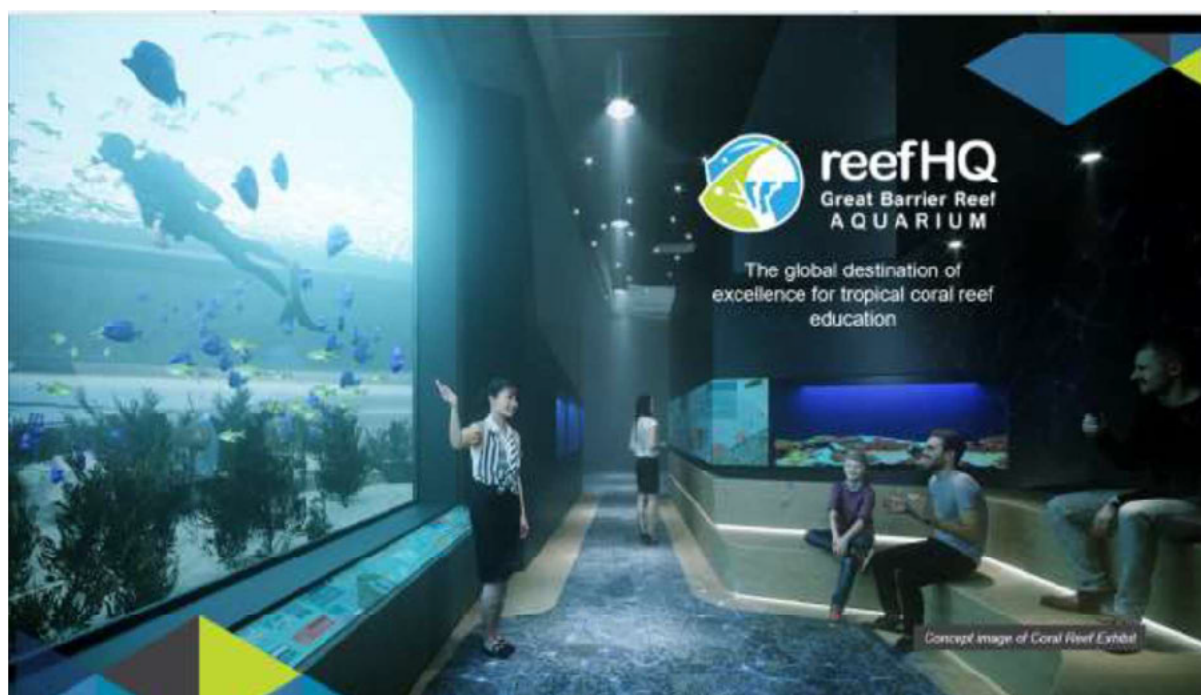




Australian Government
Great Barrier Reef
Marine Park Authority

Proposal for transformation of Reef HQ Aquarium into the global destination of excellence in tropical coral reef education



Statement of Evidence to the
Parliamentary Standing Committee on Public Works

Townsville, Qld

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Summary

1. The Australian Government, represented by the Great Barrier Reef Marine Park Authority (the Authority), is responsible for the care and development of the Great Barrier Reef Marine Park.
2. This submission by the Authority provides evidence to the Parliamentary Standing Committee on Public Works (PWC) on the proposed works to transform the National Education Centre for the Great Barrier Reef, Reef HQ Aquarium (Reef HQ) into the global destination of excellence in tropical coral reef education.
3. The proposed works are part of a keystone project within the [Townsville City Waterfront Priority Development](#) Area and supports the [Townsville City Deal](#) and Townsville's 2020 vision to create world-class experiences to drive economic growth through new investment and greater tourism spending.

Purpose of the proposed works

4. The Great Barrier Reef Marine Park Authority's [Master Plan for Reef HQ](#) has two stages (renewal and transformation), costing \$80.1 million in total. From December 2019-October 2020, the Authority received \$40.1 million for Stage 1 from the Australian Government, allowing the award-winning aquarium to rectify critical work health safety issues, to replace out-of-date animal life support systems, to refresh some key exhibits and to improve visitor accessibility.
5. Stage 2 funding (the proposed works) was announced on 9 July 2021 as part of the Townsville City Deal. The \$40 million transforms the National Education Centre for the Great Barrier Reef into a global destination of excellence in tropical coral reef education. The reimagined facility will expand the award-winning formal education and EduTourism products and develop new initiatives associated with key national priorities.

Identification of the need

Background

6. Reef HQ is part of the Great Barrier Reef Marine Park Authority (the Authority) and has access to world class scientists and research to inspire visitors. The facility was opened in 1987 as a bi-centennial community project to create a living example of a coral reef on land, a place to showcase science and deliver education about marine science, heritage and other Great Barrier Reef values. Reef HQ is accessible to people of all ages and physical abilities.
7. Reef HQ is the Australian Government's "National Education Centre for the Great Barrier Reef" and is recognised nationally and internationally as a centre of excellence in environmental education. It retains the mantle of the world's largest living coral reef aquarium. The education programs at Reef HQ provide a highly efficient mechanism for influencing community perceptions about the Reef at all scales (local, regional, national and international). Reef HQ facilitates such programs and is essential for the Authority to achieve its strategic policy outcome of providing for educational and information services in the *Great Barrier Reef Marine Park Act 1975*.
8. Reef HQ is located in the central business district of Townsville, Queensland (Figure 1).



Figure 1. Location map of Reef HQ in Townsville, Australia.

9. The Australian Government owns Reef HQ's assets, including the building and equipment to maintain the world's largest living coral reef aquarium. The land upon which the building sits is leased from the Port of Townsville Ltd until 2061.
10. The Authority's Master Plan for Reef HQ Aquarium has two stages (renewal and transformation), costing \$80.1 million in total. The Australian Government had already provided \$40.1M funding to address issues identified in the 2019 Asset Management Plan regarding the poor and marginal condition of the facility. Stage 2 (the proposed works) will expand the award-winning formal education and EduTourism products and develop new initiatives associated with key national priorities such as waste reduction, energy efficiency and Closing the Gap.

Need for the work

11. The Master Plan charts the course for future development in line with the Reef HQ vision to *'Transform Reef HQ as an educational and cultural landmark for visitors to north Queensland, well into the future'*.
12. Reef HQ is unique, in that its primary purpose is to educate people about the Reef. It is an invaluable asset to the Australian Government for international education of this national asset, as well as Townsville and north Queensland in how we reach and connect our communities with the Reef.
13. Implementing the Master Plan will transform Reef HQ into the global destination of excellence in tropical coral reef education, with positive impact on the Townsville economy, broader community benefits and future generations through the engagement of life-long learning.
14. The proposed works will help transform Reef HQ – the world's largest living coral reef aquarium – into Australia's national centre of excellence for tropical coral reef education, making it a premium international tourism destination as COVID-19 restrictions ease.
15. The upgrade will provide visitors with a range of immersive experiences and revitalised exhibits, including educational activities, hands-on experiences, onsite diving programs, scientific demonstrations and the use of interactive technology.
16. The redevelopment of Reef HQ will also contribute to the revitalisation of the Townsville City Waterfront Priority Development Area, which is one of the key objectives of the City Deal.

17. The proposed works will deliver targeted investment in projects that will bolster the local economy and ensure the city is positioned as a liveable, innovative and vibrant destination in Northern Australia.

Description of the proposal

18. The proposed works relate to the full implementation of the Reef HQ Aquarium Master Plan, allowing for efficiencies in construction and one single closure period. This will enable the facility to be well placed to capitalise on the resumption of domestic and international travel leading to increased tourism numbers.
19. The upgrade will provide visitors with a range of immersive experiences and revitalised exhibits, including educational activities, hands-on experiences, onsite diving programs, scientific demonstrations and the use of interactive technology.
20. EduTourism and a Reef Education Hub (Figure 2) are the focus of this exciting proposal, which will further showcase and expand the Aquarium's renewable energy capacity, rejuvenate live exhibits with increased technology and create new education programs.



Figure 2. Concept image of Reef Education Hub

21. Reef HQ is built on Wulgurukaba country and the Authority has a proud history of working with Traditional Custodians across the span of the Reef to share the importance of Sea Country and cultural connections. The Authority appreciates and values the guidance from Traditional Custodians to ensure we are delivering the project in a culturally appropriate and sensitive way. Consultation with the Traditional Custodians will be ongoing in the development and implementation of the Master Plan, ensuring the stories and connection to Sea Country are told.
22. The proposed works will allow the extension of the Aquarium's internationally-acclaimed formal education and EduTourism programs (Figure 3) and includes the development of three new programs: Vocational education and training to "Close the Gap"; Corporate social responsibility; and International collaboration and capacity building.

Formal Education Foundational - Tertiary	EduTourism	Vocational Education and Training	Corporate Social Responsibility	International collaboration and capacity building
<ul style="list-style-type: none"> • Student groups through Queensland Curriculum and Assessment Authority syllabus frameworks. • Nationally through Australian Curriculum framework. • Tertiary programs focused on students attaining course/degree credit points through Aquarium based programs. 	<ul style="list-style-type: none"> • Study tours (national and international) • Student groups primarily high school and tertiary groups. • Groups stay within the Townsville Region (north to Hinchinbrook, south to the Burdekin and west to Charters Towers for anywhere between 10 days and five weeks) 	<ul style="list-style-type: none"> • Traineeship programs (primarily Indigenous traineeships and apprenticeships). • Potential partnership/s with registered training organisation/s to deliver vocational education and training providing nationally accredited courses. 	<ul style="list-style-type: none"> • Corporate social responsibility programs that provide businesses with opportunities to contribute to their societal goals of a philanthropic, environmental, or charitable nature by engaging in ethically-oriented practices focused on Reef protection and conservation, waste reduction and renewable energy technologies. 	<ul style="list-style-type: none"> • Government-to-government level providing a dedicated location for sharing knowledge and experience. • Annual or Biannual programs.

Figure 3. Reef HQ education programs

23. Reef HQ is already renowned for world-class facilitation of experiential education programs to students in all stages of learning (Foundational – Tertiary). Formal Reef Education programs are facilitated to around 5000 students annually. In 2018-19 face-to-face Reef Education programs were facilitated to over 150 school groups with over 5490 students.
24. The facility's educational talks and tours have been attended by more than 83,700 visitors (65 % of historic total visitation).
25. Outreach Reef Education programs delivered through Reef HQ that use cutting-edge videoconferencing technology to connect students from around the world live with a scuba diver in the aquarium. This award winning reef education program was launched in 1997 and engages thousands people each year. Since its establishment, Outreach Reef Education programs have been delivered to over 805 locations and over 80,000 people nationally and internationally.
"Taking the Great Barrier Reef to the world and encouraging the world to come and see the Great Barrier Reef"
26. In 2019-20, 78.3% of 1826 visitors surveyed had a better understanding of the Great Barrier Reef because of their visit to Reef HQ and 79.3% of 1501 visitors surveyed had a better understanding of what actions they can take to help protect the Reef because of their visit to Reef HQ.
27. Reef HQ educational exhibits include those specifically targeting marine debris and plastic pollution; and whole of Australia Government initiatives such as the 2018 International Year of the Reef. The ability to focus even more attention on key national policies, such as the National Waste Policy, will further educate visitors and businesses on how to incorporate these strategies into their lives.

Options considered

28. Two options were considered:

- i. to gradually, over 20 years, implement the Master Plan or
- ii. to fast track the implementation and combine it with the recently funded \$40.1M works.

29. Option one would allow for continual improvements by delivering the Reef HQ Aquarium's Master Plan over a 15 to 20 year period, as funds came available. However this would cause visitor interruptions during the building works as the facility remained open; it would take a longer duration and risk reworking areas due to interdependencies, such as electrical and air conditioning (HVAC) works.

30. Option two would allow delivery efficiencies by completing the works simultaneously with other funded projects. Financial efficiencies can be achieved in a single detailed design and construction phase. Workplace health and safety risks are reduced by performing the works during a facility closure under a single Principal Contractor controlled site. The investments can be capitalised earlier on reopening the Aquarium along with the currently funded renewal works.

31. Although both options would create building industry jobs, as Australia recovers from the COVID recession, bringing these works forward allows Townsville to perform better economically and to unlock the potential of the Townsville region and improve the lives of local residents through job creation, including for Indigenous people, investment in local infrastructure and creating a more revitalised urban centre.

Other issues

Heritage or geographical considerations

32. There are no heritage considerations associated with the facility.

33. Townsville is located in the tropics and hence is prone to severe weather events such as floods or cyclones. These will have to be managed as part of a program of works.

Environment impact assessments

34. The works will occur on the existing facility and in accordance with relevant local and Queensland legislation. It is not anticipated that any impacts to the surrounding environment will occur as a result of these works.

35. The works are not required to be referred under the *Environment Protection and Biodiversity Conservation Act 1999* as there will be no significant impact on matters of national environmental significance from the proposed work.

Key legislation

36. Key legislation that applies to the works include local council and Queensland Government requirements as well as ensuring compliance with the National Construction Code and the Commonwealth's *Work Health Safety Act 2011*.

37. Additional external building approvals will be required so local planning expertise will be procured to secure the fastest possible approval timeframes. In addition, expertise to develop the expanded education offering, including Indigenous traineeships and corporate social responsibility programs will be sourced.

Anticipated impacts on local community and mitigation measures

38. These works are proposed to commence at Reef HQ during an already planned temporary closure for the previously funded renewal works. The works proposed in this referral will dovetail into this planned temporary closure — although the length of that closure, originally for up to 24 months, may be extended to allow the proposed works to be completed with minimal work health safety risks before visitors and staff return to the site on a regular basis.

Stakeholder consultations and resolution of concerns

39. Reef HQ had already advised all stakeholders including members, voucher and ticketing agents, and the broader Townsville community of the temporary closure.
40. The Authority will use its existing social and traditional media channels to ensure all members, voucher and ticketing agents, and the broader Townsville community are kept abreast of closure, works progress and grand re-opening of the facility. A detailed Communication and Marketing Plan has been developed to assist with key messages during the closure, as well as in preparation for re-opening. A key focus of this plan is providing regular updates on the works through the Authority's and Reef HQ's social media pages (facebook, , LinkedIn, Instagram, Google Business, and websites www.reefhq.com.au and www.gbrmpa.gov.au). Attendance at various environmental events across the region will continue the connection to the Townsville community as the works progress.
41. Consultation with the Port of Townsville Ltd will continue as they are the landlord for the site upon which Reef HQ sits.
42. Reef HQ staff regularly attend the annual Australian Tourism Exchange which enables engagement within the Tourism Industry, on an international and domestic level. This engagement will continue to ensure that buyers and agents are aware of the facility, the potential products and experiences it will offer as well as its reopening date.
43. During the temporary closure, ongoing staff at Reef HQ are still required to maintain some animal life support systems, feed animals and maintain the main Coral Reef Exhibit. Business operations staff will work to plan for the re-opening, including updating website and membership platforms, developing an App for use inside the renewed facility to improve visitor experience and to disseminate education messages, as well as providing updates to the wider community. Some staff have been given opportunities to work in other roles at the Authority, expanding their skill sets in the process.

Scope of works

Details and reasons for project location

44. The Townsville area is unique in northern Australia, providing an internationally renowned marine research and EduTourism region, and can be considered Australia's capital for transformational experiential learning and teaching programs. Reef HQ's renowned Virtual Connections program has won multiple international awards and has featured in a [peer-reviewed publication](#):
- 2008, 2009, 2010, 2011, 2012, 2013 Berrien RESA - Teachers' Favourite Award.

- b. 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017 (Honourable mention), 2018, 2019, 2020 Pinnacle Award from the "Centre for Interactive Learning Collaborations" - Vote by teachers from across the USA.
 - c. In 2020 the program was also recognised in the inaugural Centre for Interactive Learning and Collaboration (USA) Hall of Fame for having received a Pinnacle Award or an Honourable Mention for at least 10 years. The Hall of Fame awards recognised fifteen organisations, and we were the only organisation from Australia.
45. The Townsville / North Queensland region enjoys a unique, safe, tropical environment that offers the perfect setting to learn. Gateway to the World Heritage listed Great Barrier Reef, tropical islands, wet tropics rainforests, national parks, wetlands and historical, military and outback experiences, the region is also home to some of the best education experiences available in the world.
46. Before the COVID19 pandemic the Townsville region was to host 20 study abroad groups from the USA alone in 2020. Following a successful delegation to the USA in 2019 new EduTourism business had also been negotiated for 2021. For example, one tour company intended to bring five groups of 50 students in the first year for science, technology, engineering, mathematics (STEM)-focused programs. All EduTourism clients are strongly committed to returning to Townsville as soon as travel restrictions allow. The region's EduTourism product could also be used to support experience opportunities for Singaporean defence personnel following future training in the Townsville region.
47. The Townsville North Queensland EduTourism Consortium brings together learning outcomes and exceptional experiences to deliver world-class study abroad and educational tourism programs in Townsville north Queensland (Figure 4). With members including the Australian Government's national education centre for the Great Barrier Reef, the region's economic and tourism body, local government, educators, tourism operators and non-profits, the Consortium is a collaborative partnership which enables product diversity in the delivery of transformative educational experiences.



Figure 4. Townsville's EduTourism potential

48. As identified previously, Reef HQ is currently operating in its 1987 facility. All works are considered the most appropriate and efficient methods to ensure the long-term viability of the facility as the world's largest coral reef aquarium.

Description of works

49. The works proposed to be delivered under the project comprise a variety of upgrades, decommissioning and disposal works. Concept designs have been prepared in a 20 year Master Plan which will be used to guide detailed design.
50. The proposed works include upgrade of existing and the creation of new infrastructure including:
- a. **New - Internal stairs** (Ground floor to Level 1) would be reinstalled to open up the space and invite the area to be better utilised and create flow through the facility. This will allow a better access to the hands-on learning centre.
 - b. **New – Hands-on learning** would provide additional educational facilities to shape our workforce for the future while inspiring smart solutions.
 - c. **New - Training centre** would allow for an increased number of marine based events utilising the scientific knowledge from within the staff and networks to educate and enthuse.
 - d. **New – Roof replacement** over workshop would allow for the original 34 year old corrugated iron roof to be replaced with a watertight roof allowing for better energy retention within the facility, additional space for renewable energy generation and to better protect the world famous Turtle Hospital.
 - e. **New – Coral propagation** area would allow an increase in visitor access to witness coral being propagated for use within the facilities exhibits, which use living coral not plastic alternatives.
 - f. **New - Floor over 'back of house'** (Ground floor, Level 1) would allow for an increased footprint of the Aquarium and permit an increased number of people visiting the attraction.
 - g. **New - Façade** wrapped around remaining **part** of the building would allow for the building to increase its thermal properties, as well as attract visitation and sit proudly within the revised district.
 - h. **New - Conference / function centre** to allow the members of the public to use the aquarium to host special events such as weddings.
 - i. **New – Outdoor terrace** to capitalise on sharing Townville's spectacular views and fine weather.
 - j. **New - Administration facilities-** modern work stations for staff and visiting academic partners attracts and keeps talented worked whilst having access to work spaces close to the science educational facility.
 - k. **New - Bridge over Coral Reef Exhibit (Level 1)** will allow connectivity between the coral propagation area with the hands-on learning centre.
 - l. **New - Expanded renewable energy systems** enabling the facility to continue to set a positive example on energy efficiency.

- m. **Existing - Theatre upgrade** allows for visitors to gain a bird's eye view while getting up close with predatory animals, such as sharks, whilst leveraging digital infrastructure to interact with divers in the tank and gain educational messages.
- n. **Existing – additional audio visual equipment** for exhibits will further allow exhibits to come to life and allow for interactive technology to reach beyond the aquarium walls. Whilst upgrading to modern technology.

Structural

- 51. To deliver a contemporary facility with increased appeal for locals and tourists, a full facade redesign is required. This is aligned with Townsville City Council's [Townsville City Waterfront Priority Development Area](#) and [Smart Cities](#) works. This would include increasing the funded building façade to include all faces of the building and not just the entrance, along with external features for the main structures.
- 52. Repairs to the main external brick and concrete structural walls will occur to further protect the integrity of main assets and support the new extended facade that will be upgraded as a result of the proposed works.

Mechanical services

- 53. Reconfiguration of the existing air handling units and ducting would allow for changes to the building layout and provide more energy efficient temperature control.

Electrical and control services

- 54. Electrical works will occur to showcase the proposed exhibits and education areas encompassing modern lighting systems to create dramatic effects and improve workplace health and safety measures in a contemporary manner.

Security measures

- 55. Additional security systems infrastructure would be installed in the areas to better protect the public, visitors and staff with intruder alarms, duress capabilities and surveillance technology.

Fire protection

- 56. Additional wet and dry fire protection measures will be installed with the new infrastructure on Ground floor and Level 1 to ensure building compliance.

Materials and furnishings

- 57. Some materials and furnishings will be replaced or developed as part of the transformation to enhance the experience, supporting a variety of visitors from parents to the elderly, with appropriate furniture, fittings and equipment.

Hydraulic services

- 58. Some hydraulic services will be modified, replaced or repaired as part of the proposed works detailed throughout this document including biosecurity initiatives.

Civil works

- 59. Minimal civil works will be required, however there may be some modifications required as part of the structural facade works.

Landscaping

- 60. Landscaping works will enhance the street appeal to this world class aquarium with the inclusion of street furniture and improved horticultural elements.

Other types of works

61. The proposed works will ideally be scheduled with the previously approved facility improvements allowing for harmonious design.
62. The Authority is dedicated to a collaborative approach for assisting Traditional Owners of the Great Barrier Reef to keep their Indigenous heritage strong, safe and healthy. It aims to move towards a future where the enduring culture and connection of Reef Traditional Owners of their Sea Country is widely recognised, Indigenous heritage is protected, and we manage the Reef together. To build on increased Traditional Owner collaboration, proposed works will allow for the development of an Indigenous traineeship program.
63. The technology currently used to reach out across Australia and the globe has recently been acknowledged for providing an amazing ability to reach across the miles, highlighting the impact of educational products. The live connection to an underwater diver and Great Barrier Reef Experience is supported by obsolete technology that is well past end of life. To ensure this program continues to deliver educational content, redesign of exhibits to incorporate technology and replacement of equipment is required.
64. Key themes for the exhibits will include elements of the following as part of creating a journey narrative throughout the facility:
 - a. **The Dreamtime and Formation of the Reef:** The beginning of the visitor experience and sets the tone for the journey, consisting of three key motivations: form an emotional connection, tell the science story, and speak to the relevance of the Reef today.
 - b. **What Makes the Reef Great:** The animals, coral, biodiversity of catchments and the Reef itself. This portion of the journey sets up an understanding of what makes it important and why we should care for it.



Figure 5. Concept image of 'What makes the Reef Great' exhibit.

- c. **Managing the Marine Park:** The 'hot topics' section, the greatest threat to the Reef is climate change. The other main threats are associated with coastal development, land-based run-off, and threats from direct human use of the Reef (such as illegal fishing).

- d. **Protecting the Reef:** Information about the all the people in the Reef space, how the Reef is managed, and what the visitor can do to care for the Reef. Underpinning the journey should be a scientific narrative of marine conservation and appreciation.
65. An increase in revitalised Reef HQ exhibits will reach a larger audience by creating an immersive adventure where hands-on teaching, talks and tours will be creatively interwoven with technology, virtual connection and aquarium exhibits, supported by outreach education programs that capitalise on video conferencing opportunities.

Environmental sustainability

Energy targets

66. Ongoing design and operational initiatives consider whole of life, end of life, environmental sustainability standards along with recycled content considerations, waste minimisation and energy management systems.
67. Previous initiatives have resulted in an overall 50% reduction in energy use from the 2007 baseline. As a minimum, this 50% reduction target will be maintained even where capacity is increased and the Authority more broadly aspiring to be a low emissions facility.
68. Additional renewable technology will be incorporated into the overall design of the facility.

Measures to reduce energy and water use

69. Works will consider ways to improve energy and water efficiency as part of construction and operational use.

Re-use of existing structures

70. To the extent possible, existing structures will be retained and fixed. However, given the state of deterioration of some structures, this is not always going to be possible. In recent times as smaller items are undergoing rectification (e.g. doors), corrosion on inner steel supports for them are found to be in a state of disrepair and require significant works to stabilise and rectify.
71. Depending on the extent of deterioration, it may be more cost effective to remove entire structures and rebuild using more modern materials to meet building construction code.

Demolition and disposal of existing structures

72. Demolition of existing structures (e.g. concrete walls) and materials (e.g. doors) waste will be dealt with in accordance with local and Queensland Government disposal requirements and all applicable standards and codes.
73. To the extent possible, the Principal Contractor will be encouraged to assess the potential for recycling materials that are due for disposal and report on this to the Authority.

Master and site planning, including details of future developments

74. The proposed works are consistent with existing land usage and support a number of Townsville planning and development schemes. The Authority has a lease for the site from the Port of Townsville until 2061.
75. The proposed works will contribute to broader development in the immediate vicinity of Reef HQ. The Townsville City Waterfront Priority Development Area is a catalyst project for the revitalisation of the Townsville City Centre, which will take shape over the next 15 to 20 years. Reef HQ is at the epicentre of the Research and Tourism Precinct within the Priority Development Area.

76. The proposed works support the Townsville 2020 vision to create world-class experiences, which drive economic growth through new investment and greater tourism spending.
77. Townsville is the site of Australia's first City Deal, which is a 15 year commitment between the Australian Government, Queensland Government and the Townsville City Council for a collective program of planning, reform and investment in Townsville.
78. The redevelopment of Reef HQ has been identified in [Townsville Enterprises' Product and Experience Development Plan 2019-2024](#). This Plan sets the strategic direction and outlines the priority projects for Townsville north Queensland's tourism industry.
79. These proposed works at Reef HQ support all of these planning schemes.
80. The Authority has also been announced as an anchor tenant in a new office building that will be built across the road from Reef HQ.

Provisions for people with disabilities

81. In accordance with the National Construction Code – Building Code of Australia 2019, the proposed works will provide the required access for people with a disability, by upgrading to meet this requirement where it not been previously accessible.

Childcare provisions

82. Due to the nature of the proposed works, there is no requirement for childcare facilities.

Work health safety measures

83. The facility proposed to be delivered under this project will comply with the Authority's Work Health Safety Manual and the *Work Health and Safety Act 2011* (Cth).
84. The facility is not known to contain any contaminated substances, such as asbestos.
85. Safety aspects of this proposal have been and will continue to be addressed during the design and construct process. The successful construction Principal Contractor will also be required to submit respective Safety Plans for the construction phase prior to the start of any construction activities and design to safety standards.
86. Transformation of the facility allows for increased safety initiatives in the operational maintenance (back of house) designs and monitoring.

Any components which fall outside the required scope of works but which may be included later, pending available funds

87. No

Cost effectiveness and public value

Outline of project costs

88. The proposed Stage 1 and Stage 2 works by a Principal Contractor will be up to \$55 million. The cost estimate includes the design, construction and purchasing costs associated with achieving the educational facility's Master Plan. It also includes specialist contract advice in relation to financial costings, project management.
89. A quantity surveyor was contracted to estimate the cost of the Stage 2 works associated with the Reef HQ Master Plan (Attachment A).

90. Net operating costs resulting from the proposed project will decrease due to modern construction methods, environmental standard, new efficient infrastructure and removal of redundant ineffective infrastructure.

Details of the project delivery method

91. Funding this proposal now represents the most efficient timing. Reef HQ Aquarium has closed to undertake the previously funded works from February 2021. Undertaking these works concurrently would require only one closure.
92. The same project staffing team would oversee these works, including Project Manager and Contract Administrator, and would manage the procurement and construction phases of the project through to the completion of construction, including the Defects Liability Period.
93. Subject to approval of these proposed works, a majority of these works will be able to progress under a single Principal Contract (design and construct) arrangement with specialist subcontractors where required.
94. To provide internal governance, the Chief Operating Officer responsible for Reef HQ is the Project Sponsor and will report to the Authority's Chief Executive Officer, Executive Management Group and the Marine Park Authority Board.
95. A Project Steering Committee comprising relevant members with business acumen and technical expertise has been established to oversee the specifications for the proposed works.
96. The proposed works will have access to a highly skilled Communications and Marketing section to oversee communications with stakeholders as well as funding to contract specialists as required.

Risks

97. The proposed works would be integrated into the current project management risk matrix which has been third party reviewed.
98. The main risks associated with the proposed works are in relation to weather, the need to maintain some animals and their life support systems during the works, and to ensure materials supply and labour as a result of COVID-19 shutdowns.
99. To address potential supply delays, to the extent possible Australian manufacturers will be used. However, some equipment may need to come from overseas, so early procurement of those will occur to ensure they can be shipped and delivered, and will be progressed as a matter of priority.

Construction program

100. The Authority has not undertaken works like those proposed. However, a Principal Contractor is due to be announced within a month and will coordinate these proposed works with other proposed critical safety works to ensure both proceed in a staged manner. This will occur as part of the overall project management and will allow for design and implementation efficiencies.
101. In excess of 300 jobs are projected as a result of the combined funding of \$80.1 million.
102. Anticipated key milestone dates are provided in Table 1.

Table 1. Anticipated key milestone dates

Stage	Task	Completion target date
1	Engage principal contractor	August 2021

	See Appendix B - Summary of procurement process	
2	Consultant design- engage technical experts to design the modifications and the replacement equipment.	August 2021 to March 2022
3	Construction Phase	March 2022 to October 2023
4	Aquarium transition and opening preparation	October 2023 to December 2023
5	Aquarium opens	December 2023
6	Defects liability period	12 months defect period from end of each completed project.

Public value

103. Reef HQ Aquarium is one of Townsville's few major tourism attractions and forms part of a local tourism circuit in the city and surrounds. The proposed works would serve to strengthen the Townsville region's position in the domestic tourism market by providing a gateway experience for Townsville.
104. More than 4.4 million people have visited the facility since 1987. Visitation upon reopening is expected to attract approximately 250,000 per annum.
105. Prior to COVID, Reef HQ had in excess of 15,000 members, representing more than eight per cent of Townsville's population. With a population of approximately 190,000, the city and its services are predicted to expand to become home to an additional 100,000 residents over the next two decades. There is expected to be a concomitant if not higher percentage of members with the increasing population.
106. The Townsville region has been recognised by Trade and Investment Queensland as a destination of excellence for international education and training, particularly in the area of faculty led study abroad programs from the United States of America and Singapore. Reef HQ was a founding member of the Townsville North Queensland EduTourism initiative and is considered critical to its ongoing success. Transforming into a global destination of excellence in tropical coral reef education means Reef HQ Aquarium will be attractive to international market segments such as Asia, United Kingdom, Germany and United States of America.
107. Working internationally, Reef HQ actively supports destination marketing campaigns through domestic and international media promoting the Great Barrier Reef, Queensland and Townsville, reaching more than eight million people.
108. The facility employs in excess of 50 Townsville locals comprised on a mix of full time, part time and contract staff.
109. Reef HQ's in-house and outreach education, research and animal husbandry programs have achieved international recognition including:
 - a. world firsts in captive breeding, with our olive sea snakes reproducing over successive years and our leopard sharks reproducing through parthenogenesis, and

- b. being the only Australian education facility (in 2018-19) to win the Centre for Interactive Learning and Collaboration (www.cilc.org) Pinnacle Award, our 11th win out of 12 entries.
110. The future vision for Reef HQ is intentionally aligned to the Townsville North Queensland EduTourism Consortium Strategic Plan 2017-2022, in which the primary objective is transferring knowledge to students about the region through transformative education and tourism products – also attached. The Vision is *‘To be Australia’s capital for transformational experiential learning and teaching program’s.’* The Plan sets out the strategic direction that the region has committed to, very much supported by Reef HQ as the Austrian Government’s National Education Centre for the Great Barrier Reef. If it wasn’t for the COVID19 pandemic, the region was tracking very positively towards meeting the five year targets.
111. Reef HQ showcases renewable energy systems and sustainability innovations (e.g. fibre reinforced plastic beams as structural posts, thermal ice storage) and provides a direct example for visitors on the choices that can be made at home, in the workplace and in business to reduce impacts on the Reef.
112. Reef HQ Aquarium first installed solar panels in 2006 and was the first Queensland tourism location to receive accredited ‘Solar Power Station’ status. Reef HQ has significantly invested in onsite renewable energy generation, with 950 roof mounted solar panels.
113. The facility was selected as the first aquarium in the world to run a revolutionary new thermal energy storage and renewable energy system. The technology uses an onsite thermal battery to store excess solar power generated by Reef HQ’s solar PV system. The stored thermal energy can be used at night to power life support systems and temperature controls for Reef HQ’s Coral Reef Exhibit, the world’s largest living coral reef aquarium, which requires uninterrupted power 24/7.
114. The new thermal energy system and Glaciem’s carbon dioxide heat pump installed at Reef HQ, and commissioned in 2020, incorporates a smart system managed by Glaciem’s Advance Renewable Forecasting Algorithm (ACFA) that predicts available solar power and national electricity market power pricing, as well as cooling demands and system efficiency. The smart system will ensure Reef HQ maintains an optimal use of energy through its ability to suggest the best times to store and use the energy.
115. When considered in conjunction with other urban renewal activity in Townsville, Reef HQ could provide significant social activation benefits as an expanded and modern Reef HQ would be more appealing for families and groups to visit. In turn this will create a hub of social activity and community engagement. Reef HQ has historically been a source of pride for Townsville residents, and there is generally a desire for it to return to that status.

Revenue

116. Reef HQ has deductible gift recipient status as a public museum and will be looking to capitalise on this status when it reopens. The aim will be to fully cover the costs of operating the facility through revenue streams.
117. Financial details about the revenue raised from Reef HQ are published annually in the Authority’s annual reports tabled in Parliament.

Appendices

Appendix A. CONFIDENTIAL – Procurement process including separable portion 3.

Appendix B. CONFIDENTIAL – Cost Plan –Stage 2 of Master Plan