

DRAFT PORT HEDLAND MARINA AND WATERFRONT MASTERPLAN

NOVEMBER 2019



TABLE OF AMENDMENTS

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Prepared for **Town of Port Hedland**



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In association with:

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EXECUTIVE SUMMARY

The Port Hedland waterfront is recognised as a strategically important site where the synergies of the pristine coastal and marine environment, the amenity of the waterfront, opportunity to create a marina facility and the proximity to the Town Centre align to form a strong and successful marine and waterfront precinct for the Port Hedland and Pilbara community as well as visitors to the region. The Waterfront is uniquely positioned to take advantage of these synergies and facilitate a transformation into a successful boating, tourism, cultural, education and recreation destination.

The waterfront is positioned immediately adjacent the Port Hedland Town Centre and the West End Precinct with views to the Port and shipping channel. With the changes occurring in West End and the redevelopment opportunities adjacent the waterfront at the old hospital site, the Waterfront offers an outstanding opportunity as a catalyst for the transformation of the Town Centre and surrounds.

The Port Hedland Marina and Waterfront Masterplan (the plan), has been prepared to coordinate a vision for the future development of land within the spoilbank precinct (to be referred to as the Waterfront) and set the framework for the gradual transformation over time. At this stage, the Vision is focused on ensuring the structure between the marine and landside are integrated, and the public realm, marine infrastructure, tourism, cultural, economic development and education opportunities and interfaces are designed to achieve the best outcomes for the Waterfront Precinct.

The vision involves the reconnection of the waterfront to the Town centre to allow the precinct to truly integrate with west end and reconnect the people of Port Hedland with the water.

The Marapikurrinya five fingers alludes to the five tidal creeks that are part of the 'living waters', the Marapikurrinya Kariyarra coastal story. The tidal creeks extend beyond the water into drainage lines represented in the landscape by extended feature walls, and a single creek water feature. Central to the Waterfront Precinct is the Marapikurrinya hand, creek and artwork that is represented in the pavement and as part of a shade structure and tall artwork. The representation of the five fingers at this point have the opportunity to become part of the creek water feature and transfer water across the promenade to the cascade and marina edge.

This report provides broad level design guidance which provides the foundation for future detailed design and development to occur. The Implementation strategy provides a framework for the staging and delivery of the Precinct. Additional background information on the project, including Stakeholder and Community Engagement Outcomes Report, Kariyarra Engagement Plan, Traffic and Transport Analysis, Port Hedland Marina and Waterfront Place Plan, and Strategic Aboriginal Engagement Plan informed the preparation of the Masterplan.



INTRODUCTION

SECTION

1

1. INTRODUCTION

1.1 PURPOSE

The purpose of this masterplan is to explore the transformation of the Spoilbank into a vibrant waterfront development as envisaged by the project governance group, stakeholders and community. The masterplan focuses on exploring an appropriate structure of recreation spaces, infrastructure and amenities and the inter-relationship with the public realm.

The masterplan presented in this report reflects the aspirational long-term vision of the site, however a staged approach to the development has been considered to ensure that improvements to the Spoilbank can be realised in the short-term with various projects and masterplan elements contributing to the enhancement and ongoing development of the waterfront over time. The future stages are aspirational and may or may not be delivered in the form presented, however shall guide future decision making for the site.

This Masterplan will be used in support of an application for exemption under the Public Works Act 1902 and to inform further detailed planning.

1.2 PROJECT BACKGROUND

On 15 October 2018 the State Government of Western Australia announced its commitment to the Port Hedland Spoilbank Marina and contribution of \$94M to the delivery of the marina. Concurrently the Town have allocated \$13M to engage the services of a consultant group to prepare this masterplan and associated feasibility, with the balance to be utilised for landside public and civil infrastructure works.

On behalf of the Spoilbank Marina Taskforce, Taylor Burrell Barnett and an expert consultant team prepared the Spoilbank Marina Concept Plan Report (June 2018), which included investigations, feasibility and concept plan formulation underpinning the proposal associated with the 2018 State Government announcement. The proposal initially included provision for 20 boat pens, a two-lane boat ramp, two breakwaters and internal revetment walls, and a separate access channel. Landside works comprised a boat and trailer parking area, a new combined event space and a new dry dock area.

Further to the 2018 proposal, on 7 August 2019, the McGowan Government announced the Spoilbank Marina design will include a four lane boat ramp with a long term capacity for up to 80 boat pens, doubling the original size of the boat launching facility, following strong community feedback.

1.3 PROJECT GOVERNANCE

The Pilbara Development Commission (PDC) is the lead agency responsible for overseeing the planning and implementation of the Port Hedland Spoilbank Marina project as illustrated at **Figure 1**. The Town of Port Hedland (Town) is the lead agency responsible for undertaking landside activation (process managed by Development WA) and the Department of Transport (DoT) has been tasked to lead the Marine Design Working Group in order to complete the marine detailed design.

1.3.1 Spoilbank Marina Steering Committee

The Port Hedland Spoilbank Marina Steering Committee has been convened to provide oversight, approve Working Group membership; approve project implementation plans and proposals and resolve issues escalated from the following Project Working Groups:

- Marina Design – DoT.
- Financial Feasibility – Led by PDC.
- Land Activation – Led by the Town.

1.3.2 Land Activation Working Group (LAWG)

The Land Activation Working Group (LAWG) which includes the Town, Development WA, Department of Planning, Lands and Heritage (DPLH), DoT and PDC have been tasked with obtaining all required approvals to facilitate the landside development of a vibrant waterfront destination at the Spoilbank.

1.3.3 Spoilbank Community Reference Group

The Spoilbank Community Reference Group (CRG) will provide stakeholder input and advice regarding the ongoing development of the Port Hedland Marina and Waterfront project. The CRG shall have a particular focus on the landside development.

The membership of the CRG consists of one nominated representative (unless noted) from each of the following organisations:

- Port Hedland Yacht Club
- Port Hedland Returned Services League (RSL)
- TS Pilbara
- Port Hedland Fishing Club
- Volunteer Marine Rescue Service Port Hedland
- Port Hedland Chamber of Commerce
- Port Hedland Seafarers Centre
- Care for Hedland
- Hedland Collective
- Traditional Owners (Kariyarra)
- Community members x 2
- New members (GT Diving, Pilbara Tourism, Jayrow Helicopters)

1.4 MASTERPLAN DEVELOPMENT PROCESS

The starting point for the preparation of the masterplan was the Concept Plan prepared in 2018 and the Concept Plan associated with the Minister’s announcement in August 2019. The masterplan development process focussed on exploring the appropriate structure, preferred activities and enhancement of the public realm. The process has also been subject to ongoing review in terms of the design meeting the requirements of the DoT, who are leading the delivery of the marine-side components of the project.

This process has led to the preparation of the proposed masterplan that achieves the recommendations of the project governance group and responds to stakeholder and community feedback as discussed at **Section 5**.

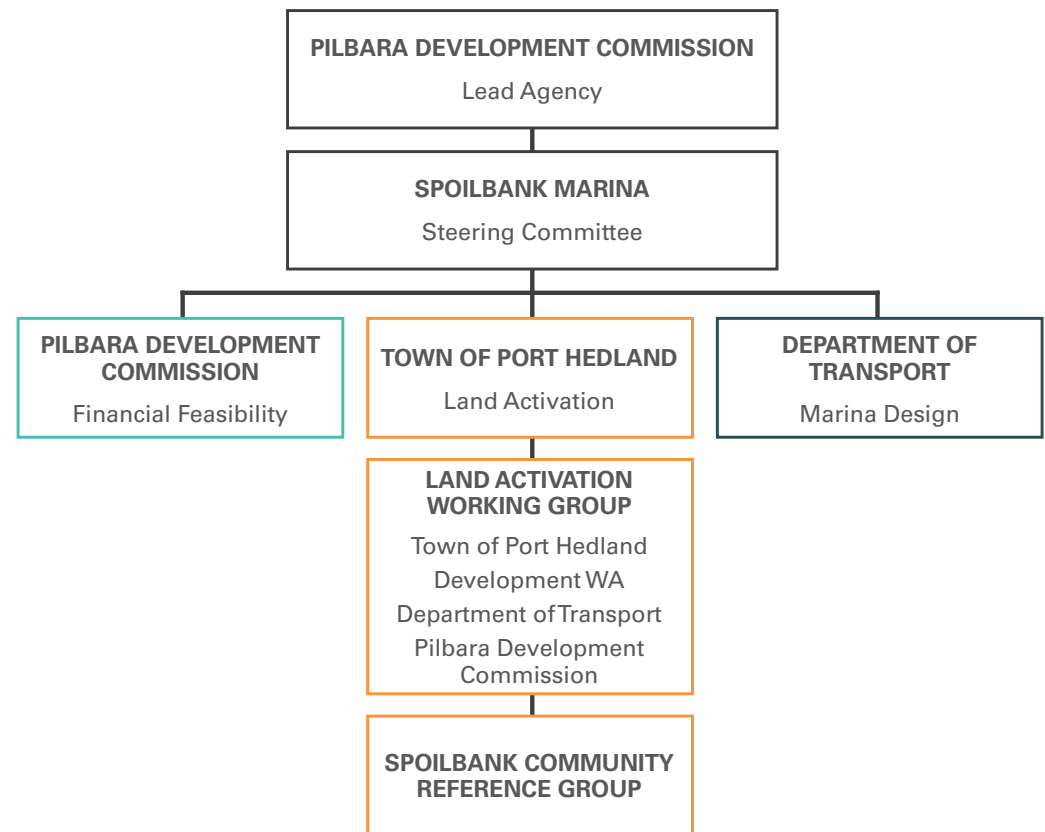


Figure 1: Project Governance Structure



CONTEXT

SECTION

2

2. CONTEXT

2.1 SITE

The subject land comprises approximately 36 hectares (ha) and is generally defined by the Indian Ocean to the north, east and west and Sutherland Street to the south.

The majority of the subject land is reclaimed land which was formed from the deposition of dredge spoil excavated from the Port Hedland Harbour and adjoining navigation channel. Historic aerial imagery shows that coastal change at Spoilbank and the surrounds is demonstrated by human interventions through dredging, disposal of dredged material, reclamation for landbanked port facilities and the interruption of sediment transport pathway (refer **Figure 2**). The subject land is generally undeveloped and used for informal recreation purposes, predominantly fishing, 4WD-ing and general recreation. The Port Hedland Yacht Club occupies the subject land with a small lagoon providing moorings and boating access to a deep water channel.

The subject land is a collection of Crown reserves as outlined in Table 1 and Figure 3.

A land assembly process will need to be undertaken to facilitate the land amalgamation process, involving the consolidation of various Crown Land parcels.



2009



2019

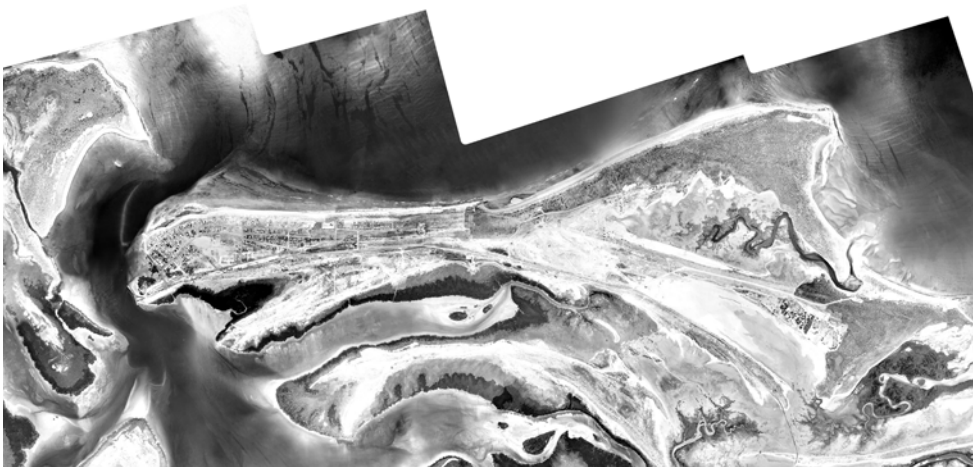


Figure 2: Historic Aerial Imagery (Source: Landgate)

1694

Table 1: Legal Land Description

Lot/Reserve	Plan Number	Volume/Folio	Landowner	Approx. Area (hectares)
Lot 370	P 35619	LR 3118/753	Crown Land – State of Western Australia (Port Hedland Port Authority)	7.4704
Lot 5178 (Portion of)	P 214191	LR3060/410	Crown Land - State of Western Australia (Town of Port Hedland)	3.1911
Lot 5550 (Portion of)	P 240246	LR3060/414	Crown Land - State of Western Australia (Town of Port Hedland)	3.3837
Lot 5751	P 91579	LR3060/422	Crown Land - State of Western Australia (Town of Port Hedland)	20.5727
Sutherland Street			Crown Land (road reserve)	1.1134
TOTAL				35.7313

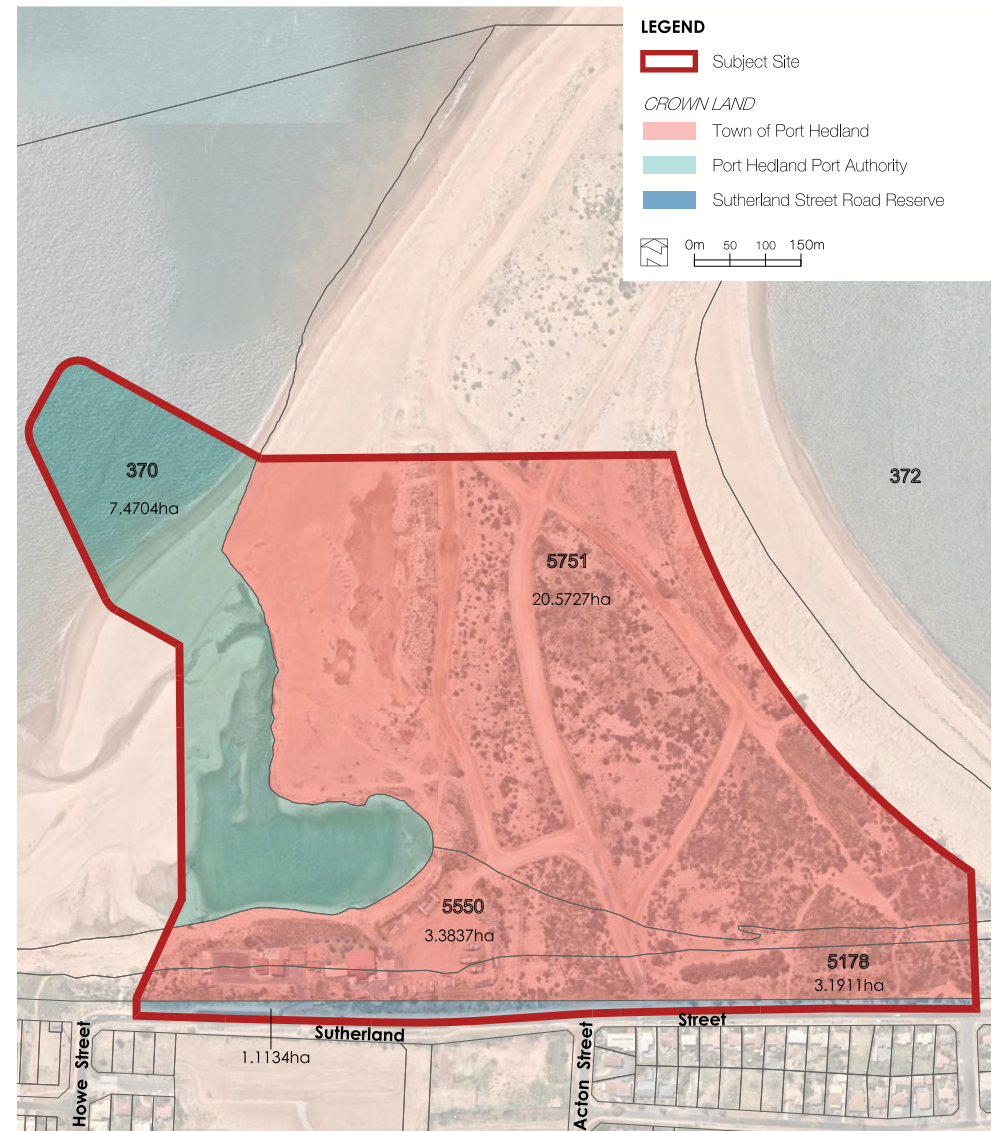


Figure 3: Land Description and Tenure

2.2 DISTRICT CONTEXT

The subject land is located approximately 1 kilometre (km) east of the Port Hedland Town Centre and immediately adjacent West End, 5 km west of Cooke Point and 11km to the north-west of the Airport and South Hedland (refer **Figure 4**).

The existing uses located south of the subject land are predominantly of a residential nature. Located immediately to the south of Sutherland Street is existing single residential development. The former Port Hedland Hospital site (now vacant) abuts the subject land to the south, bound by Sutherland Street, Howe Street and Morgans Street. BHP Billiton Iron Ore operations occupy the majority of land south of Wilson Street.

The adjacent foreshore is relatively undeveloped, allowing great scope to develop new connections and improvements. There is also the potential to enhance the foreshore through the linkage of existing nodes, particularly to the west to the Port Hedland Town Centre and to the east to Cemetery Beach and beyond.

Given the subject land's proximity to the West End Improvement Scheme Area which will result in significant population decline, the proposed development will complement the change in nature of the West End and create a vibrant area of activity for the precinct. The creation of a vibrant node at the Spoilbank will also be a destination for the Port Hedland community and visitors from near and far.



Figure 4: District Context





EXISTING ENVIRONMENT

SECTION

3

3. EXISTING ENVIRONMENT

3.1 FLATBACK TURTLES

The primary location for the nesting of flatback turtles is Cemetery Beach located to the east of the subject land, typically between the months of late November to March, with hatching periods between January and March.

Protection of the flatback turtle population at Cemetery Beach will ensure that best management practices are implemented during construction and operational phases of the proposal. Dredging activities will not be undertaken during the key months of December to March.

Furthermore, a Turtle Light Spill Management Plan is currently being developed, which will ensure that a turtle sensitive lighting approach is incorporated into the proposal's final design specifications.

3.2 MIGRATORY SHOREBIRDS

Migratory shorebirds as protected under State and Commonwealth legislation are understood to occur within the vicinity of the proposed development. However it is noted that the proposed marina will only impact a small area of habitat used for roosting by a small number of shorebirds, and this area does not support habitat critical to the survival of any shorebird species.

The proposed marina could potentially provide opportunities for roosting areas that are protected from disturbance.

3.3 GREEN SAWFISH

The Green Sawfish is known to frequent the inshore waters of the inner harbour, and may occur in small numbers adjacent to the proposed marina. As such, the marina is not expected to significantly impact the species, nor the habitat.

3.4 DUST AND AIR QUALITY

The West End precinct (west of McGregor Street) is adjacent to the port, with bulk commodity stockpiling handling and ship loading occurring to the south and west.

In 2016 the Port Hedland Dust Management Taskforce considered the findings of the Department of Health's Port Hedland Air Quality Health Risk Assessment for Particulate

Matter (February 2016) and provided recommendations to the Government through the Port Hedland Dust Management Taskforce Report to Government (August 2016).

The State Government adopted a whole of Government approach to dealing with the management of dust in Port Hedland which resolved to:

- The Government supports the Taskforce recommendation that appropriate planning controls be implemented to prohibit sensitive land uses and restrict population growth in the West End of Port Hedland. To give effect to this, the Western Australian Planning Commission (WAPC) will be requested to consider preparing an Improvement Plan and Scheme designed to achieve the land use outcomes described in Recommendation 5 of the Taskforce Report.
- In response to community concerns raised in the consultation process, the Government will act to ensure that any future West End planning controls will not prevent the redevelopment of residential properties - provided that the redevelopment would not result in an intensification or expansion of a non-conforming use - should they be more than 75% damaged by a natural disaster such as fire or a cyclone.

To this end, an Improvement Plan for the West End has been gazetted as discussed in more detail at Section 4.1.5 of this report.

3.5 ABORIGINAL HERITAGE

The Pilbara region is home to a number of different Aboriginal tribes and is rich in Aboriginal heritage sites. Aboriginal tribes indigenous to the Port Hedland area include the Kariyarra and Nyamal peoples, with these people maintaining a long-standing association with the area. Port Hedland was originally known by the Kariyarra and Nyamal people as Marapikurrinya.

A search of the DPLH Aboriginal Inquiry System confirmed that two registered Aboriginal heritage sites and no Aboriginal heritage places occur either within the subject land or within the vicinity of. A site on Anderson Street (site 6321, Anderson Street, Port Hedland) has been identified as containing engravings, and the subject land falls within a registered area (site 11943, Two Mile Ridge, Nelson Point) likely to contain engravings.

3.6 COASTAL HAZARD RISK MANAGEMENT AND ADAPTATION PLANNING (CHRMAP)

A CHRMAP is being prepared to detail how the marina and associated development will respond to potential coastal hazard risks over time in accordance with State Planning Policy 2.6 (SPP 2.6). The breakwaters and revetments will provide a level of protection, however the future evolution of the development will influence what other adaptation strategies will be required in the future.

At present, investigations are being undertaken to inform an assessment of the potential future coastal hazard risk to both the development and the surrounding social, cultural and environmental values. Following completion of this risk assessment, risk adaptation strategies will be prepared to outline how these risks will be managed. An implementation plan for future risk management requirements will also be prepared.

3.7 ENVIRONMENTAL REVIEW PROCESS

The marine component of the project by the DoT was referred to the Commonwealth's Department of Environment and Energy on 22 August 2019 for assessment under the Environmental Protection & Biodiversity Conservation Act 1999. A determination of assessment is expected by the end of October 2019.

Referral of the marine component to the Environmental Protection Authority (EPA) is anticipated for January 2020. Various technical reports have been prepared in support of the environmental referrals, including a Light Management Plan and Marine Environmental Quality Investigations and Ecological Impact Assessment.

A separate referral to the EPA for the landside component of the project will occur under Section 48 of the EP Act.



PLANNING FRAMEWORK

SECTION

4

4. PLANNING FRAMEWORK

4.1 STATE PLANNING FRAMEWORK

4.1.1 SPP 2 - Environment and Natural Resources Policy (SPP 2.0)

The objectives of SPP 2.0 are:

- To integrate environment and natural resource management with broader land use planning and decision-making;
- To protect, conserve and enhance the natural environment; and
- To promote and assist in the wise and sustainable use and management of natural resources.

The Town of Port Hedland falls within the Rangelands Natural Resource Management (NRM) region, which promotes the sustainable use and management of natural resources. The most distinctive natural feature of Port Hedland is the extensive coastline, reefs and beaches, which provides a significant drawcard for tourism, contributing to economic development within the Town.

The Town's Growth Plan identifies responses and planning/development and management actions relating to facilitating sustainable coastal development, protection of areas of high biodiversity value and regionally significant ecosystems and protection of the quality of ground and surface water supply sources.

4.1.2 SPP 2.6 - State Coastal Planning Policy (SPP 2.6)

The relevant objectives of SPP 2.6 are to:

- Ensure that the location of coastal facilities takes into account coastal processes, landform stability, coastal hazards, climate change and biophysical criteria;
- Ensure the identification of appropriate areas for the sustainable use of the coast for housing, tourism, recreation, ocean access, maritime industry, commercial and other activities;
- Provide for public coastal foreshore reserves and access to them on the coast; and
- Protect, conserve and enhance coastal zone values, particularly in areas of landscape, biodiversity and ecosystem integrity, indigenous and cultural significance.

The policy establishes a hierarchy for undertaking coastal hazard and risk adaptation planning as previously outlined in this report. The adaptation measures of "Avoid, Planned or Managed Retreat, Accommodate and Protect" are to operate on a sequential and preferential basis starting with avoid as part of the coastal hazard risk management adaptation planning process.

The DoT is in the process of identifying the vulnerability of the subject land and wider area to coastal processes through a CHRMAP. The CHRMAP will recommend coastal management and planning measures to ensure that the risk of current and future erosion and flooding to values and assets within tolerable thresholds. Refer Section 3.6 for further details.

4.1.3 SPP 3.4 - Natural Hazards and Disasters (SPP 3.4)

The objectives of SPP 3.4 are:

- To include planning for natural disasters as fundamental elements in the preparation of all statutory and non-statutory planning documents; and
- To minimise the adverse impacts of natural disasters on communities, the economy and the environment.

Of particular relevance to this proposal is the proximity of the subject land to the surrounding water body and the risk of tropical cyclones. SPP 3.4 states that proposed development on a floodplain is considered acceptable with regard to major flooding as long as it does not produce an adverse impact on surrounding development with an adequate level of flood protection. The impact of the development site on the surrounding marine environment and its susceptibility to flooding has been taken into consideration

4.1.4 SPP 4.1 - Industrial Interface (SPP 4.1)

SPP 4.1 was gazetted on 5 May 1997 and is subject to review via the draft Industrial Interface Policy. This policy provides the foundation for land use planning to prevent land use conflict associated with industry and infrastructure facilities.

Whilst not of direct impact to the proposal, in February 2016, the Department of Health published the Port Hedland Air Quality Health Risk Assessment for Particulate Matter report, which concluded that there is sufficient evidence of possible negative effects on human health from dust in the West End of Port Hedland to warrant improved dust management and monitoring controls and land-use planning measures to reduce community exposure to dust

4.1.5 Improvement Plan 50: Port Hedland West End (IP50)

Pursuant to Part 8 of the Planning and Development Act 2005, on 26 June 2019 the WAPC recommended to the Minister for Planning and Governor that the identified land area (and west of McGregor St and Lukis Street) be dealt with and be the subject of Improvement Plan No. 50: Port Hedland West End (IP50). IP50 was gazetted on 1 August 2019. IP50 is the head of power for the preparation of an Improvement Scheme.

The IP50 area is as depicted on WAPC Plan Number 3.2736.

The purpose of IP50 is to:

- Enable the WAPC to undertake all necessary steps to advance the planning and development within the plan area as provided for under Part 8 of the PD Act;
- Establish the strategic planning and development intent within the subject area;
- Provide for a strategic planning framework endorsed by the WAPC, Minister for Planning and the Governor;
- Authorise the preparation of an improvement scheme; and
- Provide guidance to the preparation of statutory plans, statutory referral documentation and policy instruments.

IP50 confers authority to the WAPC to undertake the necessary tasks to plan for and facilitate the implementation of the project.

The preparation of the Improvement Scheme will be informed by the IP50 objectives:

- To provide a strategic planning framework to determine future land uses considering all land use options that takes into consideration physical, economic, social, and environment factors;
- To provide a statutory planning instrument through which to implement the strategic planning framework and effectively guide the preparation of statutory plans, statutory referral documentation and policy (as may be required) to facilitate orderly and proper planning of the area; and
- To implement the Government response to the Port Hedland Dust Management Taskforce Report to Government to prohibit sensitive land uses and restrict population growth in the West End of Port Hedland

4.2 LOCAL PLANNING FRAMEWORK

4.2.1 Town of Port Hedland Local Planning Scheme No. 5 (LPS 5)

The subject land is predominantly reserved 'Parks and Recreation' under LPS 5, with a portion of the subject land reserved for 'Waterways' as outlined in **Figure 5** below. Land within the immediate vicinity of the subject land north of Sutherland Street is also reserved 'Parks and Recreation'. The majority of land south of Sutherland Street is zoned 'West End Residential – R30/R80' with small pockets zoned 'Mixed Business' and 'Tourism'.

Furthermore, the subject land extends beyond the boundaries of LPS 5 and partially within the boundaries of the Port Hedland Port Authority, where planning/development jurisdiction passes to the Port Authority. There is also an area between these two jurisdictions where no planning control exists (subject to the requirement to obtain building approval).

Consideration will need to be given to the need to modify the local government boundary to align the ultimate cadastral and landownership boundaries, with support from the Town.

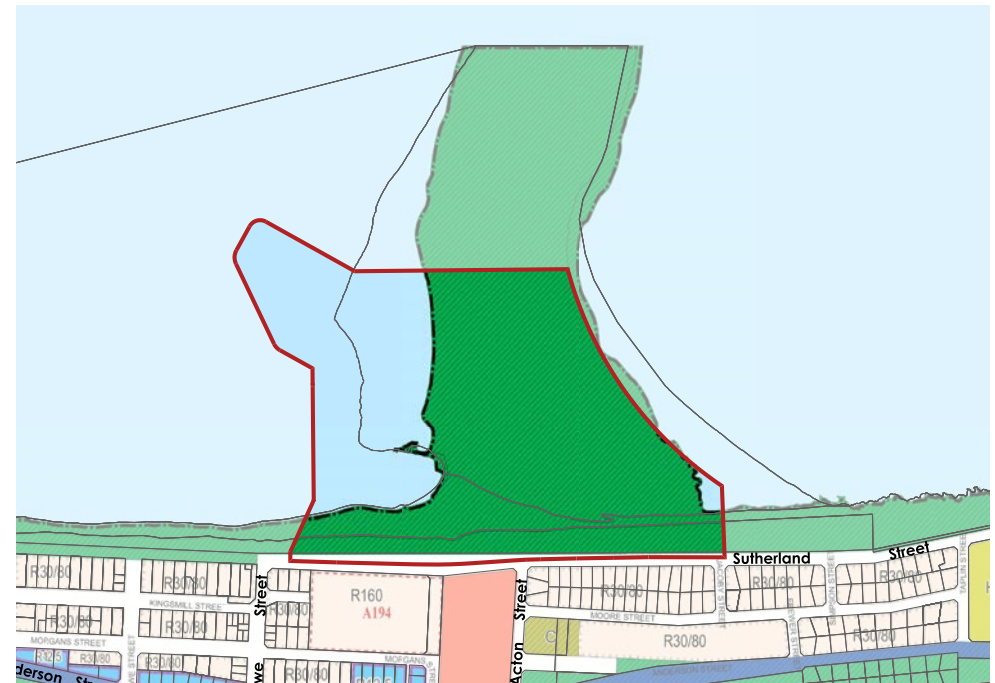


Figure 5: Extract of Local Planning Scheme No 5

4.2.2 Strategic Documents

Strategic Community Plan 2018-2028

The Town of Port Hedland Strategic Community Plan (SCP) sets out a vision, objectives and outcomes for the Town over a ten year timeframe with a focus on the community, the economy, the built and natural environment and leadership. Of particular relevance to the development of the subject land, the SCP identifies the following progress measures / strategic responses:

1. Increased participation and ownership by the community in activities, events and programs.
2. The present and future facilities and requirements of the Town are planned for and developed in-line with relevant facility standards and community needs.
3. Investment in key infrastructure development.
4. Increased utilisation of the Town's assets and amenities.

Pilbara's Port City Growth Plan (2012)

The Growth Plan provides a local level strategic blueprint to assist with potential future growth of Port Hedland. The Growth Plan identified three growth scenarios which were tested through the development of the Growth Plan through a workshopping process. 'Scenario 3: Rapid City Growth' was determined to be the preferred growth scenario with 'moderate growth'. No growth has been identified for Spoilbank.

Strategies for growth have been applied to several precincts within the Town of Port Hedland to develop patterns of growth and assist with detailed development planning. The subject land is included within Precinct 1 – West End which includes a total land area of 360 ha and identification of a local centre at Spoilbank. The Growth Plan indicates that the precinct will experience no net increase in total dwelling numbers compared to the present day scenario, 982 additional short stay rooms (1,094 total), 9,768m² of additional retail floorspace (19,213m² total) and 17,999m² additional commercial floorspace (23,814m² total).

The Growth Plan identifies the potential for a boating facility at the Spoilbankmarina to the west of the Spoilbank peninsula, coastal access, short term accommodation and the northern portion retained for informal recreation purposes.

The Implementation Plan associated with this document identifies a short-term action relating to the development of a dedicated event and passive recreational spaces in West End and Spoilbank.

Port Hedland Consolidated Foreshore Redevelopment Master Plan (2013)

The Port Hedland Consolidated Foreshore Redevelopment Master Plan has been prepared, in close consultation with the community, as an overarching visioning document to guide the numerous proposals along the Port Hedland foreshore.

The foreshore has been broken down into 5 study areas, which provide a more detailed analysis of opportunities and directions, key focus areas and a response to SPP 2.6. The subject land is located within Study Area B: Spoil Bank (West End). Of particular relevance to the subject land, the masterplan identifies opportunities for formalised vehicular and pedestrian access, increased amenity, revegetation and iconic public art.

The B.1 study area, defined as the Spoilbank outlines the following recommendations for the subject land:

- Restriction of 4WD access and stabilised sand road into a cul de sac form rather than the existing loop; and
- Revegetation areas with fenced sand paths and opportunities for beach shelters.

The B.2 study area, defined as the Spoilbank Marina and Development outlines the following recommendations for the subject land:

- Proposed marina development with potential marina development changes (car park relocation);
- Proposed caravan park;
- Revegetation areas with fenced sand paths, opportunities for beach shelters and coastal feature tree planting; and
- Opportunity for boardwalk along water's edge and dual use pedestrian/cycle connection from the West End.

Town of Port Hedland Heritage Inventory (2017)

In accordance with the Heritage of Western Australia Act 1990, the Town is required to compile and maintain a list of buildings/ places which are or could become of cultural heritage value. The Town's Municipal Heritage Inventory was adopted in 2017.

One site within the project area has been included on the Municipal Heritage Inventory (now referred to as Local Government Inventory), being the Port Hedland Yacht Club (Place No. 46). The Yacht Club is regarded as 'Grade C' level of significance, being a place/site of some cultural heritage significance to Town of Port Hedland. Grade C recommendations include encouragement of retention, archival record and interpretation, which are in line with the proposal for the site.

Public Open Space Strategy (2019)

The Town's Public Open Space (POS) Strategy was prepared to analyse the current provision of POS to identify the management, future provision and investment of POS to respond to future demand based upon three potential growth scenarios. The Strategy recognises the importance of regional variations to public open space requirements to provide more economically and environmentally sustainable parks.

Within the West End locality, the current provision of POS is estimated at approximately 1.49% of gross subdivisible area. However, it is important to note that the calculation has not included foreshore reserves and public purposes reserves such as school ovals. The Strategy also acknowledges that the area is in close proximity to the Spoilbank that offers a large area suitable for informal recreation activities and that all residents in this locality are generally within a 5 minute walk to the foreshore promenade.

The provision of public spaces within the Spoilbank development will be in line with the 'neighbourhood' classification serving as a recreational and social focus for the community, consistent with the recommendations of the Strategy. Of relevance to the subject land, 'nodes' located along Sutherland Street will provide rest stops, exercise equipment, shelters, seating and bins for pedestrians and cyclists creating a key connection between Spoilbank and the West End.

Port Hedland Landscape Guidelines (2019)

The Port Hedland Landscape Guidelines are aimed at providing guidance for the design, construction and maintenance of landscape infrastructure which Council shall have due regard to in the assessment of landscaping in the public and private domain.

The detailed design of the Spoilbank public realm will be consistent with the design principles and standards of these Guidelines.

Arts and Culture Strategy 2019-2022

In alignment with the Town's SCP, the Arts and Culture Strategy 2019-2022 sets a vision that places culture at its centre and recognises the importance of arts and creativity. The Strategy outlines key priorities and the role that the Town, people, community groups and organisations can play in delivering the vision and outcomes.

Key themes that emerged as a result of the community engagement process included:

5. There's a lot to be proud of in Hedland
6. Arts and Events are front of mind, but there's more to Hedland's culture
7. We should be telling our unique stories, but also creating shared ones
8. People are keen to participate, not just attend
9. Empowering locals to contribute to the creative scene is essential
10. We should be looking for ways to amplify the local
11. There's opportunity in unexpected places
12. The right infrastructure will help enable outcomes

Of relevance to this proposal, the community engagement feedback identified Spoilbank as a potential precinct for art.

The Strategy identifies four strategic direction areas:

13. This Is Us - The Hedland Story and Points of Pride
14. Doing it together - Being Part of It and Connecting Community
15. Value Add - Contributing to a Thriving Hedland
16. The Unexpected - Fresh Experiences and Novel Places

A priority area of relevance to the subject land relates to the inclusion of a multi-purpose arts and cultural facility on the site as a high priority (Financial Year 2020) with the Town identified as playing an advocacy role. The site should enable:

17. Commercialisation of arts and crafts.
18. The bringing together of culture, historical education, and enterprise.
19. Spaces for performance and community use.

Spoilbank is also identified as an area with the potential to support iconic events such as beer can regatta, small boat races, thong throwing, sand castle building.

The Port Hedland Marina and Waterfront Place Plan will reinforce the strategic directions and priorities of this Strategy as they relate to the subject land in order to and celebrate arts and culture.



STAKEHOLDER AND COMMUNITY ENGAGEMENT

SECTION

5

5. STAKEHOLDER AND COMMUNITY ENGAGEMENT

5.1 PROCESS

Community and stakeholder involvement has been critical in ensuring the creation of a vibrant waterfront destination and deliver maximum economic and social benefits for the town, region and local community. The Town has engaged with the Port Hedland community over many years as plans for the Spoilbank have evolved. In line with the recent commitment to the project, the Town has initiated an engagement process to inform the formulation of the Masterplan, as follows:

- Stakeholder Interviews (August 2019)
- Vision and Design Workshop (12 September 2019)
- Kariyarra Workshop (4 & 5 September 2019)
- Kariyarra Design Workshop (30 September 2019)
- On-line Survey (13-22 September 2019)
- Public Advertising of Masterplan (2-11 November 2019)
- Public Open Day (2 November 2019)

The outcomes of the process are contained in the Workshop Outcomes Report

5.2 KEY MESSAGES

5.2.1 Port Hedland Waterfront Place Plan

In 2014, Village Well, on behalf of the Town, developed the Port Hedland Waterfront Place Plan to assist in guiding the next stages of planning and design for the Port Hedland waterfront and to engage with community stakeholders regarding their perspectives and preferences. The results of this process are summarised below.

Broad aspirations

- Natural coastal beauty alongside busy port industry.
- Diverse social gatherings and quiet, solitary rituals.
- Hard-working lifestyles rewarded by waterside leisure time.
- People from near and far, all in one place.

Participants overwhelmingly agreed that the Waterfront should be for people of all ages and abilities and not limited to exclusive groups of people.

Themes/distinctive qualities

- A coastal oasis of abundant sea life, red raw earth, and endless Pilbara sky.
- A welcoming, friendly and diverse community with active lifestyles.
- A hidden treasure trove of local enterprises, celebrating the convergence of different traditions and passions.
- Building new industries for the township as a lasting legacy of the mining boom.
- Many stories and proud traditions of Indigenous culture, pearling, shipping, aviation and mining.

Vision for the Waterfront

“Port Hedland Waterfront, at the edge of the old town, is the heart of the community and the number one destination for visitors.

The Waterfront embodies the essence and paradox of Port Hedland – natural coastal beauty alongside busy port industry; diverse social gatherings and quiet, solitary rituals; hard-working lifestyles rewarded by waterside leisure time; people from near and far, all in one place.”



5.2.2 2019 Stakeholder and Community Engagement

A summary of the more recent engagement process is outlined in **Figure 6** below:

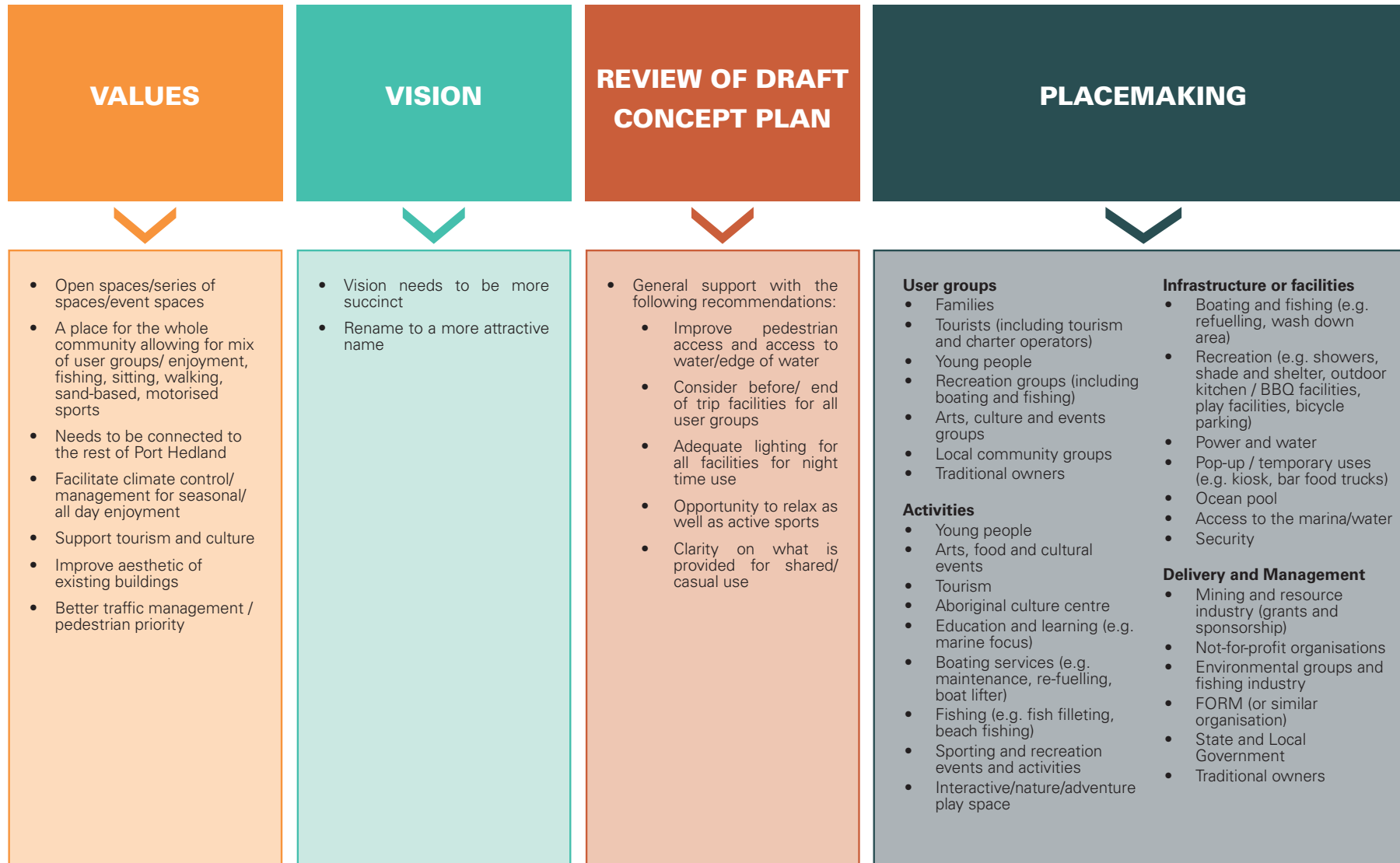


Figure 6: Summary of key outcomes from 2019 engagement

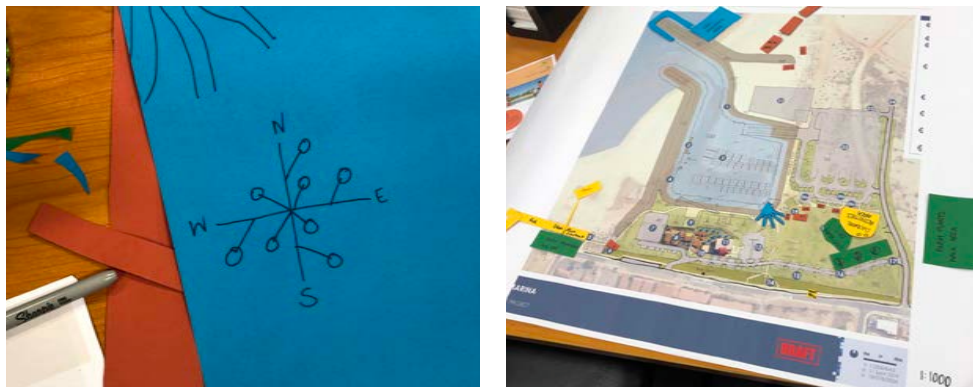
5.2.3 Kariyarra Engagement

SPATIAL

Key spatial threads derived for consideration in the design and development of the marina and waterfront are outlined below:

- Marapikurrinya - living waters water feature (saltwater) - as a central Marapikurrinya Kariyarra focus
- Cultural interpretation deck overlooking the dune and water linking east to Cooke Point and west to Port Hedland town centre
- Robust and all-access fishing pontoon / platform or deck(s) to be placed at the end of the long northern breakwater
- Family beach area that includes a netted swimming area, shade structures, BBQ's, seating, toilets and showers
- Informal youth area behind the family beach area including half basketball court, seating and shade
- Promenade to feature serpentine pavement pattern to represent 'Yintha' the Kariyarra creation serpent and also include a reference to the underlying reef now covered by the Spoilbank
- Kariyarra cultural activities area including shade structures, sand yarning circle (sand cook up area)
- Endemic planting supplemented by fruit trees - mango, tamarind, lemon etc.
- Bush tucker area that includes cultural plant uses and interpretation opportunities
- Business pop-up pads and toilets to address the promenade (fishing and country tours, coffee cart)
- Area for coffee cart to be provided during construction period
- All-access pedestrian connection across Sutherland Road

Figure 7: Key Spatial Considerations



ECONOMIC

Economic opportunities aligned with the marina and waterfront that should be nominated, explored and developed are outlined below:

- Marine fuel supply
- Marine services
- Construction services (earthmoving, cartage, haulage)
- Cultural awareness tours – fishing, walking, boat and bus to on-country tours
- Buggy train tours along the path to the Town and Cemetery Beach, Cooke Point coffee cart (potential for coffee cart to be located during construction period)

Figure 8: Key Economic Considerations





MASTERPLAN

SECTION

6

The masterplan (Figure 9) is based on a number of key considerations developed from the preceding discussion that specifically guide the development of the subject land. These are major concepts which deal with the overall patterns of development, the character of the plan and the special opportunities of the location and should be read in conjunction with the design philosophy and objectives outlined overleaf.

6. MASTERPLAN

6.1 DESIGN PRINCIPLES AND OBJECTIVES

Based upon the vision and values explored in the stakeholder and community engagement process the following overarching design principles and objectives have been developed.

Building on the setting

The special qualities of the waterfront location and its context should be used as a foundation for the development.

The key objectives for the setting include:

- Showcase the subject land's physical location on the waterfront, and with water frontage to all but one frontage, Sutherland Street.
- Respect and enhance the physical and active linkages of the subject land to other destinations along the waterfront including the Town Centre, Cemetery Beach, and Cooke Point.
- Celebrate the subject land's spectacular views of the Ocean, Finucane Island, the Port, and the Port shipping activity, particularly in the evening, under lights.
- Celebrate the waterfront location as a place for all people - Townsite residents, residents of South Hedland, and visitors from far and wide.
- Celebrate the subject land's opportunity to provide for a range of recreation, marine, water and entertainment opportunities in close proximity to the Town Centre.
- Provide the opportunity for the unique coastal, marine, port and aboriginal heritage characteristics of the site to be celebrated through the redevelopment of the subject land.



Creating a vibrant, attractive destination

Optimise the appeal of the location as a great place for all to recreate and visit, with a focus for public life, a new and improved public realm and good connections to it's surrounds.

The key objectives include:

- To create a waterfront precinct that fosters a sense of belonging and community feel and can be used as a major recreational focal point for the entire Port Hedland community.
- To create a public realm, including waterfront edges, streets and promenades to be memorable and lively and responsive to the climatic requirements of Port Hedland.
- To provide opportunities for the community to interact with the water in a variety of ways.
- To create a diverse range of public spaces that are flexible and can accommodate a variety of uses, from individuals relaxing to use by groups of people and major Town-wide events.
- Encourage and provide places to socialise and enjoy Port Hedland's outdoor lifestyle for as much of the year as possible.
- To develop a pedestrian promenade around the marina's edge.
- To incorporate art into the public realm that reflects the history of the subject land as well as adding interest.



Creating a comprehensive waterfront precinct

The site's waterfront location provides a unique opportunity to create a waterfront precinct for recreation, marine and waterfront activities.

The following key objectives are proposed to optimise the site's waterfront location:

- To create sheltered waters for boat mooring, launching and pens through the introduction of breakwaters.
- To develop a boating hub for the Port Hedland community comprising boat launching and pen facilities as well as the opportunity for marine services and maintenance infrastructure.
- To provide opportunities to accommodate charter vessels and ticketing facilities to service the tourism industry.
- To provide up to 200 trailer/car parking bays to service the 4 boat launching ramps.
- To provide opportunities for pedestrian access around the marina and out on the revetment walls.
- To provide opportunities for recreational fishing, for all age groups, to occur within and adjacent the marina, from the revetments and adjacent beaches.
- To provide for water-based activities in and around the marina and waterfront.
- To provide connections along the waterfront west into Town and east to Cemetery Beach.
- To provide opportunities for the community to interact with the water in a variety of ways including via terraces, pedestrian access on the revetment, watercraft/vessels or the adjacent beaches.



Connecting with the Town Centre

The marina and waterfront should be well connected and an integral part of the Port Hedland Town Centre, promoting an excellent level of pedestrian and cycling access to and from the Town Centre.

To integrate with the Town Centre, the following objectives include:

- To provide the opportunity for improved pedestrian connections west along the waterfront between Sutherland Street and Withnell Street.
- To provide enhanced pedestrian connections along Sutherland Street to include shade, shelter and rest stops, as appropriate.
- To provide improved pedestrian connections and wayfinding signage to identify and locate the marina and waterfront.
- To provide for destinations along the waterfront, to the Town Centre and beyond.
- To provide opportunities for views to the marina and waterfront from the Town Centre to be enhanced, where possible.



6.3 THE MASTERPLAN

THE MASTERPLAN

6.3.1 Public Realm

- 1 Community node
- 2 Recreational area
- 3 The Promenade
- 4 Revegetation Areas
- 5 Community Swimming Beach Nodes

6.3.2 Marine Side

- 6 Breakwater and revetments
- 7 4 lane boat ramp
- 8 Car, caravan and trailer parking
- 9 Fish filleting station
- 10 Floating public jetty
- 11 Commercial jetty
- 12 Boat pens
- 13 Marina Basin
- 14 Entrance Channel
- 15 Commercial Hard stand

6.3.3 Club and shared facilities

- 16 Existing Yacht Club
- 17 Future leasehold opportunities
 - a. Yacht club dry dock
- 18 Shared communal facility

6.3.4 Culture, tourism, economic development and education

- 19 Seasonal short-stay accommodation
- 20 First contact and paperbark pool interpretation view point

6.3.5 Movement and Access

- 21 Main Entry Road
- 22 Landscaped Parking street
- 23 Future connection to town centre



Figure 9: The Masterplan

6.2 MASTERPLAN ELEMENTS

6.2.1 Public Realm

The masterplan elements describe how the vision has responded to the design principles and objectives.

The development of high-quality public spaces and linkages will provide the opportunity for passive and active forms of recreation and accommodate formal and informal events, acknowledging the Spoilbank as an important waterfront destination. The public realm will comprise:

- Provision for food and beverage outlets (with a 'local' emphasis) within temporary 'pop-up' structures with the ability to accommodate additional marine-related uses such as chandlery and boating supplies. Opportunities will be located centrally to take advantage of the views and amenity of the marina and recreation space.
- Recreation area / event space(s) (approximately 1.27 ha) located as the key destination including high quality landscaping, pedestrian connections and flanked by food/beverage forming a unique identity.
- High-quality waterfront promenade (generally 7.5m in width) providing for a variety of waterside experiences.
- Terrace areas facilitating public access to the water's edge with opportunities for informal gathering and events.
- General and short-term parking located centrally for the everyday use by visitors to the precinct.
- Incorporation of Kariyarra stories into the public realm in the form of:
 - Cultural gathering space
 - Community swimming node
 - Marapikurrinya hand/estuary pattern
 - Marapikurrinya central artwork
 - Yintha Promenade
 - Howe Street lookout
 - Acton Street lookout
 - Bush tucker education

6.2.2 Boating, fishing and water-based

The provision of boating and associated marine facilities is perceived as being of paramount importance for Port Hedland as the site provides an opportunity for ocean fronted marine facilities with direct access to deep water.

Redevelopment of the Spoilbank provides an opportunity for the existing boating operations to be formalised and improve on the current boating infrastructure available at Richardson Street.

A proposed marina at this location will provide the necessary relief in response to the increase in existing and predicted future demand for boating facilities (trailerable and boat moorings) in the Port Hedland area.

Acknowledging the values of the community, the masterplan provides for a range of passive and active water-based activities such as boating and fishing for all groups of people.

- Marina waterbody (2.5 ha) and associated infrastructure to accommodate two boat ramps with four lanes, up to 80 boat pens and associated watercraft milling areas.
- Dry dock area for commercial vessels (8000 m²),
- Car / trailer parking (200 trailer bays) and general parking (28 bays) have been located to service the marine infrastructure, north of the events space.
- Breakwaters and a jetty platform (publically accessible) providing recreational fishing opportunities.
- Public Amenities - toilets and shower/changeroom facilities provided for boat users and the general community



6.2.3 Club and shared facilities

The masterplan provides the opportunity for the enhancement of the area to provide for additional club and shared facilities. The Masterplan assumes the retention of the Yacht Club and provides for a new dry dock area west of the site on the existing paved area (1,500m² with the potential to expand to 2,000m²). Located centrally within the development, the activity and patronage associated with the existing Port Hedland Yacht Club and other club uses will contribute to the vibrancy of the proposed development and create a focal point of activity.

In addition, the precinct recognises the opportunity for the area west of the existing Yacht Club to be transformed over time to provide for other uses and opportunities complimentary to the boating, marine, recreation, tourism and community aspirations for the site. There are a number of clubs/community groups that could benefit from a co-located/shared facility. This could be accommodated in the existing buildings in the short term, however redevelopment of this site provides the opportunity to establish a purpose built multi-use shared community/clubs facility over time. This space could also double as an airconditioned space for recreation purposes during the extremely hot months.

The opportunity for new lease areas has been identified on the plan and may include 3 or more depending on need and purpose. This area should be developed in a landscaped setting and the Masterplan provides the opportunity for the revegetation area north of these sites to be redeveloped consistent with the grassed terraces to the east. This will support activation of the waterfront, synergies with the water's edge and facilitate public access along the promenade.

CLUB AND SHARED FACILITIES

- 1 Existing Yacht Club (rationalised site to facilitate future leasehold opportunities)
 - a. Yacht Club Dry dock hard stand (to be provided in Stage 1A).
- 2 Future leasehold opportunities.
 - a. Consider multi use community activities, marine, tourism and cultural opportunities that align with Masterplan Objectives
- 3 Grassed terraces – viewing and recreation opportunities
- 4 Multi-use promenade space (ie club parade ground)
- 5 Public Parking (25 bays)
- 6 Public Parking (40 bays)
- 7 Pedestrian access to Breakwaters
- 8 Pedestrian access to Sutherland Street and Town Centre
- 9 Revegetation area – redevelopment consistent with and as an extension of the grassed terraces. To occur concurrently with leasehold opportunities.



Figure 10: Club and shared facilities (masterplan extract)

6.2.4 Culture, tourism, economic development and education

The most distinctive natural feature of Port Hedland is the extensive coastline, reefs and beaches. The natural environment provides a significant drawcard for tourism and education, contributing to economic development within the Town. Port Hedland's rich indigenous and cultural heritage provides a significant opportunity to celebrate the unique qualities of the place and be a destination beyond boating activities.

The Marapikurrinya five fingers alludes to the five tidal creeks that are part of the 'living waters', the Marapikurrinya Kariyarra coastal story. The tidal creeks extend beyond the water into drainage lines represented in the landscape by extended feature walls, and a single creek water feature. The Marapikurrinya hand, creek and artwork is central to the Waterfront Precinct design and is represented in the pavement and as part of a shade structure and tall artwork. The representation of the five fingers at this point have the opportunity to become part of the creek water feature and transfer water across the promenade to the cascade and marina edge.

CULTURE, TOURISM, ECONOMIC DEVELOPMENT AND EDUCATION

- 1 Community Swimming Beach node, comprising:
 - a. shelter
 - b. access and egress to water
 - c. opportunities to launch kayaks and small watercraft
- 2 Community Node
 - a. Public Amenities – automated toilet unit with the potential to expand to a combined public toilet and marine facility with shower and laundry facilities
 - b. Hardstand for food and beverage pop ups and food trucks
 - c. Pop ups for ticketing booths, education and tourism booths and marine related commercial operations i.e fishing tackle, boating supplies.
- 3 Cultural gathering space
 - a. Sand and fireplace
 - b. Ceremony and dance area
 - c. Larger event space to support future Cultural Learning Centre opportunity (NAIDOC Week)
- 4 Marapikurrinya five fingers interpretation (hand/estuary pattern)
- 5 Marapikurrinya water cascade
- 6 Yintha Promenade is able to reflect the Yintha Kariyarra creation serpent story through seating, furniture, lighting and pavement treatments
- 7 Marapikurrinya Central Artwork – tall iconic artwork that has the opportunity to become a representation of the Marapikurrinya Kariyarra family group, as well as integrating with the shade structure.
- 8 Acton Street Lookout – views across the parkland, Marina, breakwall and ocean beyond. Aligning elevated artworks and pavement treatments that can be seen from this point will provide a visual narrative for Marapikurrinya Kariyarra country.
- 9 Howe Street lookout – a cultural interpretation lookout deck at Howe Street. Provides views across the existing beach and out towards the ocean. Marapikurrinya sea country (Living Waters) includes stories regarding special places now under the sea and also describes stories of first contact as the tall ships approach Kariyarra country, as well as the shoreline lifestyle, fishing on the reef and the abundance of food for the Marapikurrinya Kariyarra People.
- 10 Breakwater and Fishing access – the marina will support Marapikurrinya Kariyarra connection to country and maintaining cultural practice.
- 11 Public jetty – to provide access to a fishing deck. Detailed design should explore the opportunity for cultural artwork and interpretation in this space.
- 12 Pedestrian connections to a future Marapikurrinya Kariyarra Cultural Learning Centre (to be defined), to the Town Centre, West End, Cooke Point and Pretty Pool.
- 13 Sharing and caring for country – consider opportunities for the Kariyarra Land and Sea Rangers and utilize opportunities from and on the Spoilbank. Respect for country is pivotal in the landscape design of the precinct and its ongoing maintenance, as it provides the opportunity for cultural learning.
- 14 Bush Tucker – to provide coastal Kariyarra bush tucker interpretation for self guided and cultural tours. Tucker is central to many Sea Stories – Kariyarra connection to plants, turtles, sand goannas, Mangaru (kangaroo), fish, conch, shellfish and whales are integral to interpretation and understanding Country.
- 15 Eco-tourism/caravan park opportunity – comprising environmentally responsive, temporary accommodation that celebrates the sites unique location.
- 16 Pop-Up Economic Opportunities – opportunities for small retail business opportunities including environmental and cultural tourism, commercial food services, tourism charters and ticketing booths.
- 17 Paperbark Pool Artwork

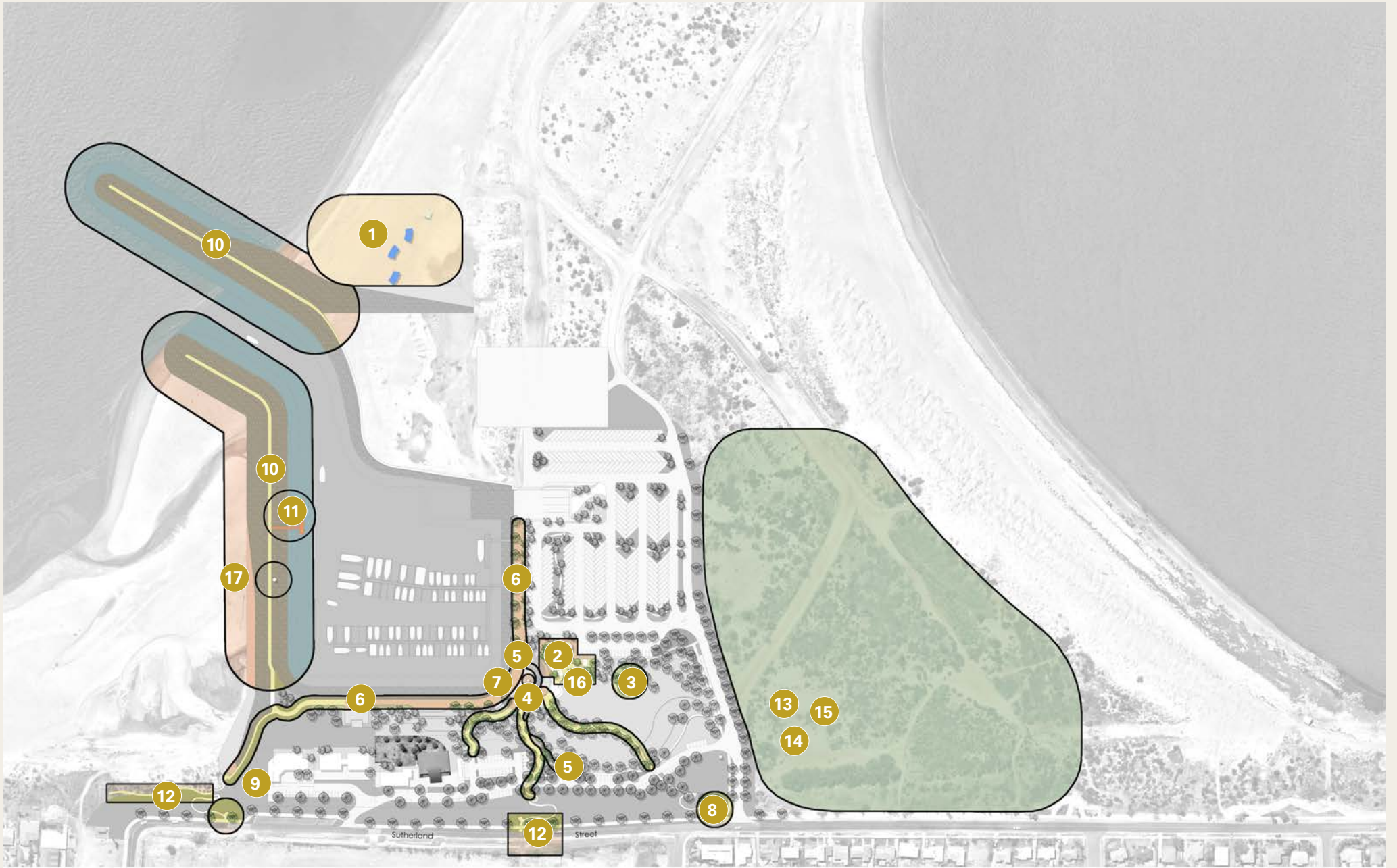


Figure 11: Culture, tourism, economic development and education (masterplan extract)



MARINE-SIDE

SECTION

7

7. MARINE-SIDE

The DoT engaged specialist coastal and port engineers M P Rogers & Associates Pty Ltd (MRA) to complete the preliminary design of the Port Hedland Marina. The preliminary design layout as shown in **Figure 12** features the following key elements which are discussed further in the subsequent sections:

- Outer breakwater and sand trap
- Inner breakwater
- Internal revetment
- Marina basin
- Entrance channel
- Boat ramps
- Boat pens
- Floating public jetty

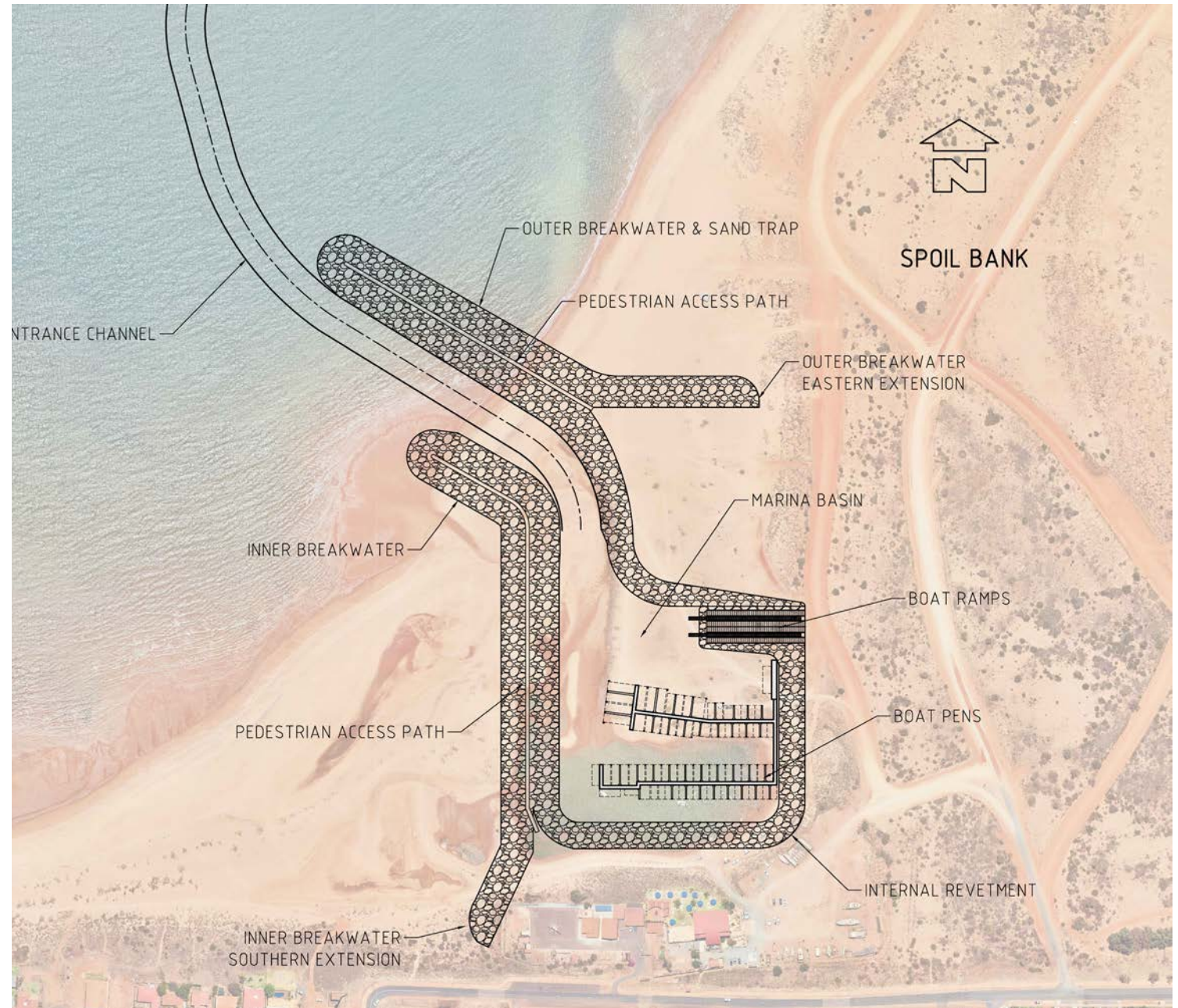


Figure 12: Port Hedland Marina Preliminary Design Layout and Key Elements (Source: M P Rogers & Associates)

MARINE SIDE

7.1 BREAKWATERS AND SAND TRAP

The outer and inner breakwaters are granite rock structures that have a slope of 1V:1.5H between the toe and crest levels and provide protection to the entrance channel and internal marina elements. Furthermore, the eastern and southern breakwater extensions (revetments) act to provide land retention and protect the landside development.

The breakwater toe levels are designed to match the entrance channel and marina basin dredge depths where required, or are otherwise proposed to be founded on the underlying layer of natural rock.

The breakwater crest levels and widths are designed in order to ensure acceptable wave overtopping discharge limits during the 1 and 100 year Average Recurrence Interval (ARI) design events and protection of structures and landside development. The design of the breakwater crest also enables pedestrian access to the ends of the breakwaters for recreational and fishing opportunities.

The outer breakwater also acts to trap sand that is transported in a southerly direction along the western edge of the Spoilbank. Sand trapped at this location will be intermittently removed in order to mitigate the risk of sedimentation within the entrance channel, which could consequently restrict navigability.

7.2 INTERNAL REVETMENT

The internal revetment surrounding the marina basin is a granite rock structure that provides a formal edge and ties in with the adjacent landside development, specifically the promenade (at a slope of 1V:1.5H between the toe and crest level).

The internal revetment is designed to extend from the marina basin dredge depth (-6.1 mAHD) up to a crest level of 5.6 mAHD. This crest level was set in order to provide a sufficient height to enable the promenade to grade up and reach a developable level and provide protection during the 100 year ARI design peak total steady water level, at the end of the 50 year design life.

7.3 MARINA BASIN AND ENTRANCE CHANNEL

The marina basin is approximately 2.5 ha in total area with a declared dredge depth of -6.1 mAHD. This provides sufficient water depth and navigability of the entrance channel in all tidal conditions for vessels with draughts of 1.2m or less and draughts of 1.5-2m for the majority of the time. The marina basin will also feature deeper dredged pockets in order to accommodate larger draught vessels in all tidal conditions.

The marina design includes a 30m wide entrance channel also dredged to a declared depth of -6.1 mAHD that extends out from the marina basin and boat ramp and accommodates vessels up to 20m long. Navigation aids are provided to delineate the channel and to help ensure safe navigation.

- 1 Breakwater and revetments
- 2 Marina Basin (2.5ha)
- 3 Floating Public Jetty
- 4 Commercial Jetty
- 5 Boat ramp (4 lane)
- 6 Gated Jinker access
- 7 Stage 1 Pens – 36
- 8 Stage 2 Pens – 44
- 9 Public access to breakwaters
- 10 Pedestrian Promenade (varies in width)
- 11 30m entrance channel

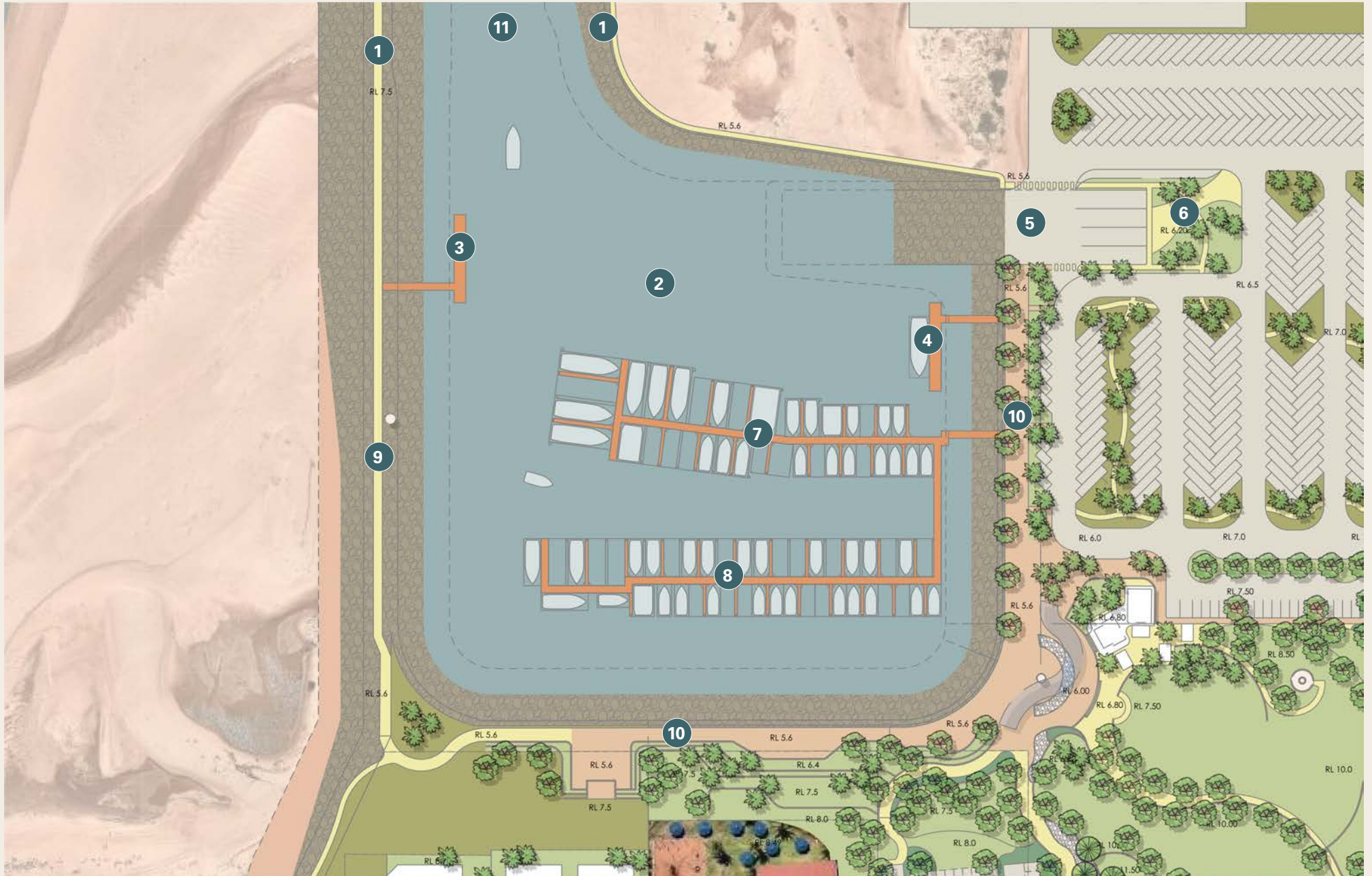


Figure 13: Marina and Pen Layout (masterplan extract)

7.4 JETTIES

A floating public jetty is proposed on the western side of the marina to provide recreational fishing opportunities. A commercial jetty is proposed on the eastern side of the marina between the boat pens and the boat ramp. This commercial jetty could be used as a fuelling facility in the future if such a venture was ever considered commercially viable.

7.5 BOAT PENS

The marina is designed to accommodate up to 80 pens in its ultimate configuration, with 36 northern jetty pens to be delivered in Stage 1. The decision to provide 36 pens in Stage 1 is based on the results of an Expression of Interest (EOI) completed by DoT in 2019 which resulted in 20 signings from the public for boat pens.

The berth widths and lengths are designed to accommodate 10, 12, 15, 18 and 20m vessels, with dimensions also based on the EOI. The navigable widths are designed based on the relevant vessels at that location and a 40m circle is provided for the visitor berth, also in accordance with the standards.

7.6 BOAT RAMP

The marina design features a four lane concrete boat ramp at the north-eastern corner of the marina with two central jetty boat holding structures. The boat ramp features a slope of 1V:8H and extends from an elevation of -4.9 mAHD at the toe to 4.6 mAHD at the head of the ramp, in order to ensure functionality at all astronomical tidal levels.

The boat ramp is designed to accommodate vessels up to 8m in length, a 8t recreational vessel and a 20m/75t commercial vessel (using a jinker, towed by a truck or similar, and utilising the combined width of the central lanes). A temporary bollard is also featured at the top of the central lanes in order to manage the large commercial vessel and jinker use.

Given the large tidal range, the two jetty boat holding structures are piled floating pontoons that are articulated to allow for portions of the jetties to rest on the ground during lower tide levels. The jetties are approximately 80m in length and allow for the temporary mooring of three boats adjacent each lane during a Mean Low Water Spring (MLWS) water level.

7.7 UNIVERSAL ACCESS

Access to the boat pens and public jetty is to be provided by gangways extending from the eastern edge of the internal revetment to the floating jetties. Given the tidal range, a 1V:8H slope to achieve assisted disabled or universal access at all tides is not achievable. The maximum slope of the gangways during Lowest Astronomical Tide will be 1V:3H for the boat pens and 1V:3.5H for the public jetty, in accordance with marina design standards.

To ensure universal access is provided to the breakwaters it is proposed that an asphalt path be constructed on the crest of the breakwaters.



PUBLIC REALM

SECTION

08

8. PUBLIC REALM

8.1 PUBLIC SPACES

8.1.1 The Promenade

The promenade provides a broad paved pedestrian precinct to provide a pleasant tree-lined walking environment (refer **Figure 14 and 15**). The width of the path (generally 7.5m) is determined by the requirement of the maintenance vehicles (and the radii of the swing arm) required to access the revetment walls. This is a high end pedestrian precinct with only occasional maintenance vehicle traffic. The north-south portion of the promenade immediately south of the boat ramps is the dominant portion being the core area that is most likely to attract more pedestrian activity. The east-west portion is a narrower width and lower specification due to budget constraints.

Furniture consisting of bench seating, rubbish bins, drinking fountains, bike racks will be provided. The selection will be vandal and heat resistant and subject to budget and maintenance considerations, which will be discussed with the Town during the detailed design phase.

Lighting will be provided via a row of pole lights along the water's edge.



Figure 14: View East along the promenade

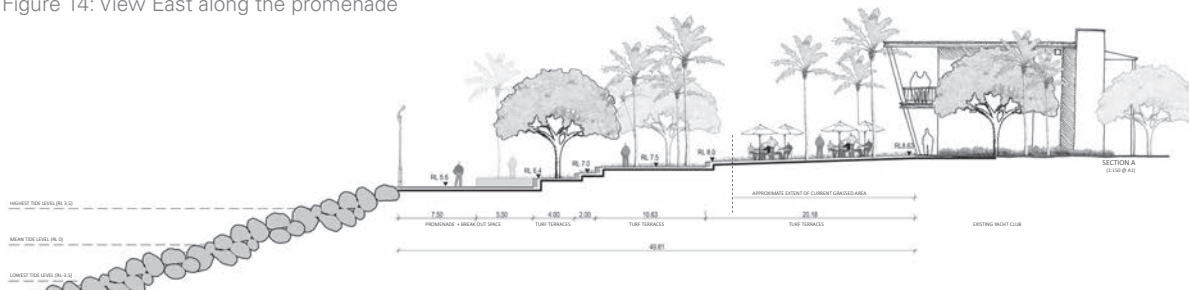


Figure 15: Section A (refer cameo for location)

THE PROMENADE

- 1 Tree lined Promenade (7.5m wide)
 - a. Paved walkway
 - b. Bench seating
 - c. Shade
 - d. Amenities – lighting, rubbish bins, drinking fountains
- 2 Southern Promenade (varies in width)
- 3 Breakout Promenade suitable for events/pop ups including shade structure
- 4 Grassed Terraces adjacent Promenade to provide seating/recreation areas
- 5 Multi-use promenade space (ie club parade ground)
- 6 Promenade connections to Pedestrian access to the breakwaters
- 7 Promenade connections to Pedestrian access to the Town Centre
- 8 Pedestrian access to boat pens
- 9 Pedestrian access to Commercial jetty
- 10 Pedestrian access to Public Jetty
- 11 Marapikurrinya five fingers interpretation (hand/estuary pattern)
- 12 Yintha Promenade is able to reflect the Yintha Kariyarra creation serpent story through seating, furniture, lighting and pavement treatments
- 13 Central Artwork – tall iconic artwork that has the opportunity to become a representation of the Marapikurrinya Kariyarra family group, as well as integrating with the shade structure.
- 14 Shade structure
- 15 Marapikurrinya water cascade



Figure 16: The Promenade

RECREATIONAL AREA

8.1.2 Recreational area - variety of event spaces

The main recreational area is divided into a series of smaller spaces through the use of tree and garden bed planting, terrace walls and changes in level (refer **Figure 17 and 18**). This promotes the use of the larger spaces as key event areas with surrounding spaces that can be used as secondary or overflow areas or alternatively to accommodate technical aspects that are related to larger events.

Smaller, semi-secluded spaces can accommodate private functions such as weddings, parties, fitness groups, yoga classes and outdoor business functions.

The recreational area is designed to enable large gatherings to be comfortably accommodated whilst also ensuring that smaller groups can be accommodated in more intimate and sheltered surroundings without feeling isolated.



Figure 17: View North West across the marina

- 1 Community Node comprising:
 - a. Public Amenities – automated toilet unit with the potential to expand to a combined public toilet and marine facility with shower and laundry facilities
 - b. Hardstand for food and beverage pop ups and food trucks
 - c. Pop ups for ticketing booths, education and tourism booths and marine related commercial operations i.e fishing tackle, boating supplies.
- 2 Small Event Area – for casual recreation/small events
- 3 Primary Event Area- for casual recreation/major events
- 4 Secondary Event Space - for casual recreation/mid-sized events
- 5 Event overflow space
- 6 Cultural Gathering Space – sand and fireplace, ceremony and dance area
- 7 Vegetated Buffer to development zone
- 8 Public parking (31 bays)
- 9 Treelined parking street (east – 38 bays)
- 10 The Promenade
- 11 Acton Street Lookout – views across the parkland, Marina, breakwall and ocean beyond.
- 12 Shade Structure
- 13 Marapikurrinya water cascade
- 14 Pedestrian access to Sutherland Street/bus stop
- 15 Grassed terraces
- 16 Public Parking (17 bays)



Figure 18: Recreational Area

8.1.3 Community node

The community node is the core area and junction between the promenade, the boating facilities and the recreational area (refer **Figure 19-21**). Overlooked by the Yacht Club this space is a central focal point and one which sits comfortably at the bottom of the terraced grades of the recreational area / event spaces.

This area is a key destination precinct which links the surrounding uses and contains features that attract visitors and encourage them to stay and enjoy the unique qualities of the location. The central hub will consist of the following key landscape features:

- Predominantly high end paving and terrace walls providing a transition and seating opportunity between the grassed recreational area and the promenade
- Allowance for water feature
- Feature shade structures
- Street furniture and lighting
- Public art
- Toilets and marina facilities
- Easy access to parking
- Proximity to the water's edge
- Central hardstand for markets and/or foodtrucks
- Event/ticketing hub

Future opportunities for pop-up commercial operations.



Figure 19: View east to Cemetery Beach

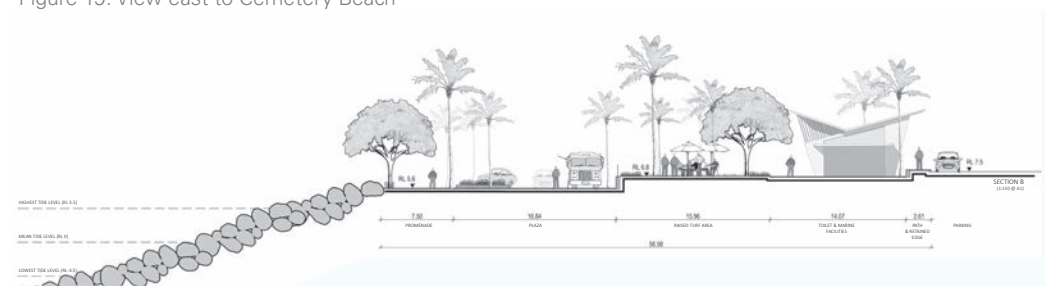


Figure 20: Section B (refer cameo location)



Figure 21: The Promenade

8.2 PLANTING

The provision of planting in public spaces and streetscapes serves to provide character, shade, interest, habitat and a point of reference in major streets or feature locations. The locations of planting and types of vegetation will be guided by the following:

- Palms and exotic broad canopy shade trees in high profile areas, avenues or entry locations.
- Smaller scale exotic trees in feature locations and avenue plantings to secondary spaces.
- Bushland and habitat regeneration in revegetation areas.
- Shrub planting to screening and to provide spatial definition.
- Groundcover planting to medians, planters and areas requiring clear views.
- Grass to informal usable space and recreation areas.

The proposed mix of native species and exotic cultural plantings in feature locations will define feature points, maximise local habitat advantage and minimise water dependence.



Dampier Foreshore Palms (planted in 1978) provides an insight into the possibilities of the recreational area. Image courtesy of Dampier Community Association Website.

8.2.1 Tree Species

The landscape on the Spoilbank will be highly exposed to both salt and sand laden winds and cyclonic force gales. It is therefore recommended that palms be one of the prime species and specifically used in the most highly exposed areas to the north. Palms also enable turf to be easily managed underneath and they also do not interfere with trailer and car movements.

In order to maximise the provision of shade, the use of broad canopy trees such as *Delonix regia* and *Peltophorum pterocarpum* are to be considered, however this species should only be used in sheltered locations.

8.2.2 Street trees

Street trees are a desirable design element to increase shade and amenity. The selection and placement of street trees shall vary dependant on the road hierarchy. It is proposed that along major roads, street trees will form a strong visual avenue, and not impede traffic flow, safety or sightlines.

8.3 REVEGETATION AREAS

Revegetation is proposed to the perimeter of the site. This will offer a transition for the development site both in ground level and vegetation typology back to the native coastal vegetation that currently exists.

Revegetation will also provide protection from salt-laden winds and inundation by windblown sand. Revegetation will be completed using local endemic species in tubestock and seed and as such will require a temporary irrigation system until the areas are established.

Simple compacted gravel paths and low protective fencing may be required to ensure vehicles and pedestrians are diverted from planted areas.

8.4 LANDSCAPE TREATMENT AND INFRASTRUCTURE

8.4.1 Shade

A key feature of any successful public space in the Pilbara is ensuring that there is ample provision of shade. It is the preference for the majority of shade to come from the use of broad canopy shade trees as this is a low-maintenance option. In some circumstances, however, it is beneficial to have a permanent shade structure over picnic tables, fish cleaning stations or in key feature areas. All structural shade structures are to be cyclone rated and the use of shade sails is to be avoided due to the requirement to remove under cyclone warning conditions.

8.4.2 Water feature

One of the key aspects that was generated through the community engagement sessions was the potential benefits of having some form of water feature in the landscaped areas. The cooling sound and feel of a water feature is highly valued in areas such as Port Hedland where high temperatures are experienced. Two major issues need to be overcome for this feature to be successful - due to the high temperatures the water needs to be of a sufficient depth; and be fast moving to ensure it is kept cool.

In order to minimise the capital and running costs it was considered that a salt water stream may be an option worth considering as this could operate as a simple re-circulatory system pumping water from the marina basin.

Further exploration of this feature is required to ensure it is functional and able to be easily managed by the Town or future marina manager.

8.4.3 Site furniture

The provision of site furniture demonstrates detailed consideration of human use and comfort. The inclusion of quality site furniture elements reinforces the intended design character, develops a sense of community and ownership among residents and encourages and caters for outdoor use.

The location of site furniture elements should closely correspond with more intensive areas of human use, gathering and recreation. Basic functional requirements shall typically include:

- Local availability for quick and cost-effective replacement or parts as may be required
- Cost effectiveness of installation, ongoing replacement and maintenance

- Robust design to minimise the effects of vandalism or weathering
- Robust appropriate fixing methods to prevent theft but allow maintenance
- Colour being defined but neutral where possible to enable the maximum chance of matching with other site elements
- Galvanised and powder coated finishes to maximise lifespan

Elements shall provide a visually recognisable, clear and useful function. The types of site furniture envisaged include:

- Picnic settings & seating (formal and informal)
- Shade structures
- BBQs
- Rubbish bins
- Bollards
- Bike racks
- Drinking fountains
- Conservation fencing
- Public art and interpretive signage

8.5 PUBLIC ART

The selection and installation of appropriate public art creates interest, social discussion and promotes a sense of community and ownership to public spaces. Public art can provide historic, social, cultural and environmental comment and act as a reference to define a local area and community values. An emphasis on engagement with the traditional owners and the provision and interpretation of appropriate features is a high priority for this area.

It is intended that public art be distributed at either high profile points or community gathering spaces to ensure its value in placemaking is maximised. Locations should include vista and axis views from roads or pedestrian paths, inclusion into, or placement adjacent, key gathering locations. Individual lighting may be desirable in some instances to provide additional importance and focus to specific pieces.

8.6 IRRIGATION STRATEGY

Irrigation is to be sourced from the Town's potable supply as the Effluent Reuse System (ERS) is unavailable in this area. Irrigation will be provided to all areas including the revegetation corridors to ensure germination and survival of seed and to be monitored until the vegetation is established.

In general terms the project is committed to undertaking water sensitive urban design (WSUD) with minimal impact on existing groundwater and the preservation of water quality. The following principles are held:

- Minimise the extent of irrigation and the volume of water consumed.
- Minimise the extent of irrigated turf.
- Minimise the extent of long term irrigation usage to planted beds.
- Use of hydrozoning.
- Use of xeriscaping where practical.
- Utilise water harvesting techniques where practical.

Irrigation shall aim to incorporate elements of subsurface, drip and trickle water application methods. Water application shall be based on seasonal need and be constructed of reliable, readily available and cost effective fittings, infrastructure and materials.

All irrigation shall be installed to the local authority's standard specifications and industry best practice. Maintenance minimisation processes will apply in all circumstances.



ACCESS, MOVEMENT AND PARKING

SECTION

9

9. ACCESS, MOVEMENT AND PARKING

GTA Consultants has undertaken an analysis of the existing and proposed movement network with respect to access, movement and parking to inform the masterplan.

9.1 MOVEMENT NETWORK

9.1.1 Existing vehicular movement network

The subject land is bounded by Sutherland Street to the south and is owned and maintained by the Town. At present, one access point from Sutherland Street provides access to the Yacht Club.

It is not anticipated that any upgrades to existing roads will be required to support the proposed development, however formalisation of the intersection of the main entry road with Sutherland Street and the existing entrance adjacent the Yacht Club and TS Pilbara will be required.

9.1.2 Proposed vehicular movement network

The main entry road located within the eastern portion of the subject land has been designed to carry the majority of vehicular movements to and from the marina and is the key access to the boat ramps and boat ramp car park. The road comprises a 20m wide road reserve width featuring a 7.2m wide carriageway as shown on the indicative cross-section at **Figure 22** and has the capacity to carry up to 3,000 vehicles per day. The anticipated traffic flows to/from the subject land are estimated to be 1,000 vehicles per day.

The proposed east-west road provides a connection between the existing access point at Sutherland Street / Yacht Club and the proposed main entry road. The road comprises a 7.0m wide carriageway, to cater for large vehicles, including large Recreational Vehicles (RVs), and perpendicular parking bays. The anticipated traffic flows utilising this road are estimated to be no more than 500 vehicles per day.

Two main access points to/from Sutherland Street are proposed to service the subject land. As discussed above, formalisation of these existing intersections as T-junctions is proposed. With the relatively low number of vehicle movements expected within the internal road network under everyday operations, and the current daily vehicle volumes along Sutherland Street (~1,000 – 1,200 vehicles per day) the T-junctions will operate satisfactorily.

These T-junctions have also been designed to enable longer vehicles/trailers to be able to turn at the intersections with relative ease.

All proposed internal roads will be designed in accordance with the Town's subdivision guidelines, Liveable Neighbourhoods (where appropriate) and AustRoads, and will typically be finished with an asphalt wearing course with kerbing installed in strategic locations depending on traffic and stormwater control requirements.

It is anticipated that the proposed main entry road and east-west road will be managed and maintained by the Town, whilst the northern commercial hardstand area, boat pen parking area and boat ramp will be managed and maintained by the ultimate marina manager.

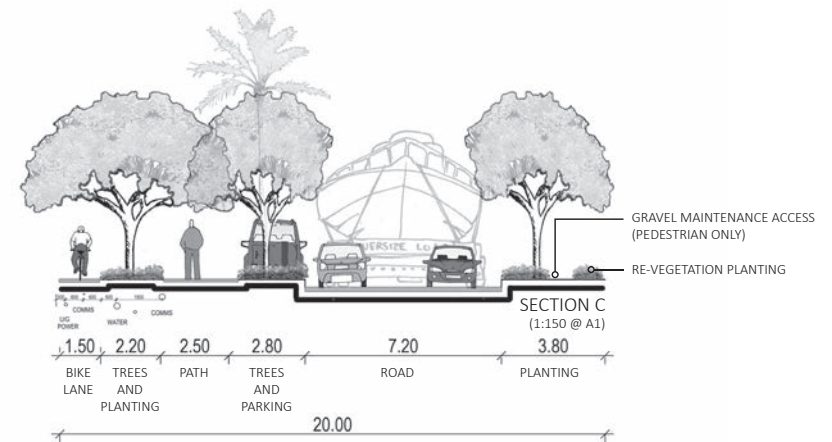


Figure 22: Main entry road cross-section

9.1.3 Pedestrians and cyclists

The development of the subject land will result in an increase in overall connectivity for pedestrians and cyclists to the waterfront and wider connections beyond the subject land via Sutherland Street.

Pedestrian paths of 1.8m to 2.0m provide connections between the water's edge and permeate through the subject land linking the key public spaces such as the recreational area, community node and parking areas. The slow-speed environment and low traffic flows (500 vehicles per day) will create a safe and connected pedestrian network and also be conducive to on-road cycling.

Streetscape enhancements to the existing path network along Sutherland Street where abutting the subject land are also proposed under the masterplan.

9.1.4 Public transport

The subject land is currently serviced by one bus route that travels along Sutherland Street and runs between South Hedland and the West End. This service typically runs from 9am to 5pm, Monday to Saturday.

The nearest bus stop to the subject land is located on Sutherland Street in the vicinity of the Yacht Club. Access to this bus stop will be improved as a result of the comprehensive network of internal paths proposed as part of the development.

There is currently no future transport planning within the area.

9.1.5 Emergency access

The movement network has been designed to accommodate larger vehicles and can therefore cater for emergency vehicle access.

At least two access routes providing safe access or egress are provided allowing vehicles to enter and exit the subject land in the case of an emergency.

9.1.6 Waste management

Acknowledging the Town's nominated waste vehicle being a 9.5m long single unit vehicle, preliminary assessment has confirmed that the masterplan presents an acceptable design solution that achieves safe and efficient waste collection through the development.

It is noted that the refuse vehicle exiting the intersection on Sutherland Street at the Yacht Club travelling eastbound or westbound will have to temporarily use the opposite traffic lane

on Sutherland Street to complete the turning movement. This is acceptable under the Australian Standards for the exit movement from a minor road. These manoeuvres are not considered to be an issue given they will only occur only a few times a week.

A vehicle turnaround bay has also been provided at the western extent of the subject land and has been tested to ensure acceptable manoeuvrability.

The final waste collection strategy will address the necessary requirements relating to waste collection / manoeuvrability (including swept path assessment), road reserve widths and bin presentation areas will be addressed through the detailed design process and to the satisfaction of the Town.

9.2 PARKING

9.2.1 Parking Supply

Northern parking area

The northern parking area located adjacent the boat ramp and commercial hardstand provides for up to 200 parking bays, comprising:

- 128 bays on asphalt
- 72 bays on compacted gravel to the north

In addition, there are proposed to be:

- 28 bays for standard car (including two disabled bays)
- Caravan lane for 3 caravans
- Rigging lane for 3 boats

This totals 228 parking spaces proposed within the northern parking area.

The boat ramp, car and trailer parking bay area, including suitable rigging/de-rigging bays and queuing lanes to the ramp approach, has been set out in accordance with the relevant guidelines and standards and will be managed and maintained by the ultimate marina manager.

Southern parking area

The southern parking area located south of the recreational area and Yacht Club provides for up to 82 parking bays, comprising:

- 31 bays within the dedicated parking area immediately east of the Yacht Club
- 18 bays (90-degree bays) located at the western extent of the east-west road
- 9 bays (parallel) located south of the Yacht Club along the east-west road
- 36 bays (90-degree bays) located within the eastern portion of the east-west road immediately south of the recreational area
- 5 bays within the main entry road.

9.2.2 Parking Requirements

GTA has undertaken a parking assessment which incorporates parking requirements of the preferred land uses and synergies to assess the projected demand for the marina and waterfront precinct to ensure that appropriate levels of parking are provided.

Events and overflow

Given the seasonal and infrequent nature of events in Port Hedland, parking within the Precinct will be based on the principles of reciprocity. During public events the northern car park area will be made available for event and overflow parking.

Taking into account the ability to accommodate approximately 85 bays on Sutherland Street, car parking to the east of the Yacht Club and car parking along the east-west road, a total number of car parking bays in the order of 245 bays could potentially be provided to cater for events and overflow parking.

Should it be necessary to cater for larger events, an additional 400-500 cars could be accommodated in the space east of the main entry road. Based on the capacity of this additional parking area, there is the potential to accommodate approximately 130 stalls / 'pop-ups'.

The total provision of 700+ bays has the potential to accommodate approximately 2,000-2,220 people attending an event at any one time, demonstrating the flexibility in which the development can cater for future events without the concern for inadequate parking availability.

Recreation uses and temporary pop-ups

Based on a parking rate of 5.5 bays per stall / 'pop-up', the masterplan has the potential to accommodate a typical temporary pop-up event of 19 stalls. This parking rate is based on a database of surveys at various 'markets' land uses collated across Australia and rationalised from over 30-years' worth of data. The above assessment does not factor the existing parking located along Sutherland Street.

The east-west road has been designed to cater for large Recreational Vehicles (RVs) travelling in both directions with access to the 90-degree parking bays.

As discussed above, the proposed parking layout within the northern parking area provides for a caravan lane accommodating three caravans.

Yacht club

Assessment of parking demand associated with the Yacht Club has been undertaken noting advice received from the Yacht Club and expectation that a parking supply of up to 100 cars at any one time should be accommodated. At present, the existing unsealed area east of the Yacht Club has the capacity to accommodate ad-hoc parking for approximately 60 cars.

The masterplan proposes the following parking provision within a similar proximity to the existing parking arrangement to cater for Yacht Club patrons:

- 31 bays within the public car parking area immediately east of the Yacht Club
- 16 bays located along the east-west road

Ample parking is also available along the east-west road and existing parking on Sutherland Street within close proximity to the Yacht Club. In addition, the northern parking area can make up the balance of the parking requirements for the site and is within a short walk to the Yacht Club. The proposed parking supply will more than adequately cater for the demand associated with the Yacht Club, particularly given the seasonal nature and infrequency of patronage.

Multi-use community facilities

The masterplan provides for future opportunities for multi-use community facilities located west of the Yacht Club. Whilst the ultimate use of this area cannot be confirmed at this stage, based on the Town of Port Hedland's parking requirements and anticipated floor area, approximately 17 bays may be required.

The masterplan proposes 18 bays located immediately south of the area in addition to the bays provided along the east-west road and along Sutherland Street.

NORTHERN PARKING

- 1 Boat ramp
- 2 Oversized Jinker access (gated)
- 3 Gravel Parking area – future parking for 72 cars
- 4 11 car bays providing access to boat pens
- 5 128 car and trailer bays
- 6 17 public car bays providing access to recreation space
- 7 Caravan parking lane for long vehicle bays
- 8 Access to promenade and hardstand for food trucks
- 9 Grassed swales and pedestrian paths
- 10 Commercial Hard Stand Area (8,000m²) (including shade and storage)
- 11 Fish Cleaning Station
- 12 Rigging and Derigging areas



Figure 23: Northern parking (masterplan extract)



INFRASTRUCTURE AND SERVICING

SECTION

10

10. INFRASTRUCTURE AND SERVICING

10.1 EARTHWORKS

The Port Hedland Coastal Vulnerability Study (PHCVS) prepared by Cardno prescribes development setbacks and permissible building heights. It is anticipated that the minimum habitable floor level for any future development will need to be 0.5m above the 100 year Design Peak Total Still Water Level nominated in the PHCVS and as discussed in the CHRMAP currently underway.

Earthwork levels for the landside development will coordinate with the levels of the revetment wall, boat ramp and surrounding context, including Sutherland Street. Proposed terracing, battering and steps within the public spaces will accommodate any level changes across the subject land. Any earthworks undertaken will coordinate with the existing levels to the north and east of the subject land.

As part of the overall marina works, it is expected that an approximate total volume of 800,000m³ of material will be generated from the following sources:

- Cut to fill operations on site
- Excavated material from the marina waterbody
- Dredge spoil from the marina waterbody and channel
- Excavated material from the sand trap to the north of the marina

The suitability of the sandy marine sediments and calcarenite rock for reuse as general fill or structural fill is subject to further geotechnical investigation and testing, with a factual report expected in December 2019 and an interpretive report expected in February 2020.

A dredging management plan will be established prior to construction which will detail the dredging methodologies to be used, as well as the locations and sizes of the onshore sedimentation ponds which will be built on the subject land.

It is not expected that all the material generated from the marine-side dredging works will be able to be used within the subject land and therefore the project team, in conjunction with the Town, are currently investigating other local sites that may require fill.

10.2 WASTEWATER

The Water Corporation owns and operates the wastewater infrastructure in Port Hedland which is a combination of gravity and vacuum sewer. There is currently no existing sewerage network along Sutherland Street adjacent to the proposed development.

Previous planning advice from the Water Corporation indicates that the subject land is to ultimately be serviced by a Wastewater Pumping Station (WWPS 'K') and a DN100 pressure main connected to the end of the existing DN225 gravity sewer in Rodereda Street. The construction of this WWPS as part of the development is not practical due to the high cost, long lead time and the relatively small wastewater flows that will be generated from the development.

The Yacht Club and TS Pilbara are serviced by on-site septic systems and advice from the Town has indicated that the installation of any new septic or ATU systems within the subject land will not be supported.

As part of the development it is proposed to install a private WWPS which will be owned and maintained by the Town. The WWPS will be installed within the vicinity of, and cater for, the proposed public toilet block. In addition, this WWPS will cater for the proposed ablution facilities and temporary 'pop-ups' and is also intended to provide a point of connection for the Yacht Club and TS Pilbara via a new gravity sewer line. This will enable the decommissioning of all existing septic systems within the subject land.

It is intended that this private WWPS will connect, via a new pressure main, into the Water Corporation owned network within the vicinity of Acton Street. The final connection location and pressure main route will be determined in consultation with the Water Corporation as part of the detailed design.

10.3 POTABLE WATER SUPPLY

The Water Corporation owns and operates the potable water infrastructure in Port Hedland.

Two existing water mains are located along Sutherland Street, being 150mm diameter AC and 250mm diameter AC water mains. The Water Corporation has previously advised that the existing water reticulation network adequately provides for the proposed development.

The development will be serviced via a connection from the Sutherland Street network, with a minor reticulation main to be located within the proposed main entry road. Metering and isolations will need to be agreed and this is to be determined by the specific requirements of the marina manager and the land tenure/management arrangements.

10.4 FIREWATER SUPPLY

10.4.1 Landside

A dedicated firewater supply is unlikely to be required for the landside component of the development. It is expected that in-ground hydrants will be installed on the potable water mains, in accordance with typical Water Corporation details. These hydrants will provide a point of connection for the Department of Fire and Emergency Services (DFES) in the case of a fire emergency.

10.4.2 Marine side

A dedicated firewater supply may be required for the marine component of the development to service the boat pens and associated infrastructure. A flow and pressure test is being conducted on the existing potable water network on Sutherland Street and it is expected these results will be available in late November 2019. The results will confirm the available flow rates and pressures, which in turn will determine whether a dedicated fire water system, including pumps and tanks, will be required to service the marine facilities. Should pumps and tanks be required, the final location will be determined during detailed design. However, for servicing efficiencies infrastructure should be located as close as possible to the boat pens.

10.5 POWER SUPPLY

Electricity distribution assets owned and operated by Horizon Power are available adjacent to the subject land via the Anderson Street Zone Substation. Anderson Street is a 132kV/22kV bulk distribution point with a firm electricity capacity rating of 30 MVA. All distribution feeders to the subject land are 22 kV high voltage underground with a rating of 14 MVA and are operated for security and contingency reasons at 10 MVA. The Yacht Club power reticulation via Sutherland Street is 415V low voltage only.

Horizon Power has advised that the last recorded peak load on the Anderson Street Substation was 10 MVA, therefore the current available capacity for any new development is 20 MVA. Overall, Horizon Power advises the current infrastructure interconnection capacity has significant capacity for the proposed development which is currently estimated to be less than 300kVA.

Preliminary discussions with the Horizon Power Port Hedland office suggest the most appropriate technical and economic option to service the proposed development is to upgrade the existing 2+1 RMU Switchgear in Acton Street to a 2+2 unit which will facilitate extension

of the high voltage network across Sutherland Street to a new 315kVA padmounted transformer substation located as centrally within the landside portion of the Spoilbank development.

It is recommended that a feasibility study is submitted with Horizon Power prior to undertaking any detail design to confirm timing and clarify the above information.

10.6 LIGHTING

General lighting for the proposed development will typically consist of overhead street lights located along the main entry road and within the parking areas, whilst bollard lighting will be used within the pedestrian areas, event spaces and along the revetment walkways. Feature lighting may also be used to highlight specific features such as signage and artwork. The lighting design will be undertaken in accordance with AS1158 with the following pedestrian categories proposed:

- Main entry road and internal roadways – P4
- Recreational areas and promenade – P3
- Parking areas, ramps and maneuvering area – P11a

Due to the subject land's proximity to the turtle nesting area, it is intended to utilise Amber LED lighting to reduce the impact of light pollution. A Turtle Light Spill Management Plan is also being completed as part of the environmental and detailed design processes to assess any impacts from the proposed lighting network and to evaluate any additional mitigation measures that may be required.

Marine-based lighting, including Navigation Aids, is being coordinated as part of the detail design process with DoT and the consultant team.

10.7 TELECOMMUNICATIONS

NBN's current rollout map indicates that NBN services are available to the existing premises located on Sutherland Street, including the Yacht Club and TS Pilbara. Any telecommunication requirements for the proposed development will be available via NBN.

The ultimate delivery agency will be required to enter into a Master Developer Agreement with NBN and design and install an NBN compliant pit and pipe network to enable NBN to reticulate the proposed development with a fibre service.

As part of this process consideration should be given to any specific communication requirements such as emergency services or rescue services that may operate from the facility.

10.8 GAS SUPPLY

Gas is not a reticulated asset within Port Hedland and is not an option for supply to this development.

10.9 DRAINAGE

As part of the detailed design process, a Water Management Plan (WMP) will be prepared, taking into account WSUD principles, the local Pilbara conditions and the relevant Town drainage guidelines.

Management of stormwater drainage for the subject land will typically include:

- Infiltration at source where practicable.
- The use of integrated roadside swales where practicable.
- Piped drainage prior to discharge into the marina. In these locations, roads will also be utilised for conveyance in higher intensity events.

Any detention of stormwater on site should only be considered where suitable land area is available to adequately handle the rainfall intensities of Port Hedland. Therefore, it is anticipated that detention would only be required to treat the small rainfall event; major rainfall events will be safely conveyed towards the marina and/or spoilbank.

To inform the potential for on-site infiltration, permeability tests are due to be undertaken as part of the proposed geotechnical site investigation. It is expected that these results will be available in late December 2019.



IMPLEMENTATION

SECTION

11

11. IMPLEMENTATION

The masterplan establishes a framework to guide, coordinate and facilitate the transformation of the Port Hedland waterfront in line with the established place proposition, key principles, themes and strategies.

In order to realise the potential of the waterfront the masterplan will need to be implemented over time, by a number of stakeholders.

Delivery of the waterfront will rely on the cooperation of stakeholders including the State Government, the Town, the private sector and the community. The implementation timeframe will commence in the short term, but will then roll out with longer term actions and opportunities.

Some initiatives will be implemented more readily than others. Development of the Stage 1A works can commence once all necessary technical studies and approvals have been obtained. Delivery of physical improvements and social infrastructure will be more gradual over a longer period of time.

The waterfront's transformation will not be immediate. Long term support, effort and attention from stakeholders and the community will be needed to gradually implement the masterplan.

The masterplan must identify an effective way to stage its implementation considering timing of infrastructure delivery, public realm upgrade and improvements, activation and ongoing management.

The masterplan aligns with the vision of the Towns Strategic documents to deliver a waterfront for the Port Hedland community and visitors to the region.

The needs of the Town's population will vary and be responsive to economic conditions and so the masterplan will need to respond accordingly. As a result, it would be unreasonable that the masterplan could foresee and predict the future community's expectations. As such, it is better to view the masterplan as a dynamic and robust document that will be reviewed and updated accordingly.

This section outlines a strategy for implementation of the masterplan in the form of a delivery framework which includes:

1. A governance framework
2. Planning framework
3. Funding strategy
4. Public works implementation

Implementation of the delivery framework will be led by the Town and require coordinative involvement of the State Government, private sector and community stakeholders. It is recommended that the delivery framework is closely linked with the Town's Strategic Community Plan, Planning Framework and Capital Works Program

11.1 GOVERNANCE FRAMEWORK

The marina and waterfront is a critical part of the urban fabric of the Town, providing a marine and recreational hub in the heart of Port Hedland and linking a series of unique recreational opportunities with the Town Centre.

The scale and significance of the Waterfront requires a governance framework that promotes, efficiency and transparent, integrated and considered decision making and coordinated implementation of actions.

The governance framework targets actions at four levels (refer Table 2):

- Planning Framework
- Infrastructure staging and delivery
- Place activation and management
- Monitoring and review

Table 2: Governance Framework

Governance Level	Key actions and responsibilities	Lead agency or organisation
Planning framework	<p>Coordinated delivery of planning and marina actions</p> <p>Development assessment and approval in accordance with the Masterplan</p> <p>Masterplan, Public Works Exemption, PPA Development and Construction Approvals Framework</p>	Town of Port Hedland, Department of Planning Lands and Heritage, Department of Transport, Pilbara Port Authority
Infrastructure staging and delivery	<p>Delivery of new and upgraded road and utility infrastructure</p> <p>Delivery of new marine infrastructure</p> <p>Delivery of public realm infrastructure</p>	Town of Port Hedland, Department of Transport
Place activation and management	<p>Delivery of Place Plan</p> <p>Formulation of Place Management Strategy</p>	Town of Port Hedland
Monitoring and review	<p>Regular monitoring and review of:</p> <ul style="list-style-type: none"> • Marine infrastructure • Public realm infrastructure • Place performance through metric KPI's • Place management strategy 	Town of Port Hedland, Department of Transport

11.2 PLANNING FRAMEWORK

In order to facilitate the development of the waterfront precinct the following actions are required within the parameters of the existing planning framework:

- preparation of Masterplan to guide the vision and staging of the development
- an application under the Public Works Act; and
- application(s) under the Pilbara Port Authority Act.

Each of these elements is further outlined in the following sections:

11.2.1 Masterplan

The Masterplan has been prepared to guide the vision for the precinct and has been prepared following extensive consultation and engagement with stakeholders and the community. The Masterplan represents the outcome of this process.

In order to facilitate a public works exemption, the Masterplan will have first to undergo a consultation process and be endorsed by Council.

11.2.2 Public Works

In order for the Town to grant a public works exemption for development on land under its jurisdiction, the Town will require:

1. Architectural drawings of the development to be provided to the Town of Port Hedland, inclusive of:
 - Detailed site plan clearly showing project boundaries and extent of works
 - Levels plan
 - Elevations/Sections of the development as appropriate, inclusive of both proposed buildings and extent of earthworks.
 - Landscape plans which show ground surface treatments, boundary treatments, edge treatments, planting, reticulation, lighting, furniture
 - Carparking / vehicle movement plan
 - Landscape maintenance plan
 - Infrastructure plan detailing all roads, services, stormwater management, retaining walls, protection of infrastructure from coastal hazards
 - Typical details
 - Relevant technical studies – i.e. Lighting Management Plan, Traffic Management plan/report

2. A written statement to accompany the architectural drawings to be provided to demonstrate the development complies with s6(2) of the PD Act, outlining how the development is consistent with:
 - The purpose and intent of the planning scheme (i.e. scheme objectives and parks and recreation reserve objectives).
 - Orderly and proper planning and preservation of amenity of the locality.

Following receipt of the Public Works Exemption request by the Town, the application will be referred internally within the Town for comment.

Should any issues arise during this referral period, these matters will need to be addressed prior to an exemption being granted. It is expected that the public works exemption will be granted by the end of January 2020.

11.2.3 Development within the Pilbara Port Authority Jurisdiction

Approval by the Pilbara Port Authority (PPA) is required for development contained within the PPA jurisdiction. In relation to The Waterfront, this will apply to the Marina infrastructure i.e. Groynes, Revetments, etc. A separate application will be required for dredging.

The PPA approval process includes:

Stage 1 – Pre-Lodgement Discussion

The Proposal presents high level scoping document or presentation of the proposed development. PPA provides guidance and information.

Stage 2 - Pre-Development Concept

The Proponent submits a Project Definition Document. The PPA provides comments and feedback.

Stage 3 - Development Application

The Proponent applies for Development Approval. PPA assesses the conceptual design, and approves (or otherwise) subject to Development Conditions

Stage 4 – Construction Application

The Proponent applies for Construction Approval. PPA assesses the construction design, and approves (or otherwise) subject to Construction Conditions.

Stage 5 – Monitor, Audit and Closure

The Proponent completes the works. PPA monitors the works and audits against the Development Conditions and Construction conditions. The development is closed-out.

11.3 INDICATIVE INFRASTRUCTURE STAGING AND DELIVERY

As part of the delivery of the Waterfront Precinct, 2 development stages have been identified:

- Stage 1 comprising
 - Indicative Stage 1A – represents the marine, civil, (road/utility) and public realm infrastructure to be delivered to facilitate the waterfront precinct; and
 - Indicative Stage 1B – represents the soft infrastructure considered necessary to facilitate the activation of the precinct; and
- Indicative Future Stages – represents future works that might occur in the short-long term subject to future investigations, funding and necessary approvals.

The staging indicated has been prepared to guide the detailed design process. As part of the detailed design process, various technical studies and Environmental approvals at the Federal and State level are being progressed. As a result of these processes it is possible that design review and refinement may be required. This will require a review of funding arrangements and may result in design variations that could influence the staging intent outlined overleaf.

As a result, the Masterplan should be used as a guide and may be subject to change. The Masterplan is not intended to restrict or inhibit development outside of an identified stage and should be assessed against the overall objectives of the Masterplan and established community need.

As such they are indicative until such time as detailed design and funding arrangements have been confirmed and finalized.

11.3.1 Stage 1

Stage 1A - Infrastructure Works

The stage 1A works are intended to be delivered as part of the current funding commitments by the state government and Town of Port Hedland.

INDICATIVE STAGE 1A - INFRASTRUCTURE WORKS

Marine Infrastructure

The marine infrastructure will include:

- 1 Breakwater and Revetment
 - Outer Breakwater and Sand Trap
 - Inner Breakwater
 - Internal Revetment
- 2 Pedestrian access to both breakwaters
- 3 Marina Basin (2.5 ha)
- 4 Entrance Channel (30m wide)
- 5 Boat ramps
- 6 36 Boat Pens on the northern jetty
- 7 Car parking and trailer parking bay area
- 8 Public fishing jetty
- 9 Commercial jetty
- 10 Gravel parking area

Civil Infrastructure

The civil infrastructure will include:

- 11 Earthworks
 - Cut to fill on site
 - Excavated material from the marina water body creation
 - Dredge spoil from the marina water body and channel creation
 - Excavated material from the sand trap

- 12 Main Entry Road
- 13 Commercial Hardstand (8000 m²) (fenced)
- 14 Fish Cleaning Station
- 15 Access streets (including on-street parking)

Public Realm

The public realm infrastructure will include:

- 16 Recreational Area
 - Street furniture
 - Recreational spaces
 - Lighting
 - Cultural Gathering Space
 - Marapikurrinya Five Fingers Creek
 - BBQ's
 - Shade structures
 - Interpretive signage
- 17 Community Node
 - Automated Toilet Unit
 - Hard stand for market, pop-ups and foodtrucks
 - Event ticketing hub
- 18 Promenade
 - Treelined paved walkway (7.5m)
 - Bench seating
 - Litter bins

- Drink fountains
- Bike racks

- 19 Streetscape
 - Street trees
 - On-street parking
- 20 Public car, caravan and long vehicle parking
- 21 Kariyarra Lookout – First contact and paperbark pool interpretation viewpoint
- 22 Revegetation Areas

Utility Infrastructure

The utility infrastructure will include:

- Private wastewater pumping station
- Potable water supply
- Power supply
- Lighting
- Telecommunications



Figure 24: Indicative Stage 1A - Infrastructure Works

Stage 1B - Economic and Community Development

The indicative Stage 1B plan provides a vision for those projects that may occur in the short term considered necessary to facilitate the activation of the precinct.

These projects remain unfunded and as such no certainty or specific timeframe can be provided for these projects.

Upon completion of Stage 1A, priority should be given to the project identified in Stage 1B.

INDICATIVE STAGE 1B ECONOMIC AND COMMUNITY DEVELOPMENT

The economic, community and soft infrastructure considered necessary to facilitate the activation of the precinct may include:

- 1 Additional Event/Ticketing booth(s), as required
- 2 Temporary pop up facilities
- 3 Club and shared facilities
- 4 Place Activation
- 5 Place Management Strategy



Figure 25: Indicative Stage 1B - Economic and Community Development

11.3.2 Indicative Future Stages

This indicative future staging plan provides a vision for projects that may occur within the waterfront precinct. These projects remain unfunded and as such no specific timeframe or certainty can be provided for these projects. This indicative staging should be used as a guide for future decision making.

INDICATIVE FUTURE STAGES

Marine

The marine infrastructure may include:

- 1 A further 44 boat pens (up to a total of 80) on the southern jetty

Civil Infrastructure

The civil infrastructure may include:

- 2 Pedestrian crossings to Hospital Redevelopment Site
- 3 Extension of parking street to support leasehold sites. To occur concurrently with leasehold opportunities

Future Leasehold Opportunities

This may include:

- 4 Opportunity to introduce new leasehold sites for land uses that compliment the waterfront precinct

Public Realm

The public realm infrastructure may include:

- 5 Redevelopment of revegetation area consistent with and as an extension of the grassed terraces. To occur concurrently with leasehold opportunities
- 6 Acton Street lookout
- 7 Second Kariyarra Statement Artwork and Yintha Creation Story
- 8 Community Swimming Node
 - Further expansion of existing facility

- 9 Eco-tourism Opportunities

- Caravan Park
- Eco-Tents

- 10 Pedestrian access to Town Centre

- 11 Kariyarra Paperbark pool artwork

- 12 Toilets and Marine Amenities

Place Activation

The place activation infrastructure may include:

- 13 Bush tucker and environmental awareness

- 14 Enhanced public transport connections

- 15 Securing new tenancies for Future Stages built form

- 16 Shade structures and storage for commercial operators

- 17 Asphalt parking area (72 bays)



Figure 26: Indicative Future Stages

11.4 PLACE ACTIVATION AND MANAGEMENT

The Port Hedland Marina and Waterfront Place Plan accompanies this masterplan. The purpose of this report is to provide the Town with a Place Plan and Recommendations for Place Making and Management for the proposed marina and waterfront. This report has been prepared based on inputs from stakeholders and the community during the recent engagement activities.

This report aims to inform the development of the masterplan for the project and provides a guide for the activation and development opportunities and the strategies and processes leading to implementation of the vision.

This report should be read in conjunction with the Stakeholder Engagement and Workshop Outcomes Report.

11.5 MONITORING AND REVIEW

The success of a place can only be realised by understanding and measuring the performance of the place. It is not just the act of building a place, it is a process that fosters the creation of vital public destinations – the kind of places where people feel a strong stake in their communities and commitment to making things better.

It is essential to test and monitor the success of any project and to understand a project's failures. In this way investment, policy and opportunities can be refined and adjusted to improve outcomes.

Two evaluation tools can be used; quantitative and qualitative.

Quantitative Tools identify the how many's, the how big's of a project. It is easy to measure and is tangible. This information can be measured from data gathered through GIS, ABS and other statistical and account-based records which can be collected and analysed. It is however important to understand the context, collection process and sample size of this information to be sure to derive relevant results.

Qualitative Tools explore experience, perceptions, awareness and reactions. These are less easy to measure and are intangible. This information is best gathered through dialogue and perception surveys with user groups, visitors, businesses and the broader community on a regular basis by an authority like state or local government or event organisers. As with quantitative data it is important to understand any variable information which may have influenced the qualitative data like the weather, day of the week, hour of the day, other

competing events and the stage of development when the survey was taken to ensure the analysis is context based.

Both tools are important individually however, become more valuable when reviewed together.

It may also be relevant to benchmark the results against the cost of development and place activation at various stages and /or against other known projects of a similar nature which may be the standard that Port Hedland Marina and Waterfront should achieve to be regarded as successful.

The Place Diagram prepared by Project for Public Spaces has been adapted for the Port Hedland Marina and Waterfront project using the information gained from the Community Workshops and stakeholder engagement to recommend the experiences which may be monitored through perception surveys and measurement of data which could be monitored together to determine the success of the project.

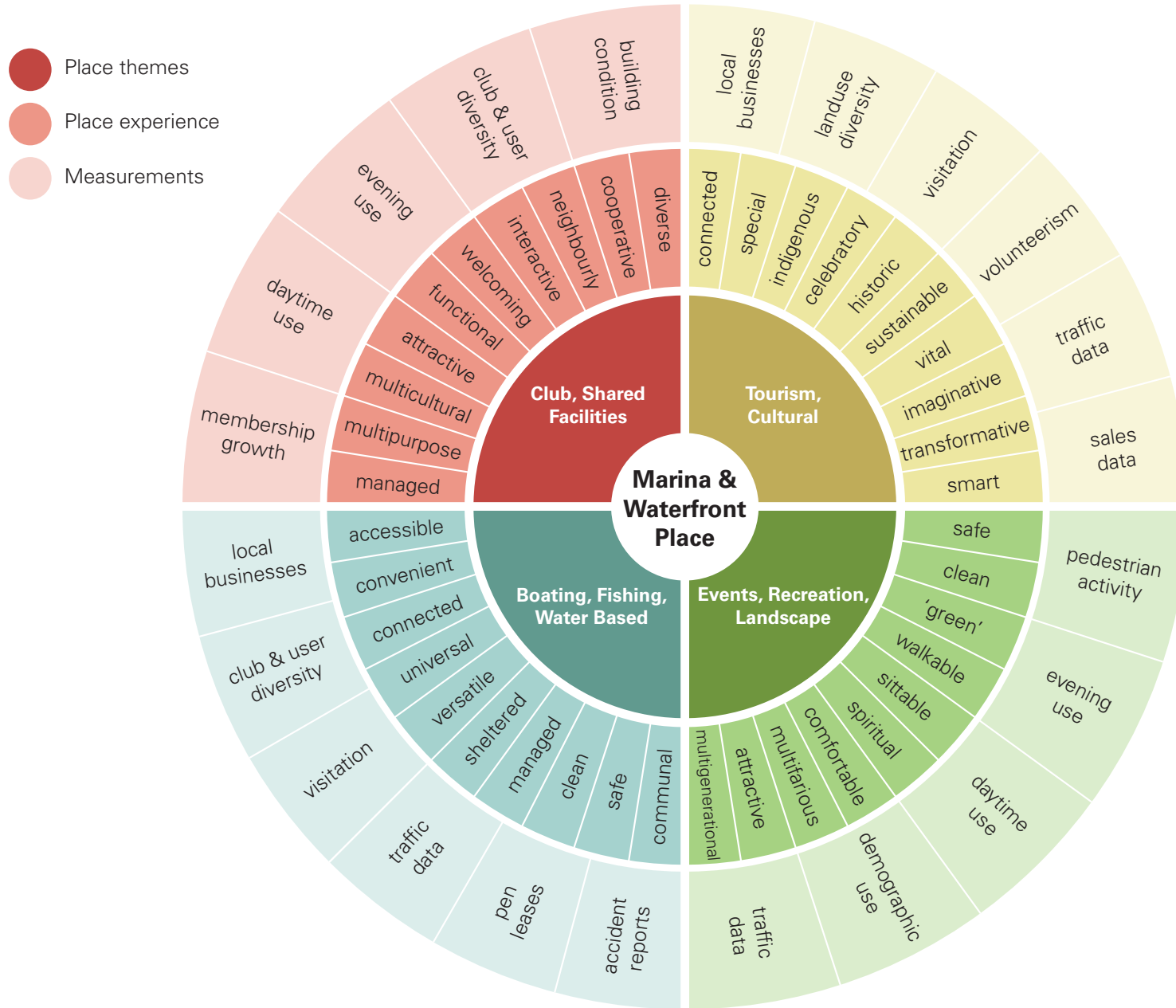


Figure 27: Place Design Evaluation Tool

