responsibilities for the Kennedy Park Complex, Marineland of New Zealand, Hawke's Bay Aquarium, Kiwi House, Par Two Golf Courses and Pleasuretime (Can-Am Cars/Bumper Boats).¹⁰

Destination Napier would report to the Napier City Council's Policy Committee, ¹¹ and its goal was to operate a successful business without ratepayer subsidy. Its mission: "To provide tourist and entertainment facilities that will promote and encourage the growth of tourism in Napier." ¹²

Destination Napier signalled in March 1992 that potential redevelopment of the aquarium was being considered.¹³

Mayor Alan Dick was reported as saying: "Council's tourism-related enterprises represent major investments which overall do not produce a satisfactory return. At the same time, they are and will increasingly be vital components of the city's growing tourism industry." ¹⁴

However, Destination Napier's existence would be relatively short-lived. Council Chief Executive Neil Taylor reported in April 1996 that there had been "growing confusion in Hawke's Bay about the role Destination Napier played in tourism promotion". 15

This was because Destination Napier undertook a "considerable variation in actual business activity, such as tourism marketing of Napier, management and operation of the Visitor Information Centre, and War Memorial Centre". ¹⁶

Neil Taylor's view, supported by professional advice he had received, said a local authority trading enterprise (LATE) should be formed to separate out the business activities of Destination Napier, "allowing them to become more focused on their core businesses and enhance performance, both in terms of efficiency and effectiveness". ¹⁷

Destination Napier would be disestablished and replaced with two LATEs. 18

Tourism Services Limited

The Hawke's Bay Aquarium, together with Destination Napier, Marineland of New Zealand, Napier Kiwi House, Par 2 Golf Courses, Visitor Information Centre, War Memorial Centre, and Napier Municipal Theatre employees would be transferred to a LATE called Tourism Services Limited (TSL) on 1 July 1996. TSL would not own Napier's tourism assets but manage them. The Kennedy Park accommodation complex would be owned and managed by another LATE, Napier Tourism Facilities Limited.²⁹

Napier City Holdings Limited would own both of these companies as the umbrella company.

Council approved the LATEs at a meeting on 9 May 1996. Nit Nixon, General Manager of Destination Napier, would become Chief Executive of TSL.

Crisis: A bulldozer for the aquarium?

Within six months of TSL taking control of the aquarium, a headline on 19 December 1996 appeared in the Daily Telegraph: "Aquarium faces bulldozer". 21

A report compiled by American consultants Portico and Works Consultancy, recommended a \$5.7 million (\$8.6 million) redevelopment of the aquarium. ²² This report had been commissioned when the aquarium was under the control of Destination Napier, and was the result of a four-year investigation. ²³

If redevelopment of the 20-year old facility did not go ahead, a \$1.5 million (\$2.3 million) upgrade would still be needed, to bring the aquarium up to current building and animal welfare codes. If this did not occur, demolition of the aquarium said Kit Nixon, "is a very real possibility". 24

The aquarium building at that stage had failing air conditioning and cracked piping, and was showing signs of age.²³

The company name The National Aquarium of New Zealand was registered in October 1996 by TSL and Napier City Council. This would become the name of the redeveloped aquarium. Mayor Dick believed the project should be worthy of national status and government support, but this did not occur.²⁶

To fund the redevelopment of the aquarium, Kit Nixon sought \$1.5 million from Napier City Council, sponsorship and grants of \$1 million, and a loan guaranteed by the Council of \$3.2 million.²⁷

Plans prepared by Portico showed how visitors would follow a trail from the mountains through to the sea. A kiwi display, café and research areas were included in the aquarium, which, if developed, would open at the end of 1998.²⁸

However, like the original War Memorial Hall aquarium, the visitor numbers fell steadily each year, and in 1995 there were only 62,000 visitors. Aquarium Curator Rob Yarrall believed 80 per cent of these were repeat visitors, stating "nothing has greatly changed in the 20 years since the aquarium opened" and "displays had not changed in that time".²⁹

There was some ratepayer opposition to the project during 1997, with some blaming the Council for letting the maintenance be neglected for 20 years. Others thought the aquarium project was extravagant and that focus should be on city infrastructure — especially water.³⁰

Napier City Council gave its approval to construct the National Aquarium of New Zealand at an ordinary meeting of Council in February 1998 by nine votes to three.³¹

Chapter 6:

Remodelling — Birth of the National Aquarium of New Zealand 1999–2002

Tenders

Originally, Napier City Council wanted the new aquarium to be completed by 1999, but this would not occur as the project was the subject of much debate among not only the Councillors, but the public as well.

The Napier City Council Planning Committee voted nine to four to approve Warren & Mahoney Ltd's plans for the \$6 million (2018: \$8.9 million) National Aquarium of New Zealand in February 1999. It was hoped work would begin in July 1999 and be completed in September 2000.²

As well as being renamed the National Aquarium of New Zealand, a Māori name was given of Te Whare Tangaroa O Aotearoa, which means the house of the God of the ocean of New Zealand.

Ian Mills of the Hawke's Bay Aquarium Society, and retired curator Gordon Dine, were not invited to have any input into the new aquarium's design. Ian Mills felt they both could have been of assistance with their experience.³

Tenders were called for in July 1999 and would close in November 1999.4

In September 1999, a revision of the project's cost resulted in an increase to \$7.15 million.⁵

The tenders were higher than expected, and in January 2000 the Council announced they would not be accepting any, due to them significantly exceeding the budget.⁶

The Council then asked the architects to redesign the building but not alter the "marketability of the aquarium". The Council was unhappy about the resulting bill of \$80,000 for this work.⁷

Two of the lowest original tenderers were then asked to resubmit based on the revised plans.⁵ Construction tenders were let in August 2000, and the successful contractor was Alexander Construction (HB) Ltd, with Holmes Consulting Group Ltd as structural engineers.

Marinescape (NZ) Ltd would do the design for the exhibits.

The aquarium closed on 31 July 2000, with all the exhibits moving into temporary storage. Caring for them was a huge challenge, according to curator Rob Yarrall, but losses were kept to a minimum. New stock could not be secured until the giant oceanarium had been completed. The old bumper boat lake near the aquarium was used for storage of fish and roofed over for security. 10

Unfortunately, one of the two saltwater crocodiles, Bungy, died during the remodelling of the aquarium. Both Bungy and Izzy caught a virus, with only Izzy surviving it. Izzy died in 2010.11

Tourism Services Limited

In May 2001, the Council instructed the Chief Executive to enter into negotiations with its local authority trading enterprise (LATE), Tourism Services Limited and private operator Tourism Holdings Limited for a lease or management contract for the aquarium.

Tourism Holdings was not interested, believing "it was a difficult proposition to justify financially". Therefore, the Council entered into an agreement with Tourism Services Limited to manage the aquarium. 22

The new aquarium building

The shape of the new building was to imitate a stingray and the unusual shape of the roof resulted in a delay of four weeks.¹³

The oceanarium required 1.5 million litres of water, which was filled from the aquarium's own bore. 14

A travelator, which is a moving walkway through the underwater viewing tunnel, was controversial. It was a late addition, and the cost of \$250,000 and safety issues were questioned. ³⁵ But it went ahead.

The building project had been difficult for the Council to manage. As well as the extra travelator expense, ¹⁰ the eventual cost of caring for the exhibits ballooned to \$253,000 by December 2001¹⁷ (up from an expected \$190,000¹⁸). This created the need for extra funding.

The final cost of the aquarium, including car parks and design costs, was around \$8.3 million. ¹⁹ The Lottery Grants Committee gave \$1 million towards the project.

The opening date of the aquarium was planned for December 2001, but after difficulties determining with the contractor and subcontractors when work on the building would be completed, it was pushed out to March 2002.²⁰

Prime Minister Helen Clark opened the National Aquarium of New Zealand on Thursday 14 March 2002.



The concept plans for The National Aquarium of New Zealand showing the roof formation to symbolise a stingray. Credit: Barbara Dine Collection

Council assumes control

In June 2002, Tourism Services Limited, which managed the aquarium on behalf of the Napier City Council, was wound up, and Napier City Council assumed control. This was viewed as a mistake by former Mayor Alan Dick, who believed the LATE was a more efficient way of operating community and tourism facilities, saying: "This is because while council officers are good public servants, they are no good at running businesses." ²¹

There had been some dissatisfaction among Councillors with Tourism Services Limited for some time. Councillor Harry Lawson, in February 1999, when Council approved the aquarium plan said they should have control of the aquarium, not the LATE. He commented: "It shouldn't be ring-fenced by a LATE, so that every time we ask a question, we're told it's commercially sensitive." ²²

Neil Fergus was appointed manager of the Council business unit called Tourism Services to replace the LATE.²⁵

Successful start

Sixty thousand people visited the aquarium in the first eight weeks after it opened in March 2002^{24}

By 2003, it had received 180,000 visitors in the 10 months it had been open. 25 This exceeded the Council's projections of 163,000 for the full year. 26

Chapter 7:

Education, conservation and research 2003–2017

From the earliest days of planning an aquarium in the 1960s, Honorary Secretary of the Hawke's Bay Aquarium and Water Garden Society Frank Logan, often communicated the Society's desire to get involved in research.

It would be many years before the first Research Officer, Adrian Leake – who was previously a field officer for the Ministry of Agriculture and Fisheries – was employed. In 1987 he was appointed and acted for both the aquarium and Marineland.

Adrian would develop talks and materials for school parties, and with Aquarium Curator Rob Yarrall, developed a paua hatchery at Marineland.¹

Since Adrian's time, three other education officers have been employed at the aquarium, with the 2018 incumbent being Carol Larsen.

Sleepovers were developed for children at the aquarium, and thousands of students attend the aquarium's programmes.² Studies cover not just sea life, but also other areas such as dinosaurs, reptiles, the extinct moa, and kiwi.³

Some of the aquarium's research achievements include being the first to hatch a turtle egg in captivity in New Zealand, in 1975. It also houses the world's oldest living tuatara hatched in captivity (hatched in 1980).

Other studies have focused on measuring stress levels of tuatara, coronary work on kingfish, and snapper breeding in captivity. The National Aquarium of New Zealand has also gained worldwide respect for its ability to keep animals in captivity beyond their normal lifespans. This is due to its water quality, using filtration systems which are monitored constantly by aquarium staff in cooperation with scientists.

While many people would just be aware of the exhibit side of the aquarium, significant work takes place behind the scenes to care for the animals' welfare, such as the penguins.

Ever since the aquarium's first curator, Gordon Dine, voluntarily picked up oil-covered penguins at the Port of Napier (and took them home to care for them before releasing them again) the aquarium has been involved in many conservation projects and activities.

Conservation projects raise money to protect native species such as kiwi, tuatara and penguins. The aquarium also participates in activities such as Seaweek, World Oceans Day and Conservation Week.⁵

Aguarium additions since 2003

Since the 2002 aquarium reopening, it has continued to evolve and add more exhibits and features, as well as advance its research, conservation and education activities.

A nocturnal enclosure was added in 2002 to house two kiwi, Ngaio and Ed, during the rebuild of the aquarium.

While on a trip to gather leaf litter food for the kiwi in the Gwavas Forest in 2007, staff noticed an old hut. Kerry Hewitt remembers the team thought this would make a good addition at the main entrance to the kiwi enclosure. After forest owners Pan Pac and the Historic Places Trust gave permission to move the hut, it was taken apart. A lot of the hut had rotten wood, but it was able to be preserved and recreated. ⁶

Pan Pac's newsletter mentioned the hut as follows:

An old musterer's hut has had an extreme makeover. The hut that had gone well beyond its original life expectancy and was close to collapse is now a feature within the National Aquarium of New Zealand.

Rob Yarrall, Manager, and Kerry Hewitt, Senior Supervisor, at the aquarium approached Pan Pac to see if there was an opportunity to relocate parts of the hut to the Aquarium as a display they envisaged. With approval from the Historic Places Trust, the hut was lovingly disassembled and reassembled in its new location. Now it is safe from the elements and gives the public the opportunity to view it and provide a window back to the pioneering days. Rob comments that that the display is popular and people often question how it got there.

An alligator was secured on loan from Butterfly Creek in Auckland, as they had more than they needed. After appropriate permits and arrangements were made, on 7 December 2011 three aquarium staff travelled to Auckland to make the transfer by road.⁵

After Marineland closed to the public in April 2009 following the death of its last dolphin, a decision had to be made on what to do with the remaining animals.

The 10 little blue penguins, which were rescued and had some form of deformity, would be looked after at the old Marineland facility until a purpose-built penguin cove was opened in November 2012 at the aquarium.¹⁰

These penguins had distinct personalities. One, Timmy, was featured in 2017 on the aquarium's Facebook page for being the "naughty penguin of the month" because he "stole fish" and "pushed another penguin over". 11



The penguin enclosure at the aquarium.

Credit: Michael Fowler



Rob Yarrall upon his retirement in December 2017. Credit: Michael Fowler

The East Coast Lab (Life at the Boundary), which is "aimed at fostering new research to increase the understanding of the Hikurangi plate boundary and associated natural hazards like earthquakes and tsunami" has been based upstairs at the aquarium since 2016. 12

At the same time as the penguin cove was built, more work space was built for holding tanks and a workshop. 15 The aquarium's vessel *Aquaria*, used for monitoring water quality and securing varieties of sea life would also be kept in the new area. 14

More desperately needed work space was also created for the aquarium's staff in the form of offices in the upstairs area.¹⁵

End of an era

In December 2017, in his 50th year with the Napier City Council since starting at the aquarium in 1974, Aquarium Manager Rob Yarrall retired. ¹⁶ He had been manager since Gordon Dine's retirement in 1987. In a remarkable record, the aquarium had had only two managers in the 61 years of its existence. Kerry Hewitt, who had been employed for 27 years at the aquarium, and had also volunteered for many years before that, took over as Acting Manager. ¹⁷

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Napier City Council

National Aquarium

Services Condition Assessment Mechanical and Electrical Services





NATIONAL AQUARISM

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NATIONAL AQUARISM

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NATIONAL ADDARGM

1. Executive summary

In general, the equipment installed in the Aquarium is in an average to poor state and some of the items would need a major overhaul and/or replacement in the very near future.

The major problems are associated with the corrosion of mechanical plant. This has been caused by moist air from the ocean and poor original design which does not allow for suitable draining or washing.

Corrosion of the electrical plant corrosion is predominantly associated with the location of the distribution boards in a wet environment.

All services, fish tanks, fish tank filters and equipment in the entire building are suffering from poor seismic supports and this would need to be addressed in the near future, possibly with further investigation by a structural engineer.

Expansion for future load (new building or facilities) of the air handling plant and heat pumps is not possible. These are already operating close to their design limits and the heat pumps are mounted in unsuitable locations. They will need a major overhaul within the next 2-3 years.

The heat pump which is used as a stand-by unit would need to be overhauled to provide a backup.

The consequences of a fault on the duty unit, without the backup, are severe not only for the visitors (discomfort) but also for the ability of the installation to keep the water temperature for exhibits at the correct levels.

Energy savings opportunities would be as follows:

- AHU when replaced consideration shall be given to installing a heat recovery unit to reduce energy
 costs for heating and cooling. A swimming pool standard unit would have considerable rust-proofing
 implemented which would reduce maintenance costs and future repairs.
- Water filtration pumps (large) could benefit from the installation of a variable speed drive which would allow for their operation to be better tuned to the actual demand. The pump could speed up the system during backwash cycle making process more efficient.
- Improve the air intake and exhaust grilles for better weather proofing which would protect the ducting from internal corrosion (higher friction loss) and moisture saturation of air filters which would require more fan power to operate at the design air flow.
- Consider splitting the heat pump system and having separate for units for space heating and cooling (possibly air cooled type) and one for water heating to match them better with the actual load and to improve their individual overall efficiency.

1.1. General

The aquarium building was constructed over two stages. The original construction was in 1976 with an extension added in 2002. The building is located at the water front of the Pacific Ocean. It is exposed to severe gusts and salt water spray.

The exposure to such challenging conditions results in severe corrosion issues of the air handling plant.

Both air intake and air exhaust louvres are facing the Ocean. The sea water cooled heat pump chillers are very old and located in a semi-enclosed confined basement area of the building, with restricted access.

The machines are still original and run R407c and R134a refrigerants since an overhaul in the past. There are two chillers working in duty/standby mode, from which only one chiller currently operates. The capacity of the chiller is estimated around 54KW each.

The space is heated and cooled via Temperzone air handling unit located in the roof plantroom.

The unit has recently been repaired however is generally in poor condition.

Sea water is delivered into the building via a submersible Flygt pump from a sump located on the sea bed. The water flows into the well via gravel base which provides primary filtration, and is stored in sea water tanks for use in aquariums.

There are spare wells available for future use, and there are spare pumps kept offsite at the Council depot. Generally, the plant is in poor condition predominantly due to exposure to salt and due to difficulty accessing the plant to do maintenance.

HMW:0008-00172

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NATIONAL ADDARGEM

The major concerns are: Heat pump chiller, the main air handling units and associated air intake and air exhaust.

There is no possibility for expansion of the existing plant at present. However, for future improvements and potential expansion we would strongly recommend the replacement of the existing chiller with a new machine or machines sized for future loads. We also recommend that they be located at ground level with easy access so that the new equipment could be properly maintained in a safe and secure environment.

There is a general issue with seismic support of the plant and equipment, not only related to building services but also to proprietary fish tank filters, tanks and circulation pumps. Napier is located in the seismic zone therefore seismic restraints of heavy equipment is a very important consideration. We would recommend a complete seismic assessment of the equipment and provision for adequate restraints as a matter of first priority.

Electrical reticulation, location and the condition of the switchboards shall be reviewed independently and upgraded. They are located in wet areas, exposed to moisture from sea water and are severely corroded.

It also appears that the site is short of dedicated equipment/services storage space and most of the spares and redundant fittings are spread all over the floor of the plantroom, making access to plant rather difficult.



NATIONAL AQUARBUM

1.2. Condition of existing plant

ltem	Description	Condition	Suggested repair/upgrade	Remaining life	Capital cost	Photo Code HP
	Distribution board DBF1	Poor condition, excessive rust and no protection from moist salt air. Corrosion on earth and neutral terminals. Insulation damage on circuit breaker terminals due to heat which is an indication of loose terminals.	Replace with a marine grade stainless steel 316 IP65 DB, Include anti-condensation heaters	0-1 year	\$10,000	MAIN SWITCH

Item	Description	Condition	Suggested repair/upgrade	Remaining life	Capital cost	Photo Code HP
2.	Distribution board DBF2	Satisfactory condition	Check all terminals for loose connections	5-7 years	\$5,000	
3.	Distribution board DBG4	Looks reasonable from the outside but due to equipment stored in front, unable to open to inspect any further				
4.	Main Switchboard	Poor condition, excessive rust, exposed to salt air	Carry out thermal imaging on all terminals, replace with a marine grade stainless steel 316 minimum IP65 switchboard. Include anti- condensation heaters in the panel	0-1 year	\$50,000	

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Item	Description	Condition	Suggested repair/upgrade	Remaining life	Capital cost	Photo Code HP
	Distribution board DBF5G	Poor condition, excessive rust, exposed to salt air	Carry out thermal imaging on all terminals, replace with a marine grade stainless steel 316 minimum IP65 switchboard. Include anti- condensation heaters in the panel	1-2 year	\$10,000	
						MAIN SWITCH ,

Item	Description	Condition	Suggested repair/upgrade	Remaining life	Capital cost	Photo Code HP
Ì.	Mechanical services switchboard	Poor condition, excessive rust, exposed to salt air	Replace with a marine grade stainless steel 316 minimum IP65 switchboard. Include anti-condensation heaters in the panel	0-1 years	\$25,000	
,	Distribution board DBG1	Poor condition, excessive rust, exposed to salt air	Replace with a marine grade stainless steel 316 minimum tP65 switchboard. Include anti-condensation heaters in the panel	1-2 years	\$15,000	
	Distribution board DBG2G	Poor condition, excessive rust, exposed to salt air	Replace with a marine grade stainless steel 316 minimum IP65 switchboard. Include anti-condensation heaters	0-1 years	\$15,000	

Item	Description	Condition	Suggested repair/upgrade	Remaining life	Capital cost	Photo Code HP
9.	Temperzone AHU – DF3301/4/1 71KW heating and 21KW cooling main air supply system for the building. No capacity or space for further expansion of the existing system	Recently repaired however it is still the original unit, corroded outside	More repairs and rust- proofing. Ideally replace in the near future with a better specified unit capable of handling salt saturated ocean air	3-5 years	\$2,000/\$25,000	
10.	Inlet and outlet grilles, ducting etc.	All intake grilles face the ocean, heavily corroded, duct corroded from moisture intake, no duct drains	Replace corroded ducting, consider installation of drainable air intake louvre (Seaworth or Holyoake alternative, redesign inlet ducting to avoid moisture trapping on the bottom — bottom of duct falls toward the air intake)	0-1 year	\$0/\$15,000	

tem	Description	Condition	Suggested repair/upgrade	Remaining life	Capital cost	Photo Code HP
	Misc small A/C units 5 connected to existing reticulation, heating/cooling	Generally satisfactory if not exposed directly to fresh air.	Regular maintenance and filter cleaning, inspection of drip tray and cooling coils	5-7 years — subject to adopted maintenance regime	\$3,000	
2.	2x Water cooled heat pump chillers – approx. 150KW TBC – no data available	Originally installed in 1976 – progressively upgraded repairs as required. Only one unit is functioning, incorrect location for the type of machine, converted to R407C refrigerant on one chiller and R134a on another.	The machine needs to be replaced in the near future due to wear and tear despite new compressors, heat exchangers of unknown condition, however considering that the machines are water cooled, they are probably at the end of their life. The immediate action would be to bring the second chiller into operation to provide suitable back-up.	1-3 years	\$5,000/\$150,000 for two, plus cost of new enclosure and an alternative location	

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Item	Description	Condition	Suggested repair/upgrade	Remaining life	Capital cost	Photo Code HP
13.	2 x Salt water pumps – Flygt submersible	Assumed satisfactory, spare pump is available at the depot	Regular maintenance and checking surface for corresion	5 years	\$12,000 each (spare pump kept at the depot, therefore allowed for replacement of one)	
4,	Circulating pump Grundfos NB125/100/250 15KW motor	Satisfactory	Regular maintenance	5 years	\$2,000/\$12,000	
15.	Local filters, small tanks, piping, auxiliary equipment	Generally corroded in wet environment, no seismic support to prevent movement in case of a quake, potential H&S risk	Entire site shall be investigated for a suitable seismic supports system of entire equipment and distribution piping, tanks filters, small fish tanks etc.	Urgent	\$20,000 estimate only subject to structural investigation and chosen method of support	



NATIONAL AQUARISM

1.3. Recommendations

The recommendations for immediate actions would be as follows:

- Overhaul the second HP machine as soon as possible to provide back-up to the existing machine.
- Repair corrosion damaged ducting and provide a suitable condensation/water trap to the Air Handling Unit.
- Repair and protect existing electrical boards from corrosion.

The longer-term actions should include the follows:

- Replacement of existing electrical boards suitably protected and rated to work in a wet environment.
- Provide seismic restraints to all mechanical, electrical and filtration plant, including water purification system, fish tanks etc.
- Replacement of equipment which is at the end of its useful life, with a new equipment suitably rated to work in wet environment and located in a new purpose constructed plantroom which would be safe to access and maintain.
- Possible relocation of existing plant to alternative plantroom.

The Napier City Council has obtained an initial report regarding the condition of the plant which was prepared by Refrigeration & Mechanical on 22 March 2017.

We believe that some recommendations from the report have already been implemented, we fully agree with their initial findings.







National Aquarium of NZ, Napier

Detailed Seismic Assessment-Original 1973 Building

Napier City Council

15 May 2018 Revision: 1 Reference: 501745



Document control record

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Approval				
Author signature		Approver signature	My	
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Title	Structural Engineer	Title	Technical Director	

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Project 501745 File 501745-REP-ST-0001-DSA Napier Aquetum - Original 1973 Building door, 15 May 2018 Revision 1

Executive Summary

Background

This Detailed Seismic Assessment (DSA) of the National Aquarium of New Zealand located at 546 Marine Parade, Napier South, Napier, has been carried out for Napier District Council.

The purpose of the report is to determine the overall seismic performance of the building in terms of % NBS rating in accordance with the latest MBIE earthquake engineering guidelines and methodology document.

The Seismic Assessment of Existing Buildings: Technical Guidelines for Engineering Assessments, July 2017, Version 1, referred to as the Engineering Assessment Guidelines (The Guidelines) within this methodology."

Building Description

The National Aquarium of New Zealand is located on Marine Parade Street, Napier. The aquarium was originally designed in 1973 by City Engineers Department using blockwork walls, reinforced concrete beams and columns, insitu concrete floor slab and lightweight roof structure. The building was designed to be approximately 2 storey high with an overall height to the roof from ground approximately 7.5m. The centre of the structure extends another storey with light weight timber structure which increases the height of the building by 2.5m. The overall building footprint is approximately 738m².

The building was altered and strengthened in 2000 by Holmes Consulting Group by adding some reinforced blockwork walls, adding new concrete topping to the slab, extending foundation pads and strengthening some of the beams.

Assessed Earthquake Rating

A simplified force based method was adopted using 3D modelling of the structure in ETABS structural software in accordance with the Seismic Assessment of Existing Buildings-Technical Guidelines for Engineering Assessments, dated July 2017.

The earthquake rating assumes that the building is classified as an Importance Level 2 building in accordance with the Australian/ New Zealand Standard Structural Design Actions Part 0, AS/NZS 1170.0:2002.

The results of the DSA indicate the building's earthquake rating to be 40%NBS at Importance Level 2 (IL2) according to the guideline document. Following the NZSEE grading scheme this building is classified as a Grade C building which represent a risk to occupants of between 5 to 10 times that expected for a new building, indicating a medium-risk exposure. Strengthening works could be carried out to raise the %NBS of the building as described in this report.

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Project 501745 File 501745-REP-ST-0001-DSA Napier Aquelum - Original 1973 Building-door, 15 May 2018 Revision 1

Building Name/ Description	National Aquarium, Round Building, Napler
Street Address	546 Marine Parade, Napier South, Napier 4110
Territorial Authority	Napier City Council
No. of Storeys	2 storeys
Area of Typical Floor (approx.)	738m²
Year of Design (approx.)	1973
NZ Standards designed to	NZS 4203:1992 Loading Standard; NZS 3101:1995 Concrete Standard
Structural System Including Foundations	Diaphragm –178mm concrete floor slab at 1 st level, 250UB steel beams with timber ply on top for 2 ^{std} level Framing system – Precast concrete beams, reinforced concrete columns and blockwork walls, Facade –blockwork walls. Foundations – Slab on grade with concrete pads foundation
Does the building comprise a shared structural form or shares structural elements with any other adjacent titles?	No
Key features of ground profile and identified geohazards	Unknown
Previous strengthening and/ or significant alteration	The building was altered and strengthened in 2000 by Holmes Consulting Group by adding some blockworks walls, adding new concrete topping to the slat extending foundation pads and strengthening some of the beams.
Heritage Issues/Status	NA NA
Other Relevant	NA .

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Project 501745 File 501745-REP-ST-0001-DSA Napier Aquerium - Original 1973 Building door. 15 May 2018 Revision 1

2. Assessment Informa	ation
Consulting Practice	Aurecon Engineering Company
CPEng Responsible, including: Name CPEng number A statement of suitable skills and experience in the seismic assessment of existing buildings	Duncan Fleming Technical Director/ Structural Engineer CPEng 223433 Duncan is a technical director and Manager for Structural Engineer, Wellington with multiple years of consulting engineering experience and a technically skilled design manager across a wide range of engineering projects. He has undertaken numerous seismic assessments, which forms part of his Practice Area.
Documentation reviewed, including: date/version of drawings/ calculations previous seismic assessments	National Aquarium of New Zealand, marine Parade, Napier, Architectural & Structural Drawings C154, sheets A1 to A9 & S1 to S16, by City Engineers Department. Holmes Consulting Group. National Aquarium of New Zealand, marine Parade, Napier, Structural Drawings 30139, sheets R10-1 to R14-3, by Holmes Consulting Group.
Geotechnical Report(s)	None
Date(s) Building Inspected and extent of Inspection	Visual non-intrusive structural inspection on 26 th January 2018 by Aurecon Engineers.
Description of any structural testing undertaken and results summary	None
Previous Assessment Reports	None
Other Relevant Information	NA NA

Project 501745 File 501745-REP-ST-0001-DSA Napier Aquerium - Original 1973 Building door. 15 May 2018 Revision 1

Occupancy Type(s) and Importance Level	Importance Level 2
Site Subsoil Class	Subsoil Class D NZS1170.5
For a DSA:	
Summary of how Part C was applied, including: • the analysis methodology(s) used from C2	A 3D ETABS model of the building has been used to provide analysis for the overall behaviour of the building. Seismic assessment of the reinforced, blockwork walls and concrete beams and columns were carried out based on NZSEE guideline.
 other sections of Part C applied 	The façade concrete blockwork walls and attachments have been assessed by Parts Loading per NZS 1170.5 Chapter 8 for out of plane and in-plane actions.
Other Relevant Information	NA NA

4. Assessment Outcomes	
Assessment Status (Draft or Final)	Final
Assessed %NBS Rating	40%
Seismic Grade and Relative Risk (from Table A3.1)	Grade C building which represent a risk to occupants of between 5 to 10 times that expected for a new building
For a DSA:	
Comment on the nature of Secondary Structural and Non-structural elements/ parts identified and assessed	S-shaped central wall will suffer damage, but has not been assessed as part of lateral load resisting system therefore does not compromise the % NBS.
Describe the Governing Critical Structural Weakness	N/A
Recommendations (optional for EPB purposes)	Should remedial action be taken on the concrete ring beams and blockwork walls. Then the building rating should be 65% NBS.

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Project 501745 File 501745-REP-ST-0001-DSA Napier Aquerium - Original 1973 Building door. 15 May 2018 Revision 1

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Introduction

A.1 Objectives

Aurecon has been engaged by Napier City Council to undertake a Detailed Seismic Assessment of the National Aquarium of New Zealand in Napier. The Aquarium has been constructed in two main stages with additional minor additions. This report addresses the assessment of the original 1973 building.

The objective of this Detailed Seismic Assessment (DSA) report is to determine the seismic rating of the National Aquarium in accordance with the 2017 Ministry of Business, Innovation and Employment (MBIE) guidelines and report on the seismic rating for the Napier District Council.

A.2 Scope of Works

A Detailed Seismic Assessment (DSA) of the National Aquarium, Napier has been carried out by Aurecon and the outcomes provided in this report.

The methodology used for determining the rating of the building follows the 2017 Guidelines produced by the (MBIE) in conjunction with relevant New Zealand Engineering technical societies and the Earthquake Commission.

These assessment guidelines supersede the previous New Zealand Society for Earthquake Engineering (NZSEE) 2006 guidelines.

The DSA assessment has been undertaken using a ETABS analysis software and calculations of structural demand versus capacity. It has been used to verify the assumptions and provide analysis for the overall behaviour of the building.

A.3 Sources of Building Data

A.3.1 Documents

- National Aquarium of New Zealand, marine Parade, Napier, Architectural & Structural Drawings C154, sheets A1 to A9 & S1 to S16, by City Engineers Department. Holmes Consulting Group.
- National Aquarium of New Zealand, marine Parade, Napier, Structural Drawings 30139, sheets R10-1 to R14-3, by Holmes Consulting Group.

A.3.2 Extent of Site Investigations

Visual, non-intrusive site inspections have been carried out within the building including accessible sub-floors, stairs, foundation areas and around the building's external elevations.

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A.4 Limitations

This report and conclusions within are prepared for Napier City Council in accordance with our clients brief and should not be relied on by other parties for any other purpose or use without written confirmation from Aurecon of the purpose and suitability.

A.5 Building Regulations

The Building (Earthquake-prone Buildings) Amendment Act 2016 is the current amendment to the Building Act 2004 that sets the performance objectives for buildings, and provides a system for managing earthquake-prone buildings that include the MBIE guidelines.

The intent of the act is to protect people and property and therefore performance limits are set in terms %NBS as an ultimate limit state (ULS).

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B. Building Description

B.1 General Description

The building located at 546 Marine Parade, Napier South, Napier is approximately 2 storey reinforced concrete structure provided, as shown in Figure 1 to 2. The overall building footprint is approximately 738m² with an overall height to the top floor from ground approximately 10m. Figure 3 to 5 show the floor plan levels. The building was designed by City Engineers Department in 1974 and then strengthened by Holmes Consulting Group in 2000.



Figure 1: Building Location (Source: google map).



Figure 2: South elevation

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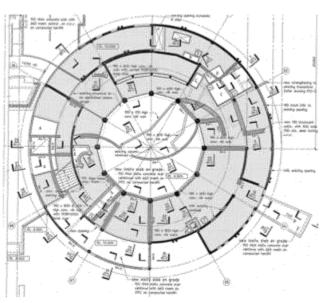


Figure 3: Floor plan, Ground Level

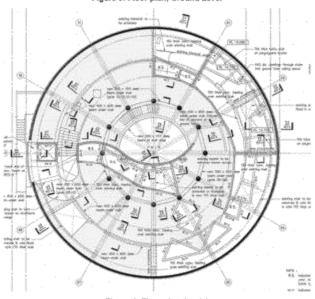
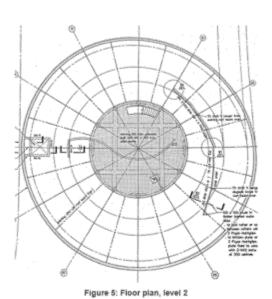


Figure 4: Floor plan, level 1

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B.1.1 Building Condition

A non-intrusive visual inspection confirmed that the building appears to have been constructed in accordance with the design drawings.

B.2 Site Geotechnical Conditions

B.2.1 Ground Conditions

In the absence of any specific geotechnical data regarding underlying geology for the area, the subsoil classification is considered to be **Class D** (deep or soft soil sites) for the purpose of calculating the seismic demands in accordance with NZS1170.5:2004.

B.3 Structural System

B.3.1 Gravity Load System

The combination of timber rafters and steel beams for the roof of the structure, and reinforced concrete frames and blockwork walls constitute the gravity load resisting systems. The gravity loads are transferred from roof structure and the concrete floor units to the precast concrete beams and through to the columns and blockwork walls and finally down to the pad foundations.

The building ground floor is supported on shallow foundations with a concrete slab on grade.

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B.3.2 Lateral Load System

The 190mm reinforced blockwork walls are provided in both principal directions at ground floor to resist the seismic forces. For 1st to 2nd floor, a combination of concrete beams & columns with 190mm reinforced blockwork walls at the perimeter of structure resist the seismic forces in both principal directions.

The 173mm thick reinforced concrete slab floor acts as a floor diaphragm (this was thickened to 323mm in some places during alternation and strengthening) at the 1st floor of the structure to distribute the inertial and transfer forces in to the main lateral load resisting system. At the 2st floor a combination of the 150mm reinforced concrete slab in centre of the structure with 250UB steel beams with ply and timber rafter on top acts as a floor diaphragm to distribute the inertia and transfer forces in to the main lateral load resisting system. The 3st storey timber structure is braced diagonally back down to the steel beams at level 2 and this diaphragm takes the additional load.

C. Detailed Seismic Assessment

C.1 Assessment Methodology

The Detailed Seismic Assessment of the National Aquarium of NZ (Original building) was carried out in accordance with the Seismic Assessment of Existing Buildings-Technical Guidelines for Engineering Assessments, dated July 2017. A simplified force based method was adopted using 3D modelling of the structure in ETABS structural software (version 16.2.0).

The probable strengths of blockwork walls are calculated based on the provided material and reinforcement detailing. The seismic demands calculated based on the location, site subsoil type. This provide important understanding of the expected response of the structure and the imposed demands under lateral seismic loading. The 3rd storey timber structure is "braced" diagonally back down to the steel beam and this diaphragm takes this additional load.

C.2 Seismic Loads

The following parameters have been considered to define the seismic acceleration spectra in accordance with NZS1170.5:2004:

 Parameter
 Value
 Comments

 Sife Subsoil Class
 D
 In the absence of site specific geotechnical information

 Z
 0.38
 Seismic hazard factor for Napier

 R_u (ULS)
 1.0
 Importance Level 2 – 1/500 yr return period earthquake

 N(T,D)
 1.0
 D<2km, T<1.5s</td>

Table 1. Parameters for Seismic Loads - ULS

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C.3 Material Properties

The following materials properties were taken to perform the assessment. These values are based on the NZSEE Guidelines July 2017 Table C5.3 in the absence of specific material testing data for the structure.

Lower Characteristic Strength Material Probable Strength f_m=12MPa Blockwork f_m =12MPa f.=20MPa f₄ =30MPa (Existing structure) Concrete f₂=30MPa f_{ce} =45MPa (Retrofitted structure) fy=275MPa f_{st}=297MPa (Existing structure) f_y=380MPa f_{sc}=410MPa (Existing structure) Reinforcement fy=300MPa f_{so}=324MPa (Retrofitted structure) fy~430MPa f_{pp}=464MPa (Retrofitted structure)

Table 2. Material Properties

C.4 Numerical Simulation and Analysis

To perform the structural analysis a 3D simulation model of the structure is created using CSI ETABS version 16.2.0 software, as shown in Figure 6.

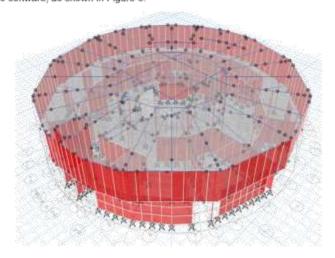


Figure 6: 3D Isometric views of ETABS Model

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The floor and walls were modelled as area elements and the columns and beams were modelled as line elements with equivalent weight and cracked section stiffness properties as per NZS 3101.2006.

The floor live load and superimposed loads were assigned to floor area elements. Modal Response Spectrum analysis cases were assigned and used for the analysis with appropriate scaling factors.

Here, the light weight structure in 3rd floor has not been modelled and only the weight of that has been considered in modelling.

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D. Results of the Detailed Seismic Assessment

D.1 Assessment Results Summary

D.1.1 Assessed Results %NBS and Critical Structural Weakness (CSWs)

The assessed seismic capacities of the structural elements of the roof structure in terms of are summarised as follows:

Table 3. Assessed %NBS Results

Structure - Element	Assessed %NBS	Assessed for flexure and shear capacity under the water load and seismic actions. Checked for out-of-plane bending and in-plane actions.		
Existing Blockwork Walls	50%			
New Blockwork Walls	72%	Assessed for flexure and shear capacity under the seismic actions.		
New Lift Blockwork Walls	55%	Assessed for flexure and shear capacity under the seismic actions.		
Seismic Con, Collumn	55%	Checked for out-of-plane bending and in-plane actions.		
Seismic Con. Beams (2 nd floor)	76%	Assessed for flexure and shear capacity under the seismic actions.		
Seismic Con. Ring Beams (2 nd floor)	40%	Checked for shear and flexure capacity.		
Seismic Con. Beams (1st floor)	72%	Checked for shear and flexure capacity.		
Seismic Con. Beams (1 st floor)- retrofitted	82%	Checked for shear and flexure capacity.		
Gravity Concrete Column	100%	Checked for shear and flexure capacity.		
Existing Gravity Concrete Beams	83%	Checked for shear and flexure capacity.		
Steel Tie Beams	100%	Checked for axial, shear and flexure capacity.		

D.2 Discussion of Assessment Results

The building has some structural weaknesses in the seismic system that limit the overall rating to about 40%NBS at Importance Level 2 (IL2) according to the guideline document.

D.2.1 Primary Structure

Our results found the reinforced blockwork walls, and seismic reinforced concrete beams & columns are assessed as 50%, 65/40% and 65% NBS respectively. This shows the structure does not have adequate

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strength to resist the design level seismic demands. The gravity beams & columns are assessed as 66% and 100% NBS respectively.

The new curved blockwork walls in the centre of the structure which were added during alteration and strengthening were not considered as a lateral load support system. This is because there is not sufficient connections to the diaphragm members and no additional foundation included to transfer any lateral loads into the ground. This wall is expected to be suffer obvious visual damaged during events as it's stiffness is such that it will attract some seismic load. However, since there is a more robust load path for the seismic forces in the other lateral resisting member no risk to life exist due to this damage.

A number of reinforced concrete beams at level 1 were not considered in lateral load supporting system as some of them were cut during alternation and block work walls were added between them. Moreover, the reinforced details show that, they were designed to take gravity loads only and not sufficiently connected to the columns to transfer lateral loads

The steel tie beams at 2nd floor have been modelled to have small axial stiffness to distribute the loads as a semi-rigid diaphragm through the plywood diaphragm attached to their top flange. This causes most of the lateral loads at 2nd floor transfers from ring blockwork walls to cantilever beams below. In turn these lateral loads are then taken into the level 1 diaphragm and out into the walls below.

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E.Commentary on Seismic Risks

The above results intend to materialise the relative seismic risk when compared to a new building if it were designed today. A lower %NBS means a higher seismic risk, which follows a non-linear relationship with the rating.

The following table prepared by the New Zealand Society for Earthquake Engineering intends to describe this relative risk for various levels of %NBS achieved:

Percentage of New Building Standard(%NBS) Approximate risk relative Alpha Rating Life safety risk description to a new building >100 Less than or comparable to 80-100 1-2 times greater Low risk 67-79 В 2-5 times greater Low to Medium risk 34-66 5-10 times greater Medium risk 20 to <34 10-25 times greater <20 25 times greater Very high risk

Table 4. Assessment outcomes and relative risk

The following graph shows the expected performance for a given %NBS achieved, versus an earthquake demand equivalent to %NBS shaking, for a given Importance Level:

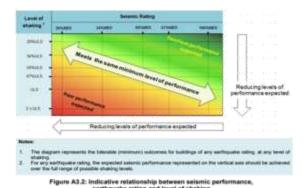


Figure 7: Indicative relationship between seismic performance (MBIE guidelines)

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F. Recommended Next Steps

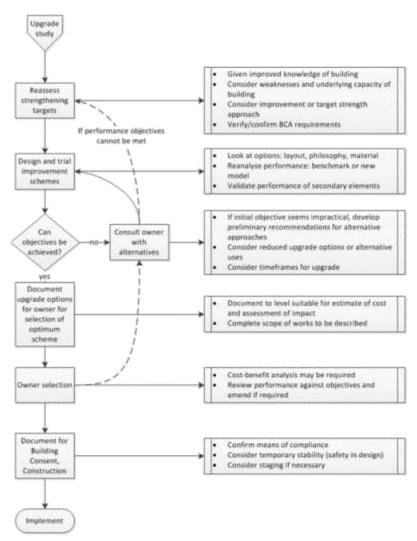


Figure 8: The recommended improvement process recommended by the MBIE guidelines.

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G. Conclusions

The results of the DSA indicate the building's NBS rating is limited to 40%NBS(IL2) by the level 2 reinforced cornet ring beam. The other primary structural beams, columns and walls are between 50 to 66% NBS assessed in accordance with the guideline document. This shows that whilst there are some identified structural weaknesses in seismic system there is scope for improved performance by addressing the identified areas of weakness.

Using the NZSEE grading scheme this building is classified as a Grade C building which represents a risk to occupants of between 5 to 10 times that expected for a new building, indicating a medium risk exposure.

H. Strengthening Recommendations

Should the Napier City Council wish to consider strengthening the building we have provided a summary of the following strengthening options to increase the building rating above 67% NBS:

H.1.1 Blockwork Walls

 The existing concrete blockwork walls are approximately 50%NBS and these could be retrofitted with FRP strips or structural steel whalers to improve their shear & bending strength to above 67%NBS.

H.1.2 Level 2 Seismic Ring Beam

The concrete ring beam at level 2, (centre of the structure) is approximately 40%NBS and these
could be retrofitted by adding additional reinforced concrete or steel plates to the top or bottom of
the beams or using Fibre Reinforced Plastic (FRP) strips to improve their shear & bending strength
to above 67%NBS.

H.1.3 Seismic Columns

The concrete columns in centre of the structure are 55%NBS and these could be retrofitted by steel
jacketing, or FRP wrapping, around the columns to improve their shear & bending strength to above
67%NBS.

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Structural Calculations

Aurecon: April 2018: DSA Calculations Ali Rad: Structural Engineer

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A. Load Takedown

A.1 Loads

A.1.1 Dead loads

All dead loads are calculated using a gravity constant of 9.81 m/s².

All loads are derived from AS/NZS 1170.0 or as otherwise noted within calculations.

A.1.2 Superimposed dead loads

Load	Magnitude	
Services, partitions, flooring	0.5kPa	

A.1.3 Imposed loads

Load	Magnitude (UDL/Point Load)	
Museum Floors and art galleries for exhibition purposes	4.0kPa, 4.5kN	

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A.2 Wind Loads

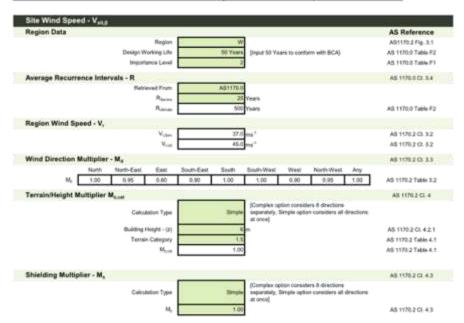
Below is the calculation for the basic wind pressure passic.

The loads will be factored by the appropriate C_{fig} & C_{dyn} factors in the relevant checks.

AS1170.2 Design Wind Speed V9

scaur a

Citors			Owie: 05/10/2017	
Project	National Aquaism of New Zealand, Napler	Project number:		
Subject	Wind Load	Revision: 0	By: Al-Ref	



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A.3 Hand Load-takedown

A.3.1 Load Takedown Plans

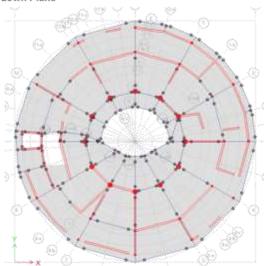


Figure 9: Level 1 Zones for Load Takedown

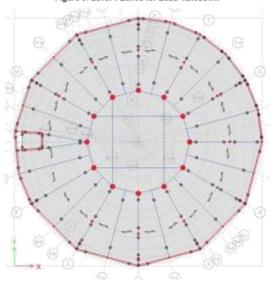


Figure 10: Roof Zones for Load Takedown

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B. Seismic Analysis

B.1 Input and Modelling Data

The new building of the national aquarium has been modelled using ETABS 2016.

The model uses a ductility of µ=1.25.

A Response spectrum analysis was preformed and all loads scaled and combined subsequently outside of the model in EXCEL spreadsheets.

The following inputs have been used for calculating seismic loads:

 Subsoil Class 	D
 Hazard Factor, Z 	0.4
 Return period factor, R 	1
 Near Fault Distance, D 	2km
 Structural performance Factor 	0.923
 Ductility 	1.25

The model considers accidental eccentricity of the applied load taken as ±0.1 the plan dimension (NZS1170.5:2004 ct. 5.3.1.2) and as the structure is considered nominally ductile, load combinations of 100% of the specified earthquake actions in one directions plus 30% of the specified earthquake actions in an orthogonal directions were set up in the model in accordance with NZS1170.5:2004 ct. 5.3.1.2.

B.2 Output Data and Results

B.2.1 X-Direction

NZS 1170 2004 Auto Seismic Load Calculation

This calculation presents the automatically generated lateral seismic loads for load pattern STATICX according to NZS 1170 2004, as calculated by ETABS.

Direction and Eccentricity

Direction = Multiple

Eccentricity Ratio = 10% for all diaphragms

Structural Period

Period Calculation Method = Program Calculated

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Factors and Coefficients

Return Period Factor, R [NZS Table 3.5]	R = 1
Hazard Factor, Z [NZS Table 3.3]	Z = 0.38
Structural Performance Factor, Sp [NZS 4.4]	$S_p = 0.925$
Structural Ductility Factor, µ [NZS 4.3]	$\mu = 1.25$
Near Fault Distance, D (NZS 3.1.6)	D = 2

Site Sub-soil Class [NZS 3.1.3] = De - Deep or Soft Soil

Equivalent Lateral Forces

Spectral Shape Factor, C(T ₁) [NZS Table 3.1]	$C(T_1)=3$
Seismic Design Action Coefficient, C_d (T ₁) [NZS 5.2.1]	$C_d(T_1) = \frac{C(T_1)S_p}{\mu}$

Calculated Base Shear

Direction	Period Used (sec)	Cd(T ₁₎	W (kN)	V (kN)	F _t (kN)
X	0.1	0.923	14404.63	13290.97	1063.28
X + Ecc. Y	0.1	0.923	14404.63	13290.97	1063.28
X - Ecc. Y	0.1	0.923	14404.63	13290.97	1063.28

B.2.2 Y-Direction

NZS 1170 2004 Auto Seismic Load Calculation

This calculation presents the automatically generated lateral seismic loads for load pattern STATICY according to NZS 1170 2004, as calculated by ETABS.

Direction and Eccentricity

Direction = Multiple

Eccentricity Ratio = 10% for all diaphragms

Structural Period

Period Calculation Method = Program Calculated

Factors and Coefficients

Return Period Factor, R [NZS Table 3.5]	R = 1
Hazard Factor, Z [NZS Table 3.3]	Z = 0.38
Structural Performance Factor, Sp [NZS 4.4]	$S_p = 0.925$
Structural Ductility Factor, µ [NZS 4.3]	$\mu \approx 1.25$
Near Fault Distance, D [NZS 3.1.6]	D = 2

Site Sub-soil Class [NZS 3.1.3] = De - Deep or Soft Soil

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Equivalent Lateral Forces

$$C(T_1) = 3$$

$$C_d(T_1) = \frac{C(T_1)S_1}{\alpha}$$

Calculated Base Shear

Direction	Period Used (sec)	Cd(T ₁₎	W (kN)	V (kN)	F _t (kN)
Y	0.1	0.923	14404.63	13290.97	1063.28
Y + Ecc. X	0.1	0.923	14404.63	13290.97	1063.28
Y - Ecc. X	0.1	0.923	14404.63	13290.97	1053.28

B.3 Scaling Factors for Response Spectrum Analysis

ETABS results will be scaled by the factors below in the design checks.

Building is Irregular.

Table 5: Scaling Factors for Model and Calculations

Direction	Ductility	Sp	kμ	Т	Analysis	Base Shear (kN)	Modal Scaling Factor k
×	1.25	0.925	1.0	0.1	ESM	13290.97	15.26
Y	1.25	0.925	1.0	0.1	ESM	13290.97	14.23

C. Storey Drift

C.1 Storey Drifts

Storey drifts were checked to ensure that inter-storey drift does not exceed 2.5% using μ =1.25 loads and using a drift modification factor k_{dm} =1.2 (NZS1170.5 Table 7.1, see below). Building height is about 7.5m

TABLE 7.1
DRIFT MODIFICATION FACTOR

Structure height	Drift modification factor, $k_{\rm dm}$
<i>h</i> ≤ 15 m	1.2
$15 \le h \le 30 \text{ m}$	1.2 + 0.02(h - 15)
h > 30 m	1.5

Figure 11: Table 7.1 from NZ\$1170.5

The drifts are shown in Table 6. Maximum drift ratio is 2.34%, which is below the 2.5% threshold and therefore acceptable.

Table 6: Inter-Storey Drift Ratio

Story	Load Case/Combo	Item	Drift	ULS Drift [%]	Utilisation [%]	Drift [mm]
Level 1-17.47	GE + Spec X Max	х	0.015467	2.32%	93%	86.65
Level 1-17.47	GE + Spec X Max	Y	0.013776	2.07%	83%	77.18
Level 1-17.47	GE + Spec X Min	х	0.015449	2.32%	93%	86.55
Level 1-17.47	GE + Spec X Min	Y	0.013688	2.05%	82%	76.69
Level 1-17.47	GE + Spec Y Max	Х	0.012472	1.87%	75%	69.87
Level 1-17.47	GE + Spec Y Max	Y	0.015598	2.34%	94%	87.39
Level 1-17.47	GE + Spec Y Min	Х	0.012314	1.85%	74%	68.99
Level 1-17.47	GE + Spec Y Min	Y	0.015625	2.34%	94%	87.54
Ground Level-13.735	GE + Spec X Max	Х	0.000946	0.14%	6%	5.30
Ground Level-13.735	GE + Spec X Max	Y	0.000925	0.14%	6%	5.18
Ground Level-13.735	GE + Spec X Min	Х	0.000962	0.14%	6%	5.39
Ground Level-13.735	GE + Spec X Min	Y	0.000941	0.14%	6%	5.27
Ground Level-13.735	GE + Spec Y Max	X	0.000816	0.12%	5%	4.57
Ground Level-13.735	GE + Spec Y Max	Y	0.001075	0.16%	6%	6.02
Ground Level-13.735	GE + Spec Y Min	X	0.000837	0.13%	5%	4.69
Ground Level-13.735	GE + Spec Y Min	Y	0.001091	0.16%	7%	6.11

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D. Lateral Load Resisting System

The lateral load resisting system of the structure consists of 200mm blockwork walls in the ground level and combination of perimeter 190mm blockwork walls with concrete MRF in the centre of the structure.

Figure 12 shows the plan of the block works walls in the ground level. The black filled lines are the old blockwork walls and the dashed grey lines are the new blockwork walls after strengthening in 2000. The new curved walls in the centre have not been considered as seismic walls as there is not clear connection details to the diaphragm. Also, there is not enough foundation footing. Also, some of the new walls are not extended up to the diaphragm and they are only used for partitions and for nibs.

The old wails have 12.5mm vertical reinforcement at 400mm (1/2°Φ@400) and 12.5mm horizontal reinforcement at 800mm (1/2°Φ@800). The new walls have D16@400 both vertical and horizontal reinforcements.

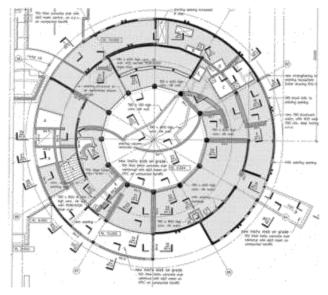


Figure 12: Plan of Block work walls in ground floor

Figure 13 shows the blockwork plan with concrete MRF in level 2. The ring blockwork walls at the edge of the structure is connected to the concrete MRF with 250UB steel beams and timber rafter and ply on top. The ring walls as shown in Figure 14 have 12.5mm vertical reinforcement at 400mm (1/2"Φ@400) and 12.5mm horizontal reinforcement at 800mm (1/2"Φ@800).

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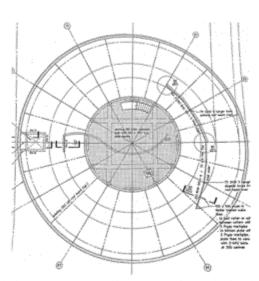


Figure 13: Plan of ring Blockwork walls at the edge with concrete MRF in the centre

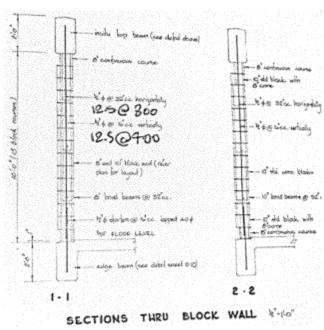


Figure 14: Detail of old blockwork walls

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D.1.1 Blockwork Walls

The shear & flexural demands from ETABS output and capacities of each piers summarised in an excel spreadsheet below. The Etabs plan for piers is also shown in Figure 15 and Figure 16. The pier cells in the below spreadsheet with orange colour shows the old blockwork walls and the ones in white cells are the new walls.

Pier	t(m)	V*(kN)	M*(kN.m)	ΦVn(kN)	ΦMn(kNm)	Shear-NBS	Mom-NBS
P1000-1	7.3	2319.531	6577.4574	1762	5835	70%	20%
P1000-2	1.9	505.7976	1070.1631	459	600	91%	56%
P1100	2,5	616.2449	1339.506	604	736	38%	55%
P1200	2.5	401.7467	901.2606	604	736	300%	82%
PSDD	1	93.6775	199.5651	143	137	300%	69%
P700	2	129.2609	466.2348	271	442	100%	95%
P400	2.8	466.0513	988,296	380	777	81%	79%
P500	2.8	662.911	1565.5601	380	777	57%	50%
P70	3.8	1060.769	2075.5895	528	1272	50%	61N
P90	3.8	1005.377	1538.0668	917	1889	91%	100%
P18	2.6	581.7522	1248,8033	646	960	100%	77%
P19	2	140.7843	340.5523	497	640	300%	100%
P29	9.3	433.8408	851.2446	820	1500	100%	100%
P36	7.5	2027.693	7480.6152	1291	4566	64%	61%
P16	3.3	761.4972	1523.3322	820	1500	100%	98%
P17	3.3	1035.769	1688 7957	820	1500	79%	89%
P22	8	2465.797	5699.4288	2241	7700	91%	100%
P25	2.5	781.9548	1592,8738	869	1720	300%	100%
P26	1.7	473.8382	407.6332	422	473	89%	100%
P27	1.7	468.3902	394.0471	404	473	86%	100%
P20	3	1302.116	2846.6076	1304	3123	100%	100%
PB	1.5	165.6545	310.1174	214	286	100%	92%
P33	4.9	780.2473	2024.975	754	2043	97%	100%
P34	1.25	123.4888	301.7018	178	205	100%	68%
PO.	5.9	2251.958	4435.7635	961	2941	43%	66%
P10	5.9	2214.967	4564.8874	961	2941	43%	64%
P11	3.5	859.3961	2074.4895	499	1163	58%	56%
P12	3	571.9428	1204.6176	745	1295	100%	100%
p13	5.9	1418.744	2856.3413	961	2941	68%	100%
P14	5.9	2169.885	4246.3928	961	2941	44%	69%
P15	3	271.1404	973.2599	428	838	100%	86%
P24	3.1	624.1495	1214.3114	442	943	71%	78%
P28	3	156.5807	455.3035	428	838	100%	100%
P21	2	118.6143	437.5896	497	640	300%	100%
P30	3.1	892.5225	1938.9274	770	1390	20%	72%
14	5.7	1464.838	2620.6528	813	2691	55%	100%
P1	5.8	1145.057	4276.1427	1554	4114	100%	90%
P3	4.6	1251.931	3086.5843	692	1794	55%	58%
P44	3.8	815.0359	1572.0143	542	1272	66%	81%
P45	3.8	580.0163	1113.7917	542	1272	93%	100%
P46	3.8	596.0704	1135.848	542	1272	91%	100%
P47	3.8	861.4206	1622.5792	542	1272	63%	78%
P48	3.6	1099.659	2091.3934	542	1272	40%	61%
ps.	1.9	122.8171	460.3412	271	417	100%	91%
		102.8903	334.5414	214	286	100%	85%

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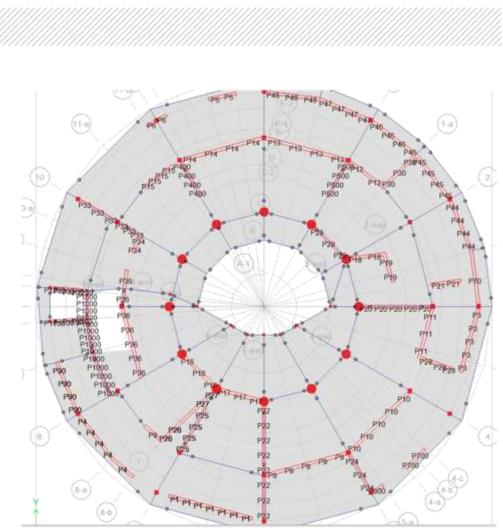


Figure 15: Pier label in level 1

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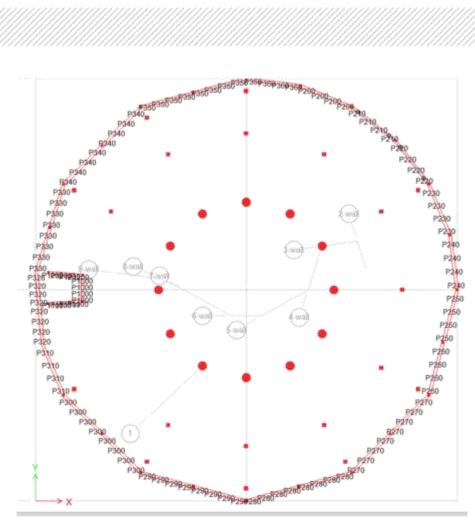


Figure 16: Pier label in level 2

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D.1.2 Blockwork Wall Capacity Check In-Plane

The shear capacities are calculated and summarised in an excel spreadsheet below. A sample calculation representing a line in the excel spreadsheet has also been attached.

In-plane Shear Capacity:

	_							in	Plane She	ar Capac	ity						
Pier	b	ι	a	rm	а	CS.	vm=(C1+C2) *(0.2vPm)	Vm (kN)	Av (Horiz Steel)	Av (Horiz- Steel)	S (mm)	Vs(kft)	vpiMpaj	Vp(Mi)	V (prob)+ 0.85*(Vc+Vs+ Vp)	Demand	NBSN
P1000-1	200	7300	5840	12	0.13	1.00	0.78	913	D16 @400	200.96	400	1090	0:06	70	1762	2320	76%
P1000-2	200	1900	1520	17	0.13	1.00	0.78	238	D16 @400	200.96	400	284	0.06	18	459	506	91%
P1100	200	2500	2000	12	0.13	1.00	0.78	313	D16 @400	200.96	400	373	0.06	24	604	616	98%
P1200	200	2500	2000	12	0.13	1.00	0.78	313	D16 @400	200.96	400	373	0:06	24	604	402	100%
P900	200	1000	800	12	0.06	1.00	0.73	117	D12.7 @800	126.61	800	.33	0.11	18	143	94	100%
P700	200	2000	1600	12	0.06	1.00	0.73	234	012.7 @800	126-61	1100	66	0.06	19	271	129	100%
P400	200	2800	2249	12	0.06	1.00	0.73	328	0127@800	126.61	1100	92	0.06	27	380	466	#1%
P500	200	2800	2240	12	0.06	1.00	0.73	328	013.7 (0000	126.61	800	92	0.06	27	380	663	57%
P70	200	3800	3040	12	0.05	0.96	0.70	428	D12.7 @800	126.61	800	125	0.11	68	528	1061	50%
P90	200	3800	3040	12	0.13	1.00	0.78	475	D16 @400	200.96	400	567	0.06	37	917	1005	91%
P18	200	2900	5080	12	0.13	1.00	0.78	325	D16 @400	200.96	400	388	0.11	46	646	582	100%
P19	200	2000	1600	12	0.13	1.00	0.78	250	016 (0480	200.96	400	299	0.11	36	497	141	100%
P29	200	3300	2640	12	0.13	1.00	0.78	413	D16 @400	200.96	400	493	0.11	59	820	434	100%
P36	200	7500	6000	12	0.06	2.31	0.95	1139	012.7 (9600	126.61	800	246	0.11	134	1291	2028	64%
P16	200	3300	2640	12	0.13	1.00	0.78	413	D16 @400	200.96	400	493	0.11	59	820	761	100%
P17	200	3300	2640	12	0.13	1.00	0.78	413	D16 @400	200.96	400	493	0.11	59	820	2036	79%
P22.	200	8000	6400	12	0.13	1.34	1.02	1299	016 @400	200.96	400	1195	0.11	143	2241	2466	91%
P25	200	1500	2800	12	0.13	1.00	0.78	438	D16 @400	200.96	400	523	0.11	62	869	782	100%
₽26	250	1700	1360	-	0.13	1.00	0.78	213	D16 @400	200.96	400	254	0.11	30	422	474	89%
P27	200	1700	1360	12	0.13	1.00	0.78	213	D16 @400	200.96	400	254	0.03	9	404	468	86%
P20	200	5000	4000	12	0.13	1.13	0.87	698	D16 @400	200.96	490	747	0.51	89	1304	1502	100%
PR	200	1500	1200	12	0.06	1.00	0.73	176	012.7 @800	126.61	ADD	49	0.11	27	214	166	100%
P33	200	4900	3920	12	0.06	1.12	0.81	639	017-7 (8900	126.61	800	161	0.11	87	754	780	97%
P34	200	1250	1000	12	0.05	1.00	0.73	146	012.7 @800	-	800	41	0.11	22	178	123	100%
pg	200	5900	4720	12	0.06	1.21	0.88	831	D12 7 (8800		800	194	0.11	105	961	2252	43%
P10	200	5900	4720	12	0.08	7.21	0.88	831	D12 7 @800	126.61	800	194	0.11	105	961	2215	43%
P11	200	3500	2800	12	0.06	2.00	0.73	410	D12.7 @ 800	126.61	800	115	0.11	62	499	859	58%
P12	200	3000	2400	12	0.13	1.00	0.78	375	D16 @400	200.96	400	448	0.11	53	745	572	100%
pt3	200	5900	4720	12	0.06	1.21	0.88	851	D12 7 #800	126.61	100	198	0.11	105	961	1419	68%
P14	200	5900	4720	12	0.06	121	0.88	831	113.7 #860	126.61	800	294	0.11	105	961	2170	44%
P15	200	3000	2400	12	0.06	1.00	0.73	351	012.7 @800	126.61	800	98	0.11	53	428	271	100%
P24	200	3100	2480	12	0.06	1.00	0.73	363	012 7 @800	126.61	800	102	0.11	55	442	624	71%
P28	200	3000	2400	12	0.05	1.00	0.73	351	D12.7 @800	126.61	800	98	0.11	53	428	157	100%
P21	200	2000	1600	12	0.13	1.00	0.78	250	D16 @400	200.96	400	299	0.11	36	497	119	100%
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14	200	5700	4560	12	0.06	1.00	0.73	667	D12 2 #HD0	126.61	800	187	0.31	-	813	1465	55%
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P45	200	3800	3040	12	0.06	1.00	0.73		011.7 @800	126.61	900	125	0.22	68	542	815	_
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	200	3800	3040	12	0.06	1.00	0.73	-645	D12.7 @800	116.61	800	125	0.11	66	542	596	91%
P47	200	3800	3040	12	0.06	1.00	0.73	445	D12.7 @800	126.61	900	125	0.11	68	542	861	55%
P48	200	3800	3040	12	0.06	1.00	0.73	445	D11.7 @ 800	126.61	800	125	0.11	68	542	1100	49%
PS PS	200	1900	1520	12	0.06	1.00	0.73	222	D12.7 #800	126.61	800	62	0.11	34	271	123	100%
P6	200	1500	1200	12	0.06	1.00	0.73	176	012.7 @000	126.01	800	49	0.11	27	214	103	100%

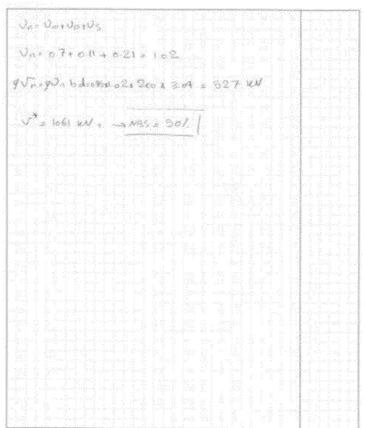
QUIPECON Project 501745 File 15 May 2018 Revision 1 Page 10

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In-plane Flexural Capacity:

A summary of flexural capcity of the walls are provided in the spreadsheet D1.1. Here a smple calculation of the capacity calculation is provided for Pier 70.

STRESS - STRAIN COMPATIBILITY ANALYSIS OF RIC SHEAR WALLS

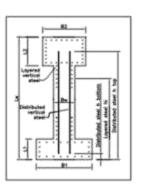


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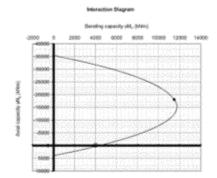
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D.1.3 Blockwork Wall Capacity Check - Out of Plane

The walls have been checked in out of plane using NZS1170.5 Section 8: parts and components. See below for check.

A simple hand calculation for flexural capacity has been attached for a meter of tank walls.



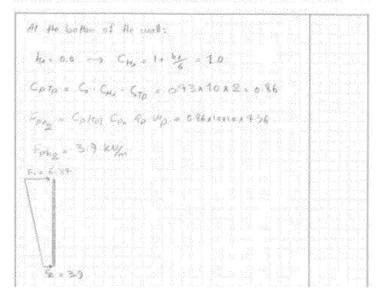
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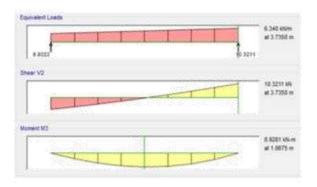


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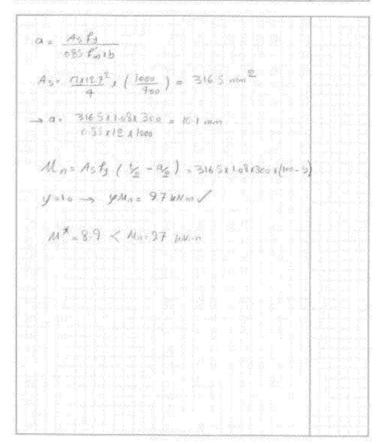




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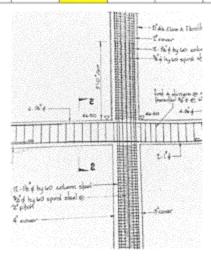
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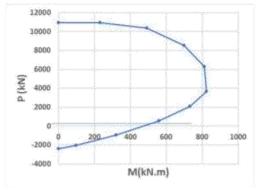
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D.2 600 Circular Concrete Columns

600 circular concrete columns are used to transfer the loads from 457x610 concrete beams from 2^{nd} level to the foundation. Its got 12-1 $^{1}/_{8}$ $^{n}\Phi$ with $^{3}/_{8}$ $^{n}\Phi$ spiral @2" pitch. The below spreadsheet shows the maximum demand & capacity of the columns. A simple hand calculation for shear capacity has been attached.

	Demand											
V2	V3	V(prob) NBS(%) M2 M3		V(prob) NBS(%) M2 M3 N		M(Prob)	NBS(%)					
kN	kN	kN	1000	kN-m	kN-m	kN-m						
408	460	555	100%	917	812	500	55%					

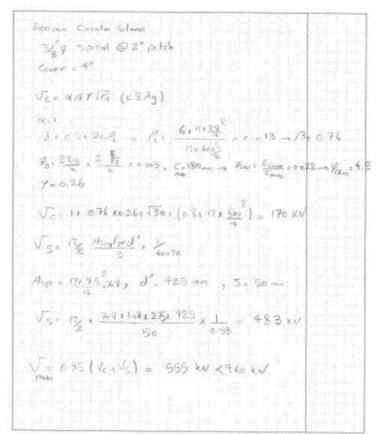




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D.3 Seismic Concrete Beams

Level 2:

Seismic frame in 2nd level is combination of 457x610 & 457x300 concrete beams. The below spreadsheet shows the maximum demand and capacities of these elements.

A sample calculation representing a line in the excel spreadsheet has also been attached.

457x610 & 457x300 Concrete Beams

		V*	V(prob)	NBS (V)	M*	M(prob)	NBS (M)
2nd	457x610	222.79	205.5	92%	498.88	380.3	76%
Floor	457x300	275.14	116.7	42%	378.81	148.8	39%

		Moment Capacity											
	Cover H d	b	Rein. No-1	Rein. Dia1	As	Ts	c	a	M(prob)				
					Layer 1		mm2	N	mm	mm	(kNm)		
457x610	75.0	457.0	382.0	610.0	6.0	28.0	3692.6	1096714.1	82.9	70.5	380.3		
457x300	88.0	457.0	369.0	300.0	3.0	25.0	1471.9	437146.9	67.2	57.1	148.8		

		Shear Capacity without strengthening											
	α	β	фу	фсар1	фсар1	min (фсар)	ф(duc)	Y	Vc(prob)	Av	s	Vs(prob)	V(prob)
						(rad/m)			(kN)			(kN)	(kN)
457x610	1.00	0.82	0.006	0.0482	0.2006	0.0482	8.73	0.18	146.3	157.0	150.0	95.4	205.5
457x300	1.00	0.77	0.006	0.0595	0.1988	0.0595	10.77	0.13	50.0	157.0	150.0	87.4	116.7

Level 1:

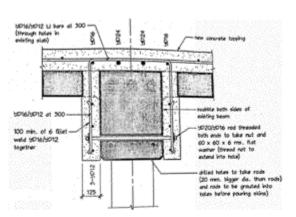
The seismic load from ring blockwork walls are transferring to the 610x457mm beams underneath.

Some of the 610x457 beams have been strengthened and the details of strengthening is shown below. Although 150mm added to the top of the beams, but there is not any clear detail of the connections to the beam and only the bot side connected with yD20/16 rod. Therefore, in calculating the moment capacity only the old section is considered. However, for calculating the shear capacity, the yD12/16 @300 has been considered as a stirrup and added to the shear capacity of the beam.

A simple hand calculation is provided for calculating shear capacity of the old and new sections.

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The shear & flexural demands from ETABS output, also capacities for each element before and after strengthening are calculated and summarised in the below excel spreadsheet.

		V*	M*	V(prob)	M(prob)	NBS (V)	NBS (M)
Without	610x457	304.32	523.67	224.9	426.9	74%	82%
Strengthening	610x457- Cantil	1145.23	642.57	828.4	790.8	72%	100%

		٧*	V(prob)	NBS (V)
	760x707	304.32	451	100%
With Strengthening	760x707- Cantil	1145.23	1079	94%

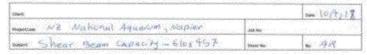
Capacity Calculation:

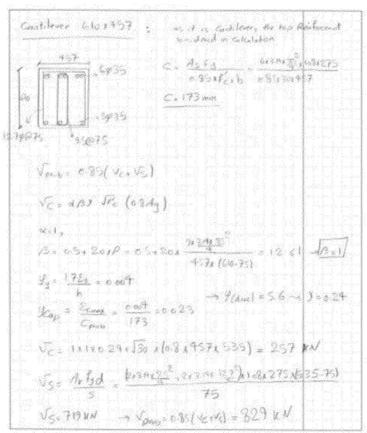
						Momen	nt Capacity	1			
	Cover	н	d	b	Rein.	Dia.	As	Ts	c	a	M(prob)
							mm2	N	mm	mm	(kNm)
610x457- Cantil	75.0	610.0	535,0	457.0	6.0	35.0	5769.8	1.71E+06	173.0	147.0	790.8
610x457	75.0	610.0	535.0	457.0	3.0	35.0	2884.9	8.57E+05	86.5	73.5	426.9

						Shear Capaci	ity Withou	t Stren	gthening				
	α	β	фу	фсар1	фсар1	min (фсар)	ф(duc)	Y	Vc(prob)	Av	s	Vs(prob)	V(prob)
						(rad/m)			(kN)			(kN)	(kN)
610x457- Cantil	1.00	0.74	0.004	0.0462	0.1338	0.0462	11.17	0.13	99.8	394.9	75.0	719.4	696.3
610x457	1.00	0.74	0.004	0.0462	0.1338	0.0462	11.17	0.13	99.8	141.7	150.0	129.1	194.5

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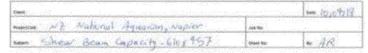
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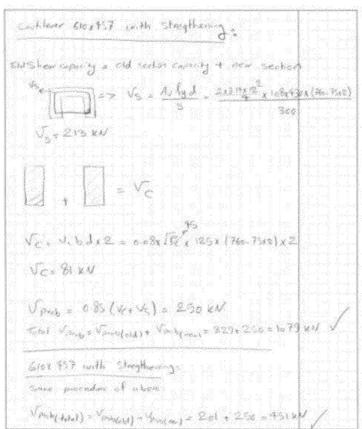




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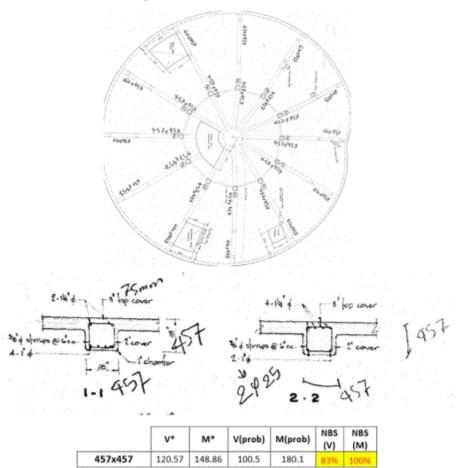
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E. Gravity System

E.1.1 300x300mm concrete columns:

Below figures show the gravity beams layout plan in level 1. The reinforcement details indicate that these have been design just for gravity as the bot reinforcement in middle of the span was increased, but next to the columns was decreased. Some of the 457x457 concrete beams in the centre has been removed during strengthening.

The shear & flexural demands from ETABS output, also capacities for each element are calculated and summarised in the below excel spreadsheet.



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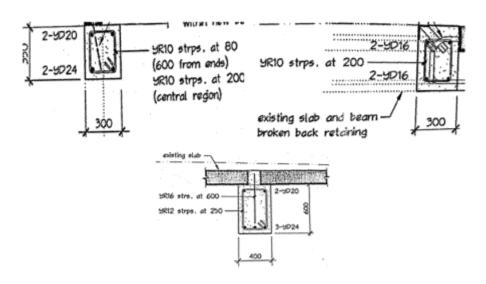
		Cover	н	d	b	Rein.	Dia.	As	Ts	c	a	M(prob)
		mm	mm	mm	mm		mm	mm2	N	mm	mm	(kNm)
457	x457	75.0	457.0	334.0	457.0	4.0	25.0	1962.5	582862.5	58.8	50.0	180.1

	α	β	фу	фсар1	фсар1	min (фсар)	ф(duc)	Y	Vc(prob)	Av	s	Vs(prob)	V(prob)
						(rad/m)			(kN)			(kN)	(kN)
457x457	1.00	0.76	0.006	0.0680	0.2181	0.0680	12.31	0.10	52.6	157.0	150.0	65.6	100.5

Also, there are some other gravity beams which have been added later during strengthening in 2000. The details of the beams are shown below.

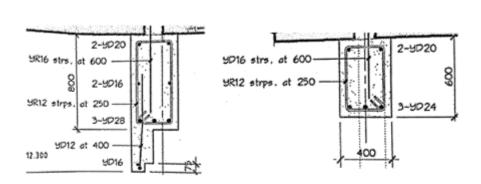
The shear & flexural demands from ETABS output, also capacities for each element are calculated and summarised in the below excel spreadsheet.

	V*	M*	V(prob)	M(prob)	NBS (V)	NBS (M)
457x300	14.6158	9.2473	86.7	64.2	100%	100%
350x300	35.3649	28.5342	89.8	87.6	100%	100%
403x300	44.9236	36.7693	105.8	109.9	100%	100%
500x300	61.541	34.9195	127.2	150.6	100%	100%
600x400	103.7426	147.0658	193.9	287.5	100%	100%
800x400	115.9964	186.8944	240.0	278.6	100%	100%



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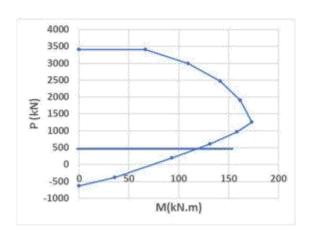
E.1.2 300x300mm concrete columns:

Its got 4-1° vertical reinforcement and 3/8" stirrup @ 6".

The below spreadsheet shows the maximum demand and capacities of these elements.

A simple hand calculation for shear capacity has been attached.

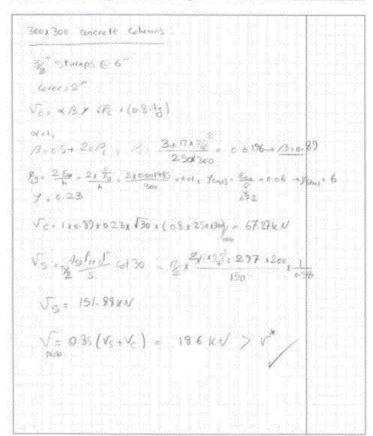
			Dem	nand			
V2	V3	V(prob)	NBS(%)	M2	мз	M(Prob)	NBS(%)
kN	kN	kN	4000	kN-m	kN-m	kN-m	
64	45	320	1100796	85	52	120	100%



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National Aquarium of NZ, Napier

Detailed Seismic Assessment -New Building

Napier City Council

15 May 2018 Revision: 1 Reference: 501745



Document control record

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Repo	ort title	Detailed Seismic Assessm	ient -	New Building			
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Clier	nt contact	Adele Henderson	Client refe	erence			
Rev	Date	Revision details/status	Author	Reviewer	Verifier (if required):	Approver	
0	5 April 2018	For QA	A. Rad	C. Thompson		D. Fleming	
1	15 May 2018	Issue	A. Rad	C. Thompson		D. Fleming	
Cum	ent revision	1	1		1		

Approval			
Author signature		Approver signature	inglic
Name	Ali Rad	Name	Duncan Fleming
Title	Structural Engineer	Title	Technical Director

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Project 501745 File 501745-PEP-ST-5002-DSA Napler Aquarium - Extention 2006 Building door. 15 May 2018 Revision 1

Executive Summary

Background

This Detailed Seismic Assessment (DSA) of the National Aquarium of New Zealand located at 546 Marine Parade, Napier South, Napier, has been carried out for Napier District Council.

The purpose of the report is to determine the overall seismic performance of the building in terms of % NBS rating in accordance with the latest MBIE earthquake engineering guidelines and methodology document.

The Seismic Assessment of Existing Buildings: Technical Guidelines for Engineering Assessments, July 2017, Version 1, referred to as the Engineering Assessment Guidelines (The Guidelines) within this methodology."

Building Description

The National Aquarium of New Zealand is located on Marine Parade Street, Napier. The aquarium was originally designed c.2000 by Holmes Consulting Group using reinforced concrete walls, beams and columns, 200mm precast hollowcore floor slab with 100/150mm topping with 663 reinforcing mesh, timber glulam rafter roof structure of the shark tank and steel braced roof for other side of the structure. Reinforced concrete blockwork walls were used for the facade.

The building was designed to be 1 storey high with an overall height to the roof from ground being approximately 6.0m. The overall building footprint is approximately 1046m².

Assessed Earthquake Rating

A simplified force based method was adopted using 3D modelling of the structure in ETABS structural software in accordance with the Seismic Assessment of Existing Buildings-Technical Guidelines for Engineering Assessments, dated July 2017.

The earthquake rating assumes that the building is classified as an Importance Level 2 building in accordance with the Australian/New Zealand Standard Structural Design Actions Part 0, AS/NZS 1170.0:2002.

The results of the DSA indicate the building's earthquake rating to be limited by the seating of the precast hollowcore floor units to approximately 46% NBS. This report details some simple remedial detailing that would allow the building to achieve a rating of 90%NBS at Importance Level 2 (IL2) according to the guideline document.

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Project 501745 File 501745-REP-ST-0002-DSA Napler Aquarium - Extention 2000 Building door. 15 May 2018

Following the NZSEE grading scheme this building is classified as a Grade C building which represent a risk to occupants of between 5 to 10 times that expected for a new building, indicating a medium-risk exposure,

1. Building Information	
Building Name/ Description	National Aquarium, Napier
Street Address	546 Marine Parade, Napier South, Napier 4110
Territorial Authority	Napier City Council
No. of Storeys	1
Area of Typical Floor (approx.)	1046m²
Year of Design (approx.)	2000
NZ Standards designed to	NZS 4203:1992 Loading Standard; NZS 3101:1995 Concrete Standard
Structural System including Foundations	Roof – Precast concrete floor with 100/150mm toping and 663 mesh Framing system – Precast concrete beams, in-situ reinforced concrete columns and shear walls, Facade – Precast reinforced concrete panels and blockwork walls. Foundations – Slab on grade with perimeter and internal strip footings tied together.
Does the building comprise a shared structural form or shares structural elements with any other adjacent titles?	No
Key features of ground profile and identified geohazards	Unknown
Previous strengthening and/ or significant alteration	No previous strengthening works carried out,
Heritage Issues/ Status	NA .
Other Relevant Information	NA.

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Project 501745 File 501745-PEP-ST-0002-DSA Napler Aquarium - Extention 2006 Building door. 15 May 2018 Revision 1

2. Assessment Informa	ation
Consulting Practice	Aurecon Engineering Company
CPEng Responsible, including: Name CPEng number A statement of suitable skills and experience in the seismic assessment of existing buildings	Duncan Fleming Technical Director/ Structural Engineer CPEng 223433 Duncan is a technical director and Manager for Structural Engineer, Wellington with multiple years of consulting engineering experience and a technically skilled design manager across a wide range of engineering projects. He has undertaken numerous seismic assessments, which forms part of his Practice Area.
Documentation reviewed, including: date/version of drawings/ calculations previous seismic assessments	National Aquarium of New Zealand, marine Parade, Napier, Structural Drawings 30139, sheets S1-1 to S5-10, by Holmes Consulting Group.
Geotechnical Report(s)	None
Date(s) Building Inspected and extent of Inspection	Visual non-intrusive structural inspection on 26th January 2018 by Aurecon Engineers.
Description of any structural testing undertaken and results summary	None
Previous Assessment Reports	None
Other Relevant Information	NA NA

Project 501745 File 501745-REP-ST-0002-DSA Napler Aquarium - Extention 2000 Building door. 15 May 2018
Revision 1

Occupancy Type(s) and Importance Level	Importance Level 2
Site Subsoil Class	Subsoil Class D NZS1170.5
For a DSA:	
Summary of how Part C was applied, including: the analysis methodology(s) used from C2 other sections of Part C applied	A 3D ETABS model of the building has been used to provide analysis for the overall behaviour of the building. Seismic assessment of the reinforced concrete shear walls, blockwork wall and reinforced concrete beams and columns were carried out based on NZSEE guideline. The concrete blockwork walls, precast panels and attachments have been assessed by Parts Loading per NZS 1170.5 Chapter 8 for out of plane and in-plane actions.
Other Relevant Information	NA

Assessment Status (Draft or Final)	Final
Assessed %NBS Rating	46%
Seismic Grade and Relative Risk (from Table A3.1)	Grade C building which represent a risk to occupants of between 5 to 10 times that expected for a new building
For a DSA:	
Describe the Governing Critical Structural Weakness	The building overall rating is limited to be less than 67%NBS at Importance Level 2 (ILZ). This rating is limited by the seating of the precast floor panels. They have insufficient seating provided for movements under a ULS event.
Recommendations (optional for EPB purposes)	Should remedial action be taken on the seating of the precast floor panels. Then the building rating would achieve a rating of 90% NBS.

Project 501745 File 501745-REP-ST-0002-DSA Napler Aquarium - Extention 2000 Building door. 15 May 2018 Revision 1

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- A.4 Limitations
- A.5 Building Regulations

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 - B.1.1 Building Condition
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- C.2 Seismic Loads
- C.3 Material Properties
- C.4 Numerical Simulation and Analysis

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Precast Floor Seating

A. Load Takedown

- A.1 Loads
 - A.1.1 Dead loads
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 - A.3 Water Loads
 - A.4 Hand Load-takedown
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 - B. Seismic Analysis
 - B.1 Input and Modelling Data
 - B.2 Output Data and Results
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 - B.3 Scaling Factors for Response Spectrum Analysis
 - C. Storey Drift
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 - D. Precast Floor Seating.
 - E. Lateral Load Resisting System
 - E.1 500 to 300mm Precast Tank Panels
 - E.1.1 Tank Wall Demand
 - E.1.2 Tank Wall Capacity Check In-Plane
 - E.1.3 Tank Wall Capacity Check Out of Plane
 - E.2 Spandrels
 - E.3 200mm Precast Panels
 - E.3.1 200mm Precast Concrete Wall
 - E.4 190mm Blockwork Walls
 - E.5 500x600 rectangular concrete columns
 - F. Gravity System
 - F.1.1 720x135 Glulam beams
 - F.1.2 500mm circular concrete columns:
 - F.1.3 Gravity Concrete Beams:

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Introduction

A.1 Objectives

Aurecon has been engaged by Napier City Council to undertake a detailed seismic assessment of the new building of National Aquarium of New Zealand in Napier.

The objective of this Detailed Seismic Assessment (DSA) report is to determine the seismic rating of the Downtown Carpark Building in accordance with the 2017 Ministry of Business, Innovation and Employment (MBIE) guidelines and report on the seismic rating for the Napier District Council.

A.2 Scope of Works

A Detailed Seismic Assessment (DSA) of the National Aquarium, Napier has been carried out by Aurecon and the outcomes provided in this report.

The methodology used for determining the rating of the building follows the 2017 Guidelines produced by the (MBIE) in conjunction with relevant New Zealand Engineering technical societies and the Earthquake Commission.

These assessment guidelines superseded the previous New Zealand Society for Earthquake Engineering (NZSEE) 2006 guidelines.

The DSA assessment has been undertaken using a 3D ETABS model. It has been used to verify the assumptions and provide analysis for the overall behaviour of the building.

A.3 Sources of Building Data

A.3.1 Documents

National Aquarium of New Zealand, marine Parade, Napier, Structural Drawings 30139, sheets S1-1 to S5-10, by Holmes Consulting Group.

A.3.2 Extent of Site Investigations

Visual, non-intrusive site inspections have been carried out within the building including accessible sub-floors, stairs, foundation areas and around the building's external elevations.

A.4 Limitations

This report and conclusions within are prepared for Napier City Council in accordance with our clients brief and should not be relied on by other parties for any other purpose or use without written confirmation from Aurecon of the purpose and suitability.

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A.5 Building Regulations

The Building (Earthquake-prone Buildings) Amendment Act 2016 is the current amendment to the Building Act 2004 that sets the performance objectives for buildings, and provides a system for managing earthquake-prone buildings that include the MBIE guidelines.

The intent of the act is to protect people and property and therefore performance limits are set in terms %NBS as an ultimate limit state (ULS).

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B. Building Description

B.1 General Description

The building located at 546 Marine Parade, Napier South, Napier is a 1 storey reinforced concrete structure provided, as shown in Figure 1 & 2. The overall building footprint is approximately 1046 m² with an overall height to the top floor from ground approximately 6m. Figure 3 & 4 show the floor plan levels. The building was originally designed by Holmes Consulting Group.



Figure 1: Building Location (Source: googlemap).



Figure 2: West elevation

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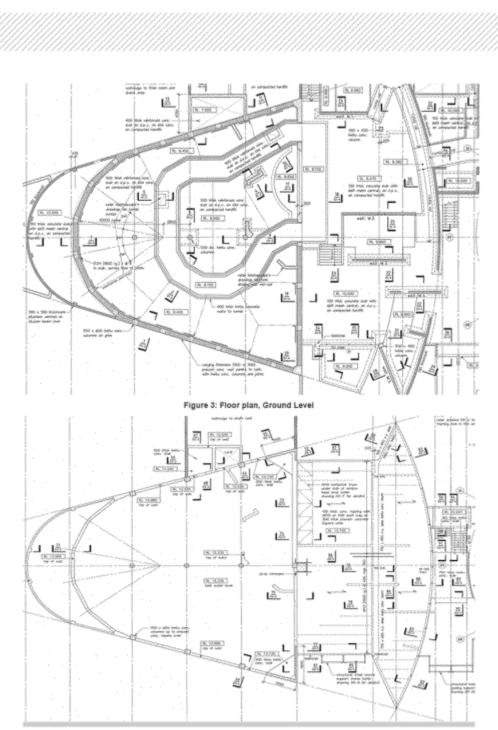


Figure 4: Floor plan, level 1

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B.1.1 Building Condition

A non-intrusive visual inspection confirmed that the building appears to have been constructed in accordance with the design drawings.

B.2 Site Geotechnical Conditions

B.2.1 Ground Conditions

In the absence of any specific geotechnical data regarding underlying geology for the area, the subsoil classification is considered to be **Class D** (deep or soft soil sites) for the purpose of calculating the seismic demands in accordance with NZS1170.5:2004.

B.3 Structural System

B.3.1 Gravity Load System

The combination of timber glulam rafters for water tank roof, steel bracing roof for the south end of the structure, and reinforced concrete frames and shear walls make up the gravity load resisting systems. The gravity loads are transferred from roof structure and the concrete floor units to the precast concrete beams and through to the columns and shear walls and finally down to the foundations.

The building is supported on a concrete slab on grade.

B.3.2 Lateral Load System

The reinforced concrete cantilever shear walls are provided in both principal directions to resist the water pressure and seismic forces. In both longitudinal and transverse direction seismic loadings, at the perimeter of shark tank, 500 to 300mm thick reinforced concrete shear walls are provided.

In the south end of the structure, 200mm thick precast concrete walls are provided in the middle bays in longitudinal direction. The 190mm blockworks walls at the South end resist the seismic forces in the transverse direction (East-West).

The precast Dycore floor units with 150/100 mm concrete topping acts as a floor diaphragm in south side of the structure to distribute the inertial and transfer forces in to the main lateral load resisting system. The connection between the floors and shear walls is provided by means of YD12 reinforcing starter bars equally spaced at 300mm centres.

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C. Detailed Seismic Assessment

C.1 Assessment Methodology

The detailed seismic assessment of the National Aquarium of NZ (new building) was carried out in accordance with the Seismic Assessment of Existing Buildings-Technical Guidelines for Engineering Assessments, dated July 2017. A simplified force based method was adopted using 3D modelling of the structure in ETABS structural software (version 16.2.0).

The probable strengths of shear walls and their ability to deform in a desirable manner (ductility of 1.25) are calculated based on the provided material and reinforcement detailing. The seismic demands calculated based on the location and site subsoil type. This provide enables an understanding of the expected response of the structure and the imposed demands under lateral seismic loading.

The seating of precast floor units are assessed under the expected design ULS deflections in accordance with the NZSEE Guidelines.

C.2 Seismic Loads

The following parameters have been considered to define the seismic acceleration spectra in accordance with NZS1170.5:2004;

Parameter Value Comments Sife Subsoil Class D In the absence of site specific geotechnical information Seismic hazard factor for Napier Z 0.38 R_v (ULS) Importance Level 2 - 1/500 yr return period earthquake D<2km, T<1.5s N(T.D) 1.0

Table 1. Parameters for Seismic Loads - ULS

C.3 Material Properties

The following materials properties were taken to perform the assessment. These values are based on the NZSEE Guidelines July 2017 Table C5.3 in the absence of specific material testing data for the structure.

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Table 2. Material Properties

Material	Lower Characteristic Strength	Probable Strength		
Concrete	f _e ≈30MPa	f _∞ =45MPa		
Reinforcement	f _y =300MPa	f ₉₉ =324MPa (Shark tank walls & columns)		
	f _y =430MPa	f _{re} =464MPa (200mm walls and Blockwork walls)		

C.4 Numerical Simulation and Analysis

To perform the structural analysis a 3D simulation model of the structure was constructed software ETABS version 16.2.0, as shown in Figure 5.

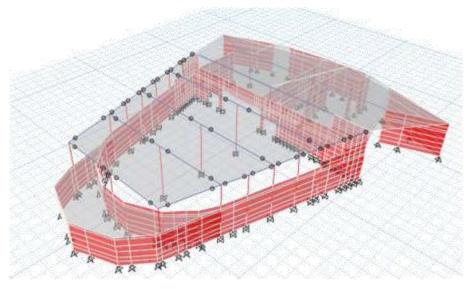


Figure 5: 3D Isometric views of ETABS Model

The floor and walls were modelled as area elements and the columns and beams were modelled as line elements with equivalent weight and cracked section stiffness properties as per NZS 3101.2006.

The floor live load and superimposed loads were assigned to floor area elements and facade loads were assigned to perimeter beams as line loads. Modal Response Spectrum analysis cases were assigned and used for the analysis with appropriate scaling factors.

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D. Results of the Detailed Seismic Assessment

D.1 Assessment Results Summary

D.1.1 Assessed Results %NBS and Critical Structural Weakness (CSWs)

The assessed seismic capacities of the structural elements of the roof structure in terms of are summarised as follows:

Table 3. Assessed %NBS Results

Structure - Element	Assessed %NBS	Limitation / Comment
Reinforced Concrete tank walls	100%	Assessed for flexure and shear capacity under the water load and seismic actions. Checked for out-of-plane bending and in-plane actions.
Concrete Spandrel	100%	Assessed for flexure and shear capacity under the seismic actions.
200mm Reinforced Concrete Shear walls	100%	Assessed for flexure and shear capacity under the seismic actions.
Concrete Blockwork walls	90%	Checked for out-of-plane bending and in-plane actions.
Cantilever Columns	100%	Assessed for flexure and shear capacity under the seismic actions.
Gravity Concrete Column	100%	Checked for shear and flexure capacity.
Gravity Concrete Beams	60%	Checked for shear and flexure capacity.
Gravity Glulam Beams	.96%	Checked for shear and flexure capacity.
	Varies	
Seating of Precast Floor Units	46% to 63%	Limited by the available seating as well as presence of seating in unconfined concrete zones of precast beams.
	Retrofit recommended	The seating of precast floor units is the limiting factor.

D.2 Discussion of Assessment Results

The building has a robust primary structure and seismic system with significant shear walls in both direction.

D.2.1 Primary Structure

Our results found the reinforce concrete tank walls, 200mm shear walls in south end side and cantilever columns are assessed as 100% NBS, and blockwork walls have 90% NBS with adequate strength to resist the design level seismic demands. The gravity beams are assessed as 90% NBS.

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D.2.2 Precast Floor seating

The precast flooring seating for the building is detailed at 100mm. The rating of this floor is subjective as there is not a conclusive guideline published on this at present so we have used several methodologies from the current code and guides to compare upper and lower bound results for our review which indicate the floor should be retrofitted if the Napier city Council is wanting to improve the overall rating of the building.

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E.Commentary on Seismic Risks

The above results intend to materialise the relative seismic risk when compared to a new building if it were designed today. A lower %NBS means a higher seismic risk, which follows a non-linear relationship with the rating.

The following table prepared by the New Zealand Society for Earthquake Engineering intends to describe this relative risk for various levels of %NBS achieved;

Table 4. Assessment outcomes and relative risk

	Life safety risk description	Approximate risk relative to a new building	Alpha Rating	Percentage of New Building Standard(%NBS)			
	Low risk	Less than or comparable to Low risk				>100 A+	
With remedia action	Low risk	1-2 times greater	A	80-100			
	2-5 times greater Low to Medium risk		В	67-79			
	5-10 times greater Medium risk		С	34-66			
	High risk	10-25 times greater High risk		20 to <34			
	Very high risk	25 times greater	E	<20			

The following graph shows the expected performance for a given %NBS achieved, versus an earthquake demand equivalent to %NBS shaking, for a given Importance Level:

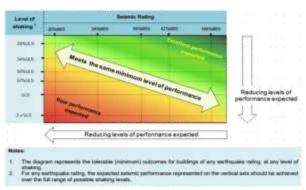


Figure A3.2: Indicative relationship between seismic performance

Figure 6: Indicative relationship between seismic performance (MBIE guidelines)

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F. Conclusions

The results of the DSA indicate the building's general structural rating of the main shear walls and primary structure beams, columns and foundations are reasonably robust with a rating of greater than >80%NBS.

However, there are problems with the earthquake rating of precast floor seating which have been found to be between 46% to 63% NBS assessed in accordance with the guideline document.

Using the NZSEE grading scheme this building is classified as a Grade C building which represents a risk to occupants of between 5 to 10 times that expected for a new building, indicating a medium risk exposure.

G. Strengthening Recommendations

Should the Napier city council wish to consider strengthening the building we have provided a summary of the following strengthening options to increase the building rating above 67% NBS:

Precast Floor Seating

Provide seating angles or RHS support under the precast floor to the entire building to improve the
resilience of the flooring system to meet current code requirements. An example of strengthening
method with a sketch is provided in the next page.

Strengthening Example for Precast Floor Seating:

Steel sections are used to improve the resilience of the flooring system as shown below. The minimum length of the RHS should be 75% of the width of the hollow-core unit being supported and each length should be fixed with a minimum of three M16 bolts. The RHS should not be glued to the hollow-core unit and no mortar should be placed between the RHS and the underside of the hollow-core unit. It is important the RHS does not develop restraint under displacements causing rotation of the supporting beam. Similarly, no bearing strip is necessary.

The rounded corners of the RHS have been demonstrated to be important in the prevention of induced cracking of the hollow-core webs.

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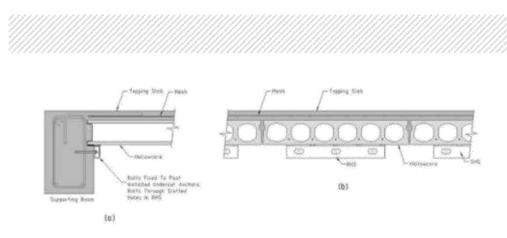


Figure 7: Strengthening example for precast floor seating.



Structural Calculations

Aurecon: March 2018: DSA Calculations Ali Rad: Structural Engineer

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A. Load Takedown

A.1 Loads

A.1.1 Dead loads

All dead loads are calculated using a gravity constant of 9.81 m/s².

All loads are derived from AS/NZS 1170.0 or as otherwise noted within calculations.

A.1.2 Superimposed dead loads

Load	Magnitude
Services, partitions, flooring	0.5kPa

A.1.3 Imposed loads

Load	Magnitude (UDL/Point Load)	
Museum Floors and art galleries for exhibition purposes	4.0kPa, 4.5kN	

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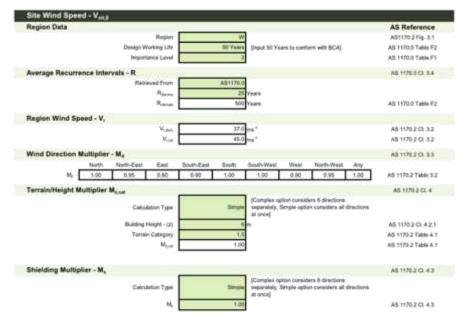
A.2 Wind Loads

Below is the calculation for the basic wind pressure passic.

The loads will be factored by the appropriate C_{fig} & C_{dyn} factors in the relevant checks.

AS1170.2 Design Wind Speed V9

Client		Outle: 05/10/2517	
Project	National Aquainm of New Zugland, Napler	Project riukbei:	
Subject	Wind Load	Revision: 0	By: Al-Net



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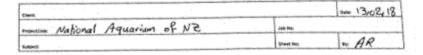
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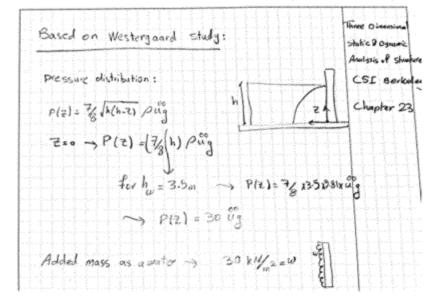
A.3 Water Loads

The pressure of the water on the tank walls is calculated based on the Westergaard study (Ref. Three Dimensional Statics & Dynamic Analysis of Structures, CSI Berkeley, Ch 23).

The amount of the mass of water is calculated as shown below and it is modelled as an added mass on the walls (Uniform load of 30kN/m²).

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A.4 Hand Load-takedown

A.4.1 Load Takedown Plans

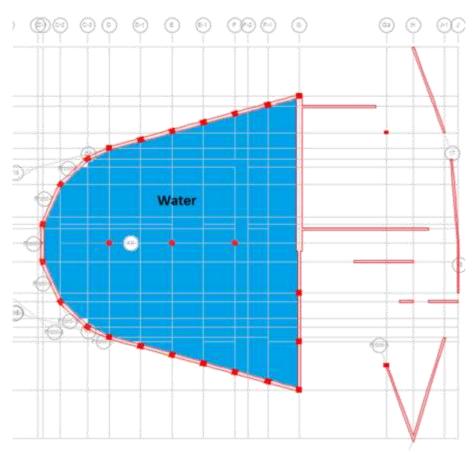


Figure 8: Water Zones for Load Takedown

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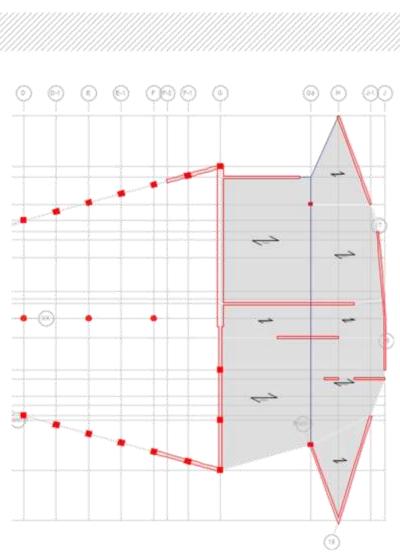


Figure 9: Level 1 Zones for Load Takedown

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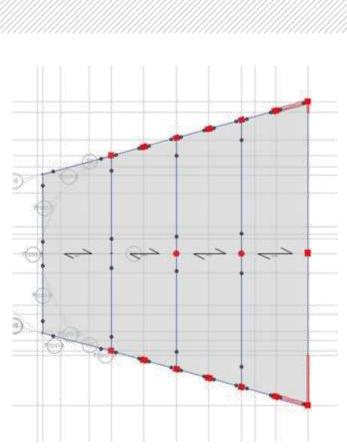


Figure 10: Roof Zones for Load Takedown

B. Seismic Analysis

B.1 Input and Modelling Data

The new building of the national aquarium has been modelled using ETABS 2016.

The model uses a ductility of µ=1.25.

A Response spectrum analysis was preformed and all loads scaled and combined subsequently outside of the model in EXCEL spreadsheets.

The model can be found here:

P:\501745\0-Ali-Calc\1-Etabs-main

The following inputs have been used for calculating seismic loads:

 Subsoil Class 	D
 Hazard Factor, Z 	0.4
 Return period factor, R 	1
 Near Fault Distance, D 	2km
 Structural performance Factor 	0.923
 Ductility 	1.25

The model considers accidental eccentricity of the applied load taken as ±0.1 the plan dimension (NZS1170.5:2004 cl. 5.3.1.2) and as the structure is considered nominally ductile, load combinations of 100% of the specified earthquake actions in one directions plus 30% of the specified earthquake actions in an orthogonal directions set up in the model in accordance with NZS1170.5:2004 cl. 5.3.1.2.

B.2 Output Data and Results

B.2.1 X-Direction

NZS 1170 2004 Auto Seismic Load Calculation

This calculation presents the automatically generated lateral seismic loads for load pattern STATICX according to NZS 1170 2004, as calculated by ETABS.

Direction and Eccentricity

Direction = Multiple

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Eccentricity Ratio = 10% for all diaphragms

Structural Period

Period Calculation Method = Program Calculated

Factors and Coefficients

Return Period Factor, R [NZS Table 3.5]	R = 1
Hazard Factor, Z [NZS Table 3.3]	Z = 0.38
Structural Performance Factor, Sp [NZS 4.4]	$S_p = 0.925$
Structural Ductility Factor, µ [NZS 4.3]	$\mu = 1.25$
Near Fault Distance, D [NZS 3.1.6]	D = 2

Site Sub-soil Class [NZS 3.1.3] = De - Deep or Soft Soil

Equivalent Lateral Forces

Spectral Shape Factor, $C(T_1)$ [NZS Table 3.1] $C(T_2) = 3$

 $\mbox{Seismic Design Action Coefficient, C_d (T_1) [NZS 5.2.1]} \qquad \ \ C_d(T_1) = \frac{C(T_1)S_p}{\mu} \label{eq:constraint}$

Calculated Base Shear

Direction	Period Used (sec)	Cd(T ₁₎	W (kN)	V (kN)	F _t (kN)
X	0.063	0.923	11392.9	10512.14	840.97
X + Ecc. Y	0.063	0.923	11392.9	10512.14	840.97
X - Ecc. Y	0.063	0.923	11392.9	10512.14	840.97

B.2.2 Y-Direction

NZS 1170 2004 Auto Seismic Load Calculation

This calculation presents the automatically generated lateral seismic loads for load pattern STATICY according to NZS 1170 2004, as calculated by ETABS.

Direction and Eccentricity

Direction = Multiple

Eccentricity Ratio = 10% for all diaphragms

Structural Period

Period Calculation Method = Program Calculated

Factors and Coefficients

Return Period Factor, R [NZS Table 3.5] R=1 Hazard Factor, Z [NZS Table 3.3] Z=0.38 Structural Performance Factor, Sp [NZS 4.4] $S_p=0.925$

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Structural Ductility Factor, µ [NZS 4.3]

$$\mu=1.25$$

Near Fault Distance, D [NZS 3.1.6]

Site Sub-soil Class [NZS 3.1.3] = De - Deep or Soft Soil

Equivalent Lateral Forces

Spectral Shape Factor, C(T₁) [NZS Table 3.1]

$$C(T_1) = 3$$

Seismic Design Action Coefficient, Cd (T1) [NZS 5.2.1]

$$C_d(T_1) = \frac{C(T_1)S_p}{\mu}$$

Calculated Base Shear

Direction	Period Used (sec)	Cd(Tn	W (kN)	V (kN)	F _t (kN)
Υ	0.1	0.923	11392.9	10512.14	840.97
Y + Ecc. X	0.1	0.923	11392.9	10512.14	840.97
Y - Ecc. X	0.1	0.923	11392.9	10512.14	840.97

B.3 Scaling Factors for Response Spectrum Analysis

ETABS results will be scaled by the factors below in the design checks.

Building is Irregular.

Table 5: Scaling Factors for Model and Calculations

Direction	Ductility	Sp	kμ	т	Analysis	Base Shear (kN)	Modal Scaling Factor k
х	1.25	0.925	1.0	0.06	ESM	10512.14	20.9
γ	1.25	0.925	1.0	0.1	ESM	10512.14	26.15

C. Storey Drift

C.1 Storey Drifts

Storey drifts were checked to ensure that inter-storey drift does not exceed 2.5% using μ =1.25 loads and using a drift modification factor k_{tht} =1.2 (NZS1170.5 Table 7.1,see below). Building height is about 6.0m.

TABLE 7.1
DRIFT MODIFICATION FACTOR

Structure height	Drift modification factor, $k_{\rm dm}$
h < 15 m	1.2
$15 \le h \le 30 \text{ m}$	$1.2 \pm 0.02(h-15)$
h > 30 m	1.5

Figure 11: Table 7.1 from NZ\$1170.5

The drifts are shown in Table C-1. Maximum drift ratio is 0.75%, which is below the 2.5% threshold and therefore acceptable.

Table C-1: Inter-Storey Drift Ratio

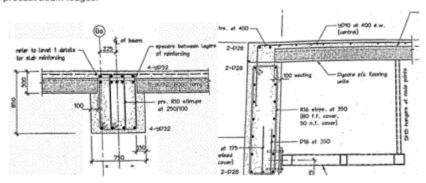
Story	Load Case/Combo	Item	Drift	ULS Drift [%]	Utilisation [%]	Drift [mm]
Story-13.735	GE + Spec X Max	х	0.004484	0.54%	22%	20.10
Story-13.735	GE + Spec X Max	Υ	0.001861	0.22%	9%	8.34
Story-13.735	GE + Spec X Min	X	0.004466	0.54%	21%	20.02
Story-13.735	GE + Spec X Min	Y	0.001846	0,22%	9%	8.27
Story-13.735	GE + Spec Y Max	Х	0.002574	0.31%	12%	11.54
Story-13.735	GE + Spec Y Max	Y	0.00606	0.73%	29%	27.16
Story-13.735	GE + Spec Y Min	Х	0.00199	0.24%	10%	8.92
Story-13.735	GE + Spec Y Min	γ	0.006046	0.73%	29%	27.10

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D. Precast Floor Seating.

Lack of available seating of the precast Dycore flooring units. Below figure show the condition of floor seating. It can be seen that precast floors supported on cover concrete, without any reinforcement in the precast beam ledges.



The required seating length is calculated based on NZ3101 (18.7.4.3) in an excel spreadsheet below.

NZS 3101:Part 1:2006

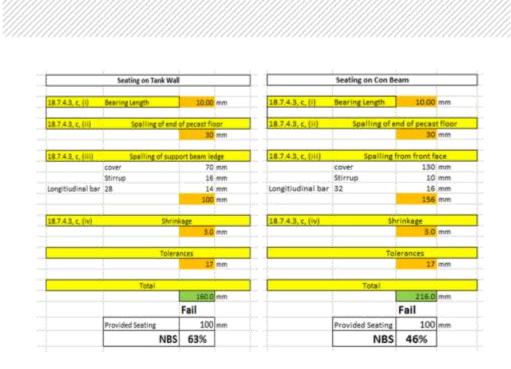
18.7.4.3 Minimum seating requirements for floor or roof members in buildings

In nominally ductile buildings where there are no limited ductile or ductile plastic regions and the seating is the primary mechanism for transfer of gravity loads, each floor or roof member and its supporting systems shall have design dimensions selected so that, after allowance is made for a reasonable combination of unfavourable construction tolerances, the seating dimension from the end of the precast member to the edge of the support in the direction of the span shall be greater than or equal to the largest of (a), (b) or (c) below:

- (a) At least 1/180 of the clear span of the supported member;
- (b) A value of:
 - (i) 50 mm for solid or composite slabs up to 190 mm total thickness
 - (ii) 75 mm for all other precast floor or roof units;
- (c) The summation of values described in (i) to (iv) below:
 - (i) The greater of the bearing length calculated according to clause 16.3, or 10 mm
 - (ii) Potential spalling from the end of the supported member, which shall be taken as 30 mm for solid slabs, hollow-core units and units supported by webs or ribs. No allowance for spalling need be made where armouring is used
 - (iii) Potential spalling from the front face of the supporting member, which shall be taken as the greater of the cover to the longitudinal bars, or 30 mm. No allowance for spalling need be made where armouring is used
 - (iv) An appropriate allowance for movement due to creep, shrinkage and thermal movement.

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E.Lateral Load Resisting System

The lateral load resisting system of the structure consists of 500 to 300mm thick precast concrete walls in the water tank location (North side) and 200mm thick precast concrete walls with 190mm blockwork walls in the south side of the structure.

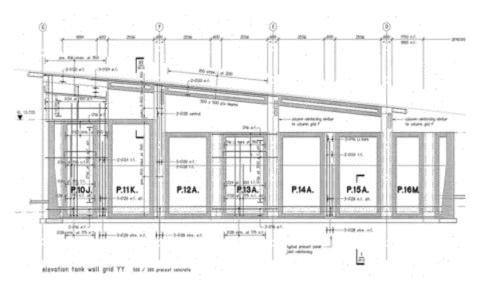


Figure 12: Elevation of the tank walls

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E.1 500 to 300mm Precast Tank Panels

The typical reinforcement of the concrete panels is shown Figure 14. Typically, panels have vertical bars of D28@175crs in side of the water and D24@350 crs on the other side of the wall. The horizontal reinforcement of the walls is 2-D16@400 crs.

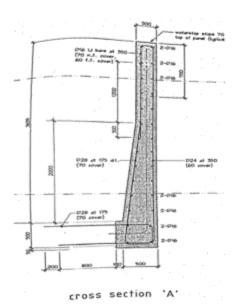


Figure 13: typical detail of tank walls

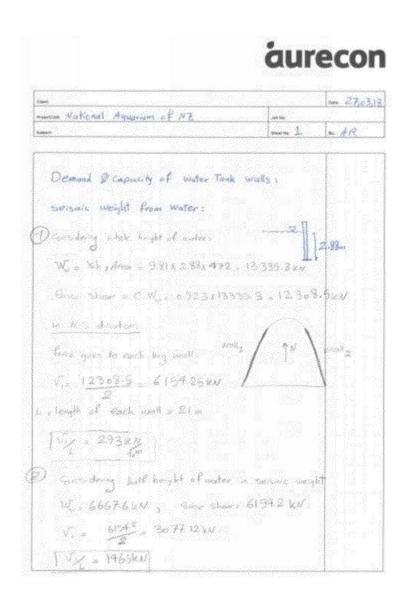
E.1.1 Tank Wall Demand

The shear & flexural demands from ETABS output summarised in an excel spreadsheet below. A simple hand calculation has also been done for a meter of tank walls to calculate the in-plan demand of the walls.

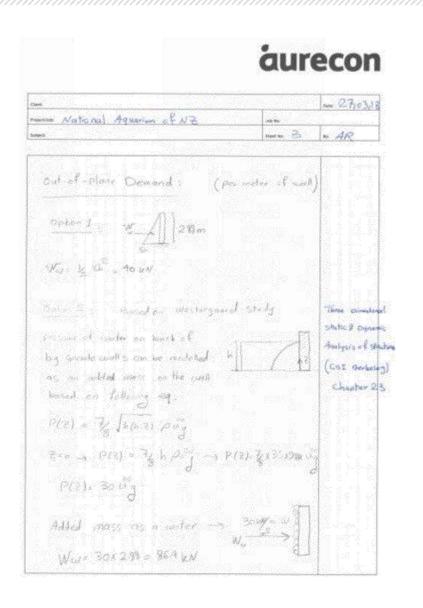
Demand										
	L	V2	V3	M2	M3					
	mm	kN	kN	kN-m	kN-m					
P2	2500	932.99	433.87	744.96	492.83					
Р3	2500	546.18	467.01	816.73	203.29					
P4	2500	333.60	502.87	699.59	55.97					
P5	2500	290.57	466.18	834.54	102.59					
P6	2500	365.14	275.29	539.42	197.50					
P6-2	1850	326.72	85.57	74.94	160.70					
P7	2900	654.01	248.86	105.89	309.20					
P8	3400	616.25	244.31	74.76	316.70					
P9	3000	550.69	226.72	73.39	215.16					
P10	3400	545.13	185.80	67.24	306.22					
P11	3000	518.12	248.36	96.74	266.91					
P12	1850	282.32	65.78	60.51	117.87					
P13	2500	304.09	191.35	369.46	147.83					
P14	2500	267.09	493.91	849.21	121.21					
P15	2500	273.72	516.88	945.12	111.76					
P16	2500	387.54	520.34	902.51	138.05					
P17	2500	691.97	457.83	827.60	373.23					
P19	2500	1060.46	155.72	271.75	654.19					
P20	2600	1109.62	296.39	289.37	916.95					
P24	4600	1247.83	374.17	485.20	802.79					
P26	4600	1358.60	501.21	622.34	424.63					
P1	4600	1202.96	294.01	330.99	1503.75					
P22	750	139.68	284.40	300.73	108.08					
P23	750	135.78	111.97	110.70	93.89					

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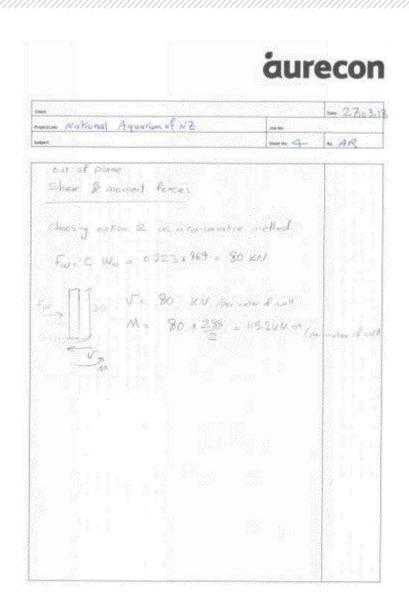


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E.1.2 Tank Wall Capacity Check In-Plane

The shear capacities are calculated and summarised in an excel spreadsheet below. A sample calculation representing a for a meter of wall has also been attached.

In-plane Shear Capacity:

							in-plane	Shear C	apacity				
Pier	w	L	α	ρ	β	Y (Duc=1.25)	Vc	As	ľ	Vs	Vprob= 0.85*(Vc+Vs)	V2	NBS(%)
	mm	mm					kN	mm2	mm	kN	kN	kN	
P2	300	2500	1	0.01	0.7	0.29	817.06	401.92	2130.00	924.58	1480.39	932.99	100%
P3	300	2500	1	0.01	0.7	0.29	817.06	401.92	2130.00	924.58	1480.39	546.18	100%
P4	300	2500	1	0.01	0.7	0.29	817.06	401.92	2130.00	924.58	1480.39	333.60	100%
P5	300	2500	1	0.01	0.7	0.29	817.06	401.92	2130.00	924.58	1480.39	290.57	100%
P6	300	2500	1	0.01	0.7	0.29	817.06	401.92	2130.00	924.58	1480.39	365.14	100%
P6-2	300	1850	1	0.01	0.7	0.29	604.62	401.92	1480.00	642.43	1059.99	326.72	100%
P7	300	2900	1	0.01	0.7	0.29	947.79	401.92	2530.00	1098.21	1739.10	654.01	100%
P8	300	3400	1	0.01	0.7	0.29	1111.20	401.92	3030.00	1315.24	2062.48	616.25	100%
P9	300	3000	1	0.01	0.7	0.29	980.47	401.92	2630.00	1141.61	1803.77	550.69	100%
P10	300	3400	1	0.01	0.7	0.29	1111.20	401.92	3030.00	1315.24	2062.48	545.13	100%
P11	300	3000	1	0.01	0.7	0.29	980.47	401.92	2630.00	1141.61	1803.77	518.12	100%
P12	300	1850	1	0.01	0.7	0.29	604.62	401.92	1480.00	642.43	1059.99	282.32	100%
P13	300	2500	1	0.01	0.7	0.29	817.06	401.92	2130.00	924.58	1480.39	304.09	100%
P14	300	2500	1	0.01	0.7	0.29	817.06	401.92	2130.00	924.58	1480.39	267.09	100%
P15	300	2500	1	0.01	0.7	0.29	817.06	401.92	2130.00	924.58	1480.39	273.72	100%
P16	300	2500	1	0.01	0.7	0.29	817.06	401.92	2130.00	924.58	1480.39	387.54	100%
P17	300	2500	1	0.01	0.7	0.29	817.06	401.92	2130.00	924.58	1480,39	691.97	100%
P19	300	2500	1	0.01	0.7	0.29	817.06	401.92	2130.00	924.58	1480.39	1060.46	100%
P20	300	2600	1	0.01	0.7	0.29	849.74	401.92	2230.00	967.98	1545.07	1109.62	100%
P24	300	4600	1	0.01	0.7	0.29	1503.39	401.92	4230.00	1835.13	2838.59	1247.83	100%
P26	300	4600	1	0.01	0.7	0.29	1503.39	401.92	4230.00	1836.13	2838.59	1358.60	100%
P1	300	4600	1	0.01	0.7	0.29	1503.39	401.92	4230.00	1836.13	2838.59	1202.96	100%
P22	500	750	1	0.01	0.7	0.29	408.53	401.92	380.00	164.95	487.46	139.68	100%
P23	500	750	1	0.01	0.7	0.29	408.53	401.92	380.00	164.95	487.46	135.78	100%

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In-plane Moment Capacity:

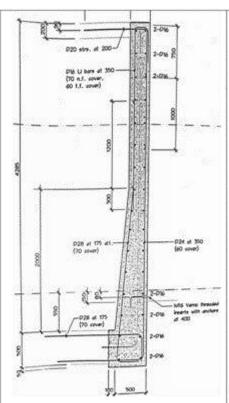
As there are two types of vertical reinforcements in each side of the wall, 1) D24@350 & 2) D28@350 and 175, the equivalent of these reinforcement is calculated to make it one type as below:

For 500 to 400 mm Wall						
Total As =	π*24^2/4*(2500-50-70}/350 + π*28^2/4*(2500-50-70)/175					
Total As =	11444.67 mm^2					
Equivalent As=	2*D25 @ 205 mm					

	For 350 to 300 mm Wall
Total As ≈	π*24^2/4*(2500-50-70)/350 + π*28^2/4*(2500-50-70)/350
Total As =	7259.68 mm^2

Equivalent As= 2*D25 @ 325 mm

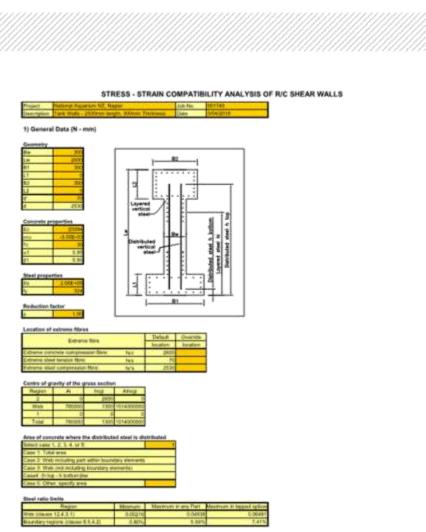
The in-plane moment demand & capacities are calculated and summarised in an excel spreadsheet below. Here the maximum demand of each wall considered and capacities are calculated considering 300mm walls which is conservative. A sample calculation for 2.6m & 300mm wall is also attached.



Pier	l.	M*	M(Prob)	NBS(%)
riei	mm	kN-m	kN-m	
P2	2500	492.83	2540	100%
P3	2500	203.29	2540	100%
₽4	2500	55.97	2540	100%
P5	2500	102.59	2540	100%
P6	2500	197.50	2540	100%
P6-2	1850	160.70	1358	100%
P7	2900	309.20	3736	100%
P8	3400	316.70	4890	100%
P9	3000	215.16	3879	100%
P10	3400	306.22	4890	100%
P11	3000	266.91	3879	100%
P12	1850	117.87	1358	100%
P13	2500	147.83	2540	100%
P14	2500	121.21	2540	100%
P15	2500	111.76	2540	100%
P16	2500	138.05	2540	100%
P17	2500	373.23	2540	100%
P19	2500	654.19	2540	100%
P20	2600	916.95	2984	100%
P24	4600	802.79	9208	100%
P26	4600	424.63	9208	100%
P1	4600	1503.75	9208	100%

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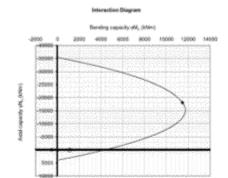


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E.1.3 Tank Wall Capacity Check - Out of Plane

The shear & flexural capacities are calculated in an excel spreadsheets below.

A simple hand calculation has also been attached for a meter of tank walls.

				О	ut-of	-plane Shear	Capacity			
Pier	w	L	α	ρ	β	Y (Duc=1.25)	Vc	Vprob≡ 0.85Vc	٧٠	NBS(%)
	mm	mm					kN	kN	kN	
P2	300	2500	1	0.01	0.7	0.29	817	695	434	100%
P3	300	2500	1	0.01	0.7	0,29	817	695	467	100%
P4	300	2500	1	0.01	0.7	0.29	817	695	503	100%
P5	300	2500	1	0.01	0.7	0.29	817	695	466	100%
P6	300	2500	1	0.01	0.7	0.29	817	695	275	100%
P6-2	300	1850	1	0.01	0.7	0.29	605	514	86	100%
P7	300	2900	1	0.01	0.7	0.29	948	806	249	100%
P8	300	3400	1	0.01	0.7	0.29	1111	945	244	100%
P9	300	3000	1	0.01	0.7	0,29	980	833	227	100%
P10	300	3400	1	0.01	0.7	0.29	1111	945	186	100%
P11	300	3000	1	0.01	0.7	0.29	980	833	248	100%
P12	300	1850	1	0.01	0.7	0.29	605	514	66	100%
P13	300	2500	1	0.01	0.7	0.29	817	695	191	100%
P14	300	2500	1	0.01	0.7	0.29	817	695	494	100%
P15	300	2500	1	0.01	0.7	0.29	817	695	517	100%
P16	300	2500	1	0.01	0.7	0.29	817	695	520	100%
P17	300	2500	1	0.01	0.7	0.29	817	695	458	100%
P19	300	2500	1	0.01	0.7	0.29	817	695	156	100%
P20	300	2600	1	0.01	0.7	0.29	850	722	296	100%
P24	300	4600	1	0.01	0.7	0.29	1503	1278	374	100%
P26	300	4600	1	0.01	0.7	0.29	1503	1278	501	100%
P1	300	4600	1	0.01	0.7	0.29	1503	1278	294	100%
P22	500	750	1	0.01	0.7	0.29	408.53	347	284	100%
P23	500	750	1	0.01	0.7	0.29	408.53	347	112	100%

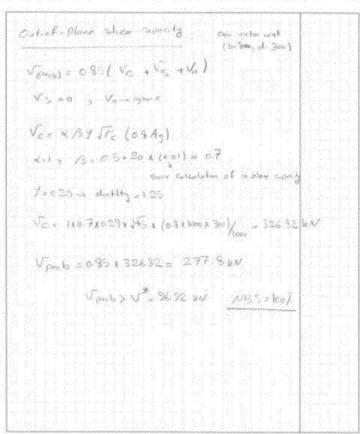
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	Out-of-Plane Moment Capacity														
t	Cover	t	d	b	Rein. 1	Spacing (mm)	Rein. 2	Spacing (mm)	As	Ts	¢	a	M(prob)	Max Demand	NBS%
450	70	450	380	2500	28	175	24	350	12021.7	3895E3	47.9	40.7	1400.8	945.12	100%
400	70	400	330	2500	28	175	24	350	12021.7	3895E3	47.9	40.7	1206.0	800.00	100%
350	70	350	280	2500	28	350	24	350	7625.7	2470E3	30.4	25.8	659.9	630.00	100%
300	70	300	230	2500	28	350	24	350	7625.7	2470E3	30.4	25.8	536.3	450.00	100%

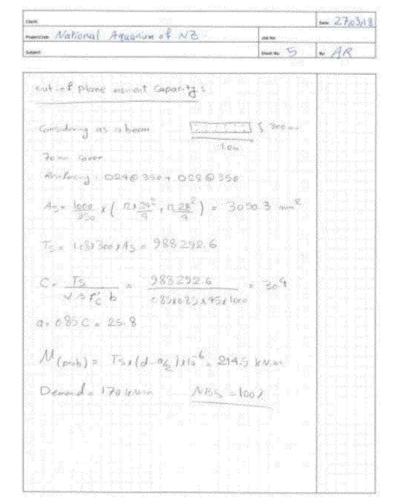
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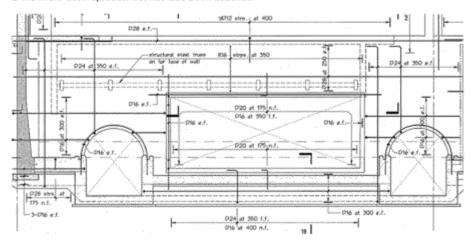
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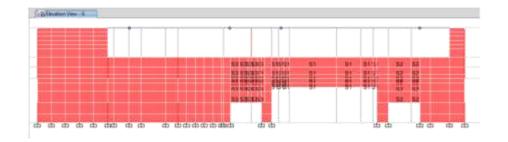
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E.2 Spandrels

The reinforcement and layout of the spandrels are shown in below figures. The demand and capacities of each spandrel are summarized in below spreadsheet. A sample calculation representing a line in the excel spreadsheet has also been attached.

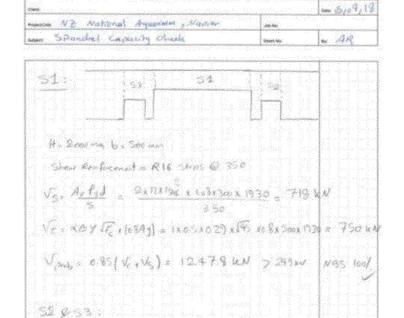




	٧*	V(Prob)	NBS(%)	M*	M(prob)	NBS(%)
	kN	kN		kN-m	kN-m	
S1	249.1619	1248	100%	169.118	2708	100%
\$2	626.4539	3260	100%	558.1669	1923	100%
S3	590.8027	3260	100%	505.0724	1923	100%

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H = 3200 , 6,500 mm

Shew Renforments 1324@ 350

Vo. 44 Pod 2 21012 Pox 1081300 x 330 2 2619 VN 550 Vo. 1165 x 129 y Fox 108x 300 x 330 = 1217 KN

Vpob=085 ((+15) - 3260 W > 626 W, NBS 60/

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E.3 200mm Precast Panels

The reinforcement of the concrete panels is shown Figure 14. Some panels have starter bars of yD24@600crs and some have yD20@900 crs. The horizontal reinforcement of the 200mm walls is yD16@400 crs.

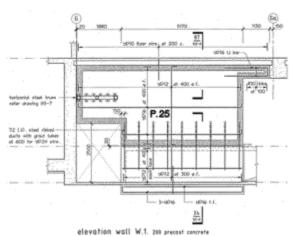


Figure 14: Starters bars & typical detail

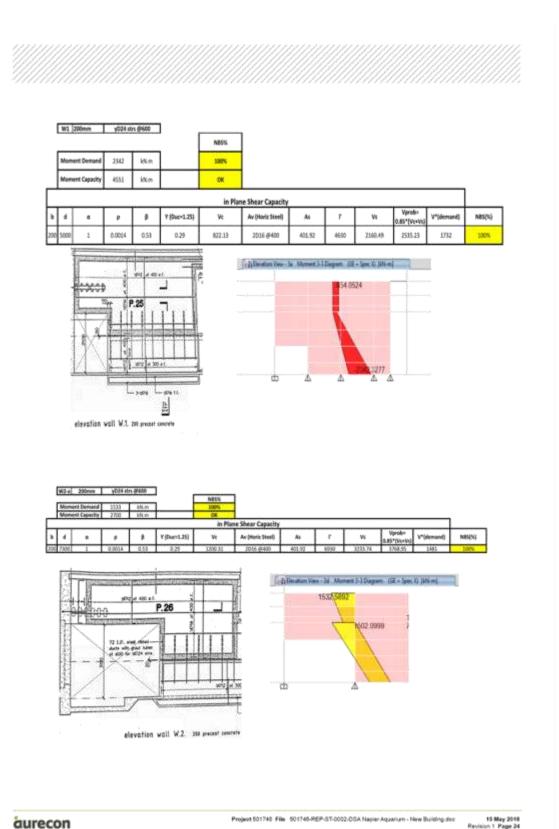
E.3.1 200mm Precast Concrete Wall

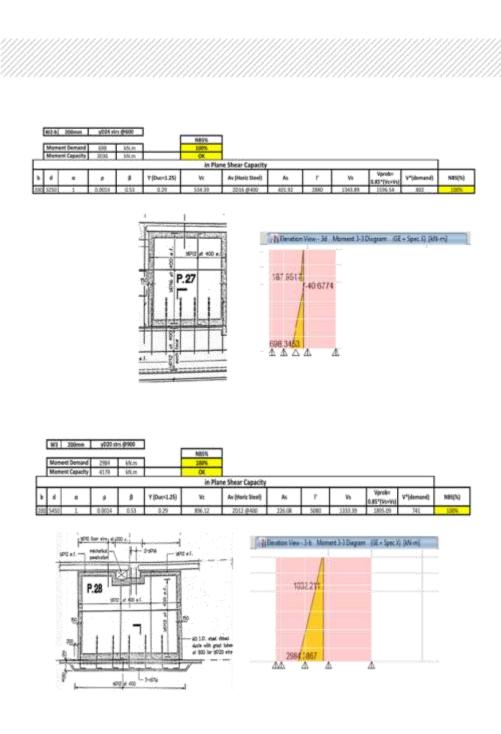
The shear & flexural demands from ETABS output, also capacities for each wall are calculated and summarised in an excel spreadsheet below.

	V*	V(prob)	NBS(%)	M*	M(Prob)	NBS(%)
W1	1732	2535.23	100%	2342	4551	100%
W2	1481	1481	100%	1533	2700	100%
W2-2	802	802	100%	698	2036	100%
W3	741	741	100%	2984	4179	100%
W4	16	16	100%	55	181	100%
W4-2	145	145	100%	531	1261	100%
W5	1254	1254	100%	1675	3898	100%

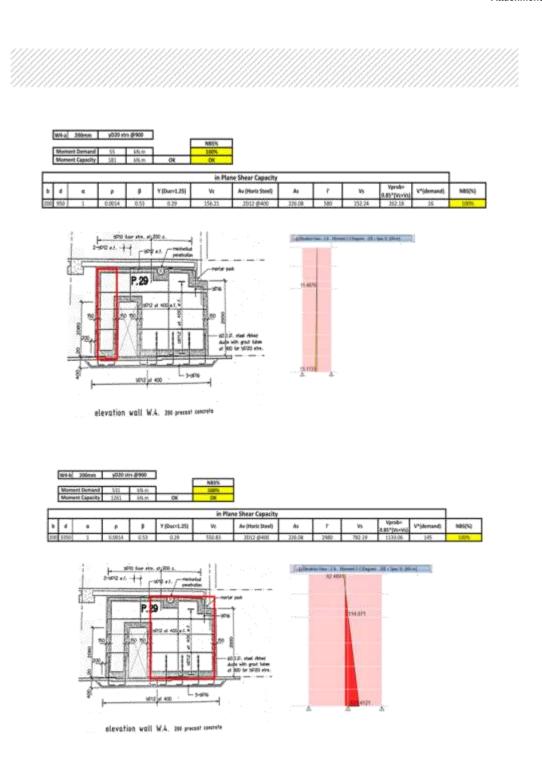
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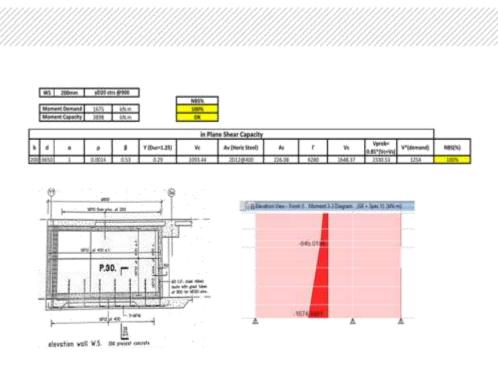




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E.4 190mm Blockwork Walls

190mm blockwork walls are in north & south end of the structures. They have yD16 @400 horizontal and vertical reinforcements. The walls have been checked in out of plane using NZS1170.5 Section 8: parts and components. See below for check.

The walls in south end, transferred the loads to top and bottom connections, but in the north end transferred the loads to the right and left post support and they have spanned in their width. Therefore, as the span of those north end walls are quite long, the arch behaviour is considered for calculating demand. Also, as the structure is only one story, we also assumed those walls are going to get the ground acceleration.

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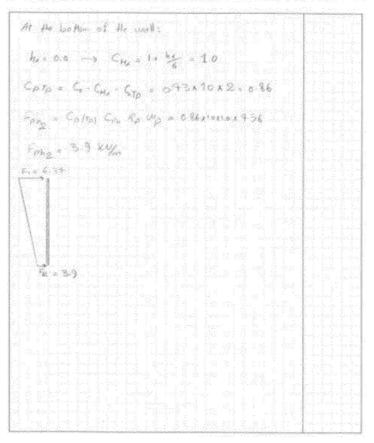
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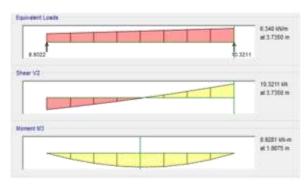
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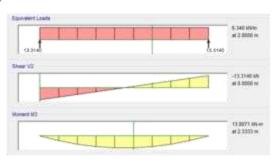
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Block Wall-Back curve Out of plane capacity

1	t	d	b	Rein. Dia.	Spacing (mm)	Rein, No.	As	Ts	¢	a	M(prob)	Demand	
1											(kNm)	(kNm)	NBS%
1	190	95	1000		400	2.50	502.4	233314.6	7.2	6.1	21.5	8.93	100%



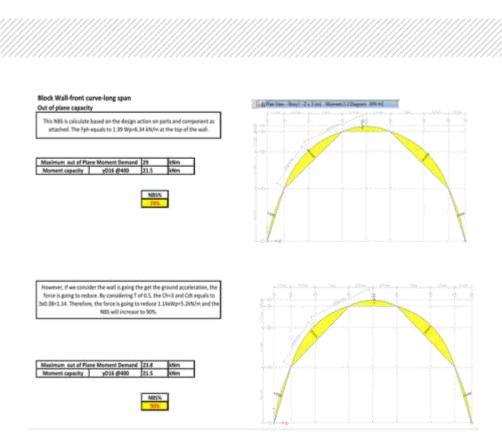
Block Wall-front curve-mid span Out of plane capacity



t	d	. b.	Rein, Dia.	Spacing (mm)	Rein, No.	As	Ts	- 6	- 2	M(prob)	Demand	
										(kNm)	(kNm)	N85%
390	95	1000	16	400	2.50	502.4	233314.6	7.2	6.1	21.5	13.8	100%

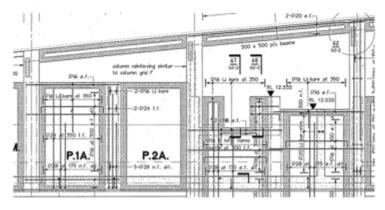
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E.5 500x600 rectangular concrete columns

500x600 rectangular concrete columns are used to transfer the loads from 720x135 Glulam beams to the foundation. The 500x600mm columns are going to have a cantilever behaviour when the walls are going to finish as shown below.



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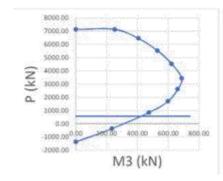


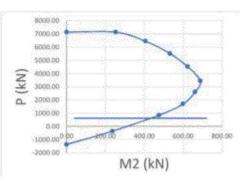


		and	Max Column Den		
	M3	M2	V3	V2	P
	kN-m	kN-m	kN	kN	kN
9-	232.19	416.15	300.46	189.28	940.44
3.	-232.23	-417.49	-299.84	-189.31	1016.36
N					
10	OK	420 kN.m	of the Column	ment capcity o	Ma
		okumn	Shear capcity of the C		
N) N	Vprob(kN)	Vc=affYVf'c(0.8bd)	Vs=Av fy d/s*cot30	3 R10 @150	Baint-
7 10	462.57	245	299.2	2 1/10 (0,120	HARMIN'

Point	P (kN)		M3 (kN)
1	7142.64	0.00	0.00
. 2	7142.64	0:00	252.49
3	6457.34	0.00	406.07
4	5525.45	0.00	531,02
5	4527.27	0.00	622.67
6	3446.01	0.00	687.31
7	2622.90	0.00	660.97
8	1706.63	0.00	598.73
. 9	856.80	0.00	474.33
10	-350.60	0.00	234.93
11	-1357.17	0.00	0.00

Point	P (kN)	M2 (kN)
1	7142.64	0.00
2	7142.64	260.04
3	6323.98	438.65
4	5330.33	558.94
5	4208.51	637.20
6	2927.31	671.22
7	2053.49	609.25
8	1090.55	505.15
9	148.57	347.31
10	-757.08	164.92
11	-1357.17	0.00



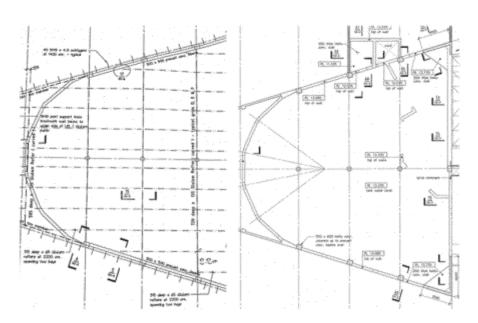


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F. Gravity System

Below figures show the columns & beams layout plan. 500 circular concrete columns are used to transfer the loads from 720x135 Glulam beams to the foundation.

The shear & flexural demands from ETABS output, also capacities for each element are calculated and summarised in an excel spreadsheet in next page. A simple hand calculation is also provided to show how much loads transferred to the columns.



F.1.1 720x135 Glulam beams

Moment Capacity of the Glulam =	Φk1fnZ=	177	kN:n	
Shear Capacity of the Glulam *	Φk1K4K5fsAs=	131	kN	

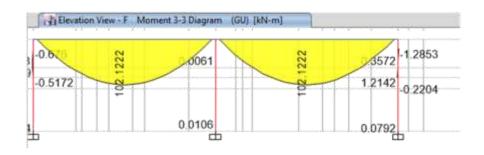
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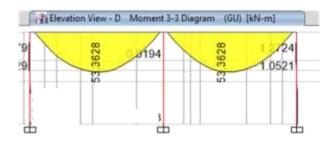
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15 May 2018



Maximun	n Shear & Mor			
	V (kN)	NBS(%)	M (kN.m)	NBS(%)
GL D	25.3532	100%	53.3628	100%
GL E	29.8579	100%	76.1304	100%
GL F	34.738	100%	102.1222	100%
GL G	59.3555	100%	184.2961	96%

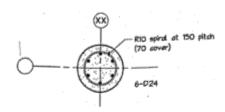




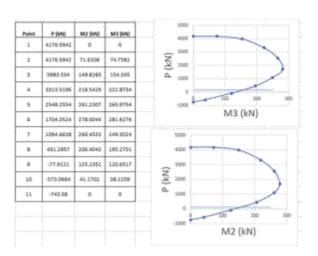
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F.1.2 500mm circular concrete columns:



		d	Max Deman		
	M3	M2	V2 V3 M2	V2	p
	kN-m	kN-m	kN	kN	in.
	77	68	.54	41.	60
NBS					
1001	ОК	•	140 kN.m	nt Capacity	Mome
		me	Shear capcity of the Colum		
NOS	Vprob(kN)	Vc=uβYvf'c(0.8bd)	Vs=r/2*(Ah*fy*d*)/s*cot30	R10 @150	Statut.
1001	338.3	232	166	HEO G/130	PERSON

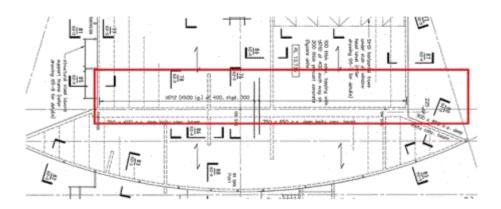


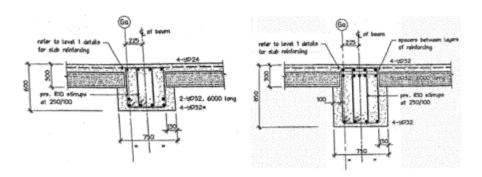
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F.1.3 Gravity Concrete Beams:

Below figures show the beams layout plan. They are transferring the gravity loads from slab to the walls. The shear & flexural demands from ETABS output, also capacities for each element are calculated and summarised in an excel spreadsheet below.





	Den	and
	V2	M3
	kN	kN-m
600x750	517.1169	1227.355
850x750	562.0606	842.8731
850x300	191.0389	176.4864

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15 May 2018



	Flexural Capacity												
Beam	Cover	н	d	b	Rein. 1	Rein no	As	Ts	¢	a	M(prob)	Max Demand	NBS%
600x750	70	600	530	750	32	6	4823.0	2239819.8	91.9	78.1	1099.7	1227.36	90%
850x750	70	850	780	750	32	4	3215.4	1493213.2	61.2	52.1	1125.8	842.87	100%
850x300	70	850	780	300	24	2	904.3	419966.2	43.1	36.6	319.9	176.49	100%

	Shear Capacity												
Beam	b	d	α	ρ	β	Y (Duc=1.25)	Vc	As	s	Vs	Vprob= 0.85*(Vc+Vs)	V(demand)	NBS(%)
	mm	mm					kN	mm2	mm	kN	kN	kN	
600x750	750	530	1	0.01	0.7	0.29	433.04	314	250	309	631	517	100%
850x750	750	780	1	0.005	0.6	0.29	546.26	314	250	455	851	562	100%
850x300	300	780	1	0.004	0.57	0.29	207.58	157	300	190	338	191	100%

Project 501745 File 501745-REP-ST-0002-DSA Napler Aquatium - New Building dec



Project 501745 File 501745-REP-ST-0002-DSA Nacier Aguarium - New Building dec

15 May 2016



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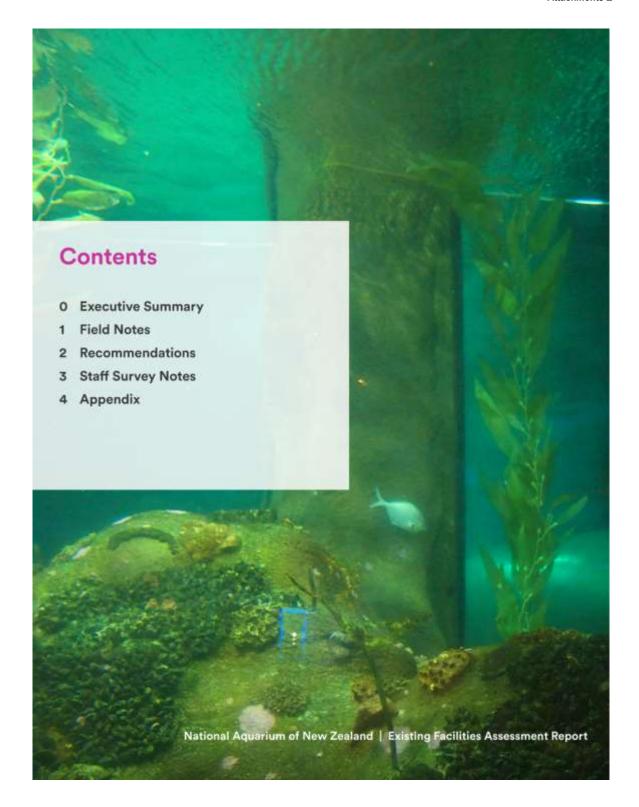


Existing Facilities Assessment Report for the

National Aquarium of New Zealand

October 30, 2019







October 30, 2019

Napier City Council ATTN: Drew Brown St. Project Macager 215 Hasting St. Napier 4110 New Zealand

Re: National Aquarium of New Zealand, Existing Facilities Assessment Report

Sear Mr. Brown:

The National Aquarium of New Zesland (NANZ) is comprised of an original building that was designed and constructed between 1973 and 1976 with additional expansions in 2002 and 2012. The current Aquarium houses both salt and fresh water collections with exhibit and visitor spaces on two levels. Back of house and administrative support spaces are dispersed throughout the facility. We understand that there is an citiary facility at Westshore dedicated to the kiwi breeding program which we did not survey as part of this assessment.

On July 18, EHDD toured the main facilities at with the Director, senior staff (including the members from the animal husbandry and facilities team) and Napler City Council representative. We saw the visitor and exhibit areas as well as the back of house and administrative support spaces. The following Condition Assessment Report presents the information gathered by site observations and discussion, the current Aquarium Staff and review of available drawings and reports provided by the Napier City Council. Reference Detailed Seismic Assessment (May 2018) by Aurecon New Zeafand Limited and Mechanical and Electrical Services Condition Assessment (July 2017) by Opus International Consultants Ltd.

The propose of this report is to understand the state of the existing collection, life support systems, building and site conditions as a preliminary step in the process of determining how to best incorporate the existing facilities into the overall design of the Aquarium Expansion project. It is intended as a working resource for our internal team to reference.

We are available to review the findings at your convenience.

Sincerely,

John Christiansen Vice President, Construction

MA

cr.: Antoinette Campbell, Katherine Short

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Existing Site Plan

546 Marine Parade, Napier 4110



- 1. Visitor Entry
- 7. Sea Water Intake (typ of 3)
- 2. Stormwater Outfall
- 8. Bus Loading
- 3. Freshwater (Artesian) Well
- 9. 2002 expansion
- 4. Parking (Non-Dedicated)
- 10. Original Napier Aquarium
- 5. Loading
- 11, 2012 Expansion
- 6. Water and Sewer Service Lines
- 4 National Aquarium of New Zealand | Existing Facilities Assessment Report

Field Notes

General

The Aquarism was originally constructed in 1976, at that time consisting of a round building of approximately 738 m² (footprint, approximately 1460 m² total floor area), with exhibits located on primarily two floors, and with a Camera Obscura in a third partial floor. In 2002, a 1046 m² (footprint, approximately 1475 m² total floor area) expansion was undertaken, adding a 1,400 m² tank divided into two sections, the smalter a temperate reef exhibit, and the larger with a moving walkway tunnel experience. In addition, the expansion contains a calé and gift shop, and ticketing, public stair and elevator in an entry lobby connector to the original building. Upstairs offices were also added, along with an adjacent space now used for exhibits upstairs offices, a moderate sized exhibit space. During this expansion, exhibits within the original building were modernized to some extent, and the 3rd floor cut off from public use. In 2012, a 407 m² expansion added an outdoor penguin exhibit with associated support spaces and a modest expansion of educational lab space.

Portions of the building itself are in good condition physical condition, particularly the building enclosure of the expansion built in 2002. Public spaces are generally visually well maintained. However, back of house areas show extensive corrosion of systems and degradation of finishes throughout the facility, Such areas generally were not adequately designed or built to meet current standards for such facilities, or even best practice for when they were constructed.

While some individual exhibits are well done, there is no cohesive interpretive plan and what is displayed seems mainly random. Lighting of both exhibits and public spaces is generally poor. Badly placed lighting is common, creating glane. In many cases, placement of bright lights and exhibits directly across from tanks creates reflections that prevents good viewing through the exhibit windows. Lighting in the public spaces is unbalanced, with dark areas immediately after brightly lit areas and exhibits, not providing time for visitors to adapt.

In general, the live animal collection has limited species diversity with low densities as compared to similar facilities. A number of animals show ill effects from poor water quality/and or inappropriate exhibit design. Overall, it largely appears what is displayed is those animals that can tolerate marginal conditions. Life support systems for exhibits are also rudimentary compared to similar facilities. Water quality data is generally unavailable to evaluate system performance and support proper animal health. In addition, above water access for several exhibits is extremely poor, complicating proper animal husbandry. Some require dive operations for even simple tasks normally done from above water, and some instances compliance with applicable diving standards is very questionable.

Field Notes-Public Spaces

Arrival Sequence

The current arrival sequence to the Aquarium is hampered by several factors:

The Aquarium is completely surrounded by parking lots and entry drive. For visitors walking to the Aquarium, no clear pedestrian path is provided to the entrance either from the pedestrian path along the beach or from Marine Prominade.

The main entrance is shielded from view from the primary approach direction from the north. While the marque sign for the Aquarium itself is near the front door and clearly identifiable, the entry sign at the door itself is quite small compared the that of the café and gift store entrances and the entry is nondescript in a complicated exterior wall plan, making where to enter very confusing. Entry can be congested as there is no designated group entry or reception, especially during early morning in cruise ship season.

Upon entering the lobby, ticketing is off to one side of the entry into the Aquarium proper and can be readily bypassed by visitors if the staff are engaged in transactions. Two entries to the café and gift shop off the lobby across from ticketing also complicates admission control, and the one past ticketing intended for visitors to use when they exit the aquarium has been blocked. With no separate admissions control, information or membership stations, the ticketing and entry area pinch points in the guest experience.

After ticketing, the exhibit flow path is unclear, with no wayfinding signage. A side exit from darkened Kiwi exhibit area results in some people taking a reverse path, instead of up the stair/elevator as intended.

⁶ National Aquarium of New Zealand | Existing Facilities Assessment Report

Arrival & Reception





1. Visitor entry not visible from bus and street drop off.

2. Entry court

- Undersized doors cause congestion for entry and exiting, groups and individual visitors.
 No designated entry for members.
 Sunshades do not have capacity for supporting sig-

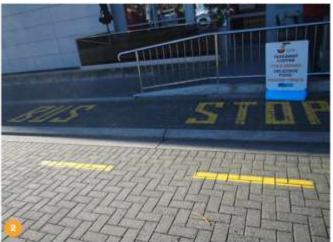
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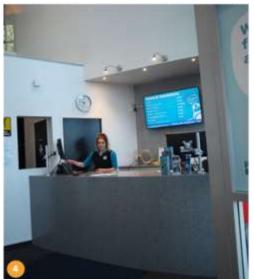
 Side terrace is not in use. Facilities team noted that terrance does not properly slope to drain.

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Arrival & Reception







1. Cafe terrace

Poorly placed, facing Marine Parade instead of Bay. Entrance to the cafe is more prominent than ticketing entry for the Aquarium.

2. Bus loading

Poor placement, leads to cafe instead of visitor entry

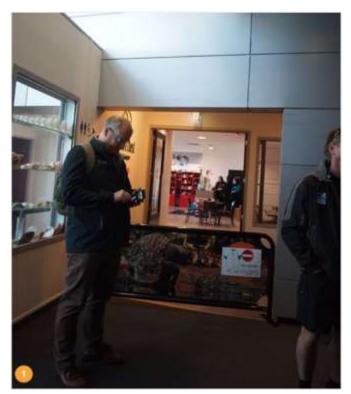
3. Ticketing and reception

Poor placement. Admission control is complicated. Information desk is not separated from ticketing, increasing congestion.

⁸ National Aquarium of New Zealand | Existing Facilities Assessment Report

Arrival & Reception

Level 01



- Internal cafe and retail entry Blocked circulation.
- Dark lobby to education and kiwi
 Side lobby serving as exiting for the
 nocturnal exhibit misleads some
 visitors on the reverse exhibit path.



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Field Notes-Public Spaces

Exhibit Experience

At the base of the stairs is a large reproduction of the jaws of a Megalodon. This is a well-liked photo opportunity for parents to get a picture of their small children in the jaws. But placement of the jaws backed up under the upper stair run makes the experience somewhat difficult, with a poor background. At the mid-landing of the stair is a fish art piece that, while colorful and interesting, is poorly lit, with no obvious interpretation or connection to the exhibits.

Following the stairs to the second floor, visitors again encounter a dilemma on where to go. After a glass encased old hardhat diving rig with no significant interpretation, to the right, the East Coast Lab exhibit entrance has bright, obvious graphics intended to pull visitors in. But the actual exhibit content is dry, primarily written graphics, focused on the science of plate tectonics, earthquakes and tsunamis, not an animal experience that visitors would expect to find as a first exhibit. Consequently, many visitors just look in quickly and move on. This space is apparently cold in winter and hot is summer, which further discourages use. The area is however the only part in the building that has views out to Hawkes Bay, but unfortunately looking across a roof, and this asset is not used to any purpose.

To the right of the stairs, the primary exhibit path begins with a cased shell collection with openable drawers. The exhibit feels more like what one would find in a natural history museum but the lack any interpretation to give it context. The staff reports that people do frequently open these to look at the collection, but them don't close the drawers.

Following the exhibit path, the visitor encounters a number of moderate sized open-topped freshwater tanks representing African and south American take and river habitats. While these are generally good quality naturalistic exhibits, the lighting of them makes viewing them difficult. Interspersed, whit the exhibits are some smaller, home aquarium sized tanks. A goldfish tank, and large display of off-cast pet store red slider turtles, a small coral reef tank and a part of this floor given over to a dry, static exhibit about dinosaur add to the tack of any cohesive rational for the collection or exhibit theme. A large part of this floor is also taken up with a 2-story rockwork cliff, opening to the floor below and an open stair up to an upper level that is only used for storage due to tack of accessibility.

The downstairs exhibit highlights include an exterior penguin habitat (2012), a nocturnal kiwi exhibit and the Pania and Oceanarium exhibit in the 2002 expansion. The popular Little Blue penguin exhibit is the only outdoor exhibit in the program and provides some relief from the linear exhibit experience. However its layout and location does not support long stay time for visitors; there is inadequate viewing area in front of the tank, the beach area (where the birds tend to spend most of their time) is far away from visitor view and the poor sun exposure on the habitat keeps the majority of the exhibit in shadow.

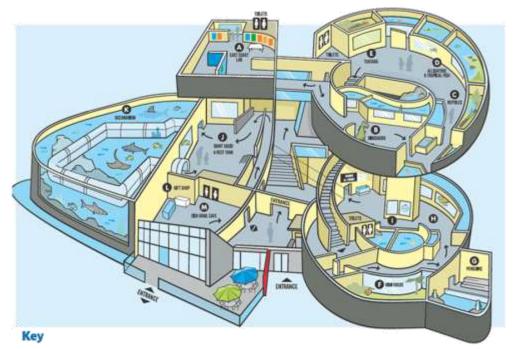
The nocturnal kiwi exhibit, while also popular, suffers from poor exhibit and egress lighting. There is little lighting transition into or out of adjacent bright gallery spaces with minimal path lighting in the exhibit itself, potentially causing unsafe conditions for egress and accessibility. The artificial planting along the visitor path brushes against visitors, distracting from the experience. Other exhibits in this area include a Hawksbill Sea Turtle exhibit, and a number of smaller saltwater exhibits.

The culmination of the exhibit path is the Pania Reef and Oceanarium exhibit which features a tunnel with conveyor walkway and a large viewing area for the feeding program. The overall shape and design of the large tank and habitat with multiple sharp corners does not support the natural swim patterns of the larger species and is contributing to their injuries. Few animals are seen at the primary viewing window and there is a tack of variety in long the tunnel path. Poor exhibit lighting also impacts the tunnel experience.

In general, the collection features a mix of endemic and foreign species but tacks a cohesive interpretive narrative. The linear exhibit path is not flexible and does not accompdate large flows of visitors and robust live animal programs.

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Exhibit Map



- A East Coast Lab
- * B Dinosaur Discovery & South American Fish Section
- + C Reptiles Australian Water Dragons
- D American Alligators & Tropical Fish Section
- E Tuatara Exhibit
- F Kiwi House
- + G Little Penguins (Feeding sessions 9.30am, 1.30pm & 3.30pm daily)
- H Hawk Billed Turtle Exhibit
- I Seahorse & Moray Eel Exhibits
- 3 Giant Squid Display & Pania Reef Tank (Reef fish feeding 10am daily)
- + K Oceanarium (Shark feeding 2pm daily)
- + L Treasure Chest Gift Shop
- M Fish Bowl Cafe

Exhibit Experience

East Coast Lab







Mixed media gallery and education space with mostly text and printed graphics content. No animal experience integrated into exhibit.

2. Thermal comfort, acoustics and lighting

- Staff noted that space is cold in the winter and hot
- durring the summer.
 Insufficient acoustic and lighting separtion between video installation and general gallery.

3. Bright gallery space with views to Hawke's Bay

Exhibit content is dry, with few hands-on exhibit experiences. Large area appears to be under utilized as an exhibit space

¹² National Aquarium of New Zealand | Existing Facilities Assessment Report

Exhibit Experience

Level 02







- 1. First tank along visitor path
- 2. Glare at exhibits
 - Lighting placement within and adjacent to tanks create glare.
- 3. Megalodon jaw at base of stairs Good photo opportunity, poor placement

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Level 02







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Level 02









- 1. Severe reflections on acrylic viewing panel
- 2. Well done artificial habitat; poor lighting.
- Well done exhibit; severe reflection Poor lighting placement.
- Major exhibit habitat for common "pet shop" turtles
 Habitat is well done but interpretive rationale is unclear.

Miscallaneous, Level 02









- 1. Well done artificial habitat; poor lighting.
- 2. Dark stairs to nocturnal kiwi exhibit

Poor transitions between exhibits that have different lighting conditions. Light levels to be confirmed for egress requirments.

- 3. Light leak due to poor ceiling design
- 4. Goldfish Tank

No interpretive overlay. Adds to the lack of cohesive rational for the collection

¹⁶ National Aquarium of New Zealand | Existing Facilities Assessment Report

Penguin Exhibit, Level 01







1. Shaded habitat

Penguin habitat located on the wrong side of building for sunlight exposure.

2. Beach area at back of habitat

Poor layout of habitat relative to viewer. Penguins spend most of their time at beach area which is too far away from viewing area.

3. Poor sun exposure

Exhibit Experience

2002 Expansion, Oceanarium Gallery and Tank









- 1. Typical view up through Oceanarium tunnel
- 2. Large tank and tunnel, lack of variety in experience
- Large viewing panel in Pania Reef exhibit
 Few or no animal on display.
- 4. Tunnel experience impacted by poor lighting

¹⁸ National Aquarium of New Zealand | Existing Facilities Assessment Report

Field Notes-Public Spaces

Retail and Cafe

Located within the 2002 expansion, the retail shop and café are accessed from the Marine Parade loading area and internally off the lobby. The combined layout and location of these two programs has posed the following challenges:

- immediate access from the loading area has allowed visitors to bypass ticketing and enter without paying
- Retail and café are poorly placed. The gift shop is cut off from the visitor flow, resulting in lower sales as it caters to and relies on Aquarium guests. The cafe seating area faces an uninspiring view to the Marine Parade frontage rather than the Bas.
- By combining retail and case spaces (in the 2012 renovation), monitoring and control is a greater challenge.
- There is no internal play area with seating for parents to a coffee break.
- Staffing for retail, café and ticketing are shared when ticketing is very busy

The Café is a grab-and-go model with limited kitchen capacity for food prep and service. Most guest do not stay for lunch at the Aquarium. Afterhours events have external catering.

Education

Education team provides programs on and off site to over 6000 students annually. At the Aquanium, programs are held in the ground floor teaching space and lab and in the East Coast Lab on the second floor. The primary teaching space is not large nor flexible enough for 60 students, the typically program size. Seating is generally only available for upper grades or small groups. Storage of mobile furniture, equipment and student backpacks are insufficient and impact the already limited area. The thermal comfort in the space is also an issue that distracts from the learning experience, cold in the winters and hot in the summers. The adjacent 2012 lab classroom has some wet lab capacity. Storage, area and access to holding and other back of house facilities limit what programs can be offer in this space. The education staff has requested that new wet lab classroom facilities should be have the capacity to be hosed down, with floor that slopes to drain. Presentation and display are also requested for specimens. These facilities are leased out for birthday parties and other kids events.

The Aquarium does not provide educational program on the beach adjacent to the Aquarium because of freak wave concerns, however there is a robust off-site program including roadshows at schools (2100 students in 2-weeks) and Rocky Shore. The Aquarium also partners with Sustainable Shores, Waste Awareness, Sea Week and poetry contest programs.

Retail Store and Cafe

Level 01







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1. Combined retail store and cafe

Lack of separation between areas pose monitoring and control issues

2. Retail store

Poorly located after 2012 renovation. Not connected directly to exhibit path.

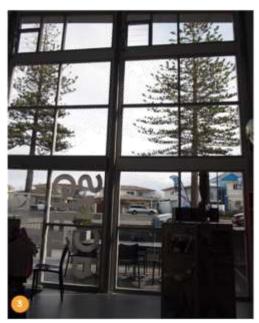
3. Cafe counter

Primarily serves aquarium visitors

Cafe 2002 Expansion, Level 01







- 1. Cafe kitchen, poor layout
- 2. Cafe kitchen, limited catering capacity for events
- 3. Uninspiring view out to Marine Parade from cafe and retail store

Education

Original Aquarium, Level 01





1. 2002 Teaching room

- Insufficent capacity for large groups, especially with chair seating

 - No dedicated storage for chairs and tables

 - Also serves at rentable space for children's parties

2. 2012 Wet lab classroom

Field Notes-Back of House Facilities

Husbandry Support Spaces

Husbandry support spaces include those areas dedicated to exhibit access, maintenance and animal for life support systems included within such spaces. Also included are more generalized areas such as holding & quarantine spaces, animal food service, veterinary facilities, dive support and collecting equipment storage.

In the original portion of the Aquarium, husbandry support spaces are located around the outer perimeter of the building, generally providing suitable service access to the back or sides of the exhibits. While a number of such spaces are interconnected to provide a back-of house travel path, a few areas are cut off, requiring access through public spaces. Such spaces also contain life support recirculation systems for the adjacent exhibit and, in a few cases, holding areas for animals,

In general, while the newer portions of the building are in better condition, many of the spaces throughout have corrosion and water damage issues. Most cases this is due to the use of unsuitable materials and construction for the normal use of these spaces, such as steel doors and frames around seawater and lack of curbs at wood frames walls. Floors are also predominately bare concrete and several areas exposed to seawater have rust from rebar corrosion or scaling of the concrete surface. Floors also generally lack proper slopes to drain, compounding the potential for water damage. In places holes have been put in storm drain pipes through the floor to use them for added drainage, with the apparent result that water enters back through these locations when it rains.

Exhibit Access

While the perimeter support spaces are generally properly located to service the exhibits, the actual access to the exhibits themselves is often quite poor. Steep ladders are used for access to the tops of taller tanks such as the Sea Turtle and Tropical Reef exhibits and lack adequately sized platforms around the tanks or headroom to service the exhibits from the surface. The sea turtle tank has a narrow crawlway over the top, but it is so narrow and without adequate headroom to be practically unusable. Without adequate above water tank access, even simple tasks have to be performed by divers. The tropical reef exhibit tank has such poor headroom over the top that access even by a diver is very difficult, and very questionable from a dive safety/rescue perspective.

Access to dry animal exhibits such as the Kiwi enclosure or ones with lower water levels such as the crocodile or turtles is better. But even at those, stairways have no landings in front of doors that swing out over the stairs into the support spaces. This is unsafe for keepers who often must carry items in and out of the enclosures while operating the doors. It also potentially complicates animal control as doors essentially must be opened without being able to use peepholes to first confirm animals are not next to the door.

Husbandry access to the Pania Reef and Oceanarium exhibits in the 2002 expansion also has significant issues. There is no above water access to these tanks except a very small area near the attached treatment/holding pool and another small area at the back of the tank. Although these tanks are quite large, some husbandry functions such as monitoring or netting out animals could be readily done from walk paths around the tank perimeter and/or catwalks out over the top. Instead, lacking such walkways, virtually all interaction with the collection must be performed by divers, adding considerably to staff scheduling and cost issues. While access into the tank for divers is not as bad as the tropical reef and sea turtle exhibit, it is still awkward.

Field Notes-Back of House Facilities

Exhibit Access, cont.

The penguin exhibit built as part of the 2012 expansion has access from a non-public corridor. The actual access point for keepers into the exhibit was not observed, however, based on the 2012 plans, there does not appear to be a stair up to the elevated beach area.

Several exhibits are located in the middle of the public area, and lack any access other than over the front of the exhibit using ladders. This makes accessing the exhibits potentially hazardous as well as difficult to do without disturbing the visitor experience when the aquarium is open.

Quarantine & Holding

A modest single dedicated area is provided for most animal quarantine and holding. Tanks and dry holding enclosures are closely clustered with no separations. This presents the potential for disease transmission between tanks due to splashing. It is unclear to what extent this area is used for any holding of back-up animals for exhibit after treatment, but there are no other areas in the building where there are facilities for this. It could be that with the small size of the current collection, all animals directly transfer to the exhibits after treatment, with no reserve animals held.

Most quarantine tanks and enclosures are small, generally home-style aquariums with one larger acrylic tank. A number of larger rectangular old fiberglass tanks are also present, but there is are no large circular tanks that would be suitable for holding larger species or faster, open water type species or schooling fish. The smaller tanks have independent home aquarium type systems generally suitable for smaller freshwater species which appears their primary function. The acrylic tank has a recirculation system on it suitable for saltwater, but fiberglass tanks do not have any associated systems and appear to be flow-through only, discharging directly to the floor.

Separate dedicated dry holding/quarantine areas are present for Tuatara, Kiwi and Blue Penguins. The space for penguins is quite large and appears oversized given the current low utilization. Placement of penguin holding located relatively far from the exhibit is suboptimal, although with the small size of this species this appears generally workable.

Food Prep

The animal food prep area was built as part of the 2012 expansion and is generally in good condition. Walk-in refrigerator and freezer appear of good quality and installation, with good access for food deliveries through a roll-up door to the exterior. Finishes within the space are in good condition, although floors and walls could be of more cleanable and less absorptive materials. Appropriate facilities for food preparation are provided. The space overall is however quite large, with expansive floor areas that appear underutilized, and counters/sinks/walk-ins widely separated.

Field Notes-Back of House Facilities

Veterinary Support Space

The Aquarium includes a relatively new veterinary space. Finishes are generally upgraded from other back of house areas but cleanability/sterility may be problematic given the materials used. While the space is large, the layout and facilities appear suitable for only minimal veterinary procedures. However, since the Aquarium's collection includes no mammals or large terrestrial species, the space is probably generally workable at least for the for the short term.

Dive Support

The Aquarium's need for dive operations are extensive for a facility of this size due to lack of above water access to exhibits. A good quality compressor is present to fill SCUBA tanks, but without any fill/fragmentation tank to provide tank cooling or protection of the operator from tank rupture. The air intake is correctly piped out of the compressor room, presumably to the building exterior, but the actual intake location was not verified. The compressor room is also used for wetsuit drying which may subject the compressor to corrosion. Restrooms and showers of suitable size and finishes for diver use are present nearby.

Back of House Facilities

Exhibit Access



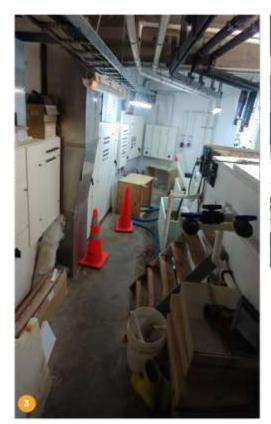


- 1. Unsafe dive access to tropical reef exhibit
- 2. Oceanarium tank

No proper access to maintain the exhibit nor for animal care.

Back of House Facilities

Exhibit Access





- 3. Poor exhibit tank access, minimal life support systems
- 4. Poor and unsafe access for sea turtle exhibit tank

Back of House Facilities

Level 01











- 1. Minimal holding and quarantine
- 2. Minimal holding and quarantine
- Walk-in refrigerator and freezer Appears to be in good condition
- 4. Holding tanks overflowing to floor
- 5. Minimal veterinary lab

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Field Notes-Life Support Systems

Seawater System

The seawater system consists of primary supply and discharge systems as well as recirculation systems serving certain exhibits. The seawater intake is a series of 3 infiltration type structure of unknown size or capacity buried in the gravel beach east of the original aquarium building and just seaward of the public walkway. The system is permitted for a maximum flow rate of 90 lt/s but currently only a single intake structure is in service with a single submersible pump of approximately 20 lt/s capacity is incorporated in this structure with a pipe from it to the aquarium. Access to this pump is apparently only possible by digging down to the structure as there is no well from the surface. Although spare pumps are apparently stockpiled, given the critical need for the intake system to stay operational, tack of in-place redundant pumps and good access for maintenance puts much of the marine unimal collection at risk should the one pump fail.

Prevailing longshore currents at the beach are north to south and there are reports of some contamination of the seawater from a broken outfall from a lumber mill located along the beach to the north of Napler. This break occurred late last year, and while there are reports of repairs proceeding, there is not any indication that those repairs are complete at this time. From a single recent sample, heavy metals and other contaminates appear to be low. But the phosphate level reported is about twice base ocean level. This may be from the broken outfall or agricultural runoff and, while the reported level is not an issue for most species, higher phosphate levels contribute to algae growth, especially microalgae and filamentous algae that, in brightly lit tanks, add to maintenance. Phosphates are also a concern for the health of stony corals. Recent reports of Cyanobacteria and blooms of toxic dinoffagellate blooms (red tides) in Hawkes Bay may be related to this elevated phosphate, but there is no information on whether these organisms or their byproducts pass into the aquarium through the buried intake.

Seawater entering the building is distributed through PVC piping throughout the facility, with the major use for about 14 t/s for the interconnected Pania Reef and Oceanarium exhibit tanks. Seawater discharging from the exhibits is returned to Hawkes Bay through connection to a city storm discharge pipe that surface discharges onto the adjacent beach.

This outfall is located just north of the intake structure potentially resulting in the intake picking up some of that discharge. As this is also through a city stormwater outfall, it has the potential to result in some freshwater pick-up by the intake system. However, salinity levels taken over the last year are good and close to base ocean levels. Depressions in salinity do occur during winter but are very minor and should not posse a concern for the health of most species. These may be due to the adjacent outfall, localized rain on the beach and/or from other up-current freshwater runoff source.

No water quality data is currently available for seawater discharging to the bay. However, it should be relatively close to the quality of the incoming water based on the make-up rate to the building and the limited stocking density of the saltwater exhibits.

Field Notes-Life Support Systems

Freshwater System

Most of the exhibits in the current aquarium are freshwater and make-up water for these is provided from two sources, the city water supply, and a bore located immediately south of the Aquarium. Water quality of both of these sources from single recent samples is good, but there are reports of spiking of ammonia and nitrite levels and the aquarium staff are in the process of installing a small reverse osmosis system to treat the make-up. No data on chlorine or chloramine concentration in the city water was provided, so there is no basis to know if dechlorination is needed. The aquarium staff raised concerns about biological contamination from incoming water, especially from the bore based on Pseudomonas sp. presence in exhibits.

Freshwater is also used to provide a heat source/sink for the heat pump chillers that supply heating and cooling water for the building and several exhibits. As with the seawater, freshwater discharges from the aquarium through the storm system outfall to the beach, with only limited discharge to the city sanitary system. A single coliform test gave a positive, but low count for the combined outfall. The fish systems would not contribute to coliforms, but the penguin exhibit might. While the detected count is below typical allowable levels for human contact (swimming, etc) the source should be investigated. However, the city storm system is equally a likely source as the aquarium.

Recirculation Systems

Recirculation systems on tanks are generally rudimentary, with limited use of pool type literation systems and small foam fractionators on the few smaller seawater exhibits, with plastic crates often used as reservoirs. Systems are generally in poor repair, with rust and creeping salt growth from leaks. There is a general lack of good identification labelling of piping and valves, making operation difficult. Little or no sterilization is provided for disease control, with a number of small UV sterilization units stockpiled in the 3rd floor. These appear to have been used at one time or another and then removed.

Actual turnover rates in the exhibits and holding/quarantine tanks are not known, and no water quality information is available to assess the appropriateness of the systems. Little or no more toring and control equipment is present, with even simple pressure gauges and in-line flowmeters generally lacking, making system operation decisions largely by intuition.

The large Pania Reef /Oceanarium tank in particular appears to have an inadequate system. Water quality in the exhibit is unknown but the current flow rate of around 17 l/s of make-up seawater should be adequate for an exhibit of this size to keep nitrate levels below a detrimental level and pH within an allowable range- given proper design and operation of the rest of the system. However, the rest of the system for this exhibit is well below standard for an exhibit of this size. While clarity in the exhibit is not bad, this is probably attributable to the low density of animals currently in the exhibit and it is likely that the current system would not support a healthy collection at the higher densities needed to make this a compelling exhibit.

Three small diameter horizontal sand filters served by two pumps are the only recirculation equipment currently serving this exhibit. No flow rate for the pumps is available, but based on the nameplates on the filters, these are rated at 4030 l/m maximum flow. If actually operating at that flow, the simple tumover rate for the exhibit would be 116 minutes. While somewhat below what would be normal for this size of tank, it would probably be reasonable given the current low density of animals in this system. But under normal LSS design standards, the maximum allowable rate for each of this type/size filter would only be around 1625 l/m to provide proper operation, with an exhibit tumover of 287 minutes - far too slow to provide adequate circulation. The small size of the pumps on this system indicates this inadequate turnover rate is probably close to where this system is operating. Filtration is therefore not adequate, certainly not for a larger collection, if even for the current low density of the exhibit.

Recirculation Systems, cont.

This style of sand filter is very prone to channeling of the filter bed, with greatly reduced effectiveness, especially in a system such as this that lacks flow monitoring, pressure gauges and controls to ensure proper operation and backwashing. The staff has reported that the sand in these filters has not been replaced for 8 years. While sand filters can often operate longer without replacement of the media, the current effectiveness of filtration is very questionable, so the staff's current plan to replace the media is prudent.

This system also lacks any sterilization system or operational aeration for the recirculated water. The only aeration present is the cascading of the 17 l/s of make-up seawater into the tank. 3 large biomedia tanks are part of the installation that at one time that may have served this function as well as providing additional surface area for biological filtration. But these apparently have been non-operational for some time due to leaks and the inability to make repairs or replace the tanks. Without such aeration, dissolved oxygen in the tank is expected to be suboptimal and impacting animal welfare, even with the small numbers of animals currently present. It is possible that CO2 levels may be elevated as well. Poor aeration and slow turnover may also reduce the efficiency of biological filtration and cause elevated levels of toxic metabolic products such as ammonia and nitrite.

The lack of any heating or cooling on this system also means that temperature control is solely through the flow of make-up water. Although no data is available, tank temperatures are presumed to fluctuate through the year, not only from normal incoming water temperature variations, but with the slow make-up rate, from interaction with internal building temperatures. Given the lack of building insulation, it is likely that summer temperatures in the exhibit may be higher than recommended for some species.

The penguin exhibit also has a minimal life support system. Apparently it has been run as a simple flow through freshwater system for some time, without any filtration, but the aquarium staff have recently installed a filter on it to try to improve water quality.

Electrical System

Electrical service to the life support systems is poor. The lack of a standby/emergency generator puts the entire aquatic animal collection at serious risk should a power failure of even modest duration happen. The overall electrical system is reported as having no spare capacity for powering additional equipment, severely limiting the ability to improve life support systems as is needed. While pumps appear properly wired, unprotected and outlets and plug strips without ground fault protection are often present to provide power for lights and equipment near tanks and constitute safety risks.

2002 Expansion, Level 01







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Original Aquarium structure



- 1. Minimal Life Support Systems
- 2. Life Support Systems for turtle exhibit tank
- 3. Leaky Life Support Systems





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Level 01











1. Typical small Life Support Systems

- 2. Lack of floor slope
- 3. Sea water sump discharge into Bay
- 4. LSS sump buried under public path
- 5. Stormwater and Seawater outfall

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Level 01





- 1. Electrical service in wet area
- 2. Overloaded electrical connection

Field Notes

Physical Condition

The location of the Aquarium along the waterfront and with open tanks on the interior of the building poses serious corrosion potential. Overall, the interior and exterior structural portions of the building and exhibit tanks are in generally adequate shape, with only limited signs of corrosion of concrete reinforcing, leaks or degradation of surfaces. Exterior building finishes also appear generally well maintained.

However, several components are in poor condition. In places, wood framed interior walls sit on wet surfaces or are in close proximity to tanks and show the presence of decay. Lack of proper insulation in roofs and exterior walls combined with a lack of good temperature and humidity control is causing significant amounts of condensation within the building. This occurs directly on concrete block exterior walls, and on pipes containing colder water that are either uninsulated or under-insulation. This condensation is causing damage to interior finishes, even beyond the back of house areas where finishes "should" have been selected to handle proximity to open tanks and normal wet conditions typical of such facilities.

As noted in the Mechanical and Electrical Services Condition Assessment, significant corrosion of mechanical, electrical system and life support system components is present. As noted in that report, generally, this is due to the use of incorrect materials for this environment, or placement within areas unsuitable to such equipment. But the damage is exacerbated by the poor environmental controls within the building.

General conditions, Level 01





- Leak damage at HVAC ducts
 - 2. Leak damage at HVAC ducts
 - 3. Rusted HVAC equipment at wet area, typical



General conditions



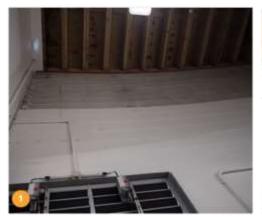




- 2. No insulation in roof structure
- 3. Roof structure with openings to exterior



General conditions, Original Aquarium structure









- 1. Leaks and condensation at roof and CMU wall
- 2. Water damage at roof framing
- 3. Water damage at wall base
- 4. Dry rot at roof structure

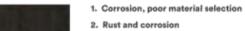
General conditions











- 3. Rusting at CMU rebar
- 4. Rusting at equipment
- 5. Some damage at concrete



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Doors and Openings

General conditions









- 1. Corrosion at bottom of door, frame and hardware; typical at BOH
- 2. Rusting at bottom of door and frame; typical at BOH
- 3. Water damage at frame base and adjacent wall base; typical at BOH
- 4. Undersized doors into East Coast Lab, gallery

Flooring Finishes General conditions









- 2. Stair finish deterioration from salt water
- 3. Stained carpet in public path
- 4. Concrete slab scaling from salt water

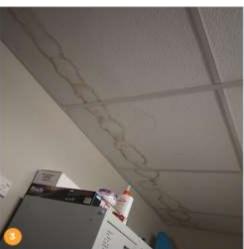


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Ceiling Finishes General conditions





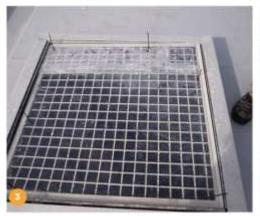


- 1. Ceiling panels at Penguin Exhibit not suitable for exterior
- 2. Damage from condensation on pipes, back of house
- 3. Damage from condensation on pipes, back of house

Roof General conditions











1. Adhesion issue at waterproofing membrane

- 2. Rust and corrosion
- 3. Condensation, unsealed openings to interior
- 4. Skylights missing retaining angle at parapet side
- 5. Cranked skylight dome, unsealed fastener openings

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Views





- 1. Only view to exterior is from East Coast Lab
- 2. Great view from roof of original Aquarium



Recommendations

Original Aquarium Structure

The original building's ring-shaped design and structure is relatively inflexible and the ability to effectively modify it to incorporate larger exhibits with an appropriate visitor path or even to accommodate appropriate support spaces is very limited. In addition, complete removal and replacement of finishes, mechanical and electrical systems and new life support systems will be needed that would be difficult to do at reasonable cost given the building configuration. Combined with this is the need for significant seismic upgrade of the structure as outlined in the Structural Assessment. The cost of reuse of this building would likely be very high, approaching that of new construction, while introducing significant constraints to the design. The demolition of the original building and attached penguin exhibit is therefore recommended as part of the aquarium's expansion.

2002 Expansion

The 2002 expansion presents better potential for reuse. The overall building structure is in good condition, with only minor selsmic upgrades required for the second floor slab attachment. But the ability to effectively incorporate the building into a new larger building is limited by the building's shape. The Oceanarium and Pania reef exhibits also would require significant changes to both them and the building structure to provide for appropriate life support systems, animal welfare, tank access and visitor experience as part of the new aquarium program. But the entire first floor could be readily adapted to uses that do not have to be within the new aquarium. These would include education spaces, temporary exhibit space and similar. Aquarium offices can also remain on the 2nd floor, expanding into the East Coast Lab area as required, or that space repurposed for other needs. The existing lobby and stair likely can be preserved to continue to function as the entry to the building and access to the 2nd floor.

The costs to repurpose the 2002 expansion should be a significant savings over building the equivalent functions in the new building. Only limited structural work will be needed, primarily removal of exhibit tank walls where no longer required. New finishes and mechanical and electrical systems will be needed, in particular at the first floor, with improvements to the buildings envelope for thermal comfort. A new exterior wall will be required on the south end of the 2002 expansion where the original aquarium building is demolished, along with a new elevator.

Construction Sequencing

Not incorporating the current aquarium building into the new facility would also provide for some operational flexibility. The existing aquarium could remain open for at least a portion of the construction of the new facility. At some point, all or part of the old aquarium could then close and temporary quarantine and holding facilities could be installed on the first floor to stockpike animals for the new aquarium, rather than developing a remote holding location. After animals transfer to the new building, tanks and life support systems from the temporary holding could be moved into the permanent quarantine and holding areas in the new building, followed by demolition of the original building and fitting out of the 2002 expansion area for its permanent uses, either before opening of the new aquarium, or after.



Staff Survey Notes



meeting notes

Date 1 August, 2019

Project National Aquarium of New Zealand Expansion Project

Topic Existing Facilities Assessment Report: Aquarium Tour & Staff Intake

Conversation with the Director, Dr. Adrian Fowler:

The Aquarium is operated by the NCC with a dedicated staff of 40 including 8 divers, 1 full-time maintenance personnel with other operations and systems related staff available on an "as needed" basis through the Council (e.g. HR, IT, AV, support maintenance, marketing). There are 2 staff members at the Westshore facility for the kiwi breeding program. The current focus is on elevating standards of animal care and operations at Aquarium.

In general, the existing building is not flexible and difficult to operate and maintain.

- -Poor circulation due to one-way exhibit flow
- Lacks appropriate animal care and holding spaces
- -Water quality is a big challenge due to outdated and inappropriate LSS design
- Number of tanks are leaking
- Some mold issues at BOH area
- Café is poorly located

Challenges for the collection include:

- Collection is not flexible, with not capacity to house changing exhibit
- Difficulty hiring qualified Aquarium staff (divers, operations etc) within local pool
- ZAA accreditation is for only the first section, the public side. Back of house/animal care and education/conversation sections have not been evaluated.

Program and Mission:

Institutional core values: conservation, protection of the environment

- Awe, wonder, inspire action
- Care for animal, respective of the natural world
- Trusted and trustworthy resource, integrity
- Inclusive, accessible
- Empowering action
- Walking the talk, embodiment of message

Loading, parking, access and security:

- Most overseas visitors come via Cruise ship who come via bus between 9.30a and 12:30. Lots of competition
 from surrounding wineries to get their attendance because the financial incentives from the wineries are more
 appealing. Cruise get percentage of admissions fee. Cruise ship season is October through April (around 70
 ships total yearty)
- Current parking during summer / peak season is at capacity because the parking out front is not strictly dedicated for Aquarium guest. Visitors for the general Marine Parade sometimes use Aquarium parking and there is currently no monitoring or system to enforce dedicated parking
- Security camera system is maxed out in capacity and is an old system, no relay.
- After hours security is through Council services, not dedicated. Kerry, Adrian are first to be called.
- Current project underway to improve wayfinding and signage

Staff Survey Notes, cont.

Husbandry, Animal Care and Operations staff

- Collection staff: 14. Eight divers on staff because most tanks need to be maintained through diving due to lack of
 access room above tanks. This includes Terry the turtle, Sharks, Reef. Staff maintain the penguins exhibit by
 snorkeling. Most are trained as divers but are trained on the job for animal care duties.
- Staff would like 2-3 more full diver showers
- No volunteer dive program
- Current number of animals and species: Information not available. Collection has evolved by legacy (including taking in animals) without formal collection planning, with no current expansion intended. For example, they took in Florida Sliders (which are considered invasive)
- Breeding program: Kiwis only. Also have only 15 penguins, because they have not been very successful with active breeding. The birds have been imprinted by humans. Penguin story is advocacy not breeding/conservation.
- Ecosystems represented: Collection is currently not organized by ecosystem, mainly New Zealand-based
- Popular exhibits: Penguins, sharks. Kiwi exhibit is also popular but poorly designed and taid out. There a safety issues associated with lighting transitions (none) and slight elevation change in visitor path.
- Sacred cow collection: kiwis, penguins, megalodon, sliders, tuatara, blind fish, giant squid, tuna heke eels, sharks (7gils)

Would like to have:

- Brown fails in collection either as breed and release, love ducks?
- Rare invertebrates
- 4 rare frogs endemic to NZ only
- Whispering tree, golden brine?
- Sea turtles in north, not in bay.
- Terrapins
- Seals not in Hawkes Bay but in Wellington, rescue and release program
- Questions about migrating species that come into the NZ but not endemic
- Godwit (Maori Story)
- Touch tide pool/ inner tidal. Stingrays, smaller for touch pool? (eagle, short and long tail?).
- Pania Reef story

DOC and MPI regulation: easier to focus on local species

Life Support Systems:

LSS systems are minimal and water quality is a primary issue

- Seawater intake from the Bay, freshwater from city well
- Exotics are discharged to ocean
- No treatment, no chlorination
- High phosphate and nitrogen levels, saline levels drop after it rains
- Broken city sewer line just north of Aquarium and fertilizer factory to the south by Maori Star compass may impact water quality
- 4.5M liter per week intake
- Biotanks not in use and UV filters not installed
- No direct sea water access into Quarantine area. On wish list

Existing electrical service is at capacity

- No back-up generator
- No direct sea water access into Quarantine area. On wish list.
- Poor exhibit lighting in animal habitat exhibit and visitor side: glare from skylights, hots spots from exhibit lighting above, lack of lighting transitions from darker areas to more bright areas, from inside to outside and vice versa.
- New boiler/ chillers to be located at back of Aquarium, Bay side

Staff Survey Notes, cont

Education:

Limited space for education program. Space is not flexible.

- Storage, storage- bio collection (not moist area), school bags, lesson resources
- Display for specimens
- Size of session: 60+ sitting on carpet or teens in chairs
- Air Condition/ Heat. Thermal comfort is an issue
- Hosable Wet Lab classroom
- Accessible reptile enclosure/holding separate from exhibit
- Some adult education: Some lectures/talks, tours and meeting spaces for local Aquarium society
- No formal on-site research program, but would like to have future program as pipeline for professional training
- No formal internship program. Staff would like to see Aquarium internship tied to training/pipeline of aquatic professional (Keeper's course).
- Locals not typically connected to the Aquarium. Few programs for locals

Guest Services:

- Entry no evident, confusing
- For events, guests are welcomed and received in lobby area, served drinks and ushered upstairs or to Oceanarium.
 Oceanarium is currently the largest event space. If viewing window is
- After hours events and program are rare and restricted by catering capacity and the expensive of having divers at the aquanium or on call per worker safety standards
- Currently not enough staff to manage visitor flow in part because of the awkward layout of ticketing, reception, cafe.
 There is currently no distinct information desk.
- No formal group of personnel dedicated to guest services, mixed between front desk, retail and café staff.
- No separate group entry or reception which is only an issue during early morning, during cruise ship season. Only one person for ticketing, (sometimes two stations for busy days) but hard to deal ticket purchase and control entry when busy because they are one and the same. There is a pulsing issue with the Cruise ships groups because there are a lot of visitors a once in the early mornings.
- Retail is no longer in point of experience, so drop off in sales
- Had to separate out Café because people used to enter without paying through the café based on tripadvisor review posting.
- Guest generally do not stay for lunch. No place for large groups to eat together. No school group lunch facility, so students eat nearby at adjacent Marine Parade play area.
- Staff would like to separate out retail and cafe and have a gated, soft play area by cafe
- Current membership is around 860, communication is under Council marketing

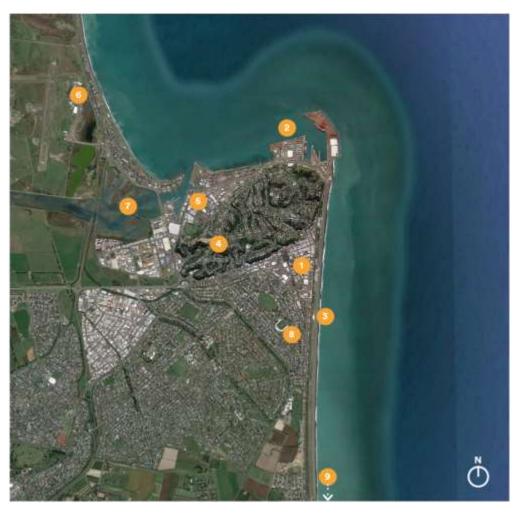
Attendance:

- Peak day attendance: 1000, but have experienced 1200
- Audience demographics: 12% local, 42% domestic, 46% international
- 2018 attendance: 148K
- Current stay time is 30-40mins (informal staff impression), could informally shadow visitors to determine typical guest path and stay periods



Vicinity Plan

Napier, New Zealand



- 1. CBD
- 2. Port of Napier
- 3. NANZ
- 4. Hospital Hill
- 5. Ahuriri Business District
- 6. Hawke's Bay Airport
- 7. Ahuriri Estuary
- 8. Cricket Stadium
- 9. to Star Compass, Park

Site Contours

1m Increments



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Stormwater Service



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Main Water Service



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Sewer Service



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PUBLIC EXCLUDED ITEMS

That the public be excluded from the following parts of the proceedings of this meeting, namely:

AGENDA ITEMS

1. Chief Executive Contract

The general subject of each matter to be considered while the public was excluded, the reasons for passing this resolution in relation to each matter, and the specific grounds under Section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution were as follows:

General subject of each matter to be considered.	Reason for passing this resolution in relation to each matter.	Ground(s) under section 48(1) to the passing of this resolution.
1. Chief Executive Contract	7(2)(a) Protect the privacy of natural persons, including that of a deceased person 7(2)(g) Maintain legal professional privilege	48(1)A That the public conduct of the whole or the relevant part of the proceedings of the meeting would be likely to result in the disclosure of information for which good reason for withholding would exist: (i) Where the local authority is named or specified in Schedule 1 of this Act, under Section 6 or 7 (except 7(2)(f)(i)) of the Local Government Official Information and Meetings Act 1987.