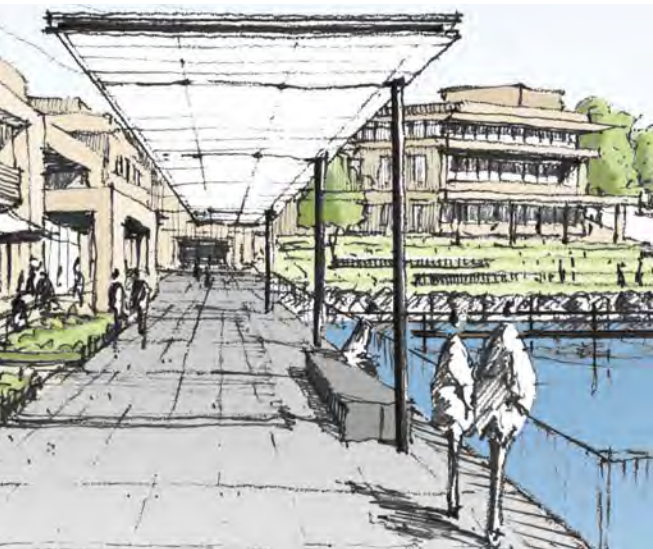


# Pilbara's Port City Growth Plan



*A vision for a nationally significant regional city*



**PILBARACITIES**  
DEVELOPING THE FUTURE



ROYALTIES  
FOR REGIONS



Department of  
Planning

GOVERNMENT OF  
WESTERN AUSTRALIA

**DRAFT**  
AUGUST 2011

Town of Port Hedland

Kelly Howlett - Mayor

Paul Martin – Chief Executive Officer

Eber Butron – Director Planning and Development

Russell Dyer - Director Engineering Services

Gordon MacMile - Director Community Development

Steering Group

Paul Martin – Town of Port Hedland (Chairman)

Chris Adams – Office of Pilbara Cities

Matt Read - LandCorp

Phil Woodward – Department of Planning

Consultant Team

Town Planning and Urban Design – RPS (in association with APP Corporation and Dr Fiona Mckenzie)

Economic Development – AEC Group

Property – AEC Group

Sustainability – Parsons Brinckerhoff

Landscape Architecture – RPS (in association with UDLA)

Civil Engineering – Wood and Grieve

Environment – RPS

Indigenous and Non-Indigenous Heritage – RPS

Stakeholder and Community Engagement – Worley Parsons

Traffic and Transport – AECOM

With Additional Input From

Community Development and Place Making - FORM

ALL ENQUIRIES TO:  
TOWN OF PORT HEDLAND  
PO BOX 41  
PORT HEDLAND WA 6721

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**T.B.A**

“A nationally significant, friendly, City, where people want to live and are proud to call home”!





## EXECUTIVE SUMMARY

Western Australia's Pilbara Region, and Port Hedland particularly, have grown to become the economic might of the Australian economy on the back of an internationally significant resource industry. Port Hedland is already the largest bulk commodity port in Australia. Total expansion of the port is expected to increase to a capacity of 895 million tonnes per annum (mtpa) - an impressive 400% increase from today. In 2010/11, the Port Hedland Port Authority exported \$40b worth of exports (199 million tonnes).

Despite this, national and state level re-investment in Port Hedland since the 1960's has not been at a nationally significant level. The resulting growth pressures are acknowledged in the *Western Australian Planning Commission's Pilbara Planning & Infrastructure Framework (2011)*, where severe infrastructure shortages, high living costs, demand for amenity improvement and housing affordability are all identified as major constraints to Port Hedland's sustained growth and development as a Pilbara City.

The Pilbara Planning and Infrastructure Framework provides a blueprint for the long term growth and sustainable development of the Pilbara Region, and identifies both Port Hedland and Karratha as Regional Cities of up to 50,000 people by 2035.

### **What is Pilbara's Port City Growth Plan?**

The City Growth Plan provides a high level strategic blueprint to facilitate the sustained growth of Port Hedland into Pilbara's Port City with a population of up to 50,000 people. It is being driven by the need to modernise and transform Pilbara towns to support long term economic activity in the region, improve the quality of life for existing residents and to attract and retain new residents. Pilbara's Port City Growth Plan builds on many of the aspirational themes of

previous Port Hedland plans which have sought to guide the future structure and form of growth. It incorporates all land within the municipality of Port Hedland, with primary focus on the settlement areas of South and Port Hedland.

Pilbara's Port City Growth Plan provides guidance on:

- How we will provide for significant population growth, create local employment and investment and diversify the economy;
- How our city will reflect cultural and landscape values through development of community and sense of place;
- Where will urban and industrial growth be located and what forms of land use, transport and activity centres will support this;
- How Pilbara's Port City will relate to its landscape, protect natural environmental assets and respond to the challenges of climate change; and
- What infrastructure will be necessary to support the growth of Pilbara's Port City.

Pilbara's Port City Growth Plan will be released as two separate documents. One being the Growth Plan (this document), and a second subsequently released Pilbara's Port City Implementation Plan document. Among other things, the latter will provide details on the actions required to 'de-constrain' land in the precincts identified, prioritisation of those activities, as well as the broad roles and responsibilities of the key stakeholders involved in ensuring a timely delivery of the projects and programs.

### What kind of city will Pilbara's Port City be?

Pilbara's Port City Growth Plan is based on the vision that:

**"A nationally significant, friendly city, where people want to live and are proud to call home".**

The vision is supported by 5 core themes that have informed the Growth Plan's preparation:

1. **Sustained and Diversified Economic Growth** – providing opportunities for regional and local employment generation and diversification. Providing the right conditions for robust economic growth to occur across a range of industries.
2. **Strengthening Local Communities & Culture** – fostering the development of safe, friendly and inclusive communities. Providing places and space that reflect and enhance the unique character, Indigenous and Non-Indigenous and identity of the area. Building resilience within the community and providing services and facilities for a range of diverse community needs and interests.
3. **Housing Diversity & Land Supply Capacity** – providing an orderly and adequate supply of land along with increased choice in housing products and tenure options to cater for a diverse and permanent population.
4. **Environmental Protection and Change Adaptation** – the protection and enhancement of natural environmental assets, biodiversity, air and water quality, and building resilience against the long term effects of climate change.
5. **Building & Maintaining Infrastructure Capacity** – strategic and urban transport, utilities and communications infrastructure are provided in a timely, sustainable and efficient manner to cater for a growing resident population and increasing business activity.



Figure i : City Growth Plan Core Themes

### Why are we preparing the City Growth Plan?

Port Hedland has a Gross Regional Product of \$3.3b and comprises 1.8% of the Western Australian economy. The Port Hedland economy has grown 61.3% over the last 3 years. If we are to provide for the future of Port Hedland, and achieve our vision, Port Hedland will have grown significantly beyond even its current size. From a current estimated total population of 19,216 it will have reached 50,000. Total resident population will have grown from an estimated 14,624 to 40,000 with an additional 10,000 temporary workforce and short-stay visitor population.

Existing growth pressure has already seen average

house prices of \$1.12m (March 2011), which is 2.3 times higher than the average Perth house price (\$480,000 – March 2011). Similarly, average rental rates are \$1,772 per week (March 2011) some 4.6 times higher than average rental rates in Perth (\$380 per week – March 2011). Median house prices have already increased 14% over the last two years, with rental rates also increasing 14% during that period. The resultant issues of housing affordability and land supply are already highly prevalent, and will increase unless a coordinated land release program and accompanying affordability measures are undertaken.

These types of steps must be taken in a coordinated way, though. The principles of 'responsible

growth' must be used to ensure the primacy of Port Hedland's Port and resource infrastructure is protected and enhanced for the longer term. Similarly environmental attributes and coastal vulnerability must be considered before developing new areas. Infrastructure and transport must be planned to coincide with new urban or industrial land; and most importantly, the strong cultural and landscape values that typify Port Hedland must be captured as the city grows through new community and cultural facilities and programs.

The Growth Plan has also been prepared to satisfy the core recommendations of the State Government's Dust Taskforce. Among other matters, these require the preparation of a plan which:

- Identifies sites for new development in the entirety of Port Hedland;
- Identifies appropriate locations in the West End of Port Hedland for redevelopment as additional commercial premises, entertainment complexes and short stay accommodation facilities;
- Prescribes additional planning controls to address amenity issues associated with living in an area with elevated levels of noise and dust.

### Preferred Scenario for Growth

Pilbara's Port City Growth Plan examined several scenarios for growth and adopted an approach most aligned with a 'Rapid City Growth' scenario, which recognises the importance of expansion in both existing urban settlement areas of South and Port Hedland. It recognises that South Hedland will support the City Centre as the primary regional centre, while the East End of Port Hedland will be developed with a Neighbourhood Centre serving local needs.

The West End will be a commercial/cultural hub

recognising the primacy of the Port, while offering entertainment and cultural experiences to residents and visitors. This approach offers the basis for strengthening the connectivity between South and Port Hedland through the early development and expansion of Wedgefield and Airport land. It is based on having a balance of urban infill and immediate new land development.

An important legacy of the Port City Growth Plan will be to provide certainty for all stakeholders as Pilbara's Port City grows to 50,000 and beyond. The Growth Plan identifies sufficient opportunities to accommodate 50,000 people, while also identifying longer term urban land bank requirements for continued growth.

Figure ii below illustrates the spatial distribution of total dwellings under the preferred scenario.

### Strategies for Growth

For the first time, Pilbara's Port City will have clear strategies to map and implement growth across five core themes. Spatially, the Growth Plan identifies 16 Growth Precincts, broadly setting out how land should be used and developed – and protecting the primacy of the Port and resource infrastructure and operations. In addition to non-spatial strategies, these precincts provide the foundations for the following:

- Significant new residential development capacity (including excess of demand for a population of 50,000), including:
  - 23,230 total new dwellings;
  - 17,587 new dwellings in South Hedland;
  - 5,643 new dwellings in Port Hedland;
  - No additional new dwellings in West End.
- Providing housing diversity and housing choice to cater for future growth of both permanent

and temporary accommodation;

- Approximately 125,000m<sup>2</sup> of additional retail/commercial floor space;
- A cultural hub in the West End of Port Hedland and a new retail centre in the East End;

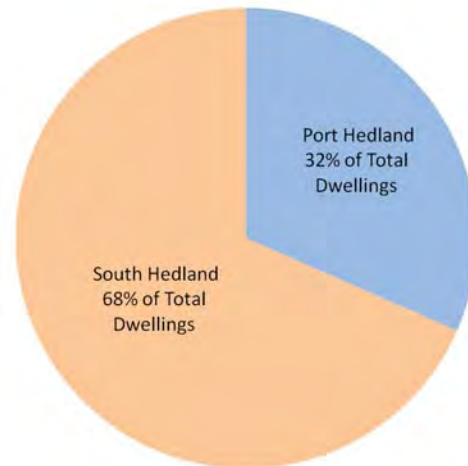


Figure ii: Spatial Distribution of Total Dwellings under the preferred scenario

- Delivery of a regional town centre for South Hedland; and
- Approximately 2,161ha of additional strategic industrial land and 450ha of additional general/light industrial land.

To meet the needs of a growing population, the Growth Plan also identifies a range of strategies and initiatives required to address the core themes. In particular, housing has been identified as by far the most critical issue and impediment to economic growth and a range of strategies have been articulated to address this issue; failure to address this issue in a pro-active and robust fashion could

impair all future growth.

Other strategies and initiatives have also been identified designed to facilitate enhancement of the quality of life for Port Hedland's residents, including the creation of safe, friendly and inclusive communities; expanding job and related opportunities for current and future residents; addressing infrastructure, including public transport, services; and ensuring that current and future developments are built in a manner which respects and preserves the region's indigenous and non-indigenous heritage, and meets the challenges of the climatic conditions and environmental constraints.

### Making it Happen. Delivering on the Growth Plan

Pilbara's Port City Growth Plan will ultimately be adopted by the Town of Port Hedland and Western Australian Planning Commission, following the public comment period, and become Port Hedland's Local Planning Strategy.

Supporting the Growth Plan document is a separate Implementation Plan, a document to be released

in the coming months. The Implementation Plan will set out programs for the delivery of all recommended work across each of the five core themes – comprising economic, community, environmental, housing/land and infrastructure projects and programs. It will include a broad set of actions, roles and responsibilities, timing, and other information required to inform the delivery plans and programs of project partners.

Delivering the outcomes required to meet the Growth Plan vision will require a 'whole of Government' approach and commitment by many stakeholders across the region and the state – with sustained levels of support and resourcing. Critically, this transformation will need to be led at the local level by a strong and well resourced Local Government, playing a central role in the coordination of activities, investment initiatives and the development of strong and effective delivery partnerships.

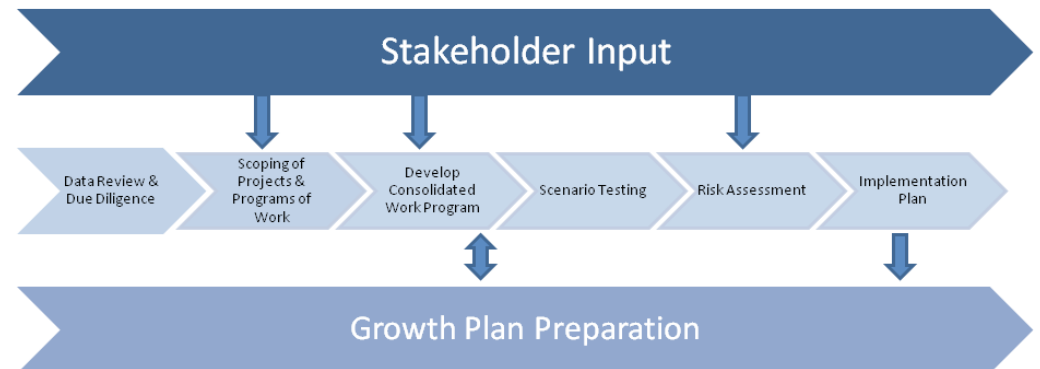


Figure iii: Implementation Plan



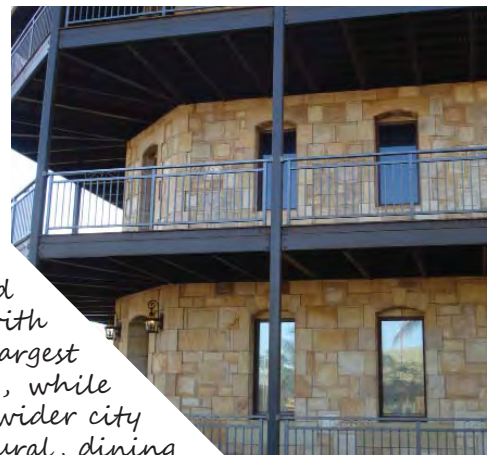
*“A place of ‘northern Australian life’, Pilbara’s Port City Centre is a dynamic, accessible and inclusive place that is the heart of the South Hedland community and the major regional centre of our City of 50,000 people. It is an exciting destination for visitors, business people and residents. It has great public spaces, friendly streets, landmark buildings and architecture. There are and many influences through public art and space of our strong association with indigenous heritage and natural landscape. Like the many destinations throughout Pilbara’s Port City, culture and social destinations are woven into our City Centre.”*





*“The East End Urban Village is Port Hedland’s primary residential area. The area, encompassing established Cook Point and Pretty Pool offers significant housing density and diversity together with sport and recreation opportunities, and school and community facilities. At its heart is a retail and mixed use village that offers a range of local convenience as well as dining and entertainment choices. Strong links to the coast and mangrove environs have been established which offer residents and visitors alike a closer connection with the landscape.”*

*“The West End is the Port City’s soul – perhaps like Fremantle to Perth it is a unique and interesting place. It supports the growing port activity, yet remains people friendly and accessible. It is busy with day time workers, many of whom leave their offices to enjoy lunch in outdoor cafes and bars. As evening arrives the West End transforms into a place popular with tourists observing Australia’s largest tonnage port and our coastline, while travelling professionals and the wider city population enjoy the many cultural, dining and entertainment activities.”*



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1.0 INTRODUCTION



### 1.1 PILBARA'S PORT CITY

Western Australia's Pilbara Region and Port Hedland in particular have grown to become the economic might of the Australian economy on the back of an internationally significant resource industry. This resource sector is forecast to expand significantly with continued demand for Australia's natural resources, particularly in China and South-East Asia.

Port Hedland is Australia's largest bulk commodity port with a total output in 2011 expected to surpass 200 million tonnes.

In 2009/10, Port Hedland exported US \$18.7b of Iron Ore. Iron ore Royalties to the WA Government from the Pilbara were \$1.7b in 2009/10 with royalties forecast to increase to \$3b in 2012/13, an increase of 77% (*Town of Port Hedland, 2011*).

Port Hedland's role is also well established on the national and international stage. It attracts internationally prominent resource companies, and contributes at a nationally recognised level to the broader Australian economy.

#### Gross Regional Product and Share of National Economy, Port Hedland (T), 2009/10

Region	Gross Product (\$b)	Share of Australia
Port Hedland	\$3.3	0.3%
Pilbara SD	\$19.8	1.5%
WA	\$184.4	14.4%
Australia	\$1,283.6	100%

Figure 1.1: Gross Regional Product and Share of National Economy, Port Hedland (Source: ABS 5206.0 National Accounts and AEC group)

While the statistics are revealing, it should be noted that the figures are not a reflection of the actual contribution of Port Hedland to the national economy. Notably, they do not account for the contribution of a region (like Port Hedland) to key economic activities such as exports or Government revenues; they also do not take into consideration the enabling role of key infrastructure in Port Hedland (namely the Port) in facilitating economic activity and value-adding in other parts of the country (i.e. mining located in East Pilbara is almost wholly dependent on access to export infrastructure, services and facilities in Port Hedland).

This notwithstanding, national and state level re-investment in Port Hedland since the 1960's has not been at a nationally significant level. The resulting growth pressures are acknowledged in the *Pilbara Planning & infrastructure Framework*, where severe infrastructure shortages, high living costs, demand for amenity improvement and housing affordability are all identified as major constraints to Port Hedland's sustained growth and development as a Pilbara City.

The housing situation (both rental and sales) is particularly acute and has been identified as by far

the biggest single issue and impediment to future economic growth.

The Town of Port Hedland has recognised the many growth pressures it faces through the '*Hedland's Future Today 2010*' initiative, which documents a range of significant investment projects the town is seeking to deliver. While the Town and the State Government have successfully progressed a number projects, a 'Whole of Government' approach from all levels is required to meet the growth challenges and deliver a successful Pilbara City.



1.2 BACKGROUND

The underlying direction and vision for the City Growth Plan has been determined at both Local and State Government levels. Importantly, the Town of Port Hedland's (ToPH) aspirations have been well articulated in key strategic documents such as the *Port Hedland Land Use Master Plan; Strategic Plan 2010-2015; Hedland's Future Today 2010*; as well as the *Port Hedland Land Availability Plan and Housing Capacity Study*. Similarly, under the Pilbara Cities framework, the State Government has previously announced its vision to revitalise Pilbara towns, including developing Port Hedland as "Pilbara's Port City".

The *Pilbara Planning and Infrastructure Framework (PIIF)* provides a blueprint for the long term growth and sustainable development of the Pilbara Region, and identifies both Port Hedland and Karratha as Regional Cities of up to 50,000 people. The City

Growth Plan provides a local level strategic blueprint to facilitate the sustained growth of Port Hedland as Pilbara's Port City. Critically, it is intended to replace the current Land Use Master Plan (LUMP) as the ToPH's adopted Local Planning Strategy, proactively guiding future spatial development and statutory land use planning.

The Growth Plan is being driven by the need to modernise and transform Pilbara towns to support long term economic activity in the region, improve the quality of life for existing residents and to attract and retain new residents.

Achieving this transformation will require more than just local level enhancements. It will require an array of district and local level programs and projects focussed on strengthening local communities, providing growth opportunities, and

diversifying the economic base. Enhancing the quality of life for Port Hedland's residents will involve responding to the needs and aspirations of people by enhancing local amenity, expanding job and related opportunities, addressing service shortfalls, and ensuring current and future settlements are built to meet the challenges of the region's climatic conditions.

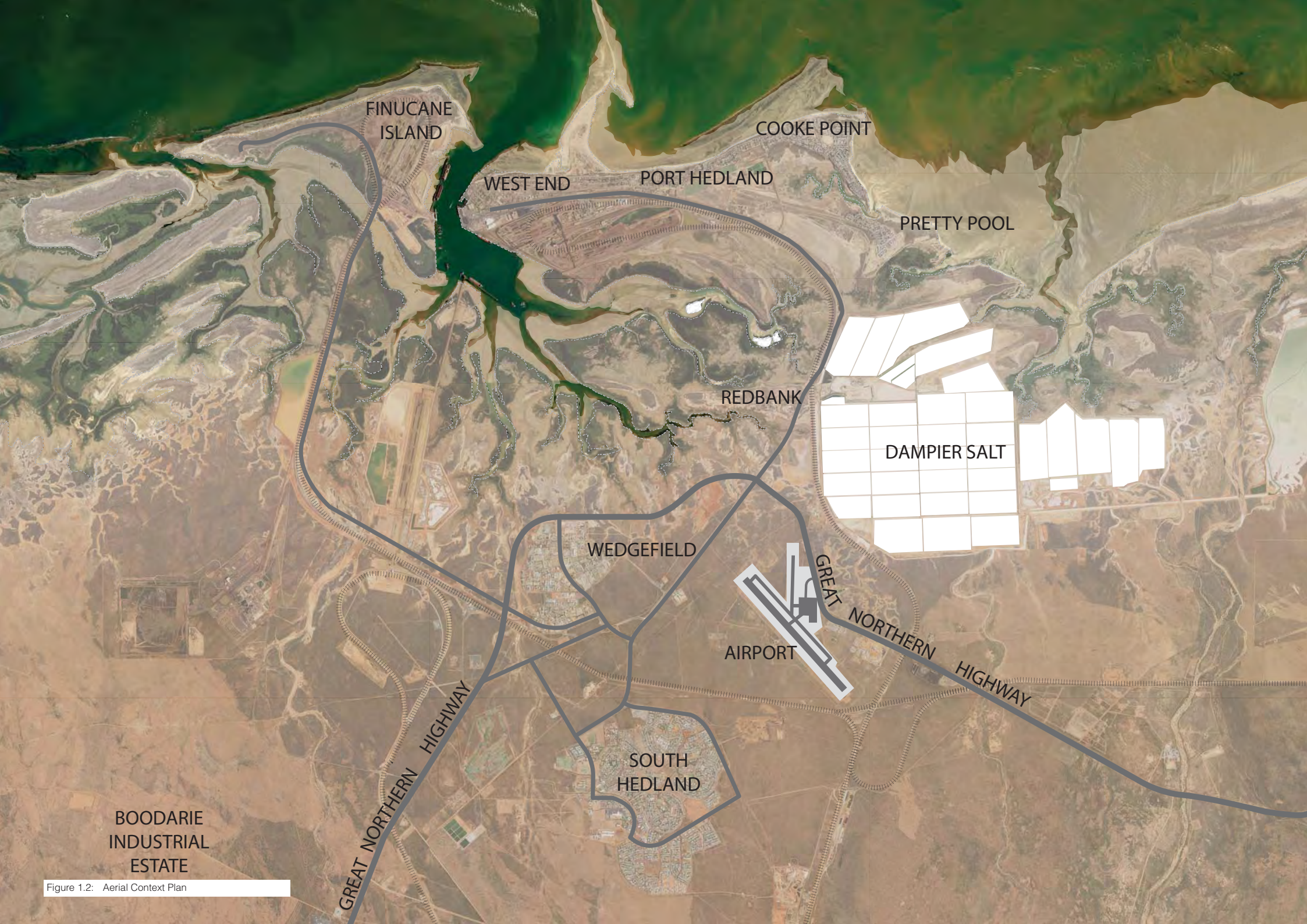
Population growth is essential to sustain the long term economic activity in the Pilbara. Current forecasts, however, indicate that settlements across the Pilbara will not reach the population growth objectives of Pilbara Cities without significant intervention. A change in economic growth and diversification will be required at a regional and local level to capitalise on Port Hedland's unique strengths and advantages and pursue new economic opportunities. The City Growth Plan will

provide the background and framework for this intervention, and set out the spatial requirements to facilitate this.

Importantly, delivering the outcomes required to meet this vision of revitalisation requires commitment and contribution by many stakeholders across the region and the state—with sustained levels of support and resourcing. It is critical that this transformation is led at a local level by a strong and well resourced Local Government, playing a central role in the coordination of activities, investment initiatives and the development of strong and effective delivery partnerships.

***“The Pilbara Regional Planning and Infrastructure Framework sets a population target for Port Hedland of 50,000 people by 2035. To achieve this target, Pilbara’s Port City Growth Plan is planning for a total population of 50,000 people over the next 20 years (by 2031).”***





FINUCANE ISLAND

COOKE POINT

WEST END

PORT HEDLAND

PRETTY POOL

REDBANK

DAMPIER SALT

WEDGEFIELD

AIRPORT

GREAT NORTHERN HIGHWAY

SOUTH HEDLAND

BOODARIE INDUSTRIAL ESTATE

Figure 1.2: Aerial Context Plan



### 1.3 SCOPE

The boundaries of the Town of Port Hedland contain an area of approximately 18,700 square kilometres, extending from the coast to approximately 180 kilometres inland. This is an area of about four times the size of Metropolitan Perth, but it contains less than 1% of Perth's population. The land City Growth Plan covers the entire area of Port Hedland, but the focus of the plan is the area of settlement on the coast where over 98% of the Port Hedland community is located.

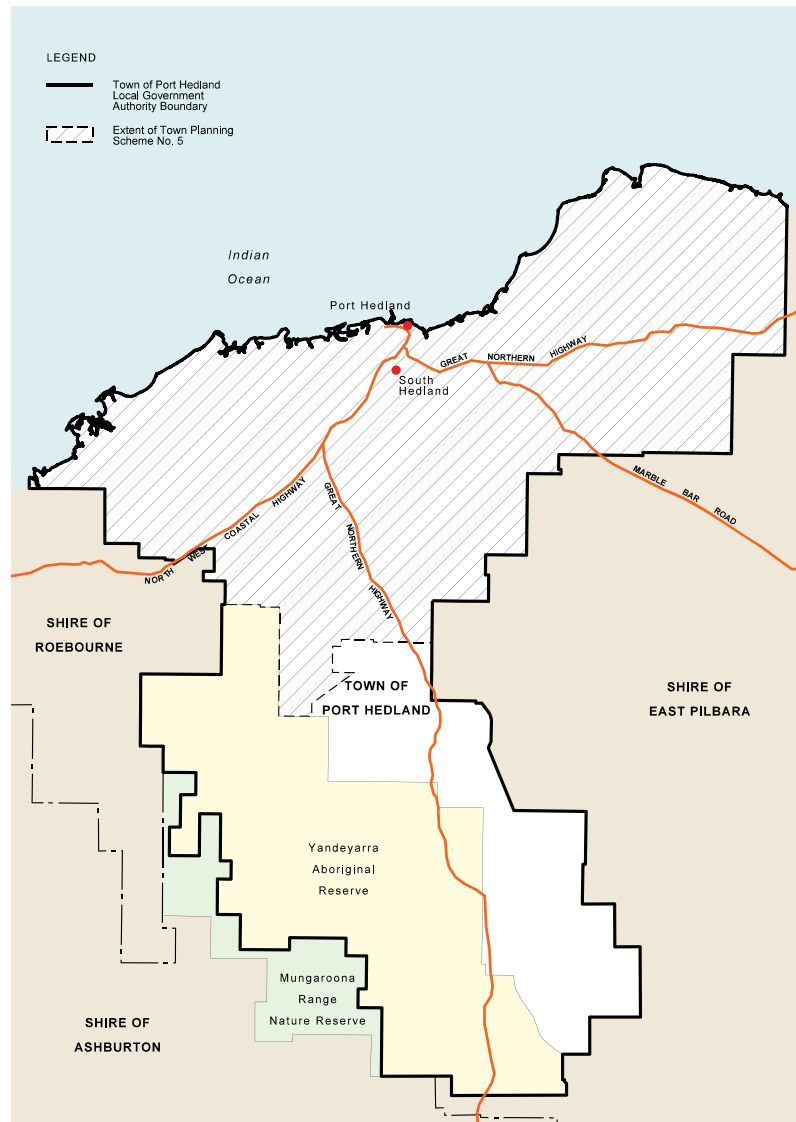


Figure 1.3: Town of Port Hedland Boundaries

#### 1.4 CONTEXT AND ROLE

As Port Hedland and Karratha become 'Pilbara Cities', their particular roles must be established. Beyond its position in a broader retail and centres hierarchy, it seems logical that Karratha will continue to serve an offshore industry support function given its proximity to the North West Shelf.

At the national, state and regional levels, Port Hedland will continue to form a critical element of the national, state and regional freight and logistics networks. At a regionally specific level it will be a higher order service centre for the East Pilbara, in addition to being the historical and culture centre of the Pilbara Region. These roles and their impacts on this Growth Plan are explored further below.

##### Freight and Logistics

Port Hedland is, first and foremost, a Port Town. Its role at a national level, defined through the National Ports and Freight Strategy acknowledges Port Hedland as a strategic element of our national freight and logistics network (*Infrastructure Australia, 2009*). This role and function of Port Hedland is a significant consideration of the Growth Plan:

*"Given the nodal nature of ports (i.e. Port Hedland) and the large concentrated freight flows along land corridors, the port aspects should be among the most important yet the simplest and clearest aspects of any city plan or any freight plan. A capital city plan (apart from that for Canberra) or freight plan would be inadequate if it did not reference relevant ports and the key landside infrastructure that is used to service them. If an adequate ports plan cannot be developed, there is little prospect of planning for other much more complex activities. Hence, plans for relevant ports should be among the highest priorities for Australia's urban agenda."* (*Infrastructure Australia, 2010*)

Australia's freight sector is a substantial economic activity in Australia. It generates and facilitates economic growth and employment, and accounts for a significant share of Gross Domestic Product. At a national level, freight movements will continue

to increase and are planned to potentially treble by 2030 (*BTRE 2010*).

Port Hedland's capacity to function at the national, state and regional level will be underpinned by its capacity to accommodate increased freight movements associated with continued expansion of the resources sector. This means protecting and accommodating expansion of the Port as well.

The Growth Plan protects and enhances the role of Port Hedland as a critical element of the nation's freight and logistics Industry. The ancillary benefit in undertaking this will be to encourage increased investment of industry in Port Hedland by providing greater certainty on government policy which affects the growth and operation of the Port (*Infrastructure 2010*). To achieve this, the Growth Plan will enact some key recommendations of the National Ports and Freight Strategies. This will include:

- In a spatial context, undertaking land use planning which protects critical existing and future freight corridors (road and rail) from encroachment of conflicting land uses whilst providing land for support industry to the freight sector;
- Implementing controls that are adequate to ensure the protection of the Port against the existing sensitive uses; and
- Removing the barriers inhibiting the productive and efficient movement of freight on the land and sea side particularly in proximity to the urban areas where urban congestion can significantly affect the safe and productive movement of freight.



Figure 1.4: Port Hedland Regional Context

## Defence

Australia's geographical size and location within an international context has been noted as a 'major defence planning challenge' (Defence 2009). The *Australian Defence Force White Paper (2009)* further highlights:

*The Defence Force has acknowledged a principal task in deterring armed attacks on the sovereignty of the nation, will include addressing the difficult task of protecting strategically significant offshore territories and economic resources in the remote north-west. This has been reaffirmed through suggestions that the Defence Force will identify the need for a new defence base in North Western Australia as part of its Force Restructure Review.*

*A key threat to the safety of the Nation is addressing the potential security risks from South-East Asia. This region sits alongside Australia's northern approaches and key trade routes. Similarly, the Indian Ocean and the central location of key international trade routes have been identified as having an increasingly strategic role to play within the Australian Defence Force's (ADF) primary operational environment (Defence 2009).*

The ADF acknowledges a "fundamentally maritime strategy" where "forces can operate with decisive

*effect throughout the northern maritime and littoral approaches to Australia, and the ADF's primary operational environment more generally".*

The Growth Plan acknowledges the future role of Port Hedland as a strategic defensive maritime base in the Nation's broader defence strategy. This is consistent with the notion that Port Hedland can support a Marine Common User Facility which would compliment plans for a defence presence in Port Hedland (Department of Commerce 2011).

## Strategic Industry and Manufacturing

Port Hedland's strongest assets are its strategic freight infrastructure, geographical location and access to raw materials. All of these elements are complimentary to the establishment of a manufacturing industry and an industrial service role (AEC Group 2011). Similarly, the capacity for Port Hedland to provide a servicing role to offshore industry has been confirmed (Department of Commerce 2011).

Port Hedland currently provides a marginal service and manufacturing role to the broader Pilbara Region (AEC Group 2011). Notwithstanding this, the strategic advantages Port Hedland has provide

the foundation to develop a secondary role to the northern regions of Western Australia. The Growth Plan will facilitate this new function of Port Hedland by:

- Encouraging the stabilisation of the population and continued growth in line with population projections;
- Setting aside land to support downstream processing, manufacturing and distribution throughout the North-West;
- Setting aside land which is able to support supply chain industries to service the resource sector;
- Undertaking appropriate land use planning to reduce risks to the operation of industry by identifying and mitigating conflicts with sensitive uses; and
- Nominating an appropriate location for a Marine Common User Facility in the Port.

## Cultural Core

Port Hedland has a rich history and culture which extends before the iron ore and core resource

logistics and port role it now serves. Port Hedland also has a rich aboriginal culture extending over thousands of years.

Port Hedland's history and cultural wealth have defined Port Hedland as a cultural centre of the Pilbara. It offers unique and rich cultural experiences which are specific to its historical development. Fostering cultural growth increases the level of social capital in the region which is shown to improve health, education and life satisfaction and reduced crime (BTRE 2005). Furthermore, regions that are rich with social capital are likely to have a competitive economic advantage as it improves information flows and/ or enhances the creation of knowledge and innovation (Maskell 2001).

The cultural role of Port Hedland at a localised and also regional level is equally important in fostering population and economic growth in the locality and the broader region as direct and tangible factors such as land release. The Growth Plan will foster the cultural role of Port Hedland by:

- Celebrating Aboriginal and European history elements of Port Hedland through appropriate land use planning and design;
- Fostering a stronger tourism Industry by defining a place making strategy for the broader municipality; and
- Identifying a range of community development strategies and initiatives (including cultural strategy) aimed at enhancing social capital within the community.



### 1.5 METHODOLOGY

The City Growth Plan is not exclusively a land use planning strategy; it considers both spatial and non-spatial challenges to the expansion of Port Hedland into a sustainable city. The City Growth Plan identifies where a population of up to 50,000 can reasonably be accommodated, what additional civil infrastructure and transport services, how community aspirations can be accommodated and how the environment, indigenous and non-indigenous heritage should be protected and celebrated.

In addition to serving as the Town's new Local Planning Strategy, the Growth Plan also addresses the core recommendations of the State Governments Dust Taskforce. Those recommendations require the preparation of a plan which:

- ◆ Identifies sites for new development in the entirety of Port Hedland;
- ◆ Proposes new development predominantly in eastern Port Hedland;
- ◆ Identifies appropriate locations in the West End of Port Hedland for redevelopment as additional commercial premises, entertainment complexes and short stay accommodation facilities; and
- ◆ Provides greater guidance on residential density, dwelling types and building design for all areas of Port Hedland (Refer Section 3.5 for further details).

The whole of the Town of Port Hedland municipal area, and its national, state and regional context have been considered in preparing the Growth Plan. Critically, however, the geographic expansion of the existing settlement areas has been the key focus of the document.

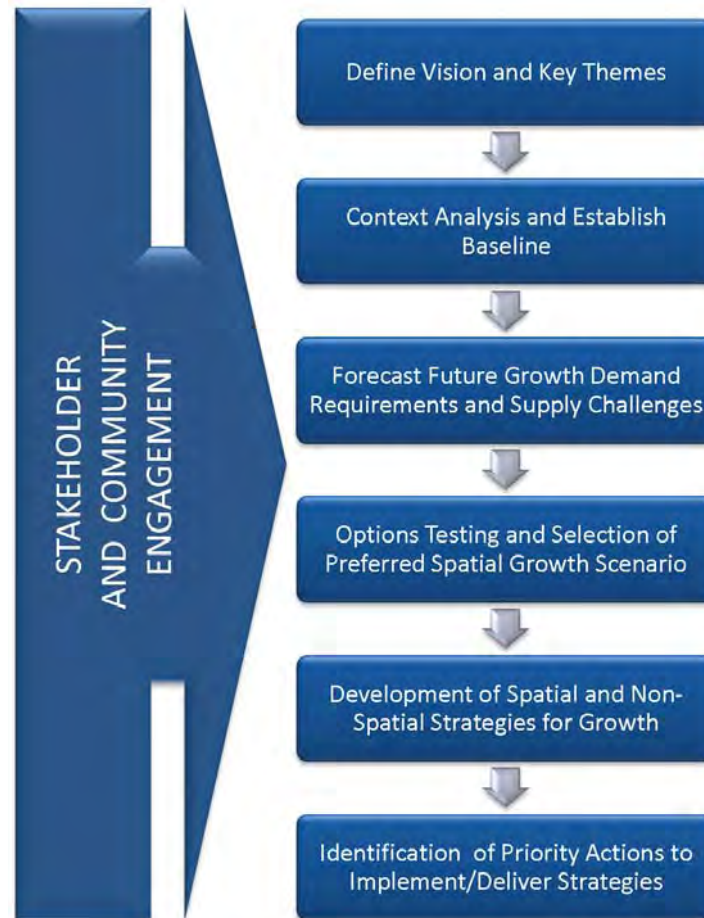


Figure 1.5: Project Approach

#### 1.5.1 Project Approach and Decision Making

The Town of Port Hedland engaged a multi-disciplinary team with specialist skills in Town Planning and Urban Design; Civil Infrastructure Engineering; Economic and Property Analysis; Landscape Architecture; Indigenous and Non-Indigenous Heritage; Environmental Assessment; Traffic and Transport Engineering; Community and Stakeholder Engagement. The Growth Plan has been prepared taking into account the particular characteristics of the Pilbara Region and Port Hedland settlement areas and surrounds.

Figure 1.5 illustrates the broad approach to the "Pilbara Port City" Growth Plan project.

A coordinated process of reporting and decision-making was followed throughout the project as shown in Figure 1.6.

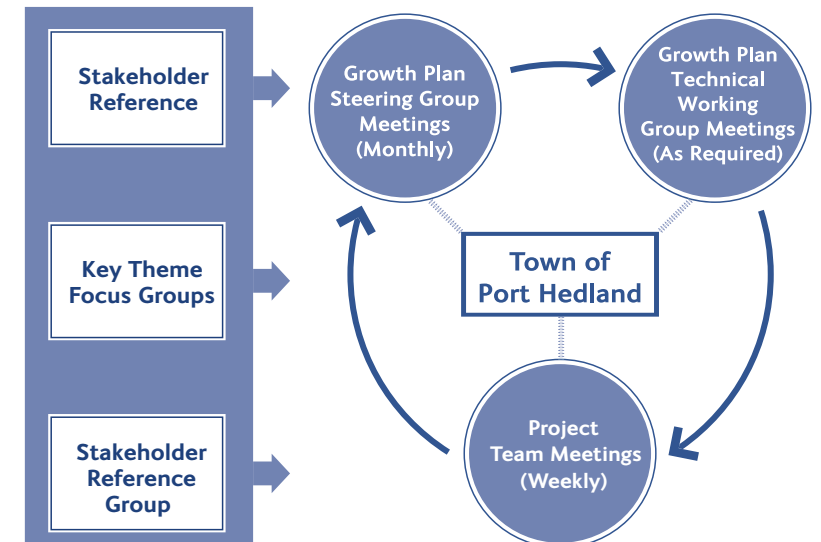


Figure 1.6: Decision Making.

### 1.5.2 Project Elements

The City Growth Plan comprises two components - a City Growth Plan and a City Implementation Plan. An overarching Sustainability Assessment has also been undertaken.

Section 6.0 of the document provides further details on the purpose and objectives of the Implementation Plan, which is currently being prepared by the project team, with a view to being presented to the Town of Port Hedland before the end of the year. The Implementation Plan will need to be read in conjunction with this document.

#### What is an Implementation Plan?

Implementation Plan = Programme & Action Plan for delivery of the necessary community, economic, physical & governance projects identified in the Growth Plan.

#### Why is it an Important Document?

- It will provide greater certainty and recognition
- It will align stakeholder objectives in a single coordinated Plan/Document
- It will be a reliable tool to facilitate Business Cases and funding submissions for projects and programmes
- It will activate key stakeholders to progress the necessary activities
- It will provide flexibility to efficiently respond to change of circumstance(s)

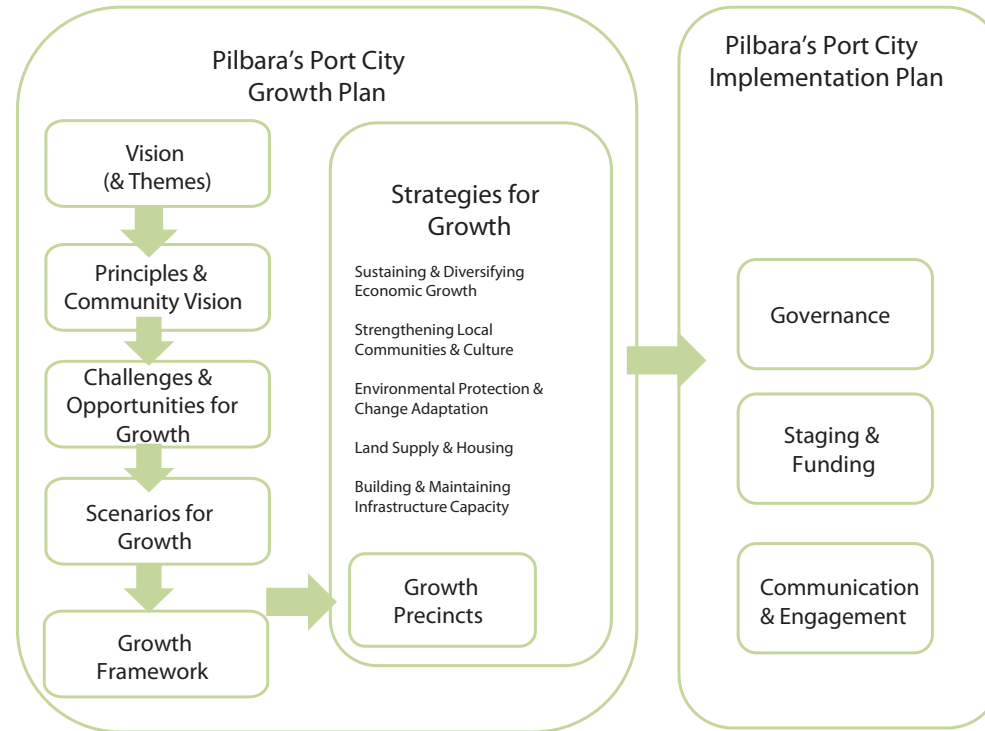


Figure 1.7: Project Elements

### 1.5.3 Structure of this Document

This document is divided into 6 sections as follows:

1. Introduction
2. Vision for Pilbara's Port City (including 5 themes)
3. Challenges and Opportunities for Growth
4. City Growth Scenarios
5. City Growth Strategy (including strategies across 5 themes and precinct plans)
6. Summary and Implementation(summary / guide to second document)

### 1.5.4 Consultation and Engagement

Effective communication and reporting is critical to good stakeholder management. Preparation of the City Growth Plan has been underpinned by a robust and comprehensive consultation and engagement process with key stakeholders and the broader community. The community and stakeholder engagement strategy had five strategic objectives:

- To identify relevant stakeholders and to understand the nature of their interest and/or involvement in development of the City Growth Plan and Implementation Plan;
- To provide stakeholders and the community with appropriate, adequate and timely information on development of the City Growth Plan and Implementation Plan;
- To seek input from key stakeholders and the community in developing the City Growth Plan and Implementation Plan;
- To achieve a high level of stakeholder and community satisfaction with the process used for developing the City Growth Plan and Implementation Plan; and
- To continue building and later maintain strong relationships with stakeholders including local community, industry and the media.

The key community and stakeholder engagement activities undertaken to support development of the City Growth Plan and Implementation Plan included;

- Internal engagement (with the project team discipline leaders);
- Establishment and liaison with a project Stakeholder Reference Group;
- Key Theme Focus Groups;
- 2 Day Growth Forum;
- Interviews with Aboriginal Corporations and Service Providers;

- Presentation to a Community Leaders Forum; and
- A range of targeted meetings and presentations to key stakeholders eg. resource companies, government agencies.

#### Stakeholder Reference Group

The role of the Stakeholder Reference Group (SRG) was to provide advice on proposed stakeholder engagement in the lead up to the Growth Forum, and then act as a vehicle for further testing of the Growth Plan strategies as they were refined.

An invitation to become part of the SRG was extended to more than 100 individuals and organizations on the Town of Port Hedland stakeholder database. On the advice of the SRG, additional stakeholders were approached to participate in SRG#2. An open invitation to participate in SRG#2 was promoted through Town of Port Hedland email bulletins and newspaper advertising.



## Key Theme Focus Groups

Eight key themes were identified as part of Focus Group discussions. The key themes were identified in consultation with the multi-disciplinary project team and validated with the Lead Consultant. Focus Group session plans were developed to detail the key questions relevant to each theme and identify target participants. These session plans were reviewed with the Town of Port Hedland. Seven focus groups were held in Port Hedland in June 2011 on the following themes:

- Strategic industry
- Economic development
- West End growth scenarios
- Environment
- Housing affordability
- Transport and infrastructure
- Sustainable community, amenity and character

Focus Groups were a maximum of two hours with participation open to any interested member of the community. Attendance at sessions varied between 5 and 26 participants.

At each session, the project consultant with primary responsibility for the Focus Group theme made a presentation to provide context to the session's key questions. This was followed by a semi-structured facilitated discussion of key questions. An eighth theme was also addressed through five key informant interviews with organisations providing services to Aboriginal people. Interviews of between 30 to 90 minutes were designed to provide an indication of the aspirations some Aboriginal people may have for the Growth Plan.

## Growth Forum

The Pilbara's Port City Growth Forum was held in Port Hedland over 2 days in July 2011. Core sessions were held during business hours and briefing sessions regarding the day's progress were held in the evenings of both days.

The event provided an opportunity for government agencies, the private sector and community organisations to review key elements of the Growth Plan and provide their feedback on options presented. The key objective was to receive early advice on any fatal flaws, major gaps or significant differences of opinion on the strategic directions being developed.

Information and discussion was structured in 19 sessions. The early focus during Day 1 was to establish the Growth Plan context, after which reactions were sought to the non-spatial enabling strategies (economic development, infrastructure provision and community facilities). After lunch on Day 1, the focus turned to the review of draft Precinct Plans. Stakeholders had the opportunity to work in small groups to modify and mark up plans.

The focus of Day 2 was on testing the approach that was to be used to develop the associated Implementation Plan.

Fifty-four stakeholders participated in the core sessions over the two days.

## 1.5.5 Sustainability Framework

The City Growth Plan is aimed at addressing underlying social, economic and environmental issues in a defined area and takes a holistic view geared ultimately towards implementation. The associated Implementation Plan must be delivery focused, and where public and private sector investment is required, consider delivery through partnerships as appropriate.

To this end, the plan is aligned with a tailored Sustainability Framework, developed to meet the future needs of Port Hedland. It provides a set of principles and aspirations to help guide and support planners and decision makers on how to achieve sustainable development and build a resilient Port Hedland for current and future generations.

The principles of the Sustainability Framework has been adopted from the national best practice GreenStar Communities framework and is designed to:

- ◆ **Enhance liveability** - Sustainable communities are liveable. They are diverse, affordable, inclusive and healthy; they enhance social interaction and ownership, are safe and caring and improve people's well-being.
- ◆ **Create opportunities for economic prosperity** - Sustainable communities prosper. They encourage opportunities for business diversity, innovation and economic development that support local jobs for people in the region.
- ◆ **Foster environmental responsibility** - Sustainable communities respect the environmental systems that support them. They protect and restore the natural environmental values of their bio-regions. They are less resource intensive.
- ◆ **Demonstrate visionary leadership and strong governance** - Sustainable communities

are characterised by leadership and strong governance frameworks that are transparent, accountable and adaptable. They enable active partnerships to build capacity and achieve a shared vision and deliver stakeholder benefit.

- ◆ **Embrace design excellence** - Sustainable communities are places for people. They are desirable, accessible and adaptable. They have their own distinct character and identity and evolve overtime.

The Sustainability Framework principles are illustrated in Figure 1.8 and described below.

- **Reducing ecological footprint:** precinct urban design objectives; public infrastructure strategies;
- **Enhanced natural environment:** place-making strategy; public infrastructure strategies;
- **Attracting investment:** economic development strategy; business progression program; tourism strategy; young entrepreneur support program; former resident alumni network;
- **Transport & connections:** public transport strategy; transport corridor strategy; airport masterplan (as amended); place-making plan strategies (gateway and tourism objectives);
- **Future-proofing:** climate responsive precinct plans; spatial planning for transport corridors; coordination of infrastructure provision and facilitation of common infrastructure access;
- **Integrated design:** precinct urban design objectives, place activation programs;

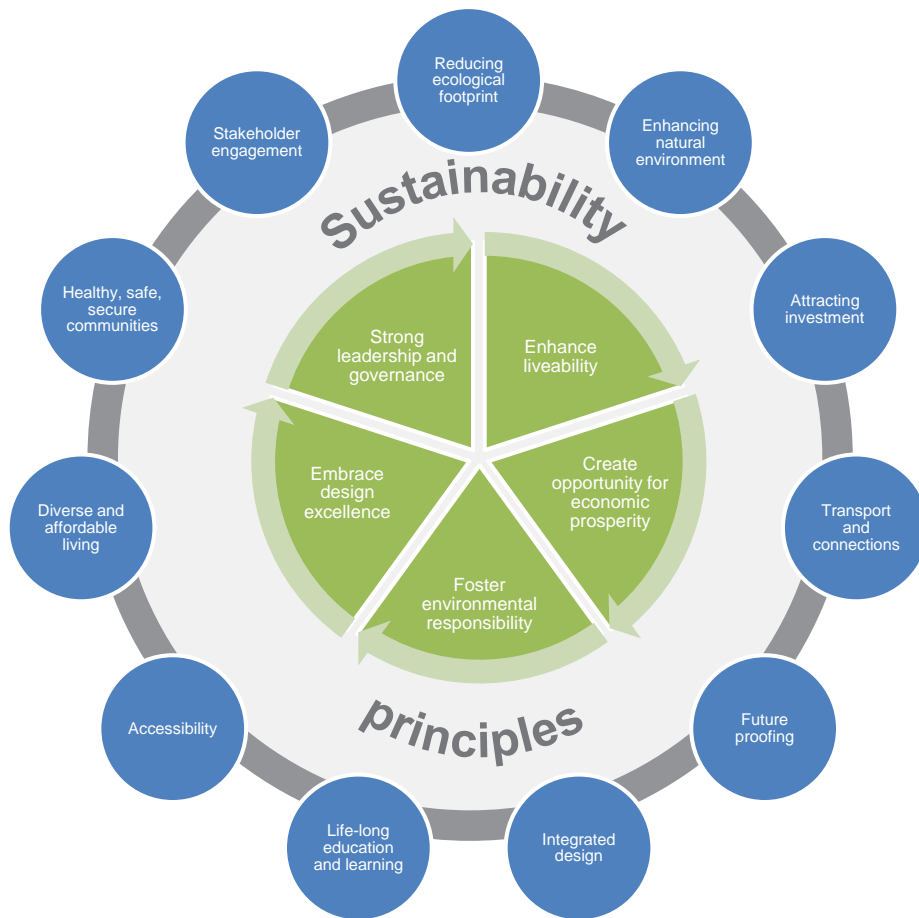


Figure 1.8: Sustainability Framework

- **Life-long education & learning:** Growth Model as input to social infrastructure coordination; tertiary institution attraction program; student achievement recognition program;
- **Accessibility:** precinct urban design objectives; transport strategies; detailed building and footpath access plan;
- **Diverse and affordable living:** land release program; affordability strategies;
- **Healthy, safe, secure communities:** place-making plan strategies; community development programming to strengthen networks; community service recognition programmes; reconciliation action plan; community leadership development program; open space strategy; and
- **Stakeholder engagement:** monitoring and reporting strategy.

The Sustainability Framework provides a consistent and agreed approach to sustainable development in Pilbara's Port City. This is important in the local context as there are many stakeholders who are interested in the economic, cultural, social and environmental success of the region. The Sustainability Framework is designed using the guiding principles and themes of state, regional and local policies and supplemented with 'best practice' sustainable community frameworks.

Although in the first instance the Sustainability Framework is used to guide sustainable development options, it is expected that the framework will be used throughout the life of the project to monitor and evaluate project outcomes to ensure that sustainability objectives are being considered and targets met. During the next stage of implementation planning, the Sustainability Framework will be used to evaluate the initiatives and strategies considered to ensure that the plan aligns with the principles set, identify any gaps

and adjust the plan accordingly. Furthermore, measures and targets will be determined during the next stage, which is a crucial element of ongoing monitoring for sustainability performance.

### 1.5.6 Integrated Growth Model

In addition to the Growth Plan and Implementation Plan, the Town of Port Hedland engaged AEC group to prepare an integrated Growth Model for the Town. The Growth Model is designed to assist the Town to manage growth into the future and at the same time deliver better planning outcomes with greater certainty for the community.

The Growth Model leverages the existing assumptions and data underpinning the Growth Plan. It allows for manipulation of various future characteristics to understand how they will impact other future facets of the Growth Plan. The model will assist the Town to make informed decisions regarding future projects and development and at the same time understand the future implications of these decisions.

Population and economic stimulus will be the main inputs (which can be used to test a wide variety of future scenarios), which will allow for an understanding of changes to future levels of:

- Land demand (across retail, residential, industrial, commercial and tourist accommodation);
- Community infrastructure (parks, libraries, recreation centres, sports fields, etc);
- Infrastructure demand (water, sewer, roads, etc); and
- Economic impacts (GRP, employment, incomes)



## 2.0 VISION FOR PILBARA'S PORT CITY



2

*“A nationally significant, friendly, City, where people want to live and are proud to call home”.*

This vision sits at core of the Town of Port Hedland's Strategic Plan 2010-2015 (adopted in July 2010) and underpins Pilbara's Port City Growth Plan. It provides a glimpse of what the City might look like in the future:

***The City of Port Hedland is recognised on the national stage as the economic gateway to the Pilbara and wider North Western Australia – a strategic economic hub supporting regional and national industries, and providing its residents and visitors with a wealth of lifestyle and recreation opportunities. It is a City with an increasingly diversified economy, providing a range of regional services and capitalizing on the important flow-on opportunities from the resource sector, agricultural investment, and the expansion of industrial, logistics and airport development.***

***Increased land availability, supply and built construction choice continues to attract and retain a permanent population. The population profile has changed significantly as a result, with increased levels of seniors and young people more reflective of Port Hedland's role as diverse and inclusive regional city. Cultural experiences and healthy lifestyle choices are available for those choosing to live in Pilbara's Port City, with modern sports facilities and a choice of local recreation and arts and cultural destinations. As a city responsive to its environmental attributes, Port Hedland is connected with the landscape, while caring for the environment***

***Pilbara's Port City continues to grow while celebrating and building on its important historic indigenous and cultural links. The West End of Port Hedland recognizes the primacy of the Port, while serving as the civic and cultural heart of the historic town site. It offers the City's residents a range of unique attractions; supplying quality office and commercial space for the multitude of new businesses locating in the City. After attending an art exhibition residents and visitors take an evening stroll along the foreshore before enjoying a meal at one of the new restaurants.***

***Urban development has progressed significantly, with an expanded retail centre located at the Boulevard and a new local centre in the east end providing improved amenity and retail choice for the growing east end community. People have the choice of apartment living with ocean views, townhouses or terrace homes though to traditional single dwellings. All are in close proximity to new schools, sporting and community facilities.***

*Wedgefield has established itself as a centre for light industry, transport and logistics, whilst heavy industries are increasingly locating in the Boodarie Strategic Industrial Area, with room to grow and capitalise on the availability of strategic transport and utilities infrastructure . The development of bulky goods and commercial premises on the airport land opposite Wedgefield has helped to strengthen connections between Port and South Hedland and provide further diversity in local business and employment opportunities.*

*Most importantly, as the major regional centre, Port Hedland's City Centre in South Hedland is recognised as the hub for regional government public sector and business activity. The Town of Port Hedland provides a range of local community services and civic facilities here, including the aquatic centre, library and leisure centres. Commercial, retail and mixed business developments have thrived along the 'main street', and the health precinct developed around the regional hospital provides a range of employment opportunities and health services for local families and visitors. Many of the City's residents now live and work in the South Hedland city centre.*

*Pilbara's Port City is an outward looking, cosmopolitan place that reflects northern Australian life. It is confident of its place as a nationally significant regional Australian city.*



### 2.1 CITY GROWTH PRINCIPLES

Following on from the vision for Port Hedland, a number of principles have been established from community consultation and input that form a guiding framework to ensure development is in line with the values of the community:

- **Making Port Hedland home:** a place where our families and visitors feel welcome.
- **Advancing Port Hedland's resourcefulness:** building on our entrepreneurial, DIY culture with innovation, creativity and learning, and applying this to solutions for our community, economy and sustainability.
- **Revealing Port Hedland's diversity of riches:** valuing our unique strengths, from an ancient landscape that is home to some of the world's oldest continuing cultures, to our natural resources and new industry, to our leading Indigenous art, and the friendliest community in the region.
- **Growing Port Hedland's international axis from a proud local heart:** leveraging the world's largest port facility, our international airport, and our growing multicultural community to connect our distinctive local character with the world.
- **Building Port Hedland's resilience:** in our place, our community, our education, our economy, our environment to ensure opportunities for all and for the long term.
- **Giving Port Hedland's best and expecting the best:** a place where our environment, cultural life and commercial offerings speak to the quality of our community.
- **Celebrating Port Hedland's vibrancy at a human scale:** making a multitude of activity and opportunities accessible through connected neighbourhood centres that bring benefits to all parts of the community and are alive beyond the 9-5.

### 2.2 CITY GROWTH THEMES

Aligned with the vision, the following core themes have been adopted to guide the development of the Growth Plan and its subsequent implementation:

1. **Sustained and Diversified Economic Growth** – providing opportunities for regional and local employment generation to address the gaps in employment outcomes within the community and providing the right conditions for robust economic growth to occur across a range of industries.
2. **Strengthening Local Communities & Culture** – fostering the development of safe, friendly and inclusive communities. Providing places and space that reflect and enhance the unique character, indigenous and non-indigenous heritage and identity of the area. Building resilience within the community and providing services and facilities for a range of diverse community needs and interests, so as to close the disadvantage gaps.
3. **Housing Diversity & Land Supply Capacity** – providing an orderly and adequate supply of land along with increased choice in housing products and tenure options to cater for a diverse and permanent population.
4. **Environmental Protection and Change Adaptation** – the protection and enhancement of natural environmental and cultural assets, biodiversity, air and water quality, and building resilience against the long term effects of climate change.
5. **Building & Maintaining Infrastructure Capacity** – strategic and urban transport, utilities and communications infrastructure are provided in a timely, sustainable and efficient manner to cater for a growing resident population and increasing business activity.

In addition to these, 'Responsible Growth' is an overarching objective across all themes to ensure that growth is delivered within a framework of limited land use conflict and human health risk, avoiding the dangers of short term gain coupled with long-term expense.

Within each theme, a number of elements guide Pilbara's Port City Growth Plan:





Figure 2.1: Sustained and Diversified Economic Growth



Figure 2.2: Strengthening Local Communities and Culture



Figure 2.3: Housing Diversity and Land Supply

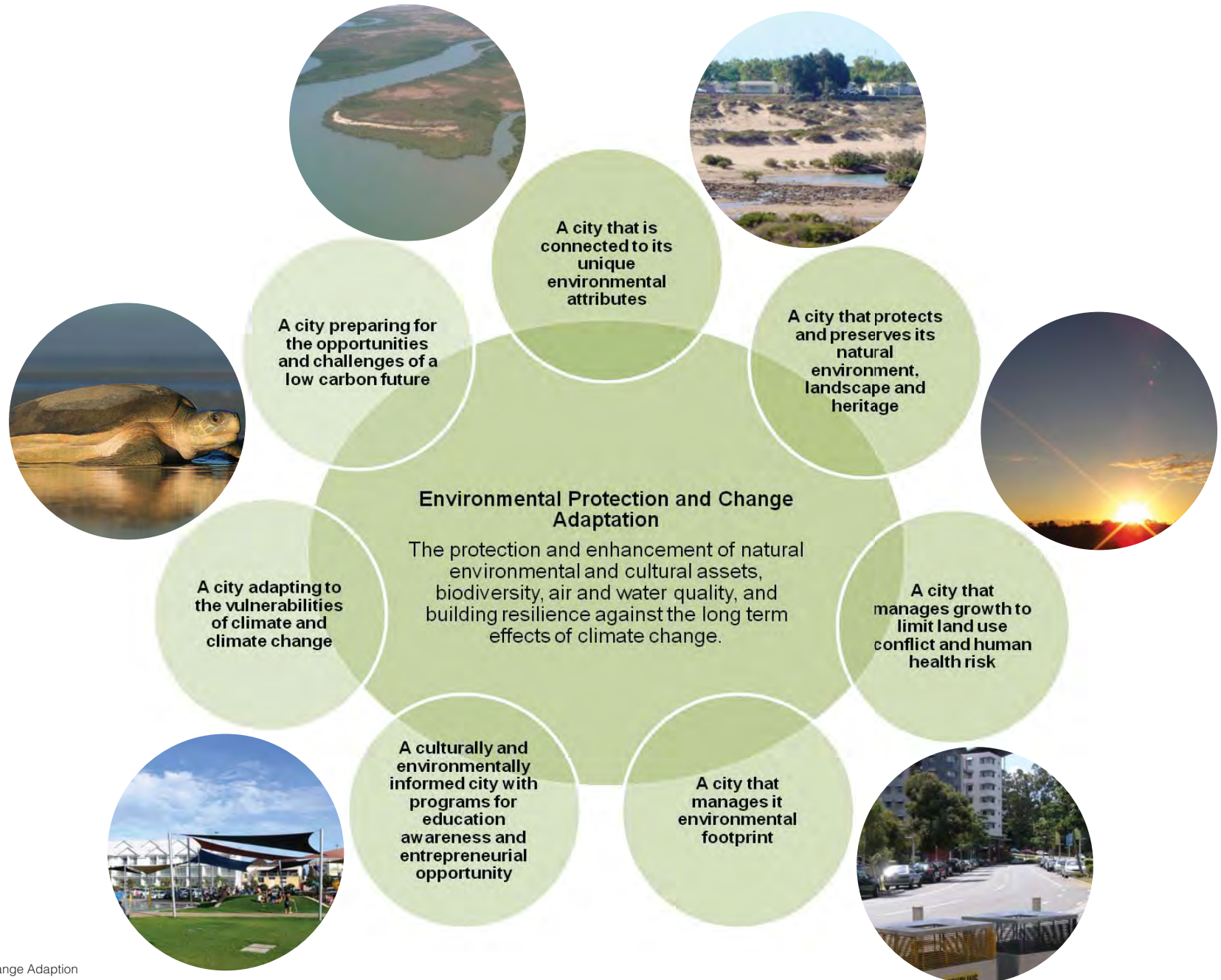


Figure 2.4: Environmental Protection and Change Adaptation





Figure 2.5: Building and Maintaining Infrastructure Capacity



### 3.0 CHALLENGES AND OPPORTUNITIES FOR GROWTH



### 3.1 POPULATION AND DEMOGRAPHICS

#### Current Population and Growth Trends

Port Hedland has an estimated 'total service population' of 19,216 persons, comprised of 14,624 permanent residents, 2,906 fly-in fly-out (FIFO) and contract workers and 1,686 short-term visitors (AEC group, 2011). Whilst an average annual population growth rate of only 1.5% was experienced over the last decade, increasing regional mining activity and exports through Port Hedland has significantly accelerated population growth in more recent years (approximately 5% in 2009). This volatility in annual population growth rates is common in many regional mining communities, where population growth is strongly linked to periods of operational expansion and major construction projects.

The current challenges facing Port Hedland are well known amongst government, industry and community stakeholders, and continue to be documented in a wide range of publications and media reports. Increasing international demand for mineral resources, combined with Port Hedland's strategic infrastructure assets and locational advantages, provides a strong economic platform for future growth. In turn, the rapid expansion of mining and export operations in the Pilbara has placed significant additional pressures on local housing markets, infrastructure capacity and local communities.

This section provides an overview of the key challenges and opportunities facing the town as it grows into a City of up to 50,000 people.

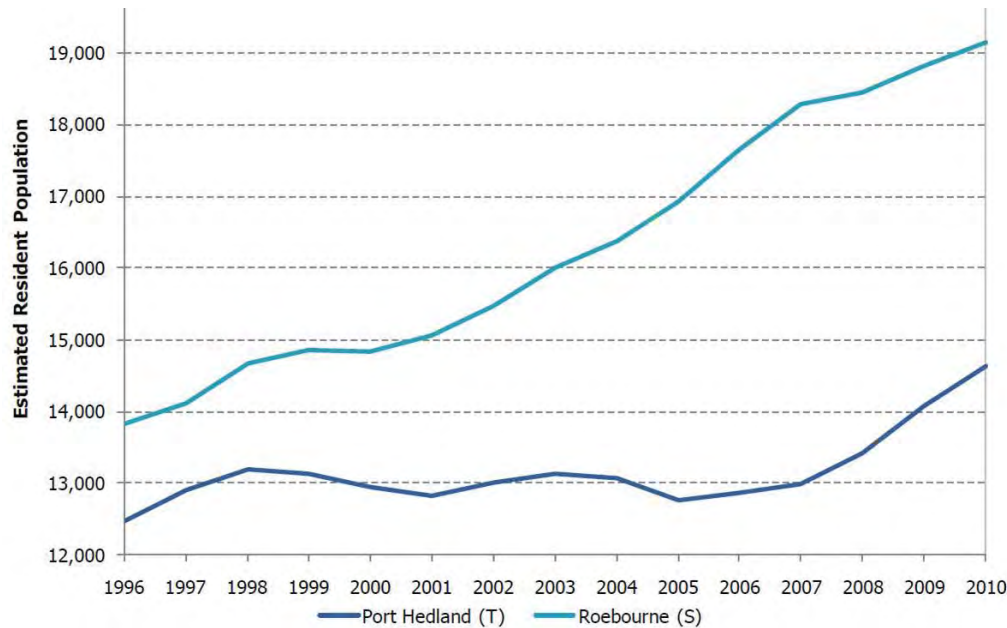


Figure 3.1: Historical Population Growth, Port Hedland, 1996 -2010 (Source - ABS 2011, AEC group, 2011)

Population growth is expected to remain strong, linked to robust economic growth estimates and international resources demand. Economic forecasts suggest that a total service population of approximately 40,000 people will be required by 2031 to support projected levels of economic growth and meet anticipated labour requirements. However, as history has demonstrated, Port Hedland's economy and associated population growth is extremely dynamic and can vary significantly depending on resources demand levels and/or the timing of new strategic expansion projects.

This unpredictable nature of economic and population growth poses significant challenges in planning for the supply of additional housing and

infrastructure. The Growth Plan is planning for a total service population of 50,000 people by 2031. This is consistent with the Pilbara Planning and Infrastructure Framework target of a city of 50,000 people.

The Growth Plan projection includes a 20% uplift on the economy-led population forecasts, thereby ensuring that there is more than enough new residential and non-residential land, services and infrastructure in the forward pipeline to meet future demand and correct the current under supply.

In order for Port Hedland to reach a total service population of 50,000 people by 2031, the residential population would need to grow at an average rate of over 4% per year for the next 15-

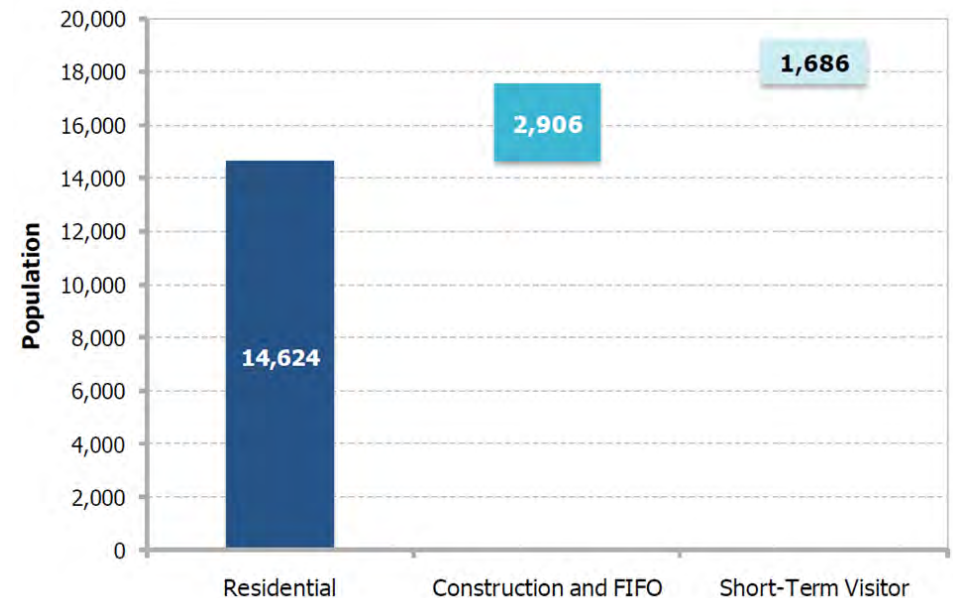


Figure 3.2: Composition of Total Service Population, 2010 (Source - AEC group, 2011)

25 years, along with a doubling in the current FIFO workforce. To put this in perspective, Port Hedland has only exceeded a 4% annual growth rate once in the last decade (in 2009), and since 2001, only three regional local government areas (LGAs) in Australia have been able to sustain such a growth rate (Weipa, Qld; Dardanup, WA; and East Pilbara, WA).

Given current skills sets and the scale of new construction work required, it is unlikely that Port Hedland would have a large enough construction workforce to build the number of houses associated with this level of population growth. This impediment is complicated further by significant future industrial

projects competing for construction personnel and materials, driving up costs. The extent of these challenges dictates that a fundamental change is required in the way new housing is delivered and construction workforces are accommodated in Port Hedland.

**Key Challenges and Opportunities**

- Attracting and sustaining a resident population growth rate of over 4% per annum;
- Attracting and accommodating a significantly large construction workforce in the short term to deliver both industrial and essential domestic construction projects;

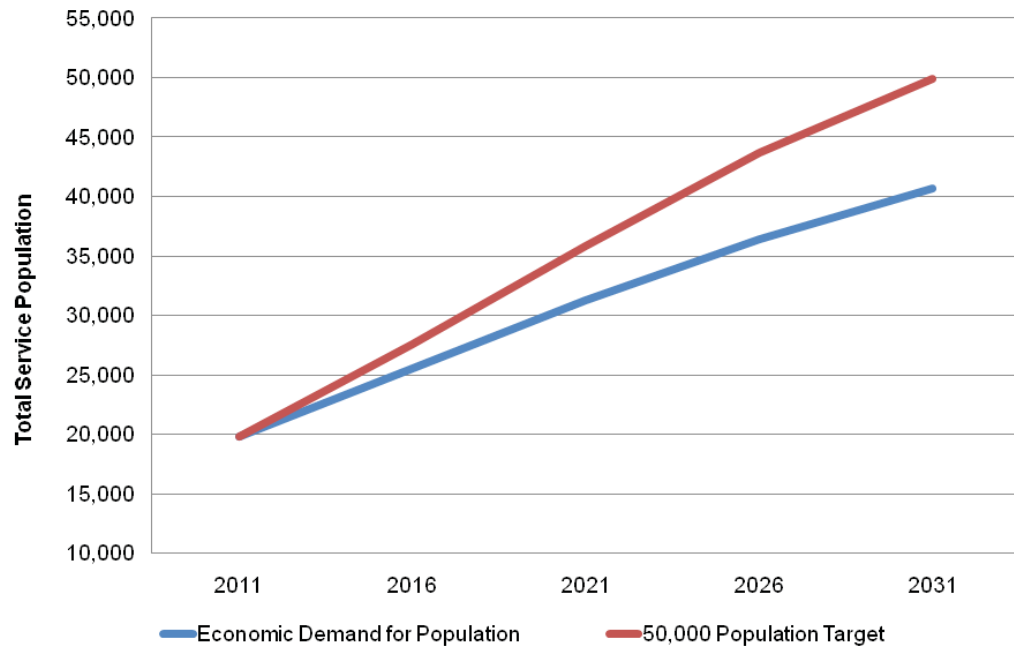


Figure 3.3: Future Population Growth, 2011 - 2031 (Source - AEC group, 2011 and RPS, 2011)

**3.2 ECONOMY**

**Economic Profile**

The significant mineral, oil and gas reserves of the Pilbara region (accounting for 47% of WA mineral and petroleum production in 2009/10) are driving strong economic growth, with Port Hedland playing a key role as the regional and international gateway unlocking much of this wealth (In 2009/10, Port Hedland exported US\$18.7b of Iron Ore). On the back of this mining and export activity, Port Hedland's economy has grown 61.3% over the last three years, with significant additional growth projected as a result of considerable long term global demand for steel and iron.

- Reducing the reliance on a FIFO workforce and encouraging an increased permanent residential workforce in the long term;
- Annual population growth rates of over 4% are achievable in Port Hedland, as evidenced in recent years (2009); and
- Population growth is supported by a very strong platform of economic growth.



Figure 3.4: Gross Regional Product (\$b), 2006-7 to 2009-10 (Source - AEC group, 2011)

# CHALLENGES AND OPPORTUNITIES FOR GROWTH

**“...Port Hedland’s economy has grown 61.3% over the last three years, with significant additional growth projected as a result of considerable long term global demand for steel and iron. “**

Gross Regional Product (GRP) estimates illustrate that Port Hedland is a mono-economy, with almost three quarters of production value (73% of the total \$3.3b GRP) and 46% of total employment resulting from activity in the mining industry. Additionally, economic activity in the construction and transport sectors is strongly linked to the mining industry, through the dominance of civil engineering projects, mineral resource exports through the Port Hedland Port and the prominence of business related visitors through the Port Hedland International Airport.

In 2031, Port Hedland’s economy is projected to reach over \$8.7b annually. This is over four times as large as the economy in 2006/07 (\$2.0b) and over twice as large as 2009/10 (\$3.3b). The mining sector is expected to remain the most significant contributor to GRP, with an expected increase of \$3.8b (or 165.6%) expected over the period.

places significant demands on the labour market, including large numbers of transient workers, which in turn creates a shortage of employees in other sectors of the economy. Industrial construction activity is poised for significant growth over the next five years, with \$46b worth of major projects designated in the immediate region.

The reliance of local prosperity and quality of life on a single industry poses a medium to long-term risk for Port Hedland, should a decline in international resources demand be experienced. The dominance of mining (and associated port activities) also

To support the growth of the broader resource sector activity, Port Hedland is expected to invest approximately \$1b in supporting iron ore infrastructure and over \$45m in associated road

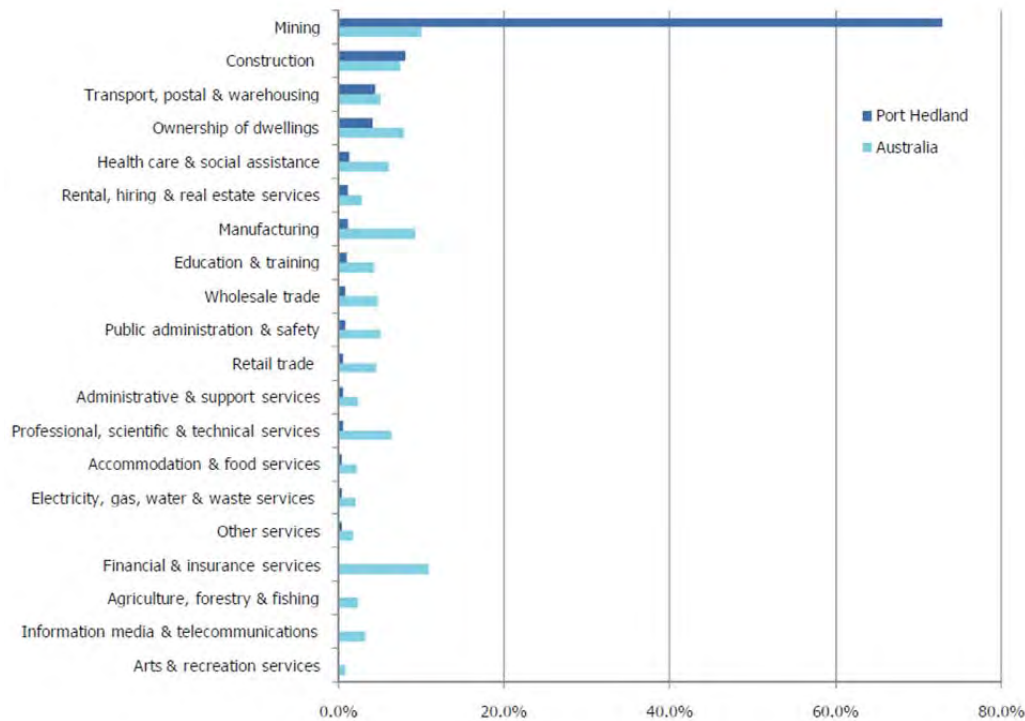


Figure 3.5: Percentage of Gross Regional Product by Industry, 2009-10 (Source - AEC group, 2011)

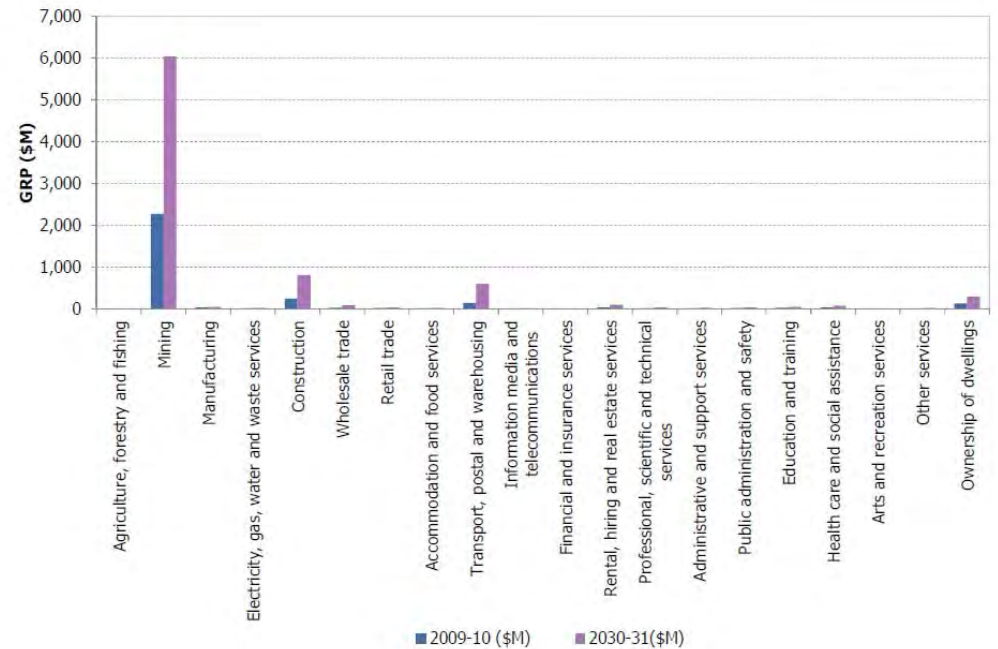


Figure 3.6: Gross Regional Product by Industry, 2031-32 (Source - AEC group, 2011)

Industry Sector	GRP by Industry	Employment by Industry
<b>Mining</b>	<b>72.8%</b>	<b>45.5%</b>
Construction	8.1%	13.9%
Transport, postal & warehousing	4.5%	5.1%
Health care & social assistance	1.3%	4.8%
Rental, hiring & real estate services	1.2%	1.8%
Manufacturing	1.2%	1.9%
Education & training	1.1%	4.9%
Wholesale trade	0.9%	2.2%
Public administration & safety	0.9%	4.2%
Retail trade	0.7%	3.7%
Administrative & support services	0.5%	1.3%
Professional, scientific & technical services	0.5%	1.4%
Accommodation & food services	0.5%	4.1%
Electricity, gas, water & waste services	0.5%	1.1%
Other services	0.4%	2.5%
Financial & insurance services	0.2%	0.3%
Agriculture, forestry & fishing	0.2%	0.5%
Information media & telecommunications	0.2%	0.3%
Arts & recreation services	0.1%	0.4%

Note: GRP by industry will not sum to 100% due to the ownership of dwellings being omitted from the table.

Figure 3.7: Gross Regional Product and employment by Industry, 2009-10 (Source - AEC group, 2011)

and air infrastructure. This activity will consume materials and labour which would otherwise be required for local residential and commercial building projects in Port Hedland.

### Employment and Skills

Mining is the region's largest employer by far. Given the significant growth and development of the region over the past five years, Port Hedland's next largest employers are construction and transport, followed by postal and warehousing. Population service industries feature as the remaining key sectors in the region with only a very small proportion of employment generated by professional and business types of services, electricity, gas, waste & water services, manufacturing or technical service areas. This highlights the dependency of the Port Hedland economy upon the mining sector and its associated industries and the relative vulnerability of the economy to the health of this sector for generation of jobs and economic activity.

Port Hedland has a very high proportion of persons

with a post-school qualification when compared to elsewhere in the Pilbara Region, Perth or Regional WA. This is due to the high proportion of skilled trades, technicians and other skill areas required by the mining sector. Key occupations and skill areas within Port Hedland and the broader Pilbara Region are tradespersons & related workers, labourers & related workers and intermediate production and transport workers – all skill areas that are well above the Perth SD and regional Western Australia averages. Demand for these skill types reflect a similar skills profile other highly resource based economies face throughout Australia.

### Employment Rate and Forecasts

Employment is forecast to increase strongly between 2011 and 2016 (by 7.0% or almost 3500 jobs), and then less rapidly over the period 2016 to 2031. This is a reflection of expected GRP growth over the same period. As at 2009-10, the majority

of workers in 2030-31 are expected to be employed in the mining sector. Construction (3,373 jobs) and Transport, Postal and Warehousing (2,679 jobs) are the next largest employing industries in 2031.

Despite the continued dominance of the mining sector in terms of total employment, other sectors account for a larger proportion of total employment in 2031 than they do GRP. This reflects the fact that the mining sector has a relative low direct employment yield in comparison to sectors such as construction and transport. Nevertheless, the mining sector will continue to play a critical role in driving employment through its supply chain relationships with other parts of the economy.

As reflected by expected GRP growth, employment is forecast to grow fastest for the transport, postal and warehousing sector between 2009-10 and 2030-31 (212.2%). This is partly a reflection of the increase of Port capacity over the period, but also

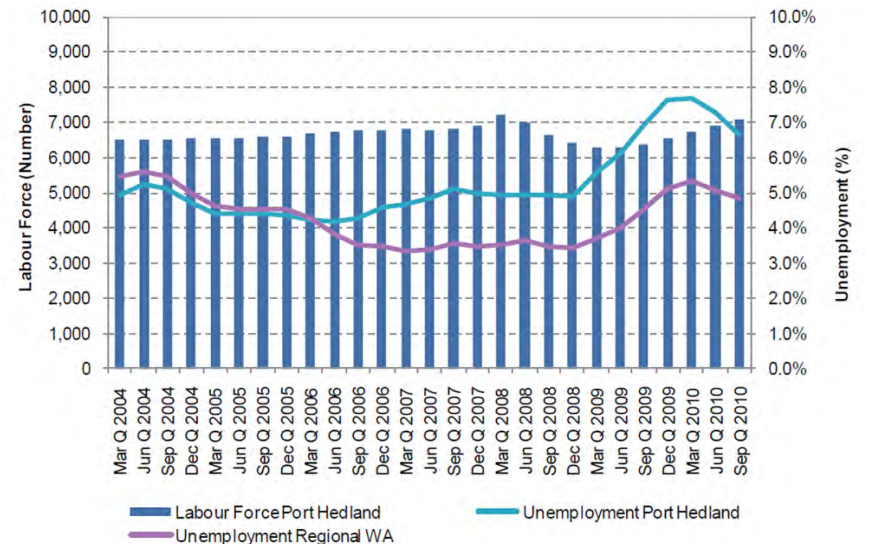


Figure 3.8: Labour Force and Unemployment, 2004 to 2010

reflects growth in general road and rail transport in response to increased population growth over time. Construction (160.6%), rental hiring and real estate services (140.4%), mining (127.4%), and wholesale trade (114.1%) are also expected to experience fast employment growth.

Despite having a strong local economy which has been built upon the resources sector, Port Hedland has a high unemployment rate when compared to the broader Pilbara Region, Perth and regional WA. This is likely due to the higher levels of socially disadvantaged persons and indigenous persons within Port Hedland. Over the past three quarters, unemployment levels have declined which is in line with State trends and is reflective of the strengthening of the WA economy as a whole over the period.

### Regional Trends

Across Australia, regional centres are undergoing significant changes in their economic structure and development. Challenges in sustaining population growth, securing access to major resources and reducing over dependence on single sectors are resulting in the emergence of clear trends in regional economic development. These trends include:

- Increased utilisation of existing economic assets (such as the redevelopment of regional airport precincts);
- Increased economic diversification (away from a reliance on agriculture) through increased exposure to mining activity;
- Promoting population growth through the provision of comparably affordable housing options;
- Encouraging retirement village, aged care and health related developments;
- Increased competition between towns for the

role of major service centre in a broader region, with associated concentrations of higher order retail, government administration and services and health and education facilities;

- Leveraging strategic locations on major freight routes to encourage establishment of transport industry nodes;
- Attraction of major defence bases and activities; and
- Tailoring tourism products to the preferences of domestic market growth areas (for example, “grey nomads”).

Port Hedland is experiencing a similar mono-economy structure to many regional towns (although in this case it is as a result of strong exposure to mining activity, rather than agriculture), and there is a strong desire to increase economic diversification. The Port Hedland International Airport, one of the largest regional airports in terms of passenger movements, is a critical asset that can be leveraged against to increase economic activity and investment.

Port Hedland is remote from metropolitan Perth and cannot trade on any difference in relative house prices to attract residents. This situation is further exacerbated by the fact Port Hedland has significantly higher prices than Perth, making the fostering of inward migration to the LGA very difficult. While access to employment is the key driver of migration to Port Hedland, more affordable housing options are required to enable effective relocation to the municipality.

There is strong competition between Karratha and Port Hedland for the role as the major service centre of the Pilbara region. The co-location of Port Hedland with Australia’s largest Port facilities should be leveraged in order to capture key transport and distribution activities across the region. It is likely that government services will continue to be split

evenly between cities in the Pilbara, though there is an existing opportunity to capture defence activity in response to the recently announced Defence Force Posture Review, as highlighted in Section 1.3.

Finally, visitation to Port Hedland is overwhelmingly dominated by business visitors. As the population of the Town increases, this will invariably increase the “Visiting Friends and Relatives” component of total visitation. However, there is a strong desire to capture increased market share of leisure tourism. Regional centres are increasingly focusing on “grey nomad” travellers in response to a depressed domestic tourism market. Port Hedland, located between Perth and the key destination of Broome, has the capability of capturing a portion of the “grey nomad” stopover market, through the provision of high quality, high amenity facilities and services.

### Key Challenges and Opportunities

Port Hedland is in a fortunate position in comparison to many regional economies with its strong exposure to the mining sector. This will underpin strong ongoing economic growth for the foreseeable future. However, there is a need to diversify the local economy away from its current (almost total) dependence on direct mining investment and activity to reduce its exposure to global economic risks and promote a more sustainable business environment characterised by improved affordability and choice.

Investment in transport and communications infrastructure is critical to support increased economic activity and diversity in the future. Additionally, core infrastructure related to water and energy is critical to enable increased housing supply.

Economic opportunities have been identified in professional services, construction services, heavy industries, defence, local agriculture, population-

servicing industries and regional tourism. Promotion and attraction of these industries and businesses will assist in diversifying the economy, creating a sustainable business environment and allow Port Hedland to capture a greater share of the value-add and supply chain of future mining sector activity

### Key Challenges and Opportunities:

- Mono-economy reliant on the Mining Sector, exposed to significant risk from disturbances to global markets, local operational changes etc.
- Housing undersupply is the most critical impediment to future economic growth, placing significant pressure on the property market and preventing the inward migration of new residents and businesses outside of the mining sector.
- Shortage of property across a range of industrial, commercial and retail sectors, restricting the rate of growth and placing further upward pressure on market prices.
- Lack of local innovation and knowledge, which could assist in diversifying the economy and reducing reliance on the mining sector.
- Timely supply of critical strategic transport and utilities infrastructure to support economic activity.
- Expansion of local mining support activities to improve supply chain efficiency and replace import requirements.
- Economic diversification opportunities within the professional services, construction services, defence, local agriculture, population servicing industries and tourism sectors.



### 3.3 HOUSING AND LAND SUPPLY

#### Housing

The recent growth in population (resident and transient workers) and economic activity, coupled with a general undersupply of residential and non-residential properties, has had a significant effect in driving up property and rental prices in Port Hedland. Residential sales and rental prices have both increased by an average of 14% between 2008-2010, with average house prices of \$1.12m (triple that of Perth) and average rental prices of \$1,772 / week (four times higher than Perth) at present.

Such high prices and lack of supply have created significant problems for local communities and businesses, and is a significant constraining factor

for future population growth and the provision of a strong labour market to support strategic industry and local/regional services.

Over the next twenty years, rapid residential population growth will drive increased housing demand, and require the identification and subsequent delivery of residential development sites (both infill and greenfield) across both Port and South Hedland. Estimates suggest that to meet a population target of 50,000 people, an additional 15,635 dwellings will need to be built in the urban areas of Port Hedland and South Hedland by 2031.

The move to a population of up to 50,000 will not only require significant increases in housing stock, but will also require increased diversity and choice

in the location and type of residential products provided to cater for an increasingly segmented property market. In the immediate and short term, the critical constraining factors to delivering the additional housing supply are (i) the availability of utilities infrastructure capacity (particularly water); and (ii) the presence of a construction labour force large enough to deliver the number of dwellings required.

#### Short Stay Accommodation

In the longer term, as the permanent residential population continues to grow and the local labour

force increases, there will be a slowing in the growth of FIFO demand and associated Transient Workforce Accommodation (TWA). The current significant demand for construction workforce TWA capacity will eventually shift towards a need for higher quality and more permanent accommodation for a workforce associated with the ongoing industry operations.

In addition to TWA demand, short-term visitor numbers will continue to grow in the future, requiring a significant amount of new accommodation to be delivered in the next five to ten years. This additional supply is required not only to address the current

	FIFO / Construction Workers and Short Stay Visitors	Residential Population (2031)	Total Service Population (2031)	Total Dwellings	Additional Dwellings Required
Estimated Current Population (2011)	4,835	14,987	19,822	5,392	-
50,000 Population Target (2031)	10,000	40,000	50,000	21,027	15,635

Figure 3.9: Current Estimated Population and requirements for 50,000 target. (Source - AEC group, RPS, 2011)

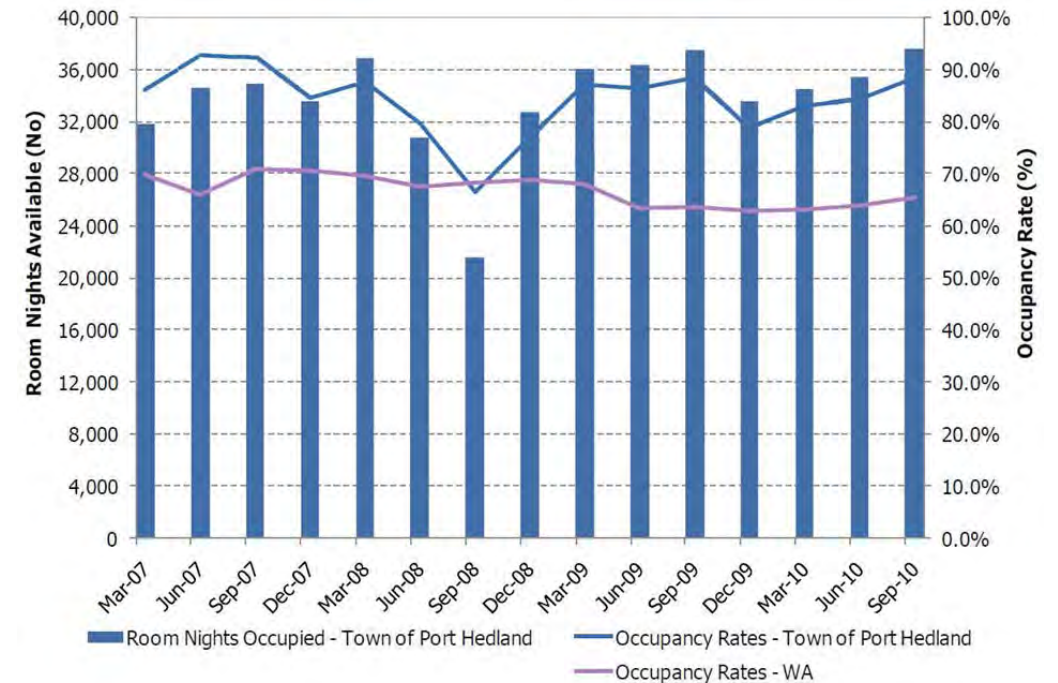


Figure 3.10: Short Stay Accommodation Room Nights and Occupancy Rates, 2007 to 2010 (Source - ABS, 2010)

extreme undersupply (currently experiencing 90% average occupancy rates), but also to facilitate a diversification of local economic activity.

### Retail and Commercial

Demand for retail and commercial floor space in the City is expected to grow significantly over the next 20 years, in response to strong population growth, increased residential settlement and growing incomes. By 2031, retail demand is expected to reach at least 135,000sqm (over 93,000sqm more than current levels). However, in the immediate term there is an urgent need to address the current retail undersupply of cafés, restaurants/takeaways,

groceries and shop retail offering in the LGA.

The current undersupply of commercial floor space also needs to be corrected, as this is placing additional pressure on the retail market (with commercial office premises now competing with and often occupying valuable retail space). In addressing the shortfall and increasing demand for retail and commercial floor space at an LGA level (growing to just over 35,000sqm in 2031), it is important that the type of property products offered in various catchments (i.e. Port Hedland West End, South Hedland Town Centre etc) are complementary and appropriate to their activity centre role and function, and help facilitate increased levels of

specialisation in the medium to long term.

### Industrial

The industrial property market is characterised by significant supplies of strategic industrial land (associated with Port Authority and Dampier Salt operations, along with the Boodarie Strategic Industrial Area) and non-strategic industrial land (including the Port Hedland light industrial and Wedgefield industrial areas). Whilst there appears to be sufficient zoned land supply for both strategic and non-strategic industry demand in the short to medium term, a key challenge is to provide increased locational choice (particularly for general/

light industry and logistics operations) beyond the existing estate areas such as Wedgefield.

Additional industrial land supply, over and above anticipated future demand, is required in the medium to long term and ideally needs to be provided in new locations to maximise choice for prospective tenants and encourage further specialisation (particularly into emerging 'green economies' and supply chain areas associated with the resources and export industries).

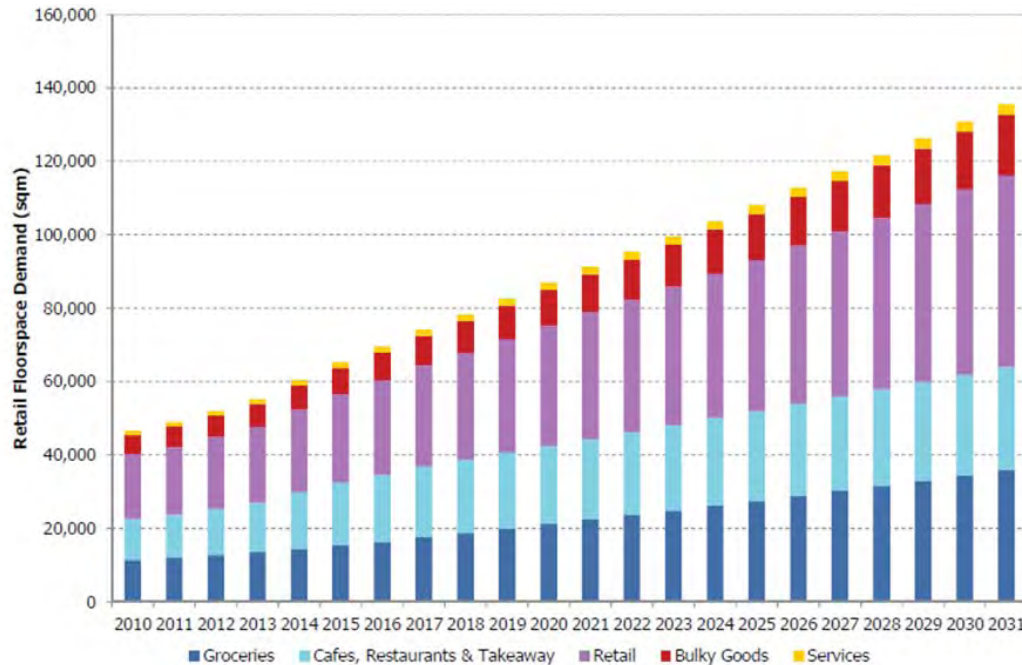


Figure 3.11: Retail Floor Space Demand 2010 - 2031(Source - AEC group, 2011)

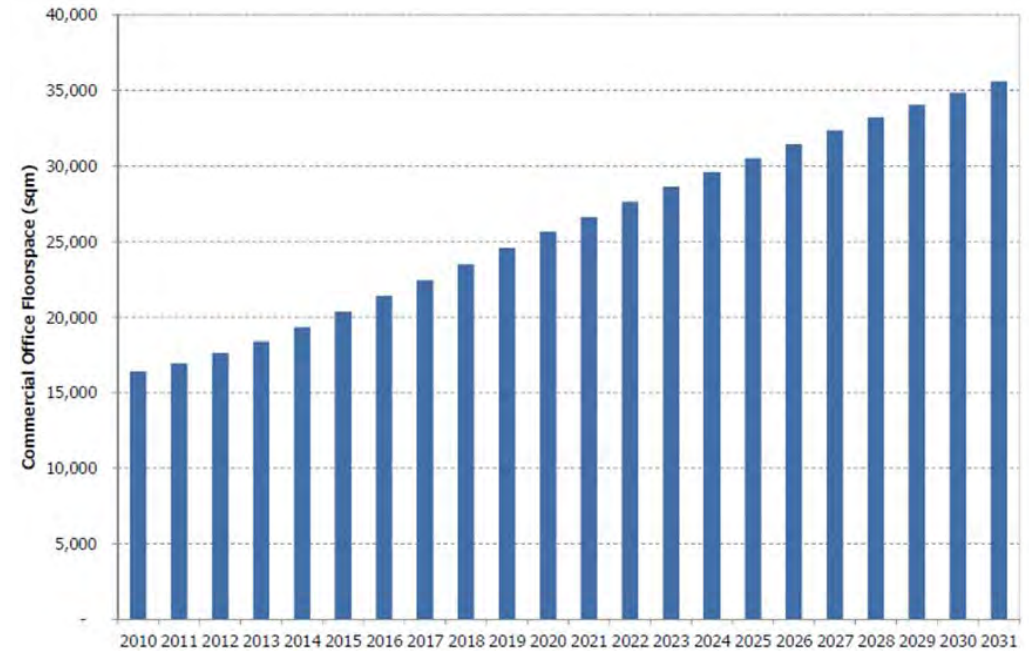


Figure 3.12: Commercial Office Floorspace Demand, 2010 to 2031 (Source - AEC group, 2011)

**Key Challenges and Opportunities**

The Town of Port Hedland is projected to experience continued robust growth in demand across all property markets (doubling or even tripling of demand in some markets), resulting from not only growth in the local population and economy, but also from demographic, settlement, and income and wealth changes. Current supply pipelines are generally insufficient to accommodate this demand with some markets unable to respond to even short-term requirements. This reflects a range of factors including, but not limited to:

- Overly concentrated supply locations;
- Lack of choice in the market;
- Lack of strong supply pipelines to mitigate against demand shocks and reduced perceptions of supply shortages;
- Development feasibility issues, relating to environment, infrastructure and development cost constraints; and
- Lack of a local labour force for both construction and operational phases of development.

These challenges have in part contributed to current supply gaps in select markets (such as Café, Restaurant and Takeaway retail and short-term

visitor accommodation), while the responsiveness of other markets has been constrained by uncertainty regarding future demand along with inflexible planning and approvals processes (particularly for larger projects).

Nevertheless the growth in demand for land, floorspace and activities in the Town of Port Hedland, reflects its emergence as a genuine residential population centre, with associated local services, facilities and offerings. This maturity represents the underlying driver of the Pilbara Cities project and will naturally result in increased economic diversification (in the form of increased non-mining employment) and greater residential settlement.

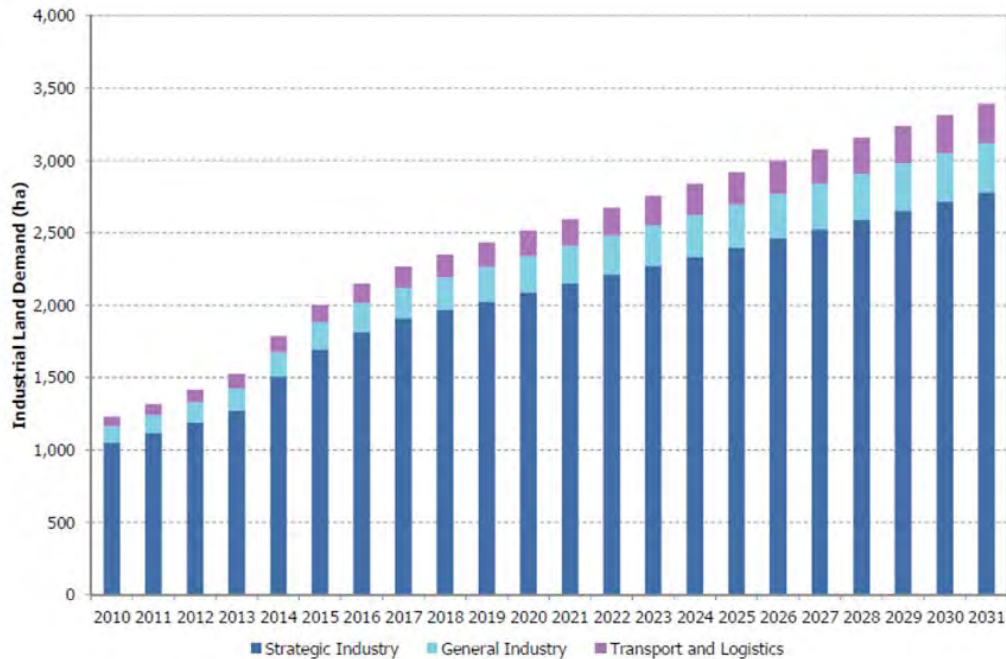


Figure 3.13: Industrial Land Demand 2010 - 2031(Source - AEC group, 2011)



## 3.4 LOCAL COMMUNITIES, CULTURAL HERITAGE AND LANDSCAPE CHARACTER

### Demographic and Socio-Economic Profile

Port Hedland's socio-demographic profile is consistent with that seen in regional resource towns across Australia. It has a relatively young population, with an average age of 31.2 years, and a high proportion of children (under the age of 15 years) and working aged persons (between 25 and 34 years). Of the estimated 3,089 households (in 2006), the majority are family type households with children. Being a major industrial hub, however, there is also a high proportion of lone person and group households.

Over 80% of Port Hedland's population is Australian born, which is in line with the cultural heritage trends of the broader Pilbara region. Port Hedland has a

significant level of indigenous Australian presence, relative to the wider Pilbara region. This highlights the importance of considering this significant group of people in the future growth of the city.

Average incomes of Port Hedland residents are well above the Perth and Regional WA averages (ATO, 2007-08). This is not surprising considering the resource and industrial focus for the economy which generally have higher paying wages to secure specialist and high demand skilled workers. Over the past four years, the distribution of earnings by residents changed significantly, with a much greater proportion of workers earning in the higher wage ranges. This is evidenced by almost 20% of the population earning over \$104,000 a year in

2008 compared to 6% of the population four years ago.

Whilst the income profile of Port Hedland shows increasing levels of high earners and a decreasing proportion of low income earners, there is a widening gap emerging between those who are benefiting greatly from the mining boom (including those high income earners) and those who remain relatively disadvantaged. Levels of relative socio-economic disadvantage (calculated using a combination of indicators such as age, employment, ethnicity, access to services etc) are seen to be particularly high in parts of South Hedland and surrounds, whilst the West End, East End and Pretty Pool areas of Port Hedland are shown to experience relatively

little disadvantage. The strong locational correlation between levels of relative advantage/disadvantage between the two main settlement areas presents a unique challenge to be considered in planning for future growth and creating a city where people want to live and are proud to call home.



Figure 3.14: Age and Gender, Port Hedland LGA 2009 (Source - ABS 2010)

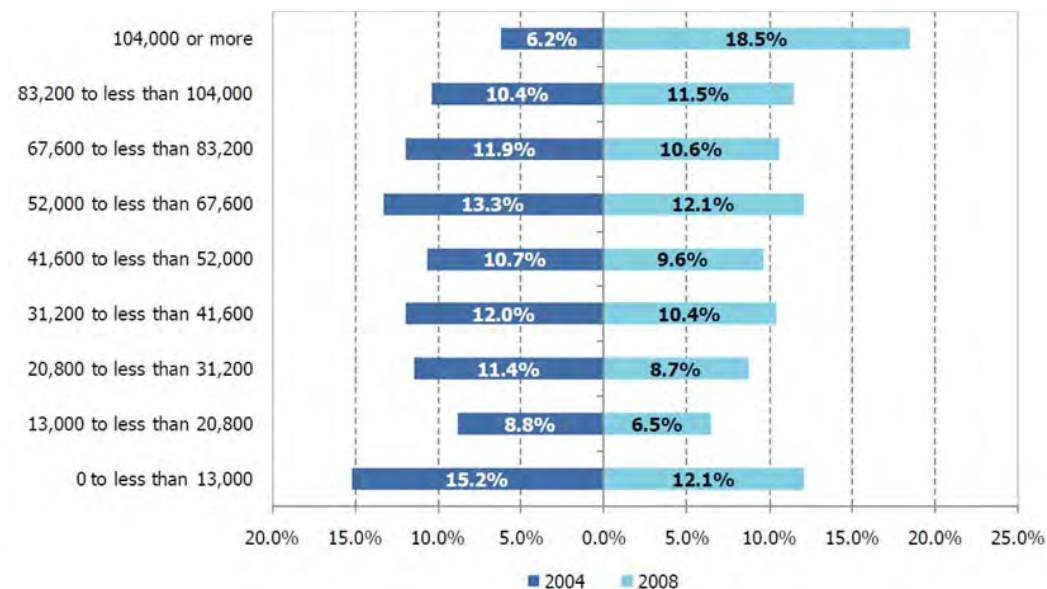


Figure 3.15: Wages and Salaries, Port Hedland LGA, 2004 and 2008 (Source - ABS 2010)

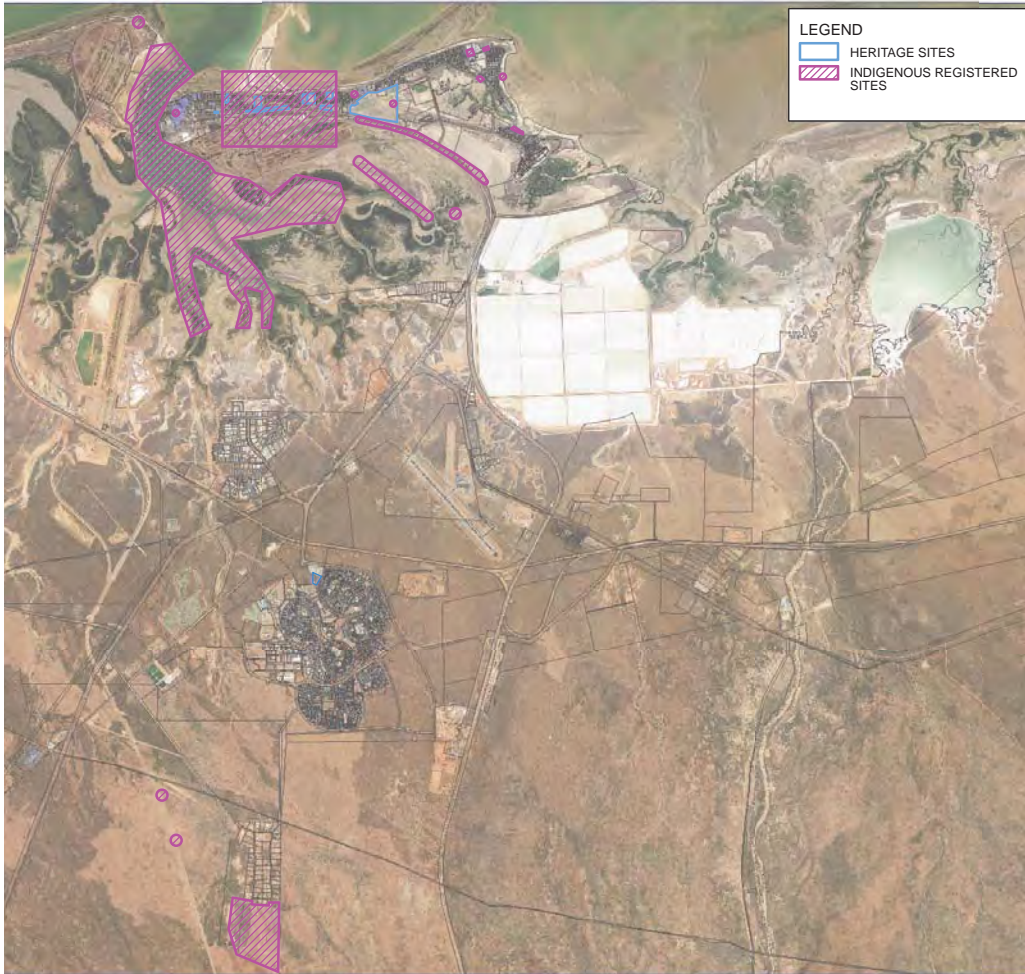


Figure 3.16: Heritage and Indigenous Registered Sites.

**Indigenous Heritage**

Port Hedland is the oldest functioning centre in the Pilbara. It has a rich history and culture that extends far beyond its current role as a major port/logistics and resource centre. Port Hedland also has a rich Aboriginal culture extending back over 4,000 years, with the Kariyarra speaking people living in the Port Hedland area and the Ngarla people and Nyamul speaking people living to the north and south respectively.

Port Hedland has significant Indigenous cultural heritage sites such as Two Mile Ridge, Pretty Pool and Twelve Mile Camp. A range of engravings, Thalu, shell middens, artifact scatters, ceremonial, mythological and camp sites are also recorded in the Port Hedland area (McCarthy 1962).

Within the Port Hedland LGA there are 850 sites included on the Department of Indigenous Affairs Register of Aboriginal Sites. A further 448 potential sites are recorded as Other Heritage Places, a category which covers those items yet to be assessed for inclusion in the register.

The Kariyarra name for Port Hedland itself is Marapikurrinya, which references the finger-like formation of the tidal creeks that mark the coastline in the harbour: **Mara** meaning hand, **pikurri** meaning pointing straight and **nya** denotes a place name marker. This traditional name is honoured with a park of the same name that sits at a premier location on the waterfront in Port Hedland's West End.

An integral feature of Port Hedland's Indigenous cultural heritage is connectedness. Sites do not exist in isolation, but in continuity of time and landscape. The limestone ridges that cross the region are often found to contain extensive series of engravings. It is most likely that these limestone ridges, a high point in the landscape, provided a conduit, a camping area, a source of fresh water

and a method of easily accessing the mangrove resources. The limestone ridge engravings, whilst the most readily known Indigenous cultural heritage sites in the area, comprise just one facet of a range of site types that reflect the Indigenous use of the area prior to settlement.

**Living Legacy**

In addition to the many traditional sites and historical heritage, there is a living legacy and continuation of cultures that are an important influence in Port Hedland today. With a greater Indigenous presence in the town than in the broader Pilbara region, a strong cultural and language centre, a growing Indigenous arts community and rich traditions of knowledge to draw from, it is important that these aspects of Indigenous heritage are also reflected in the Town's planning and development.

This cultural knowledge and experience of the town as it grows has begun to be explored through projects such as the recent exhibition by FORM with the Spinifex Hill Artists, *Before the Town Got Big*. This exhibition and catalogue explored the artists' memories of the region at a time before the town grew to its current state and their experience of that growth.

These sorts of initiatives that tell the stories of the living, growing, adapting cultural heritage are an important part of keeping this intangible heritage a part of the town's identity and rich cultural asset base. It is through storytelling and fostering the continuance of cultural production that these assets can be sustained. Therefore, it will be important to explore opportunities and programming for celebrating continuing heritage and living cultures as continuance of past – the living legacy.

It is also through these initiatives that more meaningful consultation and understanding of the full extent of heritage assets can be understood. One of the common themes that emerged through

consultation as part of programming initiatives is a sense of loss of heritage that stems from interruption to access to key sites or spaces. Equally, heritage can be an important means of developing a sense of renewal and transformation.

These aspects of Indigenous life are important elements to take into account in the planning process.

Initial consultations with the Indigenous community have also indicated several areas of priority for the community, including:

- Affordable housing for Aboriginal people and reduction of waiting list timeframes
- Funding and amenity support for parents and community members to teach Indigenous singing and dancing (such as through the Youth Centre)
- Demonstrated progress on key projects, with greater coordination of efforts to focus on issues of real import to Indigenous people
- A market place and space for art work sales
- Assistance for Aboriginal people to participate in society
- More community dwellings and caravan parks
- Regular public transport between Port and South Hedland
- Banks in South Hedland
- Expanded Post Office

While the first stage of consultations have been started to begin to inform the growth planning, more in depth consultation process will need to be undertaken beyond the Growth Plan process.

### Non-Indigenous Heritage

The first known non-Indigenous landfall on the East Pilbara coast occurred in 1628 when a vessel commanded by Captain De Witt grounded at Cape Thouin approximately 40 kilometres west of Port Hedland. With the onset of European settlers the settlements of Port Hedland and the Condon Townsite were established in the late nineteenth century. Early development of the area focused on the pastoral and mineral industries together with transport of products through the port facilities.

The non-Indigenous heritage items within the Town of Port Hedland are recorded across all levels of government. There are 76 items registered on the WA Heritage Council database as being located within the Town of Port Hedland LGA, including Boodarie Station Homestead, Condon/Shellborough Townsite, and the Esplanade Hotel. 60 items are also identified within the Town of Port Hedland Municipal Inventory of Heritage Places.

Through the Growth Plan and future planning and development, there exist opportunities at a local level to promote cultural heritage in an integrated manner, conserving heritage assets and celebrate local cultural and historical elements through the creation of new public spaces. At the regional level there is the opportunity to promote increased awareness and exposure to cultural assets (through tourism for example) in areas such as Condon or on pastoral stations such as Boodarie.

### Native Title

Native Title in South Hedland: In August 2011 a South Hedland Native Title Agreement was signed by the Minister for Lands for and on behalf of the State of Western Australia and the traditional owners. The Agreement helps South Hedland move towards the Pilbara Cities Vision and forms the basis of a strong and successful relationship with the Kariyarra people. The area of the Agreement is shown at Fig 3.17 and covers the area needed to grow the town over the coming years. Areas shown for expansion in the medium to long term, in the

very south of South Hedland, will need a further agreement in due course, with the timing of any negotiations being linked to demand and supply requirements

In Port Hedland Native Title negotiations between the YAMATJI and the State Government are being progressed



Figure 3.17: South Hedland Native Title Agreement

**Landscape Character**

The relationship between a city's people and its built and natural landscape plays a significant part in defining the character of a place. Port Hedland's unique physical and environmental characteristics influence the way residents and visitors view and experience the landscape character of the area. The following factors play a critical role in the way Port Hedland's landscape is perceived and experienced;

- The experience of the landscape is defined by the spaces between developed areas. This is where long views are possible from highways to the horizon and surrounding Pilbara Landscape;
- In built up areas, views are generally contained to local catchments with a lack of elevated areas that allow outward views (with exception to the coastal dune & railway bunding);
- The coast represents a point of refuge where from the dune views are possible out over the ocean to the North as well to the South over Port Hedland to industry and rail infrastructure;
- Esplanade roads in built up areas offer outward views and a connection to the surrounding landscape;
- Industrial areas and rail infrastructure to the south of Wilson Street create iconic visual elements;
- From the East End of Port Hedland, views to the south are constrained by the railway corridor (south of Wilson Street) but maintain a visual connection to the industry of the region; and
- The mangrove flats of Redbank and coastal areas are a dominant and significant landscape feature of the area.



### Sustaining Community

Community consultation has indicated three particular dimensions that must be addressed in future development. Out of these three challenges arise important guiding considerations that will cut across the themes of the Growth Plan:

- Attachment to Place and Liveability
- Distinctiveness and Community Character
- Aspirations

Given the difficulties of a population which currently embodies a high level of transience, engaging loyalty to place and forming long term communities is of central concern to the future of Port Hedland; particularly considering plans for rapid growth and increased residential populations. Therefore, it is vital to consider the factors that psychologically attach people to place.

In a recent study of 43,000 people in 26 communities in the U.S. over three years, three main qualities were identified that attach people to place: “social offerings, such as entertainment venues and places to meet, openness (how welcoming a place is) and the area’s aesthetics (its physical beauty and green spaces)” (*Gallup, 2010*). Moreover, residents rated their communities’ availability of arts and cultural opportunities and social community events highest in importance among social offerings. (Social offerings overall include vibrant nightlife, good places to meet people, other people that care about each other, availability of arts and cultural opportunities and availability of social community events).

Port Hedland seeks to grow into a place that offers the things that will sustain its community in the long-term. To achieve this planning must enable social offerings: particularly arts, cultural and social opportunities, a sense of welcoming and inclusiveness, and a quality, attractive environment, in line with the factors influencing attachment.

These elements will be critical for the sense of liveability that is articulated as a leading priority across Local and State government policies pertinent to Port Hedland.

Liveability as the town grows will also be influenced by the ability to support the factors that inherently define the offerings of a city versus other types of settlement. These are articulated as the City Advantage by urban thought leaders CEOs for Cities, and are comprised of: Convenience, Variety, Discovery, and Opportunity. Given the trends of current lifestyles and economies, people are increasingly seeking convenience, choices, chances to explore and experience a range of things, and access diverse opportunity – opportunity to learn, work, contribute and live the life they would like to lead. It will also be necessary to ensure these fundamentals are in line with the local character and behaviours, quality, and with a view to sustainable community.

In addition to the above, the specific strategies developed for implementation will build the necessary conditions. Importantly, there is also an economic incentive to getting this right. The study states that “...the cities with the highest levels of resident love and passion for their community, or resident attachment, also had the highest rates of GDP growth over time.”

In addition to the Landscape Character of the region, the Distinctiveness of Place and Character of the Community is important to factor into planning. The character or personality of place forms a critical basis for growth, building on inherent strengths and maintaining a sense of authenticity that can anchor community growth.

Character also references attitude: the spirit that underlies a region. This spirit is captured in the principles for the Growth Plan, which have been shaped by community input. These reflect the desire to build on the community’s resourceful character,

its desire to make Port Hedland a welcoming home, its valuing of its diverse strengths and features, its growing international focus grounded in a distinctive local community, its striving for resilience, its desire for vibrancy at a human scale in everyday life, and its desire to set the bar higher and challenge itself to be the very best it can.

Through previous community workshops and consultation the community has identified the following characteristics they would like to foster (Source: FORM, 2010):

#### NOW

##### **Maintain and Nurture Qualities We Currently Have**

- Sunny
- Adolescent
- Hard working
- Open
- Calming
- Inner Beauty
- Child Friendly

#### FUTURE

- Well-balanced
- Big hearted
- Has its own identity
- Organised
- Self assured
- Tolerant
- Proud
- Welcoming
- Matured
- Honest
- Self Reliant
- Sense of human
- Innovative
- Effervescent

In consultations for the Growth Plan, one of the clearly identified sources of pride for the community was the perception that Port Hedland was the friendliest place among competitor towns in the Pilbara region. Another characteristic that was highly valued was that Port Hedland was perceived to have a sense of humour and quirky character, exhibited for instance through small artworks or humorous displays placed on the salt flats.

In distinguishing between the two towns that will become the Twin Cities of the Pilbara, it is also often cited among community members and stakeholders that Karratha has a greater foothold as the commercial and retail centre in the Pilbara, however Port Hedland is identified as a greater cultural hub. These distinguishing characteristics offer points of difference that can be nurtured for the benefit of the town. These are examples of the characteristics that will define the place.

Grounding growth and identity in such characteristics of place is critical for more than passing reputational benefit. These factors become attractors for residents and visitors alike and build ‘place brand’ value. In a study of ‘36 Hours’, a reporting series on tourism attractions in different towns and cities, four key place attributes were identified that were common attractors to visitors and a source of positive visitor experiences: Variety, Superlatives, Authenticity and Distinctiveness.



First, cities must have a range of options in terms of price, quality, and type of offering - Variety. Superlatives matter, with an attraction indicated for places described as the 'first', 'best' or 'only' in the region, country, or world in some respect. Distinctiveness is also important, with reporters for the 36 Hours series seeking out places and experiences that stand out when compared to the surrounding options, but that also typify a place. Authenticity is also clearly indicated with visitors wanting to be among locals, doing the things locals like to do.

In terms of tourism attraction these attributes are important guides, making community and landscape character and distinctive experiences vital. As Port Hedland looks to tourism as one of the leading planks of economic development strategies, these attributes of place reinforced through the experiences Port Hedland offers become ever more important.

Finally, the aspirations of the community must guide the town's development. The Growth Plan is a prime opportunity to signal the aspirations of the community and its leadership. For that reason, the quality of built form and the urban environment, accessibility through connections and neighbourhood activity, and concentration of activity to build a sense of vibrancy must be taken into account.

### Key Challenges and Opportunities

- Catering for the large and growing proportions of families and increasing birth rates, particularly in the areas of child services and associated social and community infrastructure to support young families;
- Meeting the requirements of a large and transient indigenous population;
- Ensuring that the benefits of economic growth and increased prosperity are shared across the municipality;
- Ensuring development is carried out in sympathy with, and to enhance, existing heritage items (good practice examples include the sympathetic rejuvenation of towns such as Newcastle and Kalgoorlie);

- Develop links and connectedness between Indigenous and non-Indigenous heritage through sites such as Two Mile Ridge and Pretty Pool; Old Port Hedland Cemetery; Boodarie Landing; Twelve Mile Camp with particular regard to tourism;
- Celebration of cultural heritage in areas outside the Port Hedland and South Hedland town sites, such as Condon with particular regard to tourism;
- Continue to progress native title resolution requirements where city growth requires and cultural heritage provides;
- Creation of new rest stops and landmark sites/ points of interest which celebrate unique aesthetic qualities, cultural heritage assets and the industrial character of Port Hedland with particular regard to tourism;

- Opportunities to create new pathways and connections between places of interest and key community facilities (e.g. connecting Cooke Point and Pretty Pool with the West End);
- Managing the visual impact of new development along key highway corridors and entry points into town site areas with particular regard to tourism;
- Improvement in streetscape character and quality through new plantings, footpaths, minimization of front fencing etc;
- New open space opportunities adjacent to road corridors by providing fitness or recreational assets in large road reserves, pocket parks and unused land; and
- Planned and managed delivery of community and civic facilities at the local level through to regional city wide needs as growth pressures continues.



### 3.5 CLIMATE AND ENVIRONMENT

#### Climate

The Pilbara region of Western Australia experiences a hot, semi-arid climate. Summers (October to April) are very hot with an average maximum temperature of 31.8 °C and winters are generally mild with temperatures ranging from an average monthly minimum of 17.2 °C. Winds are characterised by the dominant westerly winds that occur throughout summer and prevailing easterly winds in the winter.

Most of the annual rainfall occurs during the summer period from scattered thunderstorms and the tropical cyclones, with Port Hedland being located in one of the most cyclone prone areas in Australia.

#### Coastal Vulnerability

Major flooding events in Port Hedland are typically associated with storm and cyclonic activity and coastal storm surge. Heavy rainfall in interior locations can lead to localised flooding along the major river systems of the De Grey, Turner and Yule, which has the potential to impact low-lying areas.

The effects of a changing climate, especially in regard to the issues of sea level rise, the expected increased frequency and intensity of extreme storm events, such as cyclones, and increases in average temperatures have been identified as issues which will require ongoing adaptive management.

#### Landform, Topography and Geology

The coastal areas of the Port Hedland consist of flat sandy lowlands, with broad areas of intertidal mudflats and mangroves, which are periodically inundated by sea water during storm events or particularly high tides. The interior is made up of river flood plains and the Pilbara Block, characterised by a low-lying, flat, and featureless landscape with sparse scrub.

The soils of the Port Hedland are generally comprised of deep red, often calcareous sandy soils over sandy loams. South Hedland soils are best described as being composed of predominantly red sandy loams.

The risk of encountering Acid Sulfate Soils (ASS) is highest in the coastal lowlands with the coastal mangroves, tributaries and identified flood plains of Stingray, Pretty Pool and Four Mile Creeks being mapped as containing high to moderate risk of ASS occurring within 3 m of the natural soil surface. South Hedland is identified as being of no known risk of encountering ASS within 3 m of the natural soil surface.

#### Hydrology

The most important groundwater resources for Port Hedland are in the alluvial aquifers along the major rivers from the Ashburton to the De Grey. These groundwater resources generally range from fresh in the interior through to brackish as proximity to the coast increases. Port Hedland relies upon the De Grey and Yule river aquifers to supply potable water to the town.

Surface water is present as coastal estuaries and numerous tributaries including Stingray, Pretty Pool and Four Mile Creeks. The ephemeral rivers of the interior which flow into the coastal estuaries are dry for the majority of the year however significant runoff is generated after heavy rainfall to provide water to these river systems.

#### Biodiversity, Flora and Fauna

Port Hedland lies within the Interim Biogeographical Regionalisation of Australia region of Pilbara 4 and more specifically within coastal sub-regional bioregion of Roebourne.

The Roebourne sub-region is described as:

*“Quaternary alluvial plains with a grass savannah*

*of mixed bunch and hummock grasses, and dwarf Shrub Steppe of Acacia translucens or A. pyrifolia and A. inaequilatera. Resistant linear ranges of basalts occur across the coastal plains. These uplands are dominated by Triodia hummock grasslands. Ephemeral drainage lines support Eucalyptus woodlands. Samphire, Sporobolus grasslands and mangal occur on the marine alluvial flats and river deltas” (DEC 2002).*

The mangroves of Port Hedland comprise a significant component of the coastal landscape

and through the provision of habitat for marine and terrestrial organisms and nursery habitats for some commercially important species of fish and crustaceans perform an important ecosystem function. Additionally mangroves fulfil important physical functions, including the stabilisation and protection of shorelines and they contribute to the maintenance of coastal water quality through their action as a nutrient and sediment sink.

A search of the Department of Environment and

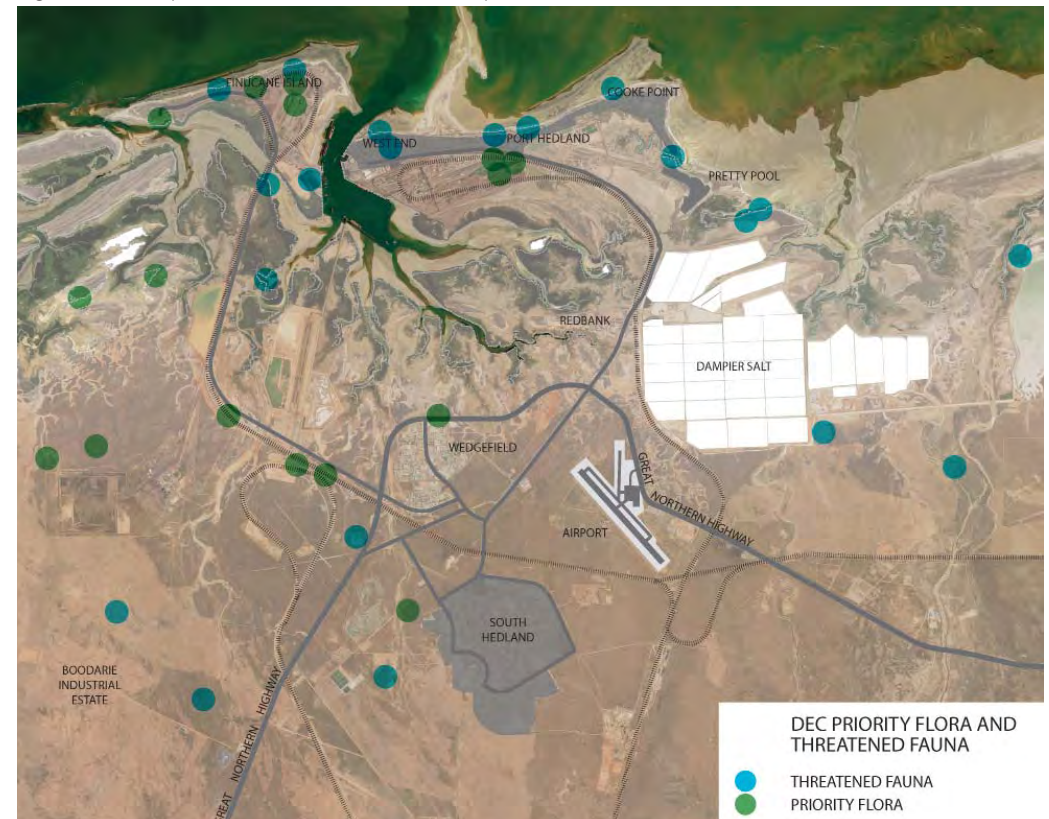


Figure 3.18: Threatened Flora and Fauna (Source - DEC, 2011)

Conservation's (DEC's) Threatened (Declared Rare) Flora database, Declared Rare and Priority Flora List and the Western Australian Herbarium Specimen database revealed that there are currently no known Threatened Flora species within Port Hedland.

Four Priority 1, two Priority 2 and two Priority 3 flora species were recorded within Port Hedland.

A search of the DEC's Threatened Ecological Communities database revealed that there are currently no known Threatened or Priority Ecological Communities within Port Hedland.

Within Port Hedland identified key fauna habitats which include mangrove and tidal communities and the coastal dune system are considered likely to sustain a variety of conservation significant fauna including Mammals, Reptiles and Birds. Threatened Fauna species known to occur within Port Hedland include the Green and Flatback Turtles, Northern Quoll, Crest-tailed Mulgara, Banded Hare-Wallaby and Bilby.

A search of the Environmental Protection and Biodiversity Conservation Act Protected Matters Search Tool identified a range of migratory birds and other fauna that potentially may be present in the Port Hedland Local Government Area, including 18 threatened species and 55 migratory species.

**Contaminated Sites**

Historical review, analysis of current document and site visits have identified the following areas of potential contamination in Port Hedland:

- Seven registered DEC Contaminated sites;
- Heavy industry including port activities and extractive industries;
- Light industry including storage facilities;

- Some residential land uses;
- Utilities including the gas power plant, airport, landfill site, incinerator and sewerage treatment plants;
- Petrol stations, hospitals, abattoirs, rifle ranges and cemeteries; and
- Any land on which preliminary and detailed site investigations have been carried out that highlight contamination concerns.

Contaminated, and potentially contaminated sites, along with the presence of potentially contaminating activities, are a key constraint in the future planning and growth of Port Hedland, with site specific assessments and remediation requirements potentially adding significant time and cost to development timeframes.

**Dust and Noise**

The Port Hedland Air Quality and Noise Management Plan, released in March 2010 after being endorsed by State Cabinet, is a comprehensive management plan for the ongoing air quality and noise management in Port Hedland. The Dust Taskforce makes recommendations to manage both issues on a number of fronts:

- Health risk assessment and analysis;
- Land Use Planning;
- Industry initiatives; and
- Governance.

The recommendations of the Dust Taskforce regarding land use planning are particularly relevant to the Growth Plan. Primarily this includes preparation of a plan which:

- Identifies sites for new development in the entirety of Port Hedland;
- Proposes new development in east Port Hedland;
- Identifies appropriate locations in the West End of Port Hedland for redevelopment as additional commercial premises, entertainment complexes and short stay accommodation facilities;

- Provides greater guidance on residential density, dwelling types and building design for all areas of Port Hedland; and
- Prescribes additional planning controls to address amenity issues associated with living in an area with elevated levels of noise and dust.

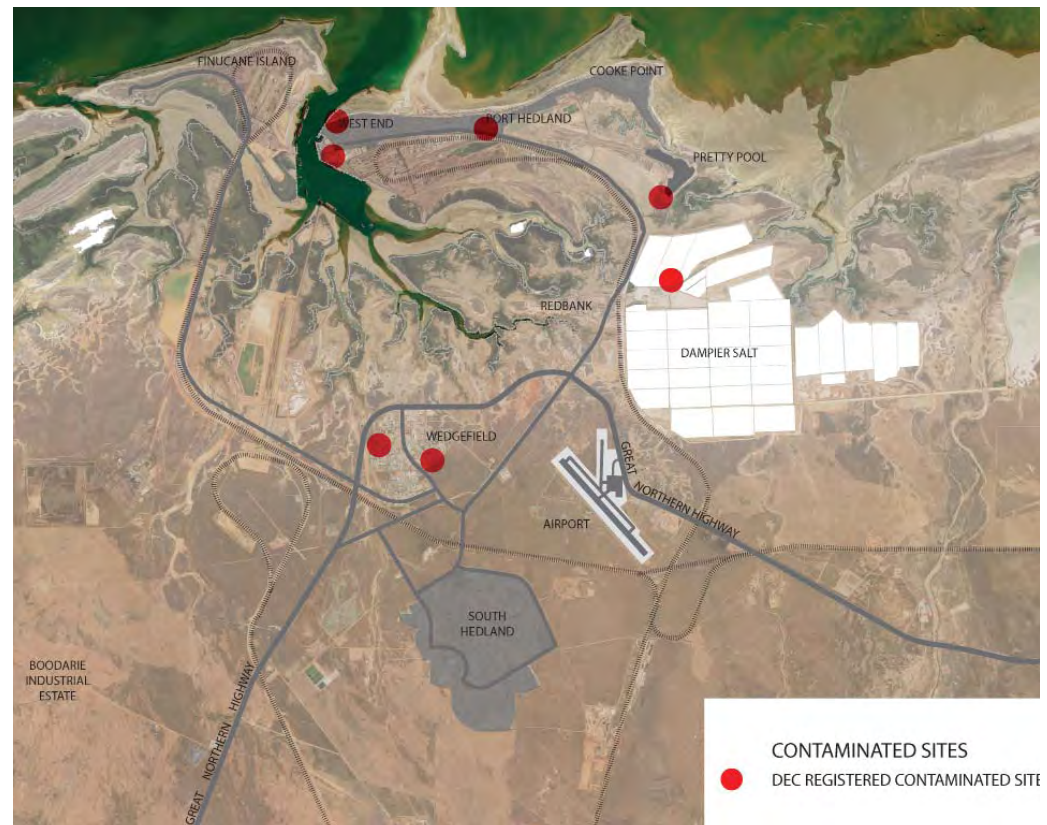


Figure 3.19: Contaminated Sites (Source - DEC, 2011)

Traditionally the policy and land use planning focus has been on preventing the steady encroachment of sensitive land uses in and around major port and freight operations. Port Hedland is unique in the sense that residential development in the West End has been slowly encroached upon by increasing port operations and its associated infrastructure. This has been a result of its changing role over time from an agricultural port to a bulk commodities port.

The changing role of the port has resulted in the need to balance landowner expectations in the West End and its historical and cultural significance with the continual and required expansion of the Port to support local, state and national economic prosperity. Historically, this has not been the case, with Industry being forced to implement strict environmental management control measures through Ministerial Statements.

The Dust Taskforce's essential role was to achieve greater balance between industrial management of potential environmental health risks with a change in the approach to planning and development in the West End.

A number of key issues are considered in relation to the requirement to prepare the Development Plan for the Port Hedland area within Pilbara's Port City Growth Plan:

1. Construction of the proposed Outer Harbour was not considered in the final recommendations of the Dust Taskforce. This future expansion may impact on the capacity to achieve nominated noise and dust targets, including the extent of influence at Taplin Street even with best practice measures being imposed.
2. While modelling shows that recommended targets can be achieved by Taplin Street, it is still a model and there is undoubtedly the possibility of the target being achieved either side of Taplin Street.
3. Achieving the recommended air quality levels closer to the Port will be difficult. BHPBIO's mandate under Ministerial Statement 740 requires the target to be achieved at the Old Hospital site. As such there may be a higher risk in the short – medium term to permanent residential accommodation west of Howe Street
4. The area of assessment was focused on addressing air quality issues with noise being a secondary element. Noise levels, which will also increase with development of the outer harbor and full inner harbour will increase and may affect a broader area.
5. The measures imposed through the Town of Port Hedland's Amendment No. 22 only relate to land zoned Residential rather than all zoned land where residential uses are permitted. Some of the areas not considered are actually closer to Port Operations and exposed to higher concentrations of dust levels on a more regular basis.
6. Regulating the use of short-stay accommodation by local governments is challenging particularly where they are fully self contained. Measures must be ultimately implemented by the Town of Port Hedland which will ensure that this accommodation is not made available for permanent residential use so to reduce the overall risk of exposure to the population.
7. The West End is experiencing a high level of redevelopment at the present time. This is the result of it being the largest area appropriately zoned to allow for redevelopment. Throughout the remaining areas of Port and South Hedland, there are only limited comparable opportunities for private developers. Similar opportunities for small and medium scale developers need to be made available as soon as possible to attract redevelopment elsewhere.
8. Changes to land use permissibility in the Growth Plan will need to consider ongoing land values and development potential, while delivering outcomes more aligned with the Dust Taskforce recommendations.
9. Land ownership in the West End is dispersed however a number of major land areas are either in the ownership of the State or BHPBIO. Progressing development on these areas with outcomes that appropriately respond to the recommendations of the Dust Taskforce can influence the type of development momentum that will continue.
10. Land Use Planning will be one element in achieving the vision for the West End. Activation and place making will similarly form an important role in changing this area from residential to the new cultural and commercial centre of Port Hedland.

### Key Challenges and Opportunities

The key environmental factors which are considered likely to present a significant constraint for the future planning and development of Port Hedland include Coastal and Marine Environments, Terrestrial Flora and Vegetation, Marine and Terrestrial Fauna, Storm surge and Flooding, Drainage, Contamination, Dust and Noise and vibration.

Where a future development opportunity is likely to be impacted by any of these factors more detailed site specific investigations will be required to manage any expected adverse impacts.

Key challenges and opportunities include:

- Protecting the coastal and marine environments.
- Protecting the local flora and fauna of the region.
- Mitigating the expected impacts of coastal storm surge and flooding and adapting to the challenges presented by climate change.
- Managing the risks to human health presented by dust, contamination and noise and vibration.

### 3.6 INFRASTRUCTURE

#### Port Infrastructure

Port Hedland's role in the global iron ore trade is a function of its port facilities. While iron ore mining is increasingly moving into the East Pilbara, there is even greater importance placed on the role of Port Hedland's Port in providing access to global markets.

Total throughput from the Port Hedland Port was approximately 178 million tonnes per annum (Mtpa) in 2009/10 (an increase of 12% on 2008/09 levels) and is expected at more than 200 Mtpa in 2010/11. This makes Port Hedland Port the largest bulk commodity port in Australia, ahead of Dampier and Newcastle.

There are nine ship berths at the port: Two BHPBIO at Finucane Island, three Port Hedland Port Authority public berths near the tug harbour at West End, two BHPBIO berths at Nelson Point and two FMG berth's at Anderson Point. The port also houses ten

tugs to pilot the cargo ships into and out of the Port.

The Port Hedland Ultimate Development Plan predicts that by 2025 iron ore exports from Port Hedland could be as high as 574 Mtpa, with a likely figure of 525 Mtpa. This equates to a total predicted throughput of 536Mtpa in 2025, an increase of 200 percent from its current throughput. The number of vessels is predicted to be approximately 3,400 per year. This increase in port capacity will be achieved through a range of infrastructure upgrades, including:

- Increasing the inner harbour to a capacity of 320 Mtpa;
- Increasing the number of inner harbour berths from 9 to 23;
- Constructing an outer harbour with a capacity of 400Mtpa, including 20 berths; and
- Constructing four off shore bulk liquid terminals.

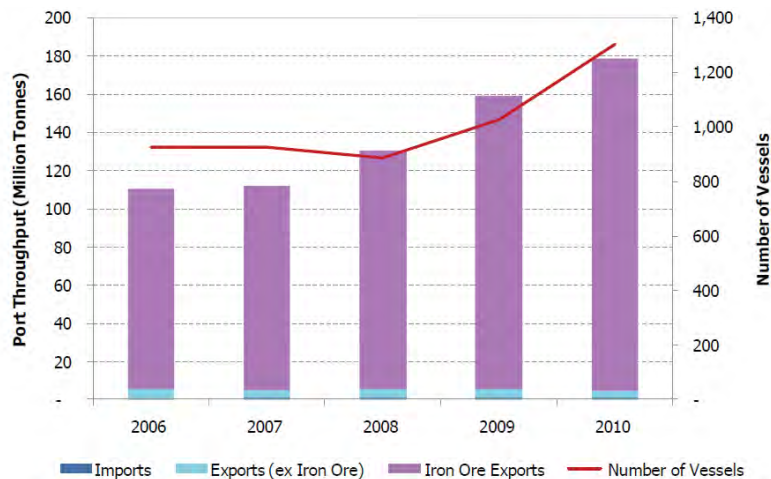


Figure 3.20: Port Hedland Port Authority 2010

The port upgrades have been developed to cater for the predicted increase in port demand. However, the facilities should also cater for container ships to reduce the freight movement by road.

#### Airport Infrastructure

Port Hedland International Airport is accessed via the Great Northern Highway (Broome Road), and covers an area of approximately 900 hectares, which is predominately owned by the Town. The airport serviced 280,000 passengers in 2010 (a 150% increase from 2005), and is currently serviced by 20,000 flights per year, the majority of which caters for FIFO (fly-in / fly-out) workers in the region. Key destinations include Perth, Brisbane, Melbourne, and Darwin. The airport has two runways: one 2.5 kilometres in length for Regular Passenger Transport and the other one kilometre for General Aviation.

Port Hedland airport is an important freight airport as it is the only one in the north-west that can handle Antonov freight aircraft. The airport also houses the Royal Flying Doctors Service, Polar Aviation, Golden Eagle, Pearl Aviation and Air BP.

The terminal and its infrastructure are struggling to cope with the current number of passengers and international flight requirements (such as customs and immigration). For example, the lack of car parking spaces at the airport was outlined as an issue in the Town's 2010 community survey. This is partly due to transit workers leaving cars at the airport while they are on their break.

#### Rail Infrastructure

The Town has a well-established, purpose-built and privately operated freight railway network that connects to bulk port facilities from regional mining operations. Diesel trains operate on these railways and currently there are no passenger services. There are two railway lines owned and operated

by BHPBIO: Goldsworthy Line and Mount Newman Line. The Goldsworthy Line connects Finucane Island to Yarrie (200 kilometres east of Port Hedland). It is 208 kilometres long and services trains of 600 metre length. The Mount Newman Line connects Newman to Nelson Point. It is one of the longest privately owned rail lines in Australia at 426 kilometres. The railway services trains of 3.75 kilometres in length and it takes approximately eight hours to travel from Newman to Port Hedland.

FMG also operates a railway line into Port Hedland. This line is 280 kilometres long and carries trains of 2.7 kilometres in length. The railway line connects FMG's mines at Cloudbreak and Christmas Creek with their port facilities at Herb Elliot Port (Anderson Point). The trains are operated from Perth and the track carries up to six trains a day.

#### Road Infrastructure

The existing road network in Port Hedland is currently affected by the following key issues:

- Limited coastal access.
- Conflict between freight and local traffic around West End.
- Efficiency and safety issues on the Great Northern Highway (Port Hedland Road) between South and Port Hedland.
- Indirect and impermeable street layout in South Hedland.
- Limited access to surrounding tourist and rural communities due to seasonal flooding of access roads.

Crash Statistics show that the intersections with the highest occurrences of incidence include the four intersections with Great Northern Highway. These comprise a high majority of crashes (84 percent), and the most common type of crash involved right angle collisions, indicating that turning on to the

## CHALLENGES AND OPPORTUNITIES FOR GROWTH

Great Northern Highway poses the highest safety risk for the region.

Traffic volumes along Great Northern Highway are greatest between South Hedland and Port Hedland. Traffic volumes have been growing over the past four years, with average annual growth of 4.7 percent near Wallwork Road and 3.5 percent near Cooke Point Drive. Within this area the Heavy Goods Vehicles representation is in the order of 13 percent.

To the south, the Great Northern Highway recorded 1,323 vehicles per day, with a very high representation of Heavy Goods Vehicles (38.4 percent). Similarly along the Great Northern Highway (road to Broome), the Average Daily Traffic was 1,158 with Heavy Goods Vehicles representing 39.1 percent of traffic.

There are a number of issues affecting the efficiency of the road network in the Town of Port Hedland:

- Travel within the Town is heavily reliant on the

private vehicle. Of the 85.8 percent of the population that travel to work, 63.9 percent travelled by car (as driver), truck or motorbike/scooter, 9.4 percent travelled as a car passenger, 0.6 percent as a taxi passenger, 1.0 percent by more than one mode, and just 11.0 percent of the population travelled via walking, cycling, bus or other.

- The mix of tourist, commuter and heavy vehicle traffic along the Great Northern Highway (particularly between Port Hedland and South

Hedland) poses a serious risk. The two-lane highway provides little opportunity for cars to overtake trucks, increasing the potential for conflict.

- There is a lack of priority for vehicles travelling along the Great Northern Highway at the problem intersections. This, combined with the number of road-level rail crossings, results in the need to frequently stop on a high speed road.
- The Great Northern Highway / Port Hedland Road intersection has inadequate capacity. It is understood from the MRWA Great Northern Highway Realignment Project Overview, that this intersection is experiencing difficulties due to high levels of turning vehicles.
- Most of the local roads are operating at level of service A and thus are free flowing with significant capacity, although Throssell Road, due to its location in the heart of South Hedland's Town Centre, carries significant traffic and has limited capacity.

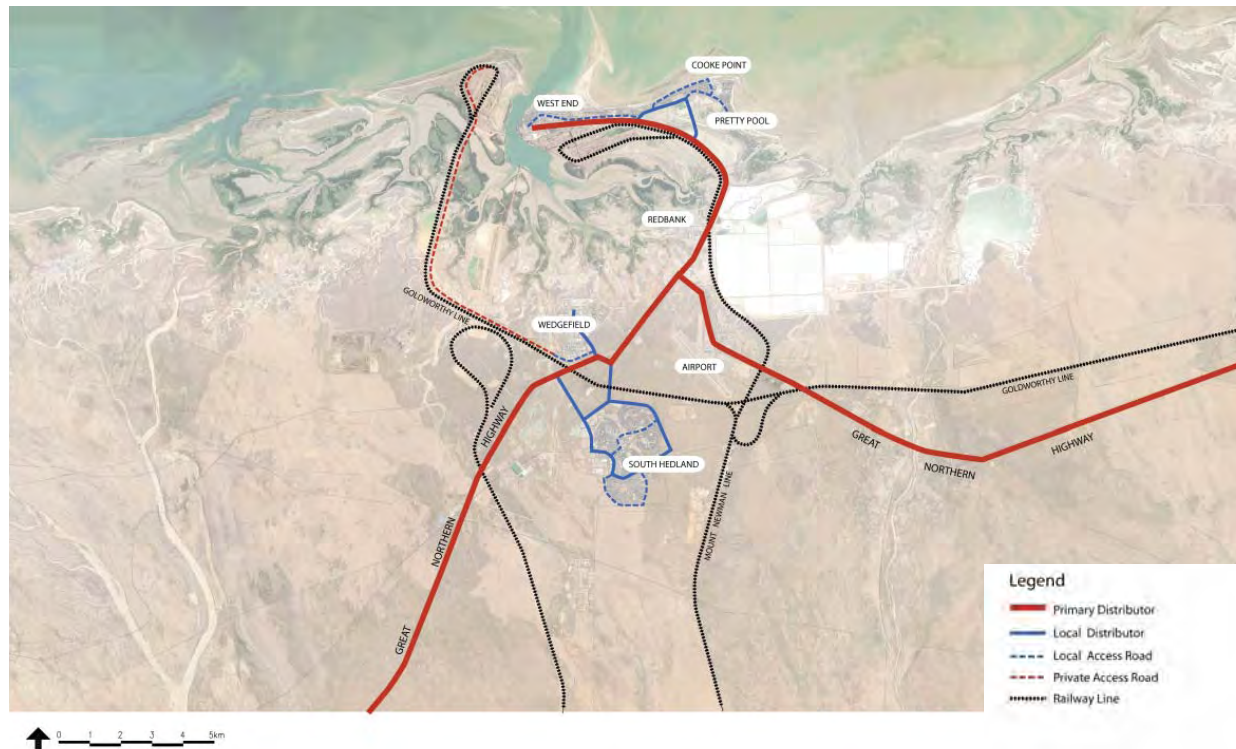


Figure 3.21: Existing Primary Road and Rail Networks (Source - AECOM, 2011)

### Freight & Logistics Networks

Port Hedland's close proximity to substantial mining activity in the Pilbara and its coastal location reinforce its role as a regional transport hub. Goods are transported from the mine sites, by road and rail, to the Port Hedland Port from where they are shipped around the world. This results in a high level of heavy vehicles on the strategic road network connecting the mines to the port.

The main access to the port is via the Great Northern Highway and Wilson Street. Access to the BHPBIO facilities at Finucane Island is via Finucane Island Access Road, and access to the FMG facilities at Anderson Point is via a spur road off Finucane Island Access Road, just west of Wedgefield. Vehicles range from triple road trains down to passenger work vehicles.

The route along the Great Northern Highway and Wilson Street currently has no priority at Port Hedland Road, Wallwork Road and Pinga Street. It also crosses four railway level crossings, reducing safety and efficiency. This route also requires the port traffic to travel through the Port Hedland Town Centre which is causing conflict between port and local traffic. This was highlighted in the 2010 Community Survey. The routes to the port provide no passing opportunities and limited rest stops which impacts efficiency of traffic movement and safety.

According to Curtin University's "From Projects to Places", currently only five percent of goods are produced locally with the rest requiring importation. Most of the goods are being transported to Port Hedland by road from Perth (either via the Great Northern Highway or the North West Coastal Highway) due to the reduced economic viability of travelling by sea. Furthermore, the Port Hedland Port does not handle container freight.

The Main Roads designated heavy vehicle routes within the Town include:

- Great Northern Highway.
- BHP Access Road into the Boodarie Industrial Estate.
- The road network in the Wedgefield Estate.
- Wilson Street.
- Finucane Island Access Road extending from the Wedgefield Estate / Great Northern Highway to Finucane Island.

**Public Transport Infrastructure**

There are two main privately operated bus services connecting the region to Perth. One operates once a week between Port Hedland, Newman and Perth, and another operates three times a week between Perth, Broome and Darwin. The relative infrequency of these services means that the region is fairly dependent on air travel to connect to Perth and other towns and cities.

Within the Town there are three public bus routes operated by Hedland Bus Lines, and Taxi services



Figure 3.1: Port Hedland Existing Bus Network (Source - AECOM, 2011)

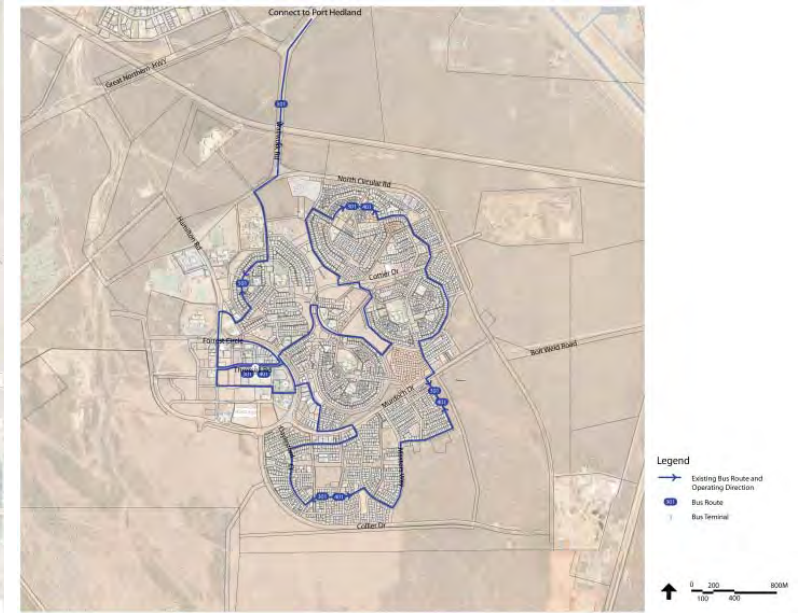


Figure 3.2: South Hedland Existing Bus Network (Source - AECOM, 2011)

are provided in both Port and South Hedland through local operators.

BHPBIO, as one of the main employers in the Town, runs a private bus service for employees. This service runs from Finucane Island to Western Yard to South Hedland, Nelson Point to South Hedland, South Hedland to Point Cooke / Pretty Pool and Nelson Point to Point Cooke / Pretty Pool.

An airport shuttle bus is currently provided from the airport to key destinations. This service can be booked on line and meets all airport arrivals. The

Town also has a community bus which it hires out to community and sporting groups for use.

### Pedestrian & Cycle Network

There is currently no pathway linking Port Hedland, South Hedland and Wedgefield. The 2010 Port Hedland Community Survey highlighted this as one of the community's top issues. The community requested that a path be provided to cater for those people who wish to walk or cycle to work at Wedgefield. This complements the high walk to work statistics for the Town.

Within Port Hedland all streets appear to contain verges wide enough to accommodate a pathway. However, most do not currently have a continuous path. Those that do mostly contain a path on one side of the road only. These paths are scattered throughout Port Hedland and in some cases are not linked at all or directly to the rest of the network. The paths are of varying widths, but mostly do not appear wide enough to cater for both pedestrian and cycle movement (although the verge width appears wide enough). On some streets the location of the path changes sides forcing pedestrians and cyclists to cross the street.

The recently developed shared user path located along the foreshore has proven to be a popular recreation destination for residents, demonstrating the latent demand for such facilities.

The path network in South Hedland is more extensive and continuous than in Port Hedland. However, due to the street layout many routes are less direct than those in Port Hedland.

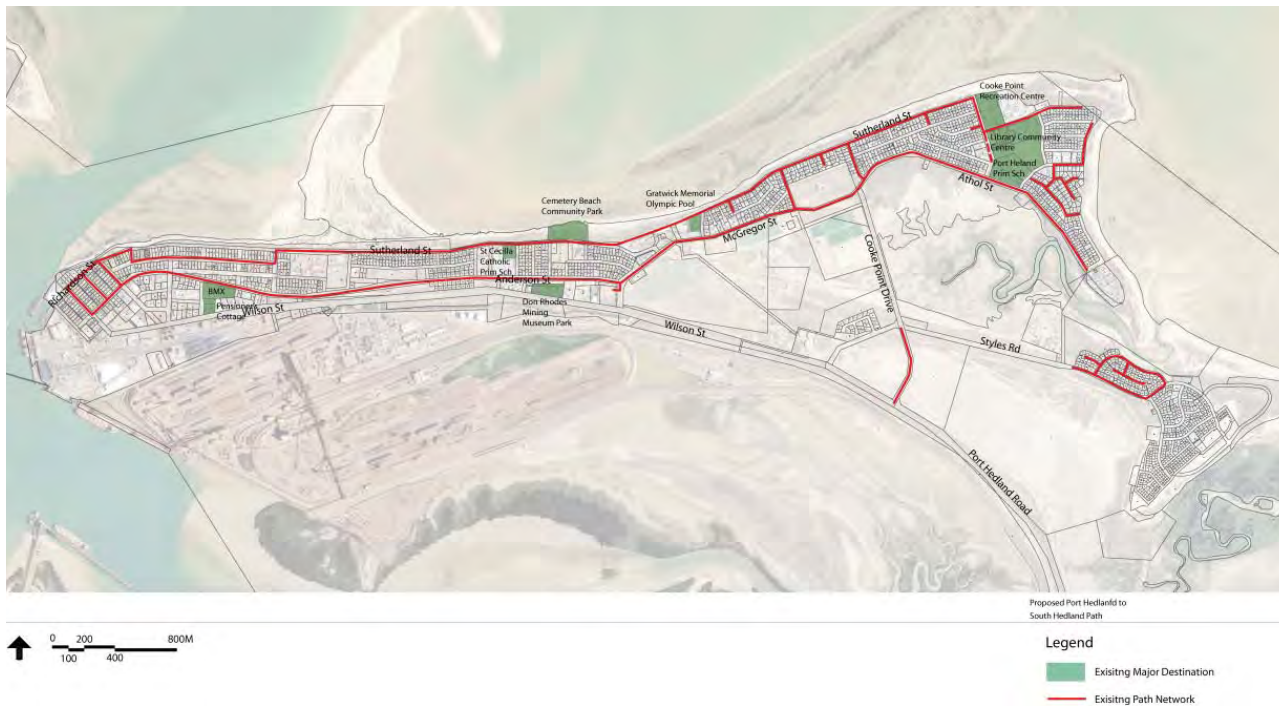


Figure 3.3: Port Hedland Existing Path Network (Source - AECOM, 2011)

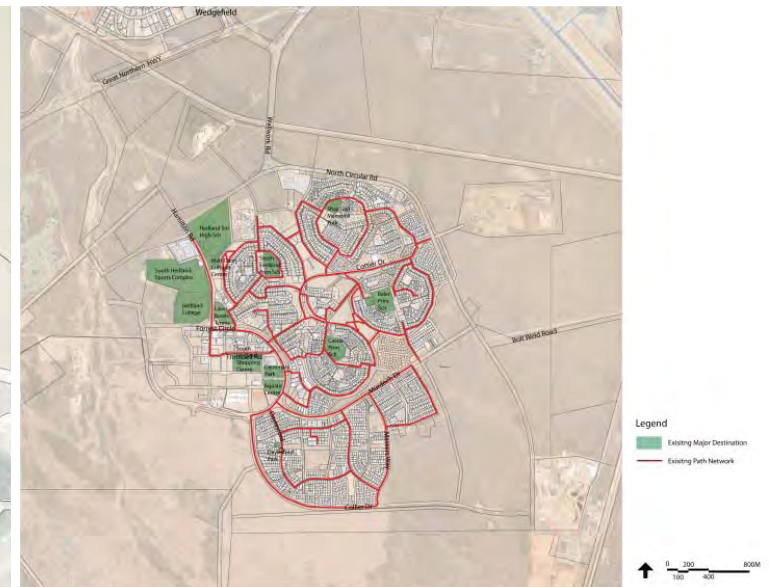


Figure 3.4: South Hedland Existing Path Network (Source - AECOM, 2011)



### Water Supply

The supply of bulk potable water to the Town of Port Hedland is provided through the Water Corporation which operates the Port and South Hedland Water Supply Scheme. The scheme is reliant on groundwater extraction from the Yule and De Grey rivers which currently produce 13.5 gigalitres of potable water a year.

The Water Corporation have advised that the 13.5 gigalitres is currently fully allocated, with a further 5 gigalitres per year already met by existing customers. The Water Corporation is investigating a new water source area approximately 200km west of Port Hedland (West Canning Basin), which may present a long term solution to the Town of Port Hedland's water demands for a population base of 50,000 people. Until then, innovative solutions will be required to meet the immediate and short term demand for water.

### Wastewater

The treatment and disposal of wastewater within the Town of Port Hedland is undertaken by the Water Corporation. The Water Corporation's wastewater

reticulation system currently discharges to one of two wastewater treatment plants, one in Port Hedland and the other in South Hedland. The Water Corporation has advised that the South Hedland wastewater treatment plant is at capacity, while there is some limited additional capacity still available in the Port Hedland wastewater treatment plant.

In January 2011 the Water Corporation received \$106m in funding to relocate the Port Hedland Wastewater Treatment Plant to a combined upgraded facility in South Hedland. The expected completion time for this project is approximately 2014.

### Power

Horizon Power is the supply authority operator of the Pilbara power supply grid. This grid is partially interconnected by high voltage power transmission lines owned by both Horizon Power and mining companies. Power supply within the established areas of the Town of Port Hedland are supplied via a high voltage supply scheme network of 22kV which is made up of a combination of overhead lines and underground power cables fed from by one of the

three zone substations located within the Town. The substation in Port Hedland has minimal scope for upgrade, while the substations in Wedgefield and South Hedland still have the ability to be upgraded.

To support further population growth, it is estimated a minimum of an additional three zone substations will be required. Horizon Power have identified strategic locations for zone substation sites and may also undertake a land swap should these sites fall within a proposed development. Horizon Power forecasts for the region suggested an additional 30-45MVA will be required over the next ten years, although demand may be substantially higher than this to achieve the growth rates required under the Growth Plan vision.

### Communications

Telecommunications infrastructure throughout the Town of Port Hedland is provided by Telstra. As of 1 January 2011 NBN Co. have been nominated as the future provider of telecommunications to the Town of Port Hedland.

Initial advice from NBN Co. is that for the short term supply of existing areas will be via satellite, however they will be also investigating opportunities to install their equipment in association with other authority works. An example of a potential opportunity to do this would be involvement with Horizon Power and their Pilbara Underground Power Project (PUPP).

### Gas

Despite being located in a region that provides a significant proportion of Western Australia's domestic gas supply, Pilbara towns are not provided with a reticulated gas supply network. There are no current plans to provide reticulated gas to the Town of Port Hedland, and this is unlikely to change due to the high establishment costs of installing the initial network. Provision of gas reticulation is typically only viable when provided to a suitable

industry, otherwise gas bottles are currently the most feasible option.

### Earthworks

Finished lot levels within the Town of Port Hedland are typically dictated by the need to be above the 1 in 100 year flood in South Hedland, with coastal areas (such as Port Hedland, Cooke Point and Pretty Pool) also subject to storm surge and sea level factors. The availability of suitable fill sources within the Town of Port Hedland is quickly becoming exhausted, and the cost to supply suitable import fill material to development sites is approximately twice as expensive (approximately \$40/m<sup>3</sup>) as it is currently in Perth.

### Stormwater

Port Hedland is susceptible to storm surge and flooding given its coastal location in a cyclone prone area. Substantial fill will be required in some areas to ensure developments are above storm surge and flooding levels or alternatively development sites should be identified were the existing levels are above flood levels.

Due to the intensity of storms, pit and pipe drainage systems are not typically used within the Town of Port Hedland. This is due to the large pipe sizes required for storm events and the high maintenance costs associated with keeping a pit and pipe system clean and operational. Instead, the treatment of stormwater drainage within is typically by the routing of run-off to open drains via the road network which eventually discharge to creeks. Co-ordination of a regional / district water management plan would assist in ensuring planned drainage outcomes are applied across the precincts rather than ad-hoc treatments that simply shift the problems downstream.

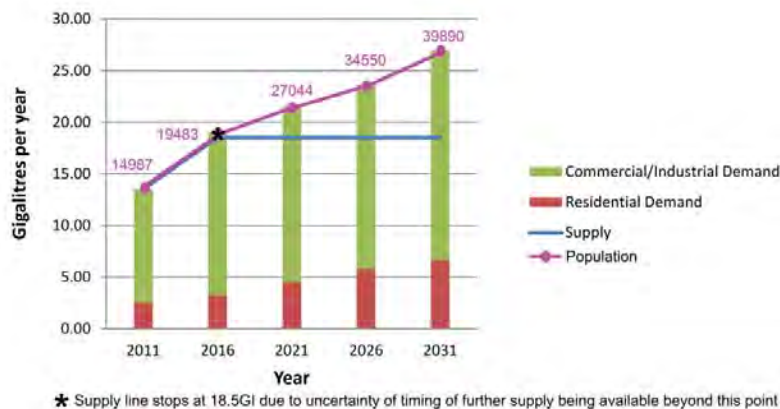


Figure 3.5: Water Supply and Demand for Forecast Population (Source - W&G. 2011)



#### Key Challenges and Opportunities

- Future development of Strategic Port and Airport assets are supported by long term strategic planning documents (Ultimate Development Plan, Airport Master Plan);
- There will always be a requirement for heavy freight movement into the port, placing significant demands on key haulage routes and potential traffic conflicts with local/residential traffic given the port's proximity to existing urban areas;
- Opportunities to improve port access through new port access road improvements (also improving separation of heavy and small vehicles);
- Opportunities for freight consolidation and intermodal improvements to improve network efficiency;
- Traffic growth on local and strategic road networks and resulting congestion/safety issues;
- Opportunities for more flexible public transport options (e.g. DRT) and coordinated transport options for workforce populations; and
- Improvements in local pedestrian and cycle path networks;
- Water supplies currently at capacity, with little additional capacity being made available in the short term;
- Long lead-in timeframes associated with identifying and developing new utilities infrastructure (e.g. water, electricity, waste water treatment), potentially limiting population growth in the short term;
- High infrastructure costs providing new infrastructure outside existing developed areas/ beyond development front (offset by relatively low infrastructure costs within existing areas);
- Opportunities to reduce use of potable water for domestic (e.g. landscaping) and industrial purposes (e.g. dust suppression) thereby increasing the availability for residential expansion;
- Establishment of West Canning Basin borefield to supply non-residential applications thereby removing the constraint of potable water availability on current population goals;
- Relocation of the Port Hedland Wastewater Treatment Plant to an upgraded South Hedland Wastewater Treatment Plant, providing increased capacity and opening up new developable land area in the East End of Port Hedland;
- Potential for more sustainable methods of power generation to be employed (e.g. solar);
- The current availability of established fill sources is reaching its limit, with no guarantee on the suitability of fill from alternative sources (e.g. dredging operations or mangrove repropagation works); and
- Opportunities to establish a more sustainable and coordinated approach to water management through development of a Regional Water Plan / District Water Management Plan in conjunction with the Department of Water.

## 4.0 CITY GROWTH SCENARIOS



4

Growth in Port Hedland has been guided by a range of strategic documents over the last decade, including the Town's Land Use Master Plan. However, in an environment of ever changing demands and high growth, implementation of the Town's strategic vision for growth has been challenging.

The characteristics of Port Hedland, and the historical nature of development, suggest that more efficient use of land must be made given many of the identified constraints. Similarly, better integration and connectivity of settlement can be achieved given existing development stretches from Port Hedland's West End to the South Hedland Rural Estate.

Recognition of the continued growth of the resource industry, fostering of greater local economic development and community development support are all needed. Finally, the ability to achieve meaningful implementation in the immediate term within the Growth Plan vision was acknowledged.

Having regard to these matters, the Growth Plan identified three growth scenarios early on in the development of the plan. These can be summarised as:

1. In-Land City Growth – Port Hedland South Expansion (Figure 4.1)
2. Coastal City Growth – Port Hedland East Intensification (Figure 4.2)
3. Rapid City Growth – Port Hedland South & East Expansion (Figure 4.3)

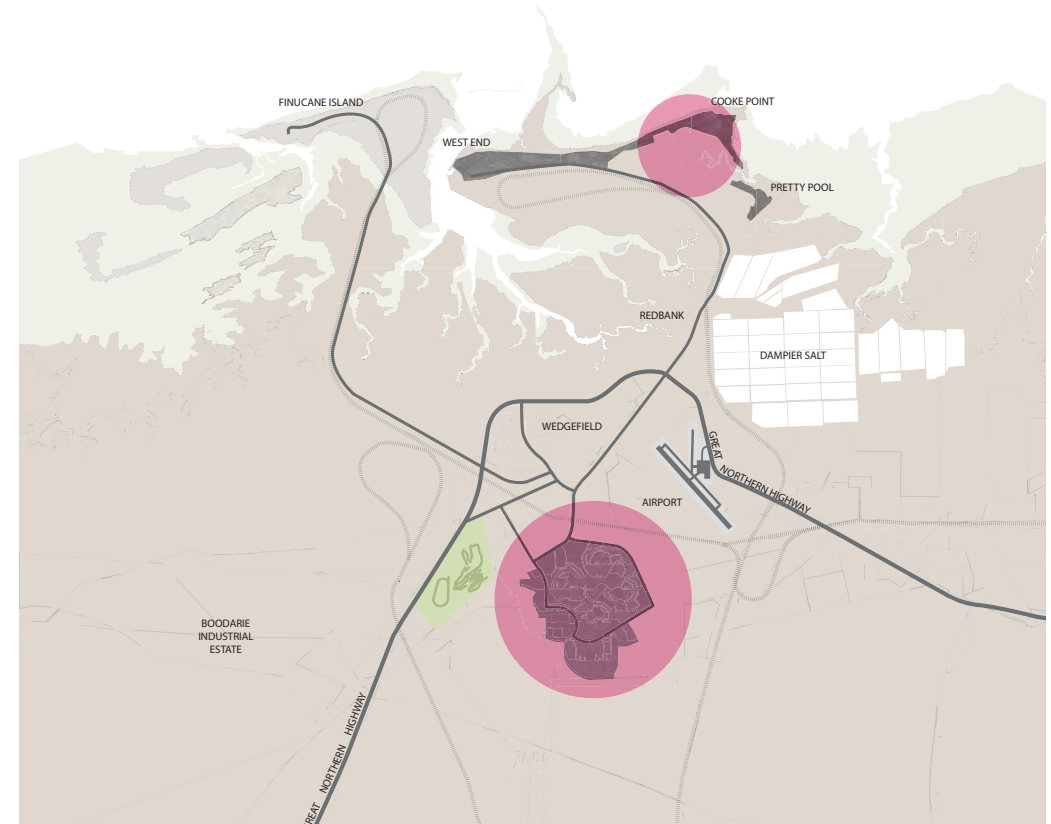
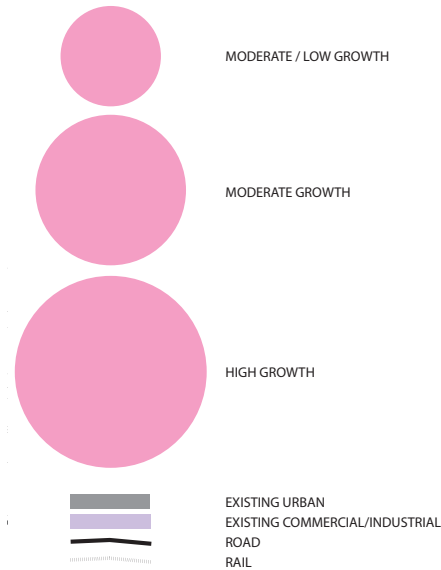


Figure 4.1: In-Land City Growth

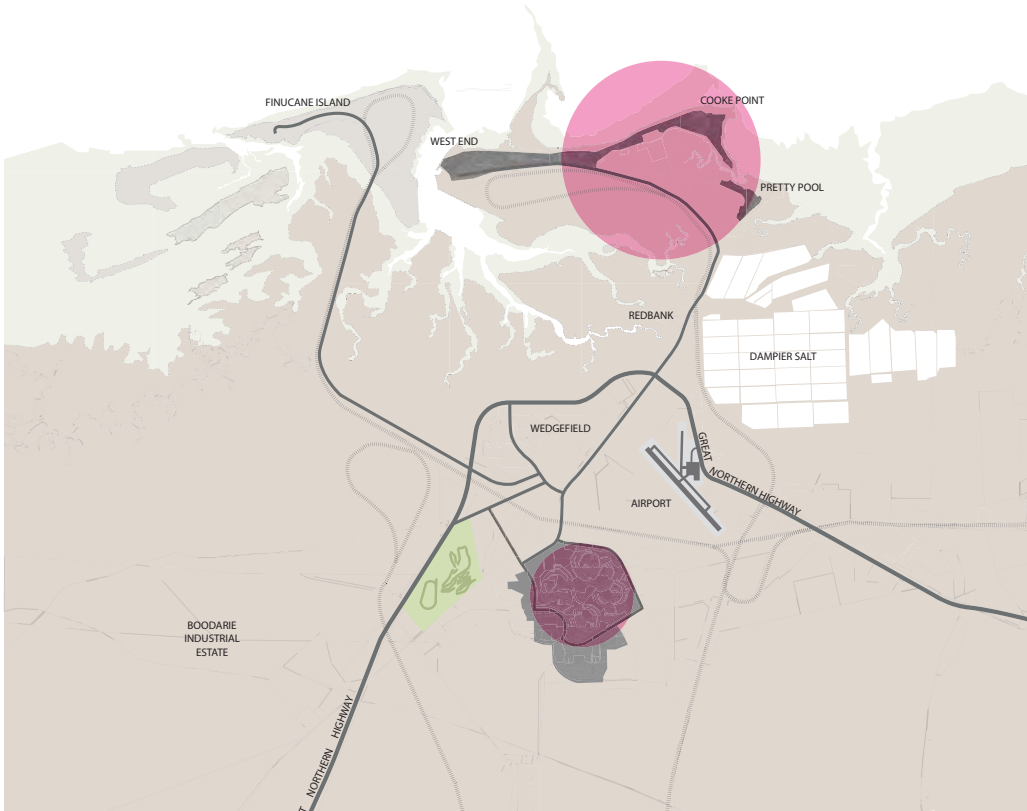


Figure 4.2: Coastal City Growth

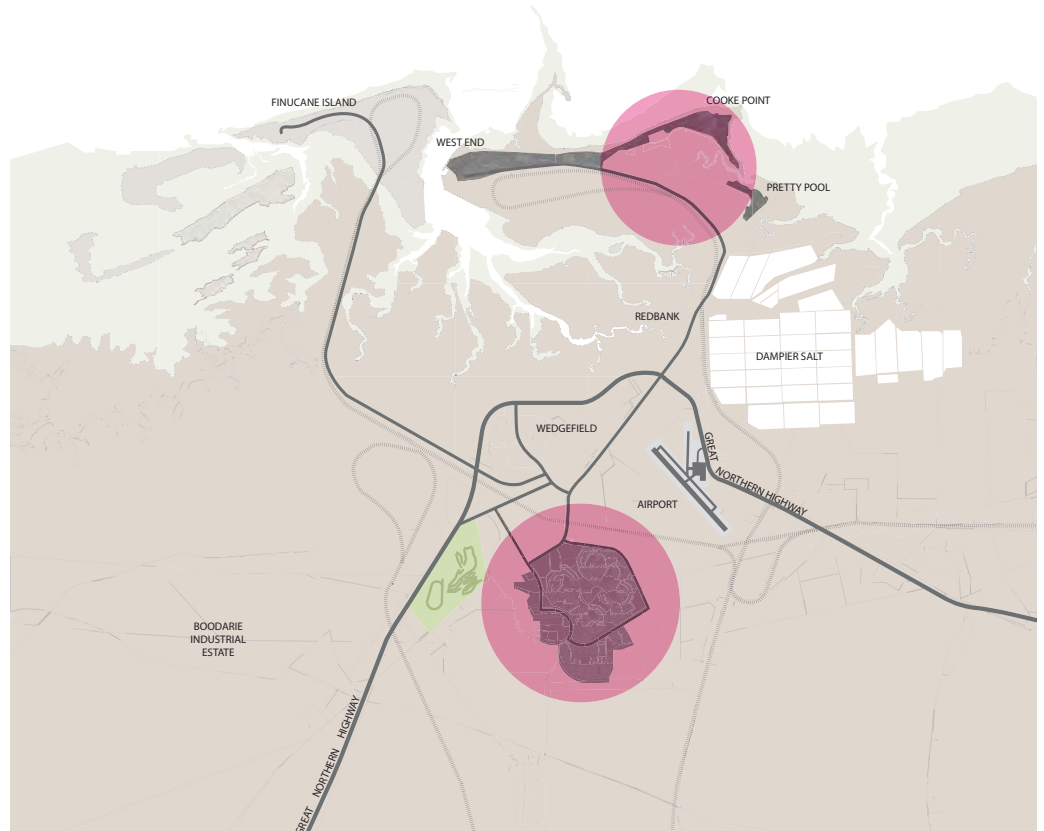


Figure 4.3: Rapid City Growth

Having identified these potential scenarios, a review of the spatial distribution of the growth requirements against each of the core Growth Plan themes, as outlined in Section 2.2, was undertaken.

A summary of that assessment is outlined below:

Core Themes	In-Land City Growth - Port Hedland South Expansion	Coastal City Growth - Port Hedland East Intensification	Rapid City Growth - Port Hedland South & East Expansion
<b>1. Sustaining &amp; Diversifying Economic Growth</b>	Provides significant opportunity for increased services and employment in South Hedland. This is contrary to market attractor, being the Port and West End. May restrict local economic growth through inability to diversify economic investment in Port Hedland.	Increases economic focus away from South Hedland City Centre and risks further duplication of services which is not sustainable. Diminishes capacity to accommodate population in non-resource industry employment.	Assumes more employment opportunities created in Port and South Hedland through the diversity of a range of activity centres with clearly dedicated functions.
<b>2. Strengthening Local Communities &amp; Culture</b>	Emphasis on services provided in South Hedland City Centre. Equity of service provision at local level, or in Port Hedland may be difficult. Relationship to the coast, and therefore many historical/cultural elements may be diminished.	Emphasis on Port Hedland East likely to place greater pressure for services in this location, in addition to South Hedland demand. May create an imbalance in equity of access to services.	Diversity of activity centres offers opportunity to respond to local service provision, while recognising wider sense of place and cultural opportunities. Offers diversity in tourism and the arts opportunities.
<b>3. Housing Diversity &amp; Land Supply Capacity</b>	Emphasis on greenfields land releases to establish significant ongoing land supply program. Some medium-high density achieved in proximity to South Hedland City Centre.	Significant intensification of residential development in East End Port Hedland requires high density, predominantly apartment style living. Land efficiency and development costs likely to limit diversity of housing to accommodate significant numbers of traditional single residential.	Significant land release program of low, medium and higher density housing able to be provided in Port and South Hedland in a variety of styles and price points. Offers a strong opportunity to address affordability capacity improvement.
<b>4. Environmental Protection and Change Adaptation</b>	Emphasis on in land growth places less pressure on coastal process considerations, but may impact on natural landscape.	Priority for high coastal growth may lead to greater conflict with environmental protection and landscape value impact. Greater development pressure on flood affected areas.	Balanced urban growth pressure achieved between centres allows greater respect for the natural environment.
<b>5. Building &amp; Maintaining Infrastructure Capacity</b>	Places increased emphasis on motor vehicle transport for workers living in South Hedland travelling to Port / resource operations. Requires water, wastewater capacity improvements in South Hedland particularly. Likely need to improve infrastructure within existing settlement areas.	Urban growth places significant pressure on upgrades and retrofit of existing infrastructure. Port Hedland Wastewater Treatment Plant relocation required as a priority. Significant upgrades to road network required to manage possible conflict of Port traffic increases with residential growth.	Supply capacity issues in both centres require improvement. Port Hedland Wastewater Treatment Plan relocation required. Connectivity between centres requires strengthening through land use activity/intensification on Great Northern Highway and road upgrades.

Figure 4.4: Comparison of Growth Scenarios Against Core Themes

**4.1 SCENARIO 1: IN-LAND CITY GROWTH**

The Growth Plan assessed this option with participants at Workshop #1 as being limited expansion in the established areas of Pretty Pool/ Cooke Point, with only some limited new medium to high density development in the East End. The growth scenario assumed major public/private investment in South Hedland where almost doubling the size of the existing City Centre and surrounding catchment would be necessary.

Positive aspects of this growth scenario identified by participants included: timeliness of delivery; fewer heritage considerations; improves/enhances

the role of South Hedland; lower cost development (assuming less fill); opportunity to re-brand; limited environmental impact; affordability improved; private sector developer opportunities; ability to integrate workforce accommodation and activates the City Centre.

Conversely, challenges identified included: a perceived under-utilisation of the 'east-end opportunity' in Port Hedland where significant culture and amenity exists; there was perhaps a greater disconnect with the West End and port expansion under this scenario; it would create

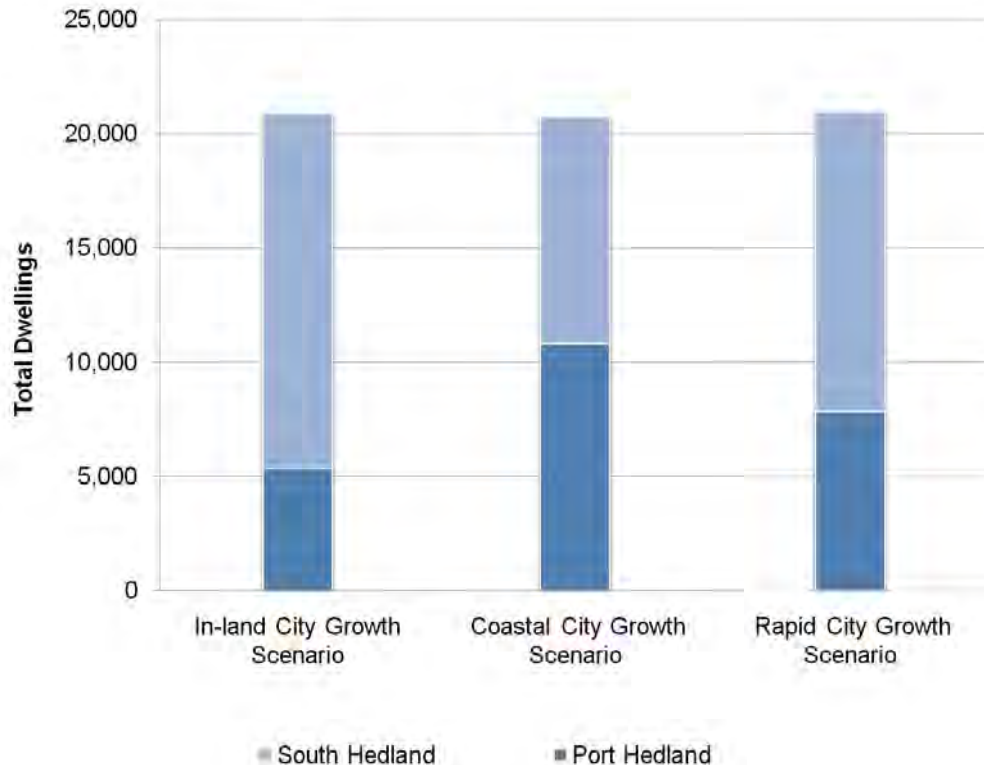


Figure 4.5: Spatial Distribution of Total Dwellings by Growth Scenario (Source: RPS 2011)

a further separation of identity across the City; it lacked a relationship to the waterfront - being a great asset; it focused employment beyond industry almost solely at the City Centre of South Hedland and lacked an opportunity to diversify and it potentially increased the need to travel between centres.

Some of the intervention strategies identified under this scenario included: management of the rapid take up of urban land requirements surrounding South Hedland; greater government commitment than normal to deliver a meaningful public transport system; commercial strategy largely dominated by car dependency as people travel into primarily the City Centre.

**4.2 SCENARIO 2: COASTAL CITY GROWTH**

The option of significant coastal growth was recognised as an important one to consider given Port Hedland's unique natural environment and coastline and the amenity it offers.

Participants at Workshop #1 assessed this option as comprising relatively limited growth in the South Hedland centre, with limited low density take up of surrounding land. Conversely, Port Hedland's East End was assumed to support significant high density development comprising infill of established areas and intensification of all land around the Cooke Point Drive/Styles Road environs.

This option recognised the opportunities to build upon coast and the natural landscape, to offer urban settlement with relatively high amenity and to establish a significant sense of place in the East End. This scenario also provided strong supporting population catchment for sustainable commercial/cultural uses in and around the West End.

Challenges facing this scenario included the potential adverse impact on the environment and port operations that high levels of intensification

would require. There would be a bigger divide between Port and South in this scenario with an already significant established population in South Hedland not appropriately serviced or having the benefit from public and private investment that would focus on the East End.

Choice of housing and affordable housing were not seen as being readily delivered under this scenario where there was expected to be a concentration of medium/high density dwellings and, with significant costs of development, likely high sale prices.

Some of the City Strategy work required under this scenario would mean significant environmental management work to avoid adverse impacts on the coastal environment or conflict with port operations expansion. There would be greater intervention required to manage the City's adaption to climate change. There would also be less opportunity to deliver a culturally diverse cosmopolitan City, seen as a critical outcome.

**4.3 SCENARIO 3: RAPID CITY GROWTH**

The third growth scenario considered at Workshop #1 considered the expansion in a balanced manner between the two existing urban centres in the East End and South Hedland.

Participants determined this option as involving an expansion of the South Hedland City Centre as the primary regional centre of the City, with the East End developing a 'second tier' neighbourhood centre which would support local retail services and facilities, as well as community and recreation needs at this local level. Higher order regional facilities would be located in the City Centre of South Hedland, or where appropriate in a commercial/cultural precinct in the heart of the West End.

The opportunities identified under this scenario included the immediate release of land (in South Hedland primarily) for housing; resolution of a long

term urban land use solution for Port Hedland in the East End which still respects industry and the environment (balances the level of development appropriately while seeking to take advantage of amenity and coast).

Importantly, this scenario was seen as the most resilient in being able to provide for rapid growth while having capacity to develop beyond 50,000 people in the longer term. Scenario 3 was also seen as providing the best opportunity to genuinely deliver a mix of attractive unique locations within the City, a choice of housing types around them as well as the flexibility to support short term demand for temporary workforce accommodation.

Some of the challenges identified under this option were the need to ensure that the 'divide' between Port and South is addressed both physically and socially. The importance of economic development being delivered and integration of culture and community in this spread of growth was also discussed. Transport and movement was acknowledged as important in this growth scenario where the choice of activity centres is beneficial only if meaningful access is provided to all through transport options.

#### 4.4 OTHER SCENARIOS FOR GROWTH

Workshop #1 also briefly canvassed the following scenarios, albeit in no great detail:

- **Lifestyle City Growth** – providing greater proportions of development further afield in outer lying rural areas, but seen as able to be accommodated in conjunction with a predominantly urban growth scenario;
- **New Settlement** – the potential to relocate land use, including airport facilities, and address the physical divide with the new urban settlement. This was not pursued further given the substantial public and private infrastructure

commitments and reinvestment required; and

- **Employment Led Growth** – examined as a basis for locating settlement and intensity of development in areas more aligned with industry and other commercial areas. The geographic spread, and possible revert to fly-in/fly-out workers as well as strain on transport and infrastructure made this scenario unsustainable as a basis for growth of a permanent Pilbara City.

#### 4.5 PREFERRED SCENARIO FOR GROWTH

Having regard to all the considerations identified as part of the Growth Scenario 'testing', Growth Scenario 3 was, on balance, identified as the preferred growth scenario for Pilbara's Port City. This scenario recognises the importance of both existing urban settlement areas and how they should each play a role in shaping the future of Port Hedland as a place. It also offers the basis for strengthening the connectivity between Port and South Hedland through the early development and expansion of Wedgefield and Airport land.

The choice of activity centres this scenario offers will facilitate a cosmopolitan city and one which addresses a key theme for Pilbara's Port City of not only providing for physical growth, but community growth and diversification through a range of unique different places and experiences.

The Preferred Growth Scenario is explained in more detail in the following section. Emphasis is placed on a balance between infill and immediate extension of services to provide new development; with controlled new expansion into greenfield areas within South Hedland. This scenario promotes connectivity through the development of key public transport and the potential to deliver a more transit-oriented sustainable city. It will also allow infrastructure service providers to maximise efficiency in delivery and simplify the priorities for

growth.

It is recognised, however, that the preferred scenario does require significant public and private ownership and investment, the basis for which is outlined in the strategies section. The timing and delivery of strategy items will be detailed in the accompanying Pilbara's Port City 'Implementation Plan'.

#### 4.6 PLANNING BEYOND 50,000

An important legacy of the Pilbara's Port City

project is to consider the model for growth beyond 50,000 people. Assessment of the Preferred Growth Scenario at this time considers the future of the city's next generation. By 2035, the scenario for growth is expected to have shifted to focus more heavily on the 'In-Land City Growth' scenario. This is premised on the primacy of the port over land use in the West End, environmental and other imitations on Port Hedland's East End, and the wider availability of land in South Hedland that will be more accessible from the port and its future expansion to the west.

The 'Framework for Growth' and 'Precinct Plans' outlined in this document recognise this very long term need.

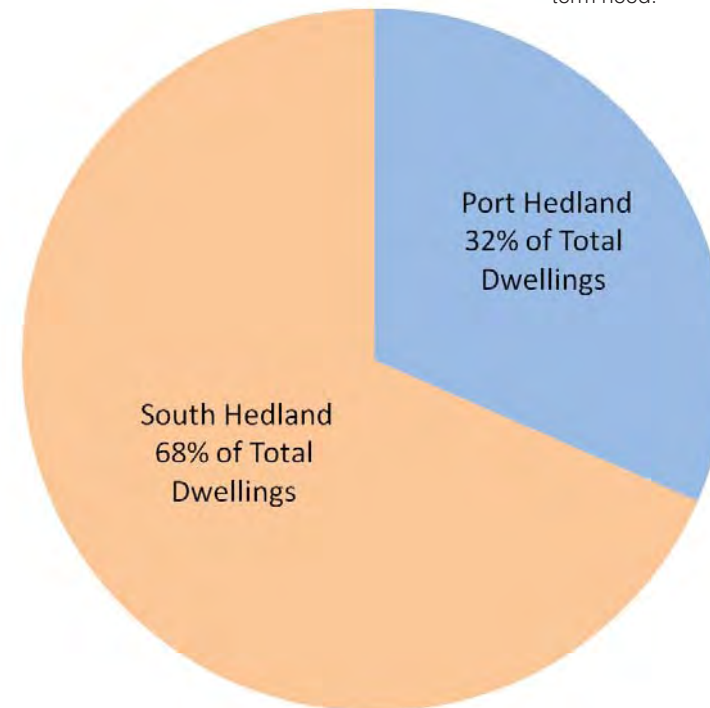


Figure 4.6: Spatial Distribution of Total Dwellings Under Preferred Scenario (Source: RPS 2011)



## 5.0 CITY GROWTH STRATEGY



5

This section seeks to develop further the pattern of urban and commercial/industrial growth that Pilbara's Port City will require, as it grows to be a regional city, enjoying all the urban services and facilities, cultural activities and lifestyle opportunities enjoyed by cities around Australia.

The strategies for growth comprise a range of recommended initiatives and interventions of both a spatial and non-spatial nature. They will be used by all levels of government, community providers, key stakeholders and service agencies to understand how the Growth of the City will be delivered at the local level and across a range of disciplines. Importantly, they are formed in the context of the existing and planned strategic resource assets.

The strategies follow initial discussion on the 'Framework for Growth' and are then articulated in the content of the Growth Plan's core themes aimed at addressing the many challenges and maximising the opportunities for Growth.



Figure 5.1: Growth Framework Flowchart.

5.1 FRAMEWORK FOR GROWTH

The basis for Pilbara's Port City being a liveable sustainable city will be reflected in the delivery of the key elements of economic diversity, environmental protection, housing diversity and capacity, strengthening local community and culture as well as infrastructure capacity building. The elements of housing capacity (urban development expansion), economic diversity (activity centres and industrial

development) and community (recreation and community facilities) are used here as a simple guide to understanding generally where growth will occur.

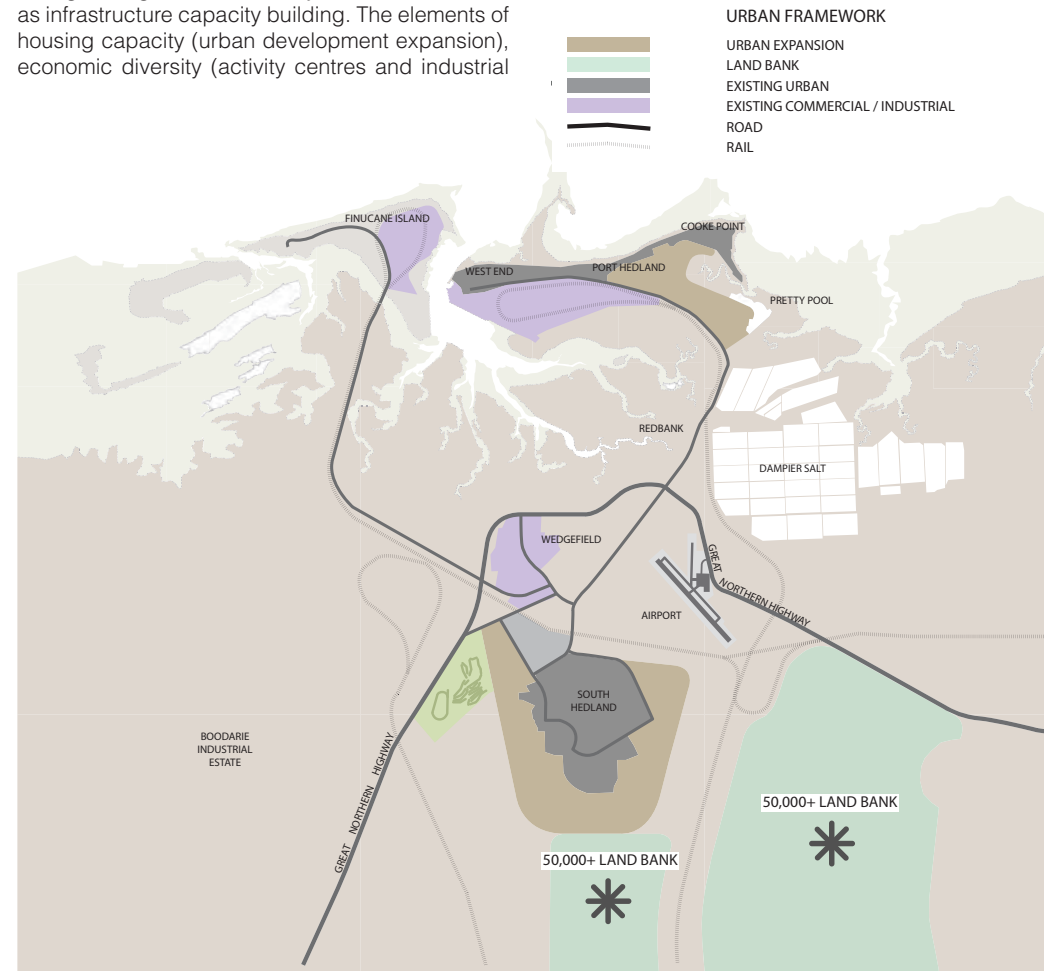


Figure 5.2: Urban Expansion Framework.

### 5.1.1 Urban Development Areas

Pilbara's Port City will provide an orderly land supply with immediate impact, and an ongoing choice of housing opportunities to ensure a broad population can be accommodated. At a detailed level this is shown in the Precinct Plans forming part of this document, together with the Implementation Plan comprising a separate document.

Housing Diversity and Land Supply, within the Growth Framework for Pilbara's Port City will be addressed through:

- i. Urban Expansion: reflected as an urban expansion framework in Figure 5.2. The

detailed elements of the East End and South Hedland expansion areas, including indicative layout, yield estimates and other land uses are shown within the relevant Precinct Plans. The identified dwelling supply capacity figures (as calculated according to the precinct plan) are referenced in Figures 5.3 and 5.4 below.

- ii. Infill Development: Port Hedland has the opportunity to provide for significant levels of new housing through the redevelopment of existing areas within Port and South Hedland. These areas are already provided with infrastructure services, are accessible by the established road network and encourage the regeneration and improved amenity of older established areas.

		2016	2021	2026	2031
Port Hedland	New Dwellings Required (for 50,000 People)	477	3,003	3,716	4,921
	Identified Dwelling Supply Capacity	600	5,002	5,323	5,643
South Hedland	New Dwellings Required (for 50,000 People)	2,952	4,690	8,317	10,714
	Identified Dwelling Supply Capacity	6,998	10,147	13,867	17,587
Total	New Dwellings Required (for 50,000 People)	3,429	7,692	12,033	15,635
	Identified Dwelling Supply Capacity	7,598	15,149	19,190	23,230

Figure 5.3: New Dwelling Supply and Demand, 2011-2031 (Source: RPS)

While infill development occurs incrementally, it can play an important role in responding to demand. Infill Development opportunities must be managed to require good built form outcomes and respond to the expectations of the community. They do provide, however, (through a performance based approach to development) for improved streetscapes and surveillance of public spaces, the inclusion of climate responsive design and local architectural vernacular, and the management of access, parking and landscape. Larger infill opportunities should also seek to improve sense of place through landscape and public art.

As infill development occurs gradually, performance based approvals are often a good basis for encouraging early redevelopment while also requiring minimum (high) standards of outcome. This approach can include allowing 'density bonuses' in which additional dwellings are supported subject to the inclusion of communal facilities, public art, or improved access and landscaping. Similarly, the opportunity to grant mixed use opportunities to development can encourage early and better outcomes.

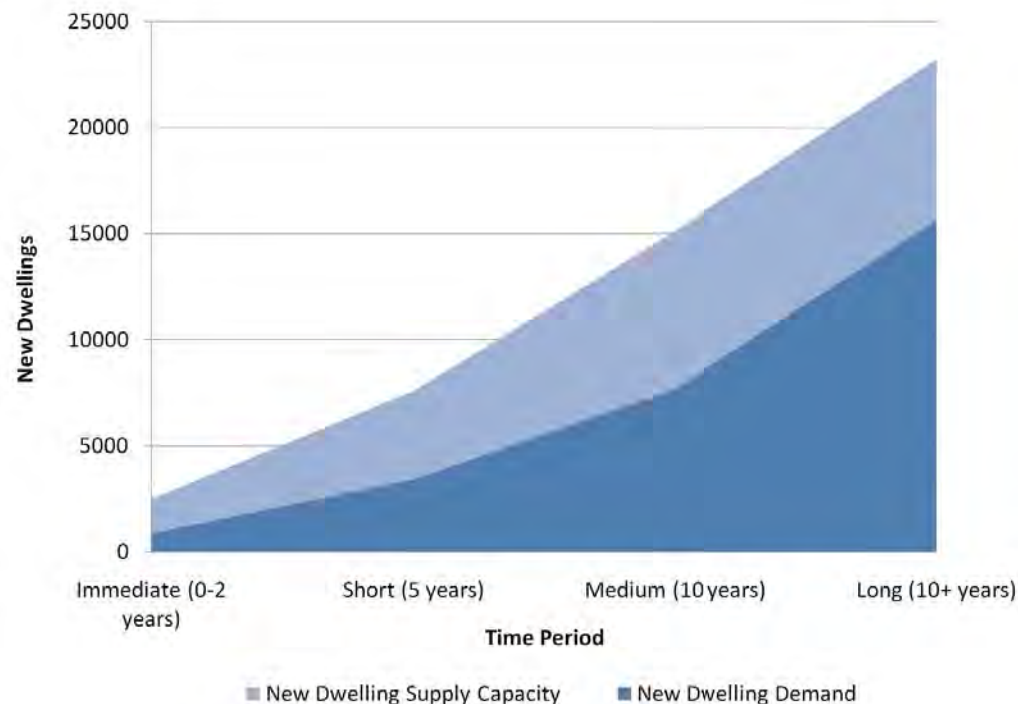


Figure 5.4: New Dwelling Supply and Demand (Source: RPS)

### 5.1.2 Activity Centres

Diversifying the Port Hedland economy to increase local business, particularly small business, provide opportunities for entrepreneurship and local investment are key platforms to Pilbara's Port City Growth. These are discussed further in section 5.2 of this document. The manner in which they are provided for within the spatial framework of the City's Growth is detailed below.

An activity centre will support a range of functions that attract people including recreation, lifestyle activity, living, working, shopping and dining, together with community and cultural roles. These centres vary depending on the role and function prescribed, though all have in common:

- An integration with transport that encourages potential for walking, cycling, public transport access and generally reduced car dependency;
- Opportunities for living through mixed-use higher density housing or 'shop-top' dwellings that encourage an immediate population that supports local business and encourages people to meet and interact;
- Defined centre roles that can pave the way for synergies across common investment and business co-location;
- A role in the delivery of community development



through arts, culture, landscape and sense of place through local identity; and

- Offer opportunity for employment and business investment relative to the scale and location of the centre.

Figure 5.5 illustrates the Activity Centre Framework. The role and function of each type of centre aim is outlined in Figure 5.6. This should be considered as a guide only to the role and nature of each centre. Ultimate land use and development will be prescribed through the Town of Port Hedland Town Planning Scheme.

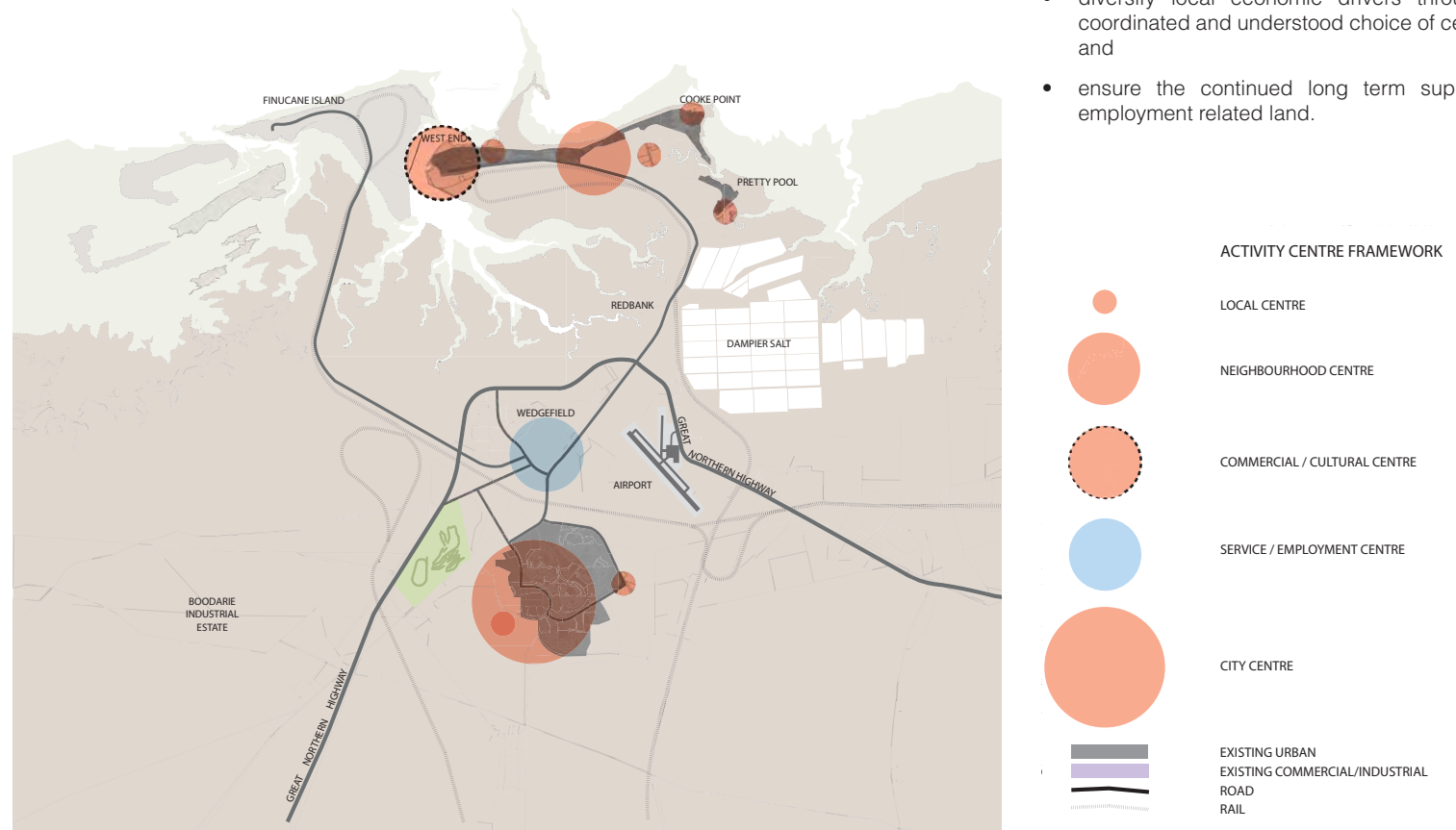


Figure 5.5: Activity Centre Framework.

Ultimately the use of an activity centre framework within Pilbara's Port City will:

- provide for a range of regional and local employment opportunities to support the City economy;
- help to improve the existing level of non-resource employment;
- diversify local economic drivers through a coordinated and understood choice of centres; and
- ensure the continued long term supply of employment related land.

	Centre Hierarchy	Primary Purpose & Function	Connectivity	Indicative Uses	Indicative Activities
<b>City Centre</b>	1 – South Hedland CBD	Primary (largest) activity centre of the region. It supports the significant concentration of development and investment for Pilbara's Port City.	Focus for major arterial gateway routes, public bus network routes.	Department stores, Discount Department stores, Supermarkets, Specialty retailers. Major offices / Government agency offices, civic and justice premises, local government. Major regional Health facilities, health specialists. Personal services.	Multi-purpose recreation facility, regional sports fields. Restaurants, cafes and cinema. Indigenous arts and culture precinct. Tertiary Education precinct.
<b>Neighbourhood Centre</b>	2 – East End Port Hedland	Supports the daily shopping, service, community and convenience needs for the East End population.	Transfer connection point for work travel, shopping needs.	Supermarkets, personal services, small offices/professional services, convenience retail. Localised community service facilities.	Catchment supports similar level of district facilities – sports fields, local gallery, smaller dining/cafe experiences.
<b>Commercial / Cultural Centre</b>	3 – West End Port Hedland	Specialised centre provides convenience needs to daily workforce, port operations and short-stay visitors. Acts as the alternative to commercial / cultural activity from uses in the CBD.	Significant driver for workforce travel demand. Connection point for tourist, short-stay professionals.	Major offices, Port/resource related professionals, local professionals, local convenience retail, tourist and community services.	Tourism uses, high end Art Gallery, research facilities, business incubation, waterfront development and entertainment.
<b>Service / Employment Centre</b>	4 – Wedgefield & Airport	Specialised employment precinct encompassing the light, transport and highway service industrial areas where local employment and logistics business synergies can be fostered. Offers opportunity for new/green technology industry to establish.	Connection point for local workforce travel demand and local population use of services.	Full range of showroom warehouse, light industrial and airport/road transport/port logistics uses defined in Precinct Plans.	Potential accommodation of private sporting, arts or entertainment business including indoor sports, health club.
<b>Local Centre</b>	5 – Demand led but including: South Hedland - Eastern edge & South West edge; Port Hedland - Spoil bank, Cooke Point, Cooke Point Drive, Pretty Pool.	Local convenience needs only.	Connected by localised pedestrian/cycle network and passing traffic movement. Accessible by local public transport routes.	Local convenience store, cafe newsagency. Limited local professionals.	Dependant on local centre. Coastal centres or those related to area of natural amenity will offer unique environment or cultural experience.

Figure 5.6: Activity Centre Role and Function.

### 5.1.3 Industrial Development

Industrial Land Supply and Management within the Growth Framework for Pilbara's Port City will be addressed through:

- Industrial Expansion: the basis for orderly release and development of industrial land is shown in Figure 5.7
- Transitioning of Industrial Areas: Pilbara's Port City will facilitate the transitioning of its two long established industrial areas to more consistent 'lighter' industrial uses through the delivery of improved industrial supply choice for heavy, noxious, general and logistics industry uses. The established Wedgefield and West End industrial precincts offer significant opportunity for new re-investment in the medium to longer term as existing uses relocate.
- Opportunities to foster early relocation and performance based new development will be encouraged through the Implementation Plan recommendations and via review of Town Planning Scheme 5 provisions. The early progression of the Boodarie SIA is a key to this evolution.

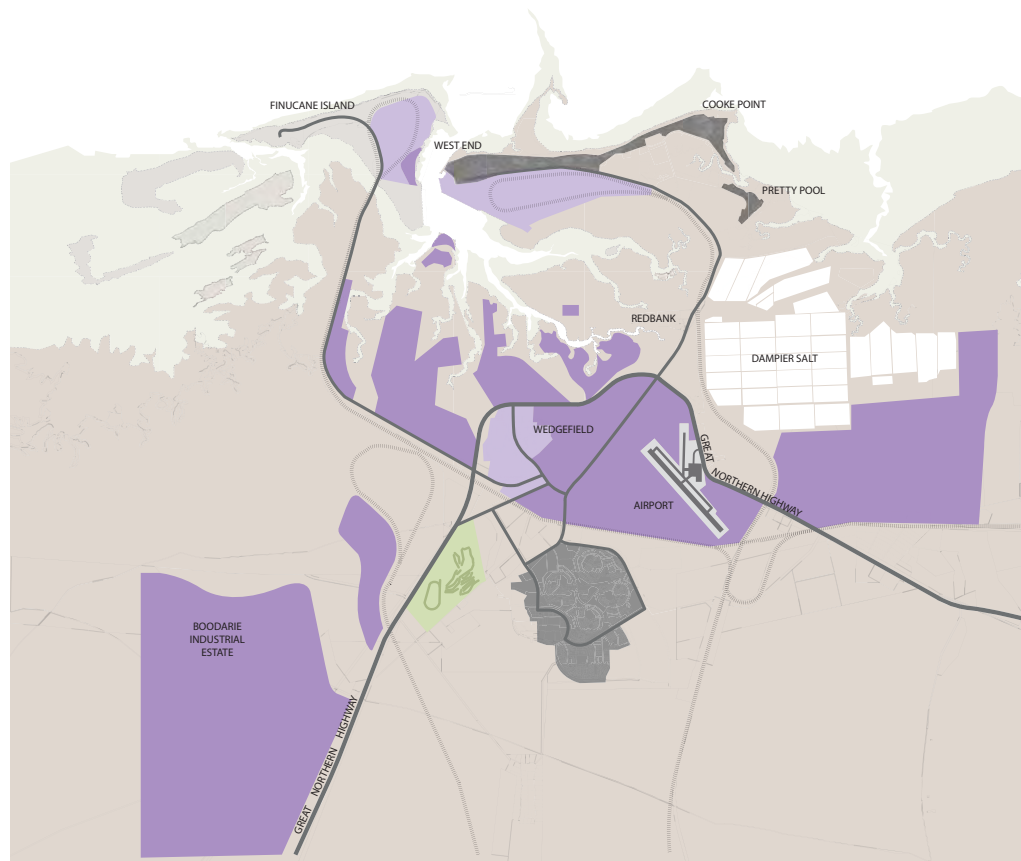


Figure 5.7: Industrial Framework

### 5.1.4 Recreation and Community Facilities

Pilbara's Port City must manage growth to ensure a sense of place, culture and heritage is retained and reflected, community and sporting facilities are provided and a safe, inclusive community develops. Many of these elements are discussed in detail within the Strategy sections of this report. The hierarchy of recreation and community facilities, together with cultural facilities, that Pilbara's Port City will support is shown in Figure 5.8 below.

The Growth Plan has been prepared having regard to the recommendations provided by CCS Strategic as part of its 'Active Open Space' Strategy. Among other things, that Strategy identifies district level sporting facilities to accommodate a population of up to 50,000 persons.

The Growth Plan makes provision for district level sporting facilities within the precinct plans, and provides a sufficient 'footprint' for such facilities, consistent with the requirements of the Active Open Space Strategy.

Figure 5.8 shows indicatively the recreation and community framework across the City. This should be considered a guide only to growth and distribution. Additional detail is provided within the precinct plans forming part of Pilbara's Port City Growth Plan, and in the Strengthening Community Strategy where more specific details are provided on arts, culture, and specific community infrastructure.

Figure 5.9 provides an estimate of the core community infrastructure required for Port Hedland to accommodate a population of up to 50,000 as derived from initial Growth Model Projections.

Ultimately the planned location and distribution of recreation and community facilities within Pilbara's Port City will:

- form part of a wider 'suite' of community development initiatives including a culture plan encompassing arts and cultural heritage initiatives;
- provide for a range of sporting choice to support active and healthy lifestyles;
- help to improve the existing level of interaction through sport and community meeting places;
- diversify the offering of sporting and recreation opportunity through coordinated and understood choice of areas; and
- ensure the continued long term supply of sporting related land.

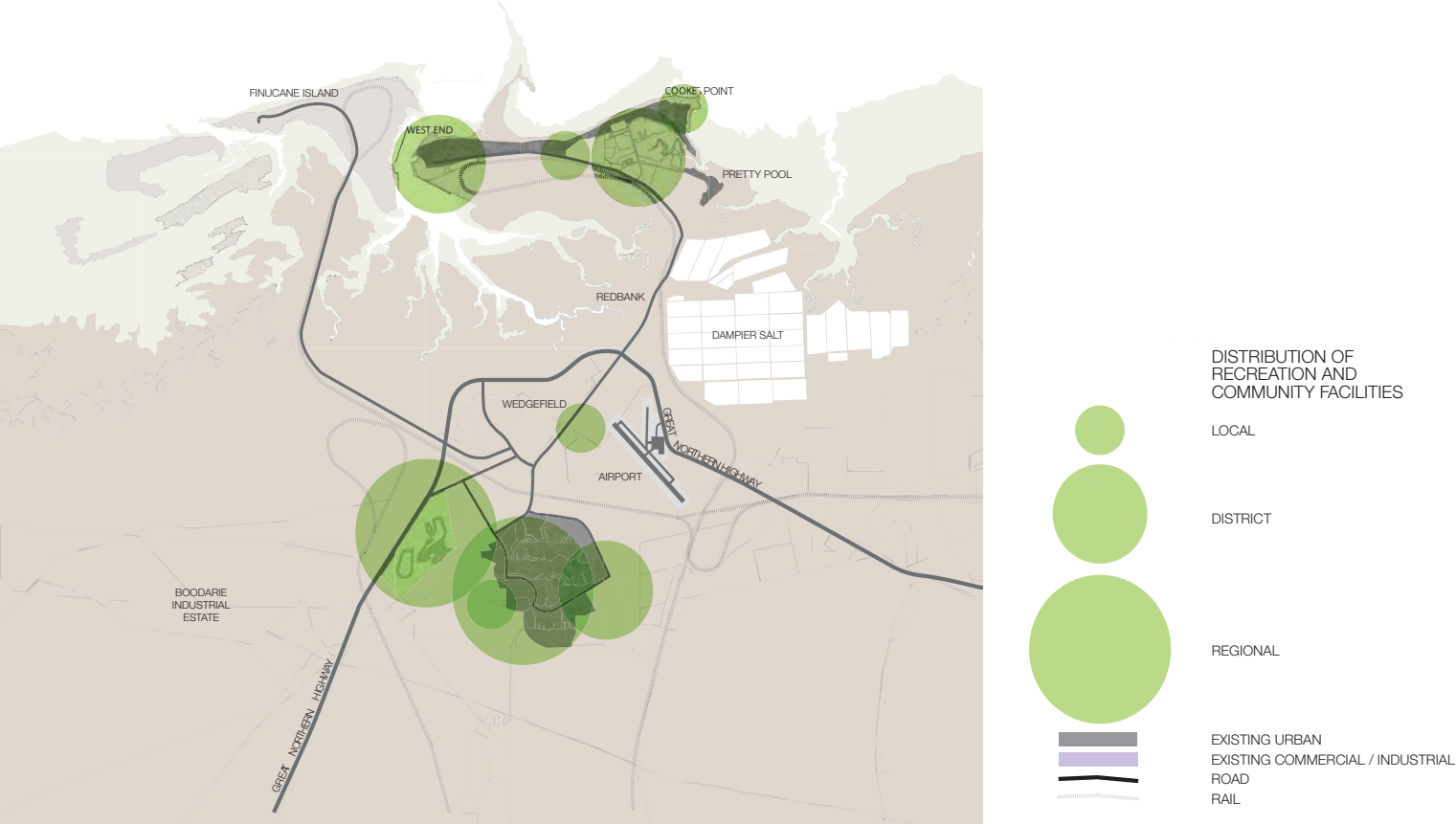


Figure 5.8: Distribution of Recreation and Community Facilities (indicative only)

Education	2011	2015	2020	2025	2031
<u>Pre-School</u>					
Kindergarten	2	2	3	3	4
Preschool	2	2	3	3	4
<u>Primary School</u>					
Public	3	3	4	5	5
Private	1	1	2	2	2
<u>Secondary School</u>					
Public	1	1	2	2	2
Private	1	1	1	1	1
<u>TAFE</u>					
Local	1	1	1	1	1
District	0	0	0	0	0
University	0	0	0	0	0
Healthcare	2011	2015	2020	2025	2031
<u>Hospitals</u>					
Public Hospital Beds	52	64	79	91	103
Private Hospital Beds	34	42	52	59	68
<u>Community Health Centre</u>					
Local Community Health Centre	7	8	10	12	13
Neighbourhood Community Health Centre	2	2	3	3	4
District Community Health Centre	1	1	1	1	1
Regional Community Health Centre	0	0	0	0	0
Children's Healthcare Centre (0-5)	4	5	6	7	8
<u>Other Healthcare Services</u>					
Arts & Performance Spaces	2011	2015	2020	2025	2031
Neighbourhood Multipurpose Cultural/Performing Arts	1	1	1	1	1
Regional Multipurpose Cultural/Performing Arts Centre	0	0	0	0	0
Museum	0	0	1	1	1
Art Gallery	0	0	1	1	1
Libraries	2011	2015	2020	2025	2031
Central Library	0	0	0	0	0
Branch Library	1	1	1	1	2

Figure 5.9: Community Infrastructure Requirements for Port Hedland (2011-2031) (AEC Group, 2011)

### 5.1.5 Summary of Growth Framework

The Growth Framework provides a high level snapshot of how our City will develop, what roles the many activity centres will play, and how established and new areas will support growth.



## 5.2 STRATEGIES FOR SUSTAINING AND DIVERSIFYING ECONOMIC GROWTH

**Housing has been identified as by far the most critical issue and impediment to future economic growth.** The undersupply of housing is causing prices (both rental and sales) to increase beyond the point that residents can afford to pay. The end result (given the strong demand) is that housing is provided by employers. The resource companies are quickly becoming the only employers that can afford to purchase the existing housing stock, pushing residents further out of the market (and some businesses). Currently, the lack of residential housing means that construction workers cannot be accommodated, which puts additional impediments on constructing new residential dwellings.

This issue is pervasive throughout the economy, causing numerous companies to stay out of the region, making it impossible for local small businesses to expand and forcing some existing companies to consider leaving the market (and supplying the area from Perth). **Failure to address the housing issue could impair all future growth.**

Additional issues facing the future development of the economy include:

**Reliance on the Mining Sector:** The economy of the Town of Port Hedland is almost solely reliant on resources. The future risk is that any disturbance to mining, iron ore export or to one of the resource companies would jeopardise the entire economy of the area;

**Shortage of Property:** There is currently an undersupply of many types of property including industrial, commercial and retail. An insufficient supply of property across the economy could impair future economic growth;

**Lack of Retail Offering:** There is currently an undersupply of retail offering in the Town of Port

Hedland, which can discourage future residents from moving to the area; and

**Lack of Innovation & Knowledge:** The economy currently lacks strong innovation and knowledge driven activities, which could assist in diversifying the economy away from its reliance on mining and iron ore export.

An economic development framework has been prepared as part of the Growth Plan identifying the core economic development activities that need to take place over the long-term in order to grow the economy in a more diversified and sustainable manner.

The focus for future economic development activities over the long term, together with a number of key initiatives is contingent upon achievement of the following core themes:

### 5.2.1 Being Prepared for Growth

Before economic development can be achieved, the Town of Port Hedland must ensure that the area is ready for this growth. Currently, the Town of Port Hedland has significant issues regarding the availability and affordability of housing. Additionally, existing shortages of industrial land and facilities, retail and commercial space as well as short-term accommodation are providing significant impediments to future growth. In particular, the housing issue must be sorted immediately before significant economic impairment occurs.

To this end, the Town of Port Hedland must ensure that sufficient land stocks are available for future residential, industrial, retail, commercial and accommodation provision. The use of government owned land as well as necessary incentives must be considered for use to resolve some of these issues. Council should consider utilising some of its land stocks to assist in this process.

To assist the Town of Port Hedland to be prepared for future growth include, the following strategies are recommended:

- ◆ Immediately address housing shortage through using Council held land, providing high quality modular construction, providing incentives and other forms of inducement to deliver housing in the next six to twelve months;
- ◆ Ensure future land bank available for future residential development through a detailed property strategy, which identifies the sufficient amount and location of future residential lands (precincts 8, 13 and 14 provide these land bank opportunities);
- ◆ Ensure future provision of retail, commercial and industrial lands through a progressive property strategy and efficient facilitation of development approvals; and
- ◆ Establish proactive incentives schemes to facilitate development and create revenues, which will encourage development and provide potential future revenue.

### 5.2.2 Affordability and Accessibility

Two key themes have been identified that are critical to the housing affordability equation – certainty of supply and enhancing affordability and Market Accessibility.

Access to affordable housing has been identified as the primary constraint to current and future economic development, growth and diversification in the Town of Port Hedland. Current difficulty in securing affordable accommodation is creating skills and labour shortages and increasing labour costs for local businesses and employers.

The key consideration to improving the land supply equation and therefore the local economy is to address the housing issue. Simply building more houses is not the quick answer, because again, these construction workers require housing.

Among other things, certainty in the property supply pipeline is required. By providing clear signals to the market of the existence of a large, responsive, targeted and flexible pipeline of property, volatility and speculation that characterise the current market will decrease. It will also provide a buffer to absorb short-term spikes in property demand, associated with the resource sector investment cycle and changes in global economic drivers. This will prevent the benefits and value of resource sector activity to local residents and households resulting in worsening housing affordability and cost of living.

To ensure sufficient supply of land and housing for future growth, the Growth Plan recommends the following a range of initiatives and strategies:

- ◆ Immediately address housing shortage through using Council held land, providing high quality modular construction, providing incentives and other forms of inducement to deliver housing in the next six to twelve months;
- ◆ Ensure future land bank available for residential development, including 15 years of zoned land and 10 years of zoned and serviced land;
- ◆ Establish a defined retail network that provides direction for retail floorspace investment for all centre and format types;
- ◆ Establish a defined commercial and cultural precinct with planning and approvals frameworks that encourage commercial office development;
- ◆ Enhance supply of suitably located and supported industrial land, particularly collocated with key pieces of enabling infrastructure including the Port and Airport.
- ◆ Recognise the need for segmented industrial land supply, diversity of lot sizes and a strong forward pipeline.
- ◆ Continue promotion of home-based business solutions. This will encourage increased local business establishment, providing a strong source of local demand for commercial office developments when home-based business grow. Allow flexibility in business location through provision of quality telecommunications infrastructure, while promoting clustering of business, personal and industrial servicing businesses.
- ◆ Permit on-site accommodation of construction workers for small and medium developments, to improve construction feasibility;
- ◆ Provide commercial/housing property packages to the market, providing business owners the opportunity to acquire both residential and commercial space to provide certainty on employee/owner access to accommodation;
- ◆ Promote uptake of modular or manufactured housing solutions to provide new housing stock in a manner that enhances the timeliness and cost of traditional construction methods;
- ◆ Promote de-centralised, design-based approaches to addressing major environment and infrastructure constraints. This will decrease the infrastructure funding burden on government and developers and decrease the cost impost on housing through developer contributions;
- ◆ Review local government town planning scheme and policy requirements to enable greater flexibility in dwelling types and densities; and
- ◆ Facilitate a more stream-lined and coordinated approach to the housing approvals process.

The Precinct Plans go a long way to setting the foundations and 'goal posts' to facilitate achievement of the above.

Key initiatives to assist the Town of Port Hedland to enhance affordability and market accessibility include:

- ◆ Investigate alternate tenure and purchase schemes involving Employer/Employee arrangements.
- ◆ Joint Tenure housing arrangements, rent-to-buy schemes, and deferred purchase/equity arrangements. The resulting shift to increased ownership (albeit part ownership) will promote greater "buy-in" to Port Hedland by workers and encourage long-term settlement;
- ◆ Investigate establishment of dedicated housing organisations including community housing associations and real estate investment trust funded through affordable housing bonds;

the legislation to enable government land suitable for development to be transferred at no cost to the social housing and not-for-profit sectors, even if it was limited to the Pilbara Region).

Another key initiative identified for the short term to address the affordability issue is to review the legislation governing the sale of crown land to government entities, LandCorp in particular (in this regard, consideration could be given to amending

### 5.2.3 Developing Unique Capabilities

The global competition for jobs and investment is fierce, particularly given the extended recession and slow economic growth in the United States and Europe. In order to achieve the desired vision, the Town of Port Hedland must improve its competitiveness. Through the development of unique capabilities, the Town of Port Hedland can leverage existing advantages and generate nationally and globally unique competitive capabilities that will drive future economic growth and diversity.

Western Australia has an emerging 'clean technology' sector that is one of the fastest growing in Australia. The opportunity presents itself to take advantage of the significant solar resource in the Pilbara to become a leader in this sector and help diversify the local economy. An example of this includes the clean tech sector and associated R&D that is emerging in Newcastle, NSW, primarily with CSIRO. Other clean tech opportunities include water treatment technology (for potable water and wastewater) for remote mining operations and Aboriginal communities. Local food production or agriculture is something that could be used to diversify the economy and also have a social health benefit (which also includes reduced dependency on oil based food transport).

Key strategies to assist the Town of Port Hedland develop unique capabilities include:

- ◆ Encourage entrepreneurship (by mentoring, recruitment and retention advice) through local programs, including business incubation, business advisory, local investment funds and other programs geared toward generating new products, services and businesses;
- ◆ Support local clusters to grow and diversify by providing a platform, together with partners, for interaction, innovation and the transfer of ideas

as well as opportunities to connect businesses;

- ◆ Develop innovation and R&D capabilities including exploring options to develop a local research centre of excellence together with major universities and resource companies as well as specific education and training programs leveraging the unique assets of the Town of Port Hedland (i.e. Port, access to mines and major facilities/infrastructure);
- ◆ Develop unique logistics capabilities including roll on/roll off facilities and a potential pre-assembled modules (PAMS) fabrication facility;
- ◆ Develop a strategic investment business case to attract 'clean technology' industrial development, for instance solar technologies;
- ◆ Develop a strategic higher education and research business case to support 'clean technology' industries, for instance a Centre of Excellence in solar technologies; and
- ◆ Investigate local/regional food production options to diversify the economy and provide fresh produce – particularly fresh fruit and vegetables – which can use fit-for-purpose water supply and recycled waste water.

### 5.2.4 Assisting Local Businesses

In most developed economies, existing businesses provide between 60%-80% of new investment and jobs. Given the unique nature of the Town of Port Hedland, local businesses (small, medium and large) would likely contribute at the top of this range. Focusing on ways to assist local businesses, particularly small and medium sized businesses would allow these companies to grow locally, employ more people and contribute successfully to the diversification of the economy. Supporting local businesses is a key function of local government.

To assist local businesses to grow and prosper, the following strategies are recommended:

- ◆ Engage regularly with existing businesses of all sizes in order to stay abreast of key issues, industry trends, opportunities and needs. This interaction is a critical element to deliver economic development and provides a strong basis on which to understand the needs of business to facilitate and support their growth;
- ◆ Work with partners to provide services to small businesses, such as business mentoring, business advisory (i.e. business planning, marketing and strategy development), networking and workforce development;
- ◆ Hold regular economic development forums to assist in identifying issues, sharing information and provide a platform for exchanging ideas relating to the future economic development of the area; and
- ◆ Provide regular economic updates (including labour force, unemployment, housing prices, building approvals, GRP, employment, etc.) to local business community in order to keep businesses informed about the health of the economy and key trends.

### 5.2.5 Marketing and Attracting Investment

The over-whelming dominance of the mining and resources sector in the local economy presents a significant challenge in trying to foster other businesses. Marketing and attracting investment to the Town of Port Hedland will assist in decreasing the reliance on the mining sector and assist in changing the perception of the area. Marketing the area as a sound business investment destination (instead of a resource boom town) will assist to change existing perceptions and increase the marketability of financial lending to businesses in the area.

Additionally, targeted marketing activities focused in the areas of identified opportunity will assist in attracting investment in these areas, which will not

only grow local employment (to support permanent residential growth) but also assist in diversifying the economy.

Key strategies to market and attract investment to the Town of Port Hedland include:

- ◆ Clearly define and market growth opportunities by preparing business cases, marketing information and other material to promote investment and growth opportunities;
- ◆ Conduct market research into identified industry opportunities in order to identify prospective investors, market trends and future requirements of these industries as well as develop specific marketing channels for distribution and promotion of marketing materials; and
- ◆ Identify prospective investors (eg: Defence Force, Freight and Logistics) through market research, marketing and business development efforts and engage directly with them regarding investment and growth opportunities in the Town of Port Hedland.

The Implementation Plan will prescribe the manner in which the prescribed strategies and initiatives identified can best be addresses in a practical sense.

### 5.3 STRATEGIES FOR STRENGTHENING LOCAL COMMUNITIES & CULTURE

#### 5.3.1 Framework for Community Development and Place-Making

The scope of the Growth Plan did not require the preparation of Community Development strategies. Nevertheless, the principles of safe, attractive and liveable neighbourhoods; fostering inclusiveness and diversity; setting the foundations for the provision of community infrastructure; and celebrating cultural assets are an over-arching consideration of the Growth Plan's vision and objectives.

Development of a more sustainable community will require all the key themes identified in Section 2.0 of the document, including that of 'Strengthening Local Communities and Culture'.

Figure 5.10 provides an indicative framework for Community Development and Place-Making Strategies.



Elements	Strategic Goals	Objective	Community Engagement Strategies and Initiatives
<p>A city of art and creativity are that preserves and encourages the diversity of language and culture</p>	<ul style="list-style-type: none"> <li>Increased participation in creative industries</li> <li>Encourage a shift from spectating to creating</li> </ul>	<ul style="list-style-type: none"> <li>Create places to allow creativity to flourish while investing in the quality of events and capacity of organizers</li> </ul>	<ul style="list-style-type: none"> <li>Progressive development of a comprehensive programme of community and cultural facilities upgrades eg. Multi-purpose recreation centre; art galleries and exhibition spaces</li> <li>Three-tiered cultural facilities development strategy addressing Regional, Local and Specialist facilities (eg. 'dirty' space in South)</li> <li>Community-led major events strategy that consolidates the number of events/removes barriers to inclusivity and targets improved quality</li> <li>Provision of common-user community group organizational development and support program</li> <li>Programs to preserve languages and preserve links to unique Western Desert cultures</li> <li>Programming of networking of 'creatives' with entrepreneurs to develop innovation projects; seed funding available to support development of concepts</li> </ul>
<p>A city of education choice and opportunity that promotes excellence</p>	<ul style="list-style-type: none"> <li>Hone knowledge leadership; leveraging strengths in the industrial sector, through developing tertiary education that can lead nationally in specialist sectors</li> <li>Provide greater educational choice for existing residents and retain more families</li> </ul>	<ul style="list-style-type: none"> <li>Provide educational facilities to allow outstanding teaching and research but also recognize and address the cultural, behavioral and public health issues affecting current educational outcomes</li> </ul>	<ul style="list-style-type: none"> <li>Conceive detailed concept for advanced technology economic development / tertiary education and develop investment case with industry partners and then market the opportunity to educational institutions</li> <li>Upgrade TAFE to provide more creative arts as well as applied vocational learning opportunities</li> <li>Confirm target timing, location and strategy for a second high school considering junior/senior split, Catholic/other religious and private school options</li> <li>Conduct cost-benefit analysis for weekday boarding facility aimed at improving educational outcomes of young Aboriginal people</li> <li>Provision of high quality public resources centre / library services</li> <li>Build on strengths in schools such as art specialisation and leverage these competitive advantages</li> <li>Enhance attractiveness of learning environments and built forms</li> </ul>

Figure 5.10: Framework for Community Development and Place Making Strategies.

CONT.

Elements	Strategic Goals	Objective	Community Engagement Strategies and Initiatives
A connected city of human engagement where people share skills and experience and where the gaps in employment outcomes are closed	<ul style="list-style-type: none"> <li>Strengthen the collective understanding of community priorities and an appreciation of the support available to social and business entrepreneurs</li> </ul>	<ul style="list-style-type: none"> <li>Cooperation to develop 'strategic capital'</li> <li>Engagement of all people in the mainstream economy</li> <li>Development of the economy to include high-value creative outputs</li> </ul>	<ul style="list-style-type: none"> <li>Map missions, authorities and current programs of agencies/actors in economic development, community development and Indigenous services sectors to identify opportunities for greater collaboration and effectiveness;</li> <li>Explore models for supporting these actors and removing barriers to progress</li> <li>Program of partnerships between resources industry, training providers and local employers to increase work ready Indigenous workforce and provide appropriate employment opportunities; expand employment and training opportunities beyond industry focus</li> <li>Program of strategic re-skilling to meet opportunities identified by the economic development strategies of 'import substitution' and small business support package (including identification of external economies of scale through 'clustering')</li> <li>Program of artisan and craft entrepreneur projects including markets and new venture supports (e.g. media organizations, small or micro-business)</li> <li>Program of community service recognition and leadership development and community engagement</li> <li>Events and programs that foster interaction and exchange</li> </ul>
An accessible city where public transport is readily available and places of interest available to all	<ul style="list-style-type: none"> <li>Equity of access to public services</li> <li>Promotion of participation in community life</li> </ul>	<ul style="list-style-type: none"> <li>Increase community participation and sense of belonging</li> </ul>	<ul style="list-style-type: none"> <li>Implement a public transport strategy including a youth 'call out' Public transport strategy such as youth 'call out' bus and separate bike paths/end of trip facilities with strong Port-South, and key precinct linkages</li> <li>Clustering of cultural land uses in a walk-able West End precinct</li> <li>Clustering of youth facilities around JD Hardie YouthZone; combine with diverse uses to enhance intergenerational interaction and non-intrusive, passive surveillance</li> <li>Co-location of government agencies in South Hedland town centre</li> <li>Provide reasons to travel between precincts, reasons to get out of the car and walk, bike, engage with public space for instance</li> </ul>
A place with its own sense of architecture and built form that reflects Port Hedland's cultural heritage and vibrant future	<ul style="list-style-type: none"> <li>Retain more families through enhanced amenity and attractive, aspirational environments</li> <li>Distinctive housing that is affordable to purchase and to occupy</li> </ul>	<ul style="list-style-type: none"> <li>Enhance civic pride and amenity through distinctiveness</li> </ul>	<ul style="list-style-type: none"> <li>Precinct identity and character provisions in town planning scheme supported by covenants on land releases and demonstration housing partnerships</li> <li>Confirm iconic sites for outstanding public buildings and investigate the feasibility for an international design competition</li> <li>Place and cultural vernacular to guide built form design</li> </ul>

Elements	Strategic Goals	Objective	Community Engagement Strategies and Initiatives
<p>A place of tourism opportunity with links to landscape, indigenous languages and culture, and history</p>	<ul style="list-style-type: none"> <li>• A distinctive, vibrant local environment</li> <li>• Tourism products and develop additional experiences that make promotion credible</li> </ul>	<ul style="list-style-type: none"> <li>• Enhance sense of place during growth to a regional city and develop the economy consistent with community values</li> </ul>	<ul style="list-style-type: none"> <li>• Build on local strengths and distinctive attributes</li> <li>• Celebrate cultural, natural, historical or community features</li> <li>• Develop a Tourism Strategy for Port Hedland, building on distinctiveness with authentic and varied experiences; building on the new State indigenous tourism strategy and work in-progress on Pilbara tourism strategy</li> <li>• Develop programming at Aboriginal Cultural Centre to support diverse and authentic tourism offering consistent with overall Hedland 'brand'</li> <li>• Program of story capturing and story-telling including place making / public art initiatives</li> <li>• Preserve and celebrate cultural (indigenous and non indigenous heritage assets); develop opportunities for cultural expression in contemporary forms</li> <li>• Develop the airport as a gateway experience for Port Hedland and marker of ambition</li> <li>• Develop a place identity and communication strategy</li> </ul>
<p>A city of healthy housing, lifestyle and sporting opportunity</p>	<ul style="list-style-type: none"> <li>• Preserve 'outdoors' culture and appreciation of Pilbara landscape Normalise</li> <li>• Infrastructure and services that underpin public health and well-being</li> </ul>	<ul style="list-style-type: none"> <li>• Promote well-being by addressing current infrastructure deficiencies</li> </ul>	<ul style="list-style-type: none"> <li>• Implement Open Space Strategy and place making strategy to improve access to active and passive recreation opportunities, eg.: coastal walk in Port Hedland</li> <li>• Partnerships between State and local government to mandate and promote renewable energy sources and integrated water cycle management</li> <li>• Timely expansion of health campus, specialists visits and primary healthcare services; progress of medium term initiatives of Hedland Future Today 2010</li> </ul>
<p>A rich and cosmopolitan city: a confident and outward-looking place that is inclusive and supportive</p>	<ul style="list-style-type: none"> <li>• Preservation of distinguishing character during growth</li> <li>• Decision-making devolved appropriate to capacity</li> <li>• Normalise community demographics by addressing major distortions</li> </ul>	<ul style="list-style-type: none"> <li>• Increase community cohesion and resilience to growth 'shocks'</li> </ul>	<ul style="list-style-type: none"> <li>• Development of ToPH Reconciliation Action Plan and implementation of place making strategy</li> <li>• Build on resources sector relationships to program networking with 'facing ' cities (eg. Jakarta, Kuala Lumpur, Singapore, Manila, Chennai, and Shanghai) and former (potentially future) residents (Pilbara alumni)</li> <li>• Consultation with Aboriginal people including transient groups to determine culturally appropriate forms of housing and appropriate locations</li> <li>• Identification of strategic landbank opportunities and program of staged land releases</li> <li>• Adaptation of affordability strategies to Hedland context</li> <li>• Resolution of Native Title Agreements as a priority</li> </ul>

### 5.3.2 Attachment to Place and Liveability

The Pilbara region has a highly transient and unstable population base. The region's index of residence instability is currently very high (66%) when compared to the average population 'churn' for WA (46%) and the Perth metropolitan area (45%). Within the region, this is more evident in some towns than others. Port Hedland experiences 65% instability slightly less than Karratha's 69%. (*Pilbara Framework Regional Profile, WAPC*).

However, there is still a real opportunity to influence the decision of the population which is yet to make a decision on how long they will stay. That means the imperative is now to retain these people and attract newcomers, building these places into sustainable communities. That's why fostering greater attachment to place is so important.

As has been highlighted, the three main factors that attach people to place are social and cultural amenity, openness and beauty. Social and cultural amenity will be addressed in the sections below. Beauty will need to be a key design requirement and principle for development across all aspects of the Growth Plan, and this is also considered as part of the open space and connective strategies.

Openness (or how welcoming a place is) is the third critical element of attachment to place, making welcoming, inclusive and diverse communities fundamental to the success of Port Hedland's growth, and a critical condition to cultivate.

Fostering openness, inclusiveness and diversity will be essential for Port Hedland to grow into a more holistic, sustainable community and home to diverse residents.

As outlined earlier in the demographic profiles, although Port Hedland has average incomes well above Perth and Regional WA averages, it also has high levels of disadvantage. The wealth and

employment divides within the community are significant. This is combined with a significant educational divide. Port Hedland has a highly educated and qualified population combined with illiteracy in other parts of the community.

Given the highly transient working population, and an Indigenous population that can fluctuate enormously with a high proportion of temporary residents or visitors, accommodating these populations and ensuring opportunities to engage with the community are a challenge.

### 5.3.3 Enabling community infrastructure

Creative and cultural opportunities to participate will be important to the vitality of Port Hedland.

The challenge for Port Hedland will be finding ways to put in place the enabling infrastructure that can aid in the development of a more vibrant, healthy community, in the context of lack of available spaces for amenities, prohibitive costs of housing and of doing business. These restrict both entrepreneurial small business and non-governmental organisations' abilities to provide enabling services. For instance, over recent years the level and diversity of social and cultural resources and infrastructure has declined.



### 5.3.4 Celebrating Cultural Assets

Another common theme cited by the community is the desire for greater celebration of their cultural assets in their built environment. One of the challenges of a fast growing town is that the demands for infrastructure and development can be so great that delivery ends up focusing on the essentials in their most basic form.

Yet the intangible needs of a community are just as vital. Reflecting the cultural assets, identity and distinctive sources of pride for the community in the built environment and cityscapes have significant benefits for developing community spirit, pride in place and a sense of belonging.

The community has identified the rich history, Indigenous culture, the landscape, and the community itself as resources to be celebrated and showcased through a place vernacular or design guidelines, programming, interpretive signage, trails or maps, events, storytelling, visual displays or other means. The community has also emphasised through consultations as well as the Growth Plan focus groups a desire to see the community life celebrated through greater programming and activities in key city nodes such as the West End and South Hedland town centre, building a sense of vibrancy.

Celebrating and showcasing cultural assets are instrumental in a number of dimensions that have been identified through the Growth Plan process as necessary to the future of Port Hedland:

- **Distinctiveness:** Distinctiveness is about the competitive advantage that can be gained from strengths that are particular to a place and the character of the community.
- **Identity Development:** Cultural assets are pivotal to shaping the identity and character of a place.

- **Inclusiveness:** Cultivating the conditions for an inclusive and open place is a challenge faced by many places. However, fostering opportunities for meeting, mixing, interaction and exchange between diverse people is one means of building understanding and respect, enabling a foundation for greater community building.
- **Attraction and tourism:** The ability to attract a residential population and create additional tourism opportunities is critical to Port Hedland's future.
- **Community building:** Opportunities for exchange and relationship building are a central part of community building.
- **Signalling:** Cultural assets are also an important vehicle for signalling intent and progress. As the Growth Plan is rolled out, the strategies for cultural and community engagement will be one of the most accessible means of conveying progress through quick wins.

These dimensions will be factored into the strategies highlighted above for strengthening local communities and culture, as well as those identified through the Implementation Plan.

#### 5.4 HOUSING DIVERSITY AND LAND SUPPLY

##### 5.4.1 Land Supply Capacity

Pilbara's Port City Growth Plan (Figure 5.11) recognises the primacy and significant expansion of the Port, while creating significant new areas of urban expansion for immediate and long term growth.

The Strategic Industrial Area (SIA) of Boodarie is recognised as playing a major long term role of offering downstream processing and resource industry associated business investment and employment.

The Port operations and significant expansion of the Port Outer Harbour are recognised, together with key infrastructure corridors to Boodarie and the various Port Authority development areas. Land is allocated for the much needed 'Common User Facility' within the Port at Lumsden Point. Logistics opportunities between Port, Road and Airport will

be provided for through expansion at Wedgefield and the airport which link these areas.

The South Hedland City Centre is recognised as the major regional centre within Pilbara's Port City, supported by the uniquely located West End commercial/cultural centre with Australia's largest tonnage Port as its backdrop. The West End is planned to accommodate commercial investment, foster culture and the arts and promote tourism. It will provide significant opportunity for Mixed Use and Short-Stay development. An 'Urban Village' Neighbourhood Centre within the East End of Port Hedland will provide a central location for local residents to meet, shop, and recreate.

Land supply, affordability and choice will be met through diversity of product, location and strategies to respond to cost and timeliness of delivery. Greater density will be provided in the East End and around the City Centre. Opportunities for traditional lower

density housing will be provided in the East End, but predominantly within the expansion areas of South Hedland. Short-term demand to accommodate short-stay accommodation workforce needs is considered in a range of locations that offer the potential for longer term legacy of infrastructure provision to the City through this form of immediate development (with a finite life).

Pilbara's Port City will be a connected city with provision for upgraded road infrastructure including duplication of the rail bridge port entry, grade separated crossing of the Port Hedland-Goldsworthy Railway and widening of Hamilton Road into the City Centre. The City will be supported by an improved pedestrian/cyclist network and a public transport network.

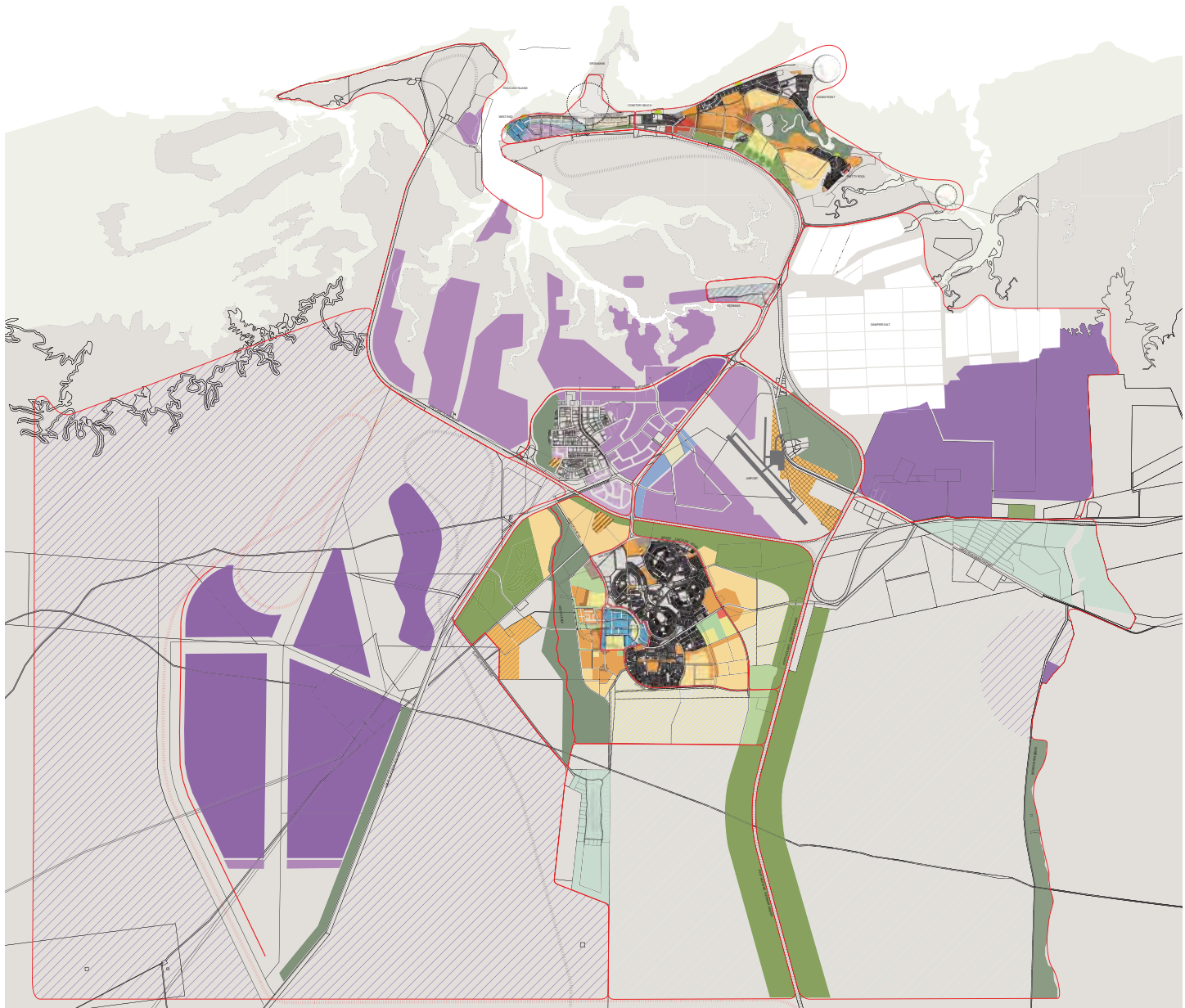
Opportunities for education choice will be available through the provision for new primary schools and high schools in urban expansion areas, and

inclusion of additional land adjoining the existing TAFE to facilitate establishment of a wider Tertiary Education Precinct that potentially offers University course material to local students.

More detailed elements of the Growth Plan areas are shown within the 16 Precinct Plans; ultimately these provide a guide for detailed site planning and development.

The preferred scenario for Growth adopted for Pilbara's Port City will require an estimated 15,635 new dwellings to cater for the anticipated population growth. In turn, the City Growth Plan, and accompanying analysis, has identified an estimated supply capacity of 23,230 new dwellings. This is located in the East End of Port Hedland, and in the surrounds of South Hedland where most growth is projected to occur.





**RESIDENTIAL**

- Residential - High Density (R80 - R120: Apartment Living)
- West End Residential (Residential R80 with design controls consistent with TPS 5 Amendment 22)
- Residential - Medium Density (R40 - R60: Apartment, townhouse, villa residential)
- Residential - Low Density (R15 - R30: Traditional Single Residential)

**COMMERCIAL**

- City Centre (Civic, Cultural, Major Retail, Commercial, Mixed Use Residential and Entertainment)
- Commercial/Cultural Centre (Retail, Commercial, Office, Short Stay Accommodation, Research & Education, Culture)
- Neighbourhood Centre (Retail, Commercial, Residential Mixed Use)
- Local Centre (Convenience retail, Mixed Use, Short Stay Accommodation)
- Highway Commercial (Bulky Goods, Motor Vehicle/Boat Sales, Show Room, Warehouse Commercial)
- Short Stay Accommodation
- Community (Community, Education & Health)
- West End Mixed Use

**INDUSTRIAL**

- Light Industry
- General Industry/Transport and Logistics
- Strategic/Heavy Industry
- Strategic/Heavy Industry Buffer

**RURAL**

- Rural Residential
- Rural Industry

**RECREATION AND CONSERVATION**

- Local/Passive Open Space
- Landscape Buffer
- Natural Landscape/Conservation

**OTHER**

- ▨ Public Purposes (Wastewater Treatment, Water, Cemetery)
- ▨ Airport Operations
- ▨ Future Expansion - Urban (Medium-Long Term)
- ▨ Future Expansion - Urban/Rural Resident (Long Term - Beyond 50,000)

Figure 5.11: Growth Plan

### 5.4.2 Housing Diversity

The Port City Growth Plan provides for both urban expansion and infill regeneration across a range of areas. The ability of the City to respond to demand and affordability while ultimately providing choice will be met particularly through improved housing diversity. An overall increase in density to the relatively lower density housing typical of Port Hedland is provided for in the Growth Plan.

This will be achieved by striking a balance so that higher amenity locations can accommodate increased density, while land and housing supply continues to provide for families and those seeking traditional larger home sites.

Ultimately housing diversity assists in meeting the different needs of residents based on income, cultural background, family type or stages of life. As the population ages, for example, the proportion of older residents will increase and the ability to 'age in place' through appropriate housing, or to accommodate in specialised care will be needed.

Similarly, improvements in technology and increased 'work from home' options will influence the way our future city lives and works. Flexible forms of small accommodation such as shop-top housing, granny flats or studio apartments can also increase the ability to accommodate people and offer affordable options. The following images reflect some of the many housing types and provide an indication of the relationship to density that could be achieved as new areas develop or infill occurs.

### 5.4.3 Architectural Vernacular

The unique sense of place, landscape and culture that is Pilbara's Port City will be particularly visible through its built form. The ability to convey elements of Port Hedland's environment, culture and heritage will progress over time, together with materials usage and construction methods.

The foundations for this must be established now through Pilbara's Port City Growth Plan and its implementation. This will provide a clear message to existing and future residents of what it means to live in Port Hedland and how the unique identity is captured though relationship with the past and vision for the future. New civic buildings and those within activity centres or places of prominence offer a strong basis for leadership in this area.

Pilbara's Port City will need to enshrine an array of values and key principles in an architectural 'Port Hedland Style Guide' for Pilbara's Port City which acts as a springboard for ideas that architects, engineers, urban designers and the general public alike can draw on.

Pilbara landscape colours, roofing and shade, verandahs and the use of local materials are elements that should be captured. Some of the more specific examples of public realm considerations are discussed in relation to the City Centre, within the Precinct Plans section of this document. Ultimately, residents and visitors must feel that the sense of northern Australian lifestyle and relationship to climate and landscape is captured.

Following are some of the many themes that should be captured in a style guide for Pilbara's Port City.

#### HOUSING DIVERSITY - HIGH DENSITY



Apartment 4-6 Storey



Apartment 2-4 Storey



Apartment 4-6 Storey



Apartment 2-4 Storey

HOUSING DIVERSITY - MEDIUM DENSITY



Shop Top Housing



Townhouses



Duplex



Villas



Shop Top Housing



Triplex



Terrace



Villas

*HOUSING DIVERSITY - MEDIUM-LOW DENSITY*

Mews



Traditional



Traditional



Site Sensitive Housing



Studio Above Garage



Traditional Park Frontage



Rural Residential

ARCHITECTURAL VERNACULAR - CHARACTER



Wide Eaves



Minimised West Facing Windows



Large Balconies



Integrated Power Generation



Shaded Walkway



Internalised Balconies



Highly Corner Building Element



Passive Surveillance of Pedestrian Access Way

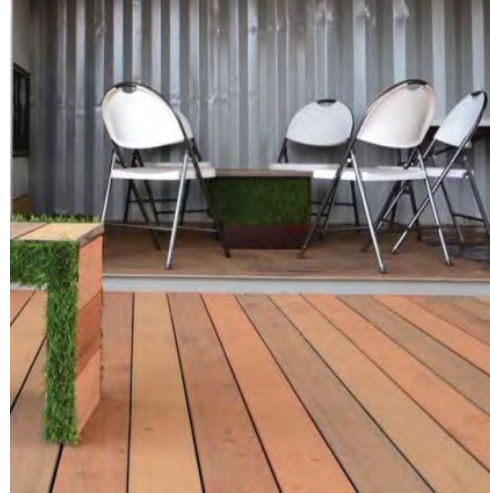
## ARCHITECTURAL VERNACULAR - MATERIALS



Living Outside



Drystone Walling



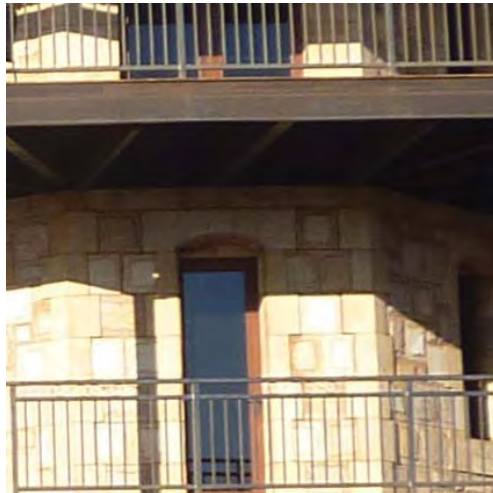
Mixed Materials and Textures



Vegetated Walkways



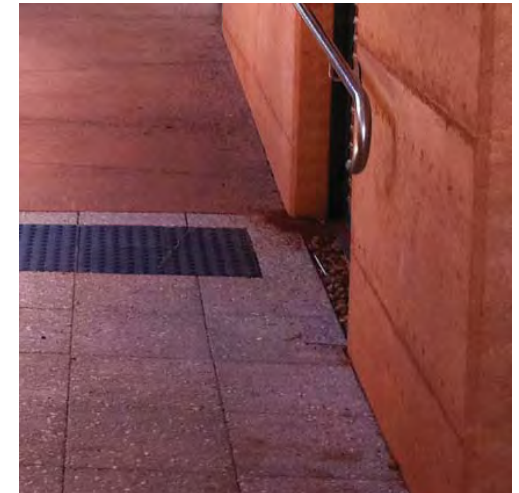
Integrated Landscape



Heritage Brickwork



Timber Structure



Pilbara Building Materials



## 5.5 ENVIRONMENTAL PROTECTION AND CHANGE ADAPTATION

### 5.5.1 Conserving Biodiversity and Ecosystems

The coastal lands of Port Hedland consist of natural coastline fringed by white sandy beaches, extents of intertidal mudflats and mangroves and rocky outcrops. These coastal lands support a diverse habitat for a wide variety of terrestrial fauna, including migratory birds. Unique ecological communities such as mangrove and tidal ecosystems are interwoven within the coastal landscape. Additionally, mangroves fringe the estuarine environments of Pretty Pool, Sting Ray and Four Mile Creeks and provide natural diversity and a level of aesthetic amenity characteristic of the Pilbara region to the Port Hedland townscape.

The marine waters and outer reefs adjacent to Port Hedland lie within the North West Shelf Province and support a complex range of habitats for a diverse assemblage of marine fauna species including various species of turtles and whales, dugong and indo-pacific humpback dolphins.

The interior lands surrounding Port Hedland primarily consists of areas of large expanses of natural vegetation dominated by savannah grasslands with scattered shrub steppe communities. These lands, which have historically been subject to extensive pastoral leases, provide a range of habitats for terrestrial fauna species.

The Growth Plan aims to conserve and protect the areas of high biodiversity value and regionally significant ecosystems through:

- Conservation of mangrove ecosystems of very high value which occur outside designated industrial and associated port areas.
- Conservation of benthic primary producer habitat through the application of impact avoidance and minimisation principles.
- Protecting important marine turtle nesting sites through avoiding, managing and mitigating

light impacts.

### 5.5.2 Investigating Flora and Fauna

The Growth Plan recommends specific environmental investigations which are required to be undertaken in order to identify and assess the significance of flora and fauna species and vegetation communities prior to any proposed development works being undertaken. These investigations will ensure that appropriate measures are undertaken to make sure that the abundance, diversity and geographic distribution and productivity of significant flora and fauna species and vegetation communities are not diminished by any proposed development works.

The Growth Plan aims to protect and conserve significant species and communities through:

- Undertaking appropriate flora and vegetation surveys and fauna surveys for areas of land where there is a requirement to remove native



vegetation to facilitate development in order to assess the environmental values of the land.

### 5.5.3 Sustainable Natural Resource Management

The Growth Plan aims to foster sustainable natural resource management through undertaking actions designed to protect the landscape, landform and the identified environmental assets of Port Hedland when development opportunities are advocated. These management actions will be addressed as part of land use planning and at the various stages in the land development process. These actions will include:

- Undertaking of appropriate Coastal Process and Foreshore Assessments, should any development proposals be expected to impact upon either the existing coastal processes or foreshore reserves.



- Undertaking of preliminary Acid Sulfate Soils Investigations, where appropriate, to assess the presence or absence of Acid Sulfate Soils and recommend remedial actions to be undertaken, prior to the commencement of development works.
- Undertaking of detailed site investigations to ensure that the quality of surface and ground water resources is not impacted by development proposals.
- Provision of appropriate Water Management Strategies to accompany scheme amendments and structure planning activities which consider any impacts to the total water cycle posed by development proposals and provide outcomes to achieve appropriate water quality objectives. The Water Management Strategies should also address water quantity parameters, incorporate mechanisms to address storm surge and flooding and advocate erosion control mechanisms.

The Growth Plan identifies a number of sites contained within Port Hedland which have been identified as having various levels of site contamination. To ensure that these sites do not pose any further risk to the natural environment or human health specific management actions proposed to address the issue of contamination have been advocated on a site specific basis.

### 5.5.4 Climate Change Mitigation and Adaptation

Major flooding events in Port Hedland are typically associated with storm and cyclonic activity and coastal storm surge. Heavy rainfall in interior locations can lead to localised flooding along the major river systems of the De Grey, Turner and Yule, which has the potential to impact low-lying areas.

The effects of a changing climate are expected to increase the frequency and intensity of cyclonic

activity and rainfall events. This situation is likely to result in an increased risk of localised flooding in low-lying areas and along creek lines.

The Growth Plan aims to be responsive to the expected effects of climate change through recognition of the following:

- Identifying the need for a risk assessment of climate change impacts and adoption of mitigation strategies. Potentially the risk assessment could be undertaken using the newly developed Australian Green Infrastructure Council guidelines for climate change adaptation.
- Undertaking additional storm surge and flooding investigations to define floodways and specify 100 year Average Recurrence Interval (ARI) flood levels which incorporate climate change scenarios.
- Undertaking detailed site investigations to determine appropriate foreshore reserves between areas of proposed development and floodways.
- Ensuring that any areas which are identified as

being subject to the effects of storm surge and flooding will require finished floor levels to be established at least 0.5 metres above the 100 year ARI level.

### 5.5.5 Additional Management Actions

There are a number of additional management actions acknowledged in the Pilbara's Port City Growth Plan to mitigate the effects of dust, noise and vibration and mosquitoes and midges.

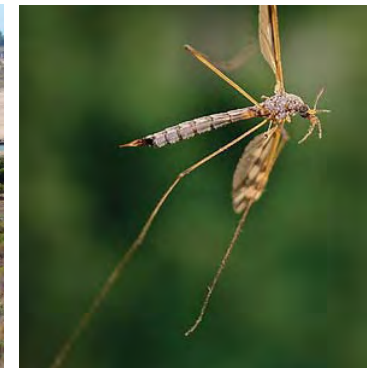
Dust and noise levels in the Port Hedland have historically been above currently accepted recommended levels. The high concentrations of dust that exists with in the West End of Port Hedland presents potential health risks to the local residents. Noise and vibration from the existing and planned road and rail transport network and the airport could affect the amenity of future residents.

Mosquitoes and midges are endemic to the Pilbara, and are particularly prevalent in the wet season. The amenity of future residents could potentially be impacted by these pest species if residential land uses are proposed in locations within close proximity to known breeding areas.

The Growth Plan advocates that the following additional management actions are undertaken to ensure the health and amenity of the local and future residential population is not adversely impacted:

- Compliance with the recommendations of the Dust Management Task Force with regard to the implementation of Environmental Management Controls and Land Use Planning.
- Undertaking appropriate investigations at the Structure Planning phase to determine appropriate buffer controls and/or separation distances for proposed development in close proximity to existing or planned rail and/or heavy usage road networks or the Port Hedland International Airport.
- Requirement for appropriate management programs to be implemented for any proposed development likely to be adversely impacted by or in close proximity to known mosquitoes and midge breeding areas.

All the management actions, surveys, assessments, investigations or strategies that have been identified as being required to be undertaken to achieve the outcomes of the Growth Plan are to be consistent with the requirements of the state regulatory authorities and the Environmental Protection Authority.



## 5.6 BUILDING AND MAINTAINING INFRASTRUCTURE AND TRANSPORT CAPACITY

### 5.6.1 Water Supply

As indicated previously, the supply of bulk potable water to the Town of Port Hedland is provided through the Water Corporation which operates the Port and South Hedland Water Supply Scheme. The scheme is reliant on groundwater extraction from the Yule and De Grey rivers which is piped to a central facility near Wallwork Road and North Circular Drive in South Hedland, and currently produces 13.5 gigalitres of potable water a year. The Water Corporation have advised that the 13.5 gigalitres is currently fully allocated.

Key strategies to overcome the water supply constraints are threefold:

- ◆ Reduce the reliance on potable water where it can be substituted with a non-potable supply;
- ◆ Establish the West Canning Basin;
- ◆ Investigate bore supply for potable water in the short term, particularly for short stay (strata) accommodation.

In relation to item 2, the Water Corporation is currently investigating a new water source approximately 200km west of Port Hedland (known as the West Canning Basin). While the technical investigations in relation to the quantity and quality of this supply are still on-going by the Water Corporation, current investigations indicate that it may be possible for the West Canning Basin to provide sufficient quantities of potable water to service a future population of up to 50,000.

In the medium to long term, it would be desirable if water for industry growth was provided by a non-potable scheme, which may include some wastewater recycling, dewatering, and stormwater harvesting.

Critically, however, the West Canning Basin is very much a medium term proposition, and in the

short term measures must be taken to reduce the reliance on potable water supplies where it can reasonably be substituted with a non-potable supply. In addition, investigation of a bore supply for potable water could assist in the short term. Supplying residences on bore would most likely only be effective under a Strata Scheme, given the prohibitive costs to individual households of establishing, treating and maintaining bore water. By utilising a Strata Scheme, bore establishment and treatment costs would effectively be subdivided among the many households and the Strata Body would then also assume on-going responsibilities for maintenance.

Equally, a Strata Scheme could manage water re-use systems, such as grey and black water treatment, to reduce the potable water supply and potentially even reduce connection to the deep sewer in the short term.

The Growth Plan also recognises the potential opportunity for a non-potable 'third-pipe' scheme



for industry and landscape irrigation use. While this would require further detailed investigation at the development stage, the Town of Port Hedland has expressed an interest in developing a local Water Service Provider capability, which it would own and manage.

#### Potable Water for Residential and Economic Use

The short term goal for potable water is to free up water resources from current residential and industry to allow housing expansion. New housing acts as both catalyst for demographic diversification and fulfils strategic industry's need for transit workers accommodation. At a policy level the water industry is starting to explore the concept of providing both a potable and non-potable water supply. The non-potable water supply will be fit-for-purpose, which should provide a cheaper product for industry.

The longer term goal is to have a secure supply of water for economic use. To allow economic diversification to occur, it may be necessary to provide an allocation of water for new business and industry to avoid strategic industry 'locking up' all the water (purchasing power or not allowing access to supply networks). This is not too dissimilar to the state government's 15% allocation of natural gas supply for exclusive use by the domestic gas market.

Energy and water efficiency opportunities exist with incumbent industries in their operations and existing housing stock. Financial investment in energy and water audits and retrofits of industry and housing stock should be considered as a short term solution to free up potable water for housing. This sort of policy was enacted successfully by the NSW Government to provide water while their desalination plant was under construction, which avoided the city of Sydney running out of water.

### 5.6.2 Wastewater

The Water Corporation received funding in January 2011 (\$106m) to relocate the Port Hedland Wastewater Treatment Plant to a combined upgraded facility in South Hedland by 2014.

The expanded South Hedland plant is expected to provide sufficient capacity to accommodate a future population in Port Hedland of up to 50,000.

There is currently capacity in the wastewater system within Precinct 1, and the Water Corporation is presently upgrading the existing pipe network to accommodate future 'infill' development within the Precinct. Within Precinct 2, where significant expansion of residential development is proposed, the Water Corporation has advised that there is capacity in the wastewater system within this precinct to accommodate the additional development.

Within the key growth precincts of South Hedland existing wastewater infrastructure is limited. Moreover, given the low lying nature of these precincts, any wastewater infrastructure extension will likely need to accommodate pump stations to get the wastewater to the treatment plant to the west.



For future density (Strata) and TWA developments, the short term constraint to the provision of a reticulated wastewater supply could be addressed through on-site treatment methods, such as Aerobic Treatment Units (ATU), to treat wastewater until a reticulated supply can be connected to the upgraded wastewater treatment plant in South Hedland. Treated water from ATUs could reasonably then be used for non-potable purposes such as landscape reticulation.

### 5.6.3 Stormwater and Earthworks

The Town of Port Hedland is subject to cyclonic activity typically occurring from December through to March. Such activity makes the Town of Port Hedland susceptible to storm surge and flooding. Substantial fill will be required in key growth areas,

notably Precinct 2, to ensure future developments are above storm surge and flooding levels or alternatively development sites should be identified where the existing levels are above flood levels.

Due to the intensity of storms, pit and pipe drainage systems are not typically used within the Town of Port Hedland. This is due to the large pipe sizes required for storm events and the high maintenance costs associated with keeping a pit and pipe system clean and operational.

Co-ordination of a regional / district water management planning (in accordance with Department of Water guidance) would assist in ensuring planned drainage outcomes are applied across the precincts rather than ad-hoc treatments that could result in drainage problems downstream.

Reliance on fill can be reduced by altering existing building construction such that living areas sit above the identified flood levels with an undercroft area for parking vehicles. Where this is not suitable, nearby fill sources such as the outer harbour dredging operation should be investigated.

### 5.6.4 Power

Power supply within the established areas of the Town of Port Hedland are supplied via a high voltage supply scheme network of 22kV which is made up of a combination of overhead lines and underground power cables fed from by one of the three zone substations located within the Town.

The sub-station in Port Hedland has minimal scope for upgrade, while the substations in Wedgefield and South Hedland still have the ability to be

upgraded. To support further population growth, it is estimated a minimum of an additional three zone substations will be required.

Horizon Power has indicated that they have identified strategic locations for zone substation sites and may also undertake a land swap should these sites fall within a proposed development. We are currently waiting on the locations of these sites to within a 25km radius.

It should be noted that Horizon Power has undertaken their own planning forecasts within the region and have determined the ten year growth forecasts to generate between 30 - 45 MVA. The population growth forecasts in the Growth Plan suggests that Horizon Power will need to make provision for a greater than forecasted power supply.

Potential strategies for meeting power supplies in the future include a combination of:

- ◆ Investigation of tidal power generation to supplement Horizon Power supply;
- ◆ Installing new high voltage feeders to ease existing heavily loaded feeders; and

In Precincts 1 and 2, a tidal power generation plant supplying power to these precincts could alleviate demand on the existing Horizon Power system in the medium to long term. A similar tidal power generation system based in Derby has been estimated to produce in the order of 48 MW which equates approximately to a power supply for 2000 residential lots.

For the key precincts in South Hedland power supply is at or nearing capacity. Existing power infrastructure is at capacity and therefore a new zone sub-station/s will be required in the vicinity. Ideally, this sub-station/s should be located to the south of South Hedland, allowing for the substantial power growth expected in the area, and to support



the surrounding areas with their growth.

The programming of any power infrastructure upgrades and new zone substations will be dependent on the load take up areas.

### 5.6.5 Gas Supply

As previously indicated, despite being located in a region that provides a significant proportion of Western Australia's domestic gas supply, Pilbara towns, including Port Hedland, have no reticulated gas supply network. The WA Gas Networks have indicated that there are no current plans to provide reticulated gas to the Town of Port Hedland.

Provision of gas reticulation is typically only viable when provided to a suitable industry, otherwise

using gas bottles remains the most practical and feasible option.

### 5.6.6 Telecommunications

Initial advice from NBN Co. indicates that in the short term supply of existing areas will be via satellite. In the medium to longer term, the necessary infrastructure will be installed as part of the civil works for subdivisions.

### 5.6.7 Pedestrian and Cycle Networks

The *Port Hedland Cycle Plan (2008)* outlined ways to improve the quality of paths and road networks for walking and cycling, and "to make cycling and walking within the Town safer, more convenient and hence an attractive alternative means of transport

and form of recreation".

The Cycle Plan identified some notable gaps in the existing network and facilities including:

- Link connecting the existing coastal path with the Port Hedland Town Centre (West End);
- Extension of the coastal path along Dempster Street and Goode Street to Cooke Point;
- Links between Port Hedland, Pretty Pool and South Hedland;
- Installation of bike lanes;
- Upgrade of existing footpath surfaces; and
- Installation of bicycle parking rails at appropriate locations (U-rails recommended).

The Growth Plan recommends further enhancements to the network. In Port Hedland, this primarily includes an extension of the path network in Pretty Pool.

Although South Hedland currently has a more comprehensive and integrated network of pedestrian and cycle paths and facilities, additional improvements would be desirable, including an extension of existing links to the schools. There are no existing or proposed facilities within Wedgefield. These should be provided, albeit off-road given the amount of heavy vehicle movements within the estate. The verges are considered wide enough to accommodate this.

In addition, there are no pedestrian or cycle facilities in Wedgefield or within the Airport Precinct. Off-road facilities should be provided in these precincts.

To encourage the community's use of the proposed network other initiative are recommended to complement the physical infrastructure, namely:

- Preparation and implementation of Green Travel Plans (TravelSmart Plans) for new and existing developments;
- Encouragement of walking and cycling to school through providing education programmes and / or walk / cycle to school buses.;
- Creating and advertising cycle route plans (including classifying streets into poor, medium and good riding environments).
- Providing cycle hire facilities at key places such as the visitors centre and the Town Centres;
- Providing cycle servicing workshops and / or safe riding courses; and
- Encouraging workplaces to support cycle and walk to work initiatives.



Figure 5.12: Port Hedland Proposed Path Network.

### 5.6.8 Road Networks

The strategic roads servicing the Town are generally good and are highly utilised by heavy vehicles. However, the proposed increase in the Town's population over the next 20 years, coupled with the construction of the outer harbour will have an adverse impact on the Town's road network. In anticipation of the growing population and increased mining activity, the Town of Port Hedland and MRWA have a number of planned and committed upgrades to the existing road network, including:

- ◆ Wallwork Road bridge project comprising the design and construction of a four lane bridge over rail tracks;
- ◆ Developing a designated truck storage area and transport hub at Wedgefield;
- ◆ Upgrading all road bridges into Hedland to allow for increasing truck use in terms of size, weight and frequency; and
- ◆ New road connection into South Hedland from Karratha to bring tourism traffic direct into town centre.



Figure 5.13: South Hedland Proposed Path Network.

As part of the Growth Plan, a high level traffic analysis was undertaken based on the Precinct Plans, using a spreadsheet model, the existing traffic flow data and the proposed future land uses. It should be recognised that traffic forecasting at a strategic level does have limitations, and that forecast traffic volumes should be taken as only indicative of the likely traffic that the road will carry.

Having regard to the proposed Precinct development scenarios, population growth projections and consideration of the traffic analysis in relation to the existing road network, the Growth Plan highlights the following:

- ◆ If all local traffic is re-directed to Morgan / Anderson Streets, then Anderson Street will require two lanes in each direction (through

Precinct 1) by 2021. If local traffic is not redirected then Wilson Street may require two lanes in each direction by 2016.

- ◆ Wilson Street may require upgrading to two lanes in each direction throughout Precinct 2 by 2021.
- ◆ The extension of Anderson Street in Precinct 2 is forecast to reach its one lane (in each direction) capacity by 2021. However, rather than widen the road, traffic will naturally re-direct itself to use the Athol / McGregor Street corridor.
- ◆ The Clarke Street extension (in Precinct 2) is predicted to reach its one lane capacity by

2021. However, traffic will be able to use Cooke Point Drive as an alternative, reducing the need for road widening.

- ◆ In Precinct 6, Pinga Road may reach its one lane capacity by 2016. However, the construction of a new parallel road north east of Pinga Road should enable the redirection of some traffic, reducing the need to widen the road.
- ◆ In Precinct 7, the two airport access roads may reach their one lane capacity by 2021. To reduce the impact of the proposed 7,000+ bed TWA facility on the surrounding road network and thus the requirement of unnecessary road upgrades to two lanes in each direction, parking

at the accommodation should be limited as far as practicable. Alternatively, workers should be conveyed by bus to work sites and the airport; retail and leisure facilities should be integrated on site.

In South Hedland, the traffic analysis has highlighted the following:

- Hamilton Road and Forest Circle may require upgrading to two lanes per direction by 2026.
- Throssell Road may require upgrading to two lanes per direction by 2016.
- Wallwork Road may require two lanes in each direction.
- Murdoch Drive may require two lanes in each direction by 2026.

DRT services have witnessed failure when their demand is too high. Fixed scheduled buses should be run at high demand times such as peak hours, with DRT used on the same route during non-peak hours. As the population grows and more routes become more popular, DRT services should be replaced with fixed schedule buses. Running the DRT services on future bus routes will allow for easy transition between the two.

There are currently no public or passenger rail services or facilities. Given the isolation of Port Hedland and notwithstanding the forecast increase in population, a local passenger rail service is not considered to be a viable proposition in the foreseeable future. A feasibility study into a passenger rail service should be undertaken in the future to determine the viability of such a service for Port Hedland.

### 5.6.9 Public Transport Networks

Within the Town there are three public bus routes operated by Hedland Bus Lines. While these are considered to provide good local coverage of both Port and South Hedland, as well as a connection between the two, services are infrequent.

The Growth Plan advocates an expansion of the existing service to accommodate future development as well as more frequent services not frequent enough to encourage its use over the private vehicle. Importantly, details and information about the existing services are scant and using the Town's and visitor centre's websites to advertise and provide information on bus routes and timetables should be pursued.

The City Growth Plan presents the opportunity to introduce an alternative transport system. DRT is a combination of traditional bus services and taxi services. One example of a DRT service is the existing Port Hedland Airport Shuttle Bus transferring passengers from all incoming flights to their destinations.

### 5.6.10 Freight and Logistics

Port Hedland's close proximity to substantial mining activity in the Pilbara and its coastal location make it a regional transport hub. However, isolation and the high reliance on the road network and diesel train system to deliver goods to the area may become costly in the future with rising fuel prices. The region will need more resilient transport links for its long term prosperity.

The projected increase in the Town's population as well as the increase in port activity will increase the efficiency and safety issues. Opportunities to produce goods locally and opportunities to transport more material to the port by rail should be investigated to reduce road movements.

To ensure efficiencies in the freight and logistics network are maintained in the long term, the feasibility of an Intermodal Facility on the outskirts of Port Hedland should be investigated. Such a facility would allow goods and services from trucks to be transferred to rail.

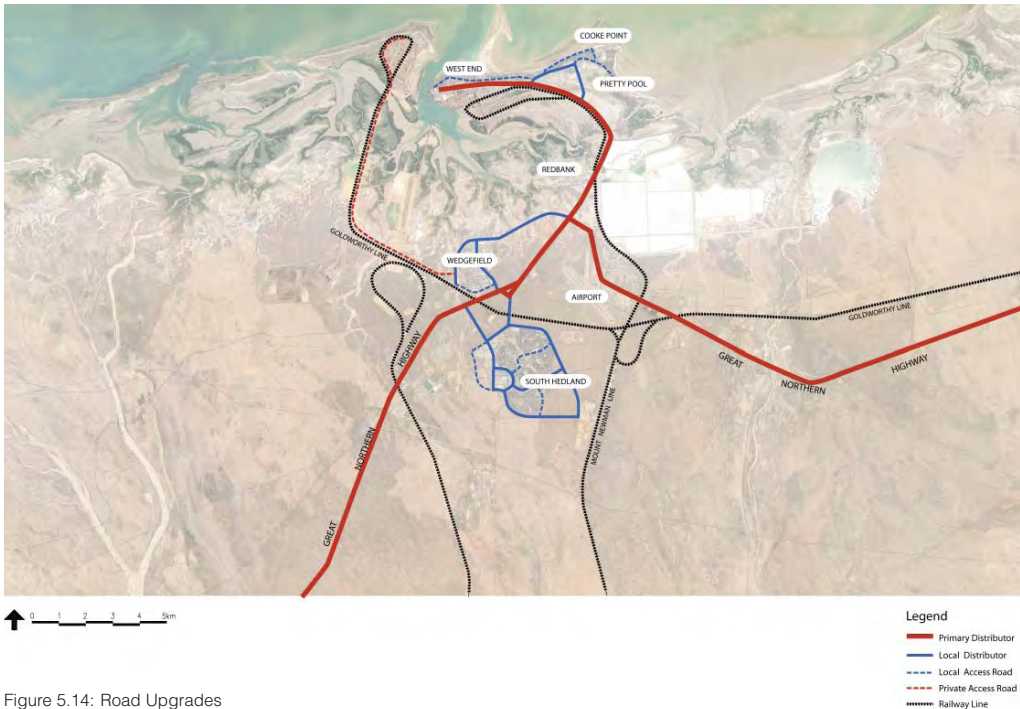


Figure 5.14: Road Upgrades

### 5.6.11 Safeguarding and Enhancing Strategic Assets

The Town of Port Hedland contains a number of strategically significant assets, notably the Port, the Airport and the resource related networks.

In the case of the Port, the Growth Plan implicitly recognises the need to safeguard the Port as a key strategic asset and acknowledges the longer term expansion plans of the Port, as detailed in the Port Hedland Ultimate Development Plan.

Similarly, the Growth Plan acknowledges through the precinct planning process the need to safeguard the Airport as a long term strategic asset, and to ensure that future development adjacent to the airport actively support and complement the current land uses and activities and the future proposals prescribed in the recently adopted Airport Masterplan.

In the case of the rail network, the Growth Plan recognises the need to safeguard current and future rail infrastructure. Importantly, it recognizes the potential adverse impacts of noise and vibration resulting from more intensive operations in the future. The Growth Plan makes provision for wide buffers in those Precincts adjoining existing rail corridors where future residential development is proposed e.g. Precincts 2 and 13.



Figure 5.15: South Hedland Proposed Bus Network.

### 5.7 GROWTH PRECINCTS FOR PILBARA'S PORT CITY

Pilbara's Port City Growth Plan will be implemented through more detailed work that has been undertaken below the 'Growth Framework' level discussed earlier in this document. Sixteen precincts have been identified across Pilbara's Port City encompassing all established and expansion areas, together with the outer lying areas of the municipality of Port Hedland.

Each precinct has its own place within Pilbara's Port City, its urban or industrial character and therefore the influences that will shape its development. Use of the precincts is intended to provide a guide for future development and has been used as a basis for forecasting the manner in which our City will grow at a local level.

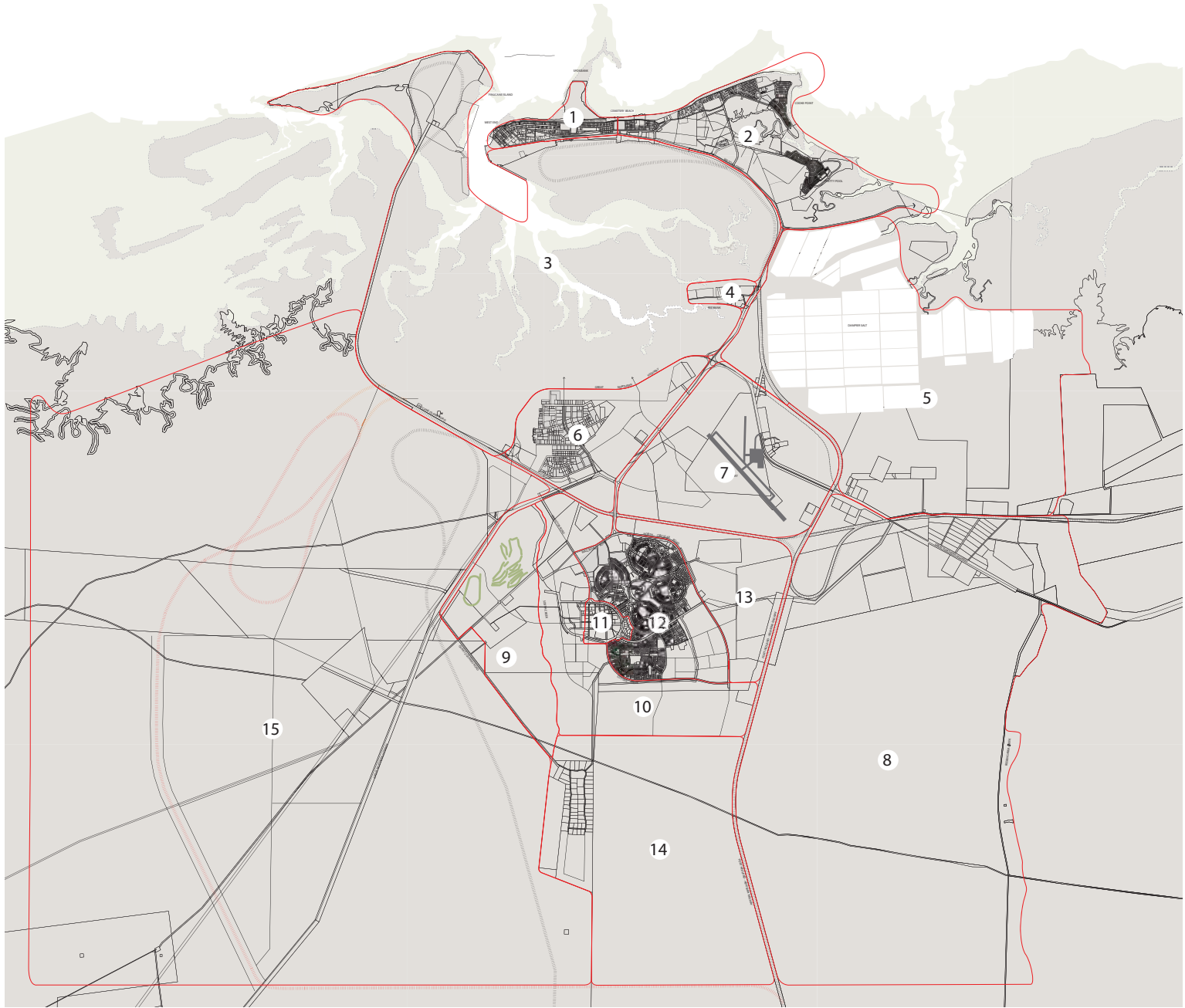
The precincts are a useful tool to communicate growth, plan for infrastructure and facilities and respond to supply versus demand. Ultimately, work will be required to see development in these areas take place, including local level structure planning and detailed site planning. Variations to the precinct plans in the way our city grows will occur as new opportunities and challenges are faced, but importantly, the Growth Plan provides this framework for expansion and planning.

Figure 5.16 illustrates the 15 precincts across the municipality of Port Hedland, with Precinct 16 being the outer lying areas.

The aim of this section is to provide the basis for future detailed structure planning at the next level below Pilbara's Port City Growth Plan. The Precinct Plans are accompanied by a suite of land use, built form and development related information as follows:

- Key Figures
- Indicative Built Form Typology

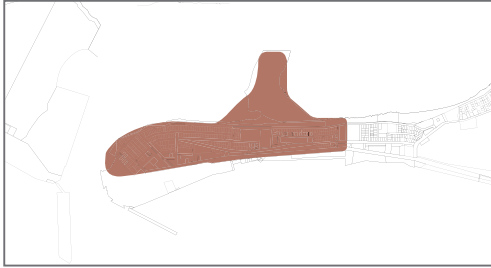




- Summary of Development Outcomes
- Land Use Structure (Precinct Plan)
- Implementation Plan lead in material

Figure 5.16: Precinct Location Plan

## 5.7.1 Precinct 1 – West End



## Precinct Statement

***“The West End is the Port City’s soul – perhaps like Fremantle to Perth it is a unique and interesting place. It supports the growing port activity, yet remains people friendly and accessible. It is busy with day time workers, many of whom leave their offices to enjoy lunch in outdoor cafes and bars. As evening arrives the West End transforms into a place popular with tourists observing Australia’s largest tonnage port and our coastline, while travelling professionals and the wider city population enjoy the many cultural, dining and entertainment activities.”***

## Key Figures (ultimate)

Area:	260 (ha) (indicative based on precinct boundary)
New Dwellings:	Refer Table Below
New Short Stay (rooms):	982 (1094 total)
New Transient Workforce Accom:	0 (0 total)
New Retail Floorspace (sqm):	9,768 (19,213 total)
New Commercial Office F'space (sqm):	17,999 (23,814 total)
New Light/General Industry (ha):	0 (25 total)
New Strategic Industry (ha):	0 (0 total)

		Dwelling Capacity	Total Precinct 1 maximum dwelling capacity	Notes
Present Day	West of Acton Street	585 (approx. 380 at present)	839 (approx. 450 at present)	At present, permanent residential dwellings are permitted at densities of up to 'R30' east of Acton Street and 'R50' west of Acton Street. There is currently an estimated 450 existing dwellings in the precinct (derived from the Town of Port Hedland Housing Capacity Study, GRA 2010)
	East of Acton Street	254 (approx. 70 at present)		
Amendment 22 Scenario	West of Acton Street	861	1510	Town Planning Scheme No.5 Amendment 22 is currently being progressed by the ToPH and WAPC, and proposes a new 'West End Residential' zone allowing limited residential development (non-family style housing) at densities of between R30 and R80. This scenario is acknowledged as a 'Short Term Land Use' in the Precinct Plan on Page 100. (Dwelling capacity figures under this scenario are consistent with those presented in the Environmental Review document for Amendment 22).
	East of Acton Street	649		
Ultimate/Long Term Growth Plan Scenario	West of Acton Street	0	649*	The Growth Plan advocates an ultimate/long term land use scenario retaining a 'West End Residential' land use (consistent with Amendment 22) east of Acton Street, with no permanent residential (short stay accommodation only) west of Acton Street. This results in a maximum dwelling capacity of 649 for Precinct 1, wholly contained in that area east of Acton Street.
	East of Acton Street	649*		

\* Note: For land use and infrastructure modeling purposes, the Growth Plan assumes approximately 450 dwellings in Precinct 1 under the ultimate land use scenario (effectively no net increase in total dwelling numbers compared to the present day scenario). This represents a midpoint between R30 (254 dwellings) and R80 (649 dwellings) capacity estimates for the area east of Acton Street, acknowledging servicing constraints, tenure/land ownership fragmentation, redevelopment take-up rates etc.

## Summary of Influences

### **Landscape, Heritage & Environment**

- Historic land uses linked to early development
- Coastal foreshore environs and harbour
- Primacy of the Port and its operations
- Indigenous: Two Mile Ridge, a nationally significant site occurs within the area
- Non-indigenous: Historic items occur throughout Precinct

### **Existing Land Use**

- Location of Port Hedland Town Centre
- Commercial/office uses and retail 'main street'
- Residential development, hotels and other accommodation
- Boat launching facility, Park, Tourist Centre
- Operating Port/Industrial uses

## Current or Planned Projects

- Port Hedland Marina project planned on spoil bank, with associated Hotel and short-stay accommodation
- Commercial developments along Edgar and Wedge Streets
- Mixed Use developments
- Landscape amenity improvement works

## Precinct Plan Summary

### **Activities & Land Use**

- Port Hedland cultural/commercial core
- Short- stay accommodation and West End (Amendment 22) limited residential development
- Port Hedland Marina, Hotel and other short-stay accommodation
- Consolidated industrial and mixed business areas

### **Community Development**

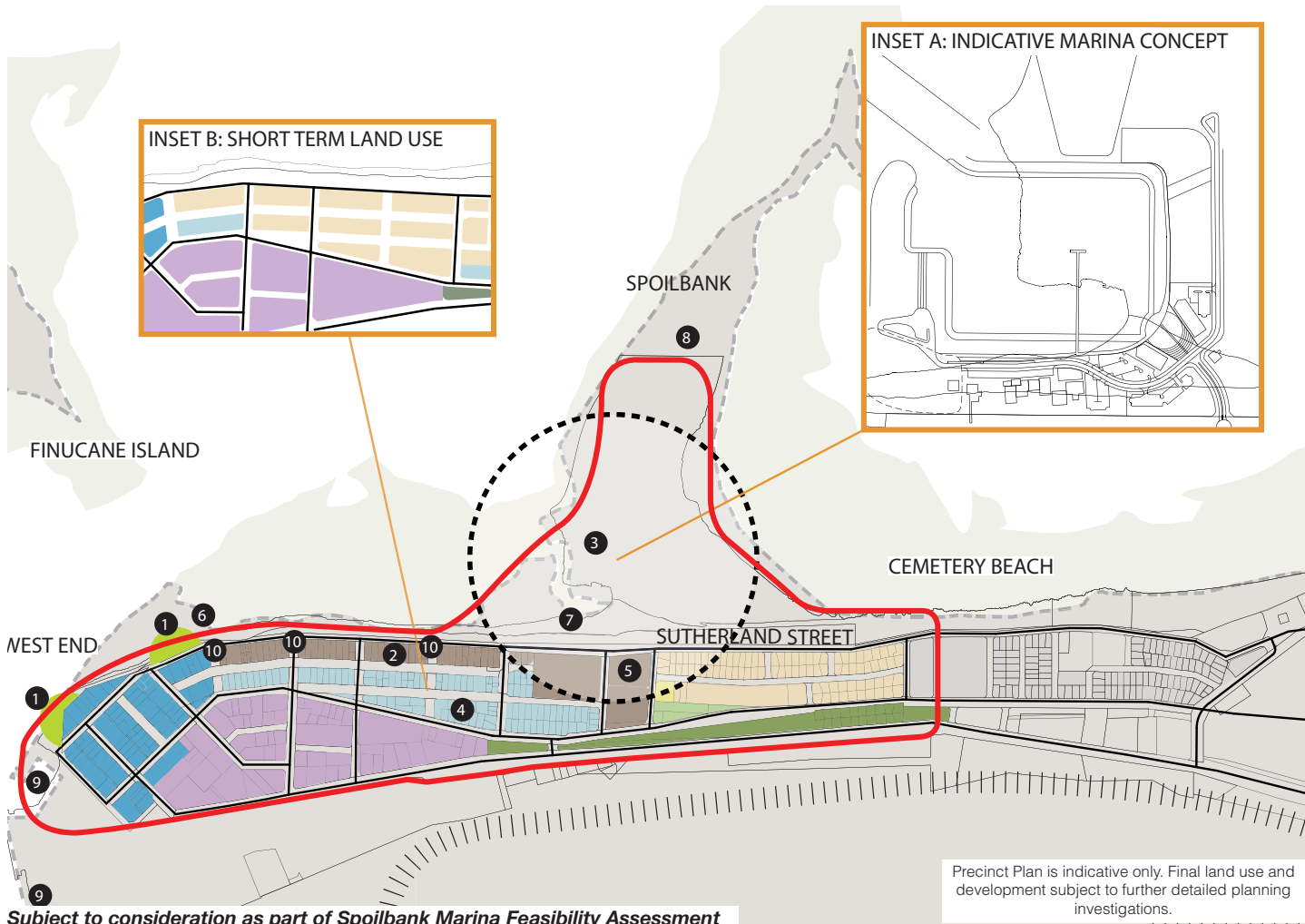
- Coastal parklands nodes/lookouts, landmark waterfront development
- Activation of the West End through continued cultural events, fostering of arts, education, tourism and entertainment uses

## Implementation Indicators

The following is a guide to some of the considerations Pilbara's Port City Growth Plan will examine in detail to facilitate implementation and delivery:

- Programs for continued fostering arts & culture events, and permanent facilities
- Traffic segregation into Port between heavy and light vehicles
- Ongoing dust & noise monitoring, and management of land use separation
- Precinct encapsulated in TPS5 as a 'Development Plan' area
- Preparation of a detailed development plan for Precinct 1 including cultural, civic, residential and short stay accommodation land uses
- Development and land use staging (including residential restrictions) relative to development timeframes for neighbouring precincts (particularly Precinct 2 - East End Urban Village)





### Precinct Highlights

1. Iconic building overlooking waterfront/port.
2. Reinstatement of Sutherland Street (long term).
3. Inset a - marina on spoilbank (coastal access, boat ramp, moorings, and/or major entertainment space).
4. Business incubation opportunity.
5. Hotel site.
6. Richardson Street boat ramp to be closed as alternative options are developed.
7. Yacht Club/RSL facility.
8. Spoilbank - northern portion to be retained for informal recreation purposes.
9. Tugboat/port operations precinct.
10. Coastal access/lookout.

Precinct Plan is indicative only. Final land use and development subject to further detailed planning investigations.

**Subject to consideration as part of Spoilbank Marina Feasibility Assessment**

RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER
Residential - High Density (R80 - R120: Apartment Living)	City Centre (Civic, Cultural, Major Retail, Commercial, Mixed Use Residential and Entertainment)	Light Industry	Public Purposes (Wastewater Treatment, Water, Cemetery, Energy)
West End Residential (Residential R80 with design controls consistent with TPS 5 Amendment 22)	Commercial/Cultural Centre (Retail, Commercial, Office, Short Stay Accommodation, Research & Education, Cultural and Entertainment)	General Industry/Transport and Logistics	Airport Operations
Residential - Medium Density (R40 - R60: Apartment, townhouse, villa residential)	Neighbourhood Centre (Retail, Commercial, Residential Mixed Use)	Strategic/Heavy Industry	Future Expansion - Urban (Medium-Long Term)
Residential - Low Density (R15 - R30: Traditional Single Residential)	Local Centre (Convenience retail, Mixed Use, Short Stay Accommodation)	Strategic/Heavy Industry Buffer	Future Expansion - Urban/Rural Residential (Long Term - Beyond 50,000)
	Highway Commercial (Bulky Goods, Motor Vehicle/Boat Sales, Show Room, Warehouse Commercial)	RURAL	
	Short Stay Accommodation	Rural Residential	
	Community (Community, Education & Health)	Rural Industry	
	West End Mixed Use	RECREATION AND CONSERVATION	
		Local/Passive Open Space	
		Landscape Buffer	
		Natural Landscape/Conservation	



### 5.7.2 Precinct 2 – East End Urban Village

#### Precinct Statement

***“The East End Urban Village is Port Hedland’s primary residential area. The area, encompassing established Cook Point and Pretty Pool offers significant housing density and diversity together with sport and recreation opportunities, and school and community facilities. At its heart is a retail and mixed use village that offers a range of local convenience as well as dining and entertainment choices. Strong links to the coast and mangrove environs have been established which offer residents and visitors alike a closer connection with the landscape.”***

#### Key Figures (ultimate)

Area:	400 (ha) (indicative based on precinct boundary)
New Dwellings:	up to 5,643 (6,828 total)
New Short Stay (rooms):	491 (802 total)
New Transient Workforce Accom:	364 (814 total)
New Retail Floorspace (sqm):	22,344 (28,292 total)
New Commercial Office F'space (sqm):	4,500 (4,811 total)
New Light/General Industry (ha):	0 (0 total)
New Strategic Industry (ha):	0 (0 total)
New Schools:	1 PS (4ha), 1 HS (12ha)
New Sport Facilities:	1 District Recreation (23ha)



#### Summary of Influences

##### Landscape, Heritage & Environment

- Mangrove environs
- Turtle Nesting at Cemetery beach and Pretty Pool beach
- Pretty Pool pool and coastal foreshore environs
- Original airfield on racetrack land, and racetrack history also recognised
- Indigenous: Significant sites such as: Lock Hospital; Pretty Pool; Two Mile Ridge; Point Cook midden
- Non-Indigenous: Including Racecourse; Old Port Hedland Cemetery; Railway Station; Don Rhodes Museum; Pretty Pool

##### Existing Land Use

- East End local Centre (Boulevard) and second centre in Cooke Point
- Primary residential areas of Port Hedland including Cooke Point, Pretty Pool
- Other Key Land Uses including:
  - Port Hedland Turf Club, Sport Facilities & Pony Club
  - Waste Water Treatment Plan (WWTP)/ Telstra Site
  - Hospitality/Tourism sites
  - Local Primary schools, Council offices
  - Coastal dual-use path/ parks / public art/ foreshore

### **Current or Planned Projects**

- WWTP relocation
- Telstra Site and adjoining land redevelopment planned
- Medium Density / Mixed use sites (two) at Pretty Pool
- Landscape amenity improvement works

### **Precinct Plan Summary**

#### **Activities & Land Use**

- Neighbourhood centre serving Port Hedland
- Mixture of high, medium density residential
- Protected mangrove environs – reflecting landscape character
- District Sporting Fields
- Landscape Buffer / Traffic separation to industrial uses/rail
- Recognition/protection/education of flatback turtle nesting areas

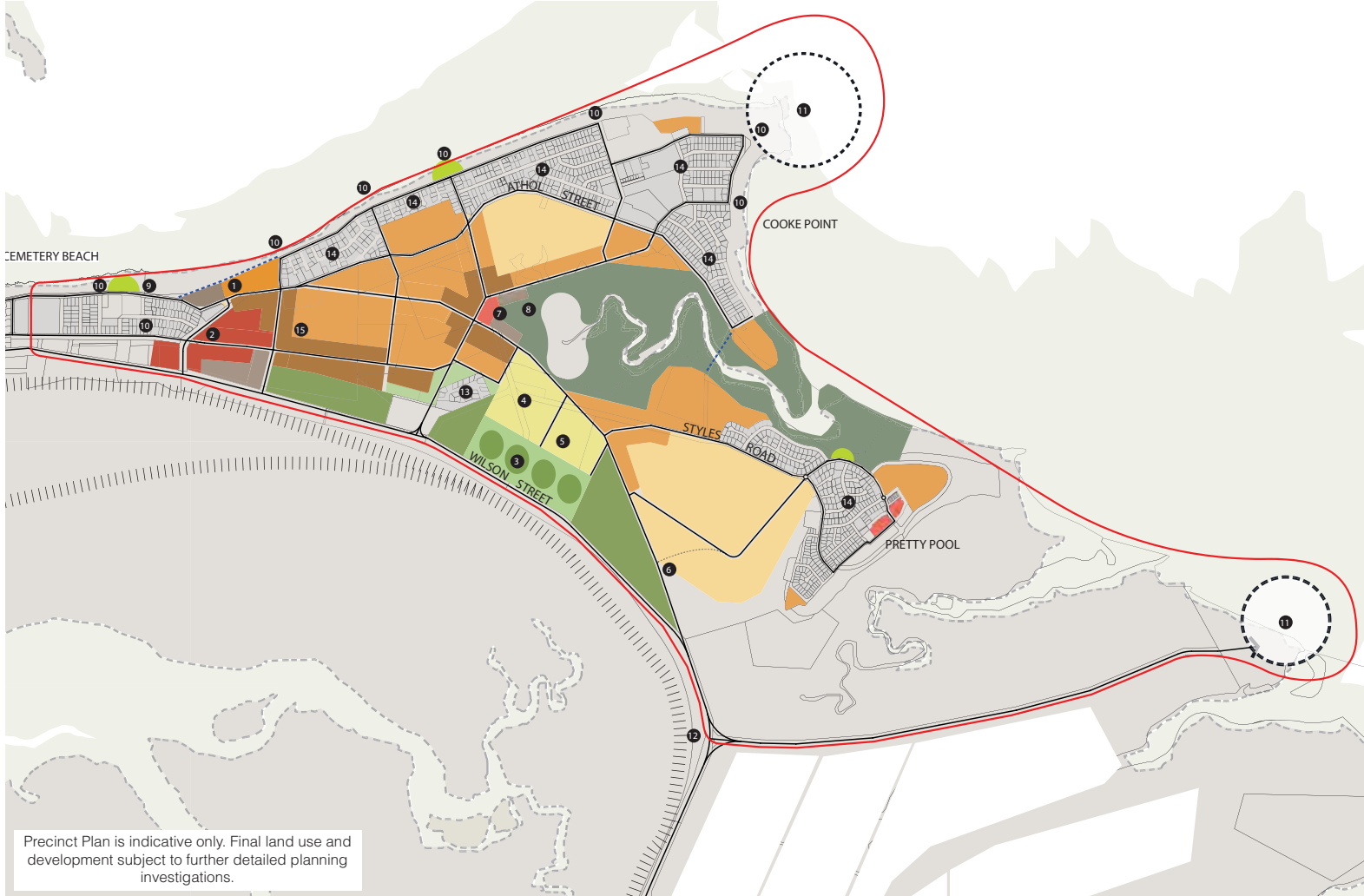
#### **Community Development**

- Coastal parklands nodes/lookouts, relationship to landscape through mangrove environs & public facilities
- Activation of neighbourhood and local centre through art, events and dining uses

### **Implementation Indicators**

The following is a guide to some of the considerations Pilbara's Port City Growth Plan will examine in detail to facilitate implementation and delivery:

- Coastal development will be subject to light spill compliance and related conditions for flatback turtle nesting sites
- Final fill and finished development floor levels for built form to reflect Coastal Vulnerability Study recommendations
- Facilitate higher density within close proximity to a new local centre early on once WWTP decommissioned
- Precinct encapsulated in TPS5 as a 'Development Plan' area
- Development Plan (structure plan) to be prepared
- Design Guidelines or Detailed Area Plans to address site, architectural style, climate and built form recommendations
- Discussions with MRWA/ToPH to establish early segregation of Port and residential traffic.
- Iconic development sites subject to relocation of existing use.



Precinct Plan is indicative only. Final land use and development subject to further detailed planning investigations.

### Precinct Highlights

1. Mixed use/short stay iconic development site.
2. Neighbourhood centre providing primary Port Hedland mixed use/retail opportunities.
3. Setback to rail corridor subject to detail investigation, incorporating district recreation.
4. High School.
5. Primary School.
6. New entry road with direct connection to coastal drive.
7. Local convenience shopping/cafe/restaurant with 'mangrove experience'.
8. Short-stay accommodation next to mangrove environs.
9. Coastal drive (slow speed environment).
10. Coastal park/lookout.
11. East end coastal access opportunities.
12. Upgraded access to/from Wilson Street.
13. Existing community retained and integrated with surrounding residential development.
14. Opportunities for density increases.
15. Development to recognise historic past through links to racecourse and former airfield.

<p><b>RESIDENTIAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #8B4513; border-radius: 50%; margin-right: 5px;"></span> Residential - High Density (R80 - R120: Apartment Living)</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #D2B48C; border-radius: 50%; margin-right: 5px;"></span> West End Residential (Residential R80 with design controls consistent with TPS 5 Amendment 22)</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #E69A00; border-radius: 50%; margin-right: 5px;"></span> Residential - Medium Density (R40 - R60: Apartment, townhouse, villa residential)</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FFD700; border-radius: 50%; margin-right: 5px;"></span> Residential - Low Density (R15 - R30: Traditional Single Residential)</li> </ul>	<p><b>COMMERCIAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; 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background-color: #4169E1; border-radius: 50%; margin-right: 5px;"></span> Highway Commercial (Bulky Goods, Motor Vehicle/Boat Sales, Show Room, Warehouse Commercial)</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #8B4513; border-radius: 50%; margin-right: 5px;"></span> Short Stay Accommodation</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FFFF00; border-radius: 50%; margin-right: 5px;"></span> Community (Community, Education &amp; Health)</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #ADD8E6; border-radius: 50%; margin-right: 5px;"></span> West End Mixed Use</li> </ul>	<p><b>INDUSTRIAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #9932CC; border-radius: 50%; margin-right: 5px;"></span> Light Industry</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #800080; border-radius: 50%; margin-right: 5px;"></span> General Industry/Transport and Logistics</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #483D8B; border-radius: 50%; margin-right: 5px;"></span> Strategic/Heavy Industry</li> <li><span style="display: inline-block; width: 15px; height: 15px; border: 1px dashed #483D8B; margin-right: 5px;"></span> Strategic/Heavy Industry Buffer</li> </ul> <p><b>RURAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #90EE90; border-radius: 50%; margin-right: 5px;"></span> Rural Residential</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #808080; border-radius: 50%; margin-right: 5px;"></span> Rural Industry</li> </ul> <p><b>RECREATION AND CONSERVATION</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #90EE90; border-radius: 50%; 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width: 15px; height: 15px; border: 1px dashed #FFD700; margin-right: 5px;"></span> Future Expansion - Urban (Medium-Long Term)</li> <li><span style="display: inline-block; width: 15px; height: 15px; border: 1px dashed #90EE90; margin-right: 5px;"></span> Future Expansion - Urban/Rural Residential (Long Term - Beyond 50,000)</li> </ul>
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### 5.7.3 Precinct 3 – Port Authority & Finucane Island

#### Precinct Statement

**“The largest tonnage Port in Australia defines the Port Authority & Finucane Island precinct. It is a place where the primacy of the Port continues to service the growing resource operations and common user facilities. Opportunities for development through resource company projects and Port Authority growth plans continue, and strong connectivity to Boodarie and Wedgefield are provided for. Finucane Island’s western end is a popular recreation area for many seeking to take in the coastal mangrove environs or do a spot of fishing.”**



#### Key Figures (ultimate)

Area:	5300 (ha) (indicative based on precinct boundary)
New Dwellings:	0 (0 total)
New Light/General Industry (ha):	0 (0 total)
New Strategic Industry (ha):	1071 (1553 total)

#### Summary of Influences

##### Landscape, Heritage & Environment

- Port Hedland Port Authority operations and wider lease area
- BHPBIO lease area and operations
- Resource Company port access corridors and operations
- PHPA sub-leases for storage/industry adjoining Wedgefield
- Finucane Island boat ramp / fishing location
- Indigenous: Numerous Registered Aboriginal sites within and adjacent the Precinct
- Non-indigenous: Finucane Island - original townsite

#### Current or Planned Projects

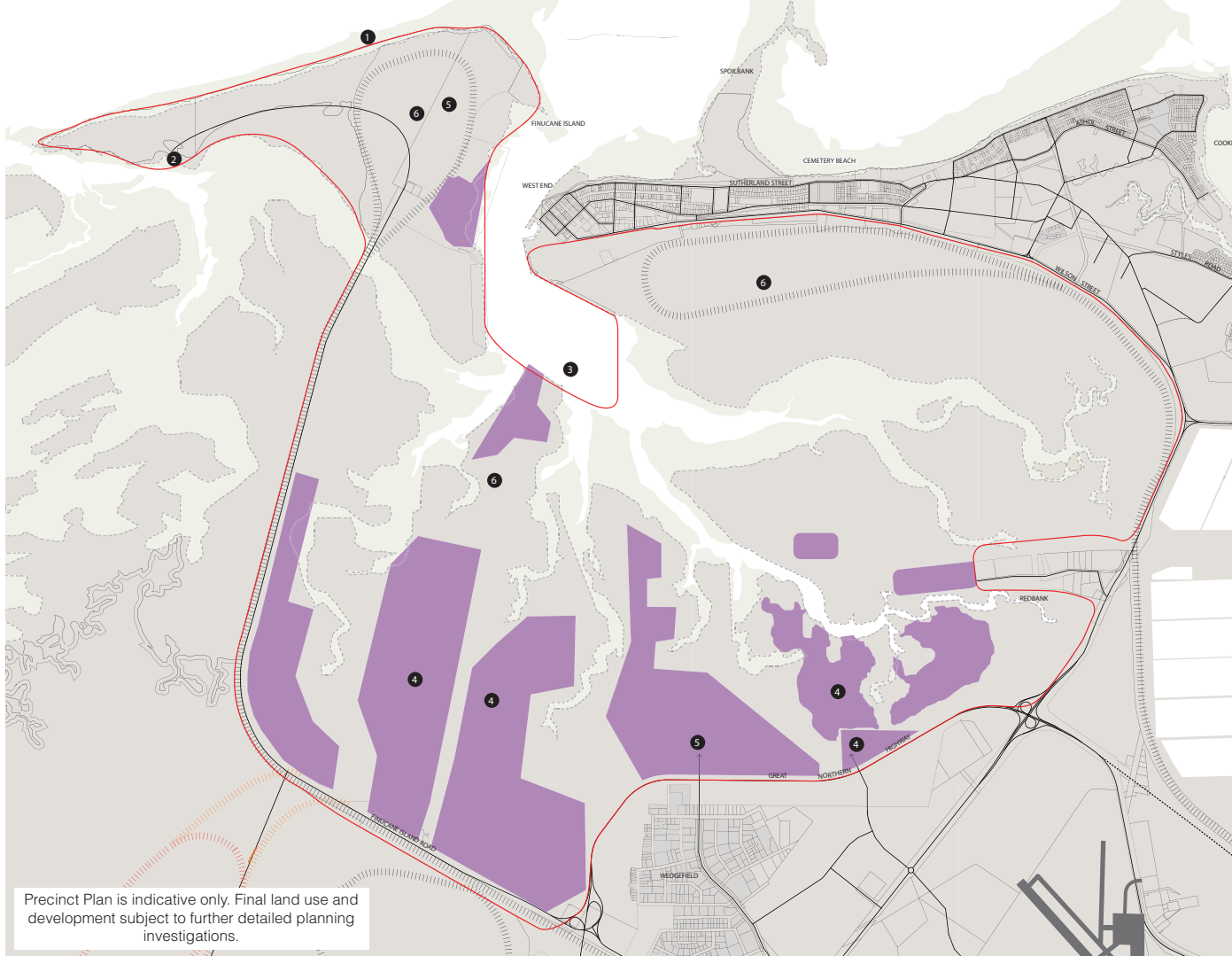
- Growth Programs underway for western side port expansion
- BHPBIO Stockpile expansion planning (Quantum project)
- Outer Harbour Port Expansion planned

#### Implementation Indicators

The following is a guide to some of the considerations Pilbara’s Port City Growth Plan will examine in detail to facilitate implementation and delivery:

- Port expansion and development of land expansion will continue to be under the management of the Port Hedland Port Authority
- Implementation of surrounding areas – including Boodarie and Wedgefield will be undertaken reflecting the extent and timing of anticipated growth in this precinct.





**Precinct Highlights**

1. Port outer harbour access and expansion
2. Coastal access (fishing/tourist node)
3. Port inner harbour expansion
4. Port facilities expansion
5. Lumsden Point marine Common User Facility
6. Established strategic industry

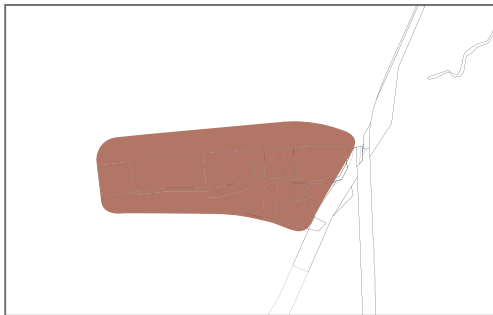
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### 5.7.4 Precinct 4 – Redbank

#### Precinct Statement

**“Redbank is one of the many ‘fingers’ of land extending into the inlets that make up Port Hedland’s harbour. Its location suits some of our City’s rural industry uses, though in the long term the opportunity for it to form part of the wider port area is recognised”.**



#### Key Figures (ultimate)

Area:	46 (ha) (indicative based on precinct boundary)
New Development:	limited to consolidation of existing rural uses in the medium term
Strategic Industry (ha):	7.5ha short term, 42.0ha long term (49.5ha total should long term land use change be undertaken)

#### Summary of Influences

##### Landscape, Heritage & Environment

- Significant areas of mangrove environs

##### Existing Land Use

- Storage / rural industrial uses
- Rural-residential
- Indigenous accommodation/facilities

##### Current or Planned Projects

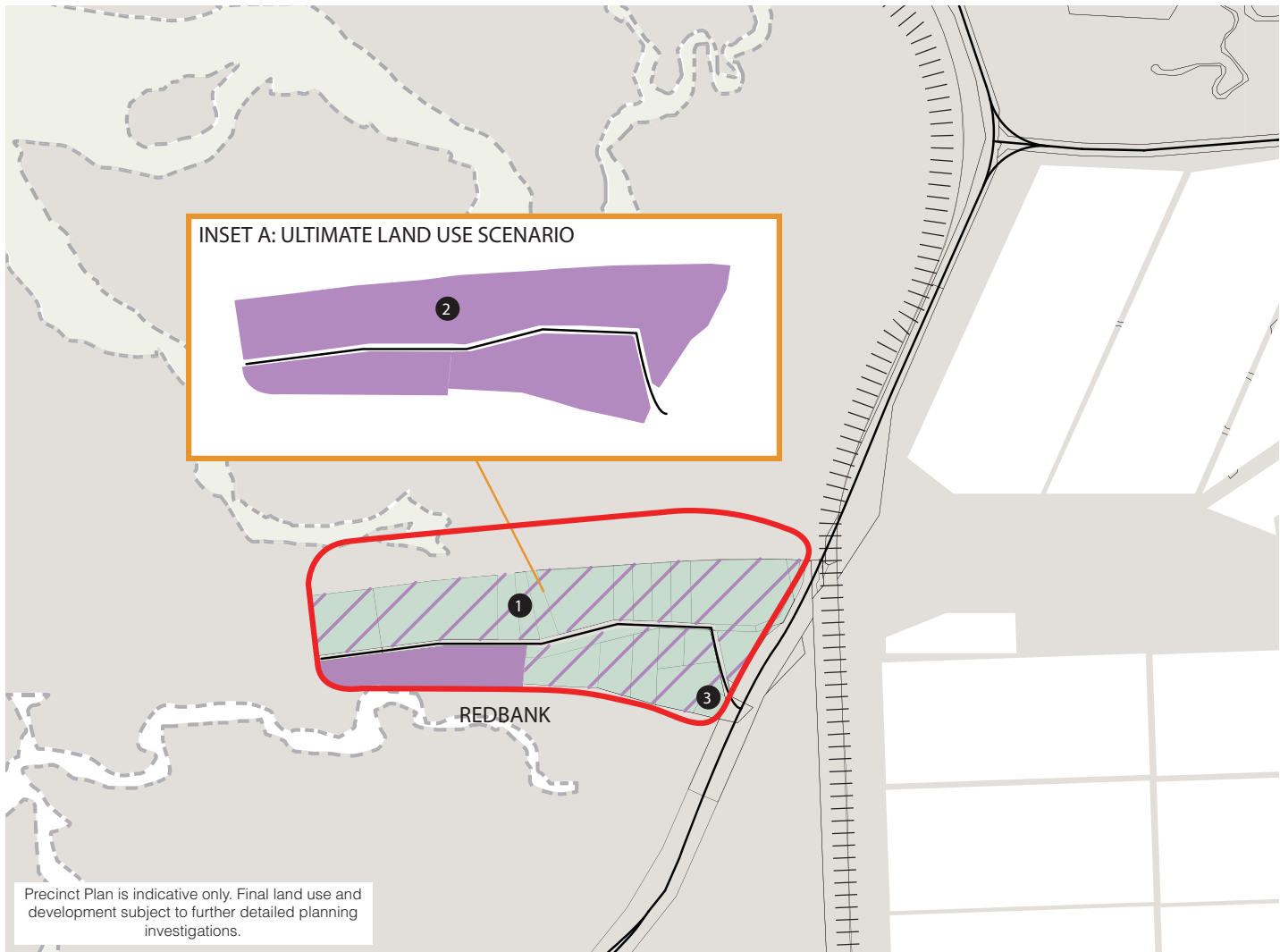
- Growth Programs underway for western side port expansion
- BHPBIO Stockpile expansion planning (Quantum project)
- Outer Harbour Port Expansion planned

#### Implementation Indicators

The following is a guide to some of the considerations Pilbara’s Port City Growth Plan will examine in detail to facilitate implementation and delivery:

- Precinct encapsulated in TPS5 as a ‘Development Plan’ area
- Development Plan (structure plan) to be prepared
- The timing of any ultimate land use change to the precinct would need to be undertaken at the local level, in consultation with landowners and business operators (may be beyond 2031 planning horizon)
- Discussion with MRWA/ToPH to establish future planning for improved access into precinct.
- Precinct Plan recognises prevailing rural industry uses, notwithstanding rural residential zoning
- Ultimate land use scenario having regard to environmental and port related strategic considerations





**Precinct Highlights**

1. Rural industrial uses recognised in short to medium term.
2. Ultimate long term use linked to wider port authority precincts.
3. Upgraded access into/from Redbank precinct.

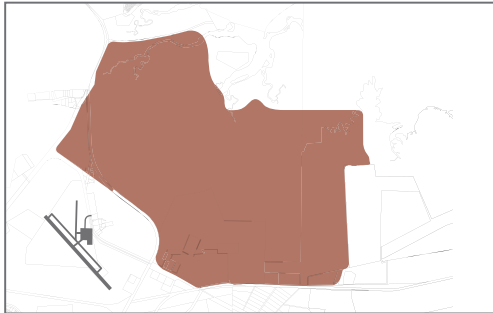
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<p><b>RESIDENTIAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #8B4513; border-radius: 50%; margin-right: 5px;"></span> Residential - High Density (R80 - R120: Apartment Living)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #D2B48C; border-radius: 50%; margin-right: 5px;"></span> West End Residential (Residential R80 with design controls consistent with TP5 5 Amendment 22)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #E69A00; border-radius: 50%; margin-right: 5px;"></span> Residential - Medium Density (R40 - R60: Apartment, townhouse, villa residential)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #FFD700; border-radius: 50%; margin-right: 5px;"></span> Residential - Low Density (R15 - R30: Traditional Single Residential)</li> </ul>	<p><b>COMMERCIAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #00B0F0; border-radius: 50%; margin-right: 5px;"></span> City Centre (Civic, Cultural, Major Retail, Commercial, Mixed Use Residential and Entertainment)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #00A0C0; border-radius: 50%; margin-right: 5px;"></span> Commercial/Cultural Centre (Retail, Commercial, Office, Short Stay Accommodation, Research &amp; Education, Cultural and Entertainment)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #C00000; border-radius: 50%; margin-right: 5px;"></span> Neighbourhood Centre (Retail, Commercial, Residential Mixed Use)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #E06666; border-radius: 50%; margin-right: 5px;"></span> Local Centre (Convenience retail, Mixed Use, Short Stay Accommodation)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #4682B4; border-radius: 50%; margin-right: 5px;"></span> Highway Commercial (Bulky Goods, Motor Vehicle/Boat Sales, Show Room, Warehouse Commercial)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #654321; border-radius: 50%; margin-right: 5px;"></span> Short Stay Accommodation</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #FFFF00; border-radius: 50%; margin-right: 5px;"></span> Community (Community, Education &amp; Health)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ADD8E6; border-radius: 50%; margin-right: 5px;"></span> West End Mixed Use</li> </ul>	<p><b>INDUSTRIAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #9370DB; border-radius: 50%; margin-right: 5px;"></span> Light Industry</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #800080; border-radius: 50%; margin-right: 5px;"></span> General Industry/Transport and Logistics</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #483D8B; border-radius: 50%; margin-right: 5px;"></span> Strategic/Heavy Industry</li> <li><span style="display: inline-block; width: 10px; height: 10px; border-bottom: 1px solid purple; margin-right: 5px;"></span> Strategic/Heavy Industry Buffer</li> </ul> <p><b>RURAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #90EE90; border-radius: 50%; margin-right: 5px;"></span> Rural Residential</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #8FBC8F; border-radius: 50%; margin-right: 5px;"></span> Rural Industry</li> </ul> <p><b>RECREATION AND CONSERVATION</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #90EE90; border-radius: 50%; margin-right: 5px;"></span> Local/Passive Open Space</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #6AA84F; border-radius: 50%; margin-right: 5px;"></span> Landscape Buffer</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #556B2F; border-radius: 50%; margin-right: 5px;"></span> Natural Landscape/Conservation</li> </ul>	<p><b>OTHER</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #FFD700; border: 1px solid black; margin-right: 5px;"></span> Public Purposes (Wastewater Treatment, Water, Cemetary, Energy)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #FFD700; border: 1px solid black; margin-right: 5px;"></span> Airport Operations</li> <li><span style="display: inline-block; width: 10px; height: 10px; border-bottom: 1px solid yellow; margin-right: 5px;"></span> Future Expansion - Urban (Medium-Long Term)</li> <li><span style="display: inline-block; width: 10px; height: 10px; border-bottom: 1px solid lightgreen; margin-right: 5px;"></span> Future Expansion - Urban/Rural Residential (Long Term - Beyond 50,000)</li> </ul>
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### 5.7.5 Precinct 5 – Dampier Salt & Surrounds

#### Precinct Statement

***“The Dampier Salt & Surrounds precinct will continue to service the growth of Dampier Salt operations. It is an area widely recognised with the salt ponds clearly visible by locals and visitors alike from across the landscape.”***



#### Key Figures (ultimate)

Area:	3530 (ha) (indicative based on precinct boundary)
Motorsports (Kart Club) (ha):	17.5ha
Dampier Salt Expansion Area (ha):	950ha total
Explosives Reserve (& buffer) (ha):	540ha

#### Summary of Influences

##### **Landscape, Heritage & Environment**

- Areas of mangrove environs
- Rural landscape to east
- Indigenous: Registered Indigenous heritage sites within Precinct

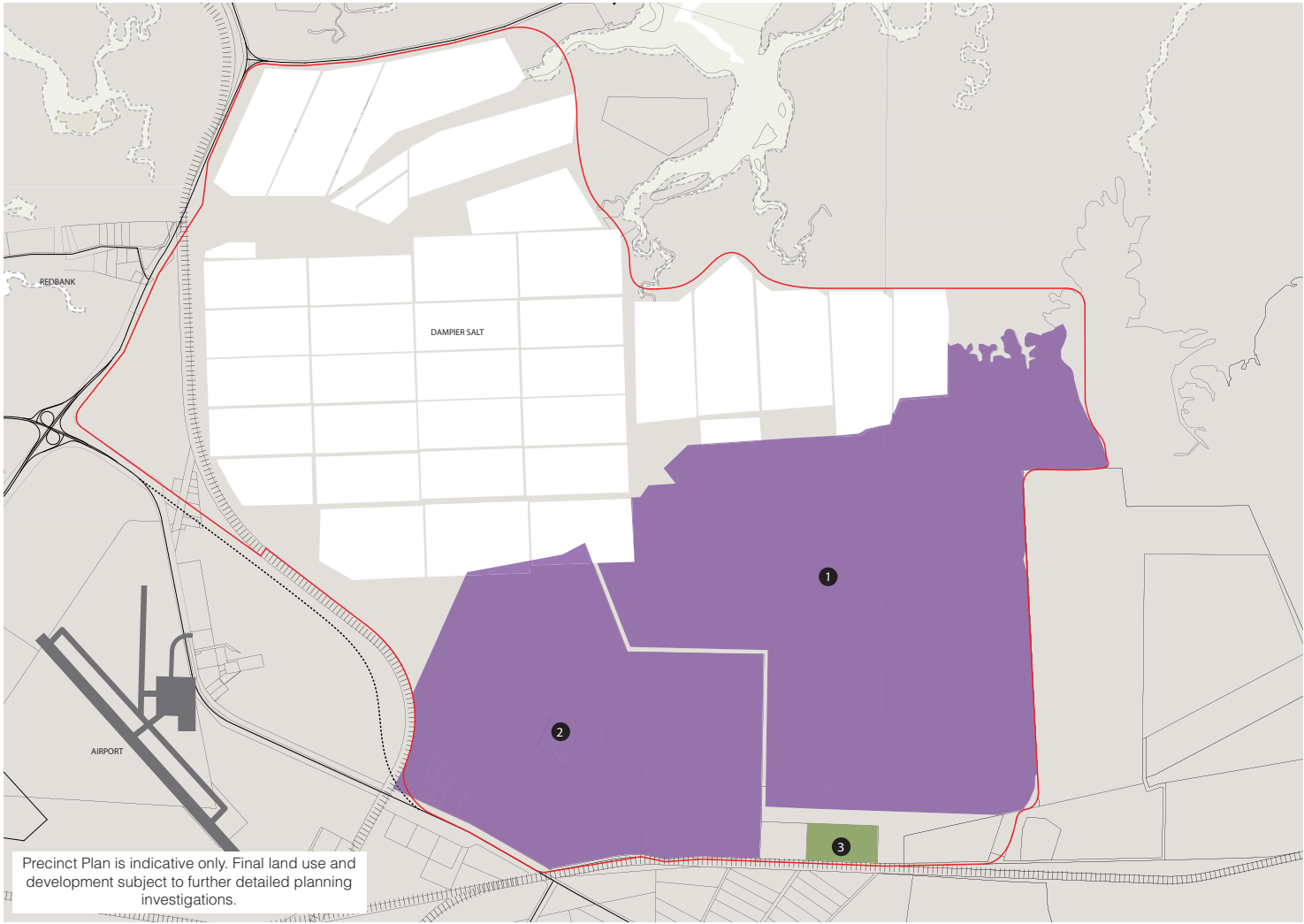
##### **Existing Land Use**

- Dampier Salt Operations
- Hedland Kart Club

##### **Current or Planned Projects**

- Growth Programs underway for western side port expansion
- BHPBIO Stockpile expansion planning (Quantum project)
- Outer Harbour Port Expansion planned.





**Precinct Highlights**

1. Dampier Salt expansion area.
2. Existing explosives reserve.
3. Motorsports Complex including Hedland Kart Club.

Precinct Plan is indicative only. Final land use and development subject to further detailed planning investigations.

<p><b>RESIDENTIAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #8B4513; border-radius: 50%; margin-right: 5px;"></span> Residential - High Density (R80 - R120: Apartment Living)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #D2B48C; border-radius: 50%; margin-right: 5px;"></span> West End Residential (Residential R80 with design controls consistent with TP5 5 Amendment 22)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #C85130; border-radius: 50%; margin-right: 5px;"></span> Residential - Medium Density (R40 - R60: Apartment, townhouse, villa residential)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #F0C851; border-radius: 50%; margin-right: 5px;"></span> Residential - Low Density (R15 - R30: Traditional Single Residential)</li> </ul>	<p><b>COMMERCIAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #00A0C8; border-radius: 50%; margin-right: 5px;"></span> City Centre (Civic, Cultural, Major Retail, Commercial, Mixed Use Residential and Entertainment)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #00A0C8; border: 1px solid #00A0C8; margin-right: 5px;"></span> Commercial/Cultural Centre (Retail, Commercial, Office, Short Stay Accommodation, Research &amp; Education, Cultural and Entertainment)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #C80000; border-radius: 50%; margin-right: 5px;"></span> Neighbourhood Centre (Retail, Commercial, Residential Mixed Use)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #E85C5C; border-radius: 50%; margin-right: 5px;"></span> Local Centre (Convenience retail, Mixed Use, Short Stay Accommodation)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #4169E1; border-radius: 50%; margin-right: 5px;"></span> Highway Commercial (Bulky Goods, Motor Vehicle/Boat Sales, Show Room, Warehouse Commercial)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #8B4513; border-radius: 50%; margin-right: 5px;"></span> Short Stay Accommodation</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #F0E68C; border-radius: 50%; margin-right: 5px;"></span> Community (Community, Education &amp; Health)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #87CEEB; border-radius: 50%; margin-right: 5px;"></span> West End Mixed Use</li> </ul>	<p><b>INDUSTRIAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #C8A2C8; border-radius: 50%; margin-right: 5px;"></span> Light Industry</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #800080; border-radius: 50%; margin-right: 5px;"></span> General Industry/Transport and Logistics</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #4B0082; border-radius: 50%; margin-right: 5px;"></span> Strategic/Heavy Industry</li> <li><span style="display: inline-block; width: 10px; height: 10px; border-bottom: 1px dashed #4B0082; margin-right: 5px;"></span> Strategic/Heavy Industry Buffer</li> </ul> <p><b>RURAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #90EE90; border-radius: 50%; margin-right: 5px;"></span> Rural Residential</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #808080; border: 1px solid #808080; margin-right: 5px;"></span> Rural Industry</li> </ul> <p><b>RECREATION AND CONSERVATION</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #90EE90; border-radius: 50%; margin-right: 5px;"></span> Local/Passive Open Space</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #008000; border-radius: 50%; margin-right: 5px;"></span> Landscape Buffer</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #006400; border-radius: 50%; margin-right: 5px;"></span> Natural Landscape/Conservation</li> </ul>	<p><b>OTHER</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #FFD700; border: 1px solid #FFD700; margin-right: 5px;"></span> Public Purposes (Wastewater Treatment, Water, Cemetary, Energy)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #FFD700; border: 1px dashed #FFD700; margin-right: 5px;"></span> Airport Operations</li> <li><span style="display: inline-block; width: 10px; height: 10px; border-bottom: 1px dashed #FFD700; margin-right: 5px;"></span> Future Expansion - Urban (Medium-Long Term)</li> <li><span style="display: inline-block; width: 10px; height: 10px; border-bottom: 1px dashed #90EE90; margin-right: 5px;"></span> Future Expansion - Urban/Rural Residential (Long Term - Beyond 50,000)</li> </ul>
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### 5.7.6 Precinct 6 – Wedgefield Industry & Logistics

#### Precinct Statement

***“The Wedgefield Industry & Logistics Precinct supports our City’s primary Light Industrial and Transport Industry businesses. Expansion of the precinct will continue to provide greater diversity of industrial land choice and act as the catalyst for improved amenity within established Wedgefield.”***



#### Key Figures (ultimate)

Area:	700 (ha) (indicative based on precinct boundary)
New Dwellings:	0 (192 total)
New Short Stay (rooms):	0 (0 total)
New Transient Workforce Accommodation:	0 (0 total)
New Light/General Industry (ha):	220 (378 total) – includes Transport
New Strategic Industry (ha):	0 (0 total)



#### Summary of Influences

##### Landscape, Heritage & Environment

- Areas of mangrove environs
- Rural landscape to east
- Coastal Vulnerability through storm surge and South Creek

##### Existing Land Use

- Existing Wedgefield mix of light and heavier industrial uses, as well as care taker residential and transient workers accommodation.
- Surrounding undeveloped vacant land
- Truck stop / service facility off Great Northern Highway

##### Current or Planned Projects

- Wedgefield Transport & Logistics Precinct land release
- Light Industrial 'Area 5' (LIA5) land release
- Outer ring road by Main Roads WA

#### Precinct Plan Summary

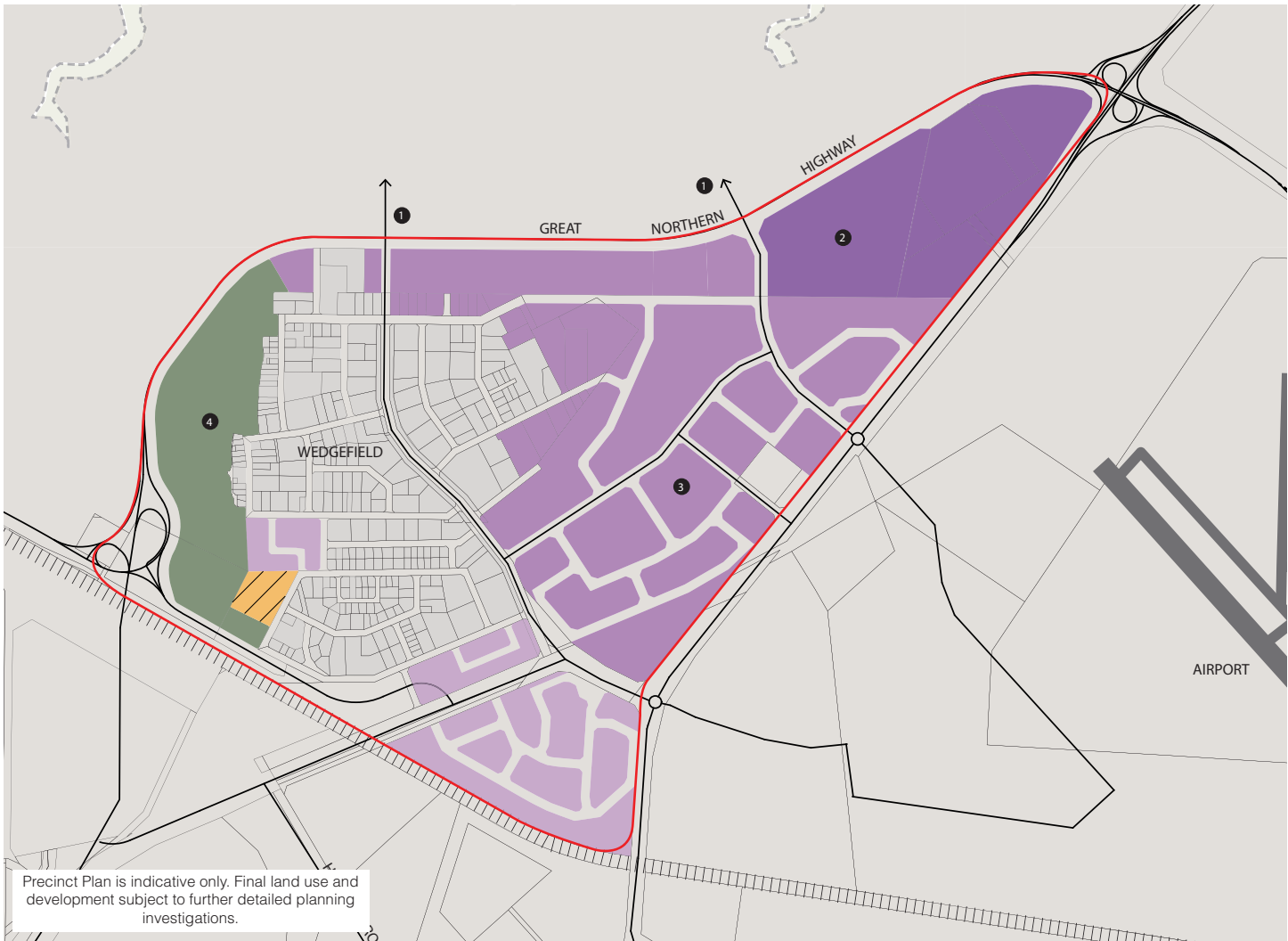
- Dedicated Transport & Logistics Area reflecting planned release of some 100 new lots ranging in size from 4500sqm to 5.0ha.
- Light Industrial – reflecting planned release of some 135 new lots ranging in size from 2000sqm to 7000sqm
- Retention of existing Wedgefield with gradual relocation of heavier uses to other Growth Precincts more appropriately designated

#### Implementation Indicators

The following is a guide to some of the considerations Pilbara's Port City Growth Plan will examine in detail to facilitate implementation and delivery:

- Wedgefield Industrial Expansion Development Plan already adopted under TPS5 and delivery underway
- Review of existing Wedgefield land use recommended following relocation of heavier uses in short to medium term. Review to determine opportunities for formal 'composite industrial' residential/light industrial use in limited western edge area.

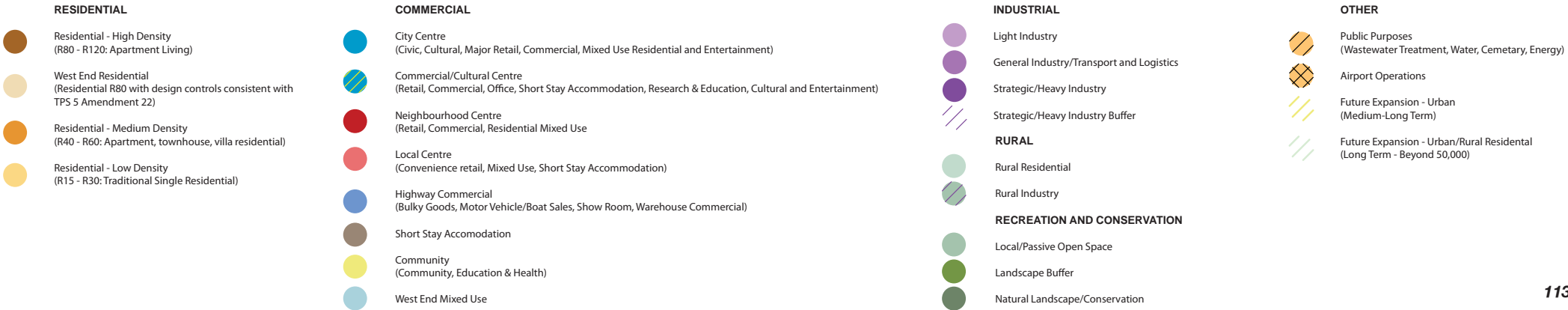




Precinct Plan is indicative only. Final land use and development subject to further detailed planning investigations.

**Precinct Highlights**

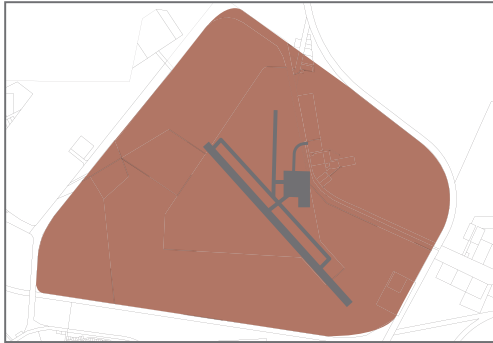
1. Access to port authority land
2. Port authority expansion
3. 'Hedland Junction' transport/logistics area
4. South Creek environs



### 5.7.7 Precinct 7 – Airport & Surrounds

#### Precinct Statement

**“Pilbara’s Port City International Airport is a major gateway to the North West of Australia. The upgraded airport welcomes visitors at a standard reflect of any of Australia’s major regional cities. The surrounding area supports a range of logistics and related uses.”**



#### Key Figures (ultimate)

Area:	1250 (ha) (indicative based on precinct boundary)
New Short Stay (rooms):	0 (164 total)
New Transient Workforce Accommodation (temporary):	7,000 (8,394 total)
New Retail Floorspace (sqm):	9,401 (9,401 total)
New Commercial Office F’space (sqm):	46ha total highway commercial (0 total)

New Light/General Industry (ha): 250ha airport land industrial

#### Summary of Influences

##### Landscape, Heritage & Environment

- Areas of mangrove environs
- Rural landscape to east
- Low-lying areas to north-west of precinct

##### Existing Land Use

- Airport Operations
- Construction FIFO Accommodation including Port Haven
- Port Hedland Caravan Park
- Bureau of Meteorology Station
- Cemetery

#### Current or Planned Projects

- Port Hedland International Airport Masterplan currently progressing

#### Precinct Plan Summary

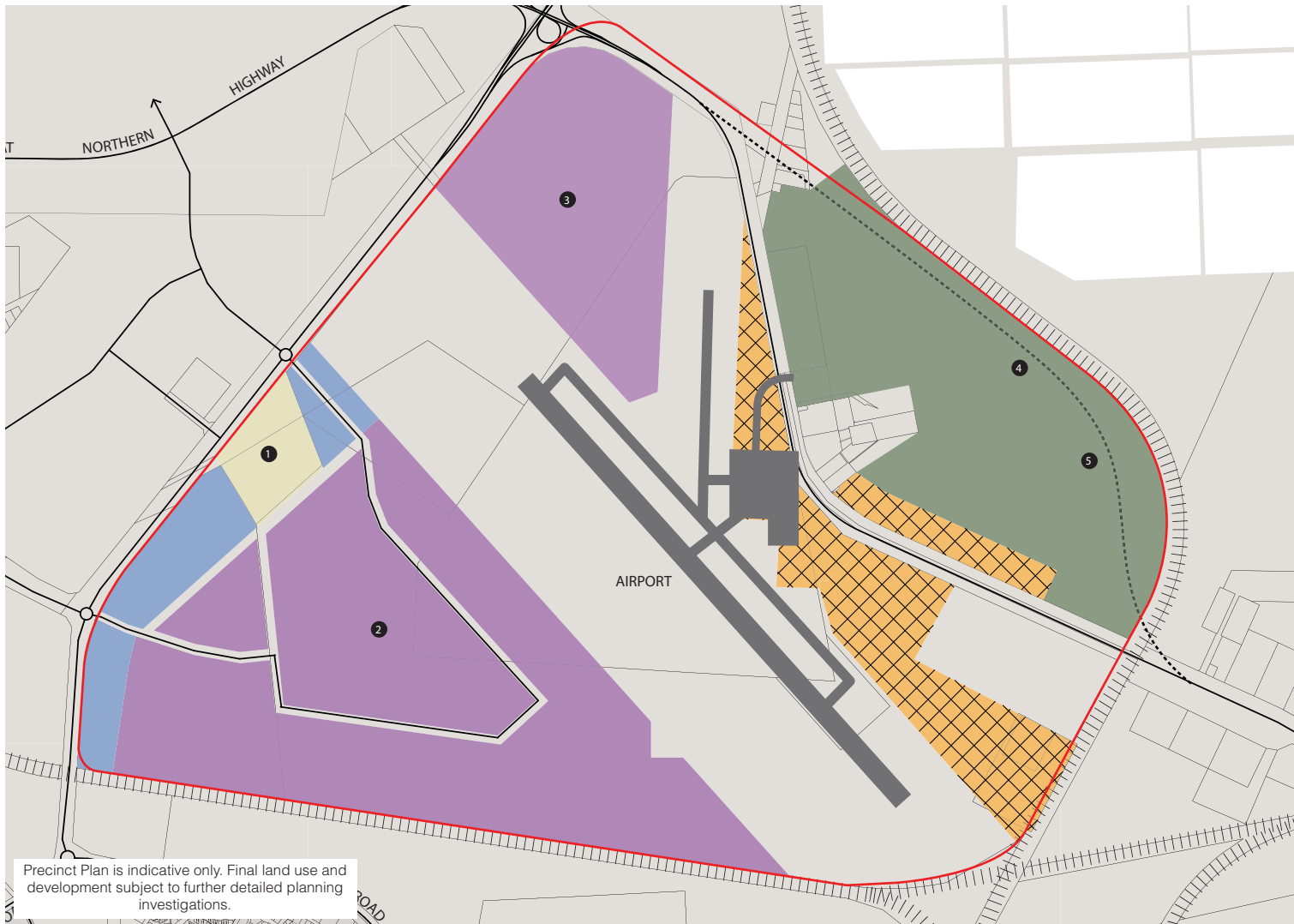
- Highway Commercial / Light Industrial
- Facilitate short term development of Construction Workforce, and in responding to demand:
  - to consolidate existing area on Great Northern Highway and deliver legacy of infrastructure
  - to facilitate development progression within a defined area of Light Industry precinct

#### Implementation Indicators

The following is a guide to some of the considerations Pilbara’s Port City Growth Plan will examine in detail to facilitate implementation and delivery:

- More detailed Airport Masterplan progressing for adoption under TPS5 and thereafter implementation and delivery.





Precinct Highlights

1. Port Hedland cemetery.
2. Short term workforce accommodation opportunity (replaced by industrial use).
3. Sustainable energy industry precinct (airport masterplan) (low impact development due to flooding).
4. Great Northern Highway realignment option.
5. 'Green Gateway' entry.

Precinct Plan is indicative only. Final land use and development subject to further detailed planning investigations.

RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER
Residential - High Density (R80 - R120: Apartment Living)	City Centre (Civic, Cultural, Major Retail, Commercial, Mixed Use Residential and Entertainment)	Light Industry	Public Purposes (Wastewater Treatment, Water, Cemetary, Energy)
West End Residential (Residential R80 with design controls consistent with TP5 5 Amendment 22)	Commercial/Cultural Centre (Retail, Commercial, Office, Short Stay Accommodation, Research & Education, Cultural and Entertainment)	General Industry/Transport and Logistics	Airport Operations
Residential - Medium Density (R40 - R60: Apartment, townhouse, villa residential)	Neighbourhood Centre (Retail, Commercial, Residential Mixed Use)	Strategic/Heavy Industry	Future Expansion - Urban (Medium-Long Term)
Residential - Low Density (R15 - R30: Traditional Single Residential)	Local Centre (Convenience retail, Mixed Use, Short Stay Accommodation)	Strategic/Heavy Industry Buffer	Future Expansion - Urban/Rural Residential (Long Term - Beyond 50,000)
	Highway Commercial (Bulky Goods, Motor Vehicle/Boat Sales, Show Room, Warehouse Commercial)	<b>RURAL</b>	
	Short Stay Accomodation	Rural Residential	
	Community (Community, Education & Health)	Rural Industry	
	West End Mixed Use	<b>RECREATION AND CONSERVATION</b>	
		Local/Passive Open Space	
		Landscape Buffer	
		Natural Landscape/Conservation	

### 5.7.8 Precinct 8 – Pippingarra

#### Precinct Statement

**“The Pippingarra area is home to some of Pilbara’s Port City population enjoying a more rural lifestyle. Consolidation and limited expansion of the area has allowed new residents to seek out this lifestyle choice. The wider areas south of Great Northern Highway remain protected land bank for future long term City Growth needs should urban expansion pressures require.”**



#### Key Figures (ultimate)

Area:	6451 (ha) (indicative based on precinct boundary)
New Dwellings:	limited to eastern expansion area
New Short Stay (rooms):	0 (0 total)
New Transient Workforce Accom:	0 (0 total)
Future Urban Growth Area (ha):	4610ha
Rural Residential land supply (ha):	502ha



#### Summary of Influences

##### Landscape, Heritage & Environment

- Beebingarra Creek
- Indigenous: Twelve Mile site over eastern boundary. Tjalku Warra Burial in adjacent Precinct 16
- Non-Indigenous: Du Pont explosives bunkers and Pippingarra Homestead

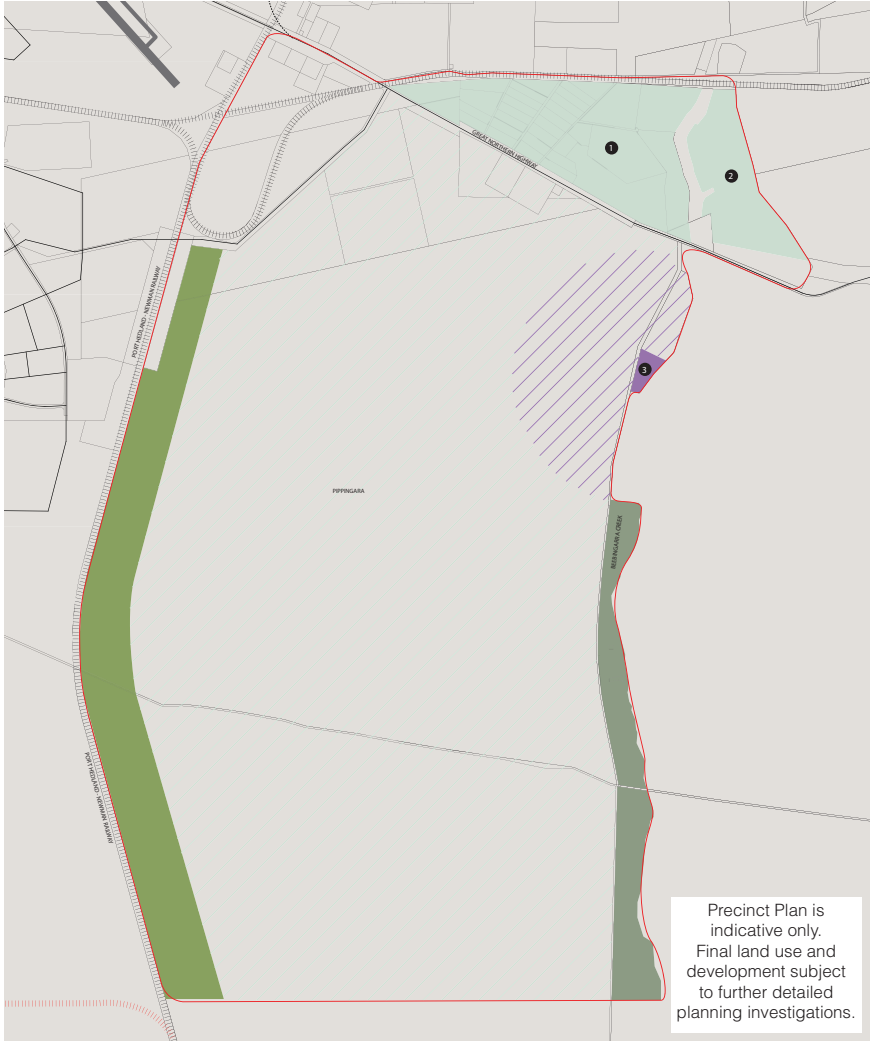
##### Existing Land Use

- Limited area of rural small holdings at northern end
- Great Northern Hwy traverses northern end
- Rail loop at north western end

##### Implementation Indicators

The following is a guide to some of the considerations Pilbara’s Port City Growth Plan will examine in detail to facilitate implementation and delivery:

- Precinct to be reflected within TPS5 to recognise long term land bank intent.



**Precinct Highlights**

1. Consolidation of rural small holdings to rural residential.
2. Limited expansion of rural-residential.
3. Industrial plant with buffer.

- RESIDENTIAL**
- Residential - High Density (R80 - R120: Apartment Living)
  - West End Residential (Residential R80 with design controls consistent with TP5 5 Amendment 22)
  - Residential - Medium Density (R40 - R60: Apartment, townhouse, villa residential)
  - Residential - Low Density (R15 - R30: Traditional Single Residential)

- COMMERCIAL**
- City Centre (Civic, Cultural, Major Retail, Commercial, Mixed Use Residential and Entertainment)
  - Commercial/Cultural Centre (Retail, Commercial, Office, Short Stay Accommodation, Research & Education, Cultural and Entertainment)
  - Neighbourhood Centre (Retail, Commercial, Residential Mixed Use)
  - Local Centre (Convenience retail, Mixed Use, Short Stay Accommodation)
  - Highway Commercial (Bulky Goods, Motor Vehicle/Boat Sales, Show Room, Warehouse Commercial)
  - Short Stay Accommodation
  - Community (Community, Education & Health)
  - West End Mixed Use

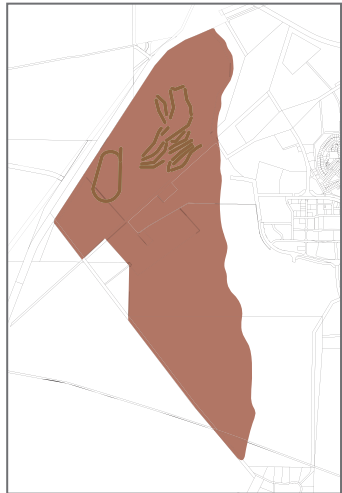
- INDUSTRIAL**
- Light Industry
  - General Industry/Transport and Logistics
  - Strategic/Heavy Industry
  - Strategic/Heavy Industry Buffer
- RURAL**
- Rural Residential
  - Rural Industry
- RECREATION AND CONSERVATION**
- Local/Passive Open Space
  - Landscape Buffer
  - Natural Landscape/Conservation

- OTHER**
- Public Purposes (Wastewater Treatment, Water, Cemetary, Energy)
  - Airport Operations
  - Future Expansion - Urban (Medium-Long Term)
  - Future Expansion - Urban/Rural Residential (Long Term - Beyond 50,000)

### 5.7.9 Precinct 9 – Western Gateway

#### Precinct Statement

***“The Western Gateway area typifies the Pilbara Port City lifestyle of sporting opportunity, being home to our equestrian precinct and golf club. It is the western gateway for visitors to our City Centre travelling from the south, or heading west where they enjoy the magnificent Pilbara sunsets.”***



#### Key Figures (ultimate)

Area:	742 (ha) (indicative based on precinct boundary)
New Dwellings:	0 assumed (golf course estate concept subject to environmental approvals)
New Short Stay (rooms):	0 (0 total)
New Transient Workforce Accommodation:	0 (short term TWA use subject to environmental assessment)
Golf Course & Surrounds (ha):	183ha (includes land identified for golf course estate assessment)
Equestrian Precinct (ha):	103ha (comprising race track and stabling surrounds – approximate area)
Wastewater Treatment Plant (ha):	28 expansion (50ha total)
New Light/General Industry (ha):	0 (0 total)
New Strategic Industry (ha):	0 (0 total)

#### Summary of Influences

##### Landscape, Heritage & Environment

- South Creek environs and surrounding lower-lying land

##### Existing Land Use

- South Hedland Golf Club
- Hedland Turf Club Training Track
- Leases in horse training/stables area adjoining track
- South Hedland Waste Water Treatment Plant (WWTP)
- South Hedland Pistol Club

##### Current or Planned Projects

- WWTP expansion planning.

##### Implementation Indicators

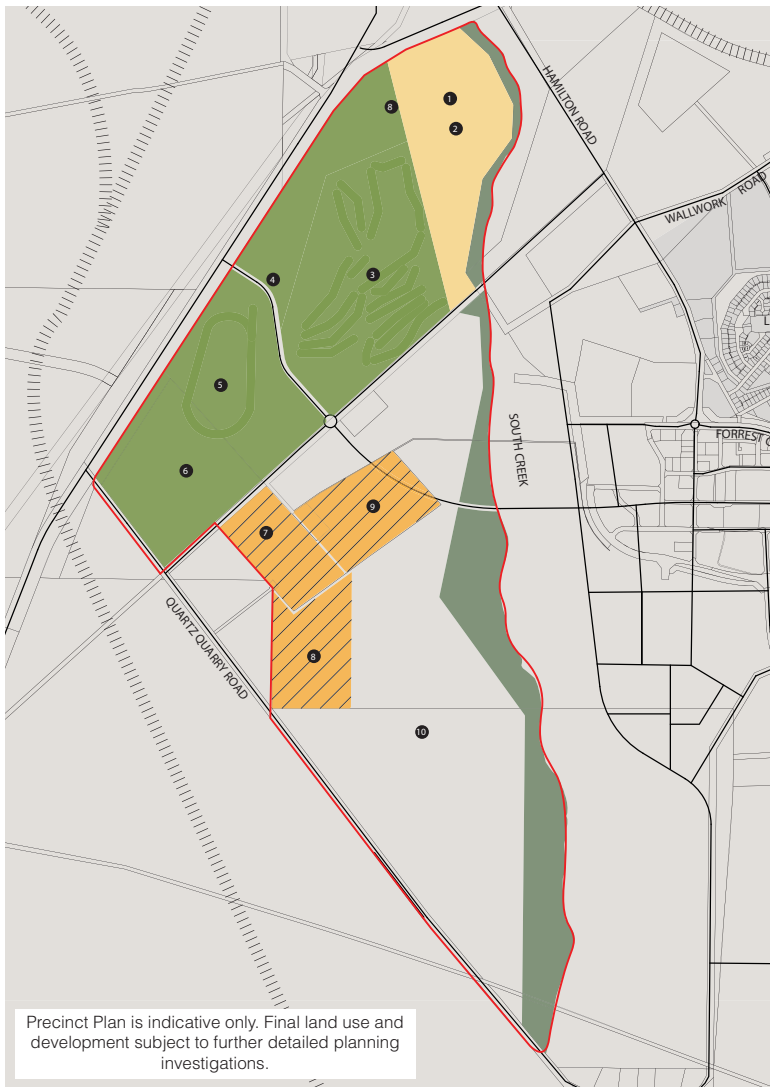
The following is a guide to some of the considerations Pilbara's Port City Growth Plan will examine in detail to facilitate implementation and delivery:

- Precinct 9 lies within Town Planning Scheme

No.5 SIA Special Control Area which prohibits residential or other forms of accommodation. Opportunity to revitalise golf course in conjunction with golf course estate to be investigated. Precinct is outside formal s.19 SIA legislation controlled Boodarie Core and Buffer.

- Precinct to be encapsulated within TPS5 as a 'Development Plan' area.
- Implementation of WWTP expansion to consider options to minimise impact on South Hedland urban settlement planning as a result of buffer requirements.
- Detailed consultation and funding required to facilitate equestrian precinct consolidation.





Precinct Plan is indicative only. Final land use and development subject to further detailed planning investigations.

**RESIDENTIAL**

- Residential - High Density (R80 - R120: Apartment Living)
- West End Residential (Residential R80 with design controls consistent with TP5 5 Amendment 22)
- Residential - Medium Density (R40 - R60: Apartment, townhouse, villa residential)
- Residential - Low Density (R15 - R30: Traditional Single Residential)

**COMMERCIAL**

- City Centre (Civic, Cultural, Major Retail, Commercial, Mixed Use Residential and Entertainment)
- Commercial/Cultural Centre (Retail, Commercial, Office, Short Stay Accommodation, Research & Education, Cultural and Entertainment)
- Neighbourhood Centre (Retail, Commercial, Residential Mixed Use)
- Local Centre (Convenience retail, Mixed Use, Short Stay Accommodation)
- Highway Commercial (Bulky Goods, Motor Vehicle/Boat Sales, Show Room, Warehouse Commercial)
- Short Stay Accommodation
- Community (Community, Education & Health)
- West End Mixed Use

**INDUSTRIAL**

- Light Industry
- General Industry/Transport and Logistics
- Strategic/Heavy Industry
- Strategic/Heavy Industry Buffer

**RURAL**

- Rural Residential
- Rural Industry

**RECREATION AND CONSERVATION**

- Local/Passive Open Space
- Landscape Buffer
- Natural Landscape/Conservation

**OTHER**

- Public Purposes (Wastewater Treatment, Water, Cemetary, Energy)
- Airport Operations
- Future Expansion - Urban (Medium-Long Term)
- Future Expansion - Urban/Rural Residential (Long Term - Beyond 50,000)

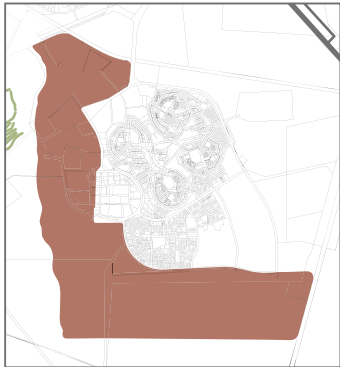
**Precinct Highlights**

1. Golf course residential estate (subject to detailed environmental assessment).
2. Potential short term workforce accommodation.
3. Port Hedland golf course.
4. Western 'gateway' entry road.
5. Turf club race track with grandstand off entry road.
6. Equestrian precinct.
7. Waste Water Treatment Plant (WWTP).
8. WWTP designated area.
9. WWTP preferred expansion area.
10. 'Tri-generation' industries area relocated to WWTP.

### 5.7.10 Precinct 10 – South Hedland West

#### Precinct Statement

**“South Hedland West is South Hedland’s newest land release area. It supports immediate and short term land supply, bringing a permanent population catchment to the west of the City. Densities are greatest in proximity to the City Centre, with more traditional home sites provided to the south west and south of the precinct.”**



#### Key Figures (ultimate)

Area:	1070 (ha) (indicative based on precinct boundary)
New Dwellings:	Up to 8,029 (8,029 total)
New Short Stay (rooms):	0 (0 total)
New Transient Workforce Accommodation:	2,186 (2,642 total)
New Retail Floorspace (sqm):	6,287 (6,287 total)
New Commercial Office F'space (sqm):	0 (0 total)
New Schools:	1 PS (4.0ha)
New Sport Facilities:	1 Regional Level Facility (expansion to multi-purpose centre fields and facilities) plus local facilities

#### Summary of Influences

##### Landscape, Heritage & Environment

- South Creek environs and surrounding lower-lying land

##### Existing Land Use

- Water tanks at north end of precinct
- FIFO facilities adjoining Hamilton Road
- Main Sporting facilities
- Pilbara TAFE
- Landfill facility to southeast of precinct

##### Current or Planned Projects

- Major City Multi-Purpose Sport Facility



- ‘Site A’ development for workforce accommodation & residential west of TAFE
- ‘Site B’ development south of Forrest Cir / west of Scadden for permanent residential
- Expansion of existing Hamilton workforce accommodation
- Masterplanning for 100ha of medium density residential commenced

#### Precinct Plan Summary

- Medium/High density residential reducing to medium/low density further from City Centre
- Drainage Corridors to west reflecting drainage/flood needs and retention of Pilbara landscape elements
- Outer ‘ring road’ to define western edge
- Workforce Accommodation opportunities at northern / western edge
- Medium-longer term Urban Land Bank at southern end
- District Sporting Facilities and associated land bank designated over existing landfill facility

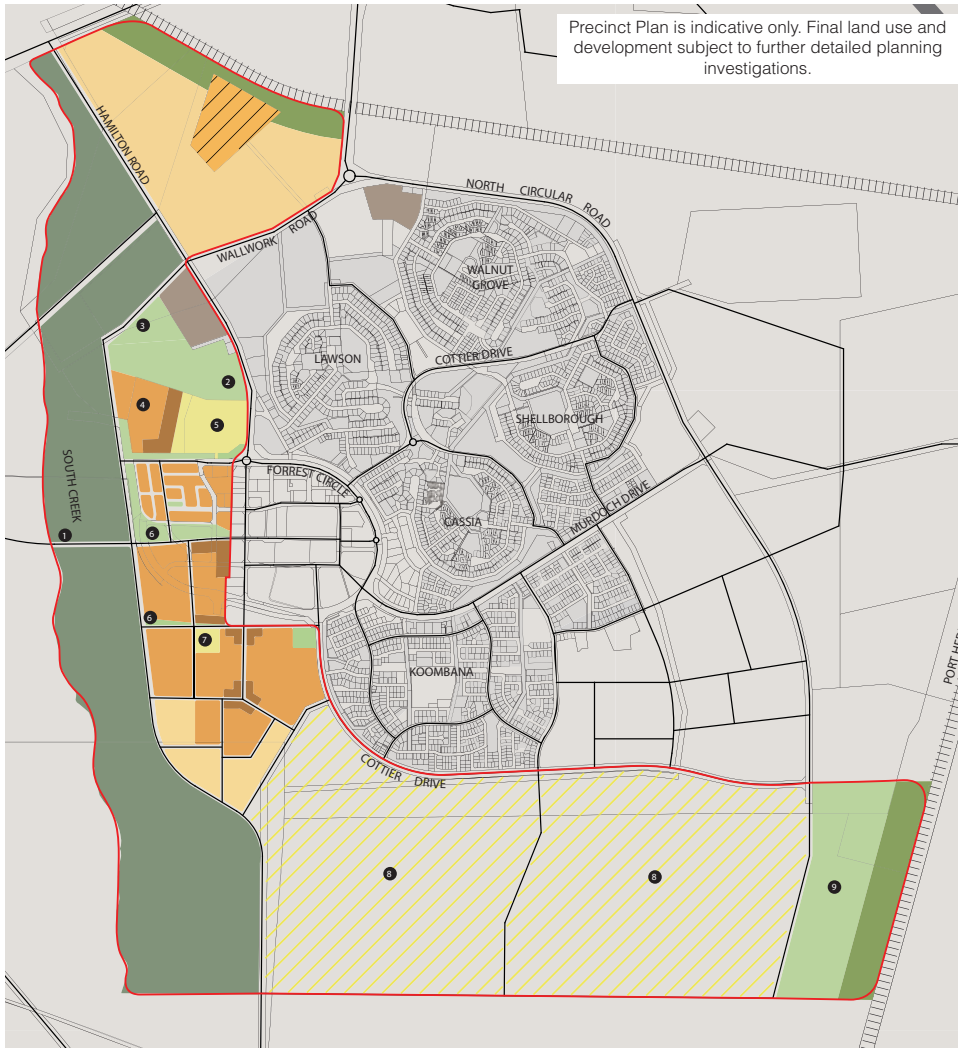
#### Implementation Indicators

The following is a guide to some of the considerations Pilbara’s Port City Growth Plan will examine in detail to facilitate implementation and delivery:

- Immediate land release requirement of 100ha (western edge) requires fast-track ‘intervention’ approach to bring forward standard agency approval timeframes and facilitate a 0-2 year development and lot release timeframe.
- Immediate traffic planning required for western ring road
- Immediate landfill relocation planning required to remove buffer impacts to urban development land in southeast
- Precinct encapsulated in TPS5 as a ‘Development Plan’ area
- District Structure Plan to be prepared over priority development areas (leaving land bank areas)
- Flexible approaches to immediate/short term water and wastewater infrastructure provision required.



Precinct Plan is indicative only. Final land use and development subject to further detailed planning investigations.



**Precinct Highlights**

1. Western 'gateway' entry road connection with CBD.
2. Multi-purpose regional sporting facility.
3. Medium term expansion of regional sports facilities and playing fields.
4. Short term workforce accommodation.
5. Tertiary Education precinct .
6. Open space 'green links' to South Creek environs.
7. Future Primary School (location subject to detailed design).
8. Medium/long term future urban (linked to demand/supply requirements).
9. District sporting facilities (and future sporting land bank).

**RESIDENTIAL**

- Residential - High Density (R80 - R120: Apartment Living)
- West End Residential (Residential R80 with design controls consistent with TP5 5 Amendment 22)
- Residential - Medium Density (R40 - R60: Apartment, townhouse, villa residential)
- Residential - Low Density (R15 - R30: Traditional Single Residential)

**COMMERCIAL**

- City Centre (Civic, Cultural, Major Retail, Commercial, Mixed Use Residential and Entertainment)
- Commercial/Cultural Centre (Retail, Commercial, Office, Short Stay Accommodation, Research & Education, Cultural and Entertainment)
- Neighbourhood Centre (Retail, Commercial, Residential Mixed Use)
- Local Centre (Convenience retail, Mixed Use, Short Stay Accommodation)
- Highway Commercial (Bulky Goods, Motor Vehicle/Boat Sales, Show Room, Warehouse Commercial)
- Short Stay Accommodation
- Community (Community, Education & Health)
- West End Mixed Use

**INDUSTRIAL**

- Light Industry
- General Industry/Transport and Logistics
- Strategic/Heavy Industry
- Strategic/Heavy Industry Buffer

**RURAL**

- Rural Residential
- Rural Industry

**RECREATION AND CONSERVATION**

- Local/Passive Open Space
- Landscape Buffer
- Natural Landscape/Conservation

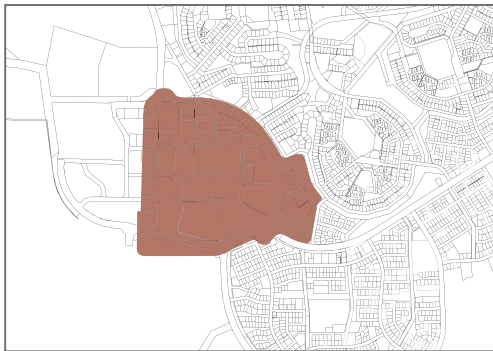
**OTHER**

- Public Purposes (Wastewater Treatment, Water, Cemetary, Energy)
- Airport Operations
- Future Expansion - Urban (Medium-Long Term)
- Future Expansion - Urban/Rural Residential (Long Term - Beyond 50,000)

### 5.7.11 Precinct 11 – City Centre

#### Precinct Statement

**“A place of ‘northern Australian life’, Pilbara’s Port City Centre is a dynamic, accessible and inclusive place that is the heart of the South Hedland community and the major regional centre of our City of 50,000 people. It is an exciting destination for visitors, business people and residents. It has great public spaces, friendly streets, landmark buildings and architecture. There are and many influences through public art and space of our strong association with indigenous heritage and natural landscape. Like the many destinations throughout Pilbara’s Port City, culture and social destinations are woven into our City Centre.”**



#### Key Figures (ultimate)

Area:	85 (ha) (indicative based on precinct boundary)
New Dwellings:	up to 716 (716 total)
New Short Stay (rooms):	294 (533 total)
New Retail Floorspace (sqm):	38,086 (63,831 total)
New Commercial Office F'space (sqm):	7,500 (15,971 total)
Hospital Expansion (ha):	4

#### Summary of Influences

##### Existing Land Use

- Civic / Justice uses in proximity to Forrest Cir / Hamilton Road
- Multicultural uses in proximity to Hamilton Rd/ Rason Ct
- Local recreation facilities / Community Services in proximity to Colebatch Way / Forrest Cir including Library, Aquatic Centre.
- Main Shopping/Retail area of Port and South Hedland
- Primary office/commercial area of Port and South Hedland
- Regional Hospital
- Commercial /retail east of Forrest Circle (Hunt St and surrounds)

##### Current or Planned Projects

- Town Centre Revitalisation Project (ToPH / LandCorp / Pilbara Cities) works currently underway to establish / facilitate:
  - ‘Main Street’ and connection to Murdoch Dve
  - Mixed Use Development Sites
  - Shopping Centre revitalisation and expansion

– Medium/High Density residential development sites

– New ‘Town Park’

– Hotel and Residential Apartments

– General upgrade to road network and connection to Eastern commercial area via Hunt Street

- Mixed Use Development (apartments, café, commercial) cnr Colebatch and new Murdoch Drive extension
- Library redevelopment and community facility building (ToPH)
- Aquatic Centre revitalisation and expansion (ToPH)

#### Precinct Plan Summary

Further plan detail is captured within the adopted ‘South Hedland Town Centre Development Plan’. Key urban design objectives for the City Centre include:

- Defined Areas - Identifiable public spaces and clearly defined connections between places
- Active Edges - A lively, interactive and inviting public environment
- Streets for people – pedestrian friendly streets with sheltered walkways
- View Corridors & Landmarks – an identifiable City Centre with clear cues and gateways
- Heritage, Culture & Art – a culturally significant public environment that stimulates and is provocative
- Way finding – artful and informative signage that adds uniqueness and flavour to the City Centre
- Safety – security of place through day or night
- Accessibility – through convenience for walking,

cycling, public transport or vehicles

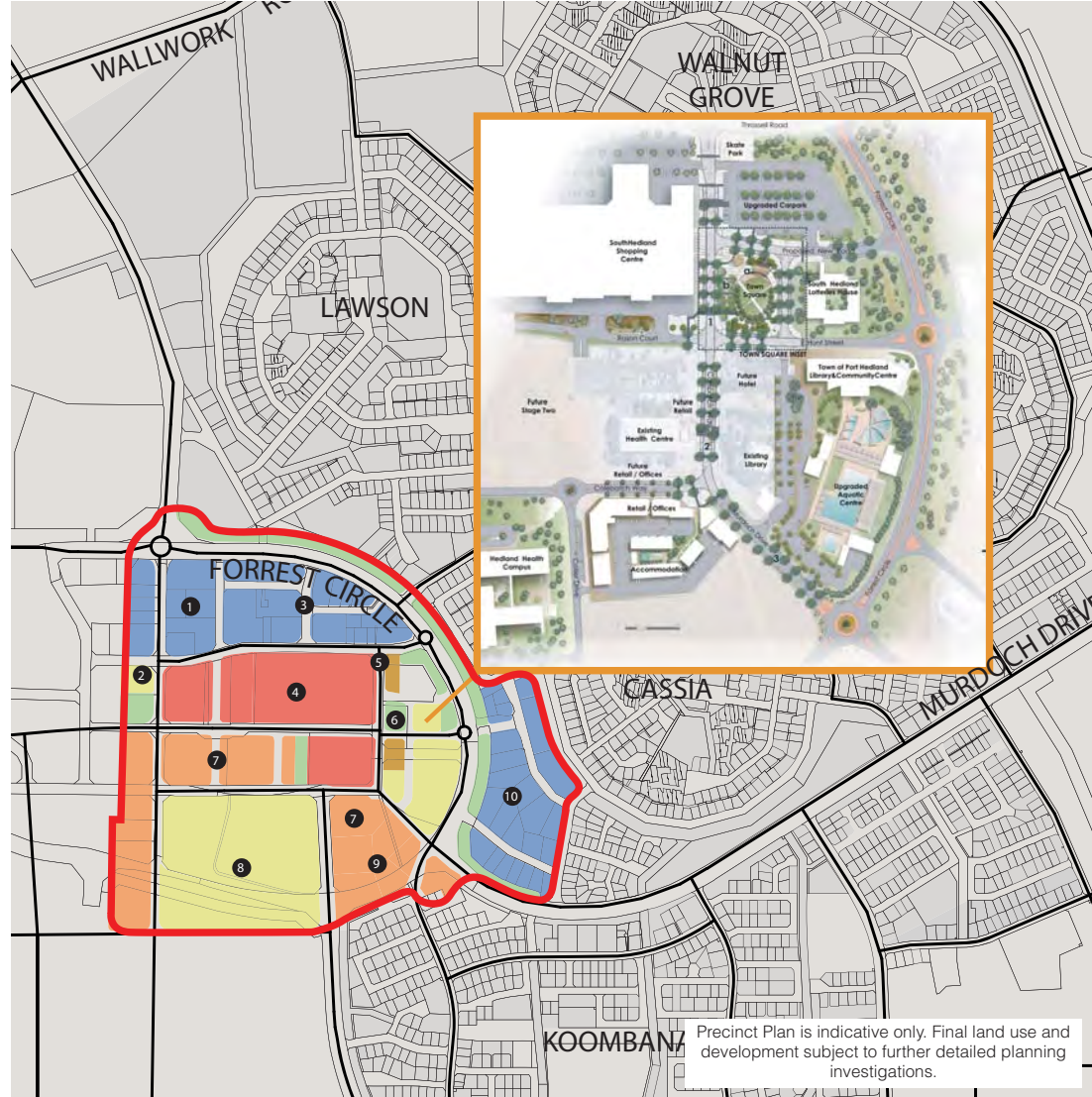
- Parking – ample, attractive and landscaped parking environs including bicycle parking
- Storage & Loading – use of screening and landscape to filter back-of-house uses from public spaces
- Sustainable Building – minimising energy use, water conservation and waste
- Bulk & Scale – flexible design of and between buildings to allow natural ventilation and light
- Articulation & Detailing – interesting, well proportioned facades, particularly at ground level and use of roof form to distinguish development from neighbourhoods.
- Entry & Shading – create defined entries to development and use shade devices
- Materials & Colours – celebrate the local landscape in the mix of materials, textures and colours used

Landscape, both soft and hard elements are also documented for the City Centre as part of the revitalisation project and form an integral part.

#### Implementation Indicators

The following is a guide to some of the considerations Pilbara’s Port City Growth Plan will examine in detail to facilitate implementation and delivery:

- Review / refinement of existing South Hedland Town Centre Development Plan to reflect City Centre role.
- Use of a ‘City Architect’ in conjunction with urban design practitioners to ensure best practice development outcomes are achieved.
- ‘Phase 1’ deliver underway and continuing to deliver new “main street”, town park and associated land releases to the private sector
- ‘Phase 2’ delivery of further road/infrastructure upgrades and release to private sector of residential/ mixed use and commercial opportunities during 2011/2012



Precinct Highlights

1. Civic / Justice precinct.
2. Indigenous Culture precinct.
3. City Commercial / Office Precinct.
4. Retail / Shopping Centre.
5. 'Main Street' Activity Precinct.
6. Town Square.
7. High density mixed use residential.
8. Health Precinct (including expansion area for hospital).
9. Medium density residential.
10. Mixed use commercial precinct connected to City Centre.

RESIDENTIAL

- Residential - High Density (R80 - R120: Apartment Living)
- West End Residential (Residential R80 with design controls consistent with TPS 5 Amendment 22)
- Residential - Medium Density (R40 - R60: Apartment, townhouse, villa residential)
- Residential - Low Density (R15 - R30: Traditional Single Residential)

COMMERCIAL

- City Centre (Civic, Cultural, Major Retail, Commercial, Mixed Use Residential and Entertainment)
- Commercial/Cultural Centre (Retail, Commercial, Office, Short Stay Accommodation, Research & Education, Cultural and Entertainment)
- Neighbourhood Centre (Retail, Commercial, Residential Mixed Use)
- Local Centre (Convenience retail, Mixed Use, Short Stay Accommodation)
- Highway Commercial (Bulky Goods, Motor Vehicle/Boat Sales, Show Room, Warehouse Commercial)
- Short Stay Accommodation
- Community (Community, Education & Health)
- West End Mixed Use

INDUSTRIAL

- Light Industry
- General Industry/Transport and Logistics
- Strategic/Heavy Industry
- Strategic/Heavy Industry Buffer

RURAL

- Rural Residential
- Rural Industry

RECREATION AND CONSERVATION

- Local/Passive Open Space
- Landscape Buffer
- Natural Landscape/Conservation

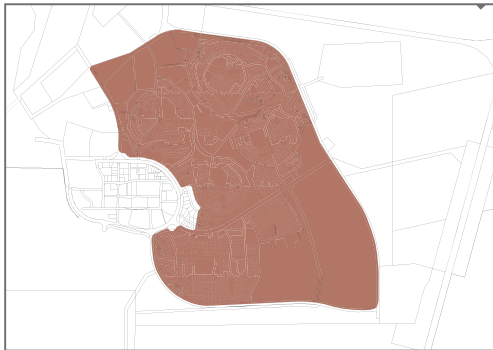
OTHER

- Public Purposes (Wastewater Treatment, Water, Cemetary, Energy)
- Airport Operations
- Future Expansion - Urban (Medium-Long Term)
- Future Expansion - Urban/Rural Residential (Long Term - Beyond 50,000)
- CITY CENTRE**
- Town Centre
- Retail
- Residential - Town Centre
- Mixed Use - Retail/Commercial
- Community Use
- Public Open Space

### 5.7.12 Precinct 12 – South Hedland East

#### Precinct Statement

**“South Hedland East comprises the original four neighbourhoods of South Hedland, together with adjoining land to the south within Circular Road and Cottier Road. It is a place of safe, landscaped and connected streets and a place that continues to be regenerated through redevelopment and infill. A strong sense of community continues to develop through celebration of local art and culture, community uses and sporting opportunity.”**



#### Key Figures (ultimate)

Area:	715 (ha) (indicative based on precinct boundary)
New Dwellings:	Up to 6,070 (9,578 total)
New Short Stay (rooms):	196 (396 total)
New Transient Workforce Accom:	364 (550 total)
New Retail Floorspace (sqm):	7,137 (7,137 total)
New Commercial Office F'space (sqm):	0 (0 total)
New Schools:	1 PS (4.0ha), 1 HS (12,0ha)
New Sport Facilities:	1 District Recreation in addition to demand led local facilities – (20ha)



#### Summary of Influences

##### Existing Land Use

- Predominantly residential (single with nodes of grouped and higher density)
- South Hedland High School (encompassing Matt Dan Theatre)
- South Hedland Bowls Club
- Vacant undeveloped land
- South Hedland Water Tower
- Black Rock Caravan Park

##### Current or Planned Projects

- Water Park (ToPH)
- Community Centre Redevelopment (JD Hardie Centre)
- New Living Revitalisation Program
- Parker Street planned residential project (Cedar Woods)

- Koombana School Site planned residential project (Jaxon)
- 'Site K' on North Circular Road / Murdoch Drive for residential
- Landscape amenity improvement program

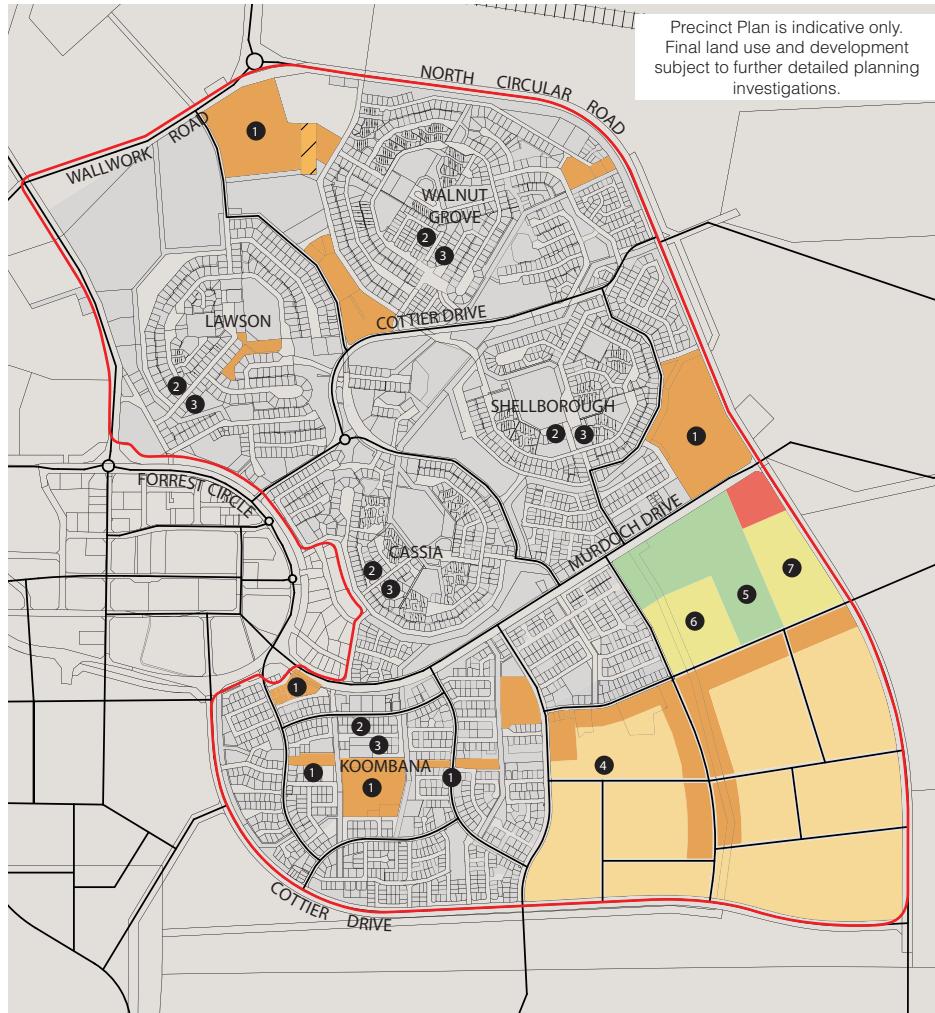
#### Precinct Plan Summary

- Significant on-going infill/redevelopment of residential land
- Immediate term residential land release to south east
- Education and community facilities
- Mixed Use local centre at eastern end of Murdoch Drive

#### Implementation Indicators

The following is a guide to some of the considerations Pilbara's Port City Growth Plan will examine in detail to facilitate implementation and delivery:

- Masterplanning commencing (Department of Housing) for detailed site design and development of priority land release south of Murdoch Drive.
- Amendment to TPS5 proposed to facilitate continued regeneration of established areas following progression of 'New Living' program
- Key immediate land release sites being progressed by the private sector and not-for-profit organisations
- Flexible approaches to immediate/short term water and wastewater infrastructure provision required.



**Precinct Highlights**

1. Immediate term housing supply opportunity.
2. Opportunities for density increases across neighbourhood.
3. Way-finding improvements through streetscape planting, signage and public art across precinct neighbourhoods.
4. Immediate / short term expansion of residential land supply east of Koombana.
5. District playing fields co-located with High School/Primary School.
6. Primary School.
7. High School.

**RESIDENTIAL**

- Residential - High Density (R80 - R120: Apartment Living)
- West End Residential (Residential R80 with design controls consistent with TP5 5 Amendment 22)
- Residential - Medium Density (R40 - R60: Apartment, townhouse, villa residential)
- Residential - Low Density (R15 - R30: Traditional Single Residential)

**COMMERCIAL**

- City Centre (Civic, Cultural, Major Retail, Commercial, Mixed Use Residential and Entertainment)
- Commercial/Cultural Centre (Retail, Commercial, Office, Short Stay Accommodation, Research & Education, Cultural and Entertainment)
- Neighbourhood Centre (Retail, Commercial, Residential Mixed Use)
- Local Centre (Convenience retail, Mixed Use, Short Stay Accommodation)
- Highway Commercial (Bulky Goods, Motor Vehicle/Boat Sales, Show Room, Warehouse Commercial)
- Short Stay Accommodation
- Community (Community, Education & Health)
- West End Mixed Use

**INDUSTRIAL**

- Light Industry
- General Industry/Transport and Logistics
- Strategic/Heavy Industry
- Strategic/Heavy Industry Buffer

**RURAL**

- Rural Residential
- Rural Industry

**RECREATION AND CONSERVATION**

- Local/Passive Open Space
- Landscape Buffer
- Natural Landscape/Conservation

**OTHER**

- Public Purposes (Wastewater Treatment, Water, Cemetary, Energy)
- Airport Operations
- Future Expansion - Urban (Medium-Long Term)
- Future Expansion - Urban/Rural Residential (Long Term - Beyond 50,000)

### 5.7.13 Precinct 13 – Eastern Gateway

#### Precinct Statement

***“The Eastern Gateway precinct forms part of the much needed spatial growth of South Hedland. It supports a mix of urban development and consolidates the eastern entry to our City Centre via Great Northern Highway and Murdoch Drive.”***



#### Summary of Influences

##### Existing Land Use

- Predominantly Vacant
- Major drainage area off North Circular Road

##### Current or Planned Projects

- Water Park (ToPH)

- Community Centre Redevelopment (JD Hardie Centre)
- New Living Revitalisation Program

#### Implementation Indicators

The following is a guide to some of the considerations Pilbara's Port City Growth Plan will examine in detail to facilitate implementation and delivery:

- Investigation required to facilitate site planning and development of workforce accommodation (potentially housing construction workforce)
- Precinct encapsulated in TPS5 as a 'Development Plan' area
- Structure Plan to be prepared over priority development areas (leaving land bank areas)

#### Key Figures (ultimate)

Area:	545 (ha) (indicative based on precinct boundary)
New Dwellings:	Up to 2,772 (2,772 total)
New Short Stay (rooms):	0 (0 total)
New Transient Workforce Accom:	729 (729 total)
New Retail Floorspace (sqm):	1,354 (1,354 total)
New Commercial Office F'space (sqm):	0 (0 total)





**Precinct Highlights**

1. Eastern 'gateway' entry road linking Murdoch Drive to city centre.
2. Opportunity for short term housing construction accommodation.
3. District sporting facilities (and long term sporting land bank).

**RESIDENTIAL**

- Residential - High Density (R80 - R120: Apartment Living)
- West End Residential (Residential R80 with design controls consistent with TP5 5 Amendment 22)
- Residential - Medium Density (R40 - R60: Apartment, townhouse, villa residential)
- Residential - Low Density (R15 - R30: Traditional Single Residential)

**COMMERCIAL**

- City Centre (Civic, Cultural, Major Retail, Commercial, Mixed Use Residential and Entertainment)
- Commercial/Cultural Centre (Retail, Commercial, Office, Short Stay Accommodation, Research & Education, Cultural and Entertainment)
- Neighbourhood Centre (Retail, Commercial, Residential Mixed Use)
- Local Centre (Convenience retail, Mixed Use, Short Stay Accommodation)
- Highway Commercial (Bulky Goods, Motor Vehicle/Boat Sales, Show Room, Warehouse Commercial)
- Short Stay Accommodation
- Community (Community, Education & Health)
- West End Mixed Use

**INDUSTRIAL**

- Light Industry
- General Industry/Transport and Logistics
- Strategic/Heavy Industry
- Strategic/Heavy Industry Buffer

**RURAL**

- Rural Residential
- Rural Industry

**RECREATION AND CONSERVATION**

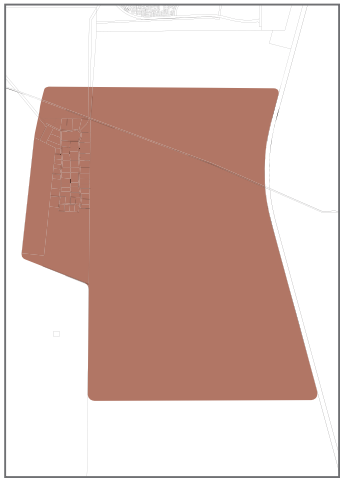
- Local/Passive Open Space
- Landscape Buffer
- Natural Landscape/Conservation

**OTHER**

- Public Purposes (Wastewater Treatment, Water, Cemetary, Energy)
- Airport Operations
- Future Expansion - Urban (Medium-Long Term)
- Future Expansion - Urban/Rural Residential (Long Term - Beyond 50,000)

### 5.7.14 Precinct 14 – Southern

***“The Southern precinct provides opportunities for residents opting for a rural-residential lifestyle. Limited growth of the established rural-residential area is balanced with the need to protect the wider area as undeveloped potential longer term City Growth needs should urban expansion pressure require.”***



#### Key Figures (ultimate)

Area:	2300(ha) (indicative based on precinct boundary)
New Dwellings:	limited to eastern expansion area
New Short Stay (rooms):	0 (0 total)
New Transient Workforce Accom:	0 (0 total)
Rural Residential Expansion:	92ha
Future Urban Growth Area (ha):	1425ha

#### Summary of Influences

##### Landscape, Heritage & Environment

- South Creek environs and lower lying surrounds

##### Existing Land Use

- Limited area of rural small holdings at north west edge

#### Implementation Indicators

The following is a guide to some of the considerations Pilbara's Port City Growth Plan will examine in detail to facilitate implementation and delivery:

- Precinct to be reflected within TPS5 to recognise long term land bank intent.







Precinct Plan is indicative only. Final land use and development subject to further detailed planning investigations.

Precinct Highlights

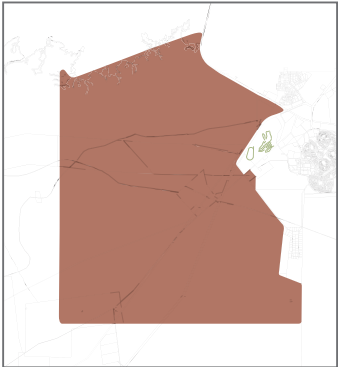
1. South Hedland rural residential estate expansion.

<p><b>RESIDENTIAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #8B4513; border-radius: 50%; margin-right: 5px;"></span> Residential - High Density (R80 - R120: Apartment Living)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #D2B48C; border-radius: 50%; margin-right: 5px;"></span> West End Residential (Residential R80 with design controls consistent with TP5 5 Amendment 22)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #C85130; border-radius: 50%; margin-right: 5px;"></span> Residential - Medium Density (R40 - R60: Apartment, townhouse, villa residential)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #F0C88C; border-radius: 50%; margin-right: 5px;"></span> Residential - Low Density (R15 - R30: Traditional Single Residential)</li> </ul>	<p><b>COMMERCIAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #00AEEF; border-radius: 50%; margin-right: 5px;"></span> City Centre (Civic, Cultural, Major Retail, Commercial, Mixed Use Residential and Entertainment)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #00AEEF; border: 1px solid #00AEEF; margin-right: 5px;"></span> Commercial/Cultural Centre (Retail, Commercial, Office, Short Stay Accommodation, Research &amp; Education, Cultural and Entertainment)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #A52A2A; border-radius: 50%; margin-right: 5px;"></span> Neighbourhood Centre (Retail, Commercial, Residential Mixed Use)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #E9967A; border-radius: 50%; margin-right: 5px;"></span> Local Centre (Convenience retail, Mixed Use, Short Stay Accommodation)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #4169E1; border-radius: 50%; margin-right: 5px;"></span> Highway Commercial (Bulky Goods, Motor Vehicle/Boat Sales, Show Room, Warehouse Commercial)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #8B4513; border-radius: 50%; margin-right: 5px;"></span> Short Stay Accommodation</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #FFFF00; border-radius: 50%; margin-right: 5px;"></span> Community (Community, Education &amp; Health)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ADD8E6; border-radius: 50%; margin-right: 5px;"></span> West End Mixed Use</li> </ul>	<p><b>INDUSTRIAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #9370DB; border-radius: 50%; margin-right: 5px;"></span> Light Industry</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #800080; border-radius: 50%; margin-right: 5px;"></span> General Industry/Transport and Logistics</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #483D8B; border-radius: 50%; margin-right: 5px;"></span> Strategic/Heavy Industry</li> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px dashed #483D8B; margin-right: 5px;"></span> Strategic/Heavy Industry Buffer</li> </ul> <p><b>RURAL</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #90EE90; border-radius: 50%; margin-right: 5px;"></span> Rural Residential</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #808080; border: 1px solid #808080; margin-right: 5px;"></span> Rural Industry</li> </ul> <p><b>RECREATION AND CONSERVATION</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #90EE90; border-radius: 50%; margin-right: 5px;"></span> Local/Passive Open Space</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #6AA84F; border-radius: 50%; margin-right: 5px;"></span> Landscape Buffer</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #556B2F; border-radius: 50%; margin-right: 5px;"></span> Natural Landscape/Conservation</li> </ul>	<p><b>OTHER</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #FFD700; border: 1px solid #FFD700; margin-right: 5px;"></span> Public Purposes (Wastewater Treatment, Water, Cemetary, Energy)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #FFD700; border: 1px solid #FFD700; margin-right: 5px;"></span> Airport Operations</li> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px dashed #FFD700; margin-right: 5px;"></span> Future Expansion - Urban (Medium-Long Term)</li> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px dashed #90EE90; margin-right: 5px;"></span> Future Expansion - Urban/Rural Residential (Long Term - Beyond 50,000)</li> </ul>
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### 5.7.15 Precinct 15 - Boodarie

#### Precinct Statement

***“The Boodarie Strategic Industrial Area is a Western Australian State Government strategic resource site. The area supports major down-stream processing, port dependant industrial, noxious industry, utilities and general industrial support operations. Major infrastructure and rail corridors protecting connectivity between the port and Boodarie, as well as wider rail networks are recognised.”***



#### Key Figures (ultimate)

Area:	15000 (ha) (indicative based on precinct boundary)
New Strategic Industry (ha):	1,090 (1,658 total) (Note: existing assumes BHPBIO HBI Plant & surrounds in modelling as existing)

#### Summary of Influences

##### Landscape, Heritage & Environment

- Significant mangrove environs
- South Creek environs

##### Existing Land Use

- Predominantly vacant land
- Rail line on eastern edge
- Power Station off Great Northern Hwy on north eastern edge
- Decommissioned BHPBIO HBI plant and facilities
- Boodarie Station House
- FMG Mining operations and rail loop

##### Current or Planned Projects

- Boodarie Strategic Industrial Area Masterplan

- Rail line expansions (under investigation) as part of PHPA expansion
- BHP “Quantum” Project planning

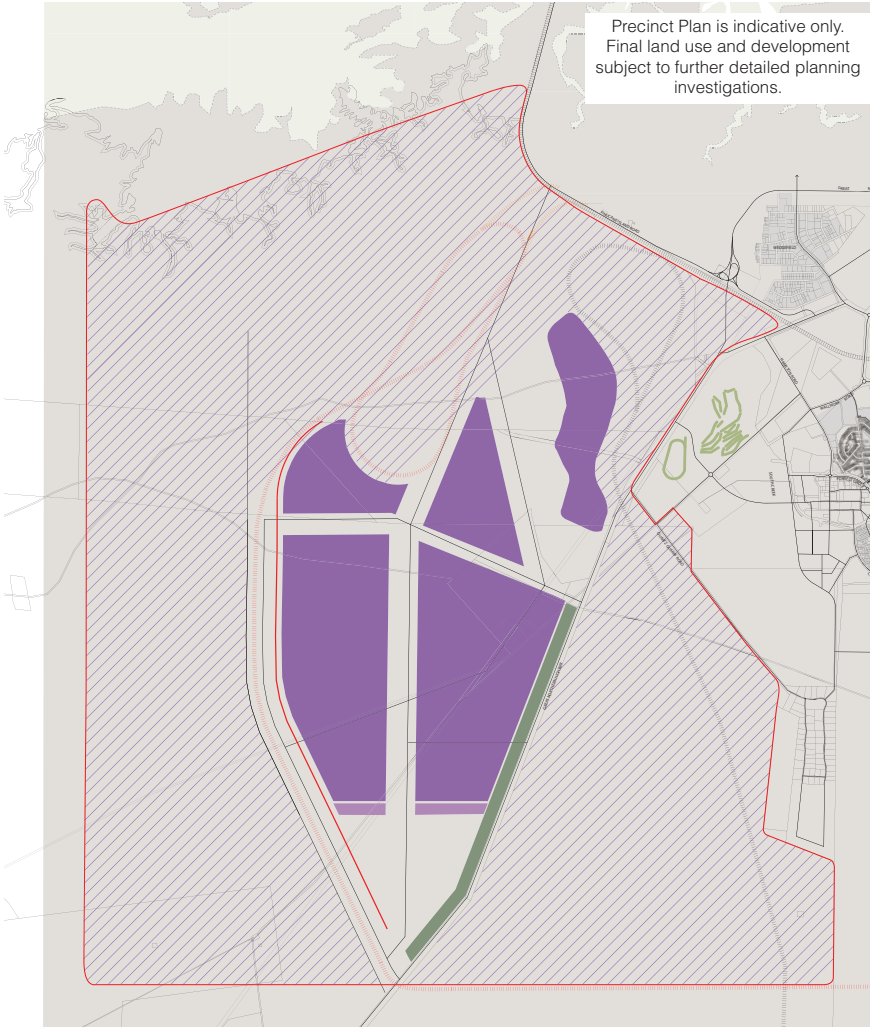
#### Implementation Indicators

The following is a guide to some of the considerations Pilbara’s Port City Growth Plan will examine in detail to facilitate implementation and delivery:

- Precinct to be encapsulated within TPS5 as a ‘Development Plan’ area.
- Boodarie Development Plan to be completed and adopted under TPS5 as framework for development (under preparation by Department of State Development)



Precinct Plan is indicative only.  
Final land use and development  
subject to further detailed planning  
investigations.



**RESIDENTIAL**

- Residential - High Density (R80 - R120: Apartment Living)
- West End Residential (Residential R80 with design controls consistent with TP5 5 Amendment 22)
- Residential - Medium Density (R40 - R60: Apartment, townhouse, villa residential)
- Residential - Low Density (R15 - R30: Traditional Single Residential)

**COMMERCIAL**

- City Centre (Civic, Cultural, Major Retail, Commercial, Mixed Use Residential and Entertainment)
- Commercial/Cultural Centre (Retail, Commercial, Office, Short Stay Accommodation, Research & Education, Cultural and Entertainment)
- Neighbourhood Centre (Retail, Commercial, Residential Mixed Use)
- Local Centre (Convenience retail, Mixed Use, Short Stay Accommodation)
- Highway Commercial (Bulky Goods, Motor Vehicle/Boat Sales, Show Room, Warehouse Commercial)
- Short Stay Accommodation
- Community (Community, Education & Health)
- West End Mixed Use

**INDUSTRIAL**

- Light Industry
- General Industry/Transport and Logistics
- Strategic/Heavy Industry
- Strategic/Heavy Industry Buffer

**RURAL**

- Rural Residential
- Rural Industry

**RECREATION AND CONSERVATION**

- Local/Passive Open Space
- Landscape Buffer
- Natural Landscape/Conservation

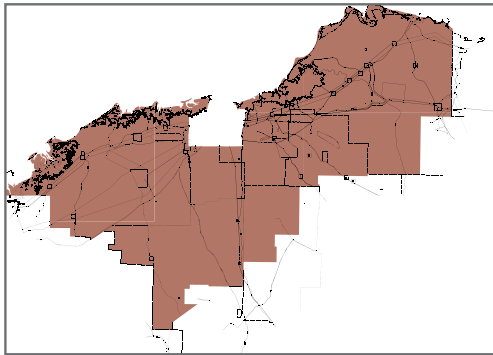
**OTHER**

- Public Purposes (Wastewater Treatment, Water, Cemetary, Energy)
- Airport Operations
- Future Expansion - Urban (Medium-Long Term)
- Future Expansion - Urban/Rural Residential (Long Term - Beyond 50,000)

### 5.7.16 Precinct 16 – Port & South Hedland Surrounds

#### Precinct Statement

**“Coast and landscape define Pilbara’s Port City. Opportunities for connection and association with coast and landscape are typified through the recreation and tourism nodes that bring greater lifestyle choice in the wider Port and South Hedland areas. Camping, fishing and beach walking form an important part of the northern Australian life.”**



#### Summary of Influences

##### Landscape, Heritage & Environment

- Historic De Grey Stock Route
- Wider coastal landscape and environs subject to coastal vulnerability
- Indigenous heritage throughout
- Indigenous: Sites registered in Precinct with potential for currently unknown sites to occur. Boodarie Landing engravings
- Non-Indigenous: Heritage items such as pastoral properties exist with potential for further unregistered sites. Condon. Condon/Shellborough Pastoral properties include Pippingarra; Mundabullangara; Boodarie; Wallareenya; De Grey; Strelley; and Woodstock Stations

#### Existing Land Use

- Pastoral Station Leases / operations
- Informal camping/fishing

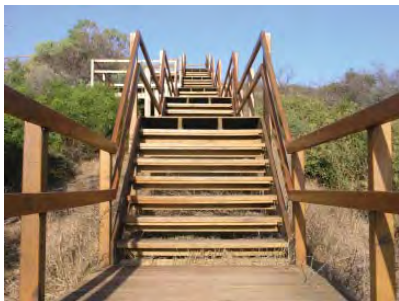
#### Precinct Plan Summary

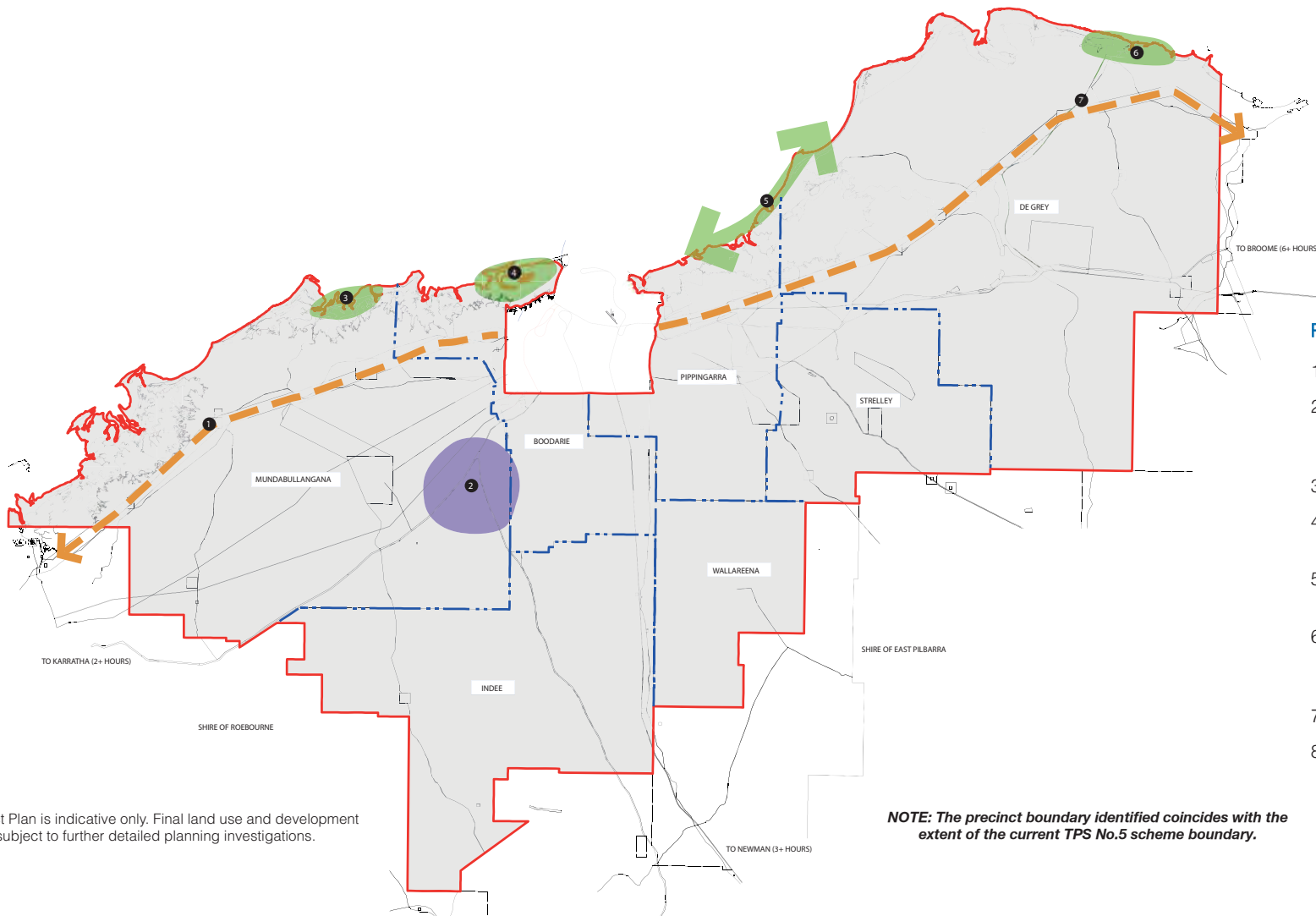
- Key locations identified for coastal access, fishing, camping
- Newman turn off identified for further investigation of transport and regional landfill uses

#### Implementation Indicators

The following is a guide to some of the considerations Pilbara’s Port City Growth Plan will examine in detail to facilitate implementation and delivery:

- Establishment of order of costs, timing and funding necessary to deliver earlier upgrades to identified coastal access locations
- Wider coastal access study, particularly north of Port Hedland, required to determine opportunities at a local level.
- Investigation of Area A as a priority





Precinct Plan is indicative only. Final land use and development subject to further detailed planning investigations.

**NOTE: The precinct boundary identified coincides with the extent of the current TPS No.5 scheme boundary.**

**Precinct Highlights**

1. De Grey-Mullewa stock route.
2. Investigation Area A: Newman turnoff (potential waste disposal transfer, industrial transport depot/storage).
3. Investigation Area B: Turtle Tourism.
4. Horseshoe and Bus Stop (camping, fishing locations).
5. Investigation Area C: (fishing, camping, swimming with improved coastal access).
6. Investigation Area D: Condon Shellborough tourism location (camping & coastal access) and/or within the De Grey station.
7. Current access to Shellborough.
8. All Western Australian pastoral leases are due to expire in 2015. The expiry of the leases in 2015 will provided an opportunity to negotiate exclusions from pastoral leases of key areas that mat be required for public works, conservation, national park, nature reserve or other State purposes.

**RESIDENTIAL**

- Residential - High Density (R80 - R120: Apartment Living)
- West End Residential (Residential R80 with design controls consistent with TPS 5 Amendment 22)
- Residential - Medium Density (R40 - R60: Apartment, townhouse, villa residential)
- Residential - Low Density (R15 - R30: Traditional Single Residential)

**COMMERCIAL**

- City Centre (Civic, Cultural, Major Retail, Commercial, Mixed Use Residential and Entertainment)
- Commercial/Cultural Centre (Retail, Commercial, Office, Short Stay Accommodation, Research & Education, Cultural and Entertainment)
- Neighbourhood Centre (Retail, Commercial, Residential Mixed Use)
- Local Centre (Convenience retail, Mixed Use, Short Stay Accommodation)
- Highway Commercial (Bulky Goods, Motor Vehicle/Boat Sales, Show Room, Warehouse Commercial)
- Short Stay Accomodation
- Community (Community, Education & Health)
- West End Mixed Use

**INDUSTRIAL**

- Light Industry
- General Industry/Transport and Logistics
- Strategic/Heavy Industry
- Strategic/Heavy Industry Buffer

**RURAL**

- Rural Residential
- Rural Industry

**RECREATION AND CONSERVATION**

- Local/Passive Open Space
- Landscape Buffer
- Natural Landscape/Conservation

**OTHER**

- Public Purposes (Wastewater Treatment, Water, Cemetary, Energy)
- Airport Operations
- Future Expansion - Urban (Medium-Long Term)
- Future Expansion - Urban/Rural Residential (Long Term - Beyond 50,000)



## 6.0 SUMMARY AND IMPLEMENTATION



6

### 6.1 SUMMARY AND IMPLEMENTATION

The City Growth Plan has laid the foundations for Port Hedland to grow into a city of up to 50,000 people and become Pilbara's Port City.

The document has outlined the principles, challenges, opportunities and strategies for achieving the Town of Port Hedland's vision of a nationally significant, friendly City, where people want to live and are proud to call home.

In addition the document has identified a Preferred Growth Scenario. Under this scenario, emphasis is placed on a balance between infill and immediate extension of services to provide new development; with controlled new expansion into greenfield areas within South Hedland. This scenario promotes connectivity through the development of key public transport and the potential to deliver a more transit-oriented sustainable city. It will also allow infrastructure service providers to maximise efficiency in delivery and simplify the priorities for growth.

It is recognised, however, that the preferred scenario does require significant public and private

ownership and investment, the basis for which is outlined in the strategies section. The timing and delivery of strategy items will be detailed in the accompanying Pilbara's Port City 'Implementation Plan'.

For the first time, Pilbara's Port City will have clear strategies to map and implement growth across five core themes. Spatially, the Growth Plan identifies 16 Growth Precincts, broadly setting out how land should be used and developed – and protecting the primacy of the Port and resource infrastructure and operations. In addition to non-spatial strategies, these precincts provide the foundations for the following:

- Significant new residential development capacity (including excess of demand for a population of 50,000), including:
  - 23,230 total new dwellings;
  - 17,587 new dwellings in South Hedland;
  - 5,643 new dwellings in Port Hedland;
  - No additional new dwellings in West End.

- Providing housing diversity and housing choice to cater for future growth of both permanent and temporary accommodation;
- Approximately 125,000m<sup>2</sup> of additional retail/commercial floor space;
- A cultural hub in the West End of Port Hedland and a new retail centre in the East End;
- Delivery of a regional town centre for South Hedland; and
- Approximately 2,161ha of additional strategic industrial land and 450ha of additional general/light industrial land.

To meet the needs of a growing population, the Growth Plan also identifies a range of strategies and initiatives required to address the core themes. In particular, housing has been identified as by far the most critical issue and impediment to economic growth and a range of strategies have been articulated to address this issue; failure to address this issue in a pro-active and robust fashion could impair all future growth.

The growth of Port Hedland on the scale envisaged will require a wide ranging and coordinated approach to effectively plan and provide infrastructure for a port city. This is the role of the Implementation Plan, a document prepared concurrently with the Growth Plan.

#### Implementation

Detailed implementation measures for spatial and non-spatial strategies to be documented in 'Pilbara's Port City Implementation Plan' across each of the Growth Plan themes:

- Sustaining and Diversifying Economic Growth
- Strengthening Local Communities and Culture
- Environmental Protection and Change Adaptation
- Land Supply and Housing
- Building and Maintaining Infrastructure Capacity

Implementation to be mapped across immediate, short, medium and long term timeframes.

The Implementation Plan will set out the program for the delivery of the spatial and non-spatial elements, including community, economic, environmental, physical and infrastructure projects and programs. It will include a broad set of actions, roles and responsibilities, timing, and other information required to inform the delivery plans and programs of project partners.

A key focus of the Implementation Plan will be on identifying project inter-dependencies and 'critical paths' to ensure a fully integrated strategy. Critical lead-time projects will be elevated and prioritised in the Implementation Plan to fast-track work. For example, opportunities to fast-track infrastructure capacity and environmental studies that can take a number of months (and years in some cases) will be considered to ensure an adequate supply of "project ready" land (residential, industrial or commercial).

The Implementation Plan will be sufficiently robust to be able to respond to a range of growth scenarios and, importantly, to take into account the range of existing projects and programs that will be or are already progressing concurrently with the City

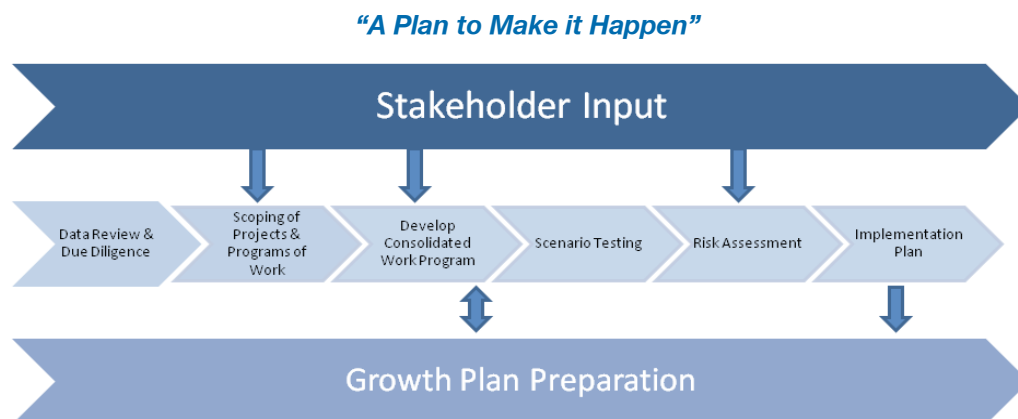


Figure 6.17: Plan to 'Make it Happen'.





### Growth Plan.

The support and assistance of all relevant agencies will be vital in the years ahead if both the Town of Port Hedland and the State Government are to realise for the delivery of the spatial and non-spatial elements in the Implementation Plan.

### “Quick Wins”

The Growth Plan has identified a number of early or “Quick Wins” that can be progressed immediately (0-2 years). These are summarised below.

The Implementation Plan will identify and document these “Quick Wins” in more detail, including the specific actions, timeframes, stakeholder roles, etc. to realise them.

#### Precinct 1 (West End)

- Development of cultural experiences in the West End
- Business development initiatives
- Provide for infill development
- Development of Mirvac site
- Development of old hospital site

#### Precinct 2 (East End)

- Development of concept plan (Structure Plan) for future development of East Port Hedland
- Development of “easy areas” within East Port Hedland
- Planning scheme amendments to increase density in existing areas to facilitate infill
- Upgrade of sewer and water infrastructure
- Relocation of Wastewater Treatment Plant WTP by 2014.

#### Precinct 3 (Port Authority)

- Progression of inner harbor and outer harbor development
- Progression of industrial and port facility services eg. rail

#### Precinct 6 (Wedgefield)

- Development of industrial land

#### Precinct 7 (Airport & Surrounds)

- TWA developments for construction workforce (performance based ensuring limited lifetime on TWA).
- Expansion of Airport
- Development of Industrial and Commercial land

#### Precinct 9 (Western Gateway)

- Master planning of sporting precincts
- Expansion of WWTP

#### Precinct 10 (South Hedland West)

- Progression of rezoning of approximately 100ha of Precinct 10 (approximately 1000ha) to facilitate residential development.
- Development of new urban release areas (including Areas A & B)
- TWA on Council recreation reserve land

#### Precinct 11 (City Centre)

- Five sites released during 2011 and 2012 .
- Development of Community Facilities
- Skate Park redevelopment
- South Hedland Aquatic Centre (SHAC) upgrade
- Development of Hotel site, mixed use residential sites

#### Precinct 12 (South Hedland East)

- Rezoning of key areas within established neighbourhoods of east south Hedland to facilitate redevelopment opportunities within existing serviced areas.
- Progression of masterplanning and remaining rezoning to facilitate construction of residential land
- for release in 2012, in southeast corner - south of Murdoch Dve.
- Development of new urban land release areas

#### Precinct 15 (Boodarie)

- Progression of planning for Boodarie SIA

#### Precinct 16 (Surrounds)

- Development of Coastal Access Strategies

In addition to non-spatial strategies, these precincts provide the foundations for the following:

- Significant new residential development capacity (including excess of demand for a population of 50,000), including:
  - 23,230 total new dwellings;
  - 17,587 new dwellings in South Hedland;
  - 5,643 new dwellings in Port Hedland;
  - No additional new dwellings in West End.
- Providing housing diversity and housing choice to cater for future growth of both permanent and temporary accommodation;
- Approximately 125,000m<sup>2</sup> of additional retail/commercial floor space;
- Delivery of a regional town centre for South Hedland (61,000m<sup>2</sup> of additional floor space)

- A cultural hub in the West End of Port Hedland (32,000m<sup>2</sup> of additional floor space)
- A new centre in the East End of Port Hedland (24,000m<sup>2</sup> of additional floor space)
- A cultural hub in the West End of Port Hedland and a new retail centre in the East End;
- Delivery of a regional town centre for South Hedland; and
- Approximately 2,161ha of additional strategic industrial land and 450ha of additional general/light industrial land.



## APPENDICES

# APPENDIX





## APPENDIX A: STRATEGY AND POLICY CONTEXT

A wide range of previous studies and investigations have been undertaken in relation to the broader development of the Pilbara and Port Hedland's role within it. As highlighted in this section, the Growth Plan has taken into the relevant strategies and policies which have been prepared to help inform the Growth Plan investigations and outcomes.

### 1. *State Planning Strategy (WAPC, 1997)*

The State Planning Strategy considers the following key initiatives for the Pilbara:

- Respond quickly to resource development;
- Provide for industry and growing communities; and
- Facilitate effective export links

Regarding Port Hedland specifically, the Strategy nominates the need for an Area Development Strategy specific for the Town of Port Hedland. Area Development Strategies are outlined as mechanisms to focus on specific issues requiring coordination in a region and should focus on 'managing competing land uses, but of facilitating activity, helping cut through over-regulation and ensuring that regional development objectives are met.'

Whilst Area Development Strategies have not progressed the principle of the idea still forms the foundation of this Growth Plan. The Growth Plan will focus essentially on managing the competing issues associated with continued growth in the resources sector and the need for urban growth in addition to addressing the key initiatives defined through the State Planning Strategy. Furthermore it will set a policy framework for the timely and continued development of Port Hedland which will guide regulatory decision making in the future. In doing so, the guiding principles of the State Planning Strategy have been used to inform the preparation of the Growth Plan.

### 2. *Preliminary Pilbara Regional Plan (Regional Development Australia, 2010)*

The preliminary Pilbara Regional Plan has been prepared by Regional Development Australia and is intended to articulate the Regional Development Australia (RDA) Pilbara Committee's economic, environmental and social vision and goals, and underpins the work and priorities of the key stakeholders in the Region. The plan sets a vision for the Region which includes a number of key points. These have been appropriately considered and integrated in growth plan.

### 3. *Pilbara Plan (Pilbara Area Consultative Committee, 2008)*

The Pilbara Plan is a call to action for all sectors of government, industry and the community to bring basic infrastructure levels across the Pilbara up to an acceptable standard. The Plan details numerous projects required for implementation to lift standards of living and the functionality of the Pilbara. A number of specific projects relate to Port Hedland and have been considered in the preparation of the Growth Plan. More importantly, these key projects will be integrated into the Implementation Plan as key project for delivery in the short to medium term.

### 4. *Port Area Planning Study (WAPC, 2003)*

The Port Area Planning Study (2003) is a comprehensive strategy which addresses all important regional issues and sets out a framework to guide State decision-making and detailed planning at the local level, with a planning horizon of 20-25 years. The study made several recommendations regarding the future of Port Hedland many of those which have been, or are in the process of being implemented. It also made a number of recommendations which required further investigations. As part of the Growth Plan, the Study and its recommendations have been reviewed in light of what has transpired since. The Growth Plan will address a number of key outstanding initiatives which are still considered relevant and required to be implemented.

### 5. *Port Hedland Land Use Master Plan (Port Hedland Land Use Master Plan Steering Committee, 2007)*

The Port Hedland Land Use Master Plan (LUMP)

proposes to guide the growth and development of Port Hedland through the next 20 - 25 years. It focuses on the use of land and its development character, defining the community's long-range vision of how the physical form of the town should develop. The plan was adopted as the Town of Port Hedland Local Planning Strategy.

The LUMP was developed through a high level of consultation with the local community and ground truthing of key issues. It established some key visionary points for the future development of Port Hedland, however, it did not establish the 'path way forward' to achieve the outcomes.

The Growth Plan integrates many of the key visionary elements of the Land Use Master Plan given its acceptance as a guiding document for growth by the Community and the Western Australian Planning Commission. Importantly, however, the Growth Plan provides a stronger focus on practical and achievable actions which can be implemented to deliver the vision.

### 6. *Pilbara Planning and Infrastructure Framework (WAPC, 2011)*

The Pilbara Planning and Infrastructure Framework (PIF) was released for Public Comment in 2011 and is currently being finalised. The draft Pilbara Planning and Infrastructure Framework defines a strategic direction for the future development of the Pilbara region over the next 25 years. It seeks to ensure that development and change in the Pilbara is achieved in a way that improves people's lives and enhances the character and environment of the region.

The PIF outlines several key themes including settlement, economy, utility infrastructure, community infrastructure, transport, natural environment, cultural heritage and development. It also highlights the key priorities to be implemented by 2015 across these themes.

The Growth Plan has been prepared having regard to these key elements and their respective objectives and actions. Importantly, they have guided the appointment of technical consultants to take each of these elements to the next level of

detail, from regional to locally specific.

The Implementation Plan, being prepared as part of the Growth Plan, considers and endorses a number of the priorities identified in the PIF. Critically though, the Implementation Plan provides a further level of detail in terms of the actions, activities and 'Order of Magnitude Costs' associated with the delivery of the priorities identified in the Growth Plan.

### 7. *Town of Port Hedland Strategic Plan (Town of Port Hedland, 2010)*

The 2010-2015 Town of Port Hedland Strategic Plan was developed to provide a high level Vision for the Town in 2025 and outlines the key roles and functions that the Town of Port Hedland will be undertaking to help make the Town's Vision a reality.

The Strategic Plan has been used to inform the overall vision of the Growth Plan. As part of the Growth Plan, Council with the project team has aimed to test a number of key assumptions in the Strategic Plan, many of which have been validated while others have been adjusted as necessary to reflect the additional level of technical information available to inform the Growth Plan.

### 8. *Hedland's Future Today (Town of Port Hedland, 2010)*

Hedland's Future Today document established a number of key project initiatives intended to be implemented over the next 15 years. These projects are aimed at achieving Council's vision set out through their Strategic Plan. These project have been considered in informing the spatial and non-spatial planning in the Growth Plan. More importantly specific projects will be integrated into the both the Growth Plan and particularly the Implementation Plan.

### 9. *Town of Port Hedland Town Planning Scheme No.5*

The Town of Port Hedland Town Planning Scheme No. 5 (TPS5) was first gazetted in 2000. The Scheme sets the land use planning and development regulations for the broader Port Hedland Local



Government area.

In accordance with the provisions of the Planning and Development Act 2005 it is well over due for a review and update. The Growth Plan will provide the basis of the Local Planning Strategy required by the Council, which will ultimately guide the review of the District Town Planning Scheme No. 5.

#### 10. *State Planning Policies (WAPC)*

Several State Planning Policies are directly applicable to the preparation of the Growth Plan. This includes the following policies; Environmental and Natural Resources, State Coastal Planning, Urban Growth and Settlement, Water Resources, Natural Hazards and Disasters, Historic Heritage Conservation, State Industrial Buffer Policy, Road and Rail Transport Noise and Freight Considerations in Land Use Planning and State Industrial Buffer (Draft).

The provisions and objectives of these policies have been considered in the technical reporting of relevant sub-consultants which has fed into the overall Growth Plan. Importantly, through the draft Port Hedland Coastal Vulnerability Study, the Growth Plan provides a strong foundation to land use planning having regard to Climate Change reflected through the amended State Coastal Planning Policy.



## APPENDICES

# APPENDIX





38 Station Street, Subiaco, WA 6008 • PO Box 465, Subiaco 6904, Western Australia  
T +618 9211 1111 F +618 9211 1122 E [environment@rpsgroup.com.au](mailto:environment@rpsgroup.com.au) W [rpsgroup.com.au](http://rpsgroup.com.au)

## APPENDIX B: TECHNICAL INVESTIGATIONS - EXECUTIVE SUMMARIES

### Port Hedland City Growth Plan – Heritage Report

#### Executive Summary

RPS has been engaged by Town of Port Hedland Council to act as an Indigenous and non-Indigenous Heritage Consultant for the Town. A requirement of this consultancy is to assist in the preparation of a strategic Town of Port Hedland City Growth Plan and an Implementation Plan to guide the growth of Port Hedland to a sustainable city. These programs are in accordance with the Town of Port Hedland's Strategic Plan and the State Government's 'Pilbara Cities' vision that anticipates a future population of at least 50,000 people by 2031.

The growth of the urban centres of Port Hedland and South Hedland from a present population of around 15,000 to an anticipated 50,000 or more has significant implications for the area's cultural heritage. The Town of Port Hedland has the opportunity to promote cultural heritage at the local level with an integrated approach to conserving heritage buildings and revitalising public streetscapes. At the regional level there is the opportunity to develop cultural tourism in areas such as Condon or on pastoral properties such as Boodarie.

A *Town of Port Hedland City Growth Plan – Heritage Preliminary Report* and a *Phase Two Report* has been completed as part of this project. This *Final Report* consolidates those reports and provides advice on heritage issues at a precinct level.

Acknowledged is the significant Indigenous heritage in the area encompassed by the Town of Port Hedland local government area. In addition the assessment demonstrated the important role the Town of Port Hedland has played in the development of the Pilbara region and north-west Australia, accordingly this report identifies those items of non-Indigenous heritage that reflects that history.

It was found during this study that the *Town of Port Hedland Heritage Review* is out-of-date. With regards both non-Indigenous and modern Indigenous history it is important that this Review is updated to ensure against the loss or damage to any heritage item yet to be identified or properly assessed. In addition the lack of accurate recording and investigation of the unique Indigenous heritage of Two Mile Ridge should be addressed. These factors are particularly critical as Port Hedland faces a renewed impetus in development.



## Port Hedland City Growth Plan - Landscape Architecture

### Executive Summary

#### PORT HEDLAND

- Create a continuous east-west coastal path to connect Port Hedland with its coastal context extending from the West End to Pretty Pool.
- Connect coastal parks and activity nodes in walkable catchments (max. 400m). Link with high amenity connections back to Anderson Street through avenue plantings and pathways.
- Activate Anderson Street as the primary amenity route with pedestrian, cycle and public transport.
- Maintain Wilson Street as the main arterial entry into Port Hedland for industrial and through traffic and celebrate industrial edges to the south.
- Create a public transport option between the West End > Cooke Point / Pretty Pool > Airport > Wedgefield > South Hedland to provide an alternate transport option other than by car.

#### EAST END

- Investigate a new coastal park / destination at the continuation of Cooke Point Drive and its intersection with Sutherland Street to connect East End with Waterfront.
- Create pedestrian bridge across pretty pool creek connecting Cooke Point with Pretty Pool.
- Continue and connect coastal path along Pretty Pool Creek and back into the East End and Anderson Street. This will establish an amenity route that takes in key cultural and ecological features such as 2 Mile Ridge and the former air strip site as well as the East End commercial precinct.

#### SOUTH HEDLAND

- Create high amenity streetscape works along main connectors into the South Hedland Town Centre to establish comfortable movement corridors and a legible streetscape hierarchy.
- Investigate incidental POS opportunities adjacent to road corridors by providing community assets in large road reserves, pocket parks and unused land.
- All new development is to have either open or an absence of front fencing to allow housing to address the street.
- Focus on create high amenity loops which link boroughs and circulation routes. This will require future rationalisation of road networks, cul-de-sac and unoccupied tracts of land.
- Activate residential borough areas with local facilities situated at entries, gateways and adjacent to schools / public open space to create walkable destinations for residents.
- Introduce maintenance programme for drainage lines to slash grass lands and remove dense shrubs to increase visibility and safety around these areas.

### ENTRIES & ARRIVALS

#### Great Northern Highway - Karratha Entry

- Celebrate long views to the HBI plant to the north.
- Relocation of turf club adjacent to existing golf course create 'green' experience to the east.
- Opportunity to celebrate innovative energy creation adjacent to waste water treatment ponds with methane capture plant.
- Decision point created at Great Northern Highway and Hamilton Road interface. Possible elevated views of landscape at on/off ramps.

#### Great Northern Highway - Adjacent to Wedgefield

- Improve legibility of Finucane Island turnoff to highlight recreational opportunities.
- Maintain open and unobstructed views to the north over the mangrove areas and Port on the horizon.
- Incorporate vegetated buffers to the Wedgefield industrial areas to soften the visual edge effects.

#### Great Northern Highway - Broome Entry

- Celebrate long views of Dampier Salt.
- Investigate opportunities to celebrate the significance of the Stockman Strike that occurred to the north of the highway.
- Decision point created at Great Northern Highway interface at the northern edge of Wedgefield. Possible elevated views of landscape at on/off ramps. Opportunity for architectural statement made in the design of bridge infrastructure to celebrate place and capture traffic. Could involve wayfinding to direct traffic into Port or South Hedland.

### LOCAL GEMS

- Create rest stops / sites of interest which celebrate unique qualities, cultural heritage and the industrial tourism of Port Hedland to complement 'Transform', Redbank Tourist Bay and 'The Barrow' at Wedgefield.

### INDUSTRIAL STREETSCAPE AMENITY

- Provide road corridor widths that allow for open swales and Eucalypt buffers to all industrial properties in Wedgefield and the Future Airport Industrial Precinct.

### BUFFERING TO INDUSTRIAL AREAS

- Create a native Eucalypt buffer to Wedgefield and future Airport Industrial Precinct to screen views from the Great Northern Highway and approach roads.
- Implementation of buffer plantings to coincide with development to ensure establishment and consistency of plantings.

## Port Hedland City Growth Plan – Environmental Report

### Executive Summary

#### Conserving Biodiversity and Ecosystems

The coastal lands of Port Hedland and surrounding areas consist of natural coastline fringed by white sandy beaches, extents of intertidal mudflats and mangroves, rocky outcrops and reefs. These coastal lands support a diverse habitat for a wide variety of marine and terrestrial fauna, including marine turtles and migratory birds. Unique ecological communities such as mangrove and samphire ecosystems are interwoven within the coastal landscape. Additionally, mangrove communities fringing the estuarine environments of Pretty Pool, Sting Ray and Four Mile Creeks provide natural diversity and a level of aesthetic amenity characteristic of the Pilbara region to the Port Hedland townscape.

The interior lands surrounding Port Hedland primarily consists of areas large expanses of natural vegetation dominated by savannah grasslands and undispersed with shrub steppe communities. These lands, which have historically been subject to extensive pastoral leases, provide a range of habitats for terrestrial fauna species.

The City Growth Plan aims to conserve and protect the areas of high biodiversity value and regionally significant ecosystems through:

- Conservation of mangrove ecosystems of very high value which occur outside designated industrial and associated port areas.
- Conservation of benthic primary producer habitat through the application of impact avoidance and minimisation principles.
- Protecting important marine turtle nesting sites through avoiding, managing and mitigating light impacts.

#### Investigating Flora and Fauna

The City Growth Plans recommends specific environmental investigations which are required to be undertaken in order to identify and assess the significance of flora and fauna species and vegetation communities prior to any proposed development works being undertaken. These investigations will ensure that appropriate measures are undertaken to make sure that the abundance, diversity and geographic distribution and productivity of significant flora and fauna species and vegetation communities are not diminished by any proposed development works.

The City Growth Plan aims to protect and conserve significant species and communities through:

- Undertaking appropriate flora and vegetation surveys and fauna surveys for areas of land where there is a requirement to remove native vegetation to facilitate development in order to assess the environmental values of the land.

#### Sustainable Natural Resource Management

The City Growth Plan aims to foster sustainable natural resource management through undertaking actions designed to protect the landscape, landform and the identified environmental assets of Port Hedland when development opportunities are advocated. These management actions will be addressed as part of land use planning and at the various stages in the land development process. These actions will include:

- Undertaking of appropriate Coastal Process and Foreshore Assessments, should any development proposals be expected to impact upon either the existing coastal processes or foreshore reserves.
- Undertaking of preliminary Acid Sulfate Soils Investigations, where appropriate, to assess the presence or absence of Acid Sulfate Soils and recommend remedial actions to be undertaken, prior to the commencement of development works.
- Undertaking of detailed site investigations to ensure that the quality of surface and ground water resources is not impacted by development proposals.
- Provision of appropriate Water Management Strategies to accompany scheme amendments and structure planning activities which consider any impacts to the total water cycle posed by development proposals and provide outcomes to achieve appropriate water quality objectives. The Water Management Strategies should also address water quantity parameters, incorporate mechanisms to address storm surge and flooding and advocate erosion control mechanisms.

The City Growth Plan identifies a number of sites contained within Port Hedland which have been identified as having various levels of site contamination. To ensure that these sites do not pose any further risk to the natural environment or human health specific management actions proposed to address the issue of contamination have been advocated on a site specific basis.

#### Climate Change Mitigation and Adaptation

Major flooding events in Port Hedland and surrounding areas are typically associated with storm surge, given that Port Hedland is not situated on a major river and therefore not subject to flooding caused by rainfall alone. Additionally during the time of the year when tropical cyclones are common in Port Hedland localised flooding can be worsened especially if coinciding with high tidal variations.

Heavy rainfall in the interior can cause localised flooding along the neighbouring major river systems of the De Grey, Turner and Yule, as these systems turn into key flow paths, that can impact low-lying areas including pastoral stations, mining activities and cause transport delays and damage to road and rail infrastructure.

The effects of a changing climate are expected to increase the frequency and intensity of cyclonic activity and rainfall events. This situation is likely to result in an increased risk of localised flooding in low-lying areas and along creek lines.

The City Growth Plan aims to be responsive to the expected effects of climate change through:

- Advocating that additional storm surge and flooding investigations are undertaken to define floodways and specify 100 year Average Recurrence Interval (ARI) flood levels which incorporate climate change scenarios.
- Advocating for detailed site investigations to be undertaken which determine appropriate foreshore reserves between areas of proposed development and floodways.
- Advocating that any areas which are identified as being subject to the effects of storm surge and flooding will require finished floor levels to be established at least 0.5 metres above the 100 year ARI level.

#### **Additional Management Actions**

Dust and noise levels in the Port Hedland have historically been above currently accepted recommended levels. The high concentrations of dust that exists with in the West End of Port Hedland presents potential health risks to the local residents. Noise and vibration from the existing and planned road and rail transport network and the airport could affect the amenity of future residents. Mosquitoes and midges are endemic to the Pilbara, and are particularly prevalent in the wet season. The amenity of future residents could potentially be impacted by these pest species if residential land uses are proposed in locations within close proximity to known breeding areas.

The City Growth Plan advocates that the following additional management actions are undertaken to ensure the health and amenity of the local and future residential population is not adversely impacted:

- Advocating that any areas identified as being subject to the effects of dust comply with the recommendations of the Dust Management Task Force with regard to the implementation of Environmental Management Controls and Land Use Planning.
- Advocating that any sensitive land use developments being proposed in areas that are in close proximity the existing and planned rail or high use local road transport network or the Port Hedland International Airport require an investigation to determine appropriate buffer controls and/or separation distances.

- Advocating that any sensitive land uses developments being proposed in areas that are in close proximity known breeding areas of local pets populations require management programs for these pests to be invoked post development.

All the management actions, surveys, assessments, investigations or strategies that have been identified as being required to be undertaken to achieve the outcomes of the City Growth Plan are to be consistent with the requirements of the state regulatory authorities and the Environmental Protection Authority.

# Pilbara's Port City Growth Plan

## Traffic and Transport Report



## Executive Summary

### Introduction

The Town of Port Hedland (the Town) is located in the Pilbara Region of Western Australia.

In late 2009, the Town adopted a Strategic Plan supporting the State Government's "Pilbara Cities" vision. The Town's aim is to turn this vision into a reality, to transform the Town into a vibrant, significant and friendly regional city, where people want to live and are proud to call home.

The vision includes a population growth to a target of 50,000 by 2031. Two thirds of the population will reside in South Hedland, with the other third living in Port Hedland and some smaller communities along the coast.

AECOM were commissioned by the Town to provide transport consulting services in the development of Pilbara's Port City Growth Plan and Implementation Plan. This included undertaking a study of the existing and planned future land use and transport facilities.

### Literature Review

Various reports have been prepared for the expansion of the Town. These reports were reviewed to understand the Town's existing and future land use and transport infrastructure. Further information was also obtained from liaison with key stakeholders.

### Background

The Pilbara is a sparsely populated, resource rich region of Australia. The Town is one of the largest in the region and its location on the coast makes it an important transport and accommodation hub for the surrounding mining industry. For that reason the Town has a well established strategic transport network.

The Town has a current population of 19,822 people, including: 14,987 permanent residents and 4,835 short term residents.

The Town's residents have a high dependency on the private car; however the percentage of people who walk to work is greater than that of either Karratha or metropolitan Perth.

### Land Use

The Town currently has six districts: West End, Cooke Point, Pretty Pool (all located within Port Hedland), Redbank, Wedgefield and South Hedland. It is also undergoing a major revitalisation with several developments being planned and built in both South and Port Hedland.

Growth plans have been developed by the design team for 16 Precincts within the Town. For each of the Precincts land use scenarios for four future years (2016, 2021, 2026 and 2031) were developed.

### Pedestrian and Cycle Network

Within Port Hedland all streets appear to contain verges wide enough to accommodate a pathway. However, most do not currently have a continuous path. Those that do mostly contain a path on one side of the road only. The paths are scattered throughout Port Hedland and in some cases are not linked at all or directly to the rest of the network. The paths are of varying widths, but mostly do not appear wide enough to cater for both pedestrian and cycle movements (although the verge width appears wide enough). On some streets the location of the path changes sides forcing pedestrians and cyclists to cross the street.

The path network in South Hedland is more extensive and continuous than in Port Hedland. However, due to the street layout many routes are less direct than those in Port Hedland.

There is currently no pathway linking Port Hedland, South Hedland and Wedgefield, nor any facilities within Wedgefield.

The Port Hedland Cycle Plan was prepared in 2008. The plan outlined improvements required to the cycle network with the vision "to make cycling and walking within the Town safer, more convenient and hence an attractive alternative means of transport and form of recreation". Since its publication the town has undertaken

substantial network improvements including the completion of part of the proposed Port Hedland to South Hedland cycle path.

In Port Hedland, the path upgrades complete some of these missing links, such as the coastal path connection to West End and Cooke Point and the connection of Pretty Pool to the network. However, the network could be enhanced further with the provision of more connections, including a pedestrian and cycle bridge across the waterway between Pretty Pool and Cooke Point.

In South Hedland, the planned upgrades increase the network provision in the Town Centre, extend the facilities along Murdoch Drive and provide a link around South Hedland (along North Circular Road) for leisure cyclists. Further to these improvements, the permeability of the South Hedland layout would be improved through the provision of direct routes out of the circular layout.

In Wedgefield, there are currently no existing or planned facilities. The community survey has identified a need for such facilities. These should be off-road due to the high volume of heavy vehicles and should connect to the Port to South Hedland Cycle Path. Similar facilities should also be provided for the proposed industrial estate at the Airport.

Walk and cycle catchment diagrams for Port and South Hedland illustrate that most of the residents will be within a 20 minute walk or 10 minute cycle of the Town's commercial and retail areas.

## Public Transport Network

Route 501 provides a good internal Port Hedland connection, as well as an external connection to South Hedland Town Centre. However, its service is not frequent enough to encourage its use over the private vehicle. Routes 301 and 401 connect most of the existing South Hedland to its Town Centre. Again its frequency is not high enough to encourage its use over the private vehicle. The services require expansion to cater for the proposed new development areas and to provide a more frequent service with extended hours (including Sunday operation).

The low-density nature of the Town provides some challenges in managing an effective transport system. Low demand for services means that traditional, fixed-scheduled bus services are likely to be inefficient. On the other hand, taxi services (which are currently provided within the Town) are not a sustainable transport option for the projected Town growth.

The City Growth Plan presents the opportunity to introduce an alternative transport system. Demand Responsive Transport (DRT) is a combination of traditional bus services and taxi services. One example of a DRT service is the existing Port Hedland Airport Shuttle Bus transferring passengers from all incoming flights to their destinations.

DRT services have failed when their demand is too high. Fixed scheduled buses should be run at high demand times such as peak hours, with DRT used on the same route during non-peak hours. As the population grows and more routes become more popular, DRT services should be replaced with fixed schedule buses. Running the DRT services on future bus routes will allow for easy transition between the two.

The public transport routes proposed for the Precincts have been designed to enable residents within Port and South Hedland to be within 400 metres (five minute walk) of the route.

## Freight and Logistics Network

Port Hedland's close proximity to substantial mining activity in the Pilbara and its coastal location make it a regional transport hub. Goods are transported from the mine sites, by road and rail, to the Port Hedland Port from where they are shipped around the world.

This results in a high level of heavy vehicles on the strategic road network connecting the mines to the Port. The route along the Great Northern Highway and Wilson Street currently has no priority at Port Hedland Road, Wallwork Road and Pinga Street. It also crosses four railway level crossings, reducing safety and efficiency. This route also requires the Port traffic to travel through the Port Hedland Town Centre which is causing conflict between Port and local traffic.

According to Curtin University's report "From Projects to Places", currently only five percent of goods are produced locally with the rest requiring importation. Most of the goods are being transported to Town by road

from Perth due to the lack of economic viability of travelling by sea. Furthermore, Port Hedland Port does not currently handle container freight.

Isolation and the high reliance on the road network and diesel train system to deliver goods to the area may become costly in the future with rising fuel prices. The region will need more resilient transport links for its long term prosperity. Regional shipping and rail links could be explored to ease the transport issues such as vulnerability to fuel price rises for road and air transport, and increasing congestion and conflict on the Town road network.

There are also efficiency and safety issues along the Great Northern Highway due to level railway crossings and limited priority. Some of these issues are being addressed through the realignment of the Great Northern Highway around Wedgefield, grade separating the Broome turn-off and duplicating Redbank Bridge.

The population increase to 50,000 as well as the increase in Port activity will increase the efficiency and safety issues. Methods to produce goods locally and opportunities to transport more material to the Port by rail should be investigated to reduce road movements.

The provision of an intermodal terminal could reduce truck trips to the Port through the Port Hedland Town Centre.

## Rail Network

The rail infrastructure is privately owned and operated and thus well maintained and upgraded as required to support the mining industry. The private ownership of the lines reduces the ability to share the infrastructure leading to duplication of infrastructure and the requirement for some junior miners to use the road network to transport their material to the Port, even though their mine is located adjacent to a railway line heading to the Port.

There are no public or passenger rail facilities. Given the isolation of Port Hedland and the surrounding population these facilities are not likely to be viable.

## Road Network

The strategic roads servicing the Town are generally good and are highly utilised by heavy vehicles. The volumes of traffic on the roads are increasingly placing pressure on the network, as shown by crash statistics and traffic volumes. The proposed duplication, realignment and intersection upgrades on the Great Northern Highway will reduce these issues.

Crash analysis data indicates that current road traffic volumes are resulting in conflicts at intersections, particularly along the Great Northern Highway. It is understood that the Great Northern Highway Bypass is anticipated to ease some of the urban and industrial transport conflict, particularly between South Hedland and Port Hedland by downgrading the volume and size of traffic between South Hedland and the Broome turn-off and by improving the operation of the Broome turn-off intersection.

The Town's population is proposed to increase by approximately 150 percent over the next 14 years. On top of this the Port's throughput is expected to increase by approximately 200 percent (with the construction of the outer harbour). These increases will impact on the Town's road network. The Port's increased activity will mostly impact the strategic road network, Great Northern Highway. The proposed duplication of Port Hedland Road and the grade separation of the railway lines and the Broome Road intersection will be required to cater for this increase in activity.

Within the local street network, Wallwork Road is currently at capacity and will be duplicated to cater for its current and future demand. All other roads operated within their capacity.

Extreme weather in the summer, including heavy rain and flooding can affect the road network and cut off access to some of the smaller communities and tourist sites. These roads should be upgraded to allow all year access.

High level traffic analysis was undertaken based on the Precinct Plans and future land use schedules. The analysis was undertaken using a spreadsheet model, the existing traffic flow data and the proposed increased future land use. This analysis will require more detailed modelling as more information on the Precinct becomes available. The analysis as it stands does not account for mode shift changes as public transport, cycle and walking become more viable. It should be recognised that traffic forecasting does have limitations, particularly at this strategic high level, and that forecast traffic volumes should be taken as only indicative of the likely traffic that the road will carry.

The high level traffic analysis undertaken predicts that:

- In Port Hedland, if all local traffic is redirected to Anderson Street then Anderson Street may require two lanes in each direction (throughout Precinct 1 and 2) by 2026. If local traffic is not redirected then Wilson Street may require two lanes in each direction by 2016.
- Port Hedland Road may require upgrading to two lanes in each direction by 2021.
- The Athol / McGregor Street corridor may require upgrading to two lanes in each direction by 2021.
- Cooke Point Drive is predicted to reach its one lane capacity by 2021.
- Pinga Road, in Precinct 6, may reach its one lane capacity by 2016. However, the construction of a new parallel road north east of Pinga Road should enable the redirection of some traffic, reducing the need to widen the road.
- The two airport access roads, in Precinct 7, may reach their one lane capacity by 2021. To reduce the impact of the 8,395 bed Transit Worker Accommodation on the surrounding road network and thus the requirement of unnecessary road upgrades to two lanes in each direction, parking at the accommodation should be limited with workers being bussed to work sites and the airport, and retail and leisure facilities being provided on site. This will also increase safety and efficiency of the work force.
- Hamilton Road and Forest Circle may require upgrading to two lanes per direction by 2026.
- Throssell Road may require upgrading to two lanes per direction by 2016.
- Murdoch Drive may require two lanes in each direction by 2031.

There are two methods to address congestion on these roads. One is to widen the roadway and the other is to implement congestion management initiatives. It is not sustainable or desirable to continue addressing congestion solely through increasing road infrastructure. This does not encourage use of alternative transport and can segregate and isolate communities. There will be roads, such as the Great Northern Highway, that require some form of widening. However for the local network, opportunities to implement congestion management measures should be investigated.

## Port

The Port Hedland Ultimate Development Plan predicts that in 2025 the port will have a total throughput of 536Mtpa. This is an increase of 200 percent from its current throughput.

The Port Hedland Ultimate Development Plan outlined that this will be achieved by the following proposed upgrades:

- Increasing the inner harbour number of berths from nine to 23.
- Constructing an outer harbour with 20 berths.
- Constructing four off shore bulk liquid terminals.

The port upgrades have been developed to cater for the predicted increase in port demand. However, the facilities should also cater for container ships to reduce the freight movement by road.

## Airport

The predicted airport passenger volume in 2015 is 450,000, which is a 60 percent increase from current levels.

The parking and terminal facilities are strained under the current passenger throughput. These are to be upgraded to handle a throughput of one million passengers per year (a 260 percent increase from the current passenger numbers) and to cater for international travel (that is provide adequate customs and immigration facilities). The runway facilities are adequate to handle significantly more flights, and thus will not require upgrading.

## Conclusion

The vision is to create a vibrant, significant and friendly regional city of 50,000 people. The precinct plans have been developed with this in mind. The proposed layouts reduce the travel distance between residents, employment and services, increasing the attractiveness of sustainable transport which has a positive impact on health and community interaction. Increased bus services, initially through the use of DRT, will reduce congestion on the road network and provide access for all. The strategic road network will be upgraded to reduce conflict between Port and local traffic and to provide more efficient and safe access to the Port. The road network will be designed to match its function: strategic roads as highways moving freight and vehicles efficiently and safely from a to b and low volume local streets as shared surfaces encouraging social interaction and sustainable transport. The Port and Airport will be expanded and improved to cater for the increased mining activity and local population growth and needs (including an international connection). Above all the City Growth Plan provides the Town's growing population with transport choices and connections making the Town a place where people want to live and are proud to call home.

## Executive Summary

The Town of Port Hedland is one of Australia’s most prominent metals exporters, and is located on the North West coast of Western Australia. Like many other mining areas of regional Australia, Port Hedland has experienced the pressures of significant development over the past 10 years and the negative challenges that come with rapid economic growth. The continued strength of the mining, mineral processing and transportation activities in Port Hedland will continue to drive the local economy, in addition to strong residential and service population growth, which will be required to sustain activity into the future.

Overall, there is a need to guide and streamline future economic growth to benefit all stakeholders. This has given rise to the development of the City Growth Plan – a multifaceted plan which draws upon the expertise multiple teams to assess the spatial, economic, social and infrastructure requirements to achieve the future vision for Port Hedland.

### Purpose of This Report

This report forms a component of the Economic Consultancy of the City Growth Plan – the Economic Development Strategy. The purpose of this report is to identify key strategies and initiatives for the future development of the local economy, which will assist in the achievement of the overall aspirations of the City Growth Plan.

### Current Context

#### Population

The Town of Port Hedland has an estimated population of 19,216, but as a dynamic mining region, the population changes rapidly depending on the amount, stage and timing of various major projects.

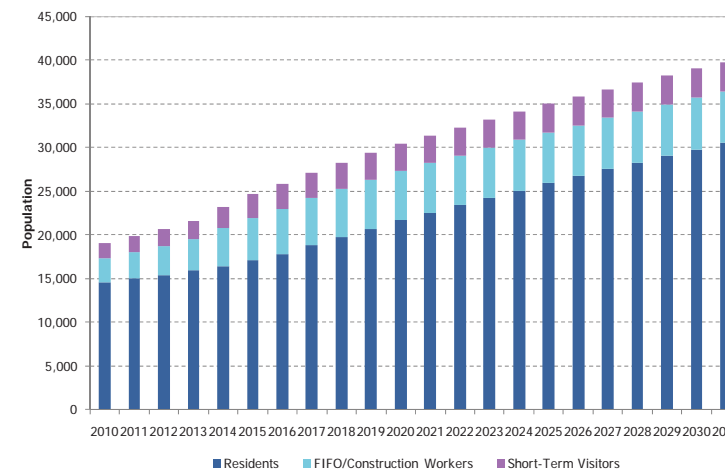
Table E.1: Estimated Population, Port Hedland, 2010

Population	Population No. (2010)
Estimated Resident Population	14,624
Construction and FIFO	2,906
Short-term Visitor	1,686
<b>Total Population</b>	<b>19,216</b>

Source: ABS (2011a), Western Australian Planning Commission (2011), TRA (2010), AECgroup

The population is expected to increase significantly in the future. Pilbara Cities has established the goal of planning for a regional city with a population of 50,000. AECgroup projections highlight the potential to reach 40,000 by 2031.

Figure E.1: Estimated Future Population, Port Hedland, 2010-2031p



Note: Future projections are subject to change based on allocation of transient workers.  
Source: AECgroup

The recent population pressures have caused many serious issues, most notably in regards to the need for housing. Prices (both purchase and rental) have climbed rapidly and today command considerable premiums above other parts of Australia.

#### Economy

The economy of the Town of Port Hedland is dominated by mining, which directly contributes 73% of the total \$3.3 billion Gross Regional Product (GRP) and 46% of total employment. For 2010-11, the port exported 199 million tonnes, making it the largest bulk commodity port in the world. Iron ore is the dominate export and Port Hedland is responsible for 48% of all Australian iron ore exports and contributes 18% of global iron ore trade.

Global demand for steel is anticipated to increase by 6% per year over the next two years and by 2025, global steel production will reach 2,446 Mt (a 73% increase over 2010 levels). This long-term demand as well as strong pricing and investment will create a solid platform for the future economic development of the Town of Port Hedland.

### Issues and Opportunities

Given its unique dynamic, the Town of Port Hedland is faced with numerous issues and opportunities. **Housing is by far the most critical issue and impediment to future economic growth.** The undersupply of housing is causing prices (both rental and sales) to increase beyond the point that residents can afford to pay. The end result (given the strong demand) is that housing is provided by employers. The mining companies are quickly becoming the only employers that can afford to purchase the existing housing stock, pushing residents further out of the market (and some businesses). Currently, the lack of residential housing means that construction workers cannot be accommodated, which puts additional impediments on constructing new residential dwellings.

This issue is pervasive throughout the economy, causing numerous companies to stay out of the region, making it impossible for local small businesses to expand and forcing some existing companies to consider leaving the market (and supplying the area from Perth). **Failure to address the housing issue could impair all future growth.**

Additional issues facing the future development of the economy include:

- **Reliance on the Mining Sector:** The economy of the Town of Port Hedland is solely reliant on mining. The future risk is that any disturbance to mining, iron ore export or to one of the mining companies would jeopardise the entire economy of the area;
- **Shortage of Property:** There is currently an undersupply of many types of property including industrial, commercial and retail. An insufficient supply of property across the economy could impair future economic growth;
- **Lack of Retail Offering:** There is currently an undersupply of retail offering in the Town of Port Hedland, which can discourage future residents to move to the area; and
- **Lack of Innovation & Knowledge:** The economy currently lacks strong innovation and knowledge driven activities, which could assist in diversifying the economy away from its reliance on mining and iron ore export.

At the same time, the Town of Port Hedland has many ways to grow the economy, which would add significant value locally and assist in reducing the reliance on mining:

- **Mining:** The expansion of the local mining support sector to make the Town of Port Hedland a regional mining centre. Expanded activities would include aspects of the mining supply chain (contractors), unique research centres, educational/training facilities;
- **Professional Services:** The expansion of local professional services sector would include engineering, design and planning firms engaged in mining related activities as well as other professional service firms associated with a vibrant and growing economy;
- **Residential Services:** Expansion of the retail offering would increase the residential amenity of the area. The addition of a local hydroponic vegetable growing operation would provide further amenity through the delivery of fresh vegetables;
- **Manufacturing:** Large scale, industrial manufacturing or processing in the Boodarie Industrial Estate would add significant value to the local economy, particularly if the products were used in the mining process (e.g. ammonium nitrate). Additional industrial processes such as a commercial laundry or other aspects of the mining supply chain, would also support future growth;
- **Transport / Logistics:** The expansion of the port will assist the continued growth of the transport sector. The expansion of the local transport and logistics operations to include vehicle servicing and regional distribution would add considerable value to the local economy;
- **Defence:** The ADF is currently conducting a review and has signalled the growing importance of Australia's North West region. With the growing value that this region generates for the national economy, the recruitment of an ADF facility would add considerable value and diversity to the local economy; and
- **Tourism:** The further development of the leisure tourism market in the Town of Port Hedland would utilise the port as a unique experience and create increased visitation, length of stay and expenditure.

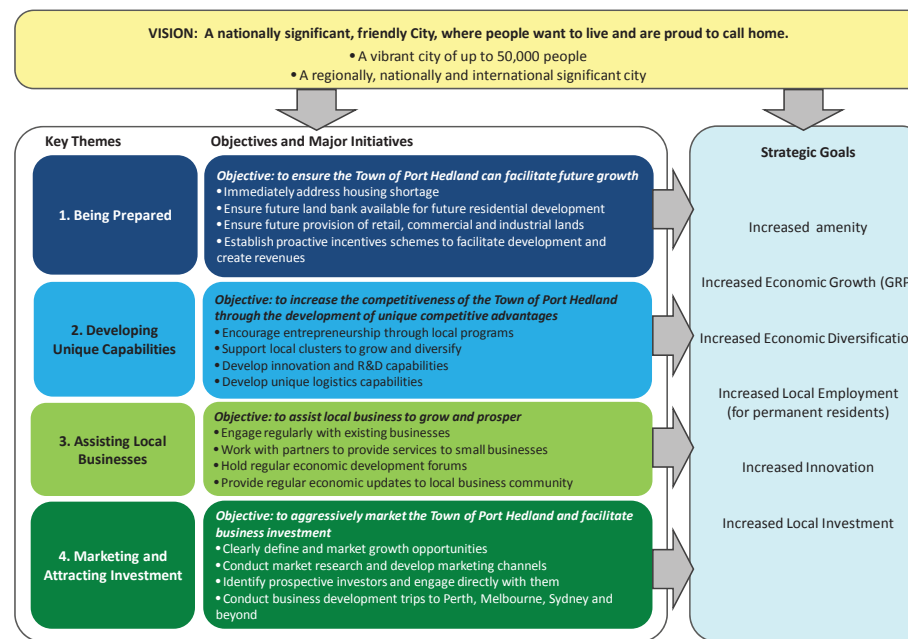
## Economic Development Framework

Based on research, analysis and consultation conducted for this project, AECgroup has recommended an economic development framework to address current issues, leverage existing conditions to take advantage of specific opportunities and generate economic development outcomes for the community.

The economic development framework has four main components:

- Being prepared: to ensure the Town of Port Hedland can facilitate future growth;
- Developing unique capabilities: to increase the competitiveness of the Town of Port Hedland through the development of unique competitive advantages;
- Assisting local businesses: to assist local businesses to grow and prosper; and
- Marketing and attracting investment: to aggressively market the Town of Port Hedland and facilitate business investment.

Figure E.2: Town of Port Hedland Economic Development Framework



Source: AECgroup

## The evolution of Port Hedland...

Given its unique characteristics, the Town of Port Hedland has the significant chance to build a nationally significant city and generate numerous economic, social and environmental benefits through economic development.

Defining specific actions and tasks for economic development related to each theme of the strategy will be the focus of the **Implementation Plan**.





City Growth Plan  
Town of Port Hedland

Socio-Economic Profile Executive  
Summary

Final Report  
September 2011



- Economics, Planning & Development
- Business Strategy & Finance
- Community Research & Strategy
- Design, Marketing & Advertising
- Information & Knowledge Management

Executive Summary

The Town of Port Hedland (Port Hedland) is one of Australia’s most prominent metals exporters, and is located on the North West coast of Western Australia. Like many other mining areas of regional Australia, Port Hedland has experienced the pressures of significant development over the past 10 years and the challenges that come with rapid economic growth. The continued (and projected) strength of the mining, mineral processing and transportation activities in Port Hedland will continue to drive the local economy, in addition to strong residential and service population growth, which will be required to sustain activity into the future.

Overall, there is a need to guide and streamline future economic growth to benefit all stakeholders. This need has given rise to the development of the City Growth Plan – a multifaceted plan which draws upon the expertise multiple teams to assess the spatial, economic, social and infrastructure planning requirements to achieve the future vision for Port Hedland.

Purpose of This Report

This report forms a component of the Economic Consultancy of the City Growth Plan. The purpose of this profile is to collate existing information on the Local Government Area and consolidate new and existing indicators into a single report. This report sets the current socio-economic context for the City Growth Plan and is intended to inform all teams contributing to the City Growth Plan.

Key Findings

Port Hedland has experienced robust economic growth over the past 5 years, which has resulted in a recent acceleration in residential population growth after more than a decade of flat trends and increases in transient population cohorts. Key findings of the current socio-economic context can be summarised as:

Resident & Service Population

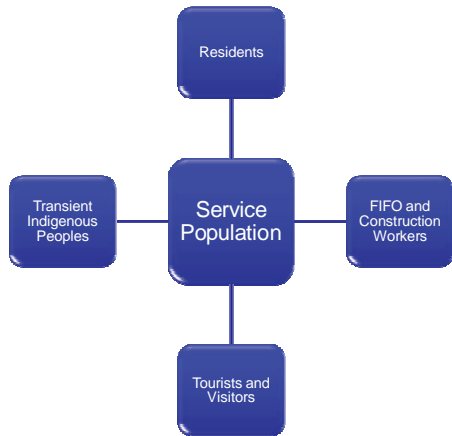
**Port Hedland has a resident population of over 14,600 but services a much larger population of 19,216, which includes transient workers, indigenous persons and short-stay visitors...**

Port Hedland’s estimated residential population was over 14,600 in 2010, having experienced growth of 1.5% per annum over the past nine years – below the average growth of the region and the State. This low average population growth is surprising given the high level of economic activity and is an underestimate of the actual population which services the region. This under-representation is likely due to the prevalence of transients such as FIFO and contract workers; the indigenous populations; and the level tourist and short-stay visitors. In short, Port Hedland services a greater level of population than indicated by ABS estimated residential population estimates.

AECgroup has attempted to estimate the magnitude of this population - or total service population - which is defined to include the estimated resident population (ABS), FIFO and construction workers and the level of other overnight visitation to the region (refer to Figure ES.1.). Using this methodology, it was estimated that Port Hedland’s total service population was approximately 19,216 persons in 2010.



Figure ES.1: Components of Service Population



Source: AECgroup

**Demographics & Socio-Economics**

*Port Hedland's population is divided by high levels of economic prosperity and significant pockets of socio-economic disadvantage...*

The Port Hedland population is characterised by a relatively young age demographic, with high proportions of families with children aged under 15 years. Average incomes are above the Perth and regional Western Australia averages. There are suburbs of Port Hedland which are highly prosperous and have benefitted from the strength and growth of mining and its associated industries.

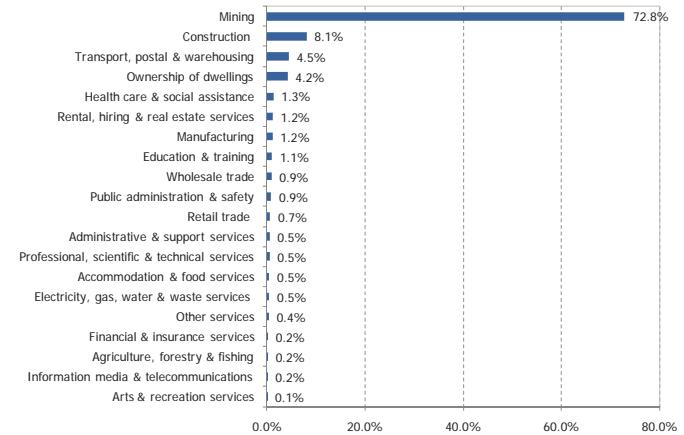
In contrast, Port Hedland also has high proportions of indigenous persons, above average levels of unemployment, high levels of crime and pockets of socio-economic disadvantage. This discrepancy highlights the large gap in the levels of economic wealth and social divide between Port Hedland's residents.

**Employment, Business & Economic Activity**

*Port Hedland is driven by the mining sector and its associated industries and is highly reliant on these activities, which provide many challenges and risks...*

The Port Hedland economy is dependent on the strength of its leading sector – iron ore mining, and its associated minerals processing, transport and construction industries. There is little economic diversity – as with many resource based economies this presents a high risk and many challenges. The economic prosperity of the region can be evidenced by the region's significant growth in Gross Regional Product (GRP), employment and business incomes over the past five years. Port Hedland represents over 16% of Pilbara SD's and 5% of regional Western Australia's GRP for 2009-10.

Figure ES.2: % Industry Contribution to GRP, Port Hedland 2009-10



Source: AECgroup

**The evolution of Port Hedland...**

Although Port Hedland and the surrounding Pilbara Region has experienced some of the strongest economic growth in Western Australia over the past five years, the reliance of the town upon the mining sector is cause for grave concern – presenting huge risks in the face of international iron ore demand and export contracts with China and India.

In achieving a sustainable future for Port Hedland, it is important that the economy is diversified to reduce these risks. At the same time, economic diversification will also assist in addressing some of the socio-economic challenges currently facing the region, such as reducing unemployment by creating a greater diversity of jobs, reducing crime and raising levels of social welfare. Greater economic diversification would also provide alternative, full time jobs, which could assist in increasing the permanent population.

The next step for Port Hedland is to further develop an understanding of the challenges and the opportunities for development in the region, which will assist in the development of strategies, actions and tasks to be delivered by the Port Hedland City Growth Plan. The challenges are further explored in the **Port Hedland: Economic Opportunity and Gap Analysis Report**.

Table 1: Key Findings Matrix

Theme	Indicator	Analysis	Key Findings
Residential and Service Population	Residential Population	<ul style="list-style-type: none"> <li>Population of 14,624 in 2010</li> <li>1.5% average annual growth (2001-10)</li> </ul>	Port Hedland has grown at a slower rate than the broader Pilbara Region over the past ten years. This is in contrast to neighbouring Roebourne which has experienced very strong growth trends.
	Fertility Rates	<ul style="list-style-type: none"> <li>2.6 children per mother (above replace levels of 2.1)</li> </ul>	Increasing fertility rates in Port Hedland means that the size of local resident families and households are growing. This impacts not only the local demand for child-related services (e.g. childcare, primary schooling, etc.) but also the housing type and locational preferences of residents of Port Hedland.
	Service Population	<ul style="list-style-type: none"> <li>Service Population of approx. 19,216 in 2010 comprising residential, FIFO/Construction and Short term visitors.</li> </ul>	Residential population estimates alone are not representative of the actual population in Port Hedland. FIFO and construction workers, as well as short-term visitors also draw upon local facilities and services. These components must be included in any future infrastructure, accommodation and service delivery planning.
	Population Projections	<ul style="list-style-type: none"> <li>Service population of 39,500 in 2031</li> <li>Comprising 30,500 residents, 5,900 FIFO/Construction workers and 3,400 short-term visitors</li> </ul>	The 40,000 population target by 2025 (Town of Port Hedland) and the 50,000 population target for 2035 (Pilbara Cities) are aspirational only and difficult to achieve in reality. Based on a Gross Regional Product based population methodology, AECgroup estimates a population of close to 40,000 by 2031 is achievable based on currently available information.
Demographics and Socio-Economics	Age and Gender	<ul style="list-style-type: none"> <li>Average Age = 31.2 years</li> <li>High Proportion of Persons:                             <ul style="list-style-type: none"> <li>Aged Under 15 Years (23.9%)</li> <li>Aged between 25 &amp; 34 years (18%)</li> </ul> </li> <li>Male pop. = 55%</li> <li>Female pop. = 45%</li> </ul>	Port Hedland has a relatively young age demographic with high proportions of children and young working aged persons. There are relatively even proportions of males and females for a regional resource based community and is reflective of the role of Port Hedland as the major service centre within the broader Pilbara Region.
	Household and Family Structure	<ul style="list-style-type: none"> <li>Total of 3,089 households</li> <li>Average of 2.7 persons per household</li> <li>High proportion of families with children (35.8%)</li> </ul>	Port Hedland has a higher average number of persons per household and proportion of families with children when compared to regional WA and WA averages. Compared to regional areas Port Hedland also has higher proportions of lone person and group households.
	Income Levels	<ul style="list-style-type: none"> <li>Average income of \$71,243 in 2007-08</li> <li>Increasing proportion of higher income earners over the past four years:                             <ul style="list-style-type: none"> <li>2004: 16.6% earning over \$83,000</li> <li>2008: 30% earning over \$83,000</li> </ul> </li> </ul>	Port Hedland has experienced significant changes in wage structure since 2004, with increasing proportions of higher wage earning employees in the area. Compared to Perth and Regional WA, Port Hedland has significantly higher average taxable incomes.
	Socio-Economic Status	<ul style="list-style-type: none"> <li>0.8% growth p.a. in crime rates over the past four years.</li> <li>Average of 13.5 offences per person (well above regional WA and Perth SD averages)</li> <li>Port Hedland accounts for 55% - 60% of Crime in the Pilbara Region</li> </ul>	Despite having a significant level of wealth and higher income earning households there are pockets of significantly lower socio-economic disadvantage in Port Hedland. As such, Port Hedland has higher and faster growing crime rates compared to Perth SD and regional areas of Western Australia. Port Hedland is also the centre for Pilbara Regional crime activity – highlighting the need for a proactive crime reduction program and increased assistance to socio-disadvantaged families.



Theme	Indicator	Analysis	Key Findings
	Cultural Diversity	<ul style="list-style-type: none"> <li>15% Indigenous Persons</li> <li>80% Born In Australia</li> </ul>	Port Hedland has a high indigenous representation in the local population when compared to elsewhere in the State. Outside of this there is little cultural diversity.
	Personal Mobility	<ul style="list-style-type: none"> <li>61.8% of people drive their car to work</li> <li>9.4% were a passenger in a car travelling to work</li> <li>296,810 air passengers in 2009-10</li> <li>24.5% p.a. growth in air passenger transport</li> <li>84% self-containment rate in Port Hedland</li> </ul>	Residents of Port Hedland are highly reliant upon travel by car to work. This is likely due to the low level of alternative and reliable transport methods. Air passenger demand has grown significantly over the past five years driven by increasing reliance of the mining sector upon FIFO workers. Of those living in Port Hedland, the region has an 84% self-containment rate with 681 persons travelling out for work each day.
Employment, Business and Economic Activity	Employment	Top 3 sectors of employment: <ul style="list-style-type: none"> <li>Mining (45.5%)</li> <li>Construction (13.9%)</li> <li>Transport, postal &amp; warehousing (5.1%)</li> </ul>	Mining is Port Hedland's leading sector for employment, followed by construction and transport, postal and warehousing, highlighting the economy as a resources and industrial based economy. Population services feature as the remaining key sectors in the region with only a very small proportion of employment generated by professional business types of services. As such, there are a higher proportion of 'blue-collar' types of workers in the region, particularly those with specialist trades and technicians skills required to support the local mining and construction sectors.
	Labour Force	<ul style="list-style-type: none"> <li>Labour force of 7,091 persons in September Q 2010</li> <li>Unemployment rate of 6.7%</li> </ul>	Despite growth in employment over the past five years, unemployment rates have increased to 6.3% (from 4.2%) over the past four years. This is likely due to the higher levels of socially disadvantaged persons in the area.
	Business	<ul style="list-style-type: none"> <li>746 businesses:                             <ul style="list-style-type: none"> <li>27.9% construction</li> <li>13.7% rental hiring &amp; real estate services</li> <li>11.6% transport, postal &amp; warehousing</li> </ul> </li> <li>Personal incomes growth of 10.4% p.a.</li> <li>\$54,183 average annual income in 2005-06</li> </ul>	To support the size and scale of the regional mining sector there are a number of small to medium business types in the Port Hedland economy. Average business incomes for unincorporated businesses are significantly higher than elsewhere in the state highlighting the prosperity of business trade in the Pilbara region.
	Economic Activity	<ul style="list-style-type: none"> <li>\$3.3 billion GRP in 2009-10:                             <ul style="list-style-type: none"> <li>72.8% mining</li> <li>8.1% construction</li> <li>4.5% transport, postal &amp; warehousing</li> </ul> </li> <li>Represents 16% of Pilbara SD GRP</li> <li>&gt;\$45.2 billion in investments over the next five years</li> </ul>	Economic activity in Port Hedland is heavily based on resources mining, representing almost three quarters of Port Hedland's GRP. This lack of economic diversity opens the region to high risk due to the reliance of the region upon mining. The strength of the mining sector in Port Hedland and the broader Pilbara Region is likely to continue over the medium to longer term. There is an expected \$42.5 billion in investment to occur in the broader region over the next five years. Port Hedland has the opportunity to become a key services and industrial centre for the broader Pilbara Region.



## Executive Summary

The Town of Port Hedland is Australia's most prominent iron ore exporters, and is located on the North West coast of Western Australia. Like many other mining areas of regional Australia, the Town of Port Hedland has experienced the pressures of significant development over the past 10 years and the challenges that come with rapid economic growth. The continued (and projected) strength of the mining, mineral processing and transportation activities in the Town of Port Hedland will continue to drive the local economy, in addition to strong residential and service population growth, which will be required to sustain activity into the future.

Overall, there is a need to guide and streamline future economic growth to benefit all stakeholders. This need has given rise to the development of the City Growth Plan – a multifaceted plan which draws upon the expertise multiple teams to assess the spatial, economic, social and infrastructure planning requirements to achieve the future vision for Port Hedland.

### Purpose of This Report

This report forms a component of the Property Consultancy of the City Growth Plan. The purpose of this profile is to collate existing information on the Local Government Area and consolidate new and existing indicators into a single report. This report sets the current context around the property market for the City Growth Plan and is intended to inform all teams contributing to the City Growth Plan.

### Key Findings

Port Hedland has experienced robust economic growth over the past 5 years, which has resulted in a recent acceleration in residential population growth after more than a decade of flat trends and increases in transient population cohorts. Key findings of the current property market can be summarised as:

#### Resident & Service Population

Port Hedland's estimated residential population was over 14,600 in 2010, having experienced growth of 1.5% per annum over the past nine years – below the average growth of the region and the State. This low average population growth is surprising given the high level of economic activity and is an underestimate of the actual population which services the region. This under-representation is likely due to the prevalence of transients such as FIFO and contract workers; the indigenous populations; and the level tourist and short-stay visitors. In short, Port Hedland services a greater level of population than indicated by ABS estimated residential population estimates.

AECgroup has attempted to estimate the magnitude of this population - or total service population - which is defined to include the estimated resident population (ABS), FIFO and construction workers and the level of other overnight visitation to the region. Using this methodology, it was estimated that Port Hedland's total service population was approximately 19,216 persons in 2010.

#### Residential Property Market

The recent population growth has driven a strong residential market recently. Prices have increased on average 14% between 2008-2010. On the back of demand and strong pricing, building approvals have risen strongly to 300 dwelling approvals per year in 2009 and 2010. South Hedland market has the majority of residential lands but Port Hedland commands higher prices and rents.

Non-residential accommodation has also been strong with hotels/motels and caravan sites experiencing 90% occupancy rates. This level of demand usually indicated a shortage of accommodation and triggers new development. Temporary worker accommodation also provides housing for some 3,000 workers.

### Retail Property Market

Buoyed by recent residential growth (permanent residents and transient workers) and a strong economy, the Town of Port Hedland's retail market is performing well. There are three retail precincts including South Hedland, West End and the Boulevard Shopping Centre. South Hedland has the majority of the retail lands and floorspace.

Table E.1: Current Retail Supply (sqm), Town of Port Hedland, 2010

Retail	West End	Boulevard	South Hedland	Total
Groceries	-	3,695	5,298	<b>8,993</b>
Cafes and Restaurants, Takeaway Food	3,000	541	2,365	<b>5,907</b>
Shop Retail	2,145	1,083	12,944	<b>16,171</b>
Bulky Goods	3,100	609	3,423	<b>7,132</b>
Services	1,200	-	1,646	<b>2,846</b>
Vacant	-	20	800	<b>820</b>
<b>Total Retail</b>	<b>9,445</b>	<b>5,948</b>	<b>26,476</b>	<b>41,869</b>
<b>% of Total</b>	<b>23%</b>	<b>14%</b>	<b>63%</b>	<b>100%</b>

Source: AECgroup, PCA (2011)

Demand for retail services is currently strong, providing \$263 million in retail spending. This level of spending would support over 48,000sqm of retail space.

Table E.2: Total Retail Demand by Catchment (sqm), Town of Port Hedland, 2010

Category	Port Hedland	South Hedland	LGA Total
Groceries	4,581	7,180	<b>11,761</b>
Cafes, Restaurants & Takeaway	8,908	2,933	<b>11,841</b>
Shop Retail	8,646	9,206	<b>17,852</b>
Bulky Goods	2,791	2,647	<b>5,438</b>
Services	670	489	<b>1,159</b>
<b>Total</b>	<b>25,597</b>	<b>22,454</b>	<b>48,051</b>

Source: AECgroup

The Town of Port Hedland is currently undersupplied in retail space, especially in groceries and food outlets.

Table E.3: Current Retail Supply Gap/Surplus (sqm), Town of Port Hedland, 2010

Category	Port Hedland	South Hedland	LGA Total
Groceries	-886	-1,882	<b>-2,768</b>
Cafes, Restaurants & Takeaway	-5,367	-567	<b>-5,935</b>
Shop Retail	-5,418	3,738	<b>-1,681</b>
Bulky Goods	918	776	1,694
Services	530	1,157	1,687
<b>Total</b>	<b>-10,224</b>	<b>3,222</b>	<b>-7,002</b>

Note: Negative numbers represent an undersupply of retail space.

Source: AECgroup

### Commercial Property Market

Similar to the retail market, the commercial office property market in the Town of Port Hedland is strong. Commercial office property is split between South Hedland and Port Hedland (West End).

Table E.4: Current Office Supply (SQM), Town of Port Hedland, 2010

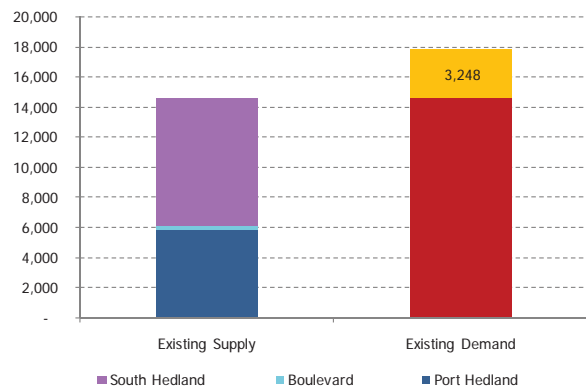
Retail Category	West End	Boulevard	South Hedland	Total
Commercial Office	5,815	311	8,471	14,597
<b>% of Total</b>	<b>40%</b>	<b>2%</b>	<b>58%</b>	<b>100%</b>

Source: AECgroup, PCA (2011)



Supported by a strong economy, mining and resource projects as well as major construction projects, there is strong demand for commercial office space in the Town of Port Hedland, especially from professional business services. AECgroup estimates that there is currently demand for 17,845sqm of commercial office space in the Town of Port Hedland, which provides an undersupply of 3,248sqm.

Figure E.1: Current Office Supply Gap/Surplus (SQM), Town of Port Hedland, 2010



Source: AECgroup, ABS (2007)

**Industrial Property Market**

The mining and resource developments are creating a strong environment for industrial property. The Port of Port Hedland currently has plans for strong growth and expansion that would see continued high levels of throughput through the port facilities and continue to drive demand for industrial land. Additionally, the major investment projects in the area are also providing stimulus for industrial land.

The market in the Town of Port Hedland can be separated into the following segments:

- Mining / Port Activities;
- Heavy Industrial / Noxious Industry;
- Light Industrial; and
- Transport and Logistics.

There are currently 6,350 ha of land zoned for industrial uses, which is the largest land use in the Town of Port Hedland. More than half of all developed land is industrial. 5,123ha of the current supply are undeveloped, with the majority dedicated to the Boodarie Industrial Estate. There are five industrial precincts in the Town of Port Hedland:

- Port Hedland;
- Redbank;
- Boodarie;
- Finucane; and
- Wedgefield.

Demand for industrial property is strong and there are muted plans for expansions of the Wedgefield Industrial Area to add 250ha and rezone land specifically for transport related uses. There are additional lands south of the airport, which may also be used for light industry.



**The evolution of Port Hedland...**

Although the Town of Port Hedland has experienced a strong property market (across residential, retail/commercial and industrial) in recent years, there are numerous challenges. Ensuring that supply of not only available lands but developed space is challenging amongst such strong demand. The construction activity around various major projects for the mining and resource sector consumes material and labour, forcing other construction types to compete for these resources and pay a premium, significantly increasing construction costs for residential, retail/commercial and industrial premises.

As the Town of Port Hedland continues to grow, innovative solutions to some of these challenges will be needed. The next step for Port Hedland is to further develop an understanding of the future demand for property across residential, retail/commercial and industrial. The challenges and future opportunities will be further explored in the **Port Hedland: Property Opportunity and Gap Analysis Report.**



**Table Error! No text of specified style in document..5: Key Findings Matrix**

Theme	Indicator	Analysis	Key Findings
Residential and Service Population	Residential Population	<ul style="list-style-type: none"> <li>Population of 14,624 in 2010</li> <li>1.5% average annual growth (2001-10)</li> </ul>	Port Hedland has grown at a slower rate than the broader Pilbara Region over the past ten years. This is in contrast to neighbouring Roebourne which has experienced very strong growth trends.
	Fertility Rates	<ul style="list-style-type: none"> <li>2.6 children per mother (above replace levels of 2.1)</li> </ul>	Increasing fertility rates in Port Hedland means that the size of local resident families and households are growing. This impacts not only the local demand for child-related services (e.g. childcare, primary schooling, etc.) but also the housing type and locational preferences of residents of Port Hedland.
	Service Population	<ul style="list-style-type: none"> <li>Service Population of approx. 19,216 in 2010 comprising residential, FIFO/Construction and Short term visitors.</li> </ul>	Residential population estimates alone are not representative of the actual population in Port Hedland. FIFO and construction workers, as well as short-term visitors also draw upon local facilities and services. These components must be included in any future infrastructure, accommodation and service delivery planning.
	Population Projections	<ul style="list-style-type: none"> <li>Service population of 39,500 in 2031</li> <li>Comprising 30,500 residents, 5,900 FIFO/Construction workers and 3,400 short-term visitors</li> </ul>	The 40,000 population target by 2025 (Town of Port Hedland) and the 50,000 population target for 2035 (Pilbara Cities) are aspirational only and difficult to achieve in reality. Based on a Gross Regional Product based population methodology, AECgroup estimates a population of close to 40,000 by 2031 is achievable based on currently available information.
Residential Market	Residential Land	<ul style="list-style-type: none"> <li>Currently, there are 389 vacant residential lots (122 – Port Hedland, 267 – South Hedland)</li> <li>369.6 ha of developed residential land</li> <li>114.9 ha of undeveloped residential land</li> </ul>	Residential land use planning and the delivery of residential lands to support future residential growth will be important in the future. South Hedland currently has the majority of the available residential lands, but Port Hedland is commanding higher prices.



Theme	Indicator	Analysis	Key Findings
	Residential Housing	<ul style="list-style-type: none"> <li>1,000 dwellings advertised for sale in 2010                             <ul style="list-style-type: none"> <li>70% in South Hedland</li> <li>40% 3 bedroom homes</li> </ul> </li> <li>House prices are strong:                             <ul style="list-style-type: none"> <li>\$640,000 - \$920,000 (South Hedland)</li> <li>\$650,000 - \$1.4 million (Port Hedland)</li> </ul> </li> <li>Housing prices have increased an average of 14% between 2008-2010</li> <li>Rental prices range from \$600 - \$2,300/week (South Hedland) and \$800 - \$2,300/week (Port Hedland)</li> <li>Rents have grown an average of 14% between 2008-2010</li> </ul>	Residential housing is in short supply, which is causing significant price increases as a result of the strong population growth (across permanent resident and temporary workers). Prices are high and the market tends to favour Port Hedland, with Pretty Pool commanding higher prices than areas of South Hedland. Delivering unique residential dwelling solutions, dealing with high construction costs, labour and supply shortages and current housing affordability, will be critical to growing the local population.
	Non-Residential Housing	<ul style="list-style-type: none"> <li>There are 3,565 rooms for temporary workers, housing 2,906 workers</li> <li>There are six tourism accommodation establishments, providing 462 rooms, operating at 90% occupancy rate</li> <li>There are 600 caravan sites, with many types operating around 90% occupancy</li> </ul>	FIFO/Construction workers are driving strong demand for short stay accommodation, occupying many accommodation establishments and caravan sites. Additionally, the resource and major project developments are driving demand for business travellers, providing further stimulus to the accommodation sector. Occupancy rates above 65% in regional areas typically signal a shortage of rooms and trigger new developments.
Retail & Commercial Market	Retail Sector & Offering	<ul style="list-style-type: none"> <li>There are 48 retail businesses in the Town of Port Hedland</li> <li>Coles/Woolworths, Kmart and Harvey Norman are major retail businesses</li> <li>Three retail precincts including South Hedland, West End and the Boulevard shopping centre in Port Hedland</li> </ul>	South Hedland is the dominant precinct for retail in the Town of Port Hedland. Port Hedland is limited to minor convenience retail in West End but has the Boulevard Shopping centre providing a Woolworths, Harvey Norman and other shops.





Theme	Indicator	Analysis	Key Findings
	Retail/Commercial Land	<ul style="list-style-type: none"> <li>83.5 ha of developed retail/commercial land</li> <li>27.7 ha of undeveloped retail/commercial land</li> <li>Majority of available retail/commercial land is in South Hedland</li> </ul>	South Hedland provides to majority of available lands for retail/commercial development. Port Hedland (West End) is constrained through existing structures, however, there are other opportunities for retail/commercial development.
	Current Retail Supply & Demand	<ul style="list-style-type: none"> <li>Existing retail supply of 41,869 sqm:                             <ul style="list-style-type: none"> <li>63% in South Hedland</li> <li>37% in Port Hedland</li> </ul> </li> <li>2% vacancy rate</li> <li>Majority of space is shop retail</li> <li>Estimated \$262.7 million in retail spending in the Town of Port Hedland (2010)</li> <li>Existing demand for 48,051 sqm</li> </ul>	Given recent population growth (including FIFO/Construction workers and temporary visitors), demand for retail space is strong. There is an estimated \$262.7 million in retail spending, which drives demand for 48,051 sqm of space.
	Retail Supply Alignment	<ul style="list-style-type: none"> <li>Market is currently undersupplied by 7,002 sqm of retail space with the largest shortage in:                             <ul style="list-style-type: none"> <li>Groceries (2,768 sqm)</li> <li>Food outlets (5,935 sqm)</li> </ul> </li> </ul>	Retail market is currently undersupplied by 7,002 sqm of space. There is existing demand for another grocery store and several food outlets, including cafes, restaurants and takeaways. There is excess retail shop space in Port Hedland and an undersupply in South Hedland, showing the dominance of South Hedland. Due to demand and limited supply, commercial office uses are intermingled with retail space.
	Current Commercial Supply & Demand	<ul style="list-style-type: none"> <li>Existing commercial office supply of 14,597 sqm:                             <ul style="list-style-type: none"> <li>58% in South Hedland</li> <li>42% in Port Hedland</li> </ul> </li> <li>No vacancy</li> <li>Existing demand for 17,845 sqm</li> </ul>	The strong economy is driving demand for commercial office space, particularly for professional business services to support resource and major project growth. Supply is split between South and Port Hedland, with Port Hedland almost completely built out.
	Commercial Supply Alignment	<ul style="list-style-type: none"> <li>Market is currently undersupplied by 3,248 sqm</li> </ul>	There market is currently undersupplied by 3,248 sqm of space. The intermingling of commercial and retail uses demonstrates the strong demand for office space. Further development of commercial office space, particularly in Port Hedland (West End) would help to grow the economy.



Theme	Indicator	Analysis	Key Findings
<b>Industrial Market</b>	Industrial Market	<ul style="list-style-type: none"> <li>Industrial market includes:                             <ul style="list-style-type: none"> <li>Mining / Port Activities</li> <li>Heavy Industrial / Noxious Industry</li> <li>Light Industrial</li> <li>Transport and Logistics</li> </ul> </li> <li>Mining sector and associated major projects are key drivers</li> <li>Port of Port Hedland plays a critical role in the industrial market</li> </ul>	Industrial activities in the Town of Port Hedland are driven by the mining and resource sector and the Port of Port Hedland is a critical component to the industrial market. Future growth and diversification of the industrial market will assist with economic growth.
	Industrial Land	<ul style="list-style-type: none"> <li>Total of 6,350 ha of industrial land:                             <ul style="list-style-type: none"> <li>1,229.7 ha of developed land</li> <li>5,123.0 ha of undeveloped land</li> <li>Majority of undeveloped land is in Boodarie</li> </ul> </li> <li>Major industrial precincts include:                             <ul style="list-style-type: none"> <li>Port Hedland</li> <li>Redbank</li> <li>Boodarie</li> <li>Finucane</li> <li>Wedgefield</li> </ul> </li> <li>Strategic industrial land makes up 96% of all industrial zoned land</li> </ul>	There is a large amount of available industrial lands in the Town of Port Hedland, with the Boodarie Industrial Estate representing the majority of the space. Boodarie and Wedgefield will provide the major growth areas for industrial development in the short to medium term.
	Industrial Demand	<ul style="list-style-type: none"> <li>Demand for industrial land is strong, driven by mining and resource activity as well as major projects</li> <li>Strong demand for iron ore driving Port expansions, which also contributes to demand for industrial land</li> </ul>	Industrial land demand is driven by mining and resource developments and growth at the Port of Port Hedland. Growth in supporting industrial sectors will provide stimulus for light industrial and transport related industrial land.



## Executive Summary

The Town of Port Hedland is Australia's most prominent iron ore exporter, and is located on the North West coast of Western Australia. Like many other mining areas of regional Australia, the Town of Port Hedland has experienced the pressures of significant development over the past 10 years and the challenges that come with rapid economic growth. The continued (and projected) strength of the mining, mineral processing and transportation activities in the Town of Port Hedland will continue to drive the local economy, in addition to strong residential and service population growth, which will be required to sustain activity into the future.

Overall, there is a need to guide and streamline future economic growth to benefit all stakeholders. This need has given rise to the development of the City Growth Plan – a multifaceted plan which draws upon the expertise multiple teams to assess the spatial, economic, social and infrastructure planning requirements to achieve the future vision for Port Hedland.

### Purpose of This Report

This report forms a component of the *Property Consultancy* of the City Growth Plan. The purpose of this report is to analyse the potential distribution of floorspace/activity/land demand and supply across Precincts in the City Growth Plan area, along with the identification and analysis of key property issues. This forms a key input into the establishment of a broad Property Framework for the Town of Port Hedland to provide the structure within which key initiatives and strategies to be defined in the *Implementation Plan* will be implemented.

### Key Findings

#### Key Issues Analysis

Development in the Town of Port Hedland is currently constrained by a range of core property issues that not only influence the dynamics and operation of property markets, but also the achievement of core objectives of the City Growth Plan. The issues, identified from the research of this consultancy and consultation with primary stakeholders, are outlined in the following table.

Table E.1: Property Issue Identification

Categories	Issue
Housing	Housing Affordability
	Home Ownership
	Housing Diversity
	Housing Supply
	Lack of Business Accommodation
Development and Operational Feasibility	Construction Costs
	Seasonality of Construction
	Accommodation for Construction Workers
	Labour Force Availability
	Enabling Infrastructure Requirements
Market Size and Risk	Small Market Size
	Risk Profile and Uncertainty

Source: AECgroup

These issues are group into three broad categories, which represent the primary impediments to the effective normalisation of the Port Hedland property market, restricting growth and investment across all market segments.

A review of these property issues against the Core Objectives of the City Growth Plan reveals that the achievement of Objectives 1 (Sustained and Diversified Economic Growth) and 3 (Housing Diversity & Land Supply Capacity) are most impacted by the property issues identified. Considering the importance of both of these objectives to enhancing the growth and quality of life of the residential population in the Town of Port Hedland – a key goal of the *Pilbara Cities* – emphasis must be placed on addressing these two issues as a priority.

#### Precinct Role and Function

AECgroup has reviewed and summarised the key property drivers of each Precinct in the Town of Port Hedland. These drivers have been identified through an examination of the current role and function of the Precinct, land supply pipelines, development opportunities, and location-based amenity and accessibility factors. The critical mass of residential and economic activity that will occur over the next twenty years will result in an increase in segmentation of market demand. This segmentation will reinforce Precinct level specialisation of role and function and result in differences in the activity profiles of each Precinct as well as the interrelationship between Precincts over time.

The property issues identified in this report will also impact individual Precincts differently. The development of Precinct 2 (East End) and 11 (South Hedland Town Centre) are likely to be impact by all identified issues, reflecting the fact that both of these locations are projected to accommodate the fully spectrum of activity, floorspace and land uses. Development in other Precincts, in both Port and South Hedland are expected to experience similar, albeit slightly less, impacts from the identified property issues, though the combination of issues varies across the Precincts. This reflects differences in the current and future role and function of each Precinct and the highlights the need for Precinct and whole-of-Port Hedland level approaches, initiatives and strategies.

#### Property Framework

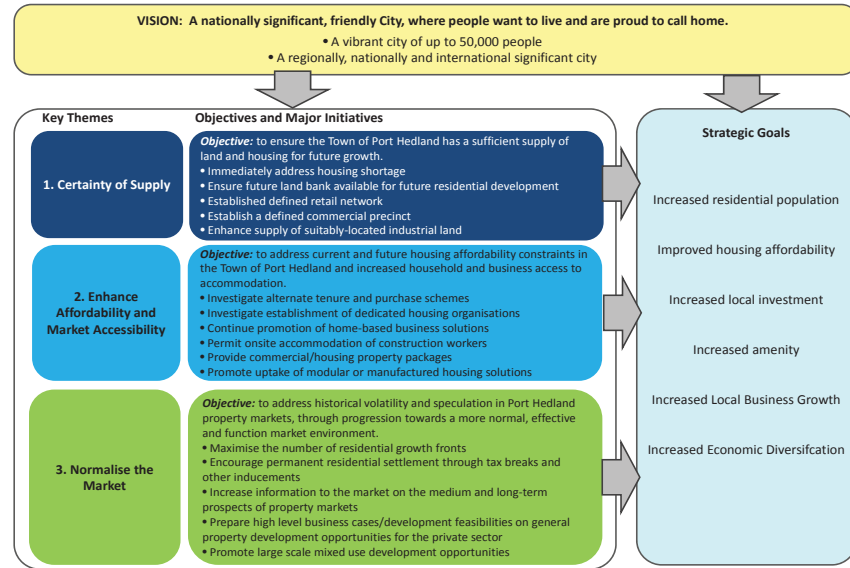
Based on the analysis of this report, AECgroup proposes the following framework be established to guide long-term property-related activities by key stakeholders. The following diagram provides an overview of the property framework for the Town of Port Hedland.

This framework is comprised of three broad themes, which reflects the need for a multi-pronged approach to addressing the property issues identified in this report. These themes include:

- **Certainty of Supply** - to ensure the Town of Port Hedland has a sufficient supply of land and housing for future growth;
- **Enhance Affordability and Market Accessibility** - to address current and future housing affordability constraints in the Town of Port Hedland and increased household and business access to accommodation; and
- **Normalise the Market** - to address historical volatility and speculation in Port Hedland property markets, through progression towards a more normal, effective and function market environment.

The broad initiative concepts identified under each of these themes, as part of the Property Framework, will be the focus of the *Implementation Plan*, through provision of detailed and specific advice regarding activities and the associated key performance indicators (KPIs) and budgets.

Figure E.1: Town of Port Hedland Property Framework



Source: AECgroup

### The evolution of Port Hedland...

The development of the Town of Port Hedland is currently constrained by a range of housing, development feasibility and risk profile issues. These issues influence not only the ability of the Core Objectives of the City Growth Plan to be achieved, but also the role and function of individual Precincts. Housing (namely affordability and supply), and Development and operational viability-related issues (construction costs, uncertainty and infrastructure constraints) were identified as those most critical to both property and economic development in the Town of Port Hedland.

The three themes of the Property Framework - Certainty of Supply, Enhancing Affordability and Market Accessibility, and Normalising the Market – reflect the need for a multi-pronged strategy to addressing the property issues that constrain development.

Definition of individual initiatives, policies and strategies related to each theme of the Property Framework will be the focus of the **Implementation Plan**.

**Pilbara’s Port City Growth Plan – Sustainability Report**

**Executive Summary**

*“The issues of sustainable development should not be seen as problems to be solved but rather as opportunities for greater cooperation and limitless possibilities for more innovative and efficient ways of creating human settlements”*

*Daniel Williams (taken from LandCorp website)*

**Purpose**

The Town of Port Hedland in partnership with LandCorp, the Department of Planning and the Office of the Pilbara Cities, has set an ambitious vision for the development of a sustainable city in the Pilbara. Supporting this vision is the sustainability framework which provides a set of principles and aspirations to help guide and support planners and decision makers on how to achieve sustainable development and build a resilient Port Hedland for current and future generations.

This brief sets out the draft sustainability framework for the Pilbara’s Port City Growth Plan (CGP) and provides some of the headline opportunities for sustainable development and an assessment of the plan against the sustainability principles.

**Sustainability framework**

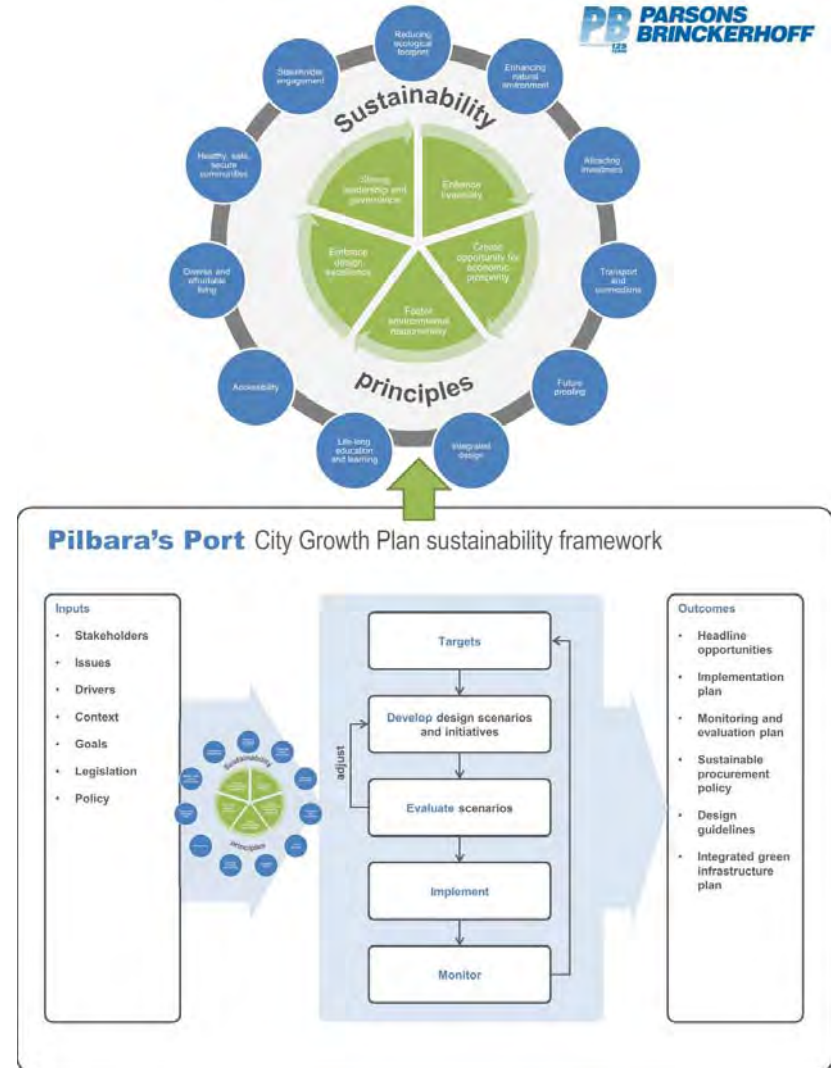
The sustainability framework provides a consistent and agreed approach to sustainable development in the Pilbara’s Port CGP. This is important in the Port Hedland context as there are many stakeholders who are interested in the economic, cultural, social and environmental success of the region. The sustainability framework is designed using the guiding principles and themes of state, regional and local policies and supplemented with ‘best practice’ sustainable community frameworks.

The sustainability framework is a working document that is continuously improved and updated throughout the project. The sustainability framework is currently focussed on the planning and design stages of the project and should be used as guidance for design development and evaluation of initiatives however it can be adapted for future use as a sustainability framework for the Town of Port Hedland and community groups.

The sustainability principles are:

- enhance liveability
- create opportunities for economic prosperity
- foster environmental responsibility
- demonstrate visionary leadership and strong governance
- embrace design excellence.

The following schematic outlines the sustainability framework process:



<b>1 Enhance Liveability</b> Sustainable communities are liveable. They are diverse, affordable, inclusive and healthy; they enhance social interaction and ownership, are safe and caring and improve people's well-being.									
1.1	Providing Diverse and Affordable Living	1.2	Creating Healthy, Safe and Secure Communities	1.3	Fostering Inclusiveness and Cohesiveness	1.4	Building Community Adaptability		
<b>2 Create Opportunities for Economic Prosperity</b> Sustainable communities prosper. They encourage opportunities for business diversity, innovation and economic development that support local jobs for people in the region.									
2.1	Promoting Education and Learning	2.2	Enhancing Employment Opportunities	2.3	Attracting Investment	2.4	Encouraging Innovation	2.5	Promoting Efficiency and Effectiveness
<b>3 Foster Environmental Responsibility</b> Sustainable communities respect the environmental systems that support them. They protect and restore the natural environmental values of their bio-regions. They are less resource intensive. They promote infrastructure, transport and buildings that reduce their ecological footprint.									
3.1	Enhancing Our Natural Environment	3.2	Reducing Ecological Footprint						
<b>4 Embrace Design Excellence</b> Sustainable communities are places for people. They are desirable, accessible and adaptable. They have their own distinct character and identity and evolve overtime.									
4.1	Adopting Effective Planning Practices	4.2	Encouraging Integrated Design	4.3	Maintaining Flexible and Adaptable Approaches	4.4	Creating Desirable Places	4.5	Promoting Accessibility
<b>5 Demonstrate Visionary Leadership and Strong Governance</b> Sustainable communities are characterised by leadership and strong governance frameworks that are transparent, accountable and adaptable. They enable active partnerships to build capacity and achieve a shared vision and deliver stakeholder benefit.									
5.1	Establish Coordinated and Transparent Approaches	5.2	Build A Commitment To Implementation	5.3	Engaging With Stakeholders	5.4	Fostering Sustainable Cultures and Behaviours	5.5	Encouraging and Rewarding Innovation

## Inputs

The **inputs** to the process are the:

- vision and goals
- context
- stakeholders (*steering group + external*)
- issues (*current + future*)
- legislation, regulation, policies and guidelines.

These inputs will generally be developed and identified in the initial stages of planning and updated and refined over time.

## Iterative + integrated design

The **iterative + integrated design** stage involves:

- identifying the appropriate measures for the design process and setting appropriate targets
- developing the design scenario, initiative or strategy that is part of achieving the vision and goals
- selecting an evaluation tool
- evaluating against the principles, measures and targets and adjusting design (et al) if required
- implementing and monitoring outcomes (*this won't be used at the planning stage but is useful for long term use of the framework*).

## Design development

This stage is useful for both land use planning and design and other initiatives and strategies. Broadly, the design tools for this stage are:

- design and technology
- markets, behaviour change and incentives
- institutions, policy and governance.

Although efficient design of the built environment and infrastructure is important, there may be other ways to achieve the desired sustainability outcomes. For instance, if we want to reduce household water use, water efficiency and water re-use strategies can only go so far – incentives may be required to either change people's behaviour or create an opportunity for the market to provide a water reduction solution. This applies equally to policy led initiatives such as sustainable procurement practices by the Town of Port Hedland and design guidelines for the CGP.

## Evaluation

Evaluation requires first the selection of the most appropriate evaluation tool for the design context then assessment against the measures and targets. Evaluation is not an endpoint but part of the iterative design process, which allows reflection and decision between alternatives. Furthermore, evaluation should be specific to the task and therefore tools may differ. For instance, a tool to evaluate sustainable road design and construction, such as Greenroads Rating System, will be used for this application and but building design may use BASIX as the evaluation tool.

Evaluation tools will be refined over time, however for the purpose of evaluating the planning and design phase of the CGP we recommend using:

## Planning

- GreenStar Communities sustainable development principles – evaluation of initiatives against the high-level sustainability principles adopted for the sustainability framework

## Design and construction

- Urban Development Institute of Australia's (UDIA) EnviroDevelopment – evaluation of environmental sustainability components (3.0 Foster environmental responsibility)
- VicUrban's *Sustainable Community Rating – Provincial Community 2007* – evaluation of community and design excellence components (1.0 Enhance liveability & 4.0 Embrace design excellence)
- AEC *economic evaluation tools* – TBA.

These evaluation tools will provide useful guidance on areas of environmental and community development sustainability and housing affordability. These tools are generally qualitative and act as a useful guide for designers but don't provide quantitative results. Quantitative evaluation tools, such as Kinesis' C<sup>CAP</sup> Precinct, provide much more integrated and tangible results, which give greater confidence in decision making (Note, Kinesis' C<sup>CAP</sup> Precinct is only available through license and is outside the scope of PB's scope of work). Evaluation tools are discussed in more detail in section **Error! Reference source not found.** A full list of commonly used evaluation tools are found in appendix C.

## Outputs

The **outputs** can be many, but for the purpose of the CGP the following outputs are recommended:

- headline opportunities – large scale sustainability strategies and infrastructure
- implementation plan
- monitoring and evaluation plan
- sustainable procurement policy
- design guidelines
- integrated green infrastructure plan.

## Proposed sustainability options

To achieve a sustainable Port Hedland will require a significant transition from the status quo. This transition will need to apply to all parts of the economy and society to cope with the challenges of a resource constrained future and a developing a diversified economy and demography. The options presented here try to incorporate the steps necessary to aid this transition by promoting the 'catalysts', such as more housing, early in the process while being mindful of the need to consider long term risks, such as climate change and resource shortages.

The following table outlines the sustainability option recommendations for the Pilbara's Port CGP implementation phase.

Sustainability principle	Actions	Responsibility	Timeframe	Benefits
<b>Water and energy efficiency strategies</b>	Residential water and energy audit and retrofitting program	Water Corp, Horizon Power, Industry	Yr 1	<ul style="list-style-type: none"> <li>&gt; ree up potable water in the short term for residential development</li> <li>&gt; educe ecological footprint</li> </ul>
	Industry water and efficiency audit and retrofitting program	Water Corp, Horizon Power, Industry	Yr 1-5	<ul style="list-style-type: none"> <li>&gt; ree up potable water in the short term for residential development</li> <li>&gt; educe ecological footprint</li> <li>&gt; educe operational costs</li> </ul>
	Develop guidelines for TWA for placemaking and resource efficiency	ToPH, LandCorp	Yr 1	<ul style="list-style-type: none"> <li>&gt; educe ecological footprint</li> <li>&gt; ntegrate TWA into community</li> </ul>
	Develop guidelines for new accommodation best practice water and energy efficiency	LandCorp	Yr 1-5	<ul style="list-style-type: none"> <li>&gt; educe demand for new residential development</li> <li>&gt; educe ecological footprint</li> </ul>
	Display homes to demonstrate energy and water efficiency	LandCorp	Yr 1-5	<ul style="list-style-type: none"> <li>&gt; ncourages uptake of sustainable housing design</li> <li>&gt; nhance affordable living options</li> </ul>
<b>Diversifying economy strategies</b>	Develop strategic investment business case for 'clean technology'	ToPH	Yr 1-5	<ul style="list-style-type: none"> <li>&gt; ttract new industries that lead in design excellence</li> </ul>
	Develop strategic higher education and research business case to support 'clean technology' industries	ToPH	Yr 1-5	<ul style="list-style-type: none"> <li>&gt; nhances liveability and life-long learning</li> <li>&gt; nhances productivity of local industry</li> <li>&gt; ttract and retain youth</li> </ul>
	Develop business case for localised food production	ToPH	Yr 5-10	<ul style="list-style-type: none"> <li>&gt; ommunity health and affordable living</li> </ul>



Sustainability principle	Actions	Responsibility	Timeframe	Benefits
<b>Essential service infrastructure</b>	Regional power network infrastructure upgrades	Horizon Power	Yr 5-10	> aids transition to a low carbon economy through renewables
	Develop Smart Grid network infrastructure (including communications)	Horizon Power	Yr 5-10	> reduces energy load and therefore carbon emissions > reduces cost of energy in long term
	Develop energy storage network plan to support large scale renewables	Horizon Power	Yr 1-5	> enables penetration of renewables for energy security and reduced carbon footprint
	High speed broadband network	ToPH	Yr 5-10	> enables connectivity and opportunities for education > enables Smart Grids
	Expand bore water supply network	Water Corp	Yr 5-10	> water for residential growth > enables diversity and economic growth
<b>Renewable energy strategies</b>	Alternative energy generation feasibility study (solar, wind, energy-from-waste, etc.)	ToPH	Yr 1-5	> reduce carbon and waste footprint > enhance industry energy supply security
<b>Strengthening communities</b>	Preparation of education for life long learning strategy (including high school and indigenous education)	ToPH	Yr 1-5	> attract and retain youth > mental health in community
	Development of a community engagement strategy including deliberative democracy practices	ToPH	Yr 1-5	> fostering sustainable cultures and behaviours > engaged and active community
	Create 'Sustainable Living Centre' for community sustainability education	ToPH	Yr 1-5	> fostering sustainable cultures and behaviours

Sustainability principle	Actions	Responsibility	Timeframe	Benefits
	Development of an Indigenous employment and economic development program	ToPH	Yr 1-5	> community cohesion and equity
	Display homes to demonstrate energy and water efficiency	LandCorp	Yr 1-5	> replication potential and experimentation
<b>Water security strategies</b>	District Water Management Strategy (including water balance)	Water Corp, ToPH	Yr 1	> free up potable water for development
	Feasibility study of stormwater for non-potable sources	Water Corp	Yr 1	> reduce ecological impact on groundwater resources
	Options assessment for Integrated Water Cycle Management (including implementation of non-potable supply strategy)	Water Corp	Yr 1-5	> free up potable water for development
<b>Future proofing strategies</b>	Climate change adaptation risk assessment	ToPH	Yr 1-5	> protection of critical services > improved decision making
	Oil vulnerability risk assessment	ToPH	Yr 1-5	> enhance liveability > improve energy security for business continuity
<b>Governance</b>	Project Office creation in ToPH to deliver CGP	ToPH	Yr 1	> coordination between state and local agencies and integration into ToPH
	Energy & Water Taskforce	ToPH	Yr 1	> coordinate energy and water efficiency programs and support strategic
	Develop sustainable procurement policy and guidelines	ToPH	Yr 1-5	> reduce ecological footprint of council > replicable for other businesses

**Sustainability assessment**

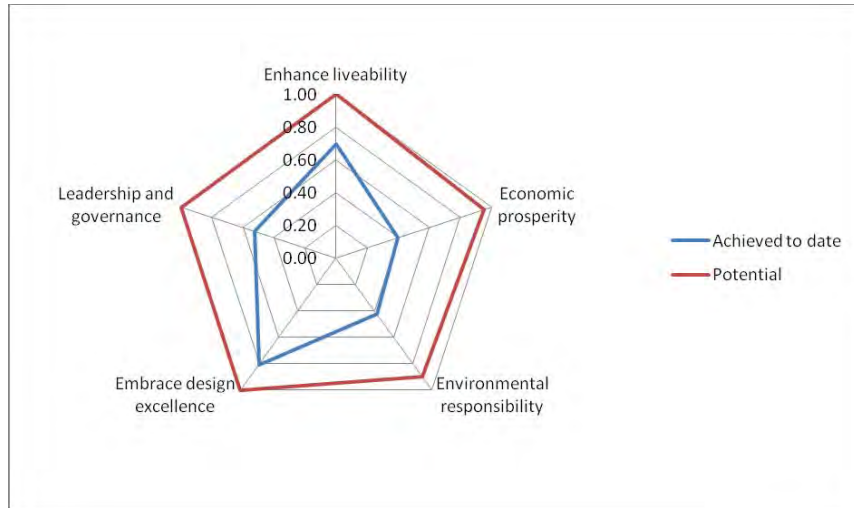
A sustainability assessment has been undertaken of the draft Pilbara’s Port CGP against the principle criteria of the sustainability framework, namely:

- enhance liveability
- create opportunities for economic prosperity
- foster environmental responsibility
- demonstrate visionary leadership and strong governance
- embrace design excellence.

As the Pilbara’s Port CGP is only at the early planning stage, the sustainability assessment is qualitative and subjective in analysis owing to the fact that the plan is strategic and cannot provide sufficient design detail to conduct a quantitative assessment. The qualitative assessment has been converted into a score based on the level of ‘achievement’ of the elements of the sub-principle. The scores themselves demonstrate the level to which the plan has ‘achieved’ the principle and furthermore, highlights the potential for the principle to be achieved at a later stage of the project.

The results of the sustainability assessment should not be viewed as definitive or final and should be used only as a guide for planners to test whether the project is heading in the right direction with respect to the sustainability principles. Furthermore, the sustainability assessment should be repeated throughout the project to ensure continuous improvement and refinement. Again, as the project gains more design detail it would be prudent to use more quantitative assessment tools, such as those outlined previously.

The results of the sustainability assessment are shown in the graph below. At this stage of planning, the target range for the score should be at least 0.4, which indicates that the principles have been recognised and actions have been specified that will progress the achievement of the principles.



All the sustainability principles criteria has achieved at least 0.4 for the planning with stand-out performance in ‘embrace design excellence’ with 0.8 and ‘enhance liveability’ with 0.7. The high scores in these criterions are testament to the extensive involvement of stakeholders and the community in the planning process and the continued efforts of the Town of Port Hedland to provide information to the community. Lower scores in ‘economic prosperity’ and ‘environmental responsibility’ are expected at this stage of the project, which is mostly focussed on planning and stakeholder engagement, however some additional attention could be given to these criterions in the implementation phase to ensure long term success in these areas.

The main sub-elements to consider as strategies are:

**Create opportunities for economic prosperity**

- encouraging the production and procurement of local goods and services
- establishing a business case, inclusive of externalities, for green infrastructure systems and jobs and providing a commitment to implementation
- enabling ongoing sustainable and ethical investment in local business opportunities
- encouraging business and community innovation through initiatives that recognise and reward local excellence
- applying lifecycle impact management approaches to encourage resource efficiency and reduced lifecycle costs

**Foster environmental responsibility**

- promoting environmentally efficient systems for sustainable energy generation and distribution and waste management and recycling
- reducing greenhouse gas emissions, contaminants and other pollutants to land, water and atmosphere
- educating communities on their individual and collective impacts by making resource savings and consumption data explicit within the built environment
- promoting food security and sustainable food production

**Demonstrate visionary leadership and strong governance**

- raising awareness among stakeholders and providing education and learning opportunities that enable more sustainable practices
- recognising and rewarding leadership in innovation and excellence
- incorporating performance evaluation, feedback and support mechanisms that provide opportunities for continual improvement
- developing practically enforceable standards of ownership, accountability and delivery

**Embrace design excellence**

defining specific design outcomes which are clear and measurable

**Enhance liveability**

- providing opportunities for and raising the awareness of healthy activities within the community
- facilitating community cohesion by developing a shared vision, embracing diversity and tolerance, respecting each other’s rights and responsibilities and reflecting these values in the built environment.

## Summary

The sustainability framework and options provides a guide for planners and decision makers to ensure a sustainable Port Hedland as it journeys into revitalisation and growth. The sustainability principles of:

- enhance liveability
- create opportunities for economic prosperity
- foster environmental responsibility
- demonstrate visionary leadership and strong governance, and
- embrace design excellence

are appropriately embodied in the Pilbara's Port City Growth Plan as demonstrated in the sustainability assessment. Further refinement of strategies for each of these principles will be undertaken in the implementation phase of the project. Sustainability performance should be continuously assessed throughout the life of the project to ensure that all elements of sustainability, society, environment, economy, innovation and governance, have equal priority in the implementation and delivery. A balanced and long term approach to sustainability is vital to creating a resilient and sustainable Pilbara City.

# APPENDIX





## APPENDIX C: REFERENCE / SOURCE MATERIAL

The Pilbara's Port City Growth Plan team reviewed a wide variety of documents relating Port Hedland and its development. The following, including some of the technical documents prepared by the Growth Plan team for this study are referred to in the main text and listed below. Documents are listed against the relevant chapter to which they are first referenced:

### **Section 1.1 Pilbara's Port City**

1. Australian Bureau of Statistics, 2011; ABS5206.0 National Accounts
2. Town of Port Hedland; 2011, Media/Information Release (Various)
3. Western Australian Planning Commission, 2011; Pilbara Planning and Infrastructure Framework
4. Town of Port Hedland, 2010; Hedland's Future Today, 2010

### **Section 1.2 Background**

5. Town of Port Hedland / Urban Design Centre, 2008; Land Use Master Plan
6. Town of Port Hedland, 2010; Strategic Plan 2010-2015
7. Town of Port Hedland / RPS, 2010; Hedland Land Availability Plan
8. Town of Port Hedland / Greg Rowe & Associates, 2010; Housing Capacity Study

### **Section 1.3 Context and Role**

9. Infrastructure Australia, 2010; National Ports and Freight Strategy
10. Bureau of Infrastructure, Transport & Regional Economics (BTRE), 2010; Information Paper: Focus on Regions No. 4: Social Capital Commonwealth of Australia 2005
11. Australian Defence Force, 2009; Australian Defence Force White Paper
12. Department of Commerce, 2011; Marine Based Common Use Facilities: Northwest Western Australia, Prepared by AMC Management Pty Ltd 18TH April 2011

13. AEC group, 2011; City Growth Plan Property Profile
14. AEC group, 2011; City Growth Plan Property Profile
15. Maskell, P. 2001; 'Social capital, innovation and competitiveness', in Baron, S., Field, J. & Schuller, T. (eds), Social capital: critical perspectives, Oxford University Press, Oxford.

### **Section 3.1 Population and Demographics**

16. AEC group, 2011; City Growth Plan Socio-Economic Profile

### **Section 3.4 Local Communities, Cultural Heritage and Landscape Character**

17. Australian Bureau of Statistics, 2010; Age and Gender, Port Hedland LGA 2009
18. Australian Bureau of Statistics, 2010; Wages and Salaries, Port Hedland LGA, 2004 and 2008
19. McCarthy, 1961; The Rock Engravings of Port Hedland, North Western Australia
20. Gallup and The Knight Foundation, 2010; Soul of the Community Survey
21. CEOs for Cities and Joe Cortright, 2008; City Advantage
22. FORM, 2010; Community Activation Workshop, August 2010
23. CEOs for Cities, 2008; 36 Hours Study (conducted by Melissa Rowe)

### **Section 3.5 Climate and Environment**

24. Thackway and Cresswell, 1995; An Interim Biogeographical Regionalisation for Australia: Canberra, ACT.
25. Department of Environment & Conservation, 2002; Mangrove Habitats as Nurseries: Unique Assemblies of Juvenile Fish in Sub-Tropical Mangroves in Eastern Australia. Marine Ecology Progress Series Vol 126.
26. Laegdsgaard and Johnson, 1995; Policy Position: Acid Sulfate Soils and the Contaminated Sites Act
27. Department of State Development, 2010; Port Hedland Air Quality and Noise Management Plan

**Section 3.6 Infrastructure**

28. Port Hedland Port Authority, 2010; Ultimate Development Plan
29. AECOM, 2011; Traffic and Transport Report
30. Town of Port Hedland, 2008; Port Hedland Cycle Plan

**Section 5.1 Framework for Growth**

31. CCS Strategic, 2011; Active Open Space Strategy for the Town of Port Hedland

**Section 5.3.1 and 5.3.2 Community Development**

32. Western Australian Planning Commission, 2011; Pilbara Framework: Regional Profile: 2.5.3 - Population Turnover
33. Government of Western Australia, 2003; cited in Duxbury, Dr Nancy and Campbell, Heather. "Developing and Revitalizing Rural Communities Through Arts and Creativity: An International Literature Review and Inventory of Resources" CCNC March 2009
34. Dr. Dennie Palmer Wolf and Dr. Steven Holochwost - 'Building Creative Capital'; Mark Stern and Susan Seifert, 'From Creative Economy to Creative Society', SIAP, University of Pennsylvania

**Section 5.5 Environmental Protection and Change Adaptation**

35. Western Australian Planning Commission, 2008; Better Urban Water Management Guidelines