Priority port master planning

Draft master plan

Priority Port of Hay Point/Mackay

Queensland | Australia | 2022

Queensland Government

Half Tide Tug Harbour. Source: NQBP

Acknowledgement of Country

The Department of Transport and Main Roads (TMR) acknowledges the Traditional Owners and Custodians of this land and waterways. We pay respect to their ancestors and Elders past, present and emerging.

We also acknowledge all other Aboriginal and Torres Strait Islander people who call our regions home. TMR is committed to reconciliation among all Australians.

Master planning recognises, embraces and celebrates the Aboriginal and Torres Strait Islander peoples continued rights and responsibilities as the first peoples of Queensland, including traditional ownership and connection to land and waters.

Recognising the Queensland Government Statement of Commitment, master planning supports a reframed relationship between Aboriginal and Torres Strait Islander Queenslanders and the Queensland Government.

TMR has worked with the Yuwi Aboriginal Corporation, ensuring their knowledge, experiences and connection to Country were intrinsically considered in preparing the port master planning documents.

The Queensland Government is committed to working with the Yuwi Aboriginal Corporation to ensure their knowledge and connection to Yuwibara country continues to inform master planning for the priority Port of Hay Point/Mackay.

Creative Commons information

The Queensland Government is committed to providing accessible services to Queenslanders of all cultural and linguistic backgrounds. If you have difficulty understanding this publication and need a translator, please call the Translating and Interpreting Service (TIS National) on 13 14 50 and ask them to telephone the Queensland Department of Transport and Main Roads on 13 74 68.

Front cover image — The Port of Mackay. Source: NQBP

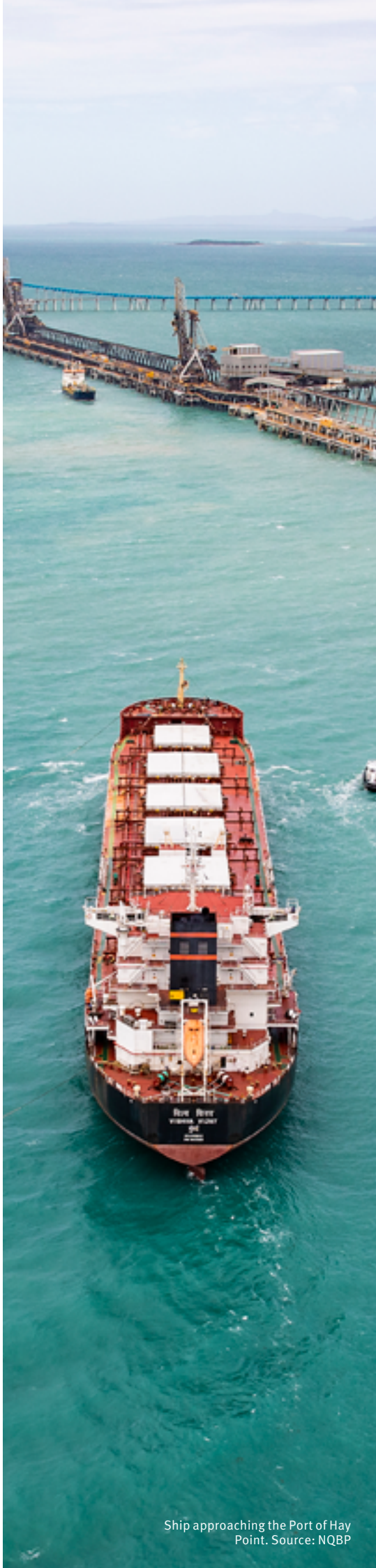
Contents

Overview 1
- Backing Queensland's economy 2
- Protecting the Great Barrier Reef 2
- Port optimisation 2
- Implementation 2

Introduction 3
- What is a master plan? 4
- Why is there a master plan? 6
  - *Reef 2050 Long-Term Sustainability Plan* 6
  - *Sustainable Ports Development Act 2015* 6
- How is the master plan developed? 7
- How is the master plan implemented? 8
- Regulating port operations 9
  - Environmental assessment 9
  - State and local planning processes 9
- Regulating development within the master planned area 10
- Related Policy Initiatives 12
  - Queensland Government 12
  - Australian Government 15
- State interests 16

Part A: Context 17
- Hay Point – a critical node in the global steel industry 18
- Mackay – Queensland's sugar capital 18
- Role and function of the priority Port of Hay Point/Mackay 19
  - Key hub for innovation and mining services 20
  - Energy 20
  - Project and breakbulk cargo 20
  - Fuel 20
  - Agriculture 20
  - Marina services 20
- Great Barrier Reef 22
  - Cumulative impact management 23
- Managing sustainable growth 25
  - Port optimisation 25
  - Supply chain infrastructure 27
  - Sustainable trade 29
  - Port supply chain optimisation 29
  - Dredging requirements 30
  - Areas adjoining port operations 31

Part B: Strategic vision, objectives and desired outcomes 33
- Strategic vision 34
- Objectives 35
- Desired outcomes 36



Ship approaching the Port of Hay Point. Source: NQBP

The Port of Mackay – Wharf 5. Source: NQBP

Part C: Master planned area and precincts 39

Overview 40
Master planned area 40
Precincts 40
Environmental Management Precinct 42
Infrastructure and Supply Chain Corridors Precinct 45
Interface Precinct 47
Marine Infrastructure Precinct 49
Marine Services and Recreation Precinct 52
Port, Industry and Commerce Precinct 55

Part D: Environmental management framework 59

Overview 60
Environmental values within and surrounding the master planned area 61
Sandringham Bay and Ince Bay 61
Keeley Road Wetlands 61
Environmental values that contribute to the local expression of OUV 61
Other environmental and heritage values 62
Potential impacts from development on environmental values 65
Managing impacts 66
Environmental management framework objectives 66
Priority management measures 66

Part E: Master plan implementation 67

Appendices 69

Appendix A – Priority Port of Hay Point/ Mackay master planned area regulation map 70
Appendix B – Mapping the local expression of the Outstanding Universal Value of the Great Barrier Reef World Heritage Area and other environmental values 72
Appendix C – Local attributes of Outstanding Universal Value of the Great Barrier Reef World Heritage Area 88
Appendix D – Potential impacts on environmental values 94
Appendix E – Dictionary 97
Appendix F – Acronyms 99

Figures

Figure 1 Proposed master planned area 4
Figure 2 Priority port master planning process 7
Figure 3 Implementation of the port overlay within the relevant planning framework 8
Figure 4 Planning from the international to the local level 10
Figure 5 Planning instruments operating within the proposed master planned area 11
Figure 6 State interests for the master plan 16
Figure 7 Priority Port of Hay Point/Mackay trade synergies 19
Figure 8 Snapshot of the priority Port of Hay Point/Mackay 21
Figure 9 Priority Port of Hay Point/Mackay export trade destinations 22
Figure 10 Port of Hay Point/Mackay sustainability initiatives 26
Figure 11 Hay Point/Mackay freight paths 29
Figure 12 Proposed master planned area precincts 41
Figure 13a Hay Point Environmental Management Precinct 42
Figure 13b Mackay Environmental Management Precinct 43
Figure 14 Infrastructure and Supply Chain Corridors Precinct 45
Figure 15 Interface Precinct 47
Figure 16a Hay Point Marine Infrastructure Precinct 49
Figure 16b Mackay Marine Infrastructure Precinct 50
Figure 17a Hay Point Marine Services and Recreation Precinct 52
Figure 17b Mackay Marine Services and Recreation Precinct 53
Figure 18a Hay Point Port, Industry and Commerce Precinct 55
Figure 18b Mackay Port, Industry and Commerce Precinct 56
Figure 19 Local expression of OUV at the priority Port of Hay Point/Mackay 64
Figure 20a Priority Port of Hay Point/Mackay proposed master planned area regulation map (Hay Point) 70
Figure 20b Priority Port of Hay Point/Mackay proposed master planned area regulation map (Mackay) 71
Figure 21 Declared fish habitat areas 74
Figure 22 Freshwater, marine and estuarine water types 75
Figure 23 Great Barrier Reef Marine Park zoning 76
Figure 24 Habitat for threatened terrestrial flora and fauna species 77
Figure 25 State and local heritage places 78
Figure 26 Turtle Nesting Areas 79
Figure 27 Migratory birds, shorebirds and seabirds – Port of Mackay 80
Figure 28 Migratory birds, shorebirds and seabirds – Port of Hay Point 81
Figure 29 Protected areas 82
Figure 30 Reefs and shoals 83
Figure 31 Regional ecosystems 84
Figure 32 Regional ecosystems containing mangroves, saltmarsh communities and marine plants 85
Figure 33 Seagrass meadows 86
Figure 34 Wetlands and watercourses 87

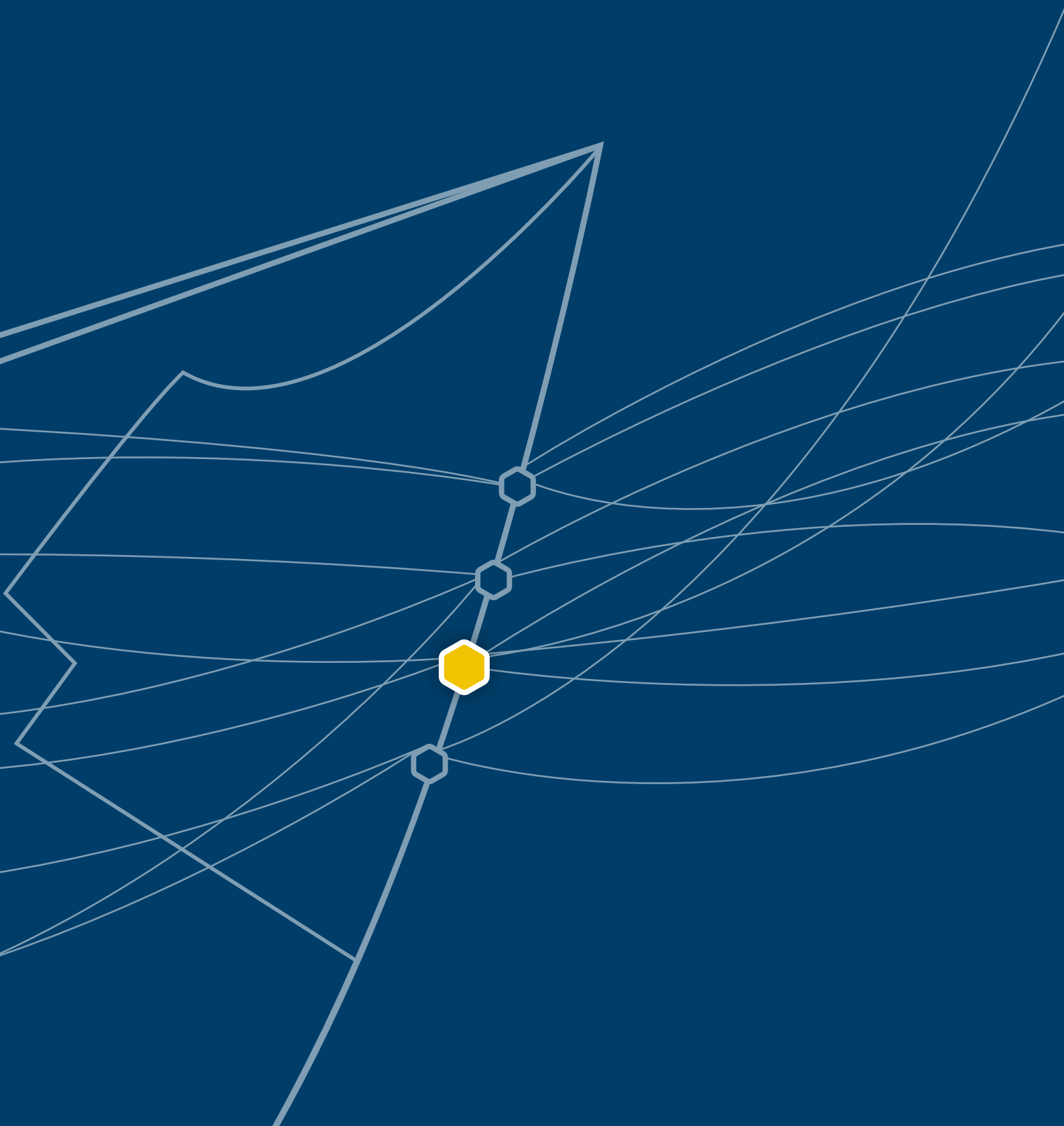
Tables

Table 1 Supply chain infrastructure 27
Table 2 Objectives 35
Table 3 Desired outcomes 36
Table 4 Priority management measures 66
Table 5 Mapping datasets and sources 72
Table 6 Local attributes of the OUV of the GBRWHA 89
Table 7 Potential impacts on environmental values 94

The Port of Mackay – Wharf 5.
Source: NQBP

Ship approaching the Port of Hay Point. Source: NQBP

Overview



Overview

This draft master plan (master plan) highlights the priority Port of Hay Point/Mackay's significant role in driving economic and regional development, providing growth opportunities through vital import and export connections and services for Queensland's mining and agricultural communities.

The ports of Hay Point and Mackay are legislated by the *Sustainable Ports Development Act 2015* (Ports Act) as a single priority port in recognition of trade synergies, close proximity and strong complementary functions connected to their respective roles in the state's port network.

The Port of Hay Point is one of the largest steel-making coal export facilities in the world, with 85 per cent of throughput supporting the global steel making and associated industries. As well as having a critical global presence, the port is an important part of the social and economic fabric of the Mackay Isaac Whitsunday (MIW) region.

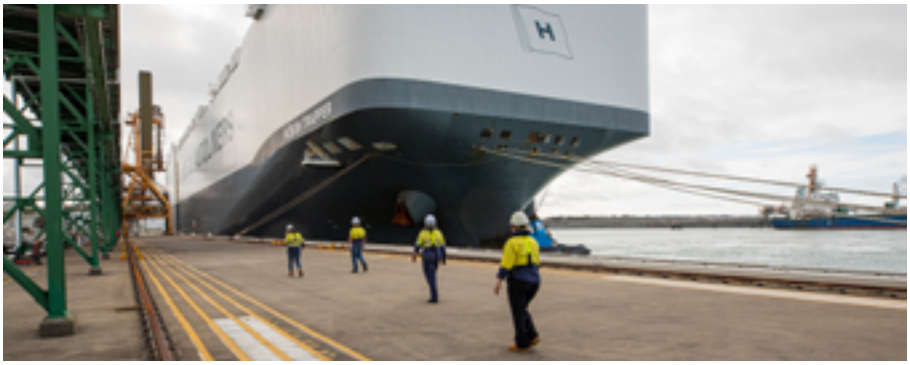
The Port of Mackay is a multi-commodity port and major servicing centre for the Queensland mining and agricultural industries. It is a multi-cargo import and export port with links to Australia's leading mining equipment technology and services (METS) hub in Paget and transport connections by road and rail.

The master plan seeks to strike a balance for the sustainable development of the priority Port of Hay Point/Mackay and the long-term protection of environmental and cultural values, including the Great Barrier Reef World Heritage Area (GBRWHA).

In achieving this balance, the master plan recognises the critical role the priority port plays in the state and regional economies as a major trading asset with connections to regional communities that rely on Queensland's existing and emerging industries.

Backing Queensland's economy

Hay Point/Mackay is a trade gateway supporting local jobs, industries and regional development throughout Queensland. The master plan supports existing industries and provides a framework for continued sustainable development. By encouraging the advancement of new trades and industries, the master plan will support the resilience of local communities and step changes toward a carbon neutral economy.



A breakbulk vessel at the Port of Mackay. Source: NQBP

The master plan identifies land and marine areas required to support economic activity generated by port industries. This enables effective future planning and investment certainty for port-related development.

Protecting the Great Barrier Reef

The master plan establishes a strategic and coordinated approach that ensures the Outstanding Universal Value (OUV) of the GBRWHA is an intrinsic consideration in the management of port-related development. This approach complements other initiatives undertaken by the Queensland Government and port authorities to manage port operations and development while protecting the OUV of the GBRWHA. The master plan is prepared under the Ports Act and fulfils key port-related actions and commitments from the Reef 2050 Long-Term Sustainability Plan (Reef 2050).

Port optimisation

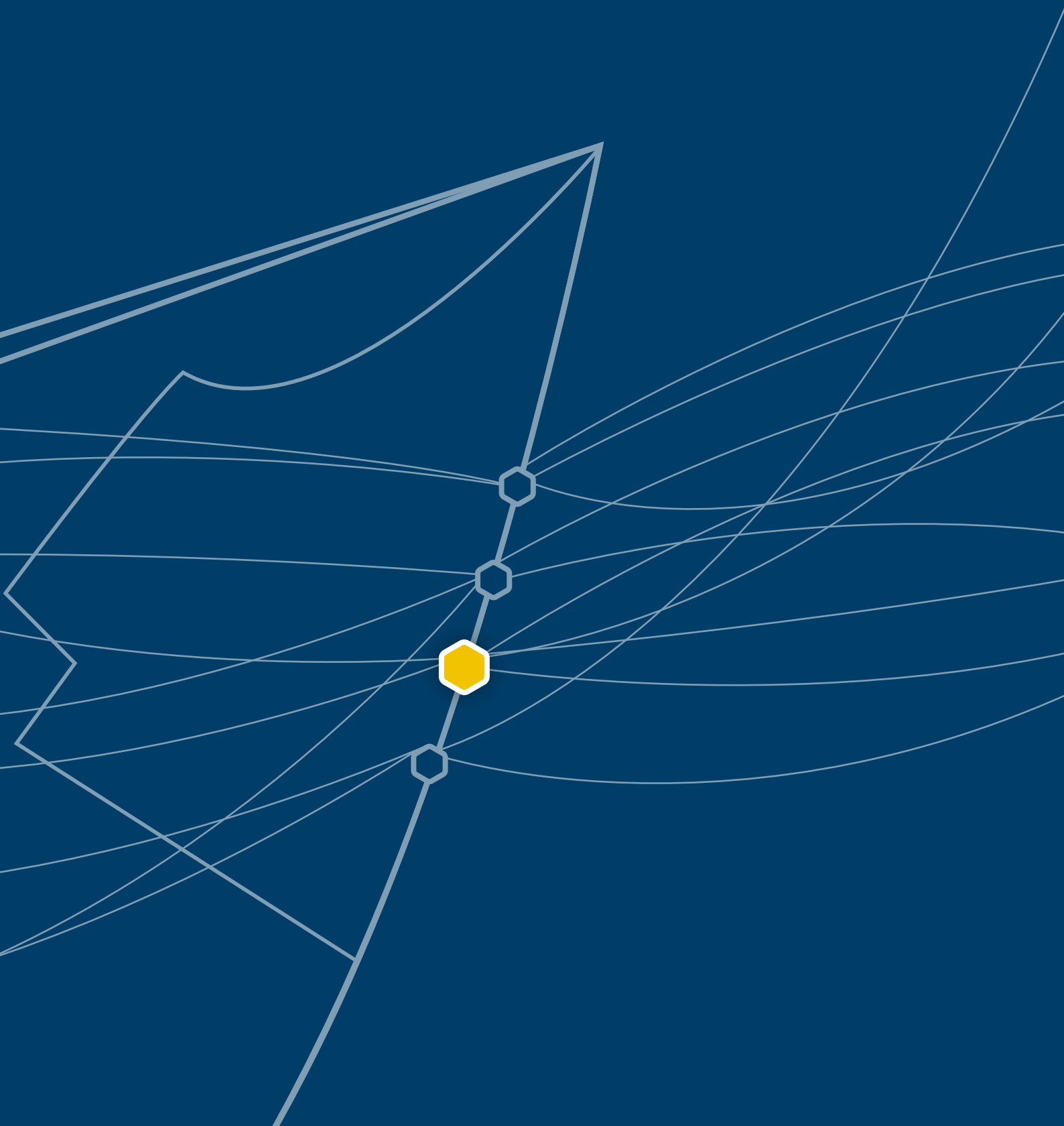
The master plan seeks to optimise the use of supply chain infrastructure to support existing and emerging industries and maximise trade opportunities. It sets a strategic direction to deliver cost efficient solutions and encourage the development of new industries that will expand trade opportunities in renewable energy production.

The efficient movement of freight is vital for sustainable development of the regional economy. The port forms a critical node in Queensland's freight network and facilitates trade with national and international supply chains.

Implementation

The master plan is a strategic document implemented by the port overlay. The port overlay operates with existing planning instruments to guide development in the master planned area. Master planning complements the existing regulatory system and does not remove any regulatory processes required for planning and assessing proposals associated with port-related development. Additional regulation through the port overlay will only occur where gaps are identified in the existing regulatory framework.

Introduction



Introduction

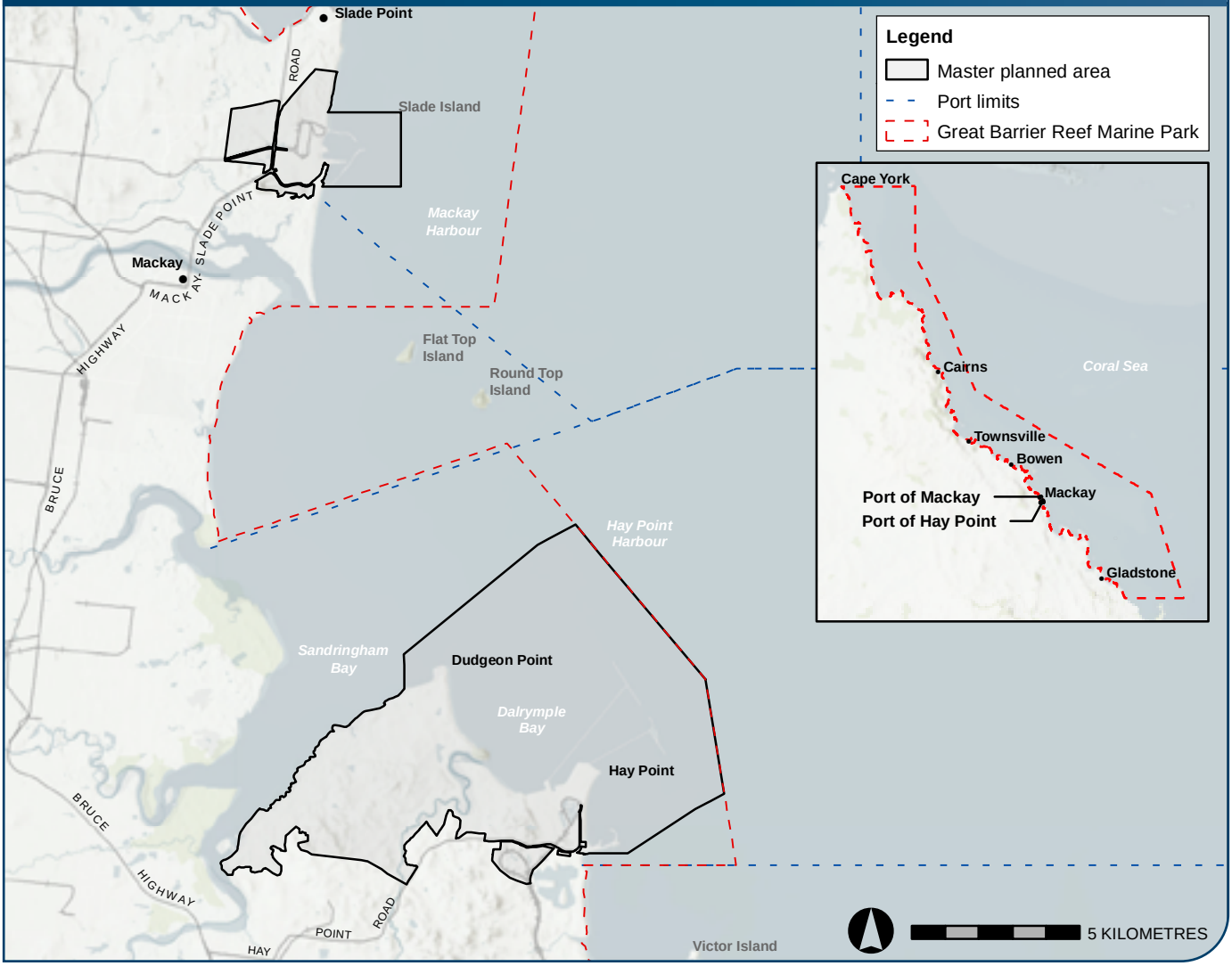
The master plan for the priority Port of Hay Point/Mackay provides strategic direction to guide the long-term sustainable development of the port and surrounding land and marine areas to 2050.

The extent of the proposed master planned area (master planned area), identified in **Figure 1**, includes land and marine areas required for the sustainable development and operation of the port and the long-term protection of the Great Barrier Reef. The map of the master planned area is also provided in **Appendix A**.

What is a master plan?

A master plan is a strategic document that has a long-term outlook for the sustainable development of port operations to 2050. Long-term master planning provides a strategic and coordinated approach to managing port-related development and considers issues including marine and land-based impacts and port and supply chain infrastructure optimisation. Master planning ensures the OUV of the GBRWHA is an intrinsic consideration in managing port-related development.

Figure 1 — Proposed master planned area



Master plan at a glance

This master plan sets out the background, state interests, strategic vision, master planned area, environmental management framework and implementation for the priority Port of Hay Point/Mackay.

Introduction: describes the master plan, how it is implemented and relates to other policy initiatives, and identifies state interests for the port.

Part A – Context: identifies the significance, role and function of the priority Port of Hay Point/Mackay, as well as key considerations to manage sustainable development.

Part B – Strategic vision, objectives and desired outcomes: states the long-term vision of the master planned area that considers the principles of ecologically sustainable development (ESD), with objectives and desired outcomes outlining how the strategic vision will be achieved.

Part C – Master planned areas and precincts: identifies a spatial area to which the master plan applies and precincts that outline the development intent for distinct areas within it.

Part D – Environmental Management Framework (EMF): identifies the environmental values within and surrounding the master planned area (also refer to **Appendix B** for the associated mapping), describes potential impacts and outlines how impacts on environmental values are managed.

Part E – Master plan implementation: outlines the implementation of the master plan through the regulatory framework and a separate port overlay instrument.

Appendix A – Priority Port of Hay Point/ Mackay master planned area regulation map: provides the regulatory map of the master planned area.

Appendix B – Mapping of the OUV of the GBRWHA and other environmental values: provides consolidated mapping of the environmental values within and surrounding the master planned area.

Appendix C – Local attributes of OUV of the GBRWHA: identifies the natural features of OUV expressed within and surrounding the priority Port of Hay Point/Mackay. These values are assessed as having a significant, moderate, or a minor contribution to the GBRWHA.

Appendix D – Potential impacts on environmental values: outlines potential impacts on environmental values within and surrounding the master planned area.

Appendix E – Dictionary: provides a table of definitions relevant to the master plan.

Appendix F – Abbreviations and acronyms: provides a table of abbreviations and acronyms used in the master plan.

The Port of Mackay – Wharf 5. Source: NQBP

Why is there a master plan?

Reef 2050 Long-Term Sustainability Plan

Commencing in 2015, Reef 2050 is a long-term strategy developed by the Australian and Queensland Governments to support the health and resilience of the Great Barrier Reef. Key achievements of Reef 2050 include significant reform in port regulation including restrictions on capital dredging to the four priority ports of Gladstone, Townsville, Hay Point/Mackay and Abbot Point, prohibiting the sea-based placement of capital dredged material in the GBRWHA from port-related development, requiring beneficial re-use of port-related capital dredged material and limiting port development to existing locations.

An updated Reef 2050 released in 2021, includes a greater focus on taking action against climate change and recognition of Traditional Owner aspirations.

Climate change is the single biggest threat to coral reefs globally and exacerbates localised impacts on the Great Barrier Reef. The long-term outlook for the GBRWHA is critically dependent on limiting global temperature rise to the maximum extent possible, as quickly as possible. Reef 2050 identifies actions to limit the impacts of climate change by contributing to global efforts to reduce emissions and supporting adaptation of reef habitats and communities.

'The Australian and Queensland Governments will engage and support Traditional Owners to develop a Traditional Owner Reef 2050 Implementation Plan.'

The updated Reef 2050 includes master planning for priority ports as a support program to manage port development in the GBRWHA.

Sustainable Ports Development Act 2015

The Ports Act provides a legislative framework for sustainable port planning and development in Queensland. The Ports Act implements several Queensland Government port-related commitments and actions made under the Reef 2050 and responds to the United Nations Educational, Scientific and Cultural Organization World Heritage Committee (UNESCO WHC) recommendations on the reef, ensuring the OUV of the GBRWHA is an intrinsic consideration in future port development.

The purpose of the Ports Act is to provide for the protection of the GBRWHA through the management of port-related development in and adjacent to the area. This is achieved through the following measures:

- concentrating port development in the GBRWHA to the priority ports
- mandating the preparation of master plans and port overlays for each priority port to establish a long-term vision for future port development
- restricting capital dredging for the development of new or expanded port facilities to within the master planned area of the priority ports
- prohibiting sea-based placement of capital dredged material from port-related development within the GBRWHA, Great Barrier Reef Marine Park (GBRMP) and the Great Barrier Reef Coast Marine Park (GBRCMP)
- mandating the beneficial reuse of port-related capital dredged material.

The Ports Act provides requirements for the master plan to include existing and future state interests, strategic vision, objectives and desired outcomes for the master planned area.

The master planned area identifies land and marine areas critical to the effective operation of the port network. This allows for consideration of issues beyond port-owned land to effectively manage future port-related development and the protection of the GBRWHA.

The Ports Act continues to implement several Queensland Government port-related commitments made under Reef 2050.

Under the Ports Act, master plans must include an EMF. The EMF provides for the identification and management of development impacts on environmental values by including objectives and measures (priority management measures) for managing potential impacts on environmental values.

The master plan must also adequately consider the principles of ESD, which promotes the conservation and use of natural resources in development. It recognises the role of indigenous people in the preservation of Australia's biodiversity.

The Ports Act requires the master plan to be reviewed at least every 10 years to provide an adaptive management approach and respond to major changes in policy or legislation, including Reef 2050.

A Roll-on Roll-off ship alongside at the Port of Mackay. Source: NQBP

How is the master plan developed?

The master plan is developed through a process that is reflected below in **Figure 2**. The Traditional Owners of the areas surrounding the priority Port of Hay Point/Mackay, the Yuwibara people, have been consulted in developing the master plan to ensure their connections to the Land and Sea Country are reflected.

Figure 2 — Priority port master planning process

Notice of proposal

Informing intention to prepare or amend a priority port master plan

A notice of proposal:

- is issued by the Minister to the port authority and local government at the priority port
- formally initiates the master planning process under the *Sustainable Ports Development Act 2015*
- enables each entity to make an early submission about the proposal to prepare a master plan.

Evidence base

Master plan preparation

Evidence based planning provides a balanced and objective approach to:

- inform the preparation of the master plan by analysing the economic, environmental, and social factors relevant to the priority port, including the OUV of the GBRWHA
- identify long-term infrastructure, supply chain, and port development requirements
- undertake an assessment of the regulatory framework to understand how impacts from development will be sustainably managed.

Master plan

Master planning

The master plan is a strategic document that:

- outlines the role and function of the port and factors to manage sustainable growth
- states the long-term strategic vision, outcomes, and objectives for the master planned area
- establishes land and marine precincts within the master planned area
- identifies environmental values, potential impacts, and how impacts are managed.

Port overlay

Implementing the master plan

The port overlay is the statutory instrument that:

- adopts a regulation by exception approach to implement the master plan
- states how priority management measures will be achieved
- operates alongside existing planning instruments to achieve the outcomes of the master plan.

Review

Reviewing the master plan

The Ports Act requires the master plan be reviewed at least every ten years to assess changes since the first master plan was made including:

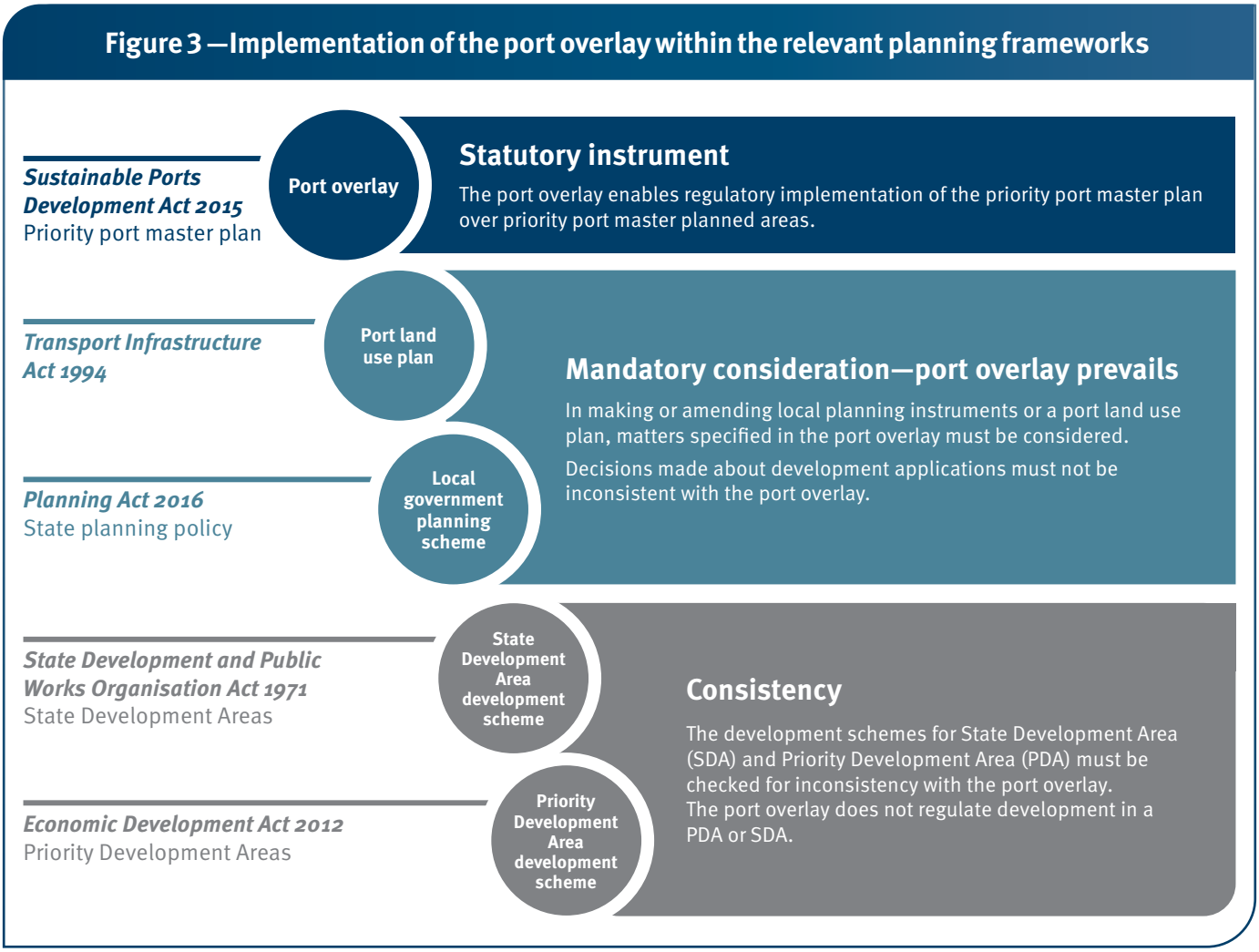
- the boundaries of the master planned area
- the effectiveness of the implementation of the priority management measures.

How is the master plan implemented?

Under the Ports Act, master plans are strategic documents which are implemented by a port overlay. The port overlay operates with existing planning instruments, as shown in **Figure 3**, to guide future port-related development in the master planned area to achieve the long-term vision.

The master plan complements the existing regulatory system and does not remove or replace any existing processes. Additional regulation through the port overlay to guide port-related development outcomes will only occur where gaps are identified in the existing regulatory framework that would impact the delivery of master planning outcomes. This approach recognises the outcomes sought by the master plan, are in many cases, already achieved through existing provisions and reduces duplication of provisions.

Figure 3 —Implementation of the port overlay within the relevant planning frameworks



Regulating port operations

Queensland ports operate within a comprehensive regulatory framework and must satisfy many federal, state and local government planning and other regulatory requirements. Master planning is just one component of the regulatory and compliance framework in which ports operate.

The master plan and the port overlay complement this system and do not remove or replace any existing environmental assessment or state and local planning processes, in accordance with relevant legislation.

Environmental assessment

Federal and state Environmental Impact Statement (EIS) assessment processes under the *Environmental Protection Act 1994* (EP Act), the *State Development and Public Works Organisation Act 1971* (SDPWO Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) currently provide for rigorous assessment of major projects to ensure development occurs in a sustainable manner and impacts on environmental values are avoided or effectively managed. This includes the appropriateness and acceptability of identified environmental management arrangements.

The EP Act also provides a framework for regulating environmentally relevant activities (ERAs) through a permit and licensing system. This system ensures ERAs manage, enhance or protect environmental values through conditions or enforcement processes.

Environmental protection policies such as the *Environmental Protection (Air) Policy 2019*, *Environmental Protection (Noise) Policy 2019* and *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* outline thresholds, indicators and objectives for enhancing or protecting environmental values and provides a framework for consistent and informed decisions about managing ongoing environmental impacts.

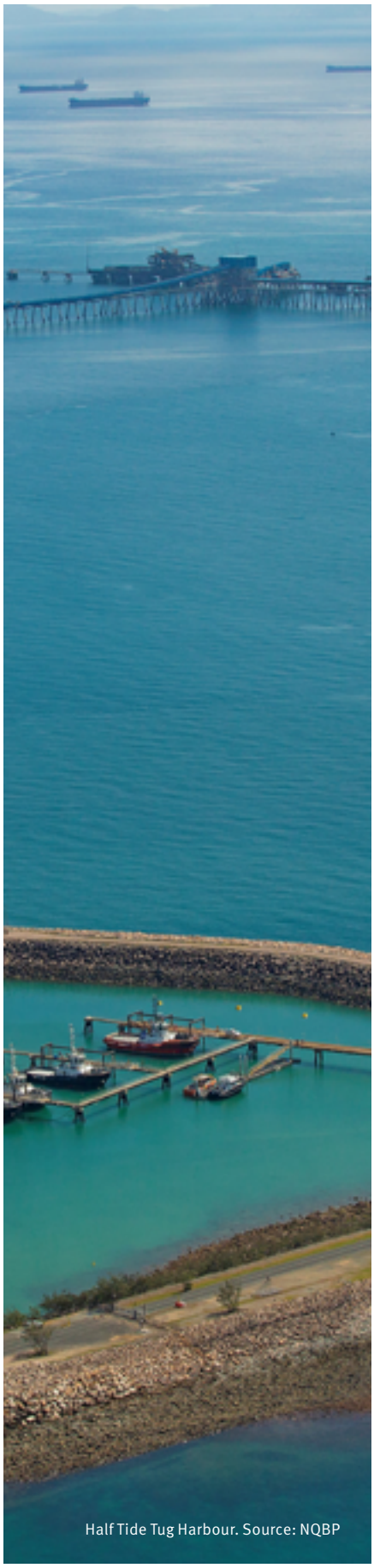
State and local planning processes

State planning instruments, including the State Planning Policy (SPP) and regional plans, set out critical planning matters, which guide local planning instruments to achieve development outcomes in each local government area. The SPP supports the 'avoid-mitigate-offset' hierarchy embedded in Queensland's planning and environment legislation.

The *Planning Regulation 2017* identifies certain development that must also be assessed against the State Development Assessment Provisions to ensure impacts on matters including transport corridors, coastal development, native vegetation, marine plants and fish habitat areas are subject to rigorous assessment and appropriate conditions are put in place to control the potential impacts from development.

Land Use Plans under the *Transport Infrastructure Act 1994* have an important role in planning port development on Strategic Port Land (SPL) by identifying where and how particular land uses should occur. Port Land Use Plans for priority ports must be consistent with the approved master plan and port overlay.

Aerial photo of the Port of Hay Point. Source: NQBP



Half Tide Tug Harbour. Source: NQBP

Regulating development within the master planned area

There are a range of Australian and Queensland Government controls that apply to development within the master planned area.

All environmental legislative requirements will continue to apply to development proposals.

The following instruments currently provide assessment requirements for development within the master planned area (see **Figures 4 and 5**):

- Mackay Regional Council Planning Scheme under the *Planning Act 2016*
- Land Use Plans for the ports of Hay Point and Mackay under the *Transport Infrastructure Act 1994*.

Figure 4 — Planning from the international to the local level

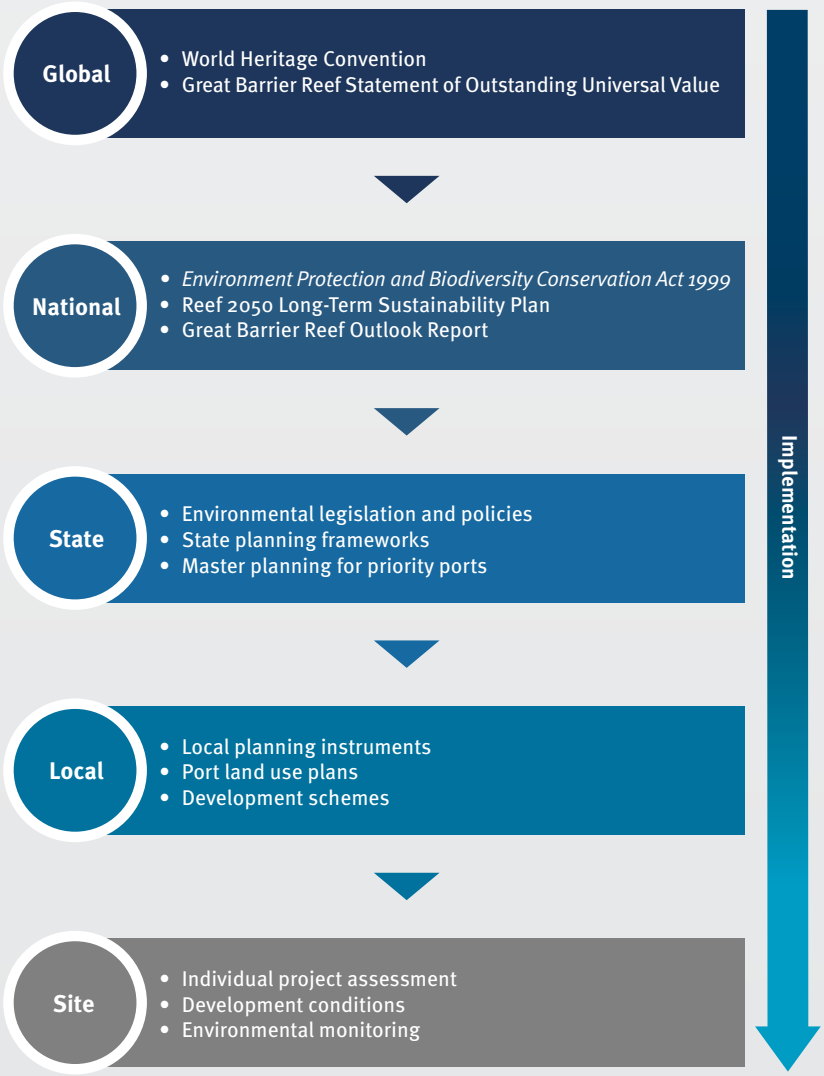
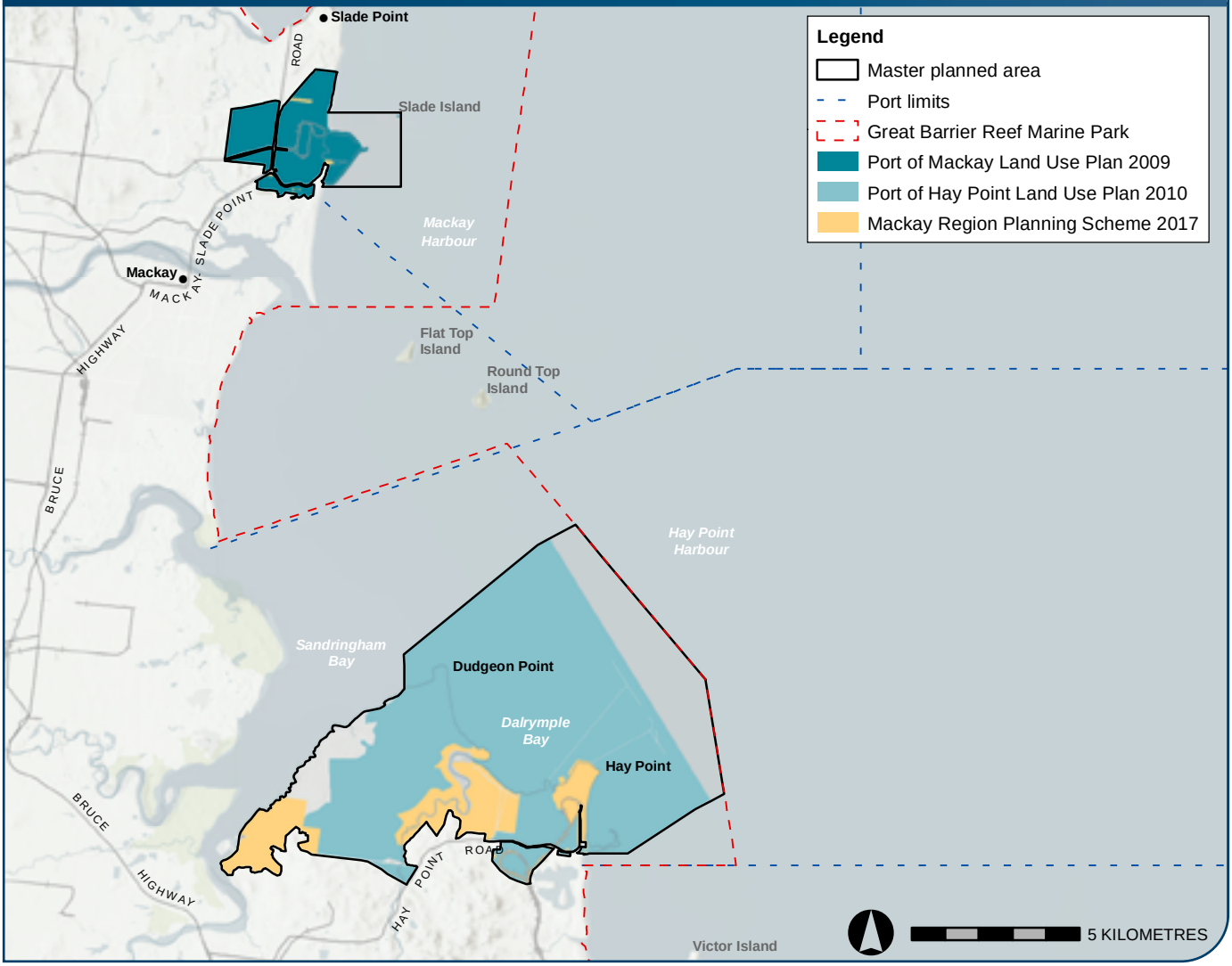


Figure 5 — Planning instruments operating within the proposed master planned area



Aerial view - Port of Mackay. Source: NQBP

Related policy initiatives

There are a number of Australian and Queensland policy initiatives and projects that are relevant to master planning for the priority Port of Hay Point/Mackay. The master plan does not seek to amend these policies but recognises the important role each of these initiatives play in the ongoing sustainable development of the port. These initiatives highlight the economic significance of the port to the MIW region and the importance of managing environmental values and social impacts.

Queensland Government

Queensland's COVID-19 Economic Recovery Plan

The updated *Queensland COVID-19 Economic Recovery Plan* is the government's response to the COVID-19 health and economic crisis. The plan references the strong economic position prior to the pandemic and continued commitment to deliver the support, stimulus and reform to drive sustainable economic growth and create ongoing jobs in the key priority areas. These include safeguarding health, backing small business, making it for Queensland, building Queensland, growing our regions and investing in skills.

Mackay-Whitsunday Regional Recovery Action Plan

Regional recovery action plans recognise Queensland's regions are the key to building Queensland's economic recovery. The *Mackay-Whitsunday Regional Recovery Action Plan* recognises traditional sectors like agriculture, mining and tourism remain the backbone of the region and seeks to take advantage of emerging opportunities by connecting with export markets through the priority Port of Hay Point/Mackay. Investment in transport, energy and water infrastructure will build resilience, support long-term job growth and economic recovery. The plan includes a $17 million infrastructure spend at the Port of Mackay to boost local jobs and trade.

Our Future State: Advancing Queensland's Priorities

The Queensland Government has committed to 'Protect the Great Barrier Reef' as one of its key priorities identified in the *Our Future State: Advancing Queensland's Priorities*. Protecting the environmental, social and economic value of the Great Barrier Reef drives many Queensland Government environmental policies and activities, including priority port master planning.

Queensland Renewable Energy Zones

Queensland Renewable Energy Zones (QREZ) are areas with high quality renewable resources like wind and solar to support existing industries and emerging opportunities like the hydrogen economy. As part of the

Queensland's COVID-19 Economic Recovery Plan, the Queensland Government committed to establish QREZ and support reliable, secure and affordable energy to meet the 50 per cent renewable energy target by 2030. Hay Point and Mackay are in the northern QREZ, which aims to take advantage of the rich renewable resources.

Queensland Hydrogen Industry Strategy 2019–2024

Queensland's Hydrogen Industry Strategy 2019–2024 demonstrates the Queensland Government's commitment to developing a sustainable hydrogen industry by 2030. Hydrogen is a clean, flexible energy carrier that can reduce carbon emissions from transport, power generation and industrial sectors. Hydrogen has the potential to be a major new export product from Queensland. Queensland ports can support the development of hydrogen production facilities on port industrial land close to export infrastructure.

Queensland Climate Action Plan

The *Queensland Climate Action Plan* sets out the priority sectors for action over the next decade to achieve zero net emissions by 2050, power Queensland with 50 per cent renewable energy by 2030 and reduce greenhouse gas emissions by at least 30 per cent below 2005 levels by 2030. Climate action provides the strong foundation needed for Queensland to meet its targets, attract investment, and create more jobs in the future economy.

Zero Net Emissions for Transport Roadmap

The Queensland Government is developing the Zero Net Emissions for Transport Roadmap to chart a pathway towards zero net emissions by 2050 for Queensland's transport sector. The Transport Roadmap is one of several sectoral roadmaps in development to support Queensland Government efforts to address climate change, including energy, buildings, agriculture, and infrastructure. The Transport Roadmap actions and targets will contribute to the *Queensland Climate Action Plan's* 2030 and 2050 emission reduction targets.

A Study of Long-Term Global Coal Demand

Queensland Government's *Study of Long-Term Global Coal Demand* examines key characteristics of the coal industry in Queensland and the wider global trends. The study recognises coal is a major commodity within Queensland's trade industry and is critical to the state's economy. The study looks at both metallurgical and thermal coal and recognises the significance of the coal industry to regional Queensland.

Tug vessels - Port of Mackay. Source: NQBP

Queensland Resources Industry Development Plan

The *Queensland Resources Industry Development Plan* recognises the mining industry supports around 80,000 jobs and royalties from the industry help pay for services like schools, hospitals and roads. The draft plan sets out a clear 30-year vision for Queensland's resources industry to evolve and diversify to meet the needs of the Queensland economy and our international trade partners.

Mackay, Isaac Whitsunday Regional Plan

The *Mackay, Isaac Whitsunday Regional Plan* provides strategies to inform future planning and development decision making, setting out a regional framework and desired regional outcomes responding to challenges and opportunities. The plan identifies strategic infrastructure and supply chain corridors that support development of the priority Port of Hay Point/Mackay while adopting necessary measures to maintain local environmental values.

Mackay Isaac Whitsunday Regional Transport Plan

The *Mackay, Isaac Whitsunday Regional Transport Plan* sets out the regional transport priorities and actions for developing an integrated transport system that supports regional goals for the community, economy and environment in the MIW region. The plan covers all modes of transport with a focus on accessible networks and services, including port, rail and air and the inter-regional and international connections that are vital to moving a broad range of commodities to support the region's economic and social prosperity.

Transport Coordination Plan 2017–2027

The *Transport Coordination Plan 2017–2027* (TCP) is a framework for coordinated planning and management of transport, including a strong focus on customer needs and technology for the next 10 years. The TCP includes a specific objective for transport

to facilitate the efficient movement of people and freight to grow Queensland's economy and includes a commitment to focus on improving connectivity along key freight corridors in regional areas.

Queensland Transport Strategy

The *Queensland Transport Strategy* sets a clear vision over 30 years for the transformation of Queensland's transport system that will flexibly respond to customer preferences, global trends and emerging technologies.

Queensland Freight Strategy – Advancing Freight in Queensland

The *Queensland Freight Strategy – Advancing Freight in Queensland* (QFS) is a 10-year strategy to support the development of an integrated, resilient and safe freight system for Queensland. The QFS highlights the importance of developing smart and sustainable freight solutions, in partnership with industry, to deliver economic, social and environmental outcomes. The strategy aligns with priority port master planning and informs and guides the rolling two-year Queensland Freight Action Plan (QFAP).

Queensland Freight Action Plan 2020–2022

QFAP sets out key steps to implement the commitments outlined in the QFS. Actions and activities progressed over the QFAP's rolling two-year program, ensure Queensland's integrated transport system continues to enable the vital components of our economy, including production, distribution and trade, while keeping pace with the changing and expanding freight and supply chain environment. The QFAP includes the development of priority port master planning as a key deliverable. QFAP 2023–2025 is currently in development.

Smarter Solutions: network optimisation framework

The *Smarter Solutions: network optimisation framework* prioritises the consideration of low cost and non-infrastructure solutions within the planning and investment process. The framework encourages network optimisation solutions to ensure the existing transport network and infrastructure is optimised before major investment. In certain situations, this may be able to generate similar outcomes to new infrastructure, reducing or delaying the need for significant capital expenditure and potential environmental impacts that may arise from new development.

State Infrastructure Strategy 2022

The *State Infrastructure Strategy 2022* (SIS) sets out a framework to build a strong, resilient and sustainable Queensland to guide future infrastructure planning and investment over the next 20 years. The strategy is supported by seven regional infrastructure plans that recognise the significant role infrastructure plays in catalysing regional economic recovery, growth and liveability, taking a place-based approach to ensure significant infrastructure needs are considered and prioritised.

One of the key actions of the SIS is to enhance the security, sustainability and resilience of the transport network. The intent is to improve planning, design, delivery and operations to incorporate risk related to natural disasters, climate change and disruptions from all hazards. The strategy also refers to Queensland's potential to become a renewable energy superpower with advanced skills in manufacturing.

State Planning Policy

The SPP outlines the state interests[1] in land use planning and development that must be considered in every planning scheme across Queensland. The SPP recognises the importance of ports to the national and state supply chains. It includes a state interest to protect the growth and support the development of strategic ports. Both the Port of Hay Point and the Port of Mackay are individually designated as strategic ports in the SPP, as well as designated as a joint priority port in the Ports Act.

'For priority ports, development is also consistent with the requirements of priority port master plans and priority port overlays as these are approved under the Ports Act.'

Maintenance Dredging Strategy for Great Barrier Reef World Heritage Area Ports

The *Maintenance Dredging Strategy for Great Barrier Reef World Heritage Area Ports* (Maintenance Dredging Strategy) provides for sustainable, leading practice management of maintenance dredging. Under the Maintenance Dredging Strategy, North Queensland Bulk Ports Corporation Limited (NQBP) has developed long-term maintenance dredging management plans (LMDMP)

Aerial view - Port of Hay Point. Source: NQBP

1. State interests in the State Planning Policy are defined under the *Planning Act 2016* and separately under the Economic Development Act 2012 and the Ports Act.

for the ports of Hay Point and Mackay which is reflected in the *Guidelines for Long-Term Maintenance Dredging Management Plans*. Further details about this are provided in the maintenance dredging section below.

Wetlands in the Great Barrier Reef Catchments Management Strategy 2016–2021

The *Wetlands in the Great Barrier Reef Catchments Management Strategy 2016–2021* recognises the extent, values and ecological processes of wetlands that contribute to the health and resilience of the Great Barrier Reef ecosystem. The purpose of this strategy is to provide a range of objectives and activities to improve wetlands management, including targets in Reef 2050. This strategy promotes an integrated approach to catchment management that considers the multiple values of wetlands in a whole-of-catchment context.

Australian Government

Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park

The *Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park* is the Great Barrier Reef Marine Park Authority's (GBRMPA) long-term strategy to strengthen protection for Aboriginal and Torres Strait Islander Reef heritage. The strategy sets out a collaborative approach where the enduring culture and connection of Reef Traditional Owners with their Sea Country is widely recognised, Indigenous heritage is protected, and the reef is co-managed. It is a significant step in acknowledging and valuing Traditional Owner connections to the Great Barrier Reef and increasing protection of the OUV of the GBRWHA.

2021 Australian Infrastructure Plan

The *2021 Australian Infrastructure Plan* identifies infrastructure reforms and investments required to manage population growth, growing demand for Australian goods and services and environmental challenges. The plan focuses on opportunities to develop the economy of northern Australia and develop all transport modes to seamlessly connect people and goods, while developing clean energy from high-tech, low-cost, low-emissions energy system for export.

Australia's Long-Term Emissions Reduction Plan

The Australian Government has committed to a whole-of-economy plan to achieve net zero emissions by 2050. The plan focuses on building existing industries and supply chains to capitalise on new export opportunities while supporting regional industries. It outlines key principles to reduce the cost of new and low emission technologies to drive shifts in demand and create environments for investment. It does not stop coal or gas outputs, or displace agricultural production.

Australia's National Hydrogen Strategy

Australia's National Hydrogen Strategy sets a vision for a clean, innovative, safe and competitive hydrogen industry that positions the Australian hydrogen industry as a major global player by 2030. The strategy identifies available resources and experience to develop clusters of large-scale demand and integrate low-cost renewable generation, reduce dependence on imported fuels to assist in reducing carbon emissions.

Our North, Our Future: White Paper on Developing Northern Australia

The *Our North, Our Future: White Paper on Developing Northern Australia* sets out the long-term policy vision for northern Australia's sustainable economic development recognising the requirement for resilient export related infrastructure. This next stage will develop a master plan for the next priority Region of Growth corridor, from Cairns to Gladstone, which includes Hay Point and Mackay and maps out investment pipelines in various sectors, including ports and supply chain logistics.

National Freight and Supply Chain Strategy

The *National Freight and Supply Chain Strategy* recognises Australia's supply chains are critical to meet growing freight demands, requiring greater efficiency, reliability and cost-competitiveness across the whole sector. The strategy outlines an integrated, national approach for the movement of goods to ensure freight systems and infrastructure work across state and territory borders.

National Ports Strategy

The *National Ports Strategy* recognises the important economic role of ports and related freight supply chains. The strategy prioritises planning for ports to improve efficiency, reliability, security and safety. Master planning for priority ports is consistent with this strategy.

North-East Shipping Management Plan

The Australian Maritime Safety Authority (AMSA) released the *North-East Shipping Management Plan* to demonstrate how shipping is managed in sensitive marine environments and proposes actions to minimise environmental impacts on the OUV of the GBRWHA, ensure safety and manage increases in shipping traffic. The North-East Shipping Management Group, which includes both Australian and Queensland Government agencies, implements the actions on an ongoing basis.

Queensland Coastal Passage Plan

AMSA produced the *Queensland Coastal Passage Plan* (QCPP) to improve pre-pilotage communications and the readiness of vessels transiting coastal pilotage areas within the Great Barrier Reef. The QCPP operates with the Great Barrier Reef and Torres Strait Vessel Traffic Service ship reporting system based in Townsville and Under Keel Clearance Management requirements to assist safe passage of vessels transiting through the Great Barrier Reef.

State interests

Under the Ports Act, state interests are matters that are affected, or likely to be affected by existing uses in the master planned area and future development at, or for, the priority port.

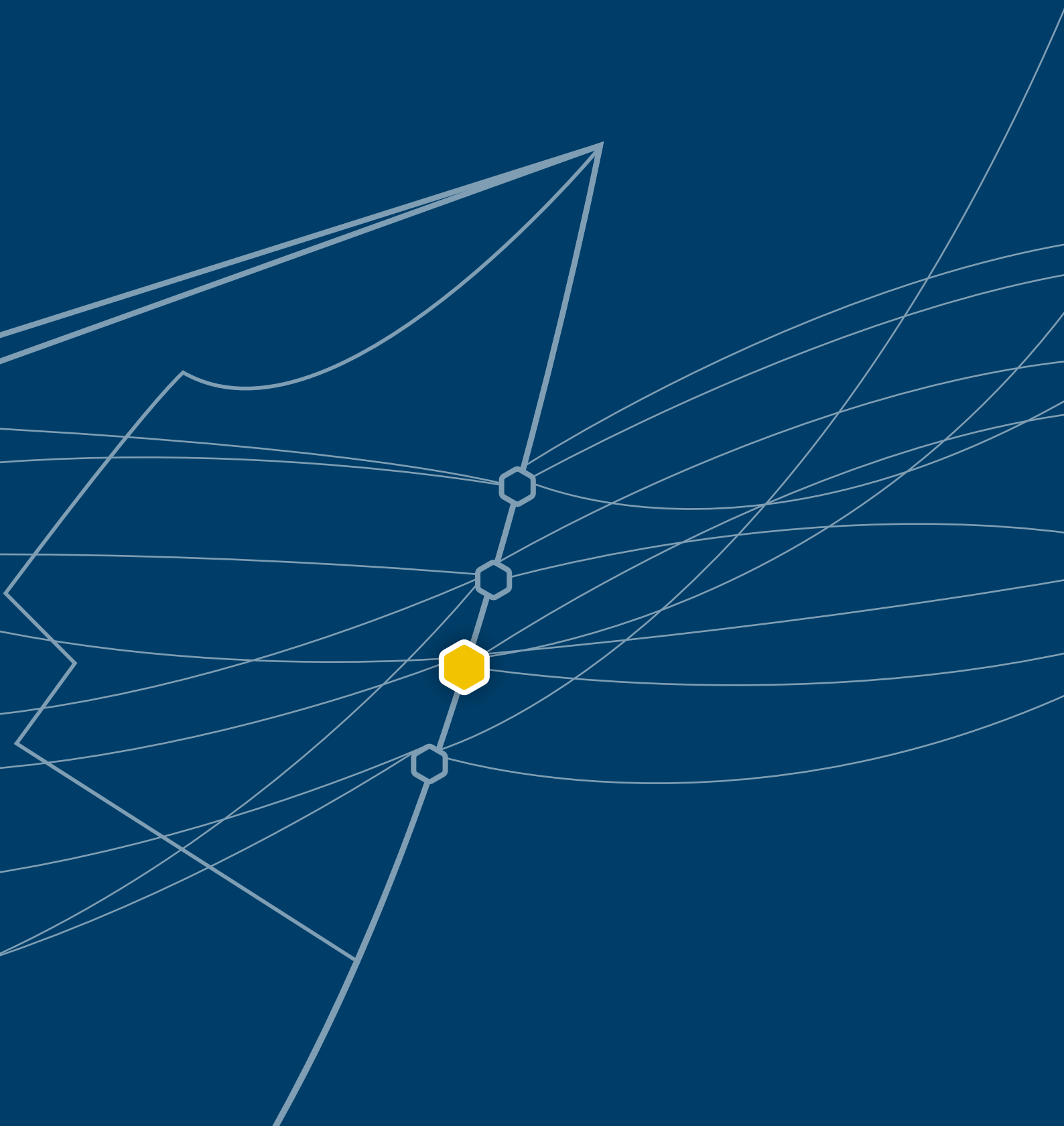
The purpose of the state interests is to provide a clear, consolidated and comprehensive view of the interest of the state in port-related development within the master planned area.

The state interests have been identified to balance and deliver the interest of the state within the master planned area. State interests are consistently applied across the master planned area through the vision, objectives and desired outcomes to implement the master plan.

Figure 6 — State interests for the master plan

Part A

Context



Part A: Context

Hay Point – a critical node in the global steel industry

The Port of Hay Point is a critical node for international steel making and a gateway to some of the world's highest-grade steel making coal, which is the majority of throughput. In 2020–21, about 85 per cent of the Port of Hay Point's coal exports supported the international steel making industry and associated sectors.

Since the port was established in 1971, the efficient supply chain and specialised coal export infrastructure has facilitated a prosperous resources industry. The resources industry supports more than 11,000 jobs across the MIW region.[2]

Connection to Country

The Yuwibara people are the original custodians and Traditional Owners of the Land and Sea Country surrounding the Hay Point and Mackay ports.

Master planning recognises the stories, traditions, knowledge systems and living culture of the Yuwibara people and their contribution to shaping and enriching the Country and society across the port areas. The Yuwibara People continue to maintain strong cultural and traditional affiliations with Land and Sea Country within and surrounding the master planned area.

Mackay – Queensland's sugar capital

Mackay was initially established as a pastoral area in 1862 and the Pioneer River was declared a port of entry and clearance the following year. Mackay prospered through the growth of the port and sugar plantations along the Pioneer River became the dominant local crop.

As Mackay became Australia's leading sugar producer, increasing exports exasperated problems transporting people and cargo to larger vessels anchored off Flat Top Island. The Port of Mackay moved to Mackay Harbour in 1939 to facilitate continued expansion and is now a global multi-commodity import and export port servicing Queensland's mining and agricultural industries.

The Port of Mackay continues to enable sustainable regional employment while also connecting the community through tourism and recreational activities.

Vessel berthed at Wharf 5 at the Port of Mackay. Source: NQBP

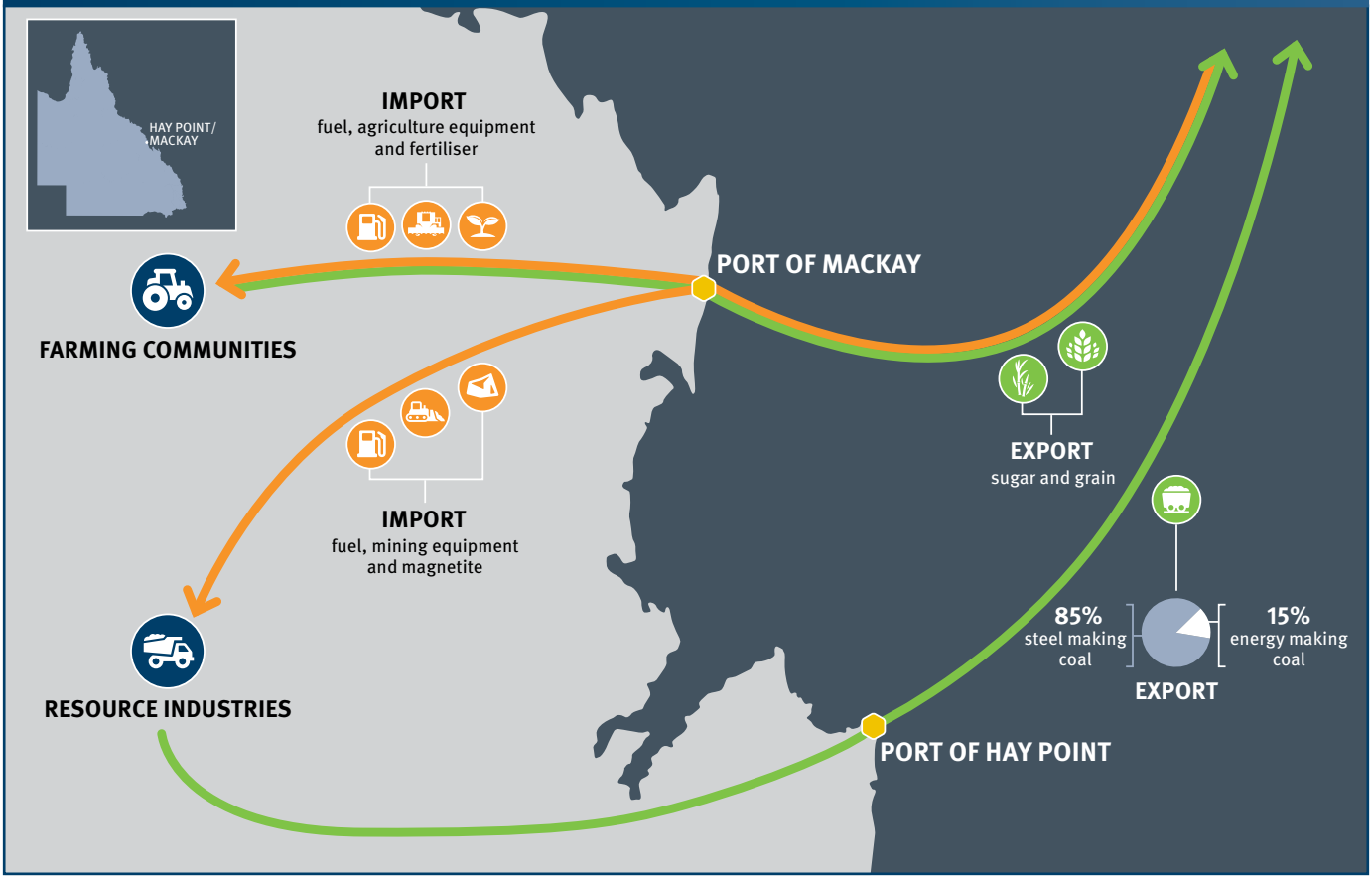
2. Queensland Government Statistician's Office. (July 2022). *Queensland Regional Profiles - Mackay - Isaac - Whitsunday Statistical Area Level 4*. Queensland Treasury.

Role and function of the priority Port of Hay Point/Mackay

The priority Port of Hay Point/Mackay consists of the two individual ports of Hay Point and Mackay. They are recognised as a single priority port in recognition of trade synergies, proximity and complementary functions.

The priority port status will drive sustainable port development and regional growth by connecting agriculture, manufacturing and resource industries to international markets. The Port of Hay Point is a dedicated port for mines in the Bowen Basin and the Port of Mackay is a critical hub importing fuel and equipment to operate these mines.

Figure 7 — Priority Port of Hay Point/Mackay trade synergies



*2020-21 figures

Key hub for innovation and mining services

Mackay plays a strategic role as a service centre and logistics hub. Mackay is home to Australia's leading METS, recognised as a skills and innovation incubator for engineering, manufacturing and services. Both ports support the success of the METS as part of an integrated supply chain.

Energy

The Port of Hay Point has historically played an important role in providing international markets with a reliable supply of high-quality coal. Coal production and export is vital to the Queensland economy as both a major regional employer and supporter of regional businesses.

The priority port can also be a key player in the hydrogen export industry given its access to solar or wind power and availability of industrial land for production facilities. The port can continue powering global industries and create a pathway to a zero emissions future. Mackay can play a supporting role in the renewable energy developments by facilitating import requirements.

Project and breakbulk cargo

The Port of Mackay is a critical gateway for diverse breakbulk cargo, including oversize over mass cargo and multi-cargo container trade. Large laydown areas allow shipping of large-scale mining, construction and agricultural equipment to regional Queensland, which can include wind turbines and renewable energy components.

Fuel

The Port of Mackay plays an important role as a major fuel distribution hub and is the largest regional importer of fuel in Queensland. As a critical node in the transport sector, the port generates investment and industry development through fuel supply for the MIW region. This includes diesel for mining, agricultural and freight sectors, as well as fuel for domestic vehicles and aviation keeping the region and local communities on the move.

Agriculture

The Port of Mackay is a vital exporter of sugar products and one of the largest regional exporters of grain in Queensland. The port supports the agricultural industry across the MIW region, which has valuable agriculture and grazing land, a high average rainfall with a relatively stable climate. It remains one of the largest sugar-producing regions in Australia with key strengths in production and processing of cane.

Marina services

The Mackay Marina is a certified clean marina, suitable for berthing, maintenance, refit and marine craft services for recreational and commercial vessels.

A Roll-on Roll-off ship approaching the Port of Mackay. Source: NQBP

Figure 8 — Snapshot of the Priority Port of Hay Point/Mackay

The Port of Hay Point

is one of Australia's major coal export ports and critical to the global steel making value chain

APPROXIMATELY 85% of the coal exported from the Port of Hay Point supports the global steel making industry, while the remaining 15% is for global electricity making

The Port of Hay Point supports the energy and steel making demands of **of over 20 countries,** including India, Japan, Korea, China, Vietnam, Taiwan

The Port of Hay Point supports exports of approximately **75% of mines in the Bowen Basin**

The Port of Hay Point facilitates trade for the Mackay Isaac Whitsunday region's resources industry which supports more than **11,000 jobs**

Nearly 90% of land in the Mackay Isaac Whitsunday region is used for agriculture with the Port of Mackay as the trade gateway for grain exports

The Port of Mackay

is home to the largest mining equipment, technology and services hub in the southern hemisphere

The Port of Mackay is a multicommodity import/export port with important break bulk facilities to service the mining and agricultural communities

The Port of Mackay is one of the **world's largest bulk sugar export terminals**

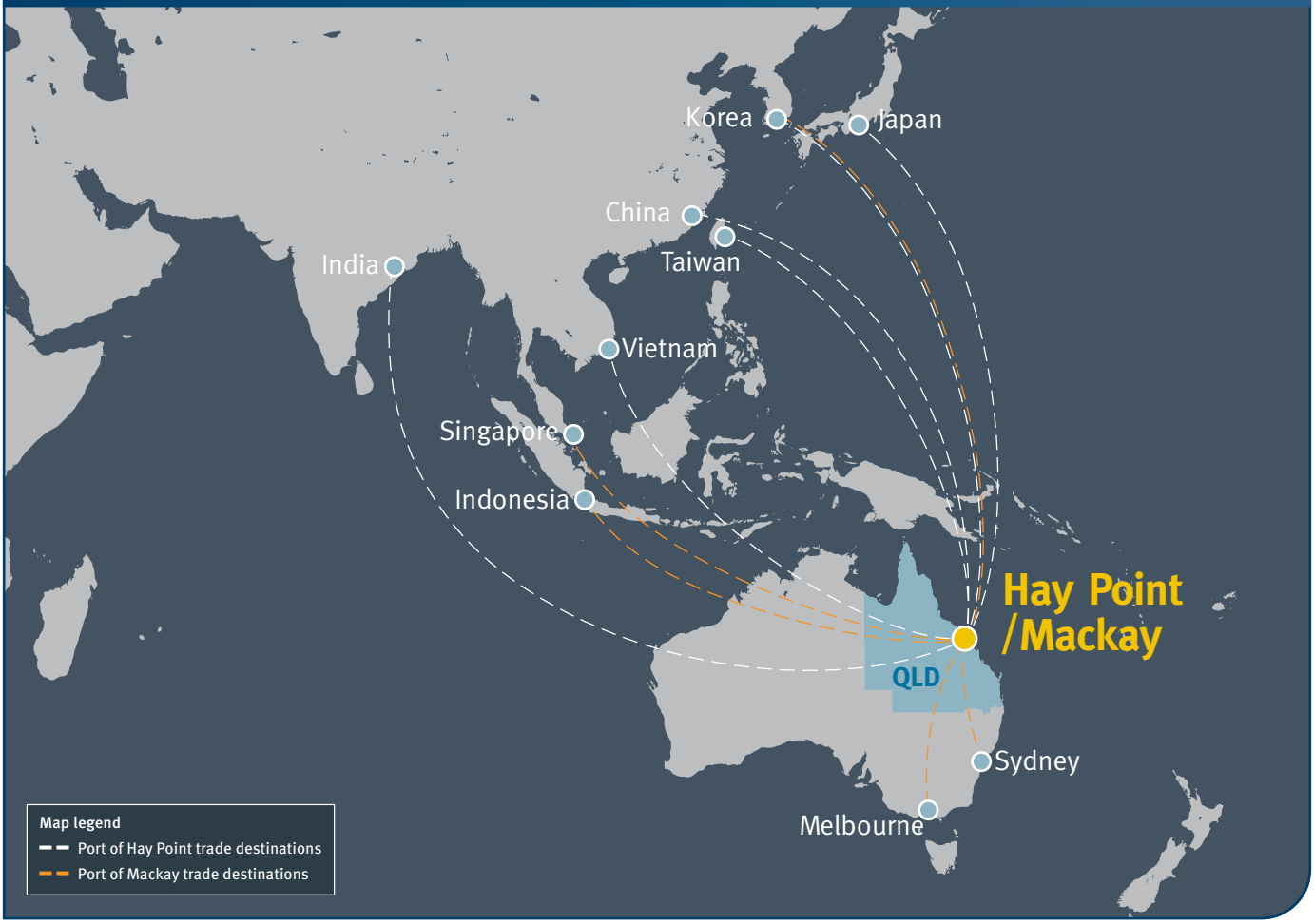
The Port of Mackay is Queensland's largest regional fuel importer at around **1.65 billion litres per year**

The Port of Mackay supports:
over **300 jobs** directly associated with port activities covering port operations, construction, mining and manufacturing and over **3,500 jobs** are facilitated by the port through exports such as sugar and sugar products

The Mackay Isaac Whitsunday region is the largest producer of sugar-based ethanol in Australia with **over 15,000 MT exported** through the Port of Mackay

*2020-21 figures

Figure 9 – Priority Port of Hay Point/Mackay export trade destinations



Great Barrier Reef

The Great Barrier Reef is one of the natural wonders of the world and was inscribed on the World Heritage List in 1981 in recognition of its OUV. The International Union for Conservation of Nature evaluation stated that '*... if only one coral reef site in the world were to be chosen for the World Heritage List, the Great Barrier Reef is the site to be chosen*'.

Hay Point/Mackay operates within the GBRWHA, so it is important that port-related development is managed to protect the environmental values of the Great Barrier Reef. Port activities were specifically recognised by the UNESCO WHC as an existing, long-established ongoing activity within the GBRWHA in the retrospective statement of OUV.

The master plan seeks to balance port development while protecting the OUV of the GBRWHA and wetland areas including the Sandringham Bay-Bakers Creek aggregate. Master planning facilitates sustainable development of the port, optimises existing industries while promoting emerging industries and protecting environmental values.

The master plan adopts an approach for managing potential impacts from development within the master planned area by implementing the environmental management hierarchy of avoid, mitigate and/or offset, central to the EMF.

In the context of the master planned area, the marine environment of the GBRWHA supports a range of terrestrial and marine species, corals, seabirds, marine turtles, migrating whales, dugong, dolphins, vegetated islands, unique and varied seascapes and landscapes, seagrass, wetlands, mangrove communities and fringing reefs. Within the GBRWHA are the GBRMP and the GBRCMP.

Around 99 per cent of the GBRWHA lies within the GBRMP and the GBRCMP which provides protection for Queensland tidal lands and waters. Both the Australian and Queensland governments have shared legislative responsibilities for the GBRWHA. The state government has jurisdictional responsibility within coastal waters of the GBRWHA that are outside the GBRMP.

Biodiversity of port infrastructure

NQBP has commenced a research project with James Cook University looking at the environmental value created by infrastructure at the priority Port of Hay Point/Mackay.

Scientists are using some of the latest advances in underwater cameras, side-scanning equipment, and sonar technology to collect data that once relied on hours of observations while diving.

Understanding the added environmental value provided by man-made infrastructure will lead to significant advances in understanding blue-green infrastructure[3] and inform opportunities for sustainable port development. NQBP recognises the importance of working with nature when planning infrastructure for our future.

As an outcome of Reef 2050 and in accordance with the Ports Act, the OUV of the GBRWHA must be an intrinsic consideration in managing port-related development within the master planned area. The master planning approach achieves this objective by:

- recognising existing regulatory processes that provide for the protection of OUV
- identifying the local attributes of OUV and their contribution to the OUV of the GBRWHA (refer to **Part D** and **Appendix E**)
- identifying potential impacts on the OUV of the GBRWHA from development in the master planned area
- stating EMF objectives to manage the OUV of the GBRWHA
- considering the principles of ESD and contributing to wider actions under the Reef 2050.

In addition to its environmental values, the Great Barrier Reef is important for the Australian and Queensland economies. It supports tourism while generating important social, cultural and economic contributions from fishing, recreational and scientific activities in the region.

Cumulative impact management

The Queensland Government has committed to 'Protect the Great Barrier Reef' as one of its key priorities identified in *Our Future State: Advancing Queensland's Priorities*.

The management of system-wide cumulative impacts on the Great Barrier Reef is important to ensure continuous improvement in managing potential threats to the reef.

The Queensland Government is managing cumulative impacts on the Great Barrier Reef through a range of policy initiatives. This includes:

- taking strong action on climate change through renewable energy and emissions reductions targets by 2050
- managing impacts of poor water quality and crown-of-thorns starfish outbreaks by managing water runoff from land catchments through the *Reef 2050 Water Quality Improvement Plan 2017–2022*
- investing in activities for carbon storage and rehabilitation of wetlands in the Great Barrier Reef catchments through the Land Restoration Fund
- providing guidance on the range of cumulative impacts affecting the reef, as well as assessment and management tools through the Reef 2050 Cumulative Impact Management and Net Benefit policies

Turtle at Dudgeon Point. Source: Chris Sanderson

3. Blue-Green Infrastructure is the principle of working with nature in that the engineering design of infrastructure generally encourages biodiversity (blue - in the sea : green - the plants and animals).

- providing guidance on sustainable, leading practice management of port- related maintenance dredging through the Maintenance Dredging Strategy
- improving the health and resilience of fish stocks in the Great Barrier Reef through the *Queensland Sustainable Fisheries Strategy 2017–2027*
- strengthening vegetation clearing legislation including better protection near watercourses in Great Barrier Reef catchments.

The protection of the Great Barrier Reef and cumulative impact management is also a central concept in Queensland's environmental assessment and planning systems. This includes the environmental impact assessment processes and state and local planning processes as described in the 'regulating port operations' section.

The Ports Act plays a key role in cumulative impact management by restricting capital dredging to the four priority ports, prohibiting sea-based disposal of this material unless it is beneficially reused and mandating master planning for an integrated approach to port management. Master planning complements existing assessment processes and does not replace or remove existing requirements. The EPBC Act assessment process requires an action that is likely to have a significant impact on a Matters of National Environmental Significance (MNES) (which includes the Great Barrier Reef) to be referred to the Australian Government to determine if assessment and approval is required, including the assessment of cumulative impacts.

The protection of the Great Barrier Reef and cumulative impact management is also a central concept in Queensland's environmental assessment and planning systems. This includes the environmental impact assessment processes and state and local planning processes as described in the 'regulating port operations' section.

The master plan establishes a strategic approach by constraining port-related development and capital dredging to a defined master planned area. The master planned area limits cumulative impacts by using a precinct-based approach to concentrate development in locations that avoid areas of environmental significance. Objectives for specific locations within the master planned area are identified to ensure that impacts on environmental values from development are managed to limit cumulative impacts on important environment values.

The Ports Act requires the master plan to be reviewed at least every 10 years to provide an adaptive management approach and respond to major changes in policy or legislation, including Reef 2050.

Laydown area with cargo - Port of Mackay. Source: NQBP

Managing sustainable growth

Sustainable development is managed by the master plan through supporting existing trades and promoting emerging industry opportunities related to renewable energy, including hydrogen. Port optimisation and supply chain infrastructure, including capital and maintenance dredging, are critical to long-term sustainable port development.

Port optimisation

The priority Port of Hay Point/Mackay is a critical node in Queensland's transport network. The port relies on the region's integrated infrastructure network to operate efficiently. This network comprises of road, rail, marine and other transport infrastructure, including telecommunications, water, pipelines, electricity generation and transmission assets.

Port optimisation is a key objective of efficient planning and operation of port infrastructure and activities to support the sustainable growth of the port and improve economic, environmental and social outcomes. There are a variety of factors that can promote or hinder optimisation initiatives. The Australian and Queensland Governments have released policy and planning documents that consider public and private opportunities for optimisation at the planning and investment stages of projects and initiatives.

At a national level, the *2021 Australian Infrastructure Plan* seeks to improve the efficiency of infrastructure networks to drive greater sustainability. This approach has been reflected in various Queensland Government policies, plans and project assessment frameworks which focus on maximising the use of existing infrastructure and planning for smart solutions for new infrastructure.

The Queensland Government's SIS reflects this approach by driving collaborative state infrastructure planning to boost productivity, grow the economy, enhance infrastructure resilience and create jobs throughout the state. The SIS sets the statewide priorities and provides a framework for how government will plan and invest in infrastructure over the next 20 years. It recognises that infrastructure is a critical component of *Queensland's COVID-19 Economic Recovery Plan* and optimising the Queensland port network will facilitate trade and drive growth by increasing the efficiency and effectiveness of port services and infrastructure.

At a master planning level, designation of precincts within the master plan further supports port optimisation by providing guidance on where development could be consolidated or co-located and where development should be limited. This approach means the infrastructure required to support development in particular areas can be delivered more efficiently and is more likely to be shared.

Leading practice optimisation will vary depending on the location, nature of the matter, or type of infrastructure being considered. No single approach or technology can be applied in all situations. The relevant environmental, social or economic considerations will dictate appropriateness and likelihood of success.

Efficient vessel movements also play an important role in port optimisation by ensuring that vessels safely navigate the inner port harbour, channels, anchorages and pilot areas. The *Port Procedures and Information for Shipping* manual for the Port of Hay Point and the Port of Mackay are issued by the Regional Harbour Master under the *Transport Operations (Marine Safety) Act 1994*. The manual provides direction to all ship owners, masters and other persons to ensure maritime safety and minimise potential environmental impacts.

The Port of Hay Point. Source: NQBP

Figure 10 — Port of Hay Point/Mackay sustainability initiatives

Environmental custodianship

ISO 14001 Environmental Management System	On site water storage and stormwater management
Coral monitoring program and associated publicly available coral dashboard	Biosecurity and pest monitoring and management in partnership with local and state Government
Seagrass monitoring and research program and publicly available seagrass dashboard	Blue carbon assessment studies
Air quality monitoring program and publicly accessible air quality dashboard	Sustainable sediment management assessments
Long-term maintenance dredging management plans	Biodiversity assessment of port infrastructure
Environmental monitoring programs, including noise, land, stormwater, ground water and marine water quality monitoring program	

Research partnerships

James Cook University - Tropical Water and Aquatic Ecosystem Research (TropWATER)	Australian Institute of Marine Science (AIMS) and Australian Coral Reef Resilience Initiative
Healthy Rivers to Reef Southern Inshore Monitoring Program	CQUniversity –Automation and Future Skills initiative
The World Association for Waterborne Transport Infrastructure (PIANC)	CQUniversity –Indigenous Engagement and Research initiative
Ports Australia Environment, Planning and Sustainability Working Group and Queensland Ports Association Environment and Planning Working Group	

Community investment and partnerships

Reconciliation Action Plans (RAPs)	Resource Industry Network corporate sponsorship, membership and committee representation
Cultural Heritage Management Plan with Yuwibara Traditional Owners	James Cook University TropWATER internship, scholarship, and guest lecture series
Partnership with Greening Australia and Traditional Owners	Quarterly beach clean-up program
Community sponsorship, donation and grants programs	Employment, education and local buying programs
Port Advisory Groups - Hay Point and Mackay	CQUniversity Community and Indigenous Scholarship program
Community Reference Groups - Hay Point and Mackay	Northern Australia Primary Health Ltd partnership to provide Mental Health Clinician
Local Marine Advisory Committee representation	Partnership with Reef Catchments Limited – Healthy Rivers to Reef

Supply chain infrastructure

The efficient operation and protection of supply chain infrastructure supports the role of the priority port as the first and last link in the regional transport network, which operates 24 hours a day, every day of the week. Supply chain infrastructure comprises a network of road, rail and marine-based infrastructure connecting the port to domestic and international economic markets.

Supply chain infrastructure assists goods to transit efficiently and is critical to the effective operation of the port network and regional industries. Supply chain corridors are part of an integrated transport network and provide opportunities for increased trade diversification to service the catchment and industry.

The supply chain infrastructure supporting the port within the horizon of the master plan is summarised in **Table 1**. New or upgraded supply chain infrastructure which increases the capacity and efficiency of the infrastructure networks servicing the port, will support trade diversification and enhance economic opportunities.

Table 1 — Supply chain infrastructure

Type of supply chain infrastructure	Supply chain infrastructure	Function	Significance
Road	Bruce Highway	The state's major north-south freight corridor, connecting Brisbane to Far North Queensland, linking west-east road networks	Primary freight and commuter link for the resource sector and inland agricultural production areas
	Hay Point Road	A state-controlled road that connects the Bruce Highway with the Port of Hay Point	Primary non-freight connection between the Bruce Highway and the Port of Hay Point
	Peak Downs Highway	Major east-west highway connecting the priority port to mining and agricultural industries in the hinterland	Critical route for transporting equipment, fuel and people to the Bowen Basin
	Mackay-Slade Point Road	Connects Mackay to the Port of Mackay and Mackay Harbour	Primary commuter and freight road connecting to the Port of Mackay and surrounding areas
	Harbour Road	Local road that provides access to the Port of Mackay	Primary access from Mackay-Slade Point Road into the Port of Mackay
	Gudyara Road	Provides emergency evacuation route and direct access into North Wall Beach and direct access between Slade Point Road, Northern security gate and Northern lots within the Port of Mackay	Unlocks developable land at the Port of Mackay
	Mackay Ring Road	Improves safety and increasing capacity for freight on the Bruce Highway and reduces freight traffic through Mackay. It will improve the network efficiency overall including Peak Downs Highway, Walkerston Bypass and freight routes connecting to the Port of Mackay	Linking and supporting road corridors facilitate a direct freight route between Queensland's mining and agricultural industries, Bowen Basin and the Port of Mackay
	Mackay Northern Access Route	Provides direct connectivity between Port of Mackay and Bruce Highway	Key connection for port activities and related industries
Rail	Goonyella rail system	Services the Bowen Basin coal mines and connects to the Newlands Coal Rail System	Primary rail freight system providing access to export terminals at Hay Point

Table 1 — Supply chain infrastructure			
Type of supply chain infrastructure	**Supply chain infrastructure**	**Function**	**Significance**
	Mackay Harbour Branch Rail Line	Freight only railway operated by Queensland Rail connecting to the North Coast Rail Line.	Dedicated rail freight route to the Port of Mackay
	North Coast Rail Line	Principal passenger and freight line connecting Brisbane through to Cairns	Primary line along the Queensland coastline
Marine	Half Tide Tug Harbour	Houses tugs that service vessels accessing Dalrymple Bay Terminal (DBT) and Hay Point Coal Terminal (HPCT)	Ensure the safe and efficient movement of commodities and shipping operations.
	Seven offshore berths at the Port of Hay Point (four at DBT and three at HPCT).	Berths connected via offshore jetties and serviced by rail mounted ship loaders and conveyor systems	Shipping berths located in deep water allowing capsized vessels to berth
	Four berths on wharf structure at the Port of Mackay.	Enables the import and export of throughput with supporting infrastructure such as shiploaders, slipway and barge ramp	Critical infrastructure and facilities enabling the import and export of commodities
	Mackay Marina	Provides maintenance, refit and marine craft services for recreational and commercial vessels and tourist and marina amenities	Marina base for recreational and commercial vessels
Port (land side)	Storage, coal-handling facilities, quarantine waste treatment facility, pilot helipad, offices, visitor centre, laydown land and hardstand.	Infrastructure required for effective and efficient port operations, cargo handling, storage and administration at the Port of Hay Point	Vital to ensure the safe and efficient movement of commodities and shipping operations
	Fuel storage, grain silos, bulk sugar storage, Roll-on Roll-off barge facility, biosecurity washdown facility, onshore stockpiling areas, serviced by rail unloading facilities and conveyor systems	Infrastructure required for effective and efficient port operations, cargo handling, storage and administration at the Port of Mackay	Vital to ensure the safe and efficient movement of commodities and shipping operations
	Hay Point Water Supply Scheme and stormwater return dams	Delivers non-potable water from Eton irrigation channel to terminal operators. The stormwater return dam provides water for port operations including dust suppression and washdown facilities at DBT and HPCT	Critical for existing port operations, providing terminal operators a secure supply of water during dry periods
	Mt Bassett Reservoir	Provides potable water, industrial water and fire water	Critical for existing port operations
	Mt Bassett Quarry	Provides armour rock for the Port of Mackay	Important asset for port construction
	Overhead power transmission lines and Louisa Creek and Mackay substations	Supplies power for terminals, port users and port infrastructure	Critical for ongoing port and terminal operations

Sustainable trade

Under the Queensland Climate Action Plan, the Queensland Government has set goals of generating 50 per cent of the state's energy from renewable sources by 2030 and achieving net zero emissions by 2050. Queensland's ports, including the priority Port of Hay Point/Mackay, will play a critical role in reaching these goals as first and last links in the international supply chains. While Australia has an existing strength in coal, the master plan supports a transition in port trade to promote a global transition to a renewable energy economy.

Green energy infrastructure

The *Queensland Hydrogen Industry Strategy 2019–2024* supports opportunities in the production and export of green hydrogen, with the push towards net zero emissions. The priority Port of Hay Point has the potential for hydrogen production and export capabilities while Mackay can facilitate the import of required project cargo.

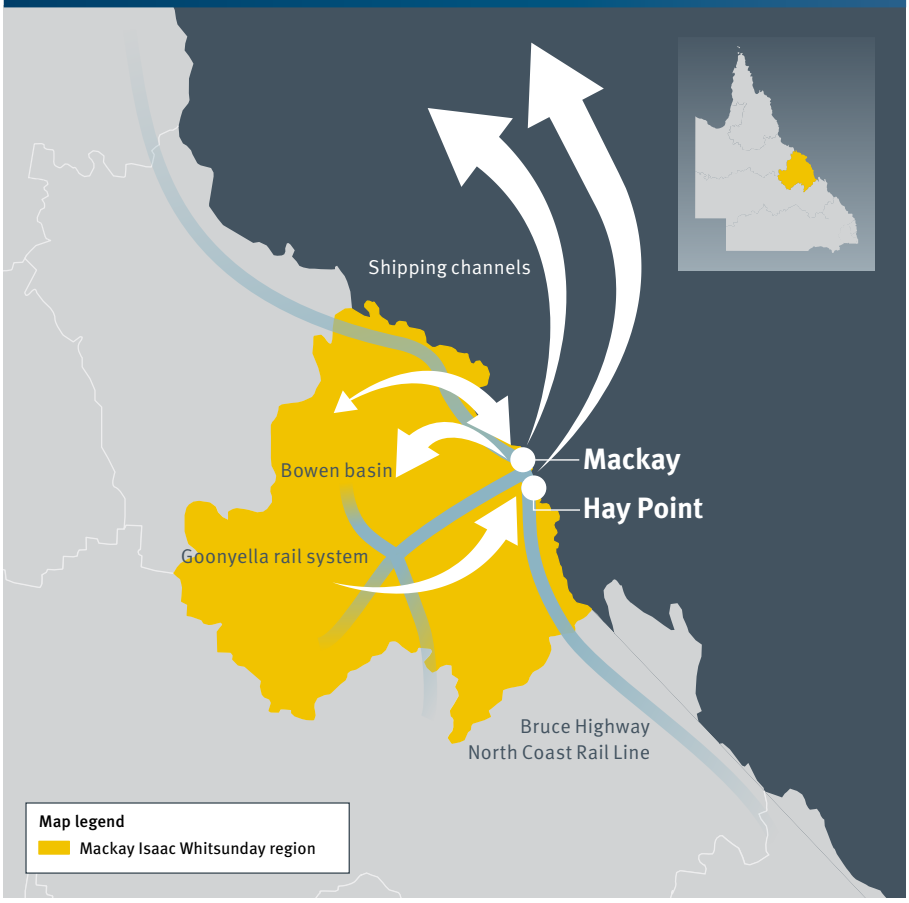
Multi-user infrastructure solutions across the hydrogen value chain at Hay Point/Mackay are supported. This may involve new port facilities, capital dredging and marine infrastructure, as well as production, liquefaction, storage and supply chain corridors for water, electricity transmission and road access.

Large scale hydrogen production for export requires significant volumes of water and additional distribution infrastructure. It is recognised that access to water is a critical dependent and proponents must address specific project requirements including allocations for competing uses such as agriculture, urban and resources industries.

Port supply chain optimisation

Key to optimisation is the focus on step change increases in capacity and handling capability to existing infrastructure and processes to improve current operations and minimise capital investment. This is achieved through proactive asset management to manage risk, investing in maintenance and improvements to increase design life. This can have a significant financial benefit as well as improve the quality and efficiency of the port.

Figure 11 — Hay Point/Mackay freight paths



Dalrymple Bay Terminal Master Plan

Hay Point's Dalrymple Bay Terminal (DBT) is a multi-user terminal with options for sustainable and incremental capacity expansion once genuine demand exceeds capacity.

The DBT 8X project includes several staged improvements to infrastructure and operational processes to maximise capacity without expanding the terminal footprint. This includes out loading optimisation through augmented yard machinery controls to increase reclaim rate, the addition of an inner rail loop, rail unloading station and in-loading conveyor and the installation of a new shiploader. This development would proceed only when there is sufficient industry demand.

Tug berth facility

A new purpose-built tug berth has been built inside the Port of Mackay to cater for the existing tug fleet and future expansions. The facility includes berths for up to two tugs and two pilot boats including a gangway and floating pontoon, which can also accommodate bigger and more powerful tugs. Towage operations are critical to ensure safe maritime access for commercial vessels. The facility can be further expanded to accommodate a total of four tugs.

Wharf upgrades

Optimisation projects at the Port of Mackay are targeted at improving port efficiency and diversified trade capabilities. The upgrade to Wharf 1 extended the access bridge to facilitate longer cargo while the work at Wharf 4 included a custom steel deck with increased width and capacity to accommodate heavier and wider over

Long-Term Maintenance Dredging Management Plan

NQBP's LMDMP documents the strategy for managing natural sediment accumulation at the ports of Hay Point and Mackay, in a way that ensures the safe and efficient operation of the ports and the ongoing protection of local environmental values and the OUV of the GBRWHA.

mass Roll-on Roll-off cargo through the port. There are opportunities to expand berthing and supporting landside infrastructure to meet the needs of potential projects in emerging renewable energy developments.

Dynamic Under Keel Clearance

The Port of Hay Point uses a Dynamic Under Keel Clearance (DUKC) system which optimises channel access for deeper vessels using real-time modelling of tides and water conditions. The DUKC system permits large ships to safely sail up to 1m deeper allowing them to carry additional tonnage. The Port of Hay Point was the first port in the world to implement a DUKC system in 1993 as part of its ongoing port optimisation activities.

Dredging requirements

The Ports Act restricts port-related capital dredging within the GBRWHA to only within a master planned area for a priority port and mandates the beneficial reuse of material generated from capital dredging. Capital dredging includes creating or enlarging channels, basins and berths, foundation works and trenching. Capital dredging is different to maintenance dredging, which involves removing mobile natural sediments that have accumulated in the existing navigation channels, berth pockets, approaches and swing basins to maintain existing approved dredging areas and ensure continued safe navigational movement of vessels.

Capital dredging

Capital dredging is required to expand the capacity of the port by allowing the safe and efficient movement of larger vessels and increased vessel movements, to support trade opportunities.

Subject to obtaining all necessary federal and state permit approvals, the Ports Act only allows the capital dredging to be undertaken within the master planned area and requires the material dredged to be beneficially reused. Beneficial reuse is the practice of using dredged material for a purpose that provides social, economic, or environmental benefits (or a combination of these). This means dredged material is managed as a valuable resource rather than a product destined for disposal.

Future port-related capital dredging cannot occur outside the master planned area. Capital dredging will only occur within defined operational port areas such as the Marine Infrastructure precinct (refer to **Part C**). Future capital dredging projects will need to determine the best option for beneficial reuse of the material.

Maintenance dredging

Maintenance dredging is required to remove natural sediments that accumulate in shipping channels, swing basins and berth pockets. Maintenance dredging is essential to facilitate safe passage of vessels. Without maintenance dredging, navigation channels would become shallow, restricting vessels and impacting the efficient operation of the port and associated supply chains.

Maintenance dredging and the sea-based placement of dredged material is regulated through a comprehensive approval system by both the Australian and Queensland governments in accordance with international agreements and the requirements of federal and state legislation. The master plan does not modify the regulatory requirements that apply to maintenance dredging including assessment processes, consultation requirements and obtaining approvals.

Maintenance dredging activities in the priority port are supported by a comprehensive environmental monitoring program undertaken by NQBP with observations undertaken before, during and after each dredging campaign. The program is focused on collection and analysis of data to monitor potential environmental harm and allow an adjustment of management response should unpredicted environmental conditions occur.

Maintenance dredging at the ports of Hay Point and Mackay generally occurs every three to five years. At Mackay, the volume of material is relatively small as the breakwaters shelter the harbour from wave action and significant sediment accumulation. Natural major weather events such as cyclones can lead to increased sedimentation and require increased dredging.

NQBP has developed a LMDMP for both the ports of Hay Point and Mackay to document the strategy for managing natural sediment accumulation in a way that ensures the safe and efficient operation of the port and the ongoing protection of local environmental values and the OUV of the GBRWHA.

Adaptive monitoring and management are implemented for each maintenance dredging program. This is a key step in

impact avoidance and management. Monitoring of water quality, weather conditions and for certain marine fauna is also undertaken.

Dredge material placement areas

The material derived from maintenance dredging may be placed at sea or on land in accordance with federal and state regulations.

For the Port of Hay Point, the existing Dredge Material Placement Area (DMPA) is located approximately six kilometres north of the port facilities and has been used since 2006. For the Port of Mackay, the current DMPA is in deep water three kilometres north-east of Mackay Harbour and has been used since the 1960's.

Assessments undertaken by NQBP for the Port of Hay Point and the Port of Mackay found that continued offshore placement of maintenance dredged material was the preferred long-term management option as the risk to protected areas and sensitive environmental values was low.

The master plan does not restrict the future consideration of alternative sites for the placement of maintenance dredged material. Any proposal to relocate the DMPA will need to meet all federal and state regulatory requirements which involves a process independent of the master plan.

Areas adjoining port operations

Managing the interface between the port and adjacent communities is important to ensure the long-term efficient operation of the ports while also protecting the safety and wellbeing of nearby communities.

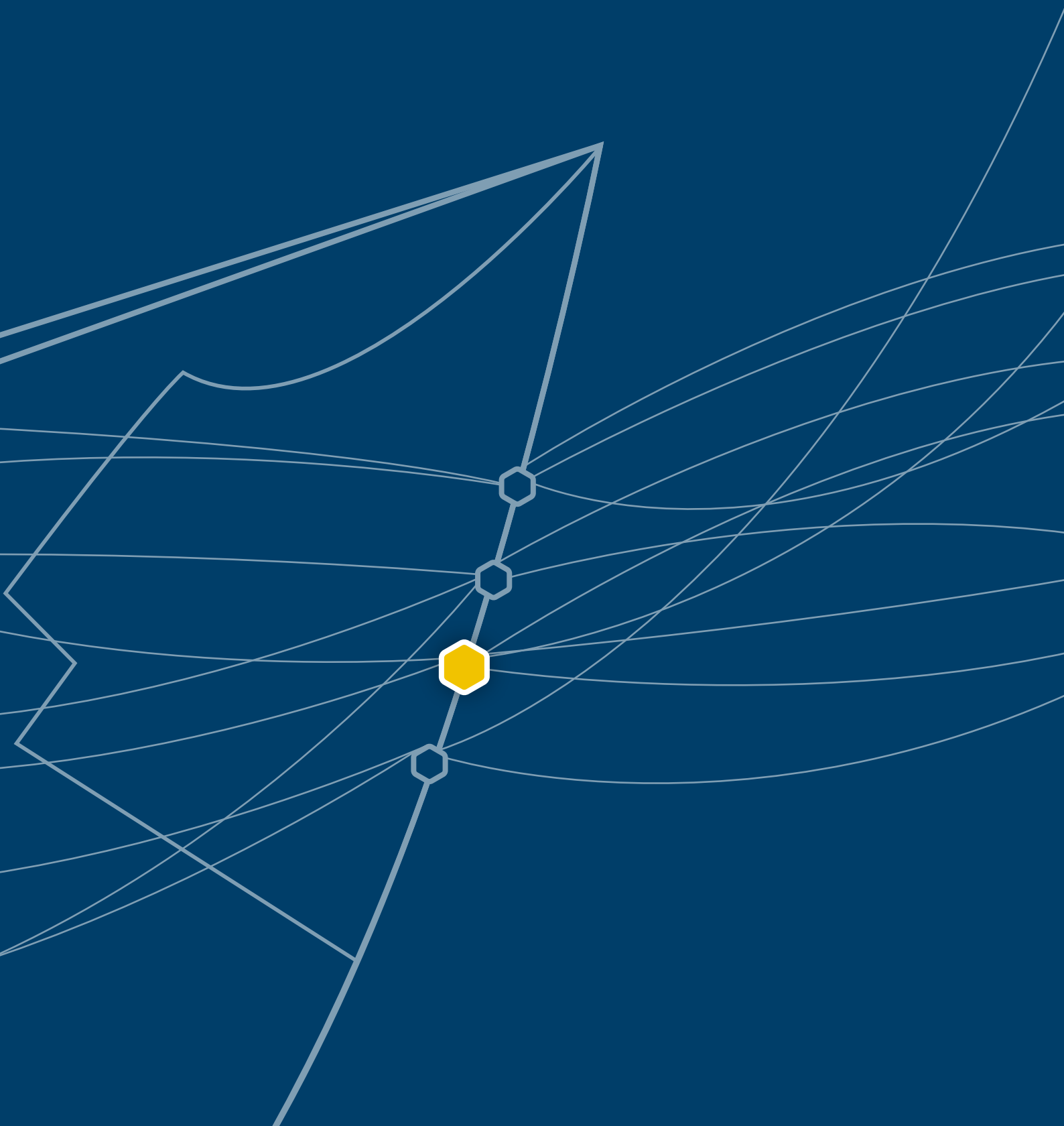
It is important that future development at Louisa Creek is carefully managed to mitigate potential adverse amenity impacts that may conflict with port operations, particularly berths and land used by industry. The master plan defines the Louisa Creek area into two precincts to reflect potential future uses.

Coal stockpiles at the Port of Hay Point. Source: NQBP

Half Tide Tug Harbour. Source: NQBP

Part B

Strategic vision, objectives and desired outcomes



Part B: Strategic vision, objectives and desired outcomes

Strategic vision

Long term strategic vision for the master planned area to 2050:

The priority Port of Hay Point/Mackay will maximise opportunities to connect diverse regional industries with global markets, supporting resilient and prosperous communities. Sustainable development across the ports of Hay Point and Mackay will optimise economic opportunities while also protecting the Outstanding Universal Value of the Great Barrier Reef World Heritage Area within and surrounding the master planned area by managing potential impacts on cultural, social and environmental values.

Ship loading at the Port of Mackay – Wharf 5. Source: NQBP

Objectives

The objectives for the master planned area identify how the strategic vision will be achieved and alignment with state interests. Objectives may align with more than one state interest.

Table 2 — Objectives

State interest	Objectives
Management of port-related development	**Sustainable development** – enable ongoing sustainable trade growth through the priority Port of Hay Point/Mackay
	Efficient land use – use, adapt and develop land and marine infrastructure efficiently to minimise impacts on surrounding areas
	Port optimisation – maintain and enhance the effective and efficient operation of the port
Economic	**Economic prosperity** – facilitate economic growth, supporting prosperous and resilient regional communities
	Sustainable trade – ensure the priority port is positioned to support emerging industry and trade diversification
Environment	**Protecting the GBRWHA** – port-related development contributes to the protection of the OUV of the GBRWHA
	Environmental values – avoid, mitigate and offset impacts from development on environmental values within and surrounding the master planned area
Infrastructure	**Supply chain efficiency** – maximise the effective operation of supply chain infrastructure and the transport network servicing the port
	Efficient logistics – improve freight efficiency and support the operation of supply chain infrastructure
	Industrial opportunities – promote port, freight and logistics infrastructure to support existing trade and emerging industries
Community	**Safety and security** – provide for the safety and security of people, shipping and property
	Community access – provide for recreational use of waterways and public open space.
	Connection to country – recognise the ongoing cultural and spiritual connection the Yuwibara people have with Land and Sea Country and advance knowledge, culture and tradition.[4]

4. The master plan supports working with Traditional Owners to advance Aboriginal and Torres Strait Islander Interests in land use planning to value, protect and promote Aboriginal and Torres Strait Islander knowledge, culture and tradition.

Desired outcomes

The desired outcomes for the master planned area will contribute to achieving the strategic vision and are summarised as follows. Outcomes may align with more than one state interest.

Table 3 — Desired outcomes

State interest	Desired outcomes
Management of port-related development	**Port optimisation** – land and marine areas are optimised for port operations and associated industries
	Capital dredging – capital dredging is undertaken, where necessary, to support the ongoing operation and development of the priority Port of Hay Point/Mackay
	Safe navigation – safe and efficient access for all vessels is provided
	Maintenance dredging – maintenance dredging is undertaken to ensure safe and efficient navigation of waterways in accordance with the relevant legislative requirements
	Built environment – encroachment from incompatible uses and activities is avoided to safeguard port operations and development
Economic	**Trade gateway** – diverse regional industries are connected with global markets by the priority Port of Hay Point/ Mackay
	Regional prosperity – economic benefit and employment opportunities are provided to regional communities
	Extractive resources – the strategic value of extractive resources and other minerals is recognised
	Emerging industry – the establishment and growth of emerging industries is enabled
Environment	**Beneficial re-use** – material generated from capital dredging is beneficially reused
	Sustainable port development – environmental values and ecological processes are protected, including values that contribute to the OUV of the GBRWHA
	Leading environmental practice – existing federal and state legislation, planning processes and policies are addressed to achieve leading practice in a Great Barrier Reef context
Infrastructure	**Supply chain infrastructure** – supply chain infrastructure is protected including connectivity between land and marine areas
	Responsive infrastructure – port and supply chain infrastructure are developed and managed to accommodate changing technology, market demands and shared use
	Optimised infrastructure – the capacity of port and supply chain infrastructure is optimised to encourage efficient use of land

Table 3 — Desired outcomes	
Community	**Sensitive uses** – adverse impacts from port-related development on sensitive uses are minimised
	Health and safety – industrial activities including hazardous chemical facilities are designed, located and managed to minimise risks to human health and safety and the built environment
	Waterfront access – public access to the waterfront is provided, having regard to port operational needs, safety and security
	Cultural significance – development and activities are managed to afford protection to cultural heritage and connections with Land and Sea Country

The strategic vision, objectives and desired outcomes provide higher order strategic outcomes to be applied across the master planned area which are consistent with the principles of ESD.

Ship loading at the Port of Mackay – Wharf 4. Source: NQBP

The Yuwi Language

Members of the Yuwi Aboriginal Corporation, the Native Title Body Corporate for the Land and Sea Country around the ports of Hay Point and Mackay, are working with a linguist to develop a dictionary. The dictionary is designed to record the Yuwi language so it can be handed down to the next generation.

The connection between Country and language are the building blocks of cultural identity for the Yuwibara people, bringing to life the cultural connection to place. Language is used to pass on knowledge, kinship, stories and songlines of the Land and Sea Country.

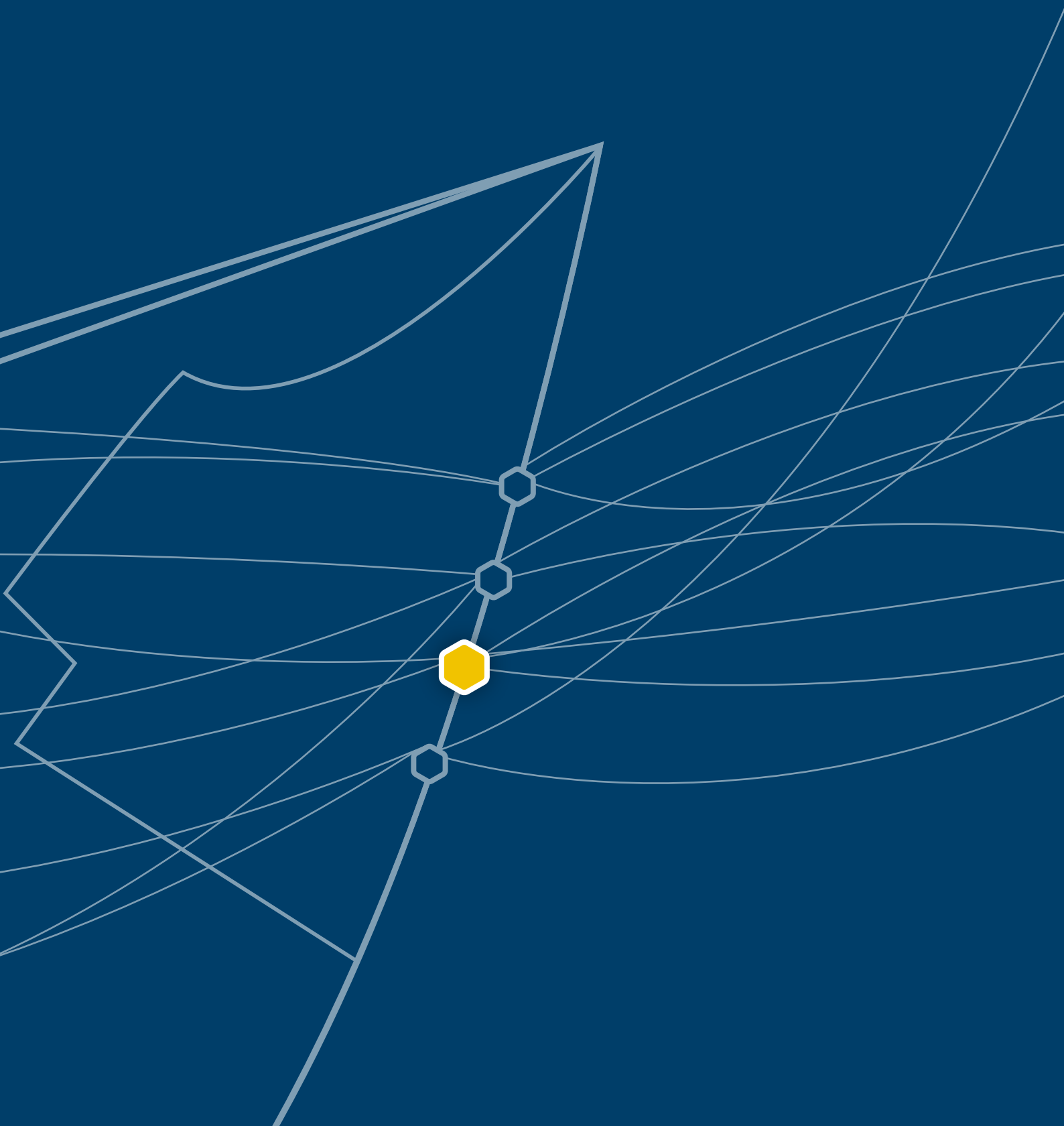
The Yuwibara people have been working to capture their shared knowledge of language. They recognise the value in maintaining, recording and revitalising the language as a treasured cultural asset. Initially, the Yuwi dictionary started within only 200 words, however this has since expanded. An important milestone includes the Yuwibara people being able to conduct Welcome to Country in language, something that strengthens their ties to their ancestors. The Yuwibara people have also re-written the Hungry Caterpillar story in language to ensure shared knowledge amongst younger generations.

The master plan seeks to celebrate the connection the Yuwibara people have to the Land and Sea Country around the ports and reaffirm the importance of revitalising and recording their knowledge of language. Australia's Indigenous languages are valuable and their preservation will enrich our culture today and in generations to come.

Break Bulk Project Cargo entering the Port of Mackay. Source: NQBP

Part C

Master planned area and precincts



Part C: Master planned area and precincts

Overview

The spatial extent of the master planned area encompasses land and marine areas needed for the efficient development and operation of Hay Point/Mackay.

Within the master planned area, precincts have been identified to indicate the long-term intent for port-related development at specific locations.

Master planned area

Under the Ports Act, the master planned area may include land that is outside SPL. This allows for the identification of land critical to long-term port operations, supply chain infrastructure and to ensure a coordinated planning approach for port-related development.

The master planned area includes land identified in existing planning frameworks for port-related development and supply chain infrastructure. This land provides sufficient area for port-related development to occur out to 2050.

The marine extent of the master planned area is within port limits but outside of the GBRMP and GBRCMP. Capital dredging, subject to approvals and permits, will only occur within the master planned area consistent with federal and state requirements.

The master planned area includes the land and marine areas shown in **Figure 1** and in **Appendix A**. The master planned area covers approximately 9000 hectares. The land component has an area of 3500 hectares while the marine component covers 5500 hectares.

The master planned area covers:

- SPL for the ports of Hay Point and Mackay
- part of the Mackay Regional Council local government area
- marine areas within the port limits that are not within GBRMP or GBRCMP
- part of the GBRWHA.

Precincts

A precinct-based approach has enabled identification of areas suitable for long-term industrial development and areas where environmental values are the predominant consideration.

The role of precincts is to identify the long-term purpose and intent for specific areas within the master planned area. The precincts provide for the spatial implementation of the master plan. The use of precincts supports cumulative impact management within the master planned area by identifying areas with environmental values where development should be limited, as well as areas that may be suitable for development.

The designation of a precinct does not imply that all land can be developed. For example, land may be subject to local constraints such as access, flooding or environmental values. Future planning processes and development proposals will need to undertake planning and environmental studies, assessment and approvals under federal and state regulatory requirements.

The precinct outcomes apply to specific areas within the master planned area whereas the desired outcomes (identified in **Part B**) apply more broadly to the master planned area.

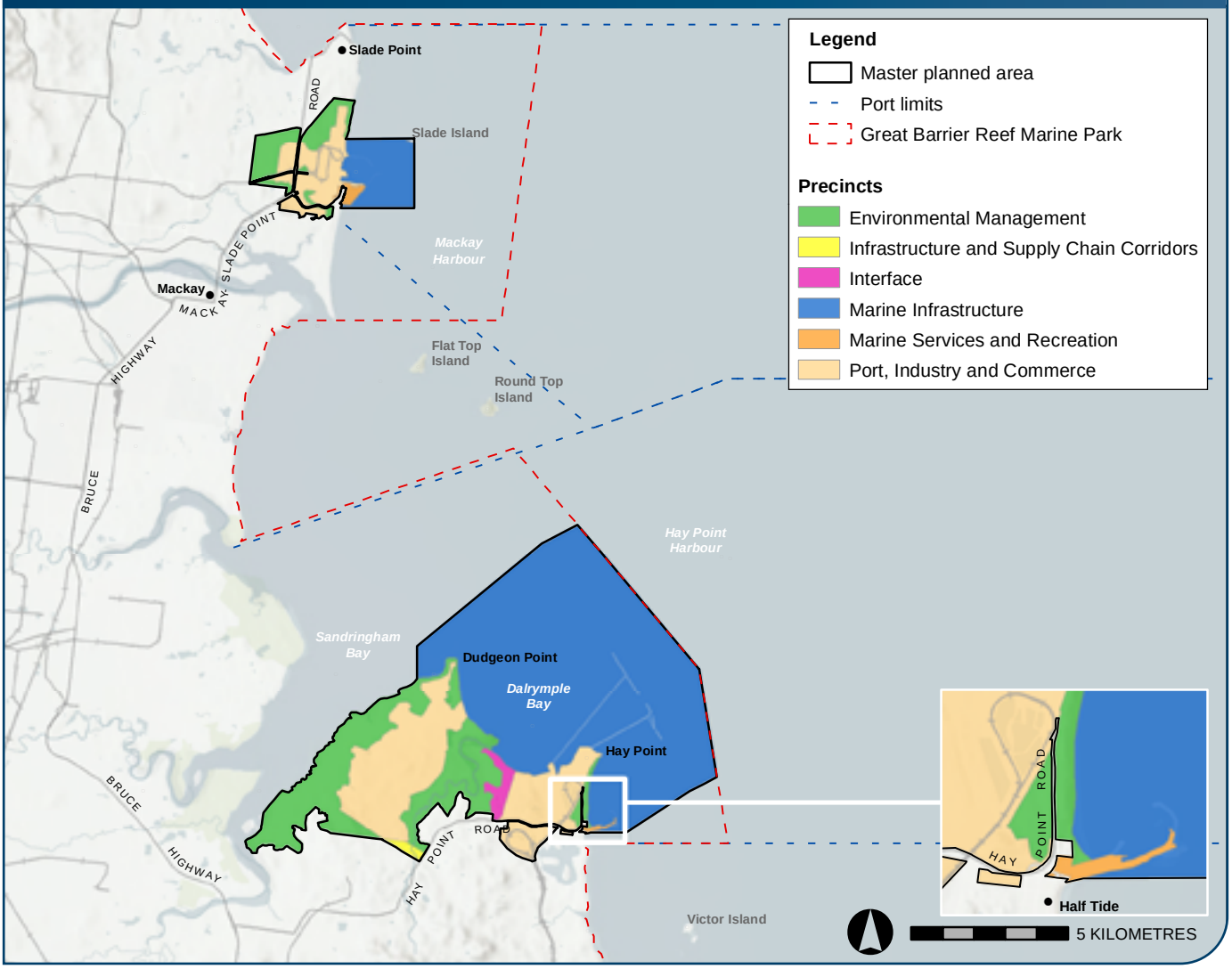
The EMF objectives have been identified for each of the precincts to avoid, mitigate and/or offset potential impacts from development on environmental values. The following precincts are included within the master planned area:

- Environmental Management Precinct
- Infrastructure and Supply Chain Corridors Precinct
- Interface Precinct
- Marine Infrastructure Precinct
- Marine Services and Recreation Precinct
- Port, Industry and Commerce Precinct.

Each precinct (see **Figure 12**) is explained in the following sections by describing the:

- long-term purpose of the precinct
- precinct description
- precinct outcomes
- EMF objectives.

Figure 12 — Proposed master planned area precincts



Environmental Management Precinct

Figure 13a — Hay Point Environmental Management Precinct

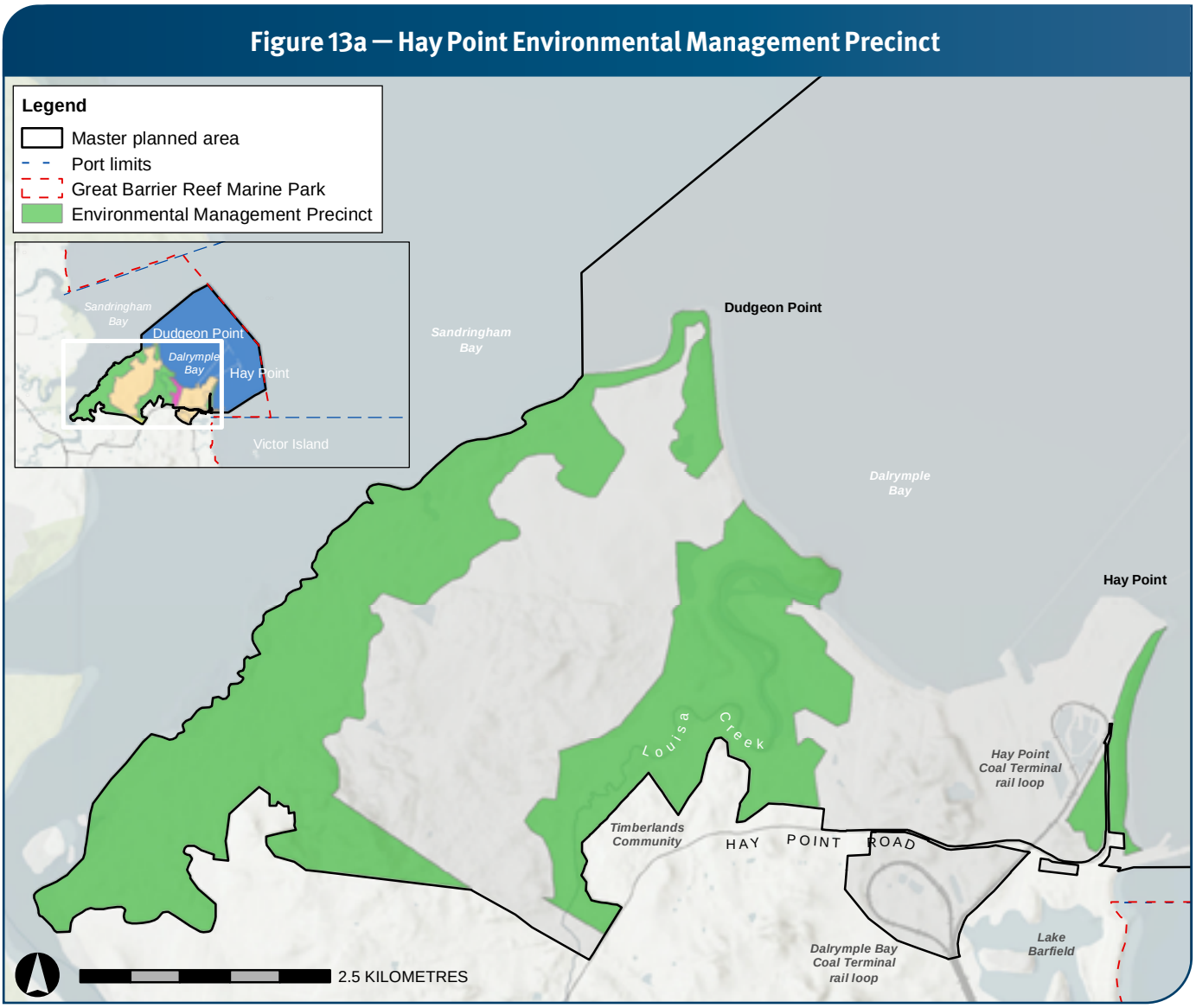
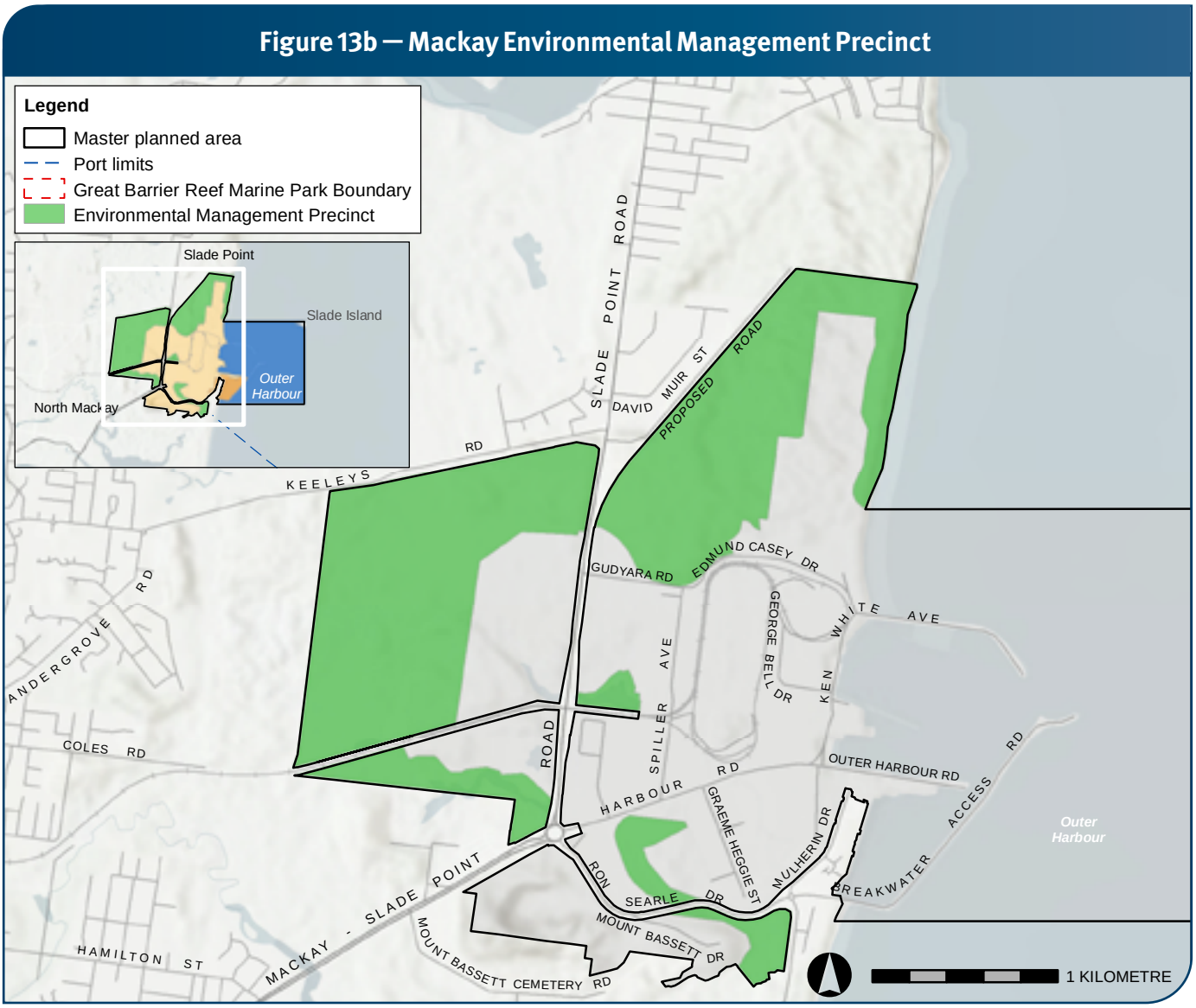


Figure 13b — Mackay Environmental Management Precinct



Purpose

The purpose of the Environmental Management Precinct is to preserve areas of environmental and cultural significance.

Description

The precinct comprises areas of environmental or cultural significance to be protected from potential adverse impacts. These attributes contribute to the local expression of the OUV of the GBRWHA and areas of cultural significance to the Yuwibara people. The environmentally significant areas include habitat for endangered or vulnerable species such as migratory and shore birds, wetlands, coastal dunes and marine plants.

Outcomes

- The health and resilience of biodiversity is maintained or enhanced.
- Cultural values, ecological processes and habitat connectivity are protected.
- Potential adverse impacts on marine and intertidal areas, especially light and water quality impacts, are minimised.
- Essential infrastructure to service adjoining industry may only be located in this precinct if other Environmental Management Precinct outcomes are achieved.

EMF objectives

Development avoids, mitigates and/or offsets potential impacts (direct, indirect and cumulative) on environmental values within and surrounding the precinct with particular regard to:

- marine and estuarine water quality and hydrological processes that support aquatic ecosystems
- marine plants including mangroves, saltmarsh, seagrass, macroalgae
- coastal processes
- coral reefs including near-shore and mid-shelf reefs
- fish and declared fish habitat areas
- marine reptiles, marine mammals and migratory marine species
- terrestrial vegetation communities and regional ecosystems
- threatened ecological communities under the EPBC Act
- listed threatened and migratory species and associated habitat
- surface water and groundwater resources, including water quality that supports aquatic ecosystems and hydrological processes
- turtle nesting areas
- wetlands of High Ecological Significance.

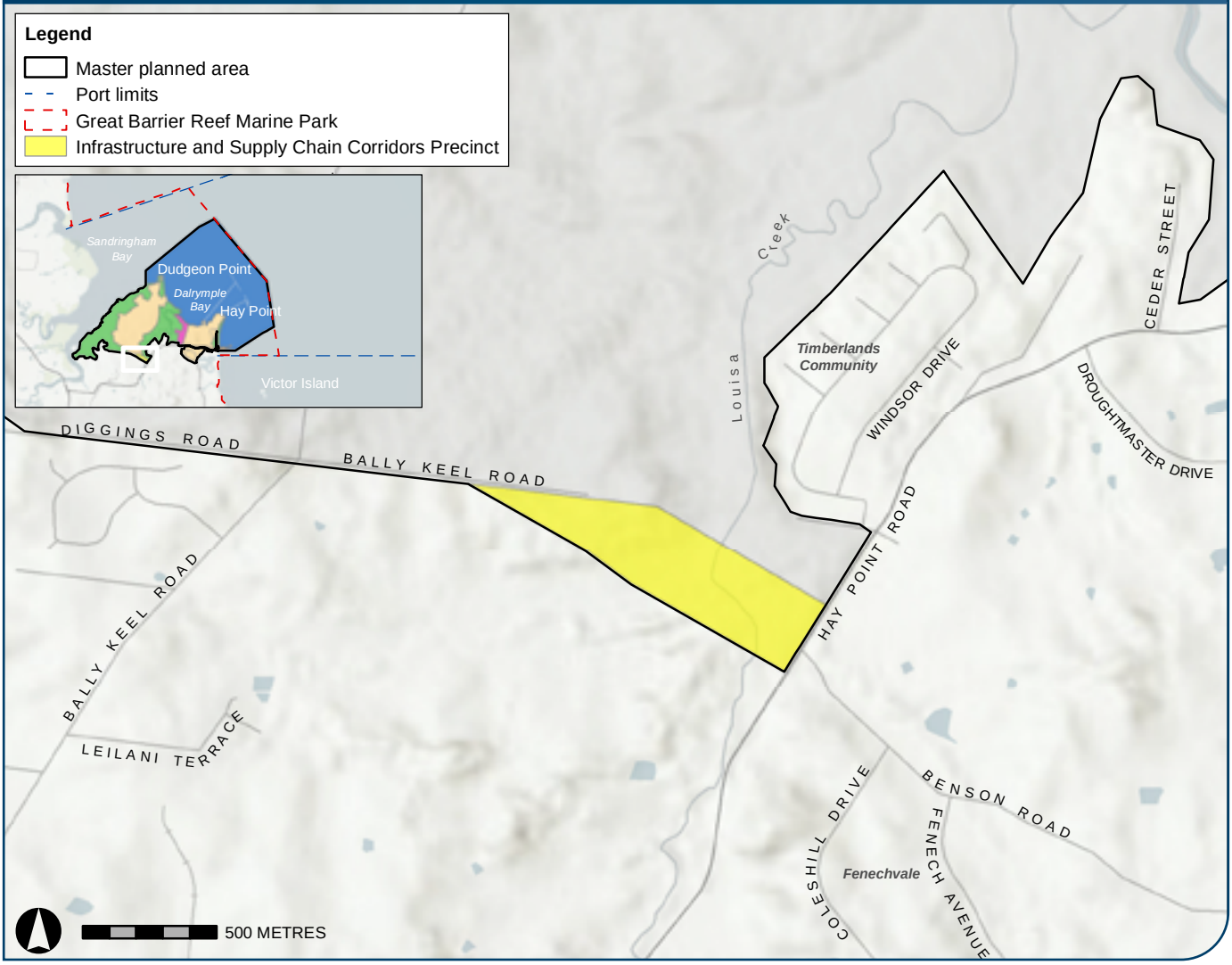
Development protects areas of cultural significance for the Yuwibara people to maintain the ongoing connection to Land and Sea Country.

Development should have particular regard to maintaining the ecological processes of the:

- endangered and of concern ecosystems associated with the Keeleys Road wetland
- Sandringham Bay Baker Creek wetland aggregation
- ecologically important wildlife corridor linking Mount Hector and Dudgeon Point to Louisa Creek and Sandringham Bay
- shorebird and migratory bird habitats along the north western coastline of Dudgeon Point.

Infrastructure and Supply Chain Corridors Precinct

Figure 14 — Infrastructure and Supply Chain Corridors Precinct



Purpose

The purpose of the Infrastructure and Supply Chain Corridors Precinct is to safeguard land for infrastructure that supports the sustainable development of the port.

Description

The precinct accommodates multi-user infrastructure corridors to accommodate transport, pipelines, telecommunications, powerlines, conveyors and other required infrastructure. The precinct facilitates the development and efficient operation of the port and enables new industrial and trade development opportunities.

Outcomes

- Corridors are safeguarded to support the safe and efficient operation of the port and port related industrial uses.
- The safe and efficient operation and management of supply chain infrastructure is maintained or enhanced.
- Environmental and cultural values are protected from adverse impacts of development.
- Multi-user infrastructure is facilitated where practical.

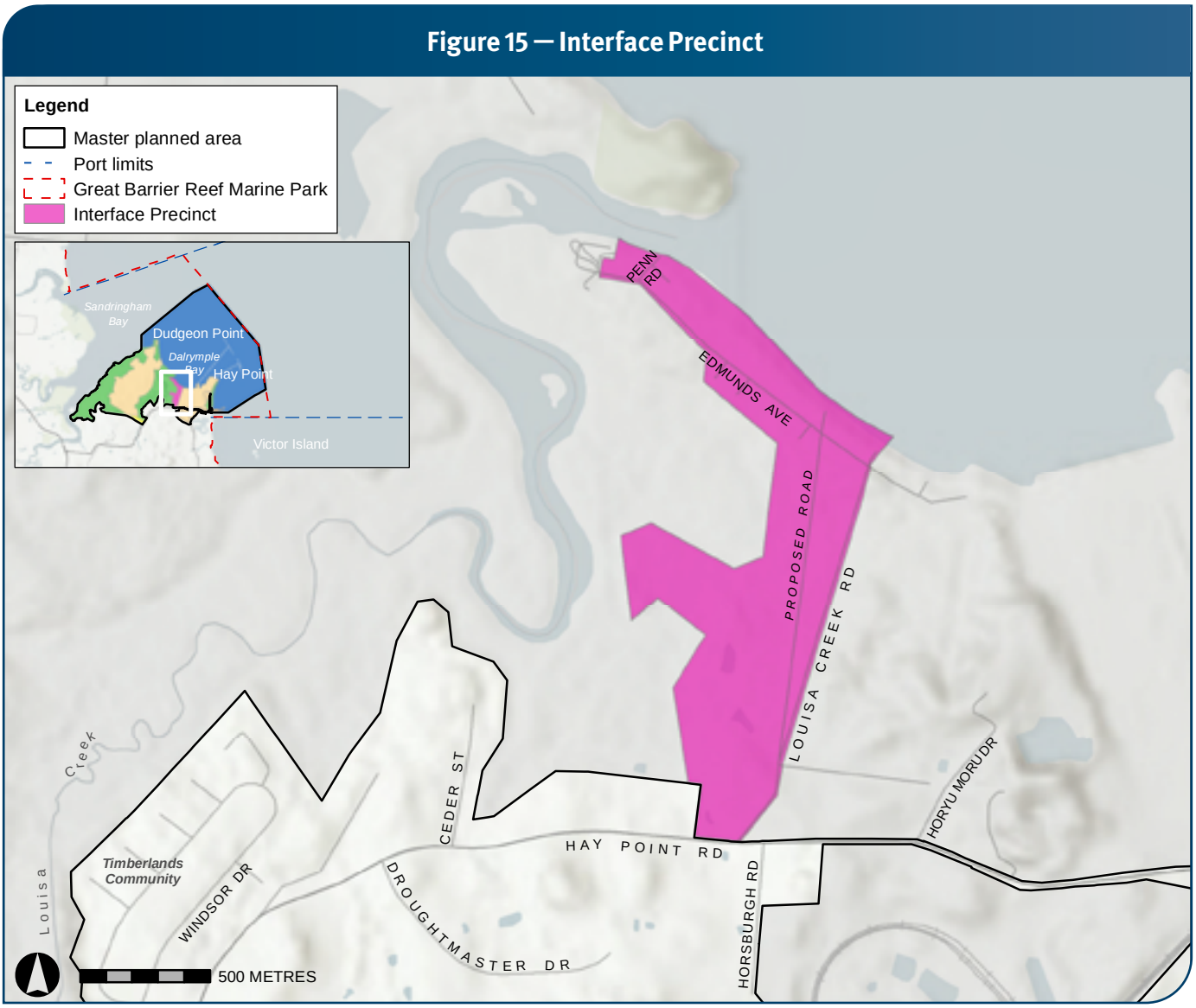
EMF objectives

Development avoids, mitigates and/or offsets potential impacts (direct, indirect, and cumulative) on environmental values within and surrounding the precinct with particular regard to:

- terrestrial vegetation communities and regional ecosystems
- surface water and groundwater resources, including water quality that supports aquatic ecosystems and hydrological processes
- social values associated with health, safety and amenity of surrounding communities.

Interface Precinct

Figure 15 — Interface Precinct



Purpose

The purpose of the Interface Precinct is to manage the interface between current or potential sensitive land uses, including dwellings, port operations and industry.

Description

This precinct mitigates the risk of adverse impacts on port operations arising from the development of sensitive land uses within this precinct.

Access is retained to existing homes and safeguards residential amenity within the precinct from adverse impacts of the construction and operation of new port-related development.

Outcomes

- Development has a low environmental impact and minimises harm to residential amenity.
- Development does not restrict adjacent port activities including infrastructure corridors.
- Public access is maintained to community infrastructure or the waterfront, outside the security-regulated port boundaries.

EMF objectives

Development avoids, mitigates and/or offsets potential impacts (direct, indirect, and cumulative) on environmental values within and surrounding the precinct.

Development incorporates measures and other controls that minimise health, safety and amenity impacts from adjoining port and industrial land uses.

Marine Infrastructure Precinct

Figure 16a — Hay Point Marine Infrastructure Precinct

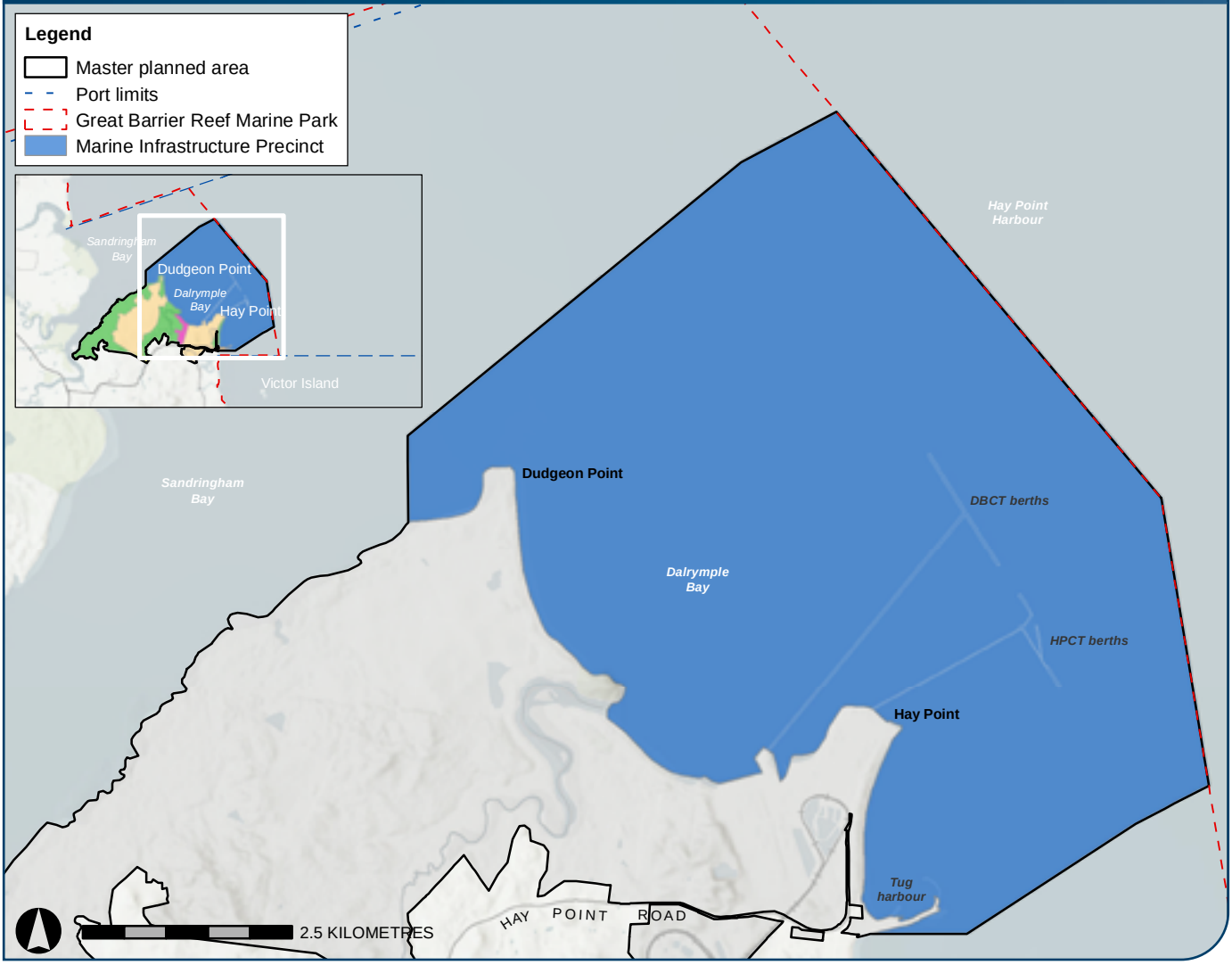
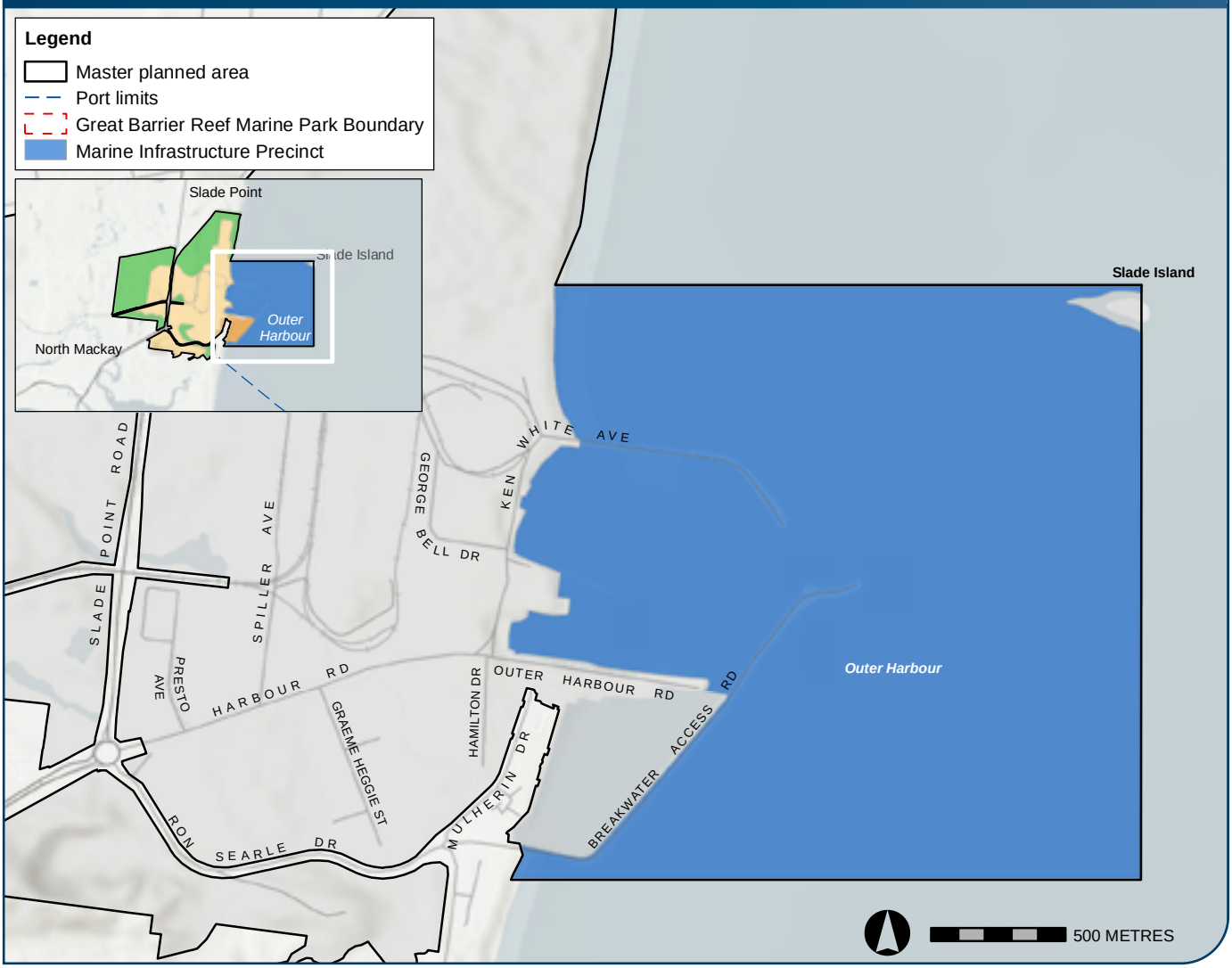


Figure 16b — Mackay Marine Infrastructure Precinct



Purpose

The purpose of the Marine Infrastructure Precinct is to make provision for marine-based port infrastructure.

Description

This precinct accommodates existing and future port facilities including offshore jetty structures, breakwaters, swing basins, berth pockets and loading and unloading facilities. Development to establish new infrastructure and increase the capacity of the port may require capital dredging and/or reclamation within this precinct.

Outcomes

- Marine-based infrastructure is designed and operated to optimise its effectiveness and efficiency.
- Sensitive marine areas are protected from the adverse impacts of development.
- Adverse impacts on marine life, especially light and water quality impacts, are minimised
- The safe navigation and operation of port waterways are maintained or enhanced by capital or maintenance dredging (and associated works).
- Material from capital dredging must only be placed within the precinct if beneficially reused.

EMF objectives

Development avoids, mitigates and/or offsets potential impacts (direct, indirect, and cumulative) on environmental values within and surrounding the precinct with particular regard to:

- estuarine water quality and hydrological processes that support aquatic ecosystems
- marine plants including mangroves, saltmarsh, seagrass and macroalgae
- coastal processes
- coral reefs including near-shore and mid-shelf reefs
- marine reptiles, marine mammals and migratory marine species
- turtle nesting areas.

Development protects areas of cultural significance for the Yuwibara people to maintain the ongoing connection to Land and Sea Country is maintained.

Marine infrastructure is established to balance maritime access, industrial activities and adverse impacts on the local expression of the OUV of the GBRWHA and other environmental values.

Development increases the understanding of the presence and contribution of attributes associated with the local expression of the OUV of the GBRWHA through the collection of data and information.

Marine Services and Recreation Precinct

Figure 17a — Hay Point Marine Services and Recreation Precinct

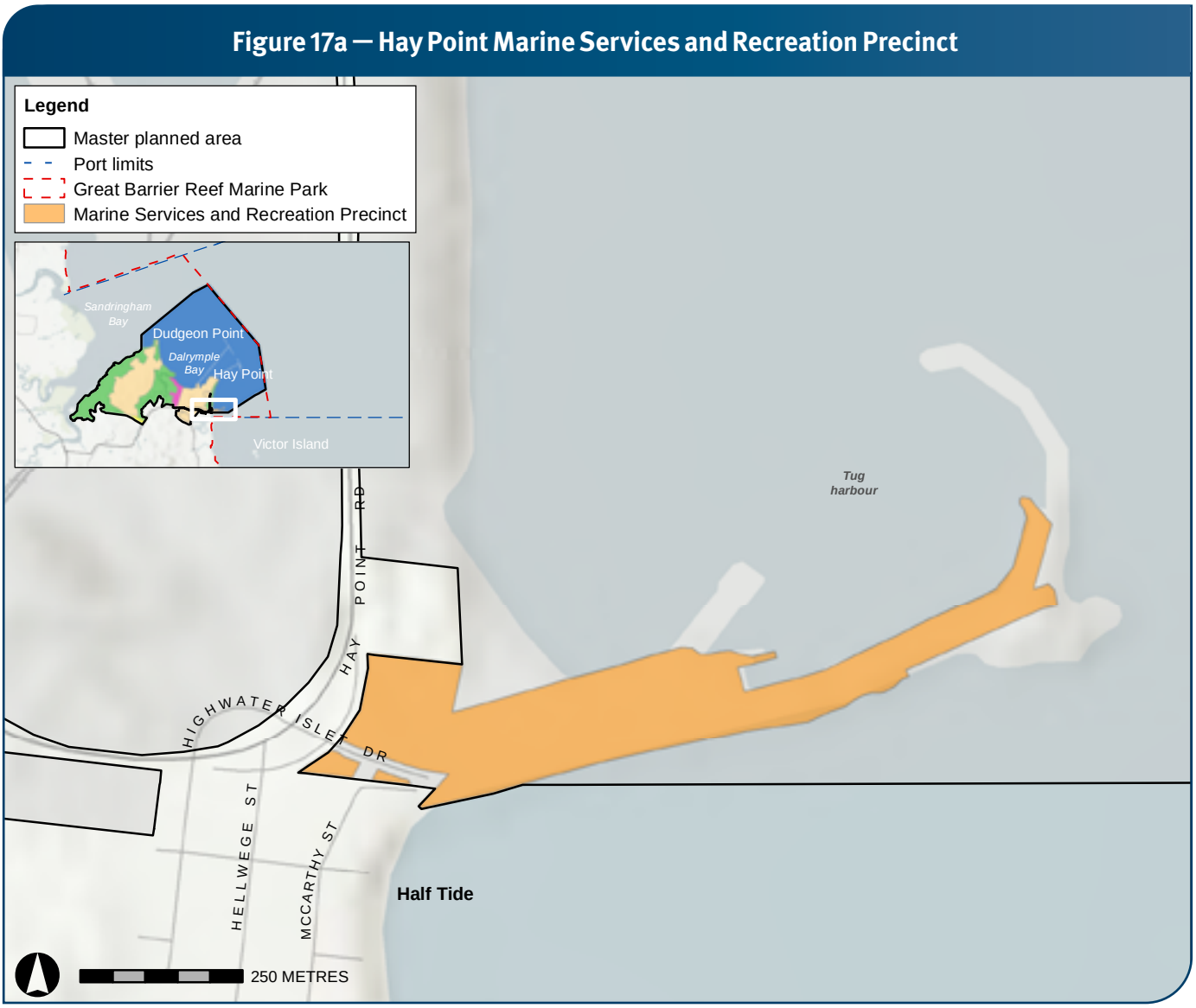
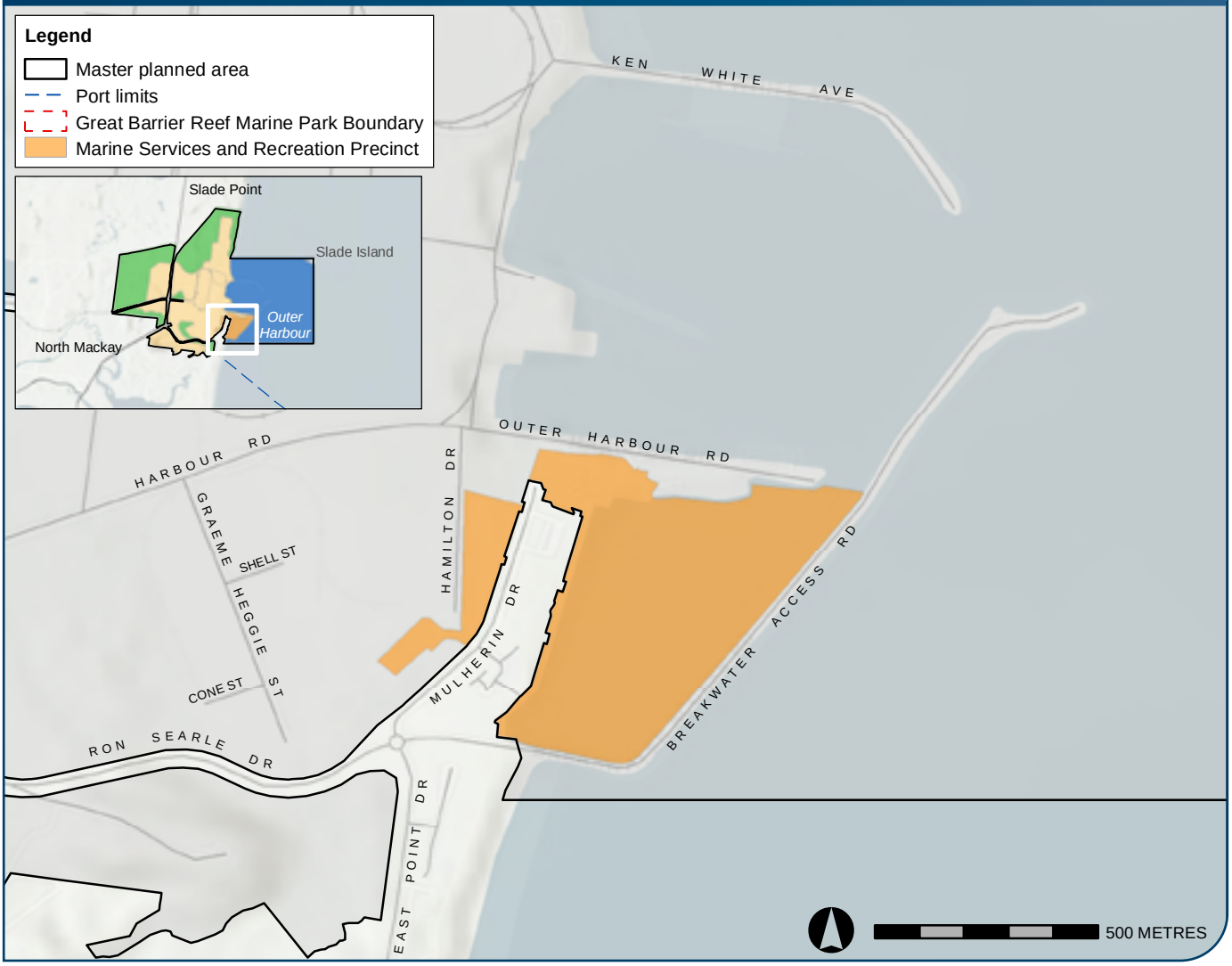


Figure 17b — Mackay Marine Services and Recreation Precinct



Purpose

The purpose of the Marine Services and Recreation Precinct is to provide for marine services for both ports and to accommodate recreational uses outside any restricted areas of the ports.

Description

The precinct will continue to support marine services including administration and construction laydown, facilitate recreational boating in the Half Tide Tug harbour and operate as a recreational hub for the Mackay Marina and Mulherin Park.

Outcomes

- Development accommodates a range of marine-related and compatible uses including marine industries, public boat ramps and recreational facilities.
- Access to the waterfront and harbour is maintained where it does not compromise public safety or the security of port operations.
- Potential impacts on sensitive land uses are minimised.

EMF objectives

Development avoids, mitigates and/or offsets potential impacts (direct, indirect, and cumulative) on environmental values within and surrounding the precinct with particular regard to:

- marine water quality and hydrological processes that support aquatic ecosystems
- marine reptiles, marine mammals and migratory marine species.

Development within the precinct incorporates design measures and other controls that avoid and minimise noise, light, visual amenity, and air quality impacts from adjoining port and industrial land uses.

Development maintains safe access to the waterfront and harbour for commercial operations, residents, recreational users, and tourists.

Port, Industry and Commerce Precinct

Figure 18a — Hay Point Port, Industry and Commerce Precinct

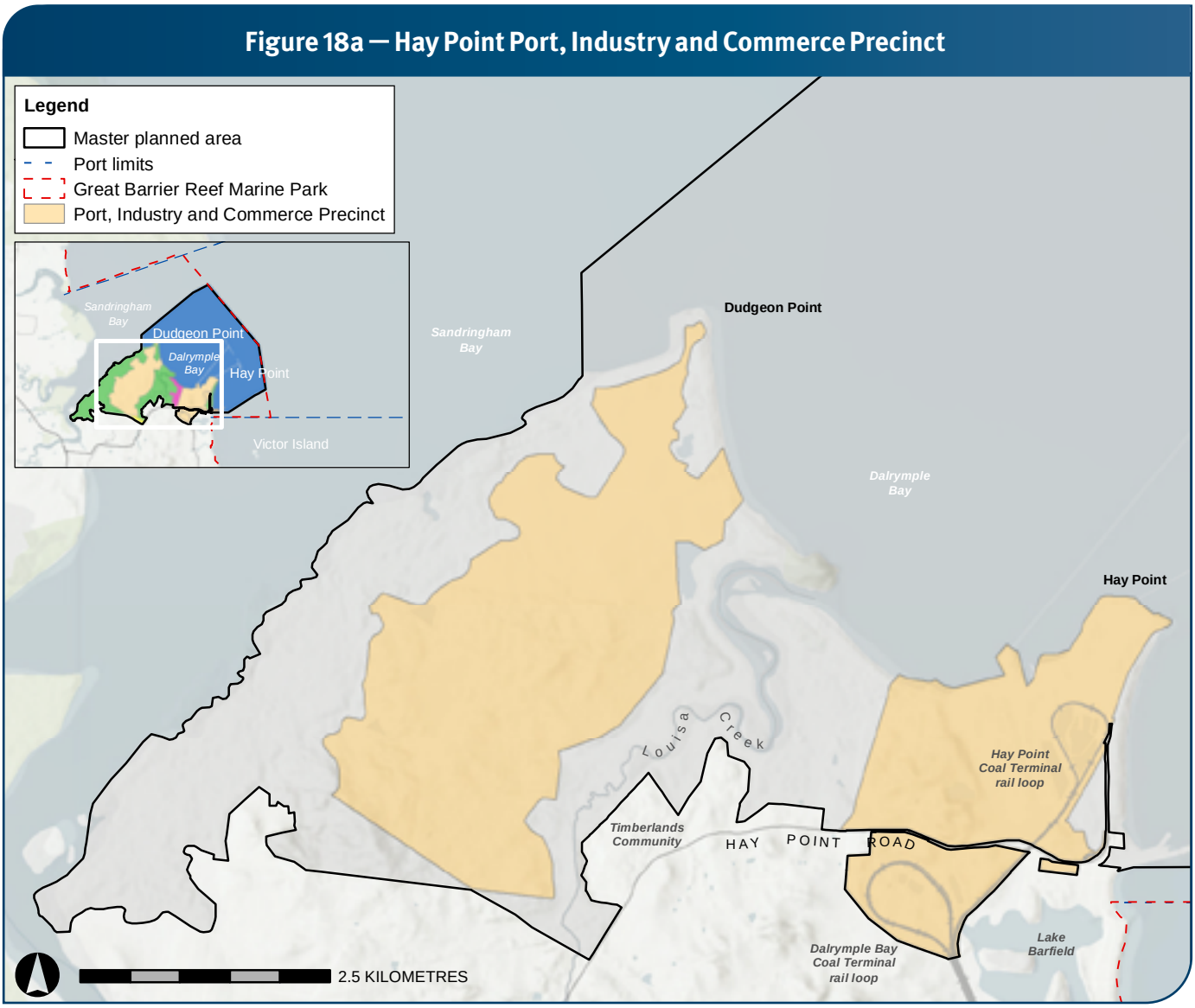
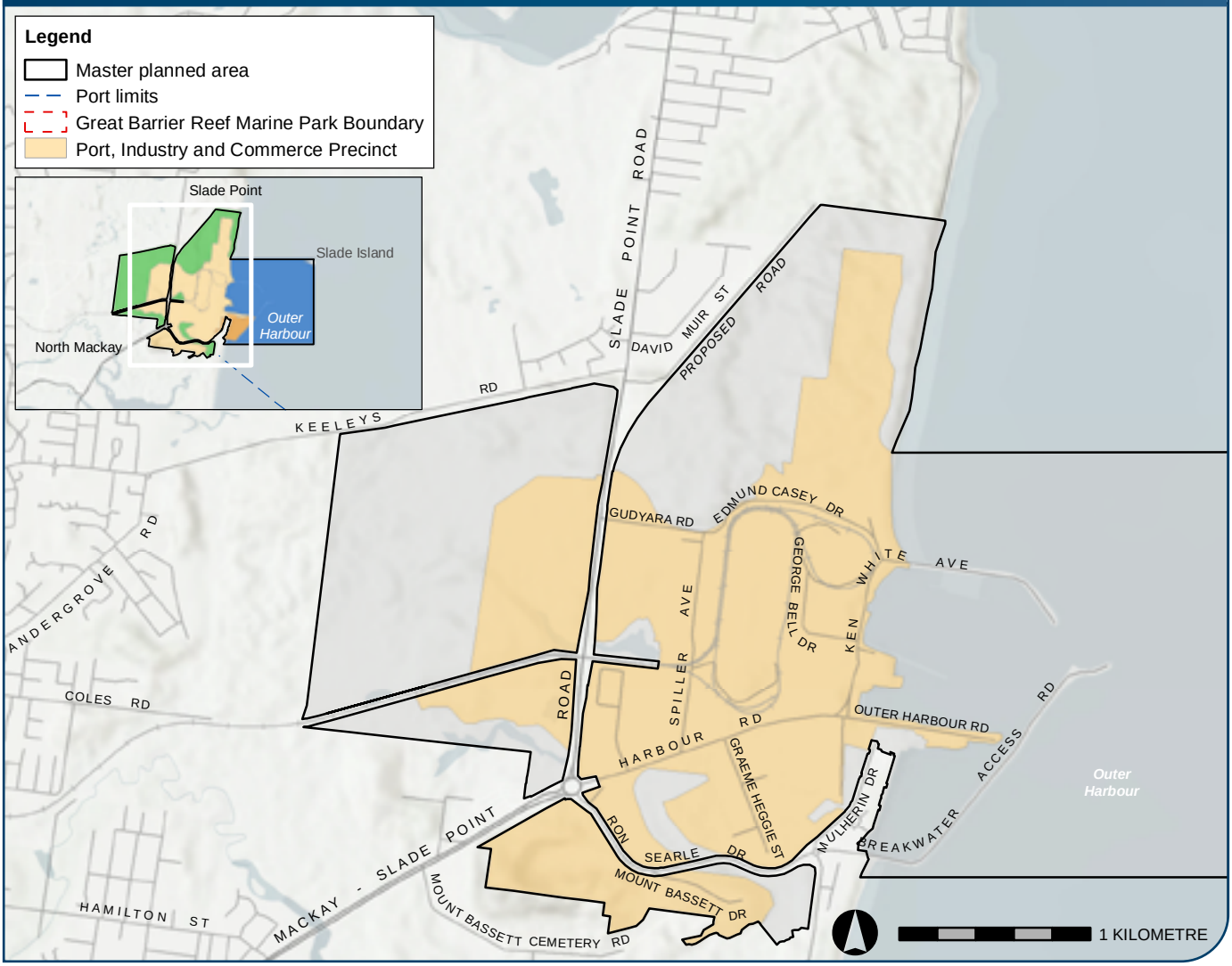


Figure 18b — Mackay Port, Industry and Commerce Precinct



Purpose

The purpose of the Port, Industry and Commerce Precinct is to accommodate port operations, industry, port-related commercial activities, and other supporting or related development.

Description

This precinct is the primary industrial and commercial hub supporting growth opportunities for industrial uses and port-related development.

This precinct provides for large-scale port and industrial development, including terminal operations, emerging industries, buffer zones, associated supply chain infrastructure and corridors. This precinct benefits from its proximity to existing and proposed transport and other infrastructure.

Outcomes

- Ongoing access to and from cargo handling areas is maintained.
- Supply chain and infrastructure corridors are appropriately located, designed and constructed to support sustainable development and optimisation of the port.
- Similar industrial and commercial activities are co-located where this would achieve land, infrastructure and supply chain efficiencies.
- Adverse impacts on marine life, especially light and water quality, are minimised.
- The safe and efficient operation of current and future planned road and rail networks is protected, and potential corridors preserved.
- Long-term efficient utilisation of the port and industrial land is prioritised to maximise trade opportunities.
- Appropriate buffer zones/separation distances around industrial installations are provided.

EMF objectives

Development avoids, mitigates and/or offsets impacts (direct, indirect, and cumulative) on environmental values within and surrounding the precinct with particular regard to:

- coastal processes
- marine and estuarine water quality and hydrological processes that support aquatic ecosystems
- marine plants including mangroves and saltmarsh
- fish and declared fish habitat areas
- terrestrial vegetation communities and regional ecosystems
- threatened ecological communities
- listed threatened and migratory species and associated habitat
- surface water and groundwater resources, including water quality and hydrological processes that supports aquatic ecosystems
- turtle nesting areas
- wetlands
- social values associated with health, safety, and amenity of surrounding communities.

Development minimises impacts to connectivity between areas of the environmental management precinct to the greatest extent possible.

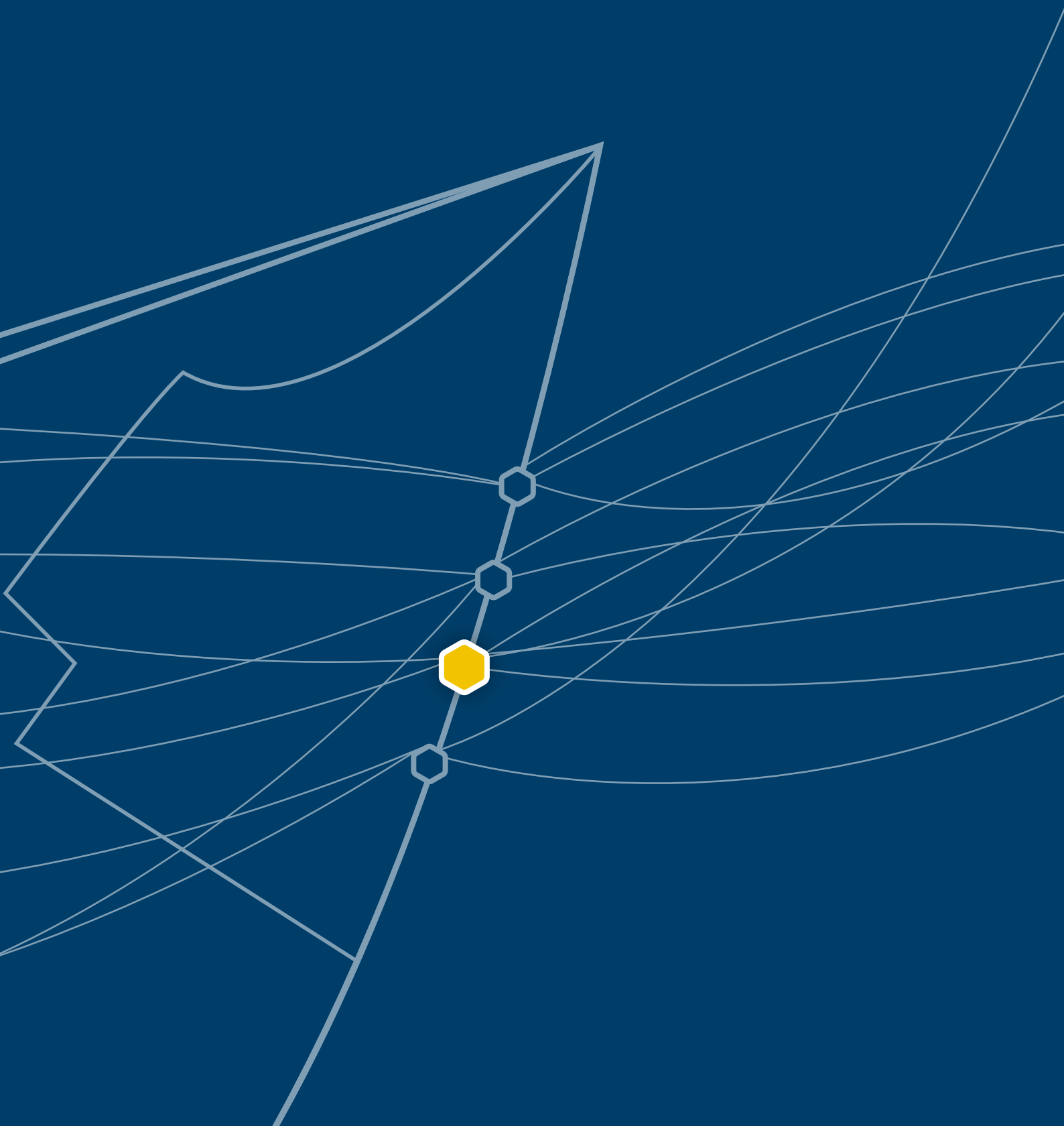
Development protects areas of cultural significance for the Yuwibara people to maintain the ongoing connection to Land and Sea Country.

Development increases the understanding of the presence and contribution of attributes associated with the local expression of the OUV of the GBRWHA through the data and information collection.

A Roll-on Roll-off ship entering the Port of Mackay. Source: NQBP

Part D

Environmental management framework



Part D: Environmental management framework

Overview

The Ports Act establishes the legislative requirement for a master plan to include an EMF. The EMF describes the interaction of port-related development with environmental values.

The master plan identifies environmental values that relate to the natural cultural and social environments with a focus on MNES, Matters of State Environmental Significance (MSES) and the environmental values that contribute to the local expression of the OUV of the GBRWHA.

The role of the EMF in the master plan includes:

- **identifying environmental values:** identifying and mapping environmental values within and surrounding values within and surrounding the master planned area, including those that contribute to the OUV of the GBRWHA
- **identifying potential impacts:** identifying any potential impacts that development in the master planned area may have on environmental values
- **managing impacts:** stating the EMF objectives and measures (priority management measures) for managing impacts that have been identified.

The master plan manages potential impacts by implementing the environmental management hierarchy of avoid, mitigate and/or offset through existing legislation.

In the first instance, development should be in areas that avoid potential adverse impacts on environmental values.

Where development occurs and avoidance is not practicable (within the context of the principles of ESD), mitigation measures are implemented to reduce the extent, severity and/or duration of potential impacts on environmental values as a result of development. If development, after applying all practicable avoidance and mitigation measures, results in a significant residual impact on an environmental value, an offset may be required, if appropriate and in accordance with federal and state legislation and policies, for the development to proceed.

A review of potential development activities was undertaken in a Planning and Environment Analysis to identify potential impacts on the environmental values within and surrounding the master planned area. This process considered the existing federal and state legislation, state and local planning instruments, operational environmental management measures and approvals, in managing potential impacts from development on environmental values.

Sugar stacks inside a sugar shed – Port of Mackay. Source: NQBP

Environmental values within and surrounding the master planned area were identified through a review of relevant documents, publicly available databases, statutory mapping and EIS technical reports prepared in accordance with federal and state legislation. Information from new validated data sources was added as part of the process. At the time of preparation, consultation with stakeholders and data custodians occurred to confirm the accuracy of information.

The environmental, social, and cultural values providing a local contribution to the OUV of the GBRWHA were identified to inform the master planning process. For further information, please refer to the evidence base materials on the TMR website.

Environmental values within and surrounding the master planned area

Land and marine areas within and surrounding the master planned area of the priority Port of Hay Point/Mackay contain sensitive terrestrial and marine environments of national and state significance. These are recognised and protected through federal and state legislation.

Wetlands provide important ecosystem services by capturing overland flow, recycling nutrients and sediment, providing feeding and breeding grounds for fish, prawns, birds, amphibians and habitat for flora species.

Several fringing reefs in waters off Mackay at Round Top Island, Flat Top Island, Slade Island, Dangerous Reef, St Bees Island and Keswick Island and inshore coral reefs contribute to the diversity of inshore waters, fisheries and tourism.

Migratory birds are protected under international agreements and Commonwealth and state legislation due to their important role in ecological processes.

Sandringham Bay and Ince Bay

The Sandringham Bay - Bakers Creek aggregation is a coastal plain with extensive shallow water and mudflats. These wetlands are home to internationally recognised roosting sites that provide habitat for shorebirds and migratory birds and are considered to make a moderate contribution to OUV.

Sarina Inlet - Ince Bay aggregation is located south of Hay Point and is a wetland supporting inshore coral reefs and mudflats. The nearby Lake Barfield is a freshwater wetland providing habitat for fauna and bird species.

The wetlands at Sandringham Bay and Sarina Inlet support over 30 migratory shore and sea bird wetland species and more than 20,000 birds during the annual migration.

Keeley Road Wetlands

Keeley Road Wetlands, west of the Port of Mackay, is a significant habit for many migratory shorebird species. It forms part of the corridor linking Slade Point with the Pioneer River. The wetlands support critically endangered species, including the Curlew sandpiper, Great knot and Eastern curlew as well as other endangered and vulnerable species.

Mapping of identified environmental values within and surrounding the master planned area, including those that contribute to the OUV of the GBRWHA are included at **Appendix B**.

Environmental values that contribute to the local expression of OUV

To ensure OUV is an intrinsic consideration in priority port planning, management and governance, an evidence-based assessment was undertaken to identify the local expression of OUV relative to the whole GBRWHA.

The local expression of OUV for the priority Port of Hay Point/Mackay includes:

- **Shorebirds and migratory birds** are key environmental values that have international environmental significance. There are internationally recognised roosting sites at Sandringham Bay that supports more than 20,000 birds each year during annual migration. Shorebirds and migratory birds are a significant contribution to the local expression of OUV.
- **Nesting turtles and marine turtle rookeries** are identified as making a moderate contribution to the local expression of OUV. Flatback turtles are the dominant nesting species and Haliday Bay north of Mackay considered the most important nesting beach in the Mackay Region while nesting also occurs at Hay Point Beach, Salonika Beach and Dudgeon Point. Green turtles are frequently observed at Bucasia Beach, Blacks Beach, North Harbour Beach and Salonika Beach.

Aerial view of the Port of Mackay. Source: NQBP

Blue Carbon

'Blue Carbon' describes carbon that is captured and stored (sequestered) by coastal vegetated ecosystems, including seagrass meadows, mangrove forests, and tidal marshes.

Substantial areas of Blue Carbon occur within the port limits and strategic port land at the priority Port of Hay Point/Mackay. NQBP has worked with James Cook University and the Blue Carbon Lab (Deakin University) to quantify the areas of Blue Carbon at the port. This work was based on monitoring and mapping of habitats under the JCU/NQBP partnership and modelling of their blue carbon storage capacity. The studies identified substantial storage of organic carbon in sediment of seagrass, mangroves and saltmarshes within the port limits.

NQBP's commitment to sustainable port planning, monitoring and management of these habitats ensures these ecosystems continue to play an important role in climate change mitigation by drawing down carbon and locking it away.

- **Mangroves** cover approximately 22 hectares within enclosed wetland areas which support 21 species of national importance. Vast mangrove forests can be found at Sandringham Bay, Hay Point peninsula, Sarina Inlet, Slade Point, McCready's Creek and the Basset Basin in the Pioneer River. Both mangrove diversity and vast forests make a moderate contribution to the OUV of the area.
- **Humpback whales** migrate along this stretch of coast annually between June and October and are considered to make a moderate contribution to the local expression of OUV. Female whales with calves can be observed within the port limits of the Port of Hay Point. Core aggregation and calving areas are located approximately 80 kilometres east of Mackay.

All attributes contribute to the structure and diversity of the local ecosystem.

Table 6 in **Appendix C** summarises the local attributes and associated environmental values within and surrounding the master planned area.

Figure 19 provides an illustrative representation of OUV at the priority Port of Hay Point/Mackay.

Contribution classifications for OUV vary for each world heritage criterion and specific environmental values. The classifications relate to the attributes' significance relative to the whole GBRWHA and do not contradict any conservation listings under legislation or conventions, condition/trends in outlook reports, status in the retrospective statement of OUV or otherwise.

The classifications used in **Table 6** and referenced in **Appendix C** are generally defined as:

- **Significant contribution:** The attribute represents locally important examples of the attribute relative to the nature of the attribute across the GBRWHA. Such an attribute may be specifically referred to within the retrospective statement of OUV for the GBRWHA or defined by other legislation, planning instrument or values assessment (for example in the Great Barrier Reef Outlook Report). The occurrence of the attribute locally is a prime example of the features mentioned in the retrospective statement of OUV.
- **Moderate contribution:** The attribute occurs in moderate abundance or across a moderately large area but is not the prime occurrence or representation of the attribute within the GBRWHA. The attribute does, however, represent a feature for which the Great Barrier Reef was listed as World Heritage.
- **Minor contribution:** The attribute is present however it occurs in low abundance or singularly and is:
  - not essential to the sustainability of the attribute
  - not recognised as a key feature of the GBRWHA
  - not included in the retrospective statement of OUV
  - not iconic, unique or a high-quality example of the attribute.

Further information about how the contribution of these attributes align with specific OUV criterion is in **Appendix C**.

Other environmental and heritage values

There are important environmental values within and surrounding the master planned area, but not identified as directly contributing to the OUV of the GBRWHA. These values are diverse

and relate to terrestrial, aquatic and marine environmental values.

Indigenous cultural heritage: Land and Sea Country are significant for social and cultural practices for the Yuwibara people.

The Traditional Owners of the Land and Sea Country are the Yuwibara people. In the Hay Point area there are several places of high cultural significance.

Fish Habitat Areas: breeding, feeding and nursery grounds for target species which are important for commercial and recreational fishing.

The Basset Basin Fish Habitat Area provides a nursery and habitat for a number of species including Barramundi, Blue salmon, Bream, Estuary cod, Flathead, Grunter, Mangrove jack, Queenfish, Whiting, Mud crabs, Tiger prawns and Grey mackerel.

Freshwater marine and estuarine water quality: marine waters, fresh waters and aquatic ecosystems values providing ecosystem services and protected under state legislation.

Several riverine and estuarine wetlands of high ecological significance contain a diverse range of mangrove forests, shrublands and samphire open forblands. There are high ecological value watercourses and wetlands located around Alligator Creek and Bakers Creek and other wetlands along local rivers and streams containing melaleuca or eucalyptus dominated woodlands.

Heritage places: state and local heritage places protected under State legislation

Mackay has numerous historical heritage places associated with settlement from the early colonisation of the area through to World War II.

Listed threatened and migratory species: identified under international agreements and protected under federal legislation.

A number of species can be found within and surrounding the master planned area, including threatened ecological communities, endangered and vulnerable species.

Protected areas: a range of protected areas providing environmental conservation and recreational opportunities, including National Parks and Conservation Parks, listed under federal and state legislation.

There are protected areas of vegetation on two islands east of Mackay, listed as Yuwi Paree Toolkoon National Park or more commonly known as Flat Top and Round Top Islands and Bakers Creek Conservation Park, Mount Hector Conservation Park and Sandringham Bay Conservation Park.

Regional ecosystems: remnant vegetation and ecological communities identified and protected under federal and state legislation.

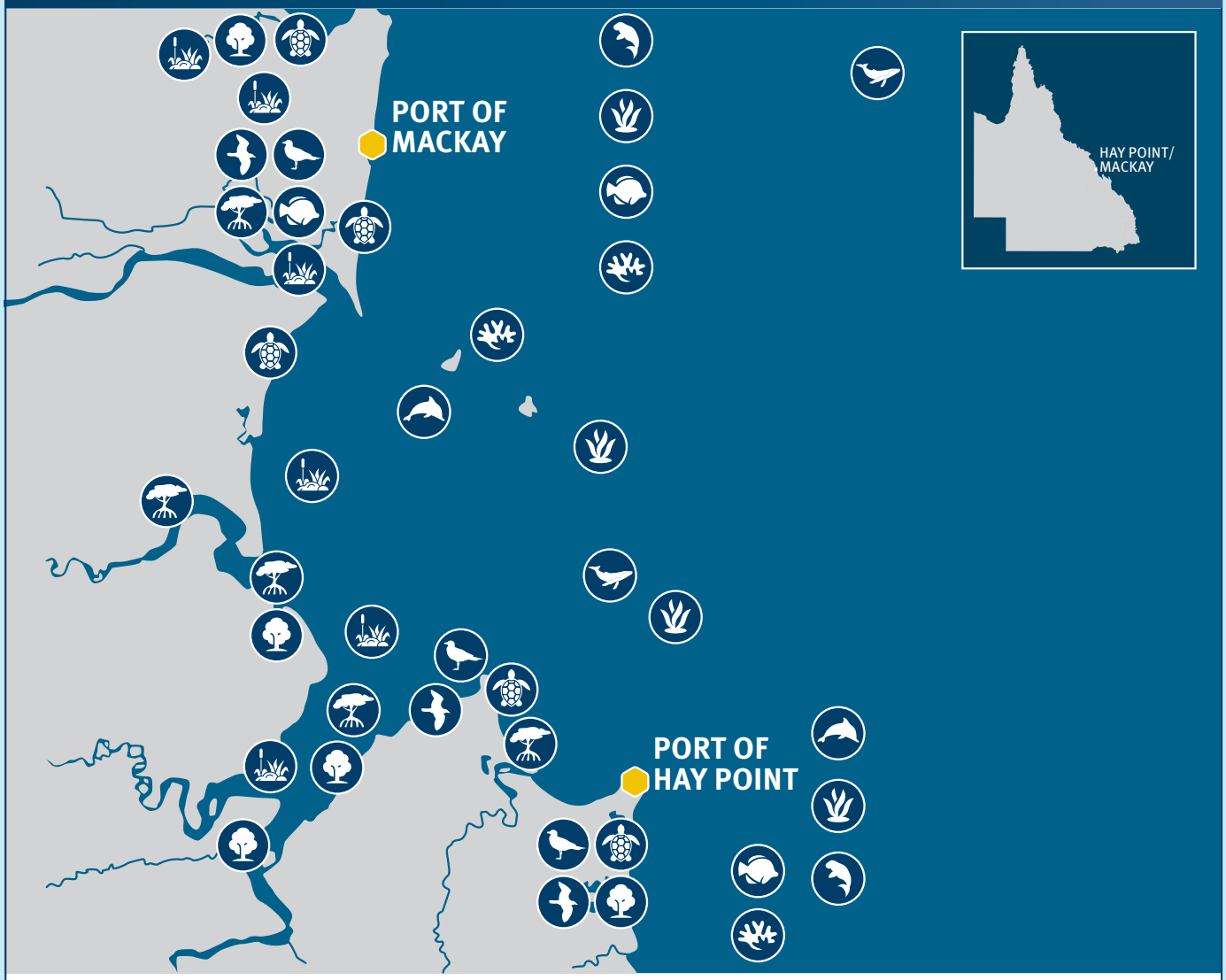
Terrestrial vegetation is critical to provide habitat for native fauna and flora and provides corridors for movement of wildlife between refuges, roosting, breeding and feeding areas. This includes mangroves, saltmarshes, saline grasslands and sedgelands, vegetated swamps and wetlands, coastal vine thickets and rainforests, tussock grasslands and a variety of eucalypt woodlands and forests.

Marine plants: mangrove and marine plants provide habitat and food sources for a range of invertebrates, birds and fish and protected under State legislation.

There are a diverse range of intertidal habitats, including sandy beaches, exposed mud or sand flats, small rocky headlands and mangrove-lined estuaries present.

Coal stockpiles – Port of Hay Point. Source: NQBP

Figure 19 — Local expression of OUV at the priority Port of Hay Point/Mackay



Map legend

- Turtles
- Seagrass
- Migratory birds
- Dugong
- Wetlands
- Fish
- Mangroves
- Shorebirds and seabirds
- Whales
- Dolphins
- Coral
- Threatened ecological communities

Disclaimer: *This map has been prepared for illustrative purposes only and is not an exhaustive representation of environmental values that contribute to the local expression of OUV. For more detailed mapping of environmental values and limitations of datasets, refer to Appendix B. For further detail on the local expression of OUV, including specific environmental values that contribute to this, refer to Appendix C.*

Potential impacts from development on environmental values

As part of the Planning and Environment Analysis, future port-related development activities within the master planned area out to 2050 were reviewed. Development that may have the potential to impact environmental values has been identified and considered against the capacity of the existing statutory requirements and operational measures currently in place to manage impacts on environmental values.

The potential impacts from development on environmental values have been identified in **Appendix D**. The Planning and Environment Analysis considered impacts at a high level due to the large spatial extent of the master planned area and the wide range of activities that could potentially occur within the precincts up to the year 2050.

The Planning and Environment Analysis recognised that assessment processes currently provide for the detailed consideration of potential impacts on environmental values in accordance with existing legislation.

The following port-related development activities were identified as having the potential to result in impacts on environmental values within and surrounding the master planned area:

- capital dredging
- new or expanded port and supply chain infrastructure
- establishment of new port-related industries.

The federal and state assessment processes allow detailed identification of potential environmental impacts from any capital dredging, land reclamation, construction and operation associated with development.

Appendix D contains further information about activities, potential impacts and values associated with future port-related development.

Marine Biosecurity Programs

International vessel traffic (recreational and commercial) can be a primary vector for marine pests from either biofouling or ballast water. NQBP has undertaken a settlement plate monitoring program at the Port of Hay Point and Mackay for more than a decade, offering early warning detection to improve management of Introduced Marine Species.

This program has expanded since 2019 through partnerships with the Queensland Department of Agriculture and Fisheries and each of the Port Authorities within Queensland to implement the award-winning Queensland Seaports Environmental DNA (eDNA) Surveillance program (Q-SEAS program). This program incorporates world leading molecular techniques to detect the potential presence of invasive marine species and is in practice at the Port of Mackay.

Eradicating marine pests after incursion establishment vary significantly in their success rate, highlighting the importance of early detection systems. This is especially vital in locations adjacent to the GBRWHA to allow rapid response to prevent establishment. These efforts work in conjunction with regulatory measures for incoming vessels biofoul and ballast water management.

Managing impacts

The Ports Act states that objectives and measures are required to manage impacts from development on environmental values within the master planned area.

The master plan adopts an approach for managing impacts which involves regulating development by exception only where requirements for port-related development are necessary.

This recognises that existing planning and regulatory frameworks across all levels of government provide a comprehensive system for the management of environmental impacts.

The framework for the management of potential impacts from development within the master planned area is provided by existing federal and state statutory requirements and environmental management measures. These statutory requirements and other environmental management measures will continue to manage environmental impacts within the master planned area.

The Planning and Environment Analysis considered the existing federal and state legislation, state and local planning instruments, operational environmental management measures and approval processes, in managing potential impacts on social and environmental values from development.

The master plan adopts an approach for managing potential impacts from development within the master planned area by considering which will be achieved by implementing the environmental management hierarchy of avoid, mitigate and/or offset through existing legislation and state and local planning instruments.

Environmental management framework objectives

EMF objectives have been identified for each of the precincts to avoid, mitigate and/or offset potential impacts from development within the master planned area on environmental values, including the OUV of the GBRWHA, MNES and MSES. The EMF objectives for each of the master planned area precincts are identified in **Part C**. These objectives refer to environmental values within and surrounding the master planned area. Due to the range of potential development activities within the master planned area, the different potential impact pathways, varying sensitivities of receptors and different biological traits of receptors (for example behaviours and responses to stress), the surrounding areas may vary from precinct to precinct.

The port overlay identifies the EMF objectives as matters that must be considered when making and amending planning instruments within the master planned area. This ensures the EMF objectives are addressed in planning and development processes.

Priority management measures

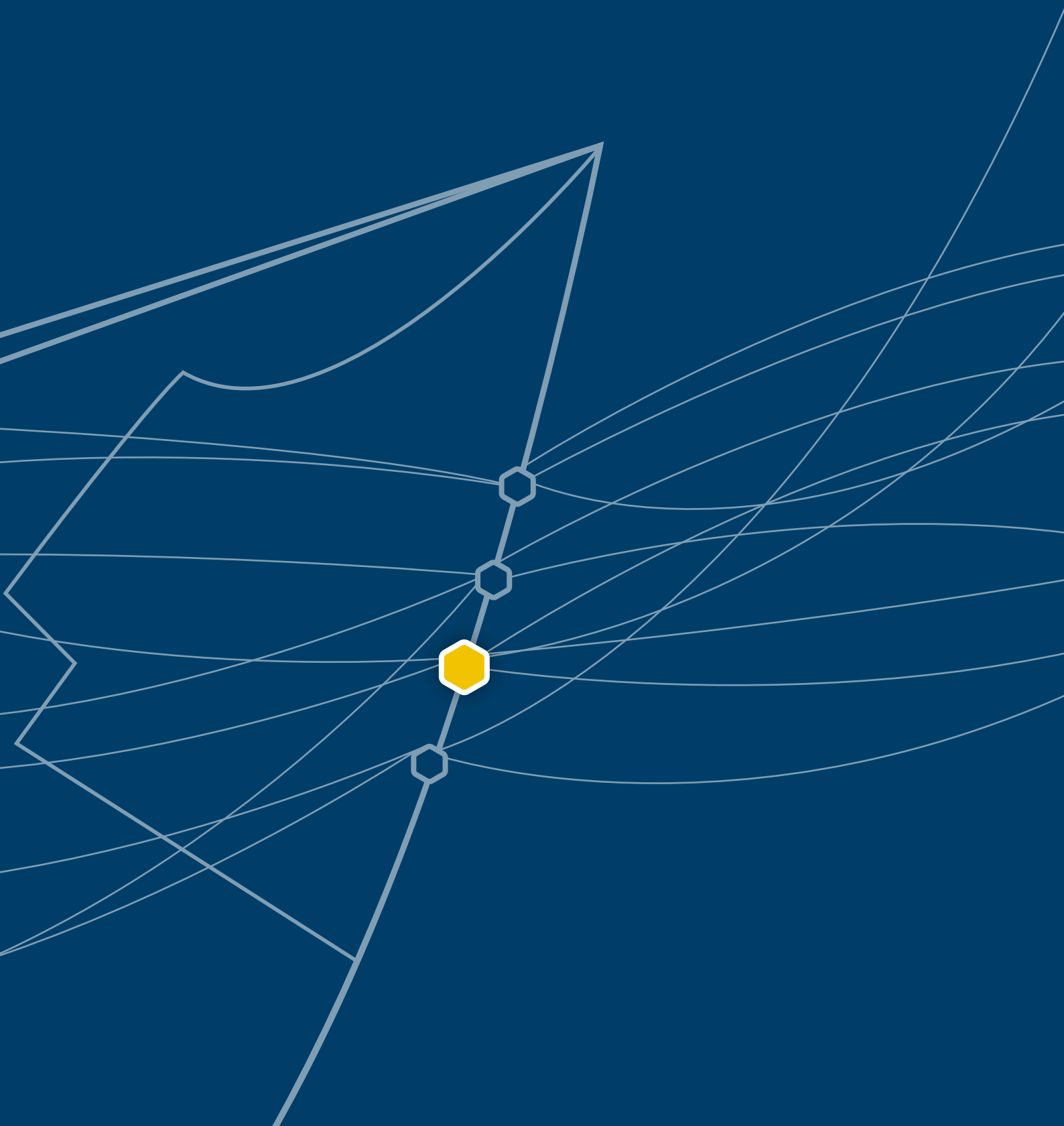
Due to the comprehensive nature of federal and state requirements, approvals and operational environmental management measures that apply to development within the master planned area, only one Priority Management Measure (PMM) is identified. This PMM is intended to ensure potential development impacts on social values (sensitive land uses) and environmental values are managed appropriately.

Table 4 — Priority management measures

Priority management measure	Master planned area precinct
Port interface management Manage development involving sensitive land uses and port operations to minimise potential light, noise, odour, emissions, dust and visual impacts.	**Interface**
	Marine services and recreation
	Port industry and commerce

Part E

Master plan implementation



Part E: Master plan implementation

The master plan is a strategic document that will be implemented through the port overlay. The port overlay implements the master plan by providing requirements that are delivered through existing planning instruments that regulate development within the master planned area.

The following planning instruments regulate development within the master planned area:

- Mackay Regional Council Planning Scheme under the *Planning Act 2016*
- Land Use Plans for the Ports of Hay Point and Mackay under the *Transport Infrastructure Act 1994*

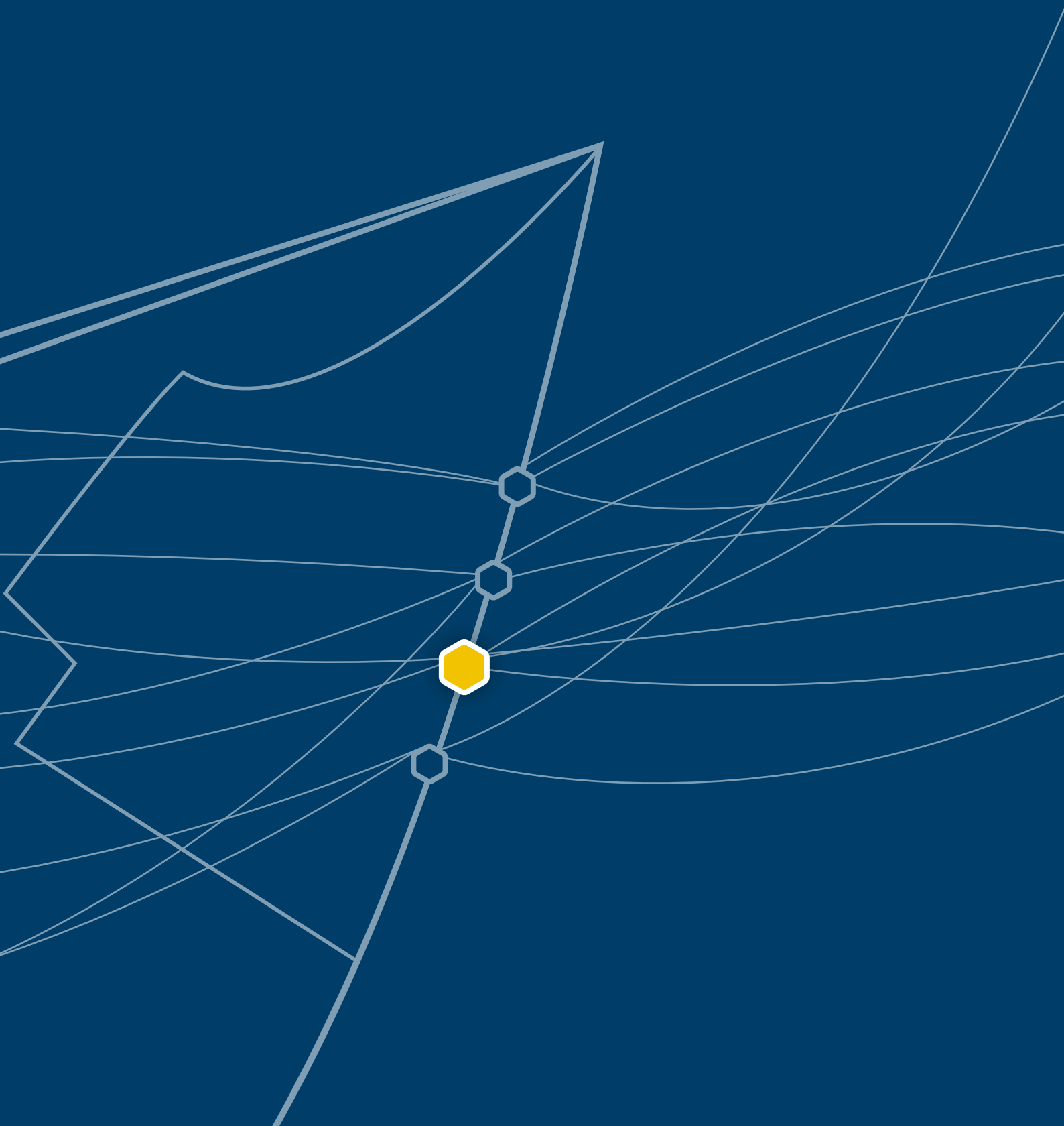
It should be noted that the assessment triggers and benchmarks in the *Planning Regulation 2017* also apply within the master planned area.

The port overlay only regulates development in those parts of the master planned area where further requirements for development are necessary to implement the master plan in addition to existing planning instruments. This recognises that the outcomes sought by the master plan are, in many cases, already achieved through existing provisions. This reduces duplication of provisions and minimises the potential for conflict between provisions that operate under different legislative heads of power.

Decision making by existing planning and other regulatory entities about relevant planning instruments and environmental legislation applying within the master planned area are not modified by the port overlay and will continue to apply.

Vessel alongside Wharf 3 – Port of Mackay. Source: NQBP

Appendices



Appendix A

Priority Port of Hay Point/Mackay master planned area regulation map

[Appendix A to be prepared following endorsement of the proposed master plan area. The two placeholder maps depict the proposed master plan cadastral boundaries.]

Figure 20a — Priority Port of Hay Point/Mackay proposed master planned area regulation map (Hay Point)

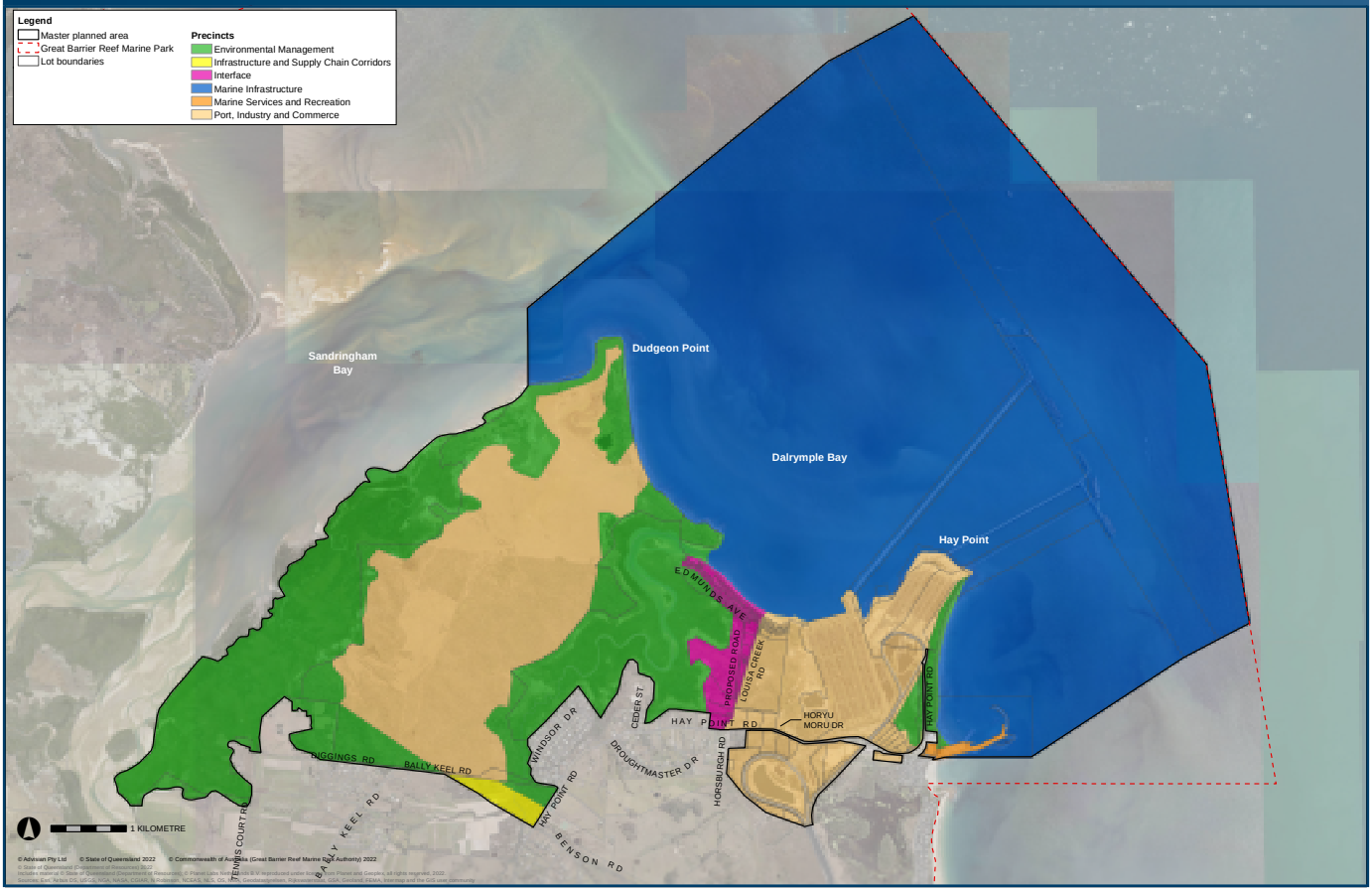
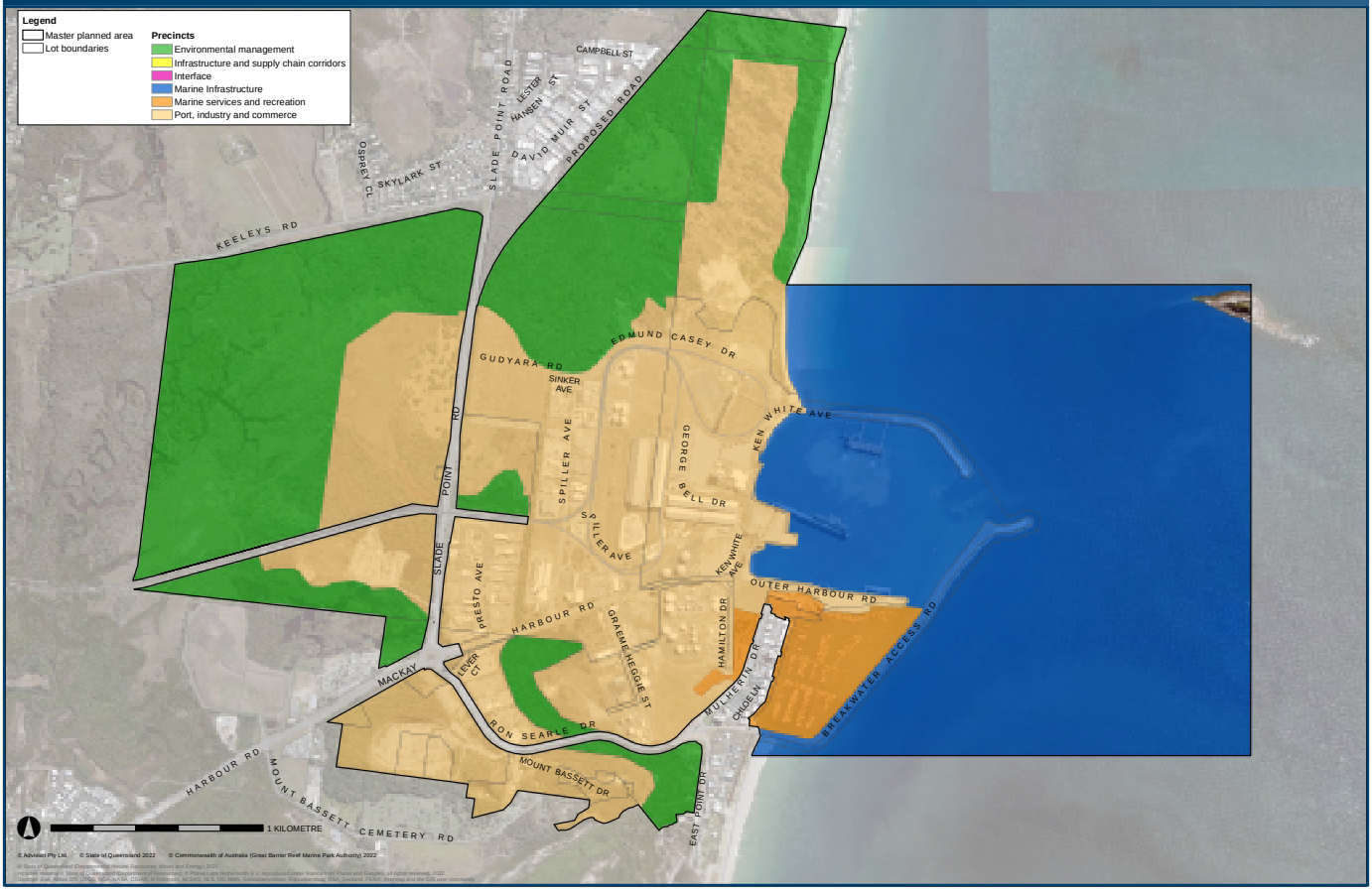


Figure 20b — Priority Port of Hay Point/Mackay proposed master planned area regulation map (Mackay)



Appendix B

Mapping the local expression of the Outstanding Universal Value of the Great Barrier Reef World Heritage Area and other environmental values

The mapping in this appendix has been prepared using existing datasets as current at the time of master plan publication. Some of these datasets have been synthesised using field collected data while other datasets are the result of desktop studies. Not all mapping has been confirmed through field surveys. Data sources are referenced on each map.

It should also be noted that some mapping has been prepared over a period to account for seasonal variability of environmental values (for example, seagrass meadows) and should be considered as indicative only.

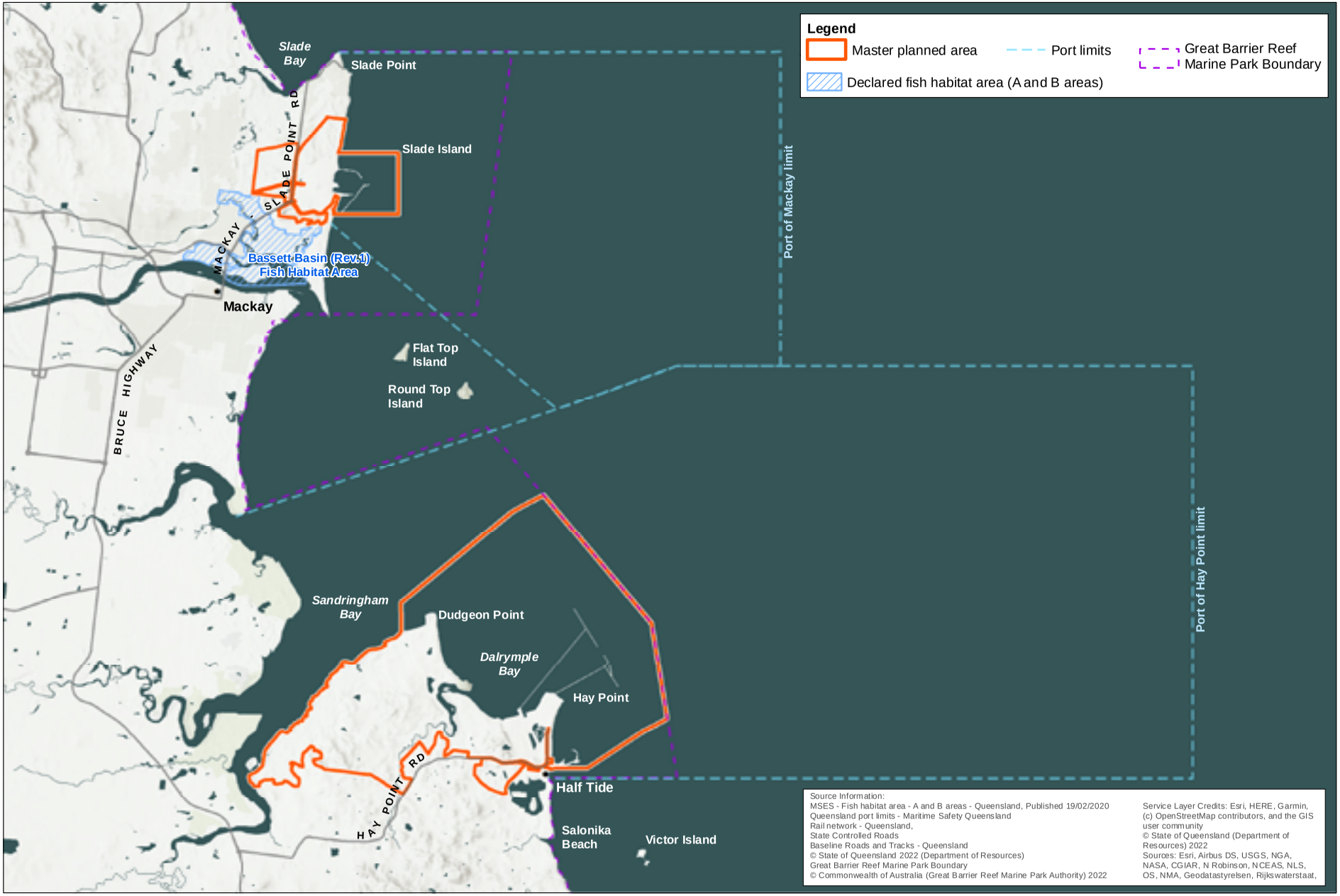
The mapping presented in this appendix is not exhaustive and there may be other areas of environmental, social or cultural value that are not specifically identified or mapped.

The mapping identifies environmental values that contribute to the local expression of OUV:

Table 5 — Mapping datasets and sources

Figure Title	Key dataset/s	Sources
Declared fish habitat areas	Bassett Basin Fish Habitat Area regulated under the *Fisheries Act 1994*	MSES - Fish Habitat area - A and B areas (Queensland Government 2022)
Freshwater, marine and estuarine water types	Marine and estuarine waters from the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019*	Environmental Protection (Water and Wetland Biodiversity) Policy 2019 - Water Types (Queensland Government 2020)
GBRMP zoning	Great Barrier Reef zones	GBRMP boundary, zoning and features ('Great Barrier Reef Marine Park Authority (GBRMPA) 2022)
Habitat for threatened terrestrial flora and fauna	Essential habitat regulated under the *Vegetation Management Act 1999* Threatened ecological communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth)	MSES - Regulated vegetation - essential habitat (Queensland Government 2021) Vegetation management regional ecosystem map v12.0 (Queensland Government 2022) Species Profile and Threats Database (Australian Government 2022)
State and local heritage places	State heritage places protected under the *Queensland Heritage Act 1992*	State Heritage Places - Queensland Heritage register places (Queensland Government 2022) Mackay Regional Council Heritage Register (Mackay Regional Council 2021)
Marine turtles	Nesting areas	Turtle nesting distribution abundance and migration (Queensland Government 2022)
Migratory birds, shorebirds and seabirds – Port of Mackay	Compiled count data	Queensland Wader Study Group 2002-2019
Migratory birds, shorebirds and seabirds – Port of Hay Point	Compiled count data	Queensland Wader Study Group 2003–2019
Protected areas	Protected areas of Queensland under the *Nature Conservation Act 1992*	MSES - protected area - estates (Queensland Government 2022)

Table 5 — Mapping datasets and sources		
Figure Title	**Key dataset/s**	**Sources**
Reefs and shoals	Reef communities	Reefs and shoals (Queensland Government 2022)
Regional ecosystems	Regional ecosystem status under the *Vegetation Management Act 1999*	Vegetation management regional ecosystem map v12.0 (Queensland Government 2022)
Regional ecosystems containing mangroves, saltmarsh communities and marine plants	Vegetation management regional ecosystem map under the *Vegetation Management Act 1999*	Vegetation management regional ecosystem map v12.0 (Queensland Government 2022)
Seagrass meadows	Historical seagrass monitoring data	Annual seagrass monitoring surveys - combined data 2008 to 2019 (GBRMPA 2022; Centre of Tropical Water and Aquatic Ecosystem Research, James Cook University 2022)
Wetlands and watercourses	Vegetation management wetlands under the *Vegetation Management Act 1999* with vegetation management watercourse and drainage features	MSES - High ecological significance wetlands (Queensland Government 2020) MSES - High ecological value waters wetlands (Queensland Government 2017) Directory of important wetlands (Queensland Government 2005) Wetland protection area - High ecological significance wetland Great Barrier Reef (Queensland Government 2020) Wetland protection area - trigger area (Queensland Government 2020) Wetland data - v5.0 - wetland areas (Queensland Government 2019) Vegetation management watercourse and drainage feature map – South East Queensland v5.0 (Queensland Government 2021)



Coordinate System: GCS GDA 1994

Figure 21: Declared Fish Habitat Areas

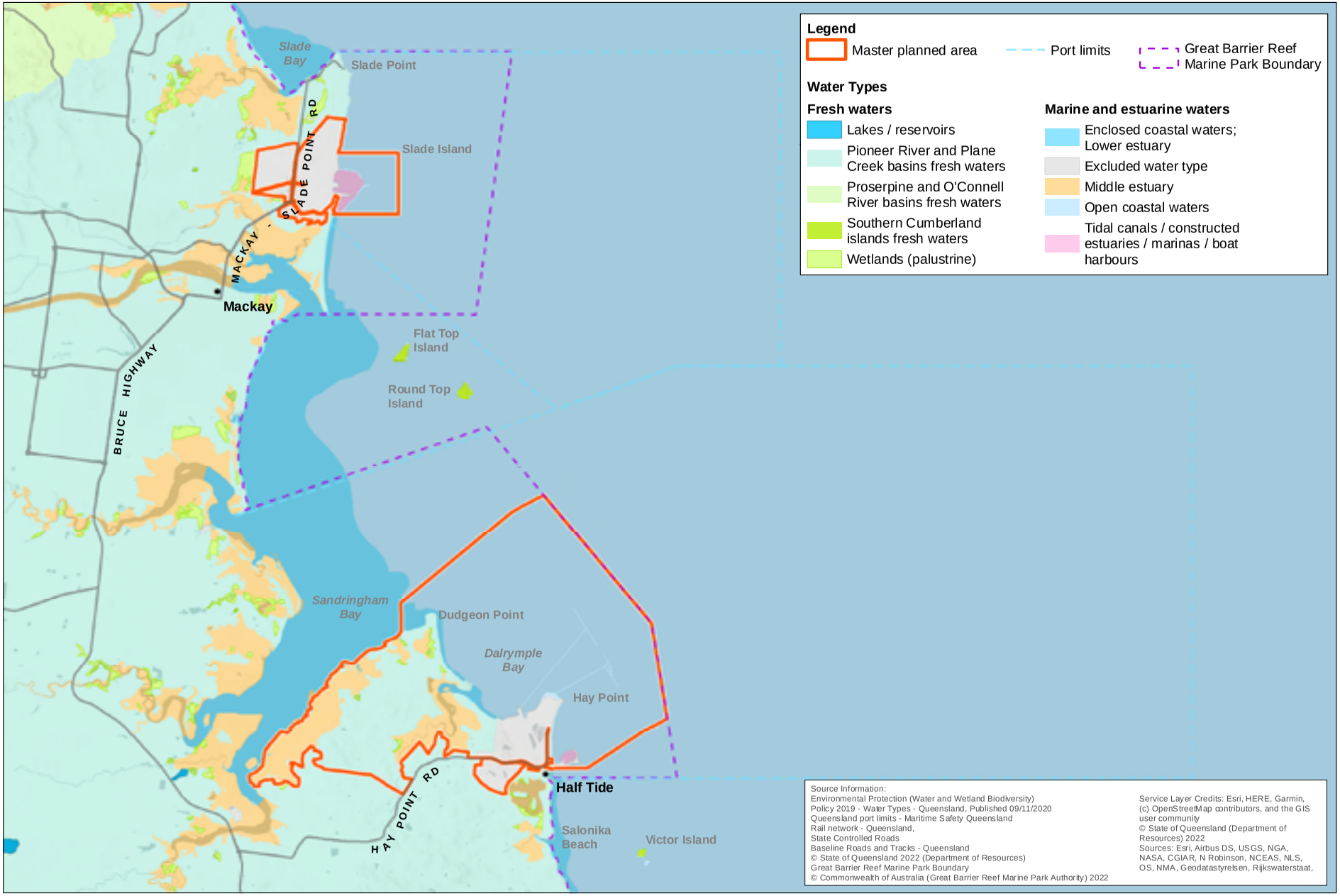
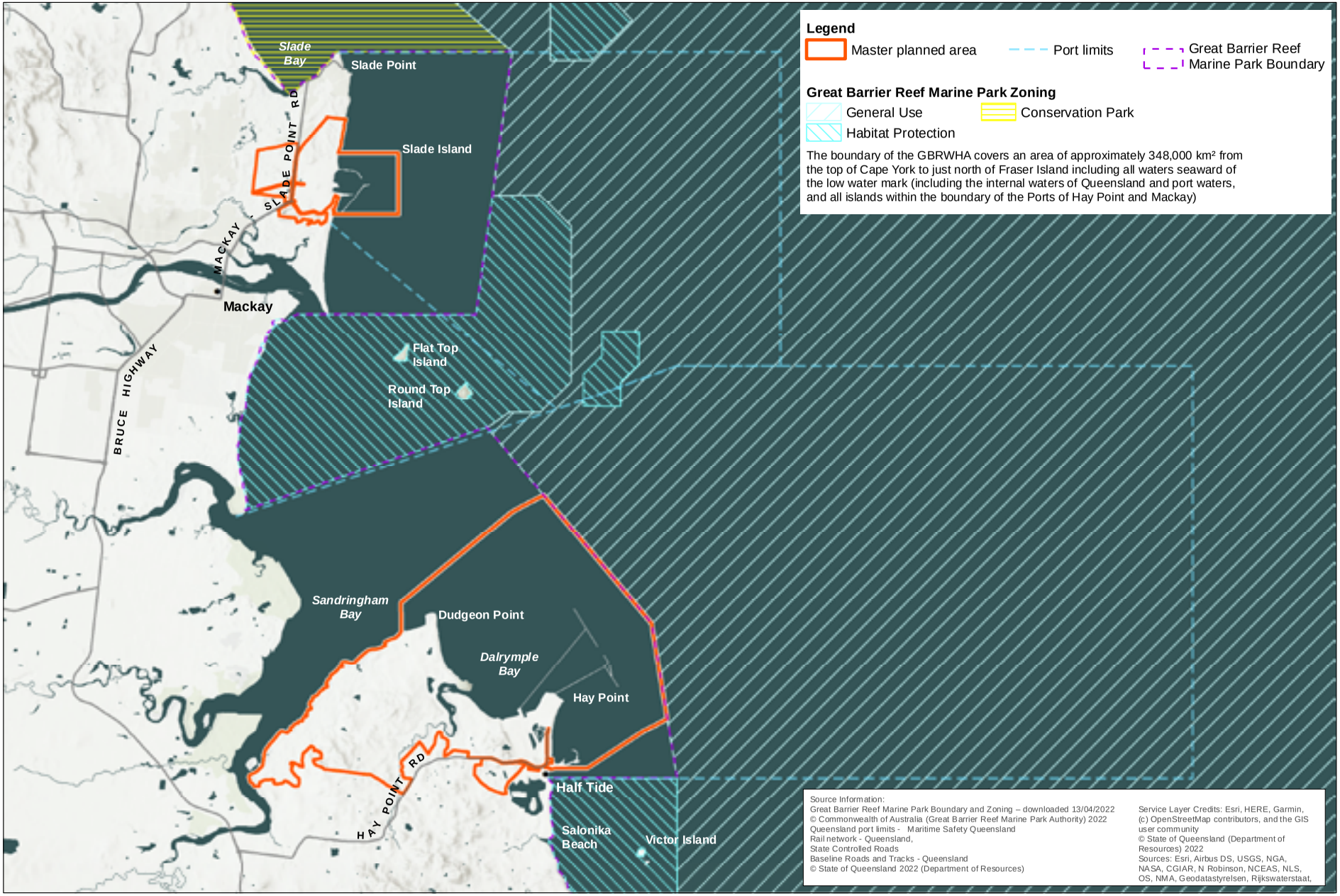
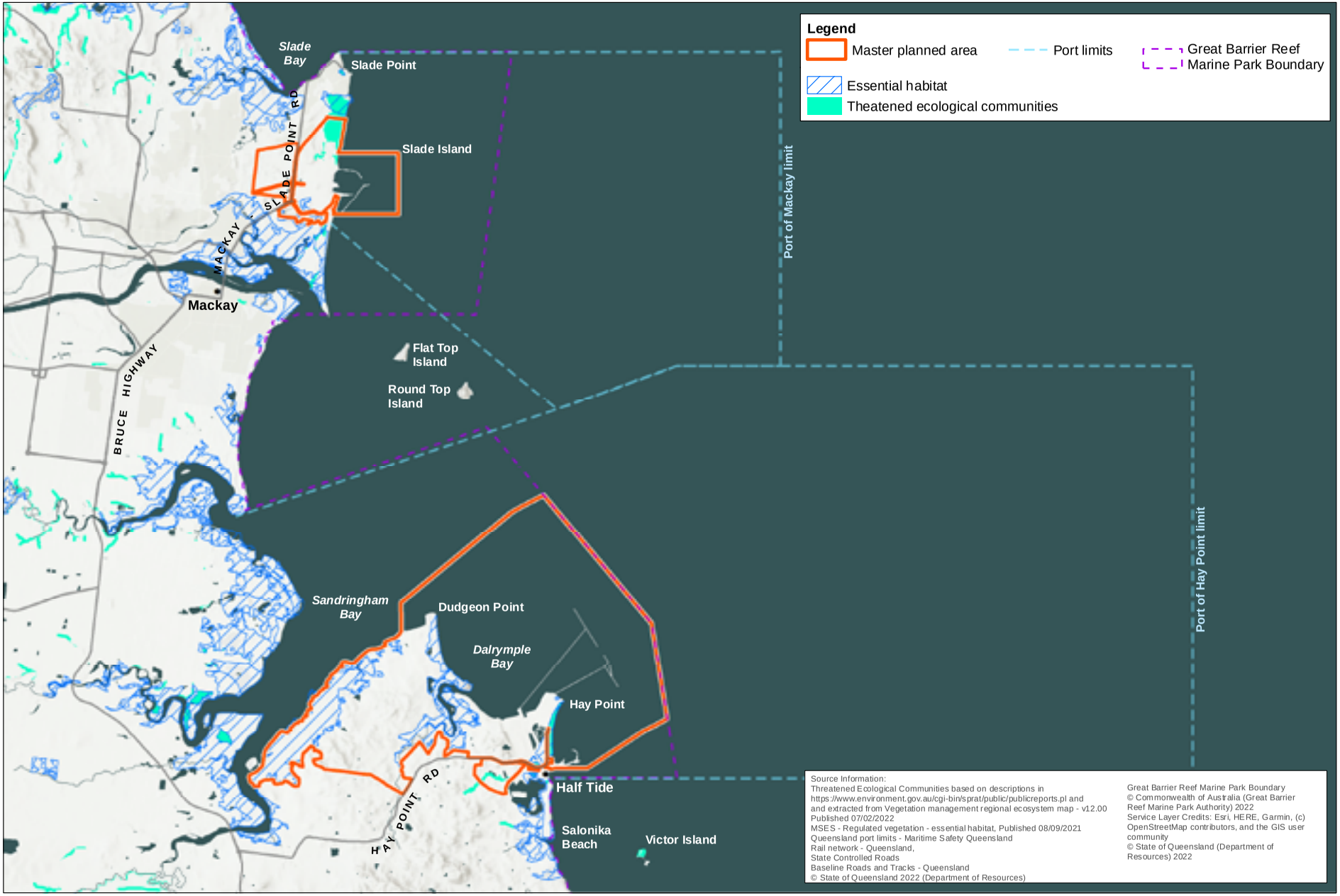


Figure 22: Freshwater, marine and estuarine water types



Coordinate System: GCS GDA 1994

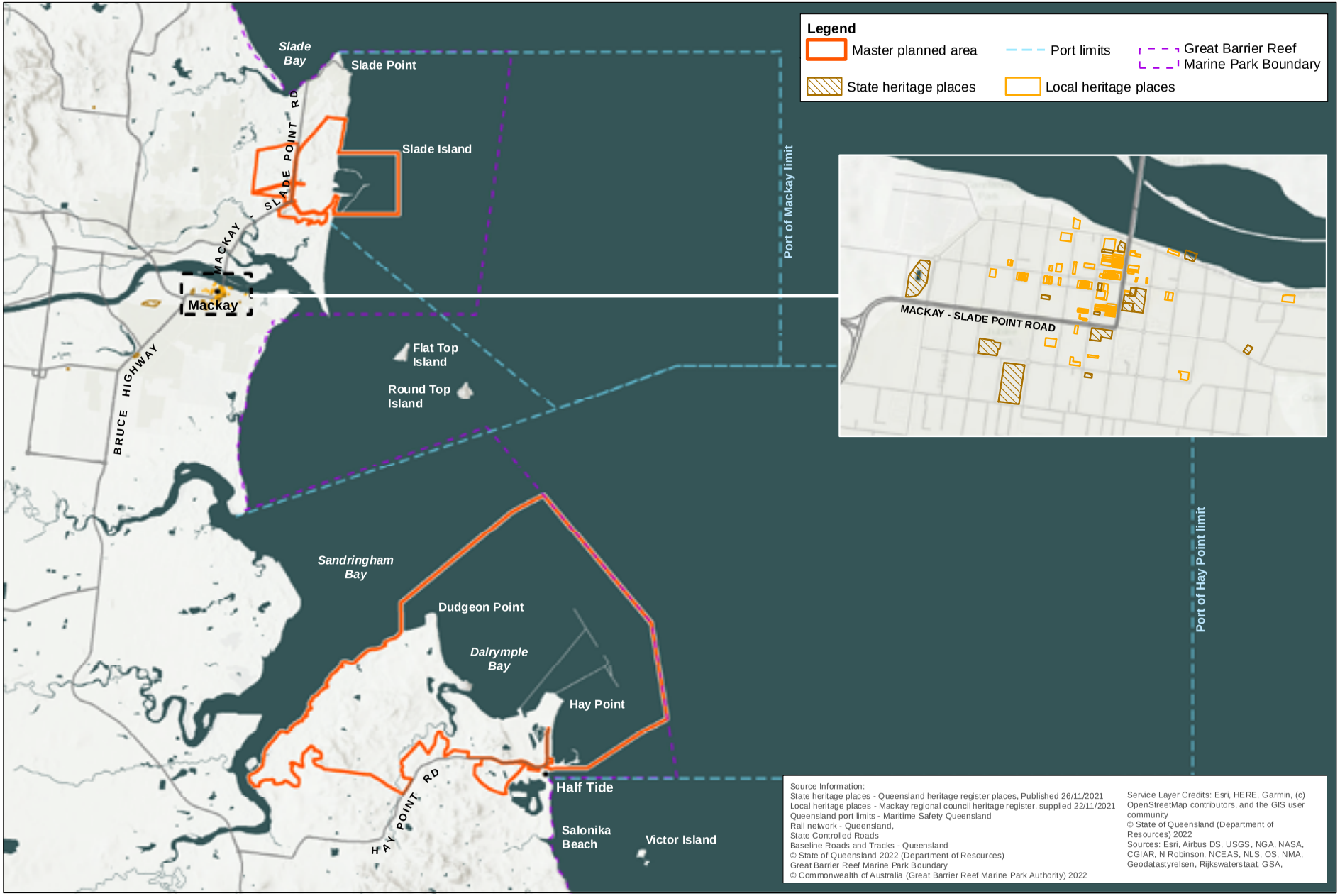
Figure 23: Great Barrier Reef Marine Park zoning



Coordinate System: GCS GDA 1994

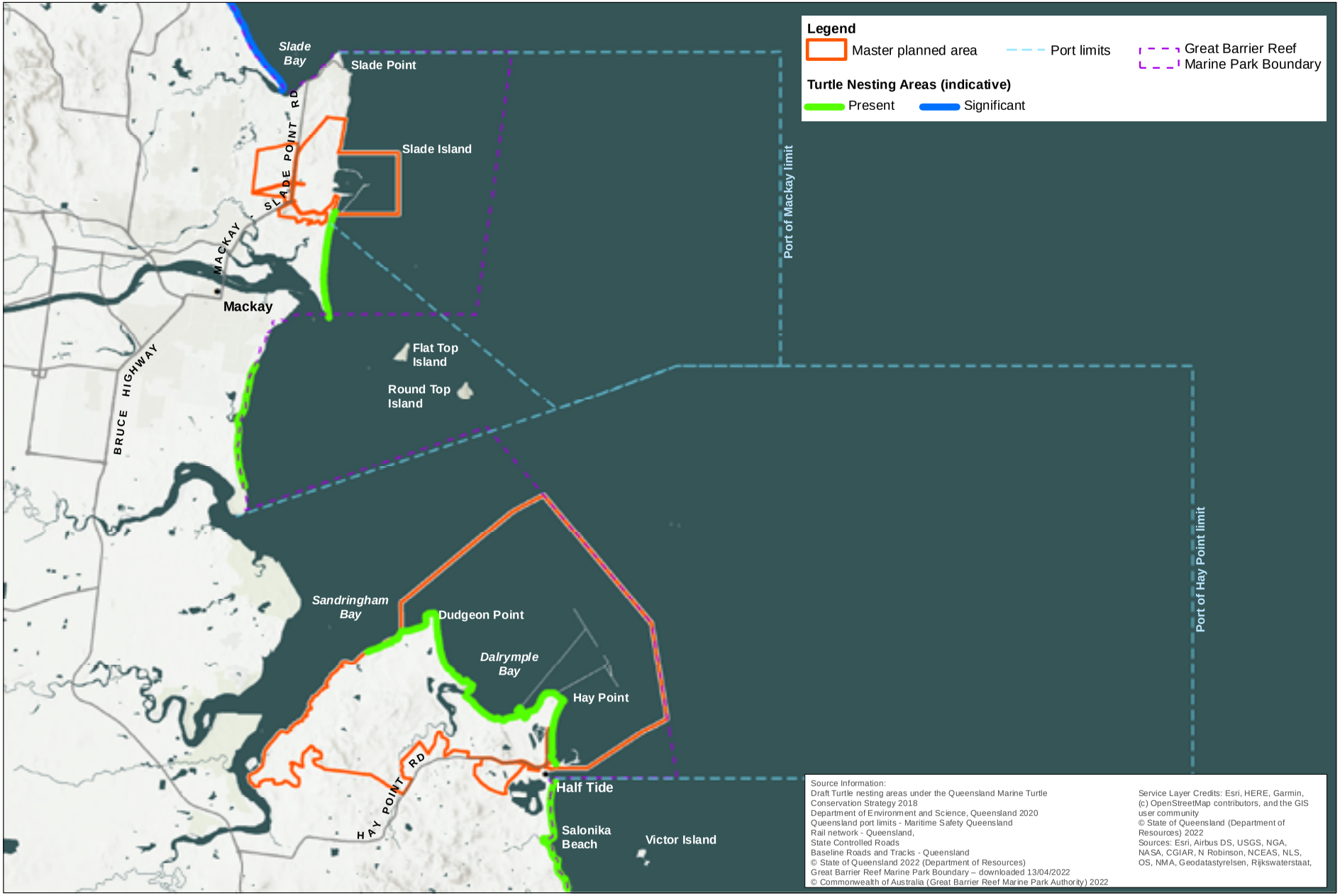
Master plan for the priority Port of Hay Point/Mackay

Figure 24: Habitat for threatened flora and fauna species



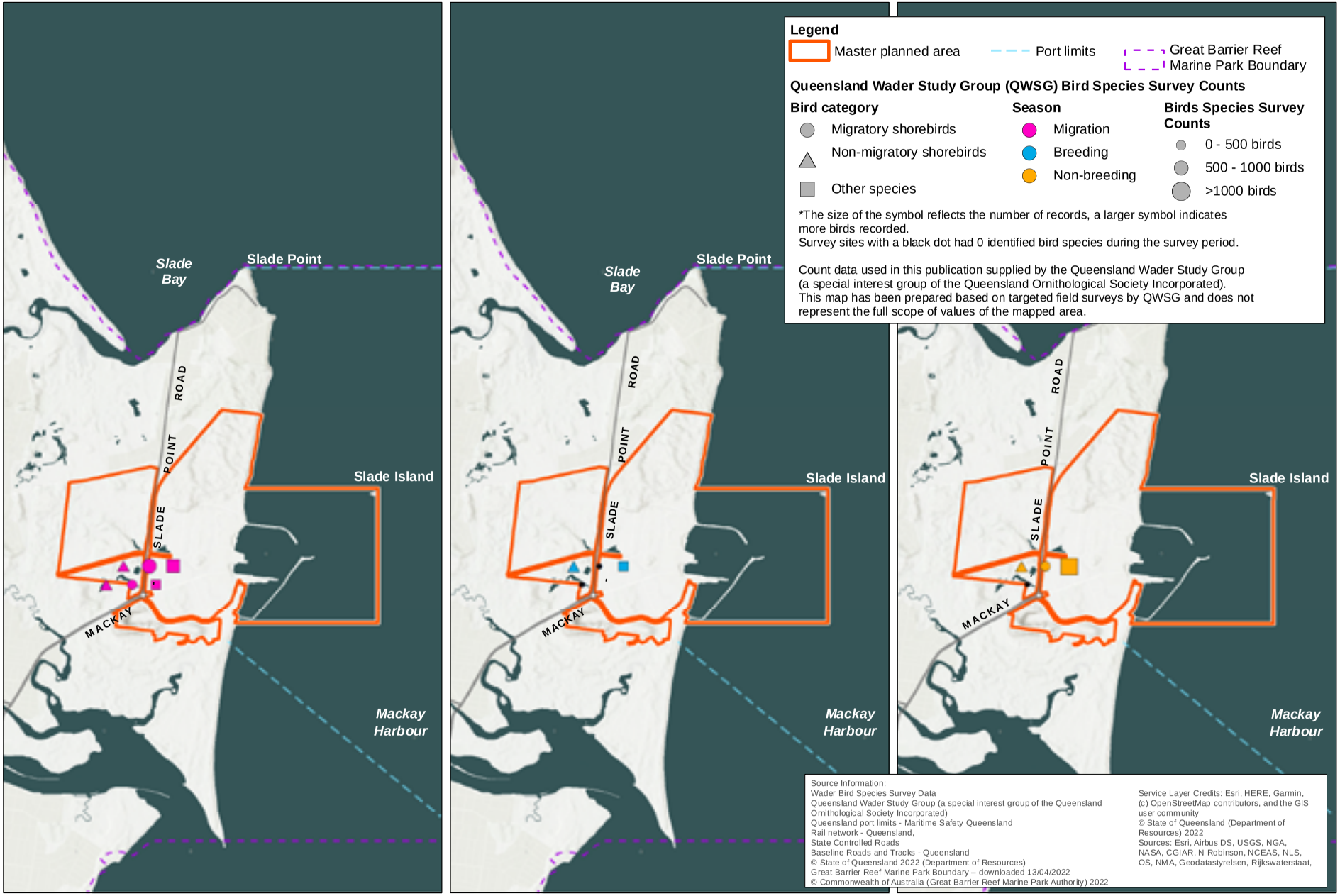
Coordinate System: GCS GDA 1994

Figure 25: State and local heritage places



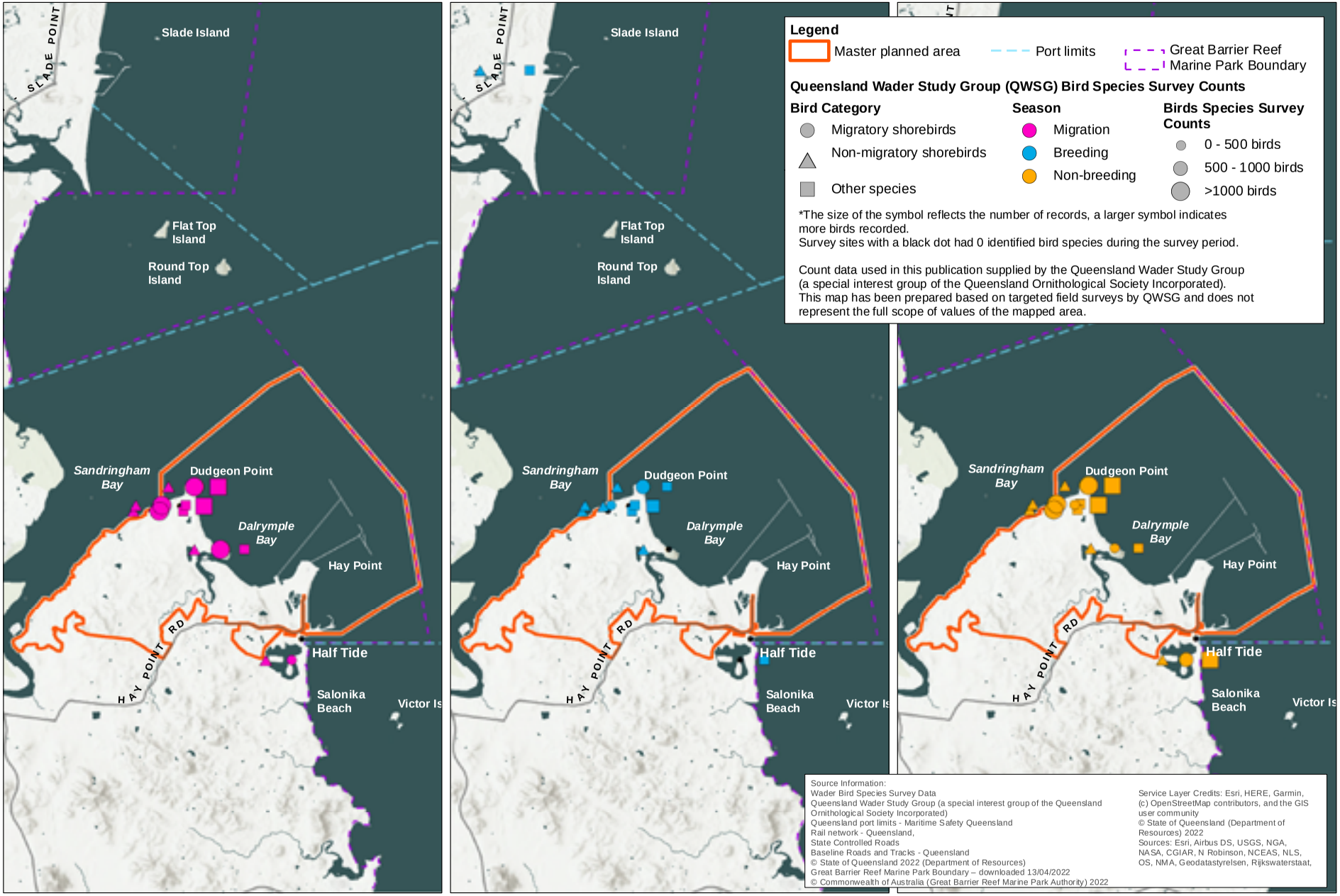
Coordinate System: GCS GDA 1994

Figure 26: Turtle Nesting Areas



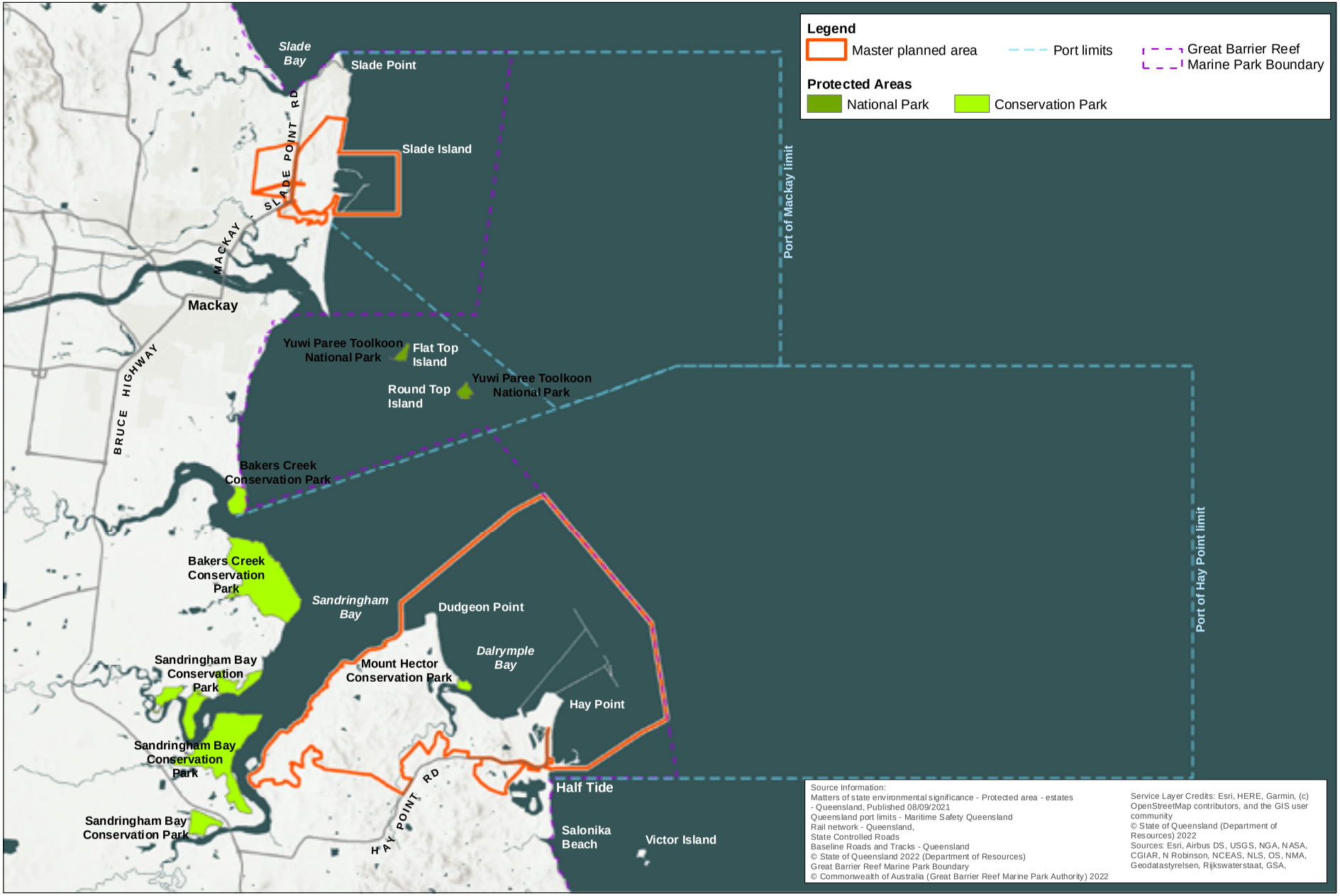
Coordinate System: GCS GDA 1994

Figure 27: Migratory birds, shorebirds and seabirds



Coordinate System: GCS GDA 1994

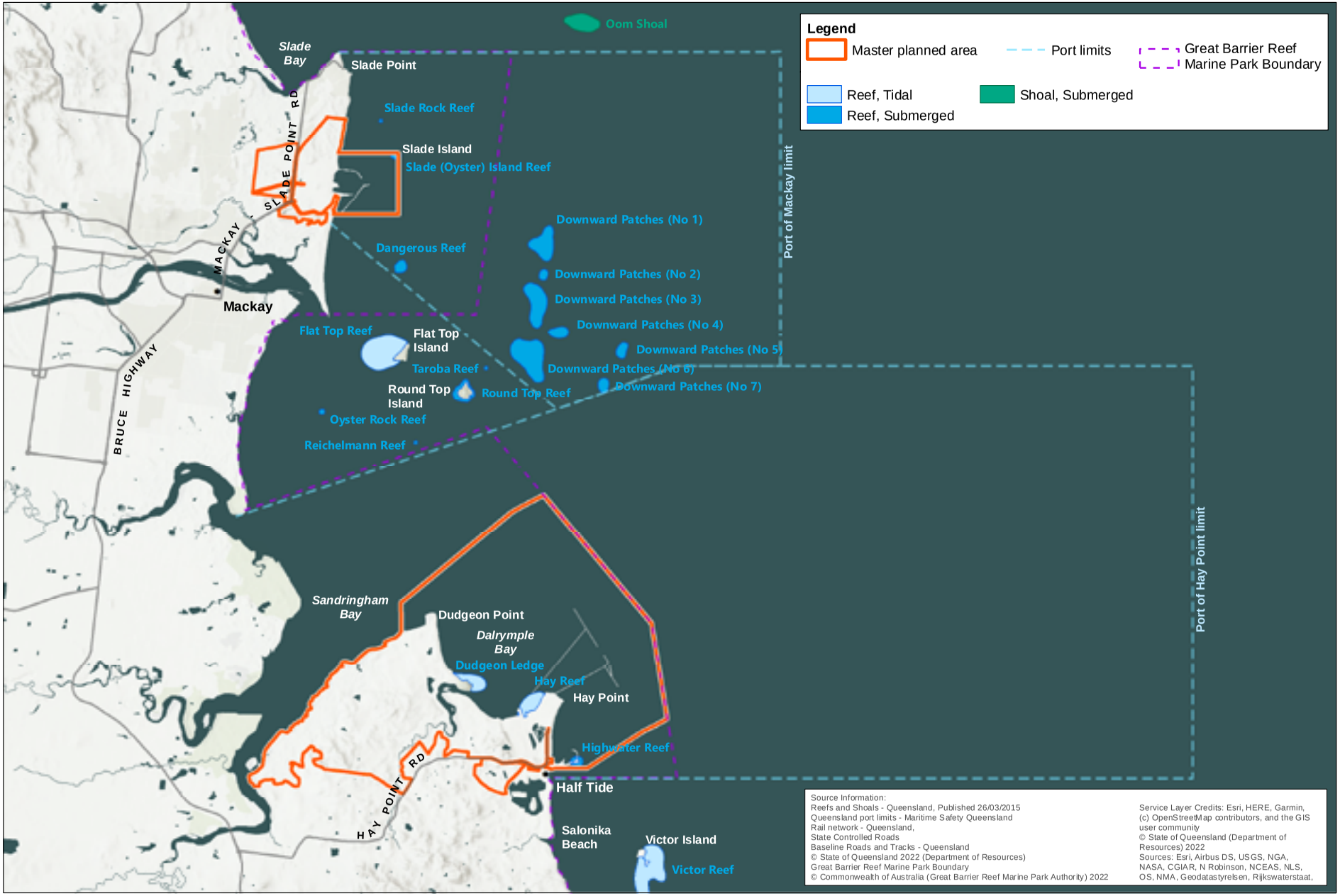
Figure 28: Migratory birds, shorebirds and seabirds



Coordinate System: GCS GDA 1994

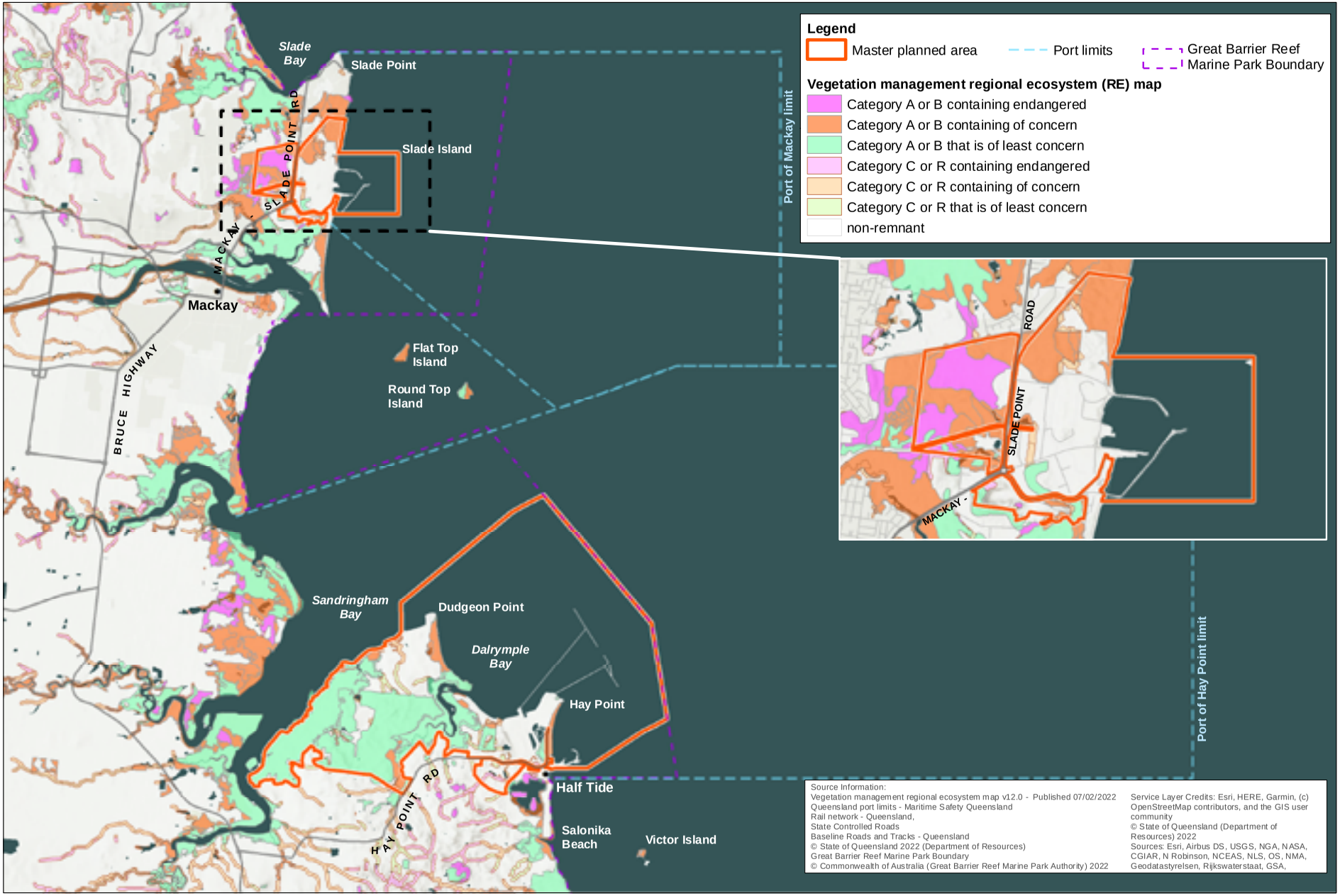
Master plan for the priority Port of Hay Point/Mackay

Figure 29: Protected areas



Master plan for the priority Port of Hay Point/Mackay

Figure 30: Reefs and shoals



Coordinate System: GCS GDA 1994

Figure 31: Regional Ecosystems

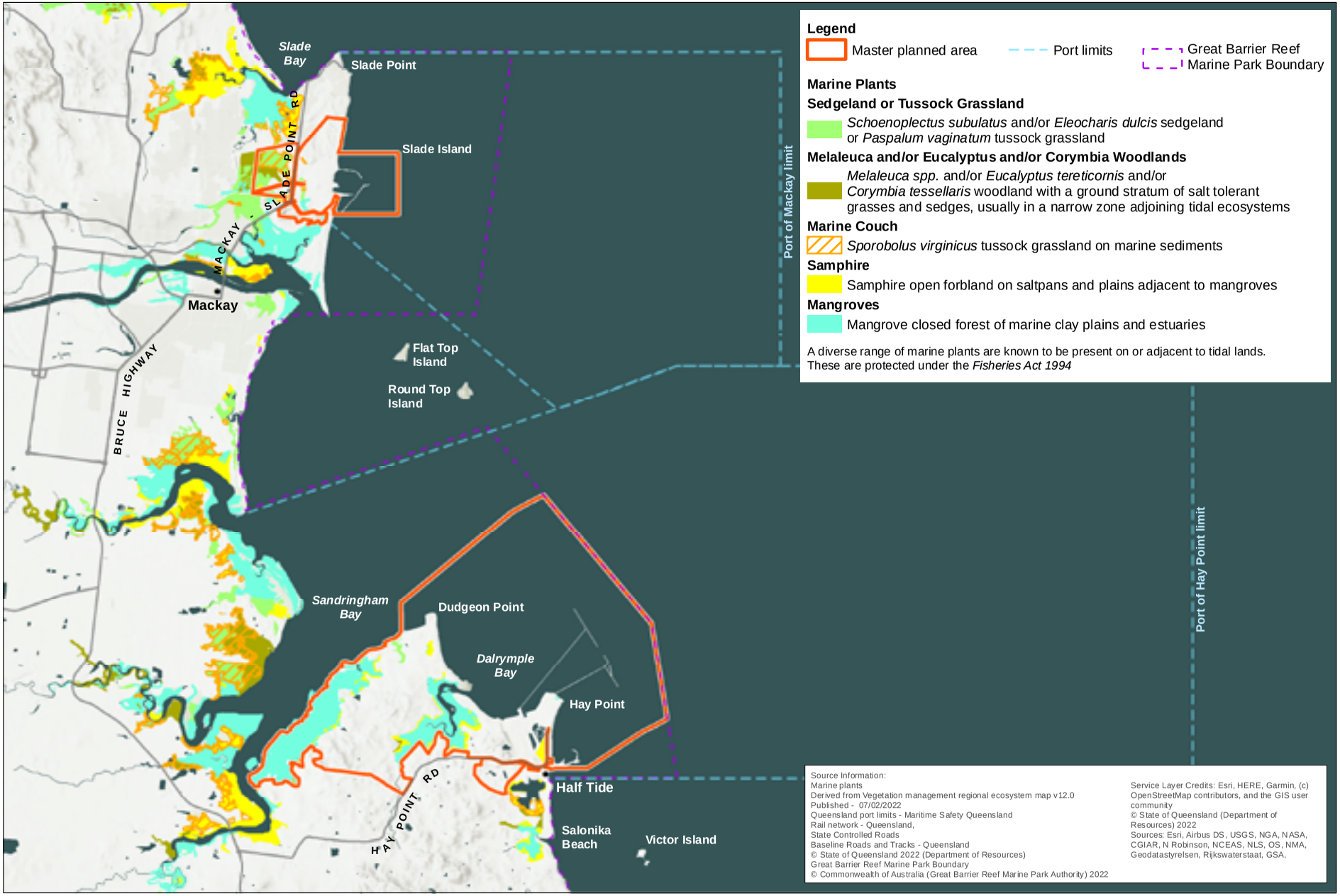
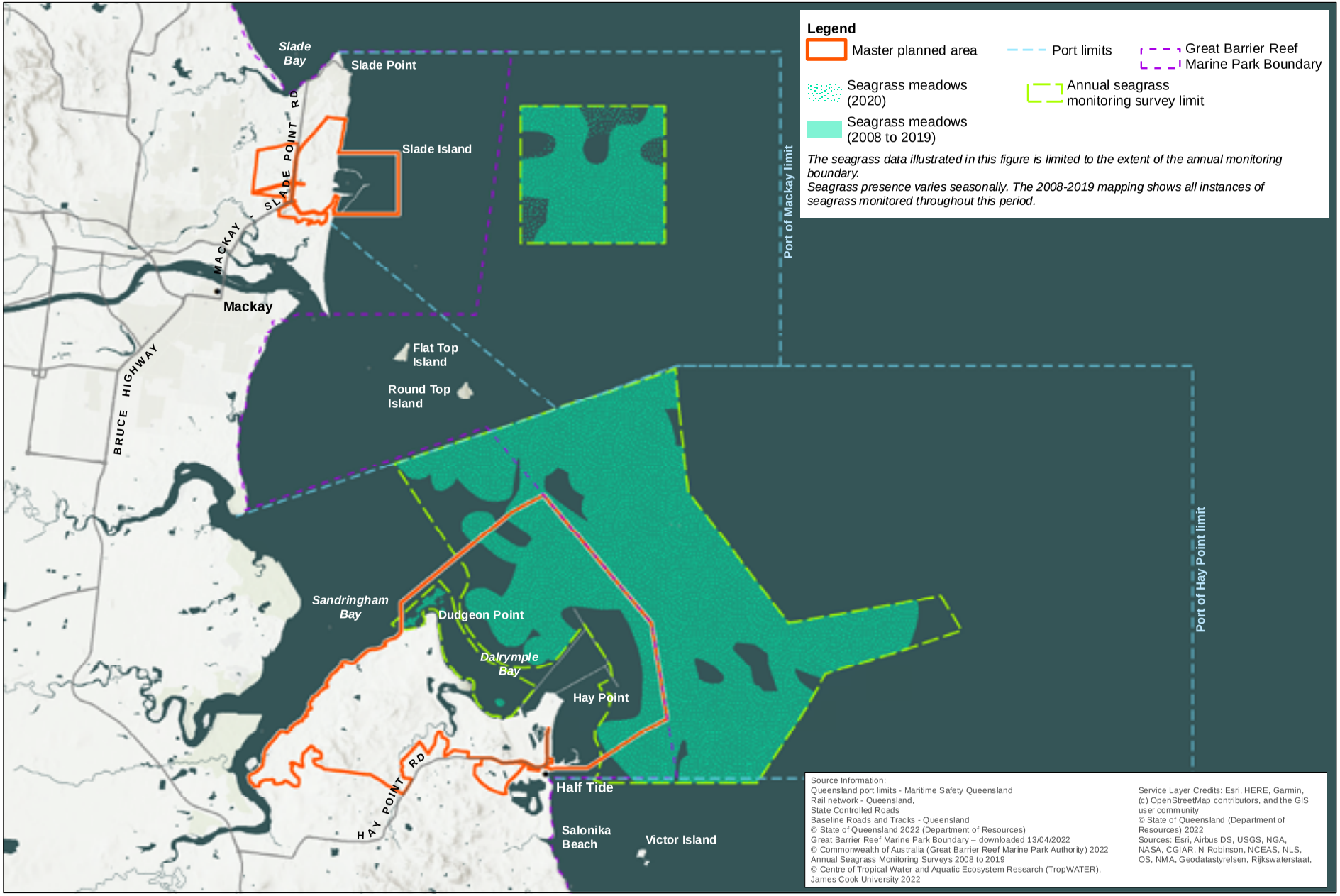
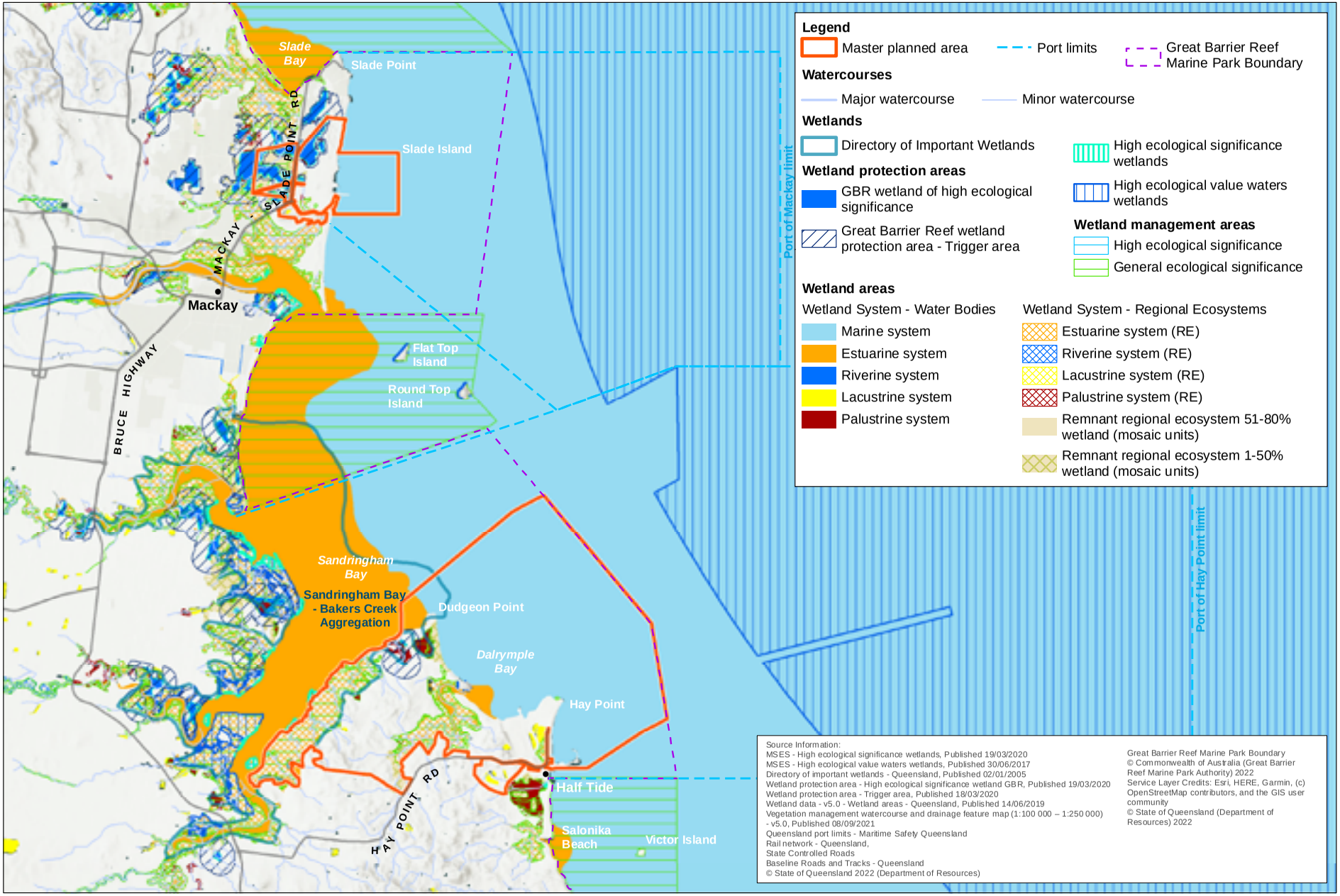


Figure 32: Regional ecosystems containing mangroves, saltmarsh communities and marine plants



Coordinate System: GCS GDA 1994

Figure 33: Seagrass meadows



Coordinate System: GCS GDA 1994

Master plan for the priority Port of Hay Point/Mackay

Figure 34: Wetlands and watercourses

Appendix C
Local attributes of Outstanding Universal Value of the Great Barrier Reef World Heritage Area

The OUV is the fundamental concept of the World Heritage Convention and underpins the listing of properties on the World Heritage List. For a World Heritage property to be considered to have OUV, it must:

- meet one or more of the 10 criteria set out in the convention
- meet the conditions of integrity
- meet the conditions of authenticity for cultural heritage properties
- have an adequate system of protection and management to safeguard its future.

The World Heritage Committee listed the Great Barrier Reef for the following criteria:

- criterion (vii): contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance
- criterion (viii): be outstanding examples representing major stages of earth's history, including the record of life, significant ongoing geological processes in the development of landforms, or significant geomorphic or physiographic features
- criterion (ix): be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, freshwater, coastal and marine ecosystems and communities of plants and animals
- criterion (x): contain the most important and significant natural habitats for in situ conservation of biological diversity, including those containing threatened species of OUV from the point of view of science or conservation.

The contribution classifications for each OUV local attribute and associated environmental values have been determined as part of a comprehensive, evidence-based assessment. That assessment took account of factors including, but not limited to:

- the history, current function and land uses of the port
- regulatory context of port operations
- environmental, social and cultural heritage values represented within and surrounding the master planned area, as well as more broadly across the GBRWHA potential for future development.

The master planning process used information that was available at the time. Detailed findings are reported in the evidence-based documentation, with key information extracted and presented to inform the local expression of values that contribute to the OUV of the GBRWHA.

Local attributes were classified and grouped for master planning purposes, based on the World Heritage Committee criteria and expert advice regarding the relevant species, islands, geomorphology and diversity present within the Great Barrier Reef World Heritage Area.

The contribution classifications are generally defined as:

- **Minor contribution (Min):** The attribute is present however it occurs in low abundance or singularly and is:
  - not essential to the sustainability of the attribute
  - not recognised as a key feature of the GBRWHA
  - not included in the retrospective statement of OUV
  - not iconic, unique or a high-quality example of the attribute.
- **Moderate contribution (Mod):** The attribute occurs in moderate abundance or across a moderately large area but is not the prime occurrence or representation of the attribute within the GBRWHA. The attribute does however represent a feature for which the Great Barrier Reef was listed as World Heritage.
- **Significant contribution (Sig):** The attribute represents locally important examples of the attribute relative to the nature of the attribute across the GBRWHA. Such an attribute may be specifically referred to within the retrospective statement of OUV for the GBRWHA or defined by other legislation, planning instrument or values assessment (e.g. *Great Barrier Reef Outlook Report*). The occurrence of the attribute locally is a prime example of the features mentioned in the retrospective statement of OUV.

Table 6 summarises the locally expressed OUV attributes within and surrounding the master planned area and their contribution classifications relative to the OUV across the entire GBRWHA. **Table 6** also includes a summary of the environmental values determined to be key contributors to the local expression of OUV of the GBRWHA.

Table 6 — Local attributes of the OUV of the GBRWHA						
Categoryv	**Local attribute**	**Relevant Outstanding Universal Value criteria and contribution classifications**				**Summary of the key environmental values**
		vii	**viii**	**ix**	**x**	
Corals	Coral reefs (400 species of corals in 60 genera)				Min	Reefs present in the waters offshore waters include: Flat Top Island, Keswick Island and St Bees Island, Hay Reef, Victor Islet, Victor Island, Round Top Island and Dudgeon Point. Fringing reefs are present at Victor Island and Round Top Island. Inshore turbid coral reefs communities are present at Hay Reef, which is located between the existing jetties at the Hay Point terminal, Taroba Rocks, Slade Island/ Slade Rock, Dangerous Reef and Downward patches. They are also present in shallow waters south of Dudgeon Point. Common corals in the turbid marine environment include *Montipora*, *Acropora*, *Pocillopora* and *Turbinaria*, as well as a diverse range of soft corals, sea fans, ascidians and hydroids. These coral reef areas are important habitat for locally important fish and other marine species. The nearest significant coral reef ecosystems to Hay Point are over 20 kilometres distance. The inshore reefs of the region are relatively small and limited in extent in comparison to other inshore reefs. They have relatively low diversity and low cover. They have persisted over time with fluctuations driven mainly by cyclonic disturbances. As the reefs are relatively isolated from other systems, they tend to be regenerative. The size and density of inshore reefs are not the result of mass spawning events more commonly associated with mid shelf and outer reefs. Local spawning is important for the ongoing presence of the reefs, but it is not on a level of the mass phenomenon important for reef persistence across the wider World Heritage Area.
	Coral reef ecosystem		Min			
	Inshore fringing reefs, mid-shelf reefs, and exposed outer reefs		Min			
	Hard and soft corals	Min				
	Coral reefs, sand banks and coral cays			Min		
	Coral spawning	Min				
Mangroves	Diversity of mangroves				Mod	The Hay Point area has 22 hectares of mangroves within enclosed wetland areas. There are 21 species present in wetlands of national importance. Minor stands of mangroves can be found at Half Tide Beach and an extensive community at Louisa Creek. The most common species include the Red mangrove (*Rhizophora stylosa*), Grey mangrove (*Avicennia marina*) and Yellow mangrove (*Ceriops australis*).
	Vast mangrove forests	Mod				Important areas of mangroves include: • The Sandringham Bay – Bakers Creek Aggregation, listed as a wetland of national importance due to its mangrove diversity • Hay Point Peninsula • Sarina Inlet – Ince Bay Aggregation (predominantly south of the study area) • Slade Point and McCready's Creek • Basset Basin, an estuary of the Pioneer River.

Table 6 — Local attributes of the OUV of the GBRWHA						
Categoryv	**Local attribute**	**Relevant Outstanding Universal Value criteria and contribution classifications**				**Summary of the key environmental values**
		vii	**viii**	**ix**	**x**	
Seagrass and macroalgae	Beds of *Halimeda algae*			Min		Macroalgae communities in this region are variable in terms of density and frequency of occurrence with species observed including *Sargassum*, *Udotea* and *Caulerpa*. In the area surrounding Hay Point Port, macroalgae density is low (‹1-5%), while the seafloor offshore of both ports supports large areas of medium density algae (5-20%).
	Diversity of seagrass				Min	Meadows provide foraging habitat for species of turtles and dolphins and nursery habitat for a diversity of fish species. There are seagrass habitats off Hay Point and Mackay in shallow water and in mid-shelf deeper water, containing four species of seagrass: • *Halpphila decipiens* • *Halophila ovalis* • *Halophila spinulosa* • *Halodule uninervis*. • *Halophila tricostata* (Mackay only) Deepwater seagrass meadows are also present at Hay Point but are low and medium densities.
Marine turtles	Marine turtles				Min	Species of marine turtles present include: • Green turtle • Loggerhead turtle (occasional sightings) • Leatherback turtle • Hawksbill turtle • Olive Ridley turtle • Flatback turtles. The inshore areas of the port support a population of resident Green turtles that forage on the algae covered reefs and deep-water seagrass. Green turtles (*Chelonia mydas*) are the most frequently observed Marine turtle, with nesting recorded by Mackay Turtle watch on beaches in the Mackay region including Bucasia Beach, Blacks Beach, North Harbour Beach and Salonika Beach. Low density Flatback turtle nesting has been observed within the Port on Hay Point Beach and Salonika Beach and at Dudgeon Point and Mt Hector Conservation Area between the months of November and April. Flatback turtles (*Natator depressus*) are the dominant nesting species in this region and nesting sites occur on the mainland beaches between November and April. Haliday Bay north of Mackay is recognised as one of the most important Flatback turtle nesting beaches in the Mackay Region. There are peripheral Flatback turtle rookeries at Hay Point Beach, Salonika Beach and Sarina Beach. Green turtles have been recorded at Bushy Islet (approximately 80 kilometres off the Mackay coast).
	Green turtle breeding	Min			Min	
	Nesting turtles	Mod				
	Marine turtle rookeries				Mod	

Table 6 — Local attributes of the OUV of the GBRWHA						
Categoryv	**Local attribute**	**Relevant Outstanding Universal Value criteria and contribution classifications**				**Summary of the key environmental values**
		vii	**viii**	**ix**	**x**	
Marine mammals	Migrating whales	Mod				Humpback whales migrate through the project area annually between June and October (peak in August). Females with calves have been observed within the Hay Point port limits. Core aggregation and calving areas for migrating Humpback whales are located approximately 80 kilometres east of Mackay. The waters off Mackay (approximately 100 kilometres from the coast) have been identified as important wintering areas for Humpback whales, particularly in the inner reef lagoon.
	Species of whales				Mod	Humpback whales (*Megaptera novaeangliae*) is the most prevalent in this area. The Sei whale (*Balaenoptera musculus*) and Fin whale (*Balaenoptera physalus*) are occasionally observed.
	Dugong				Min	There are low density seagrass meadows that dugongs may use for foraging while transiting between dugong protection areas north and south of the port.
	Species of dolphins				Mod	A number of species of dolphins occur in the waters off Hay Point. The most prevalent species is the Australian Humpback dolphin (*Sousa sahulensis*) and others include the Spotted dolphin (*Stenella attenuate*), Indian Ocean bottlenose dolphin (*Tursiops aduncus*), Australian Humpback dolphin (*Sousa sahulensis*) and potentially the Irrawaddy dolphin (*Orcaellabrevirostris*). The Australian Snubfin dolphin (*Orcaella heinsohni*) may also occur in the riverine and estuarine areas of the bays and lagoons.
Landscapes and seascapes	Green vegetated islands	Min				Vegetated islands include Round Top Island and Flat Top Island (Yuwi Paree-Toolkoon National Park), Slade Island, Keswick Island, Victor Island and St Bees Island. These islands include varying degrees of vegetation, some with remnant areas.
	Continental islands		Min			Continental islands include Keswick Island, St Bees Island and Prudhoe Island.
	Vegetation of the cays and continental islands			Min		

Table 6 — Local attributes of the OUV of the GBRWHA						
Categoryv	**Local attribute**	**Relevant Outstanding Universal Value criteria and contribution classifications**				**Summary of the key environmental values**
		vii	**viii**	**ix**	**x**	
	Unique and varied seascapes and landscapes		Min			There is a variety of seascapes and landscapes that are well represented across the GBRWHA including beaches, coastal dunes, river deltas, wetlands, mangroves, sand beaches, mudflats, open water, coastal islands and coral reefs.
	Significant diversity of reef and island morphologies that reflects ongoing geomorphic, oceanographic and environmental processes			Min		
	Superlative natural beauty	Mod				Large aggregations of shorebirds, seabirds and migratory birds at Sandringham Bay, Dudgeon Point and other estuarine wetlands areas. Ocean and island vistas.
Species diversity	Over 4000 species of molluscs and over 1500 species of fish, plus a great diversity of sponges, anemones, marine worms, crustaceans			Min		There are diverse marine and terrestrial habitats including coral reefs, mangroves, seagrass, macroalgae, wetlands, continental islands, intertidal areas and beaches. These support a range of invertebrate and macroinvertebrate species.
	Thousands of species of reef fish	Min				The inshore and fringing reefs support reef fish communities. The reef fish communities in this region are comprised of typical inshore fishes including Wrasses, Damselfishes, Angelfishes, Butterflyfishes and Snapper.
	Diversity supporting marine and terrestrial species (global conservation significance)				Mod	Nationally important wetlands in the study area include the Sandringham bay – Bakers Creek Aggregation and the Sarina Inlet – Ince Bay Aggregation (predominantly south of the study area). A total of 31 listed migratory wetland species are either known to inhabit or visit these wetlands, or have habitat or roosting sites suitable for their visitation within the project area There is the additional moderate presence of whales, dolphins and flatback turtle nesting. State significant wetlands within the study area include the Keeleys Road wetlands to the east of the Port of Mackay. Locally significant wetlands include those at the mouth of the Pioneer River.

Table 6 — Local attributes of the OUV of the GBRWHA						
Categoryv	**Local attribute**	**Relevant Outstanding Universal Value criteria and contribution classifications**				**Summary of the key environmental values**
		vii	**viii**	**ix**	**x**	
	Plant species and diversity and endemism (species being unique to a defined geographic location)				Min	One Threatened Ecological Community, the critically endangered Littoral Rainforest and Coastal Vine Thickets of eastern Australia is likely to be present within the study area. Listed flora species includes Bluegrass (*Dichanthium setosum*), Black ironbox (*Eucalyptus raveretiana*), an evergreen vine thicket (*Omphalea celata*), Lesser swamp orchid (*Phaius australis*), Holly-leaved graptophyllum (*Graptophyllum ilicifolium*).
	Important role of birds, such as the pied imperial pigeon, in processes such as seed dispersal and plant colonisation			Min		The seed dispersal role played by birds is important in terrestrial environments and particularly to help maintain biological and genetic diversity between vegetated islands and the mainland. The Imperial pigeon for instance migrates daily as flocks from the islands to the mainland rainforests to eat fruit, returning to the islands at dusk. These environments are limited and sparse and as such the ecological role of birds in spreading seeds is minor.
	Breeding colonies of seabirds and marine turtles	Min				There is significant habitat for shorebird and migratory birds which vary from year to year. There are internationally recognised roosting sites at Sandringham Bay that supports up to 23,000 shorebirds each year during annual migration. Estuarine wetlands associated with the local rivers and bays which provide breeding habitat for resident shorebird species. The Mackay Region is recognized as the fifth most important site for shorebirds in Queensland. Eighteen different shorebird species utilise habitats in the Mackay regions for foraging and roosting. There are areas at Dudgeon Point where large emergent trees are present and provide suitable nesting sites for large raptors such as the White-bellied sea eagle (*Haliaeetus leucogaster*). Eshelby Island, 1200 kilometres north west of Mackay and Bushy Islet, 90 kilometres east of Mackay are recognised as regionally important breeding site for seabirds within the Whitsunday region.
	242 species of birds				Sig	
	22 seabird species breeding				Min	
Coastal processes	Cross-shelf, longshore and vertical connectivity			Min		Offshore areas form part of the larger longshore connections within the Great Barrier Reef lagoon. Intertidal and estuarine habitats connecting terrestrial and marine habitats.

Appendix D
Potential impacts on environmental values

As described in the EMF in **Part D**, potential impacts have been identified based on potential development activities that may be needed to support infrastructure and supply chains within the master planned area to the year 2050. These activities were identified based on the current land uses, development potential, environmental values and precinct purposes within existing planning instruments.

These activities were subject to a Planning and Environment Analysis to determine the likelihood and consequence of potential impacts from development on the environmental values. Where a development activity location was unknown, the potential impacts (direct, indirect and cumulative) assumed the highest conservation significance of the value.

The potential impacts from development have been identified at a high level for the purpose of master planning due to the wide range of activities that may occur across the master planning timeframe. While not a direct impact from development, it is acknowledged that climate change is the single biggest threat to coral reefs and exacerbates localised impacts on the Great Barrier Reef and other ecological processes. The Queensland Government has released a *Queensland Future Climate Dashboard* to identify climate projections, heatwave and rainfall information for Queensland.

Potential impacts due to climate change and climate change induced events may include:

- elevated levels of sediment, nutrients and contaminants from increased intensity of storm events and storm surge
- increased coastal vulnerability from sea level rise and associated coastal process changes
- elevated sea surface temperature causing loss of coral reefs, coral habitat, marine plants and/or reduction of habitat quality due to elevation of sea surface temperature and increased ocean acidification
- loss of terrestrial vegetation communities, ecosystems and listed species due to increased risk of bushfire.

As identified in **Part D**, there are federal and state legislation, state and local planning processes, operational environmental management measures and approvals that provide for the management of the potential impacts (direct, indirect and cumulative) on environmental values.

Table 7 — Potential impacts on environmental values

Indigenous cultural heritage
Loss and/or degradation of Indigenous cultural heritage sites due to port-related development and increased access availability to these sites
Non-indigenous heritage
Loss and/or degradation of non-Indigenous heritage sites due to port-related development and increased access availability to these sites
Marine and estuarine water quality
Increased sedimentation and turbidity from maintenance and/or capital dredging
Elevated levels of sediment, nutrient and contaminants from stormwater runoff and from other construction and operational activities
Disturbance of acid sulfate soils during construction and operational activities
Coastal processes
Changes to coastal processes such as currents, waves and sediment transport due to development of port-related infrastructure
Marine plants
Loss and/or reduced quality of marine plant habitat including mangroves, saltmarsh, macroalgae and seagrass communities due to direct clearing and/or removal and the introduction of pests and seed species

Table 7 — Potential impacts on environmental values
Changes to coastal processes resulting in erosion and accretion of sediments resulting in loss of marine plants and/or reduction of habitat quality
Impacts to marine plants and/or reduction of habitat quality due to stormwater runoff, air emissions and discharges
Coral reefs
Loss of coral reefs and coral habitat through development of port-related infrastructure
Changes to coastal processes including altered sediment transport impacting coral reefs, habitat and/or reduction of habitat quality
Loss of coral reefs, habitat and/or reduction of habitat quality due to stormwater runoff, air emissions and discharges
Fisheries resources and declared fish habitat areas
Loss of fish and fish habitat and/or reduction of habitat quality through development of port-related infrastructure, including vessel strike or entrapment, altered flow paths and water availability
Changes to coastal processes and/or surface water resources including altered sediment transport leading to loss of fish, fish habitat and/or reduction of habitat quality and connectivity
Stormwater runoff, emissions and discharges from port-related development causing a loss of fish habitat and/or decline in fish habitat quality
Elevated levels of noise, vibration and lighting from port-related development resulting in fish species and/or fish habitat loss
Marine reptiles, marine mammals and marine migratory species
Loss of individuals and habitat through development of port-related infrastructure including mortality or injury due to vessel strike or entrapment
Stormwater runoff, air, noise, vibration and light emissions and discharges from port-related development causing a loss of habitat and/or decline in habitat quality
Terrestrial vegetation communities and ecosystems
Loss of individuals and habitat through clearing of terrestrial vegetation communities and ecosystems
Stormwater runoff, air emissions and discharges resulting in a loss of habitat and/pr decline of habitat quality
Potential impacts on environmental values
Modification to surface water and groundwater resources from construction and operational activities causing a loss of habitat and/or reduced habitat quality
Increased weeds and pests from port-related development causing a loss of habitat and/or reduced habitat quality
Listed threatened and migratory species
Loss of threatened and migratory species and their habitat due to clearing of terrestrial vegetation communities and ecosystems for port-related development
Stormwater runoff, air emissions and discharges from port-related development causing a decline in quality and/or loss of species
Modification to surface water and groundwater resources from construction and operational activities causing a loss of habitat and/or reduced habitat quality

Table 7 — Potential impacts on environmental values
Injury or mortality of listed threatened and migratory species due to port-related activities such as through vessel strike
Elevated levels of air, noise, vibration and lighting emissions from port-related development resulting in reduced habitat quality
Increased weeds and pests from port-related development causing a loss of habitat and/or reduced habitat quality
Surface water resources
Elevated levels of sediment, nutrient and contaminants from stormwater runoff and from other construction and operational activities
Disturbance of acid sulfate soils during construction and operational activities
Modification to surface water resources including altered flow paths and water availability due to construction and operational activities such as earthworks
Groundwater
Altered groundwater resource availability and quality along with surface water resource connectivity due to construction and operational activities
Wetlands
Clearing and/or loss of wetland habitat due to development of port-related infrastructure
Stormwater runoff, emissions and discharges causing a decline in quality and/or loss of wetland habitat from port-related development
Elevated levels of air, noise, vibration and light emissions impacting wetland habitat quality and migratory species
Loss of wetland habitat and/or a decline in quality due to surface water and groundwater resources modification from operational and construction activities
and light emissions impacting wetland habitat quality and migratory species
Increased weeds and pests causing a decline in quality and/or loss of wetland habitat due to port-related development
Social values associated with amenity of surrounding communities and sensitive land uses
Increased road traffic and associated road safety management issues due to construction and operational activities
Elevated levels of air, noise, vibration, light emissions and altered visual amenity of port land and surrounding areas due to construction and operational activities
Social values associated with industrial safety
Industrial incident from port-related development causing harm and/or health impacts to the workforce and to the community

Appendix E
Dictionary

Term	Definition
beneficial reuse	dredged material that has been used for a purpose that provides social, economic or environmental benefits (or a combination of these). That is, the dredged material is managed as a valuable resource rather than a product destined for disposal. Beneficial reuse can involve the placement of dredged material on-land and in the aquatic zone (i.e., underwater or in intertidal areas). Consideration of beneficial reuse in the Queensland context to date has been focused on applications that provide economic benefits such as on-land processing and industry reuse or land reclamation.
capital dredging	has the same meaning as in the Ports Act.
dredged material	capital and maintenance dredged material required for the ongoing operation and future expansion of the port.
ecologically sustainable development	has the same meaning as in the EPBC Act. Note: At the time of writing, the principles of ESD under the EPBC Act are: a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation c) the principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making e) improved valuation, pricing and incentive mechanisms should be promoted.
environmental value/s	has the same meaning as in the *Environmental Protection Act 1994*.
GBRWHA	the GBRWHA extends from the top of Cape York in north-east Australia to just north of Bundaberg, and from the low water mark on the Queensland coast to the outer boundary of the GBRMP, which is beyond the edge of the continental shelf. The area was declared a World Heritage Area in 1981 because of its OUV. About 99 per cent of the World Heritage Area is within the GBRMP but encompasses: • some 980 islands which are under federal and Queensland jurisdiction • some internal waters of Queensland (for example, deep bays, narrow inlets or channels between islands) • all waters seaward of the low water mark from north of Bundaberg to Cape York.
Local expression of the OUV of the GBRWHA	environmental values present within and surrounding the priority Port of Hay Point/Mackay master planned area that contribute to the OUV of the GBRWHA. Note: The local expression of the OUV of the GBRWHA within and surrounding the priority Port of Hay Point/Mackay master planned area has been identified as part of the evidence base and is specifically referred to in the master plan EMF.
maintenance dredging	dredging carried out for the purposes of removing sediments that have accumulated in existing channels, berths, approaches and swing basins of a port to maintain an approved capital dredging profile.
marine plants	has the same meaning as in the *Fisheries Act 1994*.
master planned area	see Ports Act, however for this master plan means all of the area shown on **Figure 1** and **Appendix A**.

Term	Definition
matters of national environmental significance	has the same meaning as in the EPBC Act. Note: At the time of writing the matters of national environmental significance are: • world heritage properties • national heritage places • wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under which such wetlands are listed) • nationally threatened species and ecological communities • migratory species • federal marine areas • the GBRMP • nuclear actions • a water resource, in relation to coal seam gas development and large coal mining development.
matters of state environmental significance	see *State Planning Policy*.
offset/s (environmental offset)	has the same meaning as in the *Environmental Offsets Act 2014*. See also the relevant federal and state policies.
OUV	a concept that underpins the listing of world heritage properties such as the Great Barrier Reef. As defined in the *UNESCO Operational Guidelines for the Implementation of the World Heritage Convention* means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community.
port limits	has the same meaning as in the *Transport Infrastructure (Ports) Regulation 2016*.
port optimisation	the act of making a port system, design or decision as effective or functional as possible. This may include making efficient use of strategic port land, berths and/or land-based facilities, ability to control berthing allocations and scheduling, minimising capital-intensive marine-based infrastructure, minimising the distance between land-based facilities and berths and/or minimising capital or maintenance dredging.
port overlay	has the same meaning as in the Ports Act.
precincts	zones of development for specific areas within the master planned area.
priority management measures	has the same meaning as in the Ports Act.
priority ports	has the same meaning as in the Ports Act.
sensitive land use or uses	has the same meaning as in the *Planning Regulation 2017*.
SPL	has the same meaning as in the *Transport Infrastructure Act 1994*.
supply chain infrastructure	infrastructure, services and utilities identified as critical to supporting the future functioning of priority Port of Hay Point/Mackay and its associated trade and economic growth for the region. Note: This may include road, rail, marine, port and other infrastructure that service the priority Port of Hay Point/Mackay and associated industrial development. See **Table 1** for further information.

Appendix F
Acronyms

Acronym / Abbreviation	Definition
AMSA	Australian Maritime Safety Authority
DBT	Dalrymple Bay Terminal
DMPA	Dredge Material Placement Area
DUKC	Dynamic Under Keel Clearance
EIS	Environmental Impact Statement
EMF	Environmental Management Framework
EP Act	*Environmental Protection Act 1994*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
ESD	Ecologically Sustainable Development
GBRCMP	Great Barrier Reef Coast Marine Park
GBRMP	Great Barrier Reef Marine Park
GBRMPA	Great Barrier Reef Marine Park Authority
GBRWHA	Great Barrier Reef World Heritage Area
HPCT	Hay Point Coal Terminal
LMDMP	Long-term Maintenance Dredging Management Plan
NQBP	North Queensland Bulk Ports Corporation Limited
Maintenance Dredging Strategy	Maintenance Dredging Strategy for Great Barrier Reef World Heritage Area Ports
METS	Mining Equipment Technology and Services Hub
MIW	Mackay Isaac Whitsunday
MNES	Matters of National Environmental Significance
MSES	Matters of State Environmental Significance
OUV	Outstanding Universal Value

Acronym / Abbreviation	Definition
Ports Act	*Sustainable Ports Development Act 2015*
QCPP	Queensland Coastal Passage Plan
QFAP	Queensland Freight Action Plan - Advancing Freight in Queensland
QFS	Queensland Freight Strategy
QREZ	Queensland Renewable Energy Zone
QWSG	Queensland Wader Study Group
Reef 2050	*Reef 2050 Long-Term Sustainability Plan*
SDPWO Act	*State Development and Public Works Organisation Act 1971*
SIS	State Infrastructure Strategy 2022
SPL	Strategic Port Land
SPP	*State Planning Policy*
TCP	*Transport Coordination Plan 2017–2027*
TMR	Department of Transport and Main Roads, Queensland
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO WHC	United Nations Educational, Scientific and Cultural Organization World Heritage Committee

13 QGOV (13 74 68)
www.tmr.qld.gov.au | www.qld.gov.au