

City of Karratha

Local Planning Strategy

PART A: June 2015



Preamble

The City of Karratha is poised for substantial economic and population growth as a result of global demand for the Pilbara region’s resources. State Government investment in the concentration of regional health, education and community services in Karratha will support this growth.

The City’s vision for *a cohesive and vibrant community, celebrating diversity and working together to create a sense of place and a sustainable future* recognises and supports the growth and development of the City. This Local Planning Strategy (‘Strategy’) sets goals focused on realising this vision. Strategies and actions have been set to achieve these goals.

It is a statutory requirement under the *Planning and Development Act 2005* to prepare a Local Planning Strategy as the strategic basis for the preparation of a local planning scheme. There is currently one local planning scheme which applies to the City. Shire of Roebourne Town Planning Scheme No. 8 was gazetted on 22 August 2000 and is now due for review.

This Strategy performs a key role within an integrated suite of documents that collectively form the City’s planning framework. This consists of the City’s Community Plan; The Local Planning Strategy; the Local Planning Scheme and Local Planning Policies.

This Strategy is a guiding document that can be amended as needed in response to changes in policy and factors influencing the City’s growth and development. By its nature, it is dynamic and provides flexibility rather than prescription to achieve the City’s, and ultimately the community’s, aspirations.

The Strategy consists of two components:

Part A –Local Planning Strategy incorporates the strategic plan and actions required to implement the Strategy

Part B – Local Profile and Context Analysis provides the relevant background to the Strategy, including analysis of information and the rationale for the Strategy.

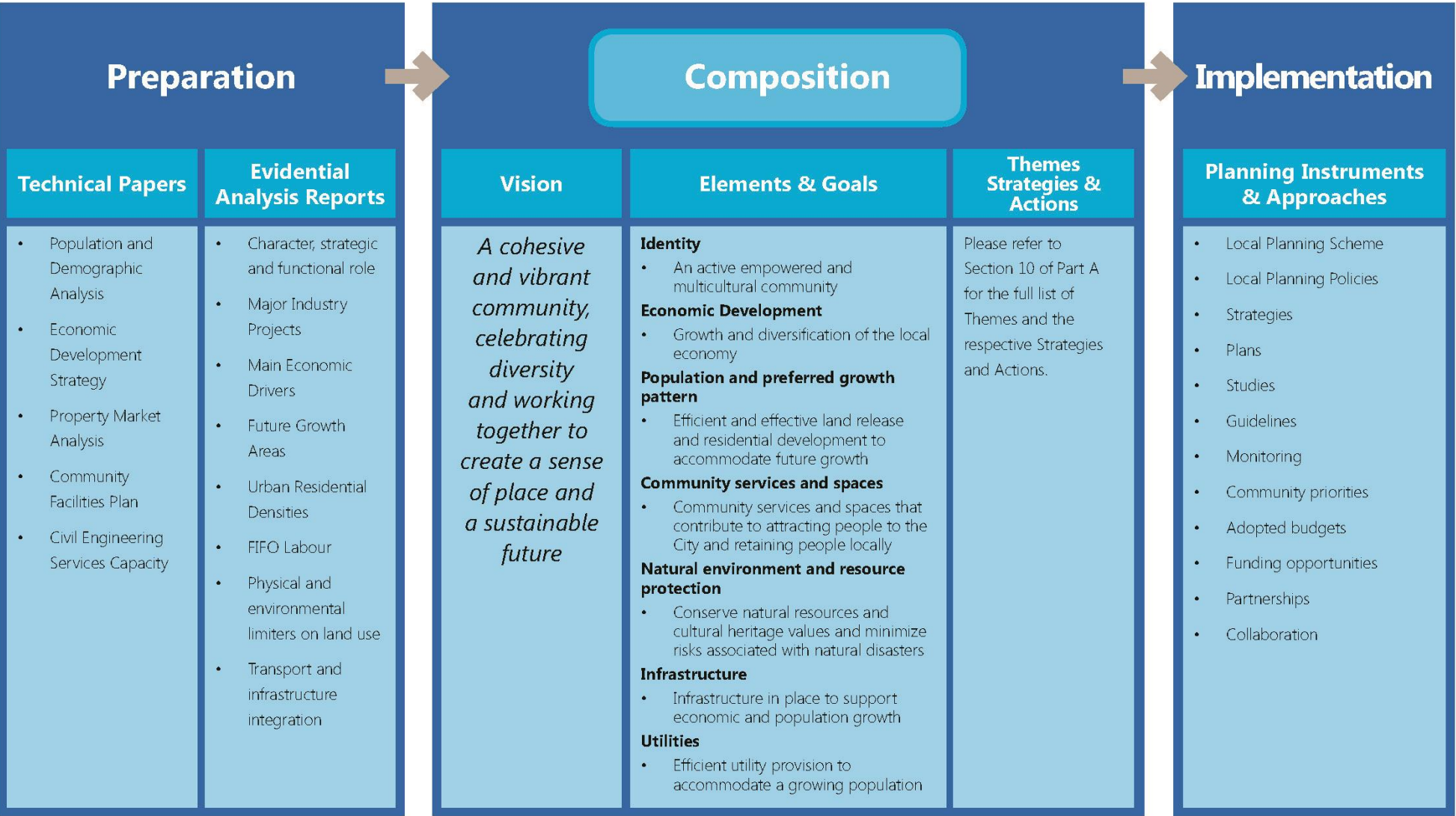
A series of stakeholder meetings and workshops were held in 2012/13 and Technical Papers and Evidential Analysis Reports prepared in 2013 to inform the preparation of this Strategy.

Part A comprises a City wide plan plus plans for each of the City’s settlements. Settlement level Strategic Plans have been provided for the major population centres that will play a key role in accommodating future population growth, including Karratha, Dampier, Roebourne, Wickham and Point Samson.

The Strategic Plan for Karratha demonstrates Karratha’s primary role in accommodating the majority of the City’s future residential, commercial and industrial needs. Section 10 includes strategies and actions that support the strategic plan.



Local Planning Strategy



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1.0 Introduction

This is the City's first Local Planning Strategy and represents the land use planning direction that will help achieve the City's strategic and community aspirations.

The Strategy provides both short to medium term outcomes and long-term opportunities. The Strategy is based upon a 15 year planning horizon with the capacity to accommodate an anticipated population of 38,000 and the ability to expand to accommodate an aspirational population of 50,000. The Strategy will be subject to periodical review and update.

As the City continues to move forward, the Strategy will set the framework and direction to achieve the best possible regional outcomes, while creating a lifestyle which will make Karratha an attractive lifestyle option. The challenge is to continue to grow the City in a sustainable way and create a sense of place which is appreciated and admired by all who visit and choose to live within the City.

This Strategy has been designed to ensure the City can grow as required in a coordinated and timely way respecting cultural aspects of the area and building vibrancy, uniqueness, and pride in the community. This Strategy will guide strategic planning decisions and facilitate informed investment decisions.

The Strategy may be used to partner with state and federal government on strategies and actions that have shared priorities, acknowledging that implementation may extend beyond local jurisdiction alone. Some matters will require coordination on development infrastructure and service provision. A collective and coordinated forward planning approach by all levels of government is required to build investor confidence and deliver a sustainable economy underpinned by a diverse community.



1.1 Location

The City of Karratha is one of four local government areas within the Pilbara region. Located approximately 1,500km from Perth, the City is bordered by the Town of Port Hedland to the east, and the Shire of Ashburton to the south.

It is an expansive local government area, covering approximately 15,278km² which is dominated by vast, raw landscapes and sweeping Spinifex plains. These areas are widely untouched but accommodate pastoral and mining purposes. The City also has an extensive coastline, running approximately 350km facing north and west to the Indian Ocean. The coastline is made up of sandy beaches, rocky outcrops, mudflats and mangroves.

Karratha is located on the coast, as are the Dampier, Point Samson and Cossack settlements. Wickham is located in close proximity to the coast. Roebourne is located on the Harding River, not far from the coast.

The Montebello Islands, Dampier Archipelago and Burrup Peninsula are exceptionally valuable natural and recreational assets for the City, offering undisturbed habitat for numerous threatened species.

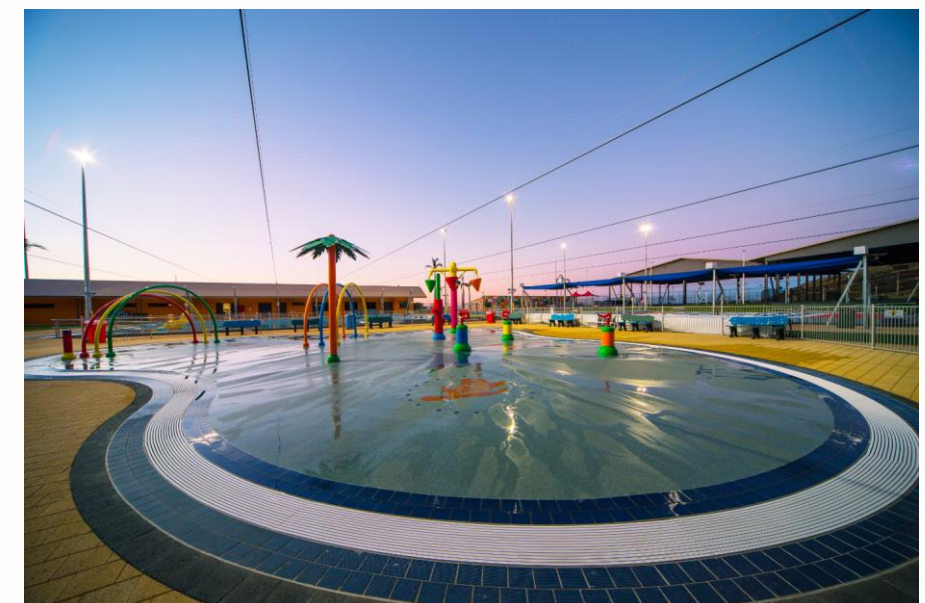


The Burrup Peninsula and the Dampier Archipelago are significant for their cultural heritage, containing the world's richest known concentration of petroglyphs (rock art). These assets afford substantial opportunity for recreation and tourism, and need to be managed with care to preserve ecological and cultural values.

The Burrup Peninsula Conservation Reserve and Murujuga National Park have been established to protect and preserve the wide diversity of native fauna and flora found within the City's boundaries.

A Marine Management Area is in place for the Cape Preston and Gnoorea (40 Mile) coastal waters southwest of Dampier. There is the potential for the marine environment of the Dampier Archipelago and Montebello Islands to be protected as a Marine Park(s).

Cleaverville, Gnoorea (40 Mile) and Fortescue River are other important recreation and tourism nodes with popular coastal access and camping areas.



1.2 Strategic Framework

The primary strategic planning document for the region is the *Pilbara Planning and Infrastructure Framework* (WAPC 2012), which establishes the following settlement hierarchy within the City:

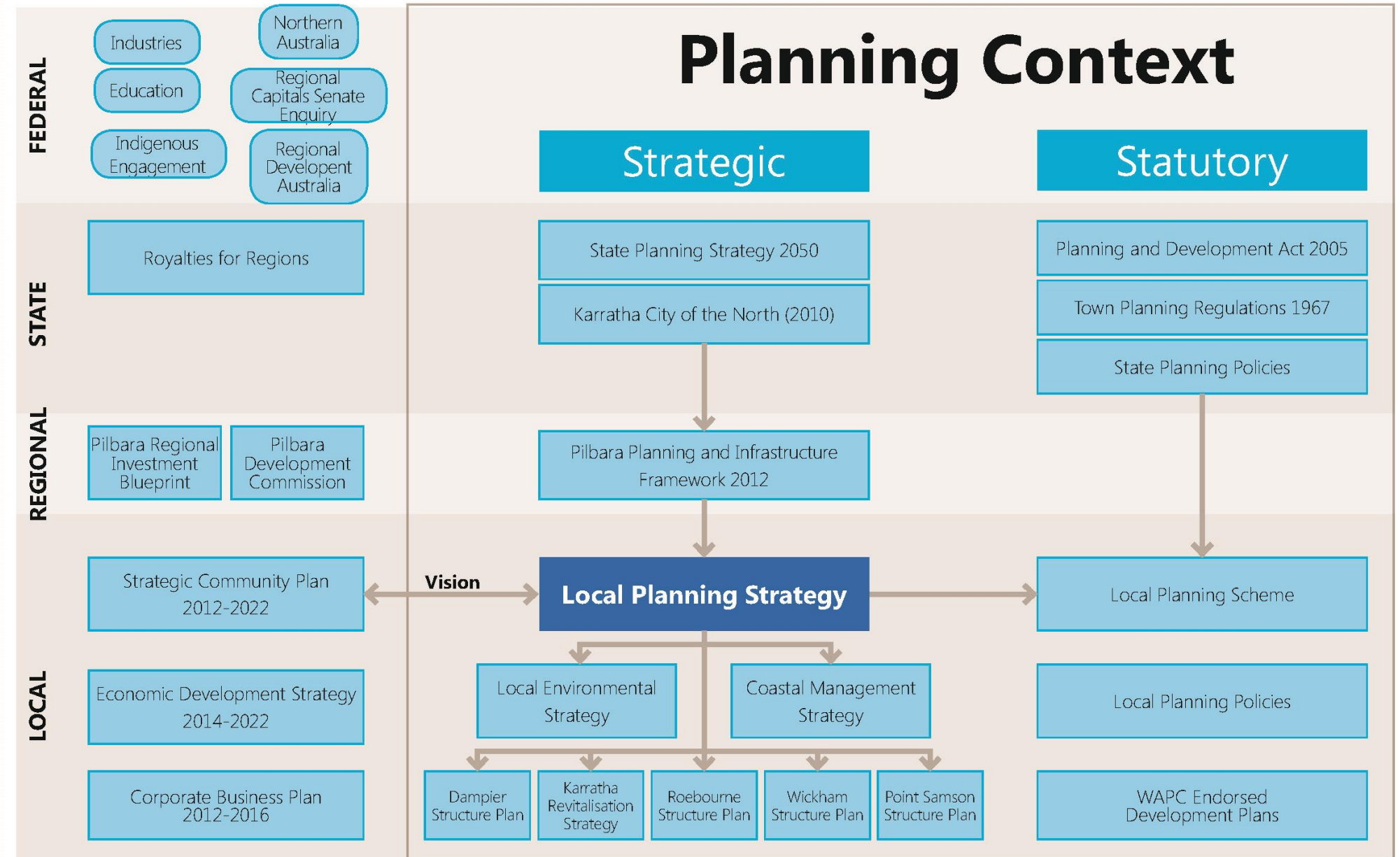
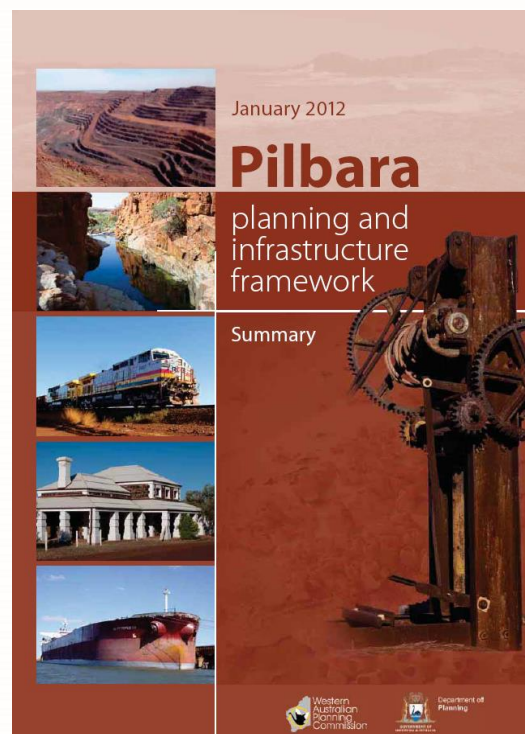
- Pilbara City – Karratha / Dampier;
- Major Town – Wickham;
- Towns – Roebourne;
- Village – Point Samson, Cossack; and
- Aboriginal Communities – Weymul, Mingullatharndo & Cheeditha.

The primary strategic planning document for Karratha is the 2010 *Karratha City of the North (KCN) Plan*. Whilst acknowledging a high level of interdependence, KCN treats Dampier separate to Karratha, an approach replicated in this Strategy.

A further difference building on the KCN outcomes, and a fundamental element of this Strategy is that Wickham, Roebourne, Point Samson and Cossack form what is referred to as the *Eastern Corridor*. The intent of this grouping of settlements is to ensure the provision of local services and facilities is framed at a corridor level rather than viewing each settlement separately. This approach gives order to the provision of facilities and services whilst avoiding unnecessary duplication.

Another minor departure from the Pilbara Planning & Infrastructure Framework is the identification of the following minor settlements being:

- Fortescue River (comprising Fortescue Roadhouse and the Fortescue River Mouth recreation area); and
- Whim Creek (as represented by the Whim Creek Hotel).



2.0 Identity

The Ngarluma/Yindjibarndi people are recognised as the traditional owners of a significant portion of land in the City and the Yaburara Aboriginal language group are recognised as the original inhabitants of the Burrup Peninsula and Dampier Archipelago. This, along with the post-contact European and Indigenous history of settlement and development of the land has shaped the identity of Karratha – City of the North.

The Pilbara region is recognised internationally as a major resources hub, with a reputation as the powerhouse of the nation, accounting for 35% of the mineral and petroleum production and 23% of merchandise exports. Continued growth is forecasted with continued long-term demand from across the globe for local resources.

In total, the resource extraction industry totals more than \$45 billion worth of exports. The City of Karratha, with a GDP of \$19.69 billion (2014), primarily from the resources sector, is the highest in the Pilbara, second highest in WA and sixth in Australia. The City of Karratha is one of the region's two major service and extraction hubs where Government and Industry infrastructure such as ports, rail, freight and commerce intersect. The City's various ports function in support of the resources sector and are significant in the evolution of its permanent settlements and their associated amenity.

Karratha has evolved to become the major service centre of the region. The Karratha City Centre has become a true destination for visitors to the Pilbara region. The satellite settlements of Dampier, Wickham, Roebourne, Point Samson and Cossack each have their own unique character and have good access to the Karratha City Centre. While the supporting settlements are expected to continue to grow and develop, Karratha is anticipated to continue to grow as the primary settlement within the municipality. Together, Karratha and its satellite settlements represent a vibrant and diverse community and City of the North.

In 2011 the City was invited to join the WA Regional Capitals Alliance, which was formed in a bid to facilitate strong economic and population growth in regional cities and to ensure that Western Australia grows and develops in a strong, diverse and distributed way. The City recognises the important role that regional centres perform within a regional planning framework and the limited number of regional capitals within the state when compared to the eastern states, particularly Queensland. The City considered that membership of the WA Regional Capital Alliance was a necessary step in formalising Karratha's existing status as a Regional Centre within the Pilbara and North Western Australia.

The City recognises federal impetus and state government momentum behind the development of Northern Australia. The growth and development of North Western Australia is recognised at each tier of government as an integral component to the development of Northern Australia.

For the development of North Western Australia to be successful it is important that there be a primary centre that better connects North Western Australia to the rest of the Country. This Strategy recognises the potential for Karratha to perform this role in its evolution as Western Australia's City of the North.

2.1 Engaged and Stable Community

This Strategy seeks to continue to attract permanent residential workforces and their families to the City. The Strategy includes initiatives to promote and enable permanent residency as an attractive and healthy accommodation option for workers and their families and that promote the City as a great place to live. This philosophy will be embedded in all of the City's actions arising from this Strategy.

2.2 Destination and Regional Hub

This Strategy draws on the unique character and sense of place which contributes to the lifestyle and amenity of the City. This Strategy seeks to obtain and enhance this character and amenity.

This Strategy aligns with the work the City is already doing to support the emergence of the City as the primary link of North Western Australia and an important part in the development of Northern Australia.

This Strategy seeks the positioning of the City as a main service centre destination of North Western Australia and an administrative and regional hub for improved service delivery to the community and strategic industry.

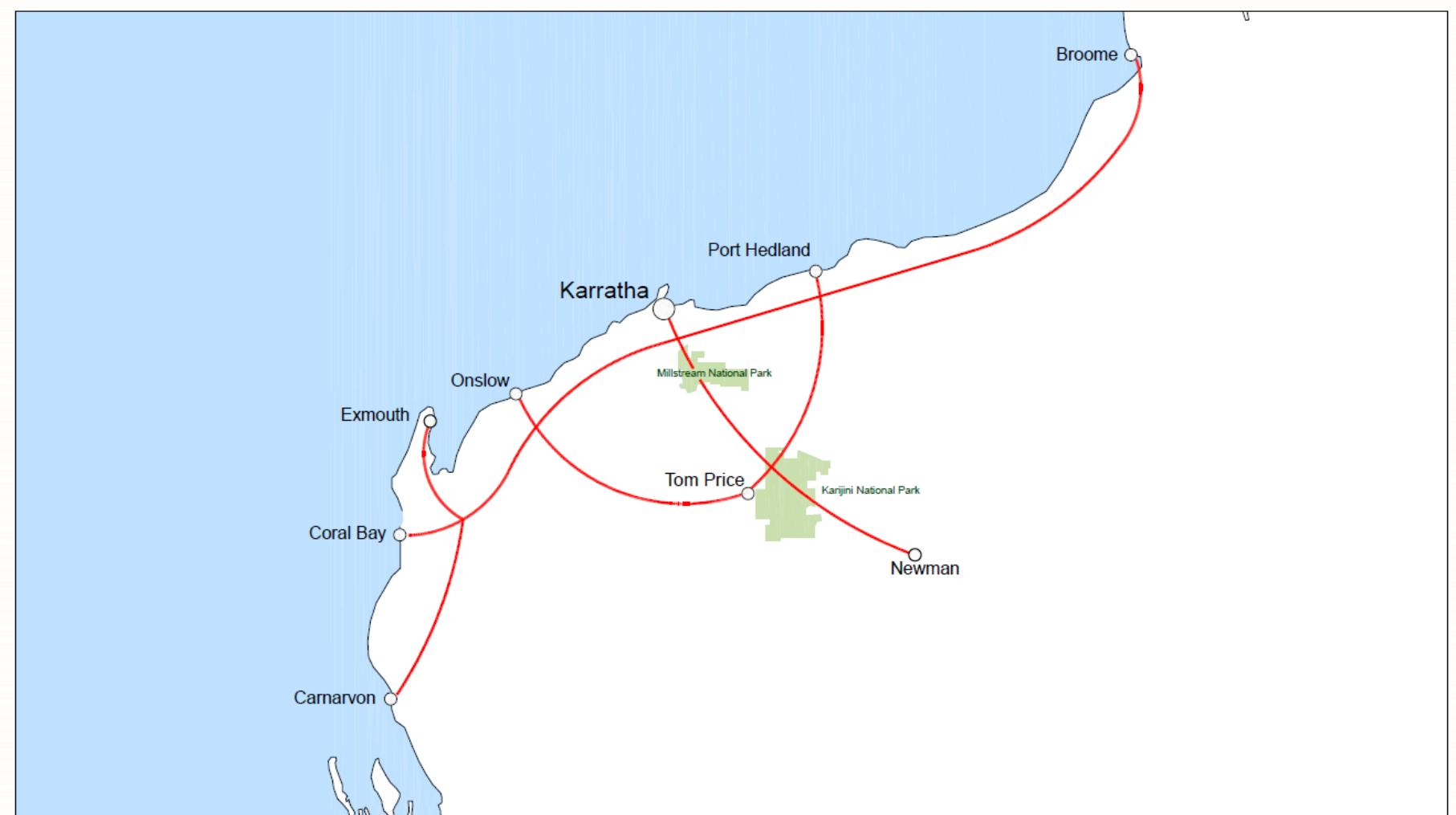
2.3 Heritage Culture and Arts

The Strategy recognises and seeks to protect, enhance and promote places of Aboriginal and European heritage significance and exemplary local character. Furthermore, it embraces and promotes Karratha's strengths as a diverse and multicultural community with a wide variety of cultural and entertainment activities.

In doing so, the City will continue to update its Heritage List and ensure that potential impacts on heritage values (European and Indigenous Heritage) are properly assessed as part of future development proposals in the City.

The Strategy also recognises that future development within the City will need to be cognisant of Native Title rights over any lands proposed to be developed and the need to work closely with native title holders and the State Government to ensure there is sufficient land available to accommodate forecast population growth.

In light of the above this Strategy recommends the introduction of Heritage Character Area provisions within the forthcoming local planning scheme that seek to preserve and enhance the character of heritage sites within the City and encourage the utilisation of heritage buildings for active purposes, such as tourism related activities.



2.4 Vision, Objectives and Goals

The City's Community vision and aspirations are articulated in its *Strategic Community Plan 2012-2022* as follows:

A cohesive and vibrant community, celebrating diversity and working together to create a sense of place and a sustainable future.

The overall objective of this *Strategy* is to provide a City-wide strategic plan to guide growth and development in the City over the next 15 years. More specific goals and objectives for each key theme are set out below:

Identity

Goal:
An active empowered and multicultural community.

- Objectives:
- To create a planning framework to guide the future sustainable development of the City of Karratha, characterised by a diverse permanent residential population and stable workforce.

Economic Development

Goal:
The development of a diversified and growing local economy.

- Objectives:
- To foster local economic development and diversification of the existing economic base.
 - To expand the retail and commercial offering of the City to strengthen the City's position as the major regional service centre of the Pilbara.
 - To support and develop tourism as a key component of the City's economy.



Population & Preferred Growth Pattern

Goal:
Efficient and effective land and residential development to accommodate future growth.

- Objectives:
- To identify a settlement strategy to meet the needs for a population of 38,000, plus means to accommodate an ultimate population of over 50,000.
 - To provide appropriate Pilbara housing options to accommodate a range of demographic groups.

Community Services and Spaces

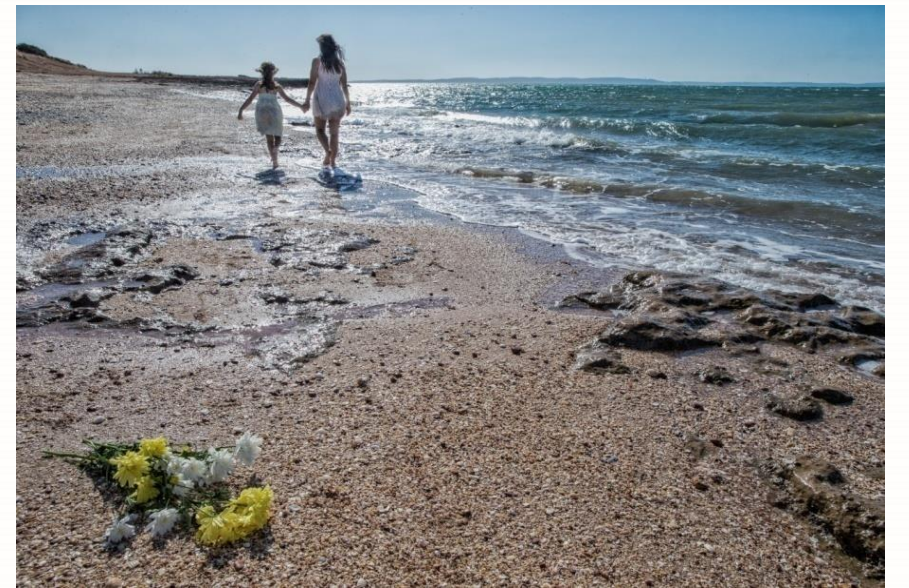
Goal:
To enable community services and spaces that contribute to attracting people to the City and retaining people locally.

- Objectives:
- To promote liveability of the City by providing a variety of community services, facilities and recreational areas that contribute to maintaining a desirable lifestyle.

Natural Environment & Resource Protection

Goal:
The conservation of natural resources and cultural heritage values and minimise risks associated with natural disasters.

- Objectives:
- To encourage appropriate recognition and consideration to the City's climate and natural environment.



- To promote and celebrate the City's unique natural and manmade heritage, character and sense of place.
- To ensure planning of rural and environmentally sensitive land enables appropriate use of land and its resources.

Infrastructure

Goal:
Adequate infrastructure to support economic and population growth.

- Objectives:74
- Anticipate demands and enable the provision of infrastructure to ensure timely provision of services.
 - To provide transport infrastructure that achieves efficient connectivity between and within settlements in the City and the Pilbara Region and limits freight traffic through settlements.

Utilities

Goal:
Efficient utility provision to accommodate a growing population.

- Objectives:
- To plan for utility and service delivery to support the City's population growth and urban development.



3.0 Economic Drivers

3.1 Global Context

The economy of the Pilbara is very dependent on the global economy and commodity markets (principally iron ore and liquefied natural gas). The population, employment, land area and floor space forecasts have all been informed by the way these industries are expected to grow.

Recent International Monetary Fund (IMF) forecasts state that the global economy is still fragile with a risk of stagnating economies in Europe and East Asia. China's growth is likely to be driven by consumption needs rather than investment needs. A slow-down in the consumption of commodities will be balanced by greater consumption of high grade foods, high grade metals and cleaner energy fuels. Nonetheless emerging economies, including China and India will continue to contribute to 2/3rds of global growth into the foreseeable future.

It is noted that increased demand for Liquefied Natural Gas internationally could lead to continued long term export opportunities for Pilbara producers and combined with recent gas finds by multiple operators in the region, underpin the construction of additional gas trains leading to enhanced economic opportunities in the region.

3.2 Current Economic Activity

The City of Karratha plays a fundamental role in the Pilbara resources industry, with the quantities of iron ore and LNG exported from the City of national significance. The three major resource and energy companies operating in the City are Rio Tinto, Woodside Energy Ltd and Citic Pacific Mining. Each company is currently operating or rolling out mining and energy extraction infrastructure investments which according to the Department of Minerals and Petroleum are worth an estimated \$69 billion. The most significant developments include:

- Woodside operated North West Shelf Venture;
- Woodside's Pluto project;
- Rio Tinto's Dampier Port;
- Rio Tinto's Cape Lambert Port; and
- Citic Pacific's Sino Iron project at Cape Preston Port.

The City is responsible for a very high proportion of the Pilbara economy – around 33% of all employment and between 30% and 60% of most services. Despite this only 19% of all Pilbara resident employees are employed in mining. The Chamber of Minerals and Energy forecasts that with a phase change from construction to operation there is likely to be a 14% decline in employment in the minerals and energy sector by 2018

Retail and Office activity within the City is concentrated within Karratha which has the largest concentration of retail services in the Pilbara. The smaller centres of Wickham, Dampier, Point Samson and Roebourne provide local services. The primacy of the Karratha City Centre in a regional Northern

Australian context is expected to become more pronounced. This relationship is anticipated to remain the pattern out to 2031.

The population and employment forecasts which underpin this Local Planning Strategy are based on the assumption that there will be moderate population growth of around 1.5 - 2% and some economic diversification, with employment growth of about 1% in each of the key employment sectors out to 2031. The most likely industries to deliver this economic diversification are those that will capitalise on the trends and existing advantages of the City.

3.3 Future Economic Activity

The need to diversify the City's economy has been articulated in the Pilbara Regional Investment Blueprint, expected to be finalised by the Pilbara Development Commission in 2015. This will provide strategic direction aimed at placing the City in a stronger position to grow and develop despite fluctuations in the mining industry.

This Strategy envisions a more robust economy that builds on existing strengths and broadens Karratha's role from the major service centre for the Pilbara to the major service centre of North Western Australia. The City is well placed to enable future economic development of North Western Australia and facilitate the implementation of the Regional Investment Blueprint. A key component of this Blueprint will be to draw on the strengths and opportunities present via the comparative advantages of the region's location, natural resource endowment, settlement pattern and industrial advances.

Existing Advantages

- The highest concentration of Government and retail activity in the region.
- Established Government offices and educational facilities. Government offices to be concentrated within The Quarter development scheduled for completion in 2016.
- Regional influence in State policy and planning.
- Well situated to service the region and North Western Australia.
- Karratha Health Campus planned for completion 2018.
- Karratha Airport, with upgrades scheduled for completion in 2015.
- Good infrastructure base.
- Clustering of sophisticated and specialised marine industries, helicopters and logistics servicing the LNG industry.
- The Pilbara corridors is a large scale conservation project run by Rangelands NRM, which can be a model for NW land management.
- Established Port facilities and shipping lanes with geographic proximity to Asia.
- Strong access to markets including business relationships comprising networks of trading partners, clients and labour.
- The presence of multi-billion dollar resource extraction activity which generates synergistic development and supply chain opportunities. This includes, but is not limited to, the demand for goods and services, maintenance and operation capacity and the viability of downstream processing utilising natural resources and extraction by-products.



- **Natural Advantages**

- Extensive resource reserves within the municipality.
- Good supply of unconstrained industrial land and other flat land.
- Carnarvon Basin gas projects and the Balmoral South and Balla Balla magnetite projects – although these are subject to global commodity markets.
- Vast supply of Pastoral land.
- Vast supply of sunlight to support solar farms.
- Places of outstanding natural beauty.
- Unique and diverse ecosystem with tourism potential.

Potential Additional Infrastructure

- Anketell Port project to the east of Karratha.
- Cape Preston East Port.
- Direct connection to Great Northern Highway.
- Balla Balla port and rail.
- Potential casino.

From these advantages the most likely areas for diversification come from:

- Servicing the LNG and Iron Ore Industries;
- Tourism Industry
- Renewable Energy Industries;
- Regional Services including Health and Well Being, Education and Training (secondary and tertiary), Business Support, Digital Industries – with aim of exporting services;
- Public Sector Administration;
- Knowledge industries, including research on regional specialties;
- Freight and logistics support for industry;
- Abattoir and live export of cattle;
- Commonwealth services Customs and Biodiversity; and
- Military/Naval base.

3.3.1 Administrative Hub

The advantages outlined previously indicate that Karratha is ideally positioned as an Administrative Hub for North Western Australia.

The Pilbara has the highest level of governance representation of any region in the state, and arguably the nation.

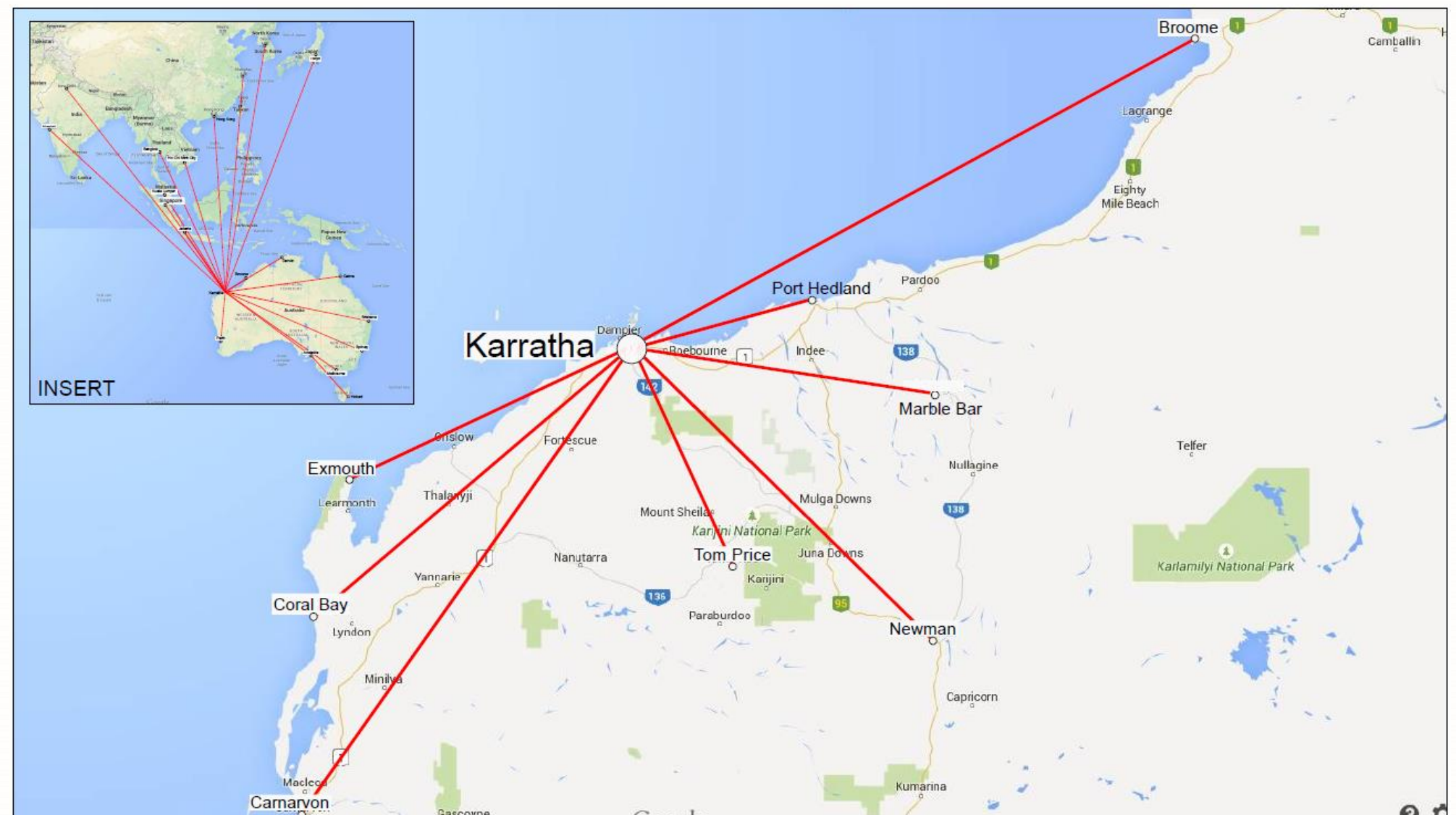
There is significant influence upon the growth of region as applied by various bodies including the Pilbara Regional Council, Pilbara Development Commission, Federal and State government parliamentary representatives as well as Federal and State statutory bodies.

The following non-government stakeholders are integral to achieving the vision for the Pilbara as identified in the *Pilbara Planning and Infrastructure Framework* (2012): community groups; Aboriginal groups; industry bodies; national and international corporations and investors; small and medium businesses; and environmental non-government organisations.

The establishment of Karratha City Centre as a primary regional administrative hub is in the interests of improved efficiencies and governance models. The creation of this hub would result in improved services and facilities for industries and communities of North Western Australia. To pursue this objective it is recommended that the merit of establishing a broader range of government offices and agencies based within the City be further investigated. The City also supports the relocation of existing government offices from adjoining regions to Karratha.

The upgrade and refurbishment plan for the Karratha Airport will result in improved facilities and expanded capacity which extends to international flights. Karratha can evolve into a North West gateway and a service community for the resources sector rather than only being considered as a host community. It is noted that some Kimberley mining activities are currently being serviced from Darwin. An increasing presence of Commonwealth agencies in the City would further reinforce this` emerging role of Karratha.

The establishment of a Defence (potentially Naval) Base for example would be a catalyst for further investment. Such a base would improve the security around the substantial industry investment in energy and resource projects within the region that are critical to our nation's current and future wealth.



3.3.2 Servicing LNG and Iron Ore

Major changes in the economic activity within the City have traditionally been driven by major projects. The announcement and ongoing investigation into the future Anketell port highlights another potential major project that would stimulate additional economic activity.

The iron ore and gas industries that operate out of the City are massive in scale and any increase in demand or activity associated with these operations would have significant impacts on the local, state and national economy. There are efficiencies to be gained in increasing the capacity to service these industries from where they operate.

The undertaking of a study into the supply and demand for LNG and marine related support services and the feasibility of establishing a Marine Services Industry Cluster is recommended.

The Burrup and Maitland Strategic Industrial estates provide vacant land for strategic industry including downstream processing activities such as urea, methanol, gas to liquids, renewable LNG, ammonia and domestic gas processing.

3.3.3 Tourism

The tourism industry has a history in the City but it is one which has been interrupted by peak construction periods where accommodation becomes unaffordable for tourism. Renewal and expansion of the City's tourism sector will form an important component of economic diversification.

The City's world-class natural assets should be complemented by a range of tourism facilities and infrastructure. This will be delivered through a tourism venture feasibility study. This study should identify potential tourism ventures and necessary accommodation and infrastructure expansion required to support growth in tourism.

A number of tourist attractions are identified in the region, including:

- The massive scale of iron ore and salt exporting holds interest for visitors while the Woodside Gas plant Visitors Centre also provides a glimpse into this very significant industry, providing opportunities to tap further into industrial tourism;
- The internationally recognised rock art on the Burrup Peninsula;
- Millstream;
- Karijini;
- Cossack and Roebourne heritage buildings;
- Point Samson;
- Yaburara Heritage Trail;
- Mt Herbert, Chichester Ranges;
- The Dampier Archipelago; and
- The Montebello Islands with extraordinary scenery and fishing.

The City's world-class natural assets should be complemented by a range of appropriate tourism facilities.

The main barriers to tourism development are that the tourism industry is forced to compete with the wages paid by the mining and resources sector, and the availability and affordability of short-stay accommodation is driven by the high demand from FIFO workers.

Affordable accommodation for both staff and tourists is critical to enabling this sector. The Strategy seeks to set aside accommodation for tourists and service workers so that an affordable choice for tourists will be available in all phases of the resource industry.

It is recommended that measures be put in place to ensure accommodation providers retain an adequate supply of facilities for short-stay/visitor use, rather than transient workers through relevant statutory controls.

The City recognises the host of natural attractions available to residents and tourists alike. Anecdotal evidence identifies a significant number of tourists visiting the City for recreational fishing. The recreational tourist is considered to comprise a significant proportion of the overall tourist base frequenting the City and they are considered to visit consistently as part of seasonal pilgrimages.

It is recognised that there are several natural assets within the City which are well placed to benefit from investment and/or further development which could expand the recreational tourist base beyond the predominantly recreational fishing sector. This may be exemplified through the facilitation of shore diving opportunities from Dampier and/or Point Samson through the creation of a dive trail via an artificial reef i.e. tyre reef.

The numerous hills and natural rock outcrops within the City are natural assets which are also utilised for mountain biking and rock climbing pursuits. These may be further developed and formalised for the benefit of the City's tourism appeal and competitiveness.

3.3.4 Sports and Recreation

In recognition of the important role that businesses, community, sporting groups and various organisations play in developing vibrant communities, the City is committed to encouraging creative partnerships that may include monetary, non-monetary, and other forms of support for sporting and cultural events via its Major Events Sponsorship Scheme Policy. Benefits generated from these sponsorships often include profile raising of the City, increased community participation and tourism development, in addition to associated economic output.

It is recognised that high standard community facilities can host major events and attract visitors. This was demonstrated through the Karratha Leisureplex hosting the Australian Country Water Polo Championships with numerous teams travelling from interstate. It is noted that these competitors and their support staff doubled as tourists to the City.

The preparation of a Sport and Recreation Economic Development Strategy to co-ordinate and capitalise on high profile sporting events is recommended to support the development of the City as a destination of regional sporting events and activities.

Given the nexus between recreation and tourism development, this Strategy recognises the potential for a Sport and Recreation Economic Development Strategy to facilitate investment with associated tourism benefits.

3.3.5 Renewable Energy Sector

The Pilbara has a number of characteristics that provide potential for the future development of renewable energies. With an average of 11 hours of sunlight per day there is ample opportunity for the emergence of the solar energy market and in this regard the City has a well advanced design for a solar farm at the City's Airport as a demonstration project.

There is also significant opportunities for commercial-scale algae industries and a market for regionally produced algae based bio-fuels. These may serve as an alternative to diesel fuels for a number of major industries who are significant consumers of diesel.

There are also opportunities for the investigation of other renewable energy sources such as bio oil and carbon farming.

3.3.6 Other Potential Future Industries & Economic Drivers

Other Western Australian precedents exist for a substantial regional university in a town the size of Karratha, a relevant example being the Geraldton Universities Centre. Geraldton is also expanding its role as a regional health provider and training establishment for health care workers.

It is also evident from other regional examples such as Bunbury that as a centre's population grows in the context of outlying remote centres, the potential to develop administrative, service and knowledge based business also grows.

The model below illustrates options available to diversify the existing economy of the City to create a more robust and resilient economy.



3.4 Karratha Economic Development Strategy

The *Pilbara Economic Development Strategy* and *Pilbara Planning and Infrastructure Framework* set the regional framework within which the City can conduct investigations and prepare strategies to encourage knowledge based, tourism and professional services growth.

The City of Karratha *Operational Economic Development Strategy 2014-16* provides the direction for specific economic development strategies and tasks to be advanced by the City's Economic Development Unit in collaboration with internal and external stakeholders, in the expectation that they will drive much needed diversification of the City's economy.

The Strategy identifies the City as having three instruments at its disposal to affect economic development, being that it can:

- Implement a project or activity that will have an economic development impact using its own assets or in partnership with another party or parties;
- Facilitate economic development by creating a conducive regulatory or planning environment; and/or
- Advocate for economic development by engaging with prospective investors (public and private) that may bring assets into the municipality, or lobby with the relevant authorities to enhance the necessary infrastructure.

The strategic focus of the Strategy is therefore:

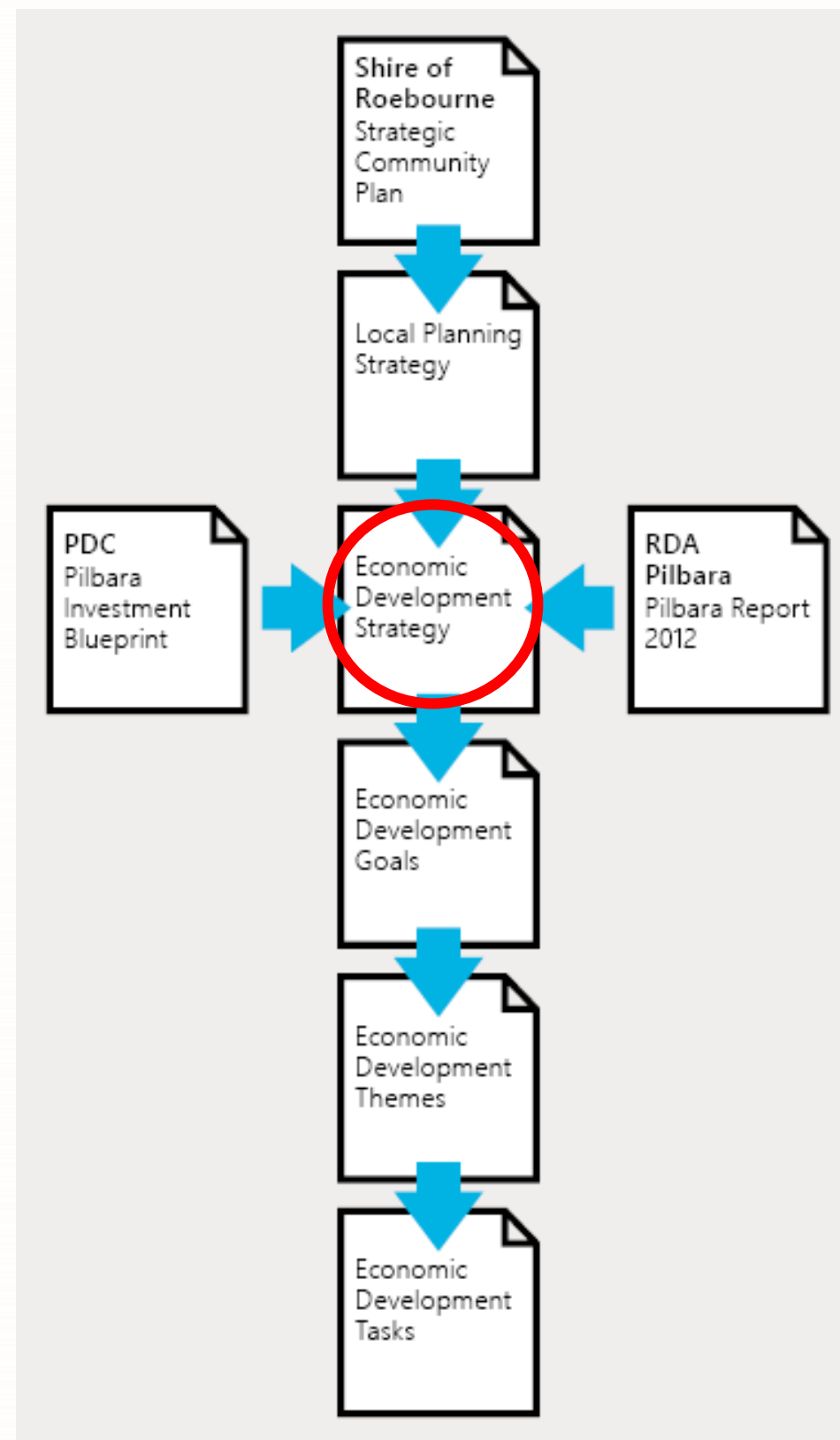
- To Retain Jobs: by ensuring current employers in the local economy do not leave the municipality;
- To Create Jobs: by addressing economic factors that assist the growth of existing operations and/or attracting new players into the local economy; &
- Workforce Development: by creating opportunities for its workforce to have the skills and be adaptable to changes in the local economic environment.

The jobs and workforce development aspirations are to be addressed via specific actions aimed at achieving three major goals, being:

1. Diversification of the local economy;
2. Enhancing the reputation of the City; &
3. Enabling businesses to thrive.

In terms of guiding principles to facilitate economic development that achieves the above goals, the Strategy notes:

- That the City has a leadership role to play in implementing, facilitating and advocating for job attraction and retention to underpin population growth;
- A collaborative approach should be adopted with other regional stakeholders in the pursuit of economic prosperity and the development of local employment opportunities that address the unique issues, challenges and opportunities that exist within the region; and
- Strategies that stimulate jobs and business diversification should be prioritised with the City's resources and energies focused on activities that achieve measurable outcomes and long term strategic economic benefits.



Local / Regional Economic Development Policy Alignment



3.5 Karratha City Centre Development

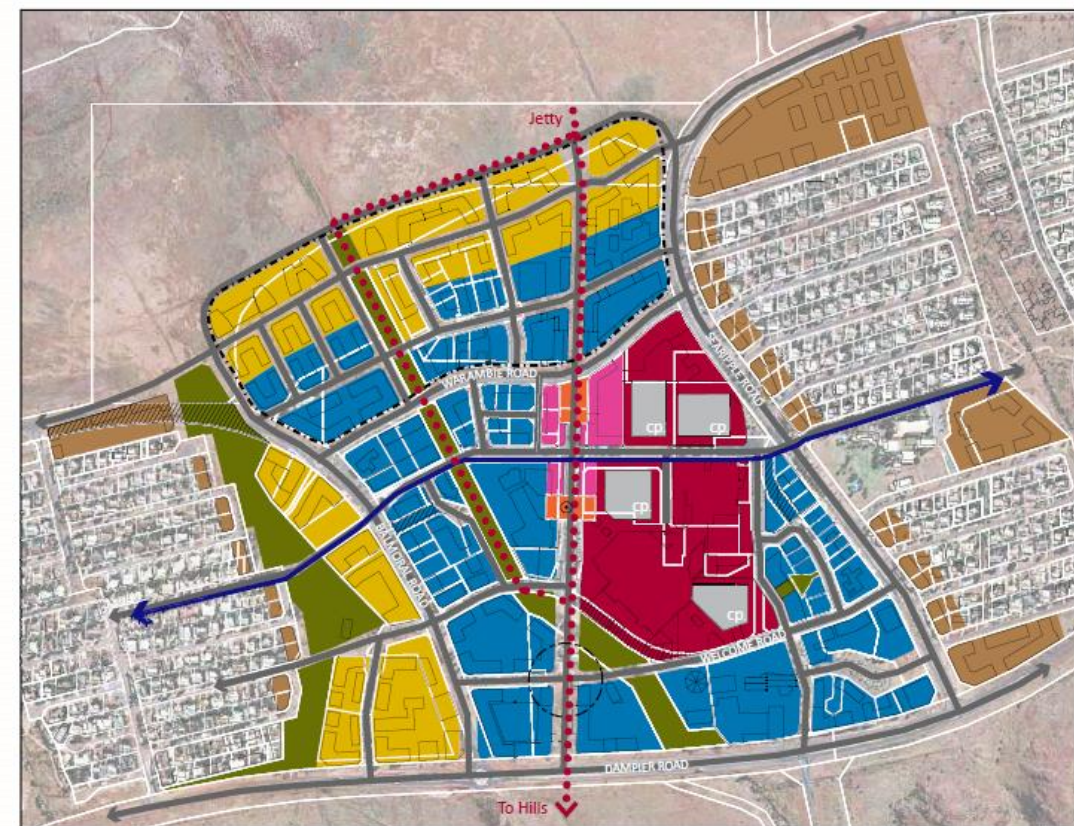
Currently the development of the Karratha City Centre is principally guided by the Karratha City Centre Masterplan. This Masterplan outlines the principles, objectives and strategies for delivering the Pilbara Cities Vision to create a vibrant, active and diverse city centre for the City of Karratha and broader region

The Masterplan describes an integrated approach for local, state and federal agencies, the private sector and the community to transcend conventional sectoral boundaries to think and act holistically. It is an implementation-oriented plan, which is specific in terms of responsibilities, time and costs to ensure delivery can be both coordinated and progressively monitored.

The Masterplan goes well beyond a list of projects; it outlines key principles and provides guidance for the future strategic development of the City Centre, including policy creation and design development. It utilises a precinct-based approach to optimise the development of mutually beneficial relationships within the City Centre and to minimise the potential for land use related conflicts to occur. Each precinct is based on some of the strengths of existing land use patterns within the City Centre, whilst providing guidance to facilitate future aspirations for intensification of land use patterns.

The Masterplan establishes a framework for the creation of a quality urban environment to emerge, involving a synergistic relationship of expanded retail and hospitality land uses. These land uses are to be supported and enhanced by concentrations of high density accommodation and employment functions.

Detailed planning and development of the City Centre is well progressed, with significant developments in various stages of design and construction. Design of the Arts and Community Precinct is well advanced. When complete it will provide cultural and contemporary arts functions to the broader region with associated tourism benefits. Construction has commenced on the new Health Campus and The Quarter which will provide a level of service and offering that the town has long aspired to. The construction of a public car park and service worker accommodation via Warambie estate are considered to support to commercial and hospitality functions within the City Centre.



There has been significant work undertaken to transform the street network of the Karratha City Centre to facilitate investment. This has included substantial road network and public realm upgrades to create a fine-grained movement network with a pedestrian-oriented focus. This work has been focused around the development of Sharpe Avenue as a 'Main Street' and the creation of an attractive street environment to encourage activated ground floor frontages.

Investment such as tree planting, paving, street furniture, public art, and shade structure installations have combined with road reserve realignments and upgrades to improve the public realm. This work has enabled substantial multi-storey development such as the Pelago Apartments and The Quarter development to physically shape the public realm of the city centre.

The benefit of the investment into the public realm has been ground floor tenancies which 'spill out' into the street via alfresco dining and shopfront displays. This is exemplified by tenancies within the Pelago buildings which have created a precinct with activity outside business hours and a night time economy. Retail and hospitality operations of The Quarter development will be encouraged to 'spill out' into the public realm in recognition of the cascading commercial and social benefits to an activated main street.

Pipeline developments such as a new up-market hotel and re-development of the golf course into a tourism precinct will give Karratha most of the major assets one would expect to see in an emerging city. This Strategy anticipates a growing permanent residential population within the City Centre in response to its increased attractiveness and market demand for variety of dwelling types.



3.6 Future Land and Floorspace Requirements

Land use planning responses need to be aligned to encourage diversification of the local economy and to enable ‘future proofing’ measures to respond to periods of high demand. This Strategy identifies a bank of industrial and commercial land that can be made available to accommodate growth of the local economy. Increasing the supply of affordable land and commercial floorspace is also a priority because it helps to attract people to live and invest in the City.

The City wants to make it easier and attractive for companies to move their employees and families to the City. Careful monitoring of the supply and demand and price of land and property will be undertaken. The table below forecasts the level of future employment likely to be generated under a moderate diversification program.

Over the period 2011 – 2031 and under an assumption of approximately 1% growth pa in each sector, approximately 4,300 additional jobs may emerge, a 205 increase on the 2011 baseline.

Employment Forecast by Sector	2011	2016	2021	2026	2031
Agriculture/Fishing	71	75	78	82	86
Mining	4,859	5,107	5,367	5,641	5,870
Manufacturing	553	581	611	642	668
Electricity/Gas/Water	448	471	495	520	541
Construction	6,414	6,741	7,085	7,446	7,749
Wholesale	232	244	256	269	280
Retail	878	923	970	1,019	1,061
Accommodation/Food	788	828	870	915	952
Transport/Postal/Warehouse	1,331	1,399	1,470	1,545	1,608
ICT	66	69	73	77	80
Finance	39	41	43	45	47
Rental	401	421	443	466	484
Professional/Scientific	914	961	1,010	1,061	1,104
Administration	677	712	748	786	818
Public Admin	1,047	1,100	1,157	1,216	1,265
Education & Training	741	779	819	860	895
Health	692	727	764	803	836
Art & Recreation	54	57	60	63	65
Other	541	569	598	628	654
Total	20,746	21,804	22,916	24,085	25,063
Labor Force Assumptions	2011	2016	2021	2026	2031
Population	22,900	28,351	32,204	35,405	38,121
Population aged 15+	18,091	22,397	25,441	27,970	30,116
Labor Force	12,121	15,006	17,046	18,740	20,177
Employed	11,636	14,406	16,364	17,990	19,370
White Collar	4,305	5,330	6,055	6,656	7,167
Blue Collar	6,051	7,491	8,509	9,355	10,073
Service/Sales	1,280	1,585	1,800	1,979	2,131

Source: ID Forecast population / Macroplan Ratios

3.6.1 Commercial Floorspace

Based on a moderate population growth scenario and a moderate employment growth scenario, it is estimated that total commercial office floor space demand will increase by:

- Between 8,000m² and 9,000m² by 2021; and
- Between 16,000m² and 17,000m² by 2031.

The table below demonstrates the breakdown of this total in terms of office sector typologies based on assumed floor space/employee ratios.

Additional Office Floorspace Demand Projections	2016 (m²)	2021 (m²)	2031 (m²)
Private Commercial	1,827	3,869	7,694
Government	1,060	2,200	4,360
Community Services	1,002	2,060	4,107
Utilities	184	376	744
Total:	4,073	8,505	16,905

Source: Imani / Forecast .id

As part of the development of the Karratha City Centre, medium rise (three-storey and above) commercial development is encouraged. Two hectares net land area will be required for commercial development by 2031 (based on a 1:1 ratio for floor space).

The Quarter Development is expected to meet initial demand for commercial floorspace, with some 1,224m² to be provided in the immediate future.



Retail

Karratha City Centre is projected to grow as the primary retail and commercial centre for the region, with other settlements across the municipality providing local level and specialist services and facilities to residents and visitors. Overall, the retail offering of the City should be able to provide for a minimum 80% of the population's retail floor space needs.

On the basis of a moderate population growth scenario it is estimated retail floor space demand (excluding bulky goods) will increase to:

- Between 44,000m² and 45,000m² by 2021; and
- Between 52,000m² and 53,000m² by 2031.

This Strategy recognises that approximately 16 hectares net land area will be required to accommodate the ultimate retail demand at 2031 (assuming a 1:3 ratio for floor space to land requirement for retail land use is applied).

	2011	2013	2016	2021	2026	2031
Population						
City of Karratha	23,619	25,436	28,351	32,204	35,405	38,121
Floorspace Requirements Per Capita						
Resident Retail Floorspace Demand Per Capita (m²)	1.37	1.37	1.37	1.38	1.39	1.39
Add-on Trade	0.21	0.21	0.21	0.21	0.21	0.21
Floorspace Demand						
City of Karratha	32,358	34,847	38,841	44,442	49,213	52,988
Add-on Floorspace Requirements						
City of Karratha	4,960	5,342	5,954	6,763	7,435	8,005
Total Retail Floorspace Demand						
Karratha District	23,282	25,612	28,482	33,810	38,157	41,867
Roebourne Town – City remainder	4,081	4,181	4,417	4,467	4,540	4,574
Dampier	1,795	1813	1,828	1,849	1,883	1,895
Wickham / Point Samson	3,200	3241	4,115	4,317	4,631	4,652
Additional Floorspace Requirements						
Karratha District	3,569	3,926	4,366	5,145	5,765	6,325
Roebourne Town – City remainder	615	641	677	680	686	691
Dampier	275	278	280	281	285	286
Wickham / Point Samson	491	497	631	657	700	703

Large Format Retail

The land supply for large format retail goods has been calculated to increase to:

- Between 14,000m² and 15,000m² by 2021; and
- Between 17,000m² and 18,000m² by 2031.

Assuming a 1:4 ratio for floor space to land requirement for bulky goods land use, approximately 7 hectares net land will be required to accommodate the ultimate bulky goods demand in 2031. Due to the critical mass threshold required to provide for bulky goods uses, it can be expected that this would be located predominantly within Karratha.

This Strategy recognises that currently there is limited potential to locate large format retail on the periphery of the Karratha City Centre given existing development. Alternative sites have been considered and the potential for the location of bulky goods at Madigan Road and for a portion of De Witt Road at the entrance to the Karratha Industrial Estate have been identified for detailed investigation.

Should large format retail be considered on the periphery of the City Centre it is noted that built form objectives will need to be satisfied and proposed car parking provision is appropriate.

	2011	2013	2016	2021	2026	2031
Population						
City of Karratha	23619	25436	28351	32204	35405	38121
Floorspace Requirements Per Capita						
Resident Bulky Good Floorspace Demand Per Capita (m²)	0.45	0.45	0.45	0.45	0.46	0.46
Add-on Trade	0.09	0.09	0.09	0.09	0.09	0.09
Floorspace Demand						
City of Karratha	10629	11446	12758	14492	16286	17536
Add-on Floorspace Requirements						
City of Karratha	2126	2289	2552	2898	3186	3431
Total Bulky Goods Floorspace Demand						
Karratha District	7647	8413	9356	11025	12627	13855
Roebourne Town – City remainder	1341	1373	1451	1457	1502	1514
Dampier	590	595	600	603	623	627
Wickham / Point Samson	1051	1065	1352	1408	1533	1540
Additional Floorspace Requirements						
Karratha District	1529	1683	1871	2205	2471	2711
Roebourne Town – City remainder	268	275	290	291	294	296
Dampier	118	119	120	121	122	123
Wickham / Point Samson	210	213	270	282	300	301

3.6.2 Industrial Land

Strategic and Heavy Industry Land

Demand for strategic and heavy industrial land is highly variable and subject to external project influences, making future demand difficult to accurately predict. There is already a large presence of strategic industry in the City and this can be attractive to the establishment of other strategic industries.

The City currently has a large supply of Strategic Industry zoned land which is considered to be adequate for growth and diversification of the City of Karratha up to 2031.

Existing supply will be further augmented by the development of a new Strategic Industrial Area to the north east of Karratha as foreshadowed in the *Anketell Port Master Plan* (June 2014).

The rezoning of land on Tom Price Road to Industry is not supported and additional uses and/or upgrades should only be supported where appropriate.



Light / General Industry Land

The current allocation of industrial land is sufficient to meet demand in the medium term. This Strategy proposes the provision of both Light Industry and General Industry land use zones to replace the current Industry zone in place.

Additional land will be required to accommodate industry growth beyond 2021. This will be provided through a combination of infill in the existing industrial estates and planned expansions to industrial areas. It is estimated total light/general industrial land will increase to the levels shown within the table below:

- Up to 300 net ha by 2021; and
- Up to 400 net ha by 2031.

Industrial Land Demand	2011	2021	2031
City of Karratha Workforce (1)	15,063	20,329	26,579
Employed in Light/General Industrial (2)	1500-2100	2000-2800	2600-3700
Nett Land Requirement (3) Light/General (0.11 ha/worker)	231	308	407
Gross Land Allowance (4)	474	640	836
Nett Land Requirement Heavy/Special (5)	-	-	-

Source: Syme Marmion and Co; Imani

Cinders Road

There are a number of industrial activities occurring within the Cinders Road area under leasehold arrangements. These industrial activities operate on flood prone land with limited services. This land is considered to be inappropriate for industrial activities and would be more appropriately utilised for land extensive community and recreational purposes.

There are no plans to improve the provision of services to this area as land uses are encouraged to relocate to the Gap Ridge Industrial area. There is ample land supply within the Gap Ridge Industrial area and industrial uses are being co-ordinated in accord with orderly and rational planning principles.

The leasehold arrangements within Cinders Road are noted as being temporary in nature and over time, the City will withdraw support for lease extension.



3.6.3 Rural Land

Rural Living

Rural living areas can provide an area of transition between residential areas and adjacent rural land. The Strategy does not support rural living on areas containing basic raw materials, regionally significant landforms, environmentally sensitive areas or areas more suitable for urban development.

Pastoral Leases

Pastoral leases, granted under the *Land Administration Act 1997*, allow Crown land to be used for the purpose of grazing livestock. Seven pastoral leases exist across the City, covering the majority of the City's land area. The Mount Welcome and Karratha pastoral leases are located in closest proximity to the City's settlement areas however they do not limit future growth area potential.

All pastoral leases in Western Australia expire in 2015, but can be renewed subject to conditions regarding sustainable management and development of the land. It is understood that three areas of the Mardie, Karratha and Pyramid pastoral stations are proposed to be incorporated in the conservation estate (*Murujuga National Park*) at the cessation of their leases. Protection of those portions of land, via inclusion within a suitable conservation reserve, is acknowledged in this Strategy.

The Strategy also recognises the potential for diversification in the form of tourism opportunities that celebrate the unique environmental setting of the City, and complement existing pastoral operations. This would require the granting of separate special leases, a framework for which is currently under review by the Department of Lands.

Agriculture

The main agricultural land in and around Karratha is pastoral grazing, mainly for cattle. Two potential Agricultural Priority Management Areas (APMA) were identified in the late 1990's on the basis of suitable soils and potential for water resources. The two areas are:

- Roebourne Plains (in the vicinity of the Harding River); and
- Fortescue River Mouth (in the south west corner of the City).

Identification of these areas was not intended to 'restrict' agricultural development to these areas but instead provided guidance as to where development may occur in the future, subject to further investigations.

The concept of APMA has been replaced in the current State Planning Policy 2.5 – *Land Use Planning in Rural Areas (2012)* and associated rural planning guidelines by High Quality Agricultural Land (HQAL) and Priority Agricultural Land (PAL).

The Department of Agriculture and Food (DAFWA) does not currently have any HQAL information for Karratha. This is unlikely to change in the near future, with DAFWA's current focus being on a number of other areas considered to be of greater strategic importance.

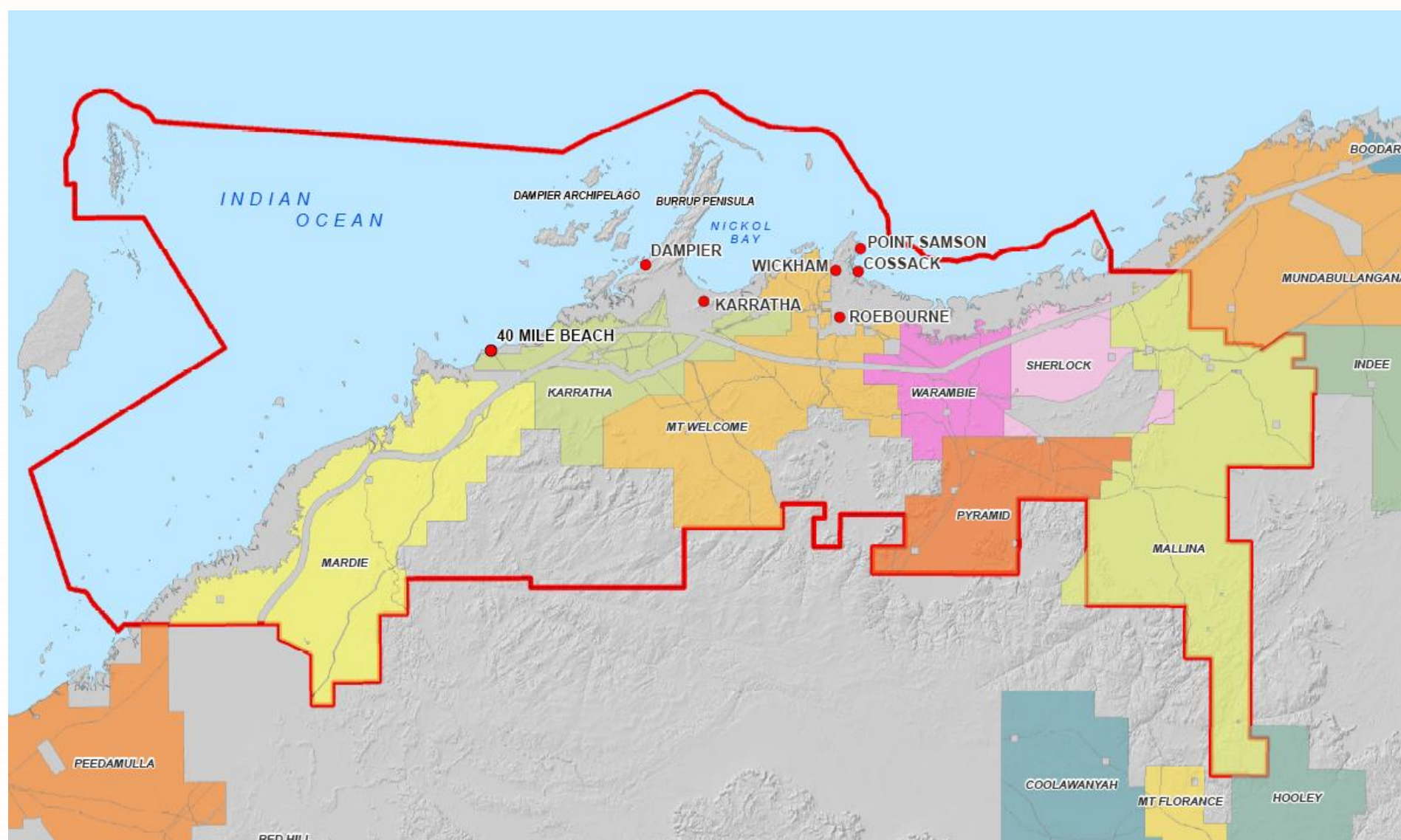
Despite their lack of development DAFWA indicate that the two APMA areas retain potential for agricultural development. These areas have been considered suitable for irrigated pasture (Rhodes Grass). More work is necessary to determine suitable pasture species for fodder away from irrigated areas.

Offsite impacts of the development of these two areas is currently unknown and would need to be investigated as part of a pilot project for each site. Soil and water assessments would help determine possible on and off site impacts.

Overall, there is no pressure to "protect" agricultural land from incompatible development in the City, and no need to identify and zone Priority Agricultural land in the Strategy.

The investigation of opportunities to increase agricultural production and development of the agricultural sector to safeguard food availability and security is recommended.

The City supports the retention growth and diversification of the pastoral industry and there may be an opportunity for the City to become a processing logistics and export hub for livestock and agriculture.



Existing Pastoral Leases



3.7 Residential Based Workforce

Resources and energy industries are expected to remain the dominant industries in the City. The presence of fly-in fly-out workers or FIFO will depend on preferences of those industries when weighing the costs and benefits of FIFO versus residential-based workers. The City acknowledges that Transient Workforce Accommodation (TWA) facilities are required to accommodate large short-term construction and maintenance workforces.

There are obvious benefits to the local community and local economy should an increased proportion of FIFO workers become residents. It is acknowledged that FIFO workers do contribute to the local economy although this contribution is marginal in comparison to what a residential worker and their family contributes to the local economy and to the community.

The vision for the City of Karratha is to create attractive sustainable local communities. Residential workforces help build sustainable local communities. The City accepts the need for TWA camps to accommodate short-term construction and maintenance workforces but whereas industry may prefer to use operational FIFO workers it is the City's strong preference for those operational workforces to be accommodated in more permanent forms of town-based accommodation that are well integrated into existing neighbourhoods.

The City has prepared a TWA Policy and is in the process of preparing an associated Scheme Amendment. The Policy and draft Amendment aim to identify a base-level supply of TWA beds to accommodate the general fluctuations in FIFO workforces visiting the City with the ability to bring on line short term TWA beds for specific construction projects to accommodate peak workforce demands for projects.

3.8 Future Planning Actions

Key elements to a resilient future are:

- To diversify the economy – more economic resilience; and
- Continue to enhance service and life-style features to attract and retain a larger, more diverse population.

The Western Australian government's Pilbara Cities vision is to create attractive, sustainable local communities and places where people choose to settle on a permanent basis, to bring up families with access to high standards of education, health and diverse employment and career opportunities. This Local Planning Strategy shares this vision and builds upon this vision.



4.0 Population & Preferred Growth Pattern

The population of the City of Karratha is estimated to be 26,907 in 2015 based on the latest population projections.

Settlements are located in the northern coastal area of the municipality generally between Dampier and the Harding River. The City's major settlements are:

- Karratha – with approximately 80% of the population, Karratha is the primary service centre for North Western Australia;
- Dampier – a port town developed by Hamersley Iron to support its iron ore export operations with growing tourism, coastal and marine recreation use;
- Eastern Corridor comprising:
 - Wickham (major town) - Service town for Rio Tinto's recently expanded Cape Lambert Port;
 - Roebourne (townsite);
 - Point Samson (village); and
 - Cossack (historic townsite).

A handful of other outlying communities and townsites comprise a very small proportion of the overall population.

4.1 Projected Population

There are several sources of population projection for the City of Karratha and these vary between agencies and demographic experts which have undertaken forecasts of population growth.

This Strategy is based on population projections prepared for the City by ID Forecast, which were the most recent forecasts at the time of preparation of this Strategy.

As outlined in the following table, the latest population projections for the City are that it will grow to 38,121 by 2031.

POPULATION	2011	2013	2016	2021	2026	2031
City of Karratha	23619	25436	28351	32204	35405	38121

Population numbers in ID Forecast are derived from *Estimated Resident Population* from the *Australian Bureau of Statistics*. These differ from (and are usually higher than) Census counts as they factor in population missed by the Census and population overseas on Census night. They are generally considered a more accurate measure of population size than Census counts.

The projected population of 38,121 by 2031 includes an estimate for long term (FIFO) workers in the order of 2000 to 2500 based on projections by Syme Marmion & Co, as follows:

- Woodside (300)
- Rio Tinto (600 – 650)
- Others (1,000 – 1,500)

Operations at Cape Preston and Anketell may increase the amount of FIFO by approximately another 1,000, but this will depend on a variety of factors, in particular final workforce arrangements. Accordingly these additional FIFO workers have not been included in these estimates.

While the Strategy plans for a population of 38,121 by 2031 it also provides the enabling framework to allow the City to expand to a population of 50,000 and beyond in the future.

The population of the City of Karratha is highly dependent on the level of economic activity in and around the City. Karratha has grown considerably since its inception and has weathered sudden and substantial changes in population growth in the past. Cycles associated with the resource sector make forecasting population growth less certain than in many other locations. Given the City's historical population pattern, it is important that forecasts that underpin this strategic planning document are monitored and regularly reviewed to make sure the strategies and actions are reflecting and responding to current circumstances.

While the strategy plans for a population of 38,121 by 2031 it also provides the broad context of planning decisions for the City to expand to a population of 50,000 and beyond in the future.



4.2 Preferred Growth Pattern

This Strategy incorporates the preferred growth pattern for the City and builds upon the direction set in the Karratha City of the North Plan. The majority of the future population growth and economic development is anticipated to occur in Karratha with a lesser amount occurring in Dampier and the Eastern Corridor. Within the Eastern Corridor Wickham is anticipated to accommodate the majority of anticipated growth and development.

This Strategy seeks to encourage development within existing residential areas in recognition of the efficiencies associated with infill development and benefits to local communities. There is considerable potential for an increase in density codes within established areas to be further investigated through the finalisation of the draft *Karratha Revitalisation Strategy* (2015) and the preparation of the forthcoming local Planning Scheme.

This Strategy recommends to discourage proposals that seek to subdivide or develop sites at densities significantly below what the applicable R-Code would allow, as inefficient use of existing and planned infrastructure would result.

There is potential for the preparation of Local Planning Policy to investigate the provision of alternative acceptable development provisions for the Residential Design Codes which may provide a liveable and climate responsive model for urban development. A separate investigation may also explore opportunities for conveniently located Common Boat and Caravan Storage Areas to encourage alternatives to storage of large recreational vehicles on private lots.

4.2.1 A Growth Facilitation Approach

The growth facilitation approach and settlement pattern in this Local Planning Strategy will take the city to a total population of approximately 38,121 by 2031 and guide the development of the next planning scheme for the City of Karratha.

There are many references throughout this document to regular and careful monitoring of the supply and demand and price of land and residential, commercial and industrial properties. It is important to note that the cycles within the resources sector can change rapidly with significant effect upon employment demands and in turn rents and property prices.

This Strategy aims to prepare for, and respond relatively quickly to, cyclical patterns of change and periods of high demand of urban land to ensure a ‘pipeline’ of land supply

The short term focus of the Strategy is to facilitate timely infrastructure and residential land supply required for a population of 38,121. The long term focus is to ensure an adequate supply of Urban Investigation land in addition to reserves of Development Investigation Areas for future consideration. The Strategy seeks to be prepared to accommodate increased demand quickly without flooding the market with new residential lots and new dwellings.

The cost of developing land in the City is very high when compared to other parts of the State. The high cost is due to a range of factors including:

- the dominance of Crown land;
- lengthy lead times;
- Native Title resolution;
- Transportation costs;
- Labour costs; and
- Construction standards associated with a cyclone prone area.

The intent of this Strategy is to prepare for waves of development so the City is able to accommodate the growth and track towards a population of 38,121 by 2031.

As much as possible infrastructure and investment should anticipate growth waves generated by changes in resource industry cycles. The City will continue to monitor the situation to identify potential changes and work with others to put in place plans to accommodate these changes.

4.2.2 City Wide Growth Overview

This Local Planning Strategy is based upon the medium growth forecasts for the City which assumes some diversification of the current resources led economy. This medium forecast indicates a total population for the City of 38,121 by 2031.

The distribution of projected population growth to 2031 is shown in the table below. These are the figures which underpin the preferred approach to accommodating population growth in this Local Planning Strategy.

POPULATION	2011	2013	2016	2021	2026	2031	-
City of Karratha	23619	25436	28351	32204	35405	38121	50,000
Karratha District	16994	18695	20790	24500	27451	30120	40,135
Roebourne	2979	3052	3224	3237	3266	3291	4,200
Dampier	1310	1323	1334	1340	1355	1363	1,315*
Wickham	2038	2366	3004	3128	3332	3347	4,150
Point Samson	298	310	326	390	445	500	670

* 2,250 should wastewater constraints be addressed.

Source: ID Consulting Projection (City of Karratha); Syme Marmion

From this forecast it can be seen that:

- Karratha retains its dominance, and will be the primary focus of urban growth;
- The largest growth outside Karratha will be in Wickham;
- Roebourne is expected to grow; and
- Dampier is expected to have minor growth unless wastewater constraints are addressed.

This Local Planning Strategy is based upon the medium growth forecasts for the City which assumes some diversification of the current resources led economy, resulting in a total population of 38,121 by 2031.

4.3 Built Form Pattern

4.3.1 Urban Consolidation & Renewal

Urban consolidation and renewal is a defining element of the *Karratha City of the North* (2010) document which recognises the potential for established areas to accommodate growth in addition to new development areas. The KCN Growth Strategy outlines a strong preference for a proportion of growth to be accommodated within established areas in recognition of the important service and community infrastructure efficiencies that can be gained from infill development.

Overall theoretical capacity exists for over 1,900 dwellings across the City on serviced lots that have not yet been developed to their full potential (i.e. built below capacity or vacant lots). Karratha has the greatest capacity for additional dwellings on land that already has some development, and there is also some capacity for additional dwellings on built lots in Dampier.

In terms of vacant residential land, Roebourne has the greatest capacity for additional dwellings, followed by Dampier and then Karratha.

The age of existing dwelling stock presents significant opportunities for redevelopment. It has been researched that 61% of dwellings across the City were constructed between 1970 and 1988,

Approximately 59 hectares of surplus drainage reserves have been identified through the Karratha Lazy Lands project. Assuming flooding issues constrain only 50% of this land, conservative estimations identify a capacity for a further 440 dwellings.

Stage 1 of the Lazy Lands project proposes the creation of 200 additional dwellings over seven parcels of surplus drainage reserve. All Stage 1 sites have been rezoned for residential development pursuant to the implementation of the Lazy Lands project.

Permitting compatible and appropriate mixed use development within residential areas is supported by this Strategy provided they do not adversely affect the residential amenity.

The draft *Karratha Revitalisation Strategy* (KRS) is now the principal document seeking to deliver on the *Karratha City of the North* objective of delivering compact neighbourhoods and diversity of housing in Karratha's inner suburbs. The KRS recognises significant potential for redevelopment and represents this potential through a proposed Density Plan which selectively increases density codes within the study area.

Key outcomes of the revitalisation strategy include 'blanket' up-coding of existing suburbs from R20 to R25 and selective up-coding of lots with high amenity and/or activity to R40. This up-coding has been proposed to encourage redevelopment which is expected to revitalise housing stock and streetscapes.

The highest densities are promoted on land abutting the proposed 'Green Spine' that seeks (in part) to improve intra-neighbourhood connections and enhance the amenity of the primary internal pedestrian link through the suburbs. The Green Spine is envisaged to be a high amenity shared movement corridor with extensive landscaping which may facilitate private sector investment and redevelopment of nearby properties in response to the attractiveness of the public realm.

The natural attractions of Dampier, including the coastline and established streetscapes, are anticipated to sustain the attraction of this town as desirable place to live. The age of the housing stock and aging demographic are considered to lay the foundation for the attraction of new residents to the town and the redevelopment of existing housing stock.

The limited capacity of the Dampier waste water treatment plan to accommodate growth results in limited potential for widespread subdivision within Dampier. As such, it is considered that the existing provision of large lots will largely be retained with some subdivision occurring. When considered in light of the attractiveness of the town and the potential for 'Aging in Place' principles to be achieved, there is considered to be potential for the provision of high standard housing within Dampier on large lots within existing areas.

Roebourne is anticipated to have some renewal of existing housing stock with the majority of growth accommodated within new development areas, primarily the NASH development.

Wickham and Point Samson are anticipated to have some renewal of existing housing stock with the majority of growth accommodated within new development areas, primarily Wickham South.

This Strategy recognises the review of Public Open Space being undertaken by the City to enable the development of surplus POS identified as suitable for rationalisation and reinvestment processes.



4.3.2 Housing Diversity

This Strategy targets a gross residential density between 10 and 15 dwellings per hectare across existing 'Urban' and 'Urban Expansion' areas. Variations in gross residential density to reflect local character and site specific constraints will be considered to ensure appropriate flexibility in lot provision.

Recent years has seen an increased popularity in the development of Multiple Dwellings and there are numerous examples, predominantly within established suburbs, of Multiple Dwellings. The standard of Multiple Dwellings is generally high and the City is accustomed to consideration of planning concerns associated with this form of development. It is now considered that there is community understanding of the difference in this form of accommodation compared to historic examples of poor apartment style development.

In regard to market demand for accommodation types, detached dwellings in the City accounted for 49.8% of all sales between 2000 and 2012, with approximately 272 single dwellings on average sold per annum. This was significantly higher than the average number of lot sales (184 sales), which accounted for 33.8% of activity. Despite containing a higher number of bedrooms than the usual level of occupants, three and four bedroom properties accounted for the highest proportion of dwellings, which according to 2011 ABS data constituted about 80% of dwelling stock across the City at that time.

Activity in medium and high density dwellings in the City (i.e. townhouses, duplex units and apartments) was significantly lower than for detached dwellings. This is attributable to a lack of these dwelling types being available, rather than a preference from residents. Approximately 90 density dwellings were sold per annum on average between 2000 and 2012 representing 16.5% of all sales (or 24.9% of all dwelling) activity within the City.

The proportion of medium and high density dwellings as a percentage of total dwellings sold steadily increased over the same timeframe. In 2012 high-density dwellings accounted for 25.7% of total dwellings sold in comparison to just 18.2% in 2010. This is due to a number of factors, including a shift in purchaser preference, such products being more affordable than detached dwellings and an increased level of supply within the City.

Continued creation of greater housing diversity, in particular greater number and variety of smaller households, is critical to accommodating future demand associated with the following demographic trends:

- The promotion of vibrant alternative inner city lifestyle and housing choices, and avoiding the continued creation of homogenous residential suburbs;
- Addressing housing affordability, without which there is little prospect of reaching a higher resident population scenario (and associated benefits in terms of enhanced service provision);
- First home owner opportunities essential to accommodating staff involved in the lower paid service industry and the tourism/hospitality sector; and
- Aging-in-place opportunities (facilitating retention of the significant increase in older residents, and negating continued exodus of the City's youth).

This Strategy seeks to ensure a mix of housing types and density options generally as follows:

- a. 75 per cent low to medium housing with a wide range of lot sizes;
- b. 15 per cent medium to high density grouped dwellings; and
- c. 10 per cent apartment buildings.

It is noted that the housing industry and private market are responding to the Pilbara Vernacular Handbook and the Karratha Vernacular Handbook and that climate responsive housing design and construction methods have been included within recent accommodation types. In this regard, it is noted that verandahs are returning to the local housing product which is understood to be in response to shading properties. The propensity for community interaction is noted given the concentration of pedestrian movements during cooler parts of the day resulting from long hot periods during the day.



5.0 Settlements

The City's preference is for future growth to be accommodated within its five primary existing settlements, where planning frameworks and infrastructure exist (and can be viably expanded over time).

Uncontrolled growth of minor settlements is not supported as it is often unco-ordinated and results in demands for community services in the absence of a supporting rate-base.

There are no plans for the creation of new settlements. The creation of any new settlements would be considered on their merit in the context of a regional planning framework and from a community development viewpoint.

Karratha District

Karratha is envisaged as the City of North Western Australia accommodating over 75 per cent of the City's total population. Karratha will continue to grow and broaden its role as the primary service centre for the Pilbara and North Western Australia. Diversity in housing, services and facilities will attract people from a broad demographic profile to live in the City for the long term.

Dampier is envisaged as a coastal town that supports the appeal of Karratha. Existing infrastructure constraints i.e. wastewater will take some time to overcome and substantial growth will be constrained until this is addressed. Excellent recreation and tourism opportunities are plentiful in this coastal location and Dampier is planned to further develop as the gateway to the Dampier Archipelago.

Eastern Corridor

Roebourne District or the **Eastern Corridor** is an important concept within this Strategy. This concept seeks to ensure the provision of local services and facilities is framed at a corridor level rather than viewing each settlement independently. The approach involves the coordination of community infrastructure commercial centres and other land uses, so that they are complementary and financially viable by avoiding unnecessary duplication.

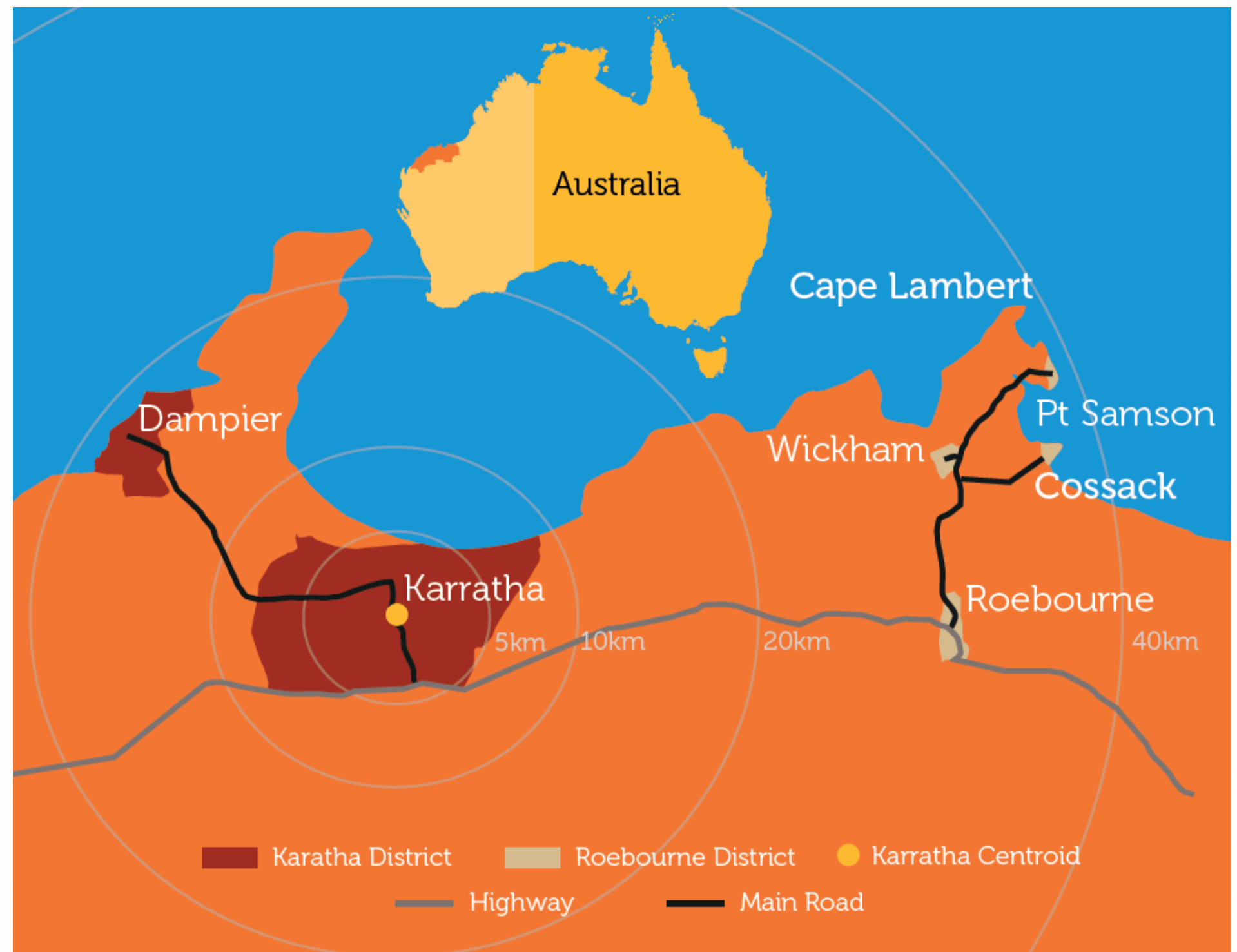
The Eastern Corridor comprises the settlements of Roebourne, Wickham, Point Samson and Cossack, each with its own identified role and character which, when considered together, provide a complete offering of local level services, facilities and opportunities. A broad overview of anticipated roles are summarised below:

Roebourne will continue to be a centre of arts and cultural based community facilities, with its heritage character celebrated through tourism;

Wickham, with a larger population base and Rio Tinto's presence to drive growth, will provide the main retail and community facilities servicing the population of the Eastern Corridor;

Point Samson will maintain its coastal village form, focussing on coastal tourism with opportunity for population growth over time; and

Cossack will remain a coastal heritage centre with opportunities to develop compatible tourism facilities.



5.1 Karratha Overview

ROLE IN THE SETTLEMENT HIERARCHY

Karratha is recognised in the *Pilbara Planning & Infrastructure Framework* as one of two Pilbara Cities. This Strategy promotes Karratha to become the City of North Western Australia accommodating key administration and service centre functions for the northern portion of the state and an integral link in Northern Australia.

This Strategy seeks to help work toward the implementation of the *Karratha City of the North (2010) Plan*, which importantly establishes a framework for Karratha to ultimately achieve a population exceeding 50,000.

POPULATION & DISTRIBUTION

Forecast ID predict Karratha’s population (inclusive of FIFO) will grow to around 30,120 residents by 2031.

Karratha	Raw Population	Adjusted Population (excl. FIFO)	Dwelling Occupancy Rate (%)	Average Household Size	Total Dwellings Required	Additional Dwellings Required
2011	16,995	15,416	83.94	2.91	6,306	0
2016	20,789	19,200	84.06	2.79	8,199	1,893
2021	24,500	22,751	84.86	2.76	9,700	3,394
2026	27,451	25,602	85.52	2.74	10,919	4,613
2031	30,120	28,171	86.05	2.72	12,034	5,728

Source ID Forecast: August 2014

KEY CONSTRAINTS FOR GROWTH

Karratha is constrained by a number of environmental considerations. Storm surge and flooding are critical issues. The extent of these constraints is known and can be factored into planning. To the south, the Karratha Hills are a valued landscape feature which restricts expansion. Urban expansion opportunities are therefore confined to the west and east of town, with longer term opportunities further south of the Karratha Hills.

LandCorp has the majority of the above listed Urban Expansion Areas. Of the LandCorp projects currently zoned, subject to approved Development Plans and clearance of Native Title, only 1% have subdivision approval, 3% have subdivision clearance, and 14% have building licences obtained as at Quarter 3 of 2014. This coupled with the limited progression of Lazyland sites is a concern and demonstrates that the City’s efforts to ensure an adequate supply of zoned land with approved Development Plans may not be enough alone to ensure land is available for housing when a period of high demand eventuates.

RESIDENTIAL GROWTH (URBAN EXPANSION AREAS)

Karratha will be the main focus of population growth within the City, with an anticipated total of 5,728 additional dwellings being required to accommodate the forecast population growth to 2031, inclusive of a range of housing types suitable for its broadening population demographics.

The *KCN* identifies a new urban growth area to the east of the City Centre at Mulataga providing opportunities to connect the City with the coast. Extensions to the existing urban area are also identified to the west in the West Nickol and Madigan areas overlooking Seven Mile Creek and the adjacent coastal flats. The *KCN Growth Plan* also promotes infill development of existing vacant sites, plus the investigation of surplus drainage reserve/open space land as means to facilitate additional housing diversity.

This Strategy recommends that priority be given to development of the following areas in order to accommodate forecast growth to 2031. Numerically referenced to the Urban Expansion Areas (UEA) identified on the Karratha Strategy Map, the estimated dwelling yield for each area (by ID Forecast) appears below:

Map ID No.	Urban Expansion Area	Approx. Area (ha)	Expected Dwelling Yield (2031)
1	Madigan Road Estate	68	600
2	Baynton West	100	1,010
3	Nickol West & Jingarri Estate	70	426
4	Tambrey	7	420
5	Karratha City Centre	7	446
6	Mulataga	165	2,480
7	Various Crown Land (Lazylands)	41	1,128
10	Old Drive-In Site (The Ranges)	23	369
TOTALS		489	6,879

Notes:

- 1. UEA 8 – Searipple has not been included in the above table as the proposed land use is not permanent residential.
- 2. UEA 9 – Madigan Road (Service Commercial) has not been included in the above table as the proposed land use is not residential.

Based on an analysis of existing urban areas, ID Forecast identify potential for up to a further 650 lots to be achieved without the need for any amendment to the existing Scheme. Gradual uptake of this infill potential is expected to supplement growth in the Urban Expansion Areas identified above and thereby reduce the pressure for the further release of greenfield sites.

Similar supplementary growth is expected to emanate from the outcomes of the draft *Karratha Revitalisation Strategy (2015)*, which identifies additional land within the Pegs Creek, Millar Wells and Bulgarra areas of the City for future infill development. There are a number of Lazyland sites within the Revitalisation Strategy study area some of which already have development plans approved.

Development of these Lazyland sites and large scale urban renewal are envisaged to occur when market conditions are favourable and following the implementation of the proposed residential up-codings formalised in future Local Planning Scheme No.9.

DEVELOPMENT INVESTIGATION AREAS

With the exception of a small number of sites which have proven heavily constrained, the majority of areas identified on the *KCN Growth Plan* are confirmed in this Strategy as *Development Investigation Areas*. These areas require further investigation to determine yield potential and appropriate land use designations as part of future investigation feasibility studies.

Despite not being required to accommodate forecast growth, the Strategy advocates progressive investigation and identification of Development Investigation Areas. This will allow the creation of a land supply ‘pipeline’ for future upswing in economic activity and as a key means of addressing housing supply over the longer term.

To ensure efficiency is realised from serviceable urban land, a benchmark gross density of 12 dwellings per hectare is recommended for the planning of new urban areas.

The following Development Investigation Areas are numerically referenced on the Strategy Map and should be progressively investigated for future land release.

Karratha Strategic Plan		
DIA #	Name	Approx. Area (ha)
1	Regals (Long Term Urban Growth)	881
2	Gap Ridge (Urban)	157
3	Mulataga East and Hills (Urban)	165
4	Airport (Airport Related Industry/Service Commercial)	294
5	Gap Ridge / 7 Mile (Urban)	64
6	Karratha Foothills (Institutional)	26
7	Hospital Site & Surplus Education land (Urban/Recreational/Tertiary Education)	27
8	Madigan Estate Extension to Baynton West (Urban)	52
9	KIA Expansion West (General Industry)	231
10	KIA Expansion West (Light Industry)	258
11	Gap Ridge North (General Industry)	268
12	Lazylands/Crown Land (Urban)	

ACTIVITY CENTRES

Karratha offers by far the most significant amount of retail floor space in the City, with, with most retail and commercial land uses located within the Karratha City Centre.

Future need, based on forecasted population growth out to 2031, is as follows:

Additional Commercial Floorspace Required (m²)	2009 (Survey)	2016	2021	2026	2031
Retail Floorspace	41,000	5,233	6,012	6,632	7,192
Office Floorspace (*Assumes 100% in Karratha)	*	4,443	8,808	*	18,187
Bulky Goods Floorspace	*	1,871	2,205	2,471	2,711

* Data not available

The *KCN City Growth Plan* promotes development of the City Centre as the primary retail and trade centre for Karratha and the surrounding regional area. Two District Centres (Tambrey and Mulataga), as well as several local neighbourhood centres (with a greater focusing on convenience retail and local employment generation based on 400m walkable catchments), are also promoted.

Revitalisation of the City Centre is steadily progressing in accordance with the *KCN City Centre Master Plan*. The effect is an evolving change to the character of the City Centre pursuant to the vision of becoming a pedestrian oriented and vibrant area with a main street focus.

Since release of the City Centre Master Plan issues have emerged that have necessitated adjustment to both the proposed City Centre road layout and distributions of land use. The most notable of these is the decision to locate the Karratha Health Campus within the City Centre.

Neighbourhood Centres

Future development of the neighbourhood centres will be subject to future detailed planning to facilitate integrated commercial, retail, community, open space and medium to multi storey residential unit development. The timing of these developments will need to have regard for potential impacts on continued development and intensification of the City Centre.

MIXED USE

The *KCN Growth Plan* encourages mixed use development throughout the majority of the City Centre, but in particular as a transition between the City Centre and adjoining residential areas. Potential for mixed use development is also identified in and around other Activity Centres, notably the Tambrey and Mulataga Neighbourhood Centres. This Strategy supports the *KCN* recommendations in this regard.

SERVICE COMMERCIAL

The preparation and application of suitable land use and development control provisions will be required to ensure the activities associated with Service Commercial areas identified by this Strategy do not unduly affect the role, and development, of the *Karratha City Centre*.

It is recognised that the City's future Local Planning Scheme will need to be clear on the appropriate location of typical Service Commercial land uses, namely bulky goods showrooms, large format retail and medium format retail, so as not to adversely affect the preferred commercial centres hierarchy.

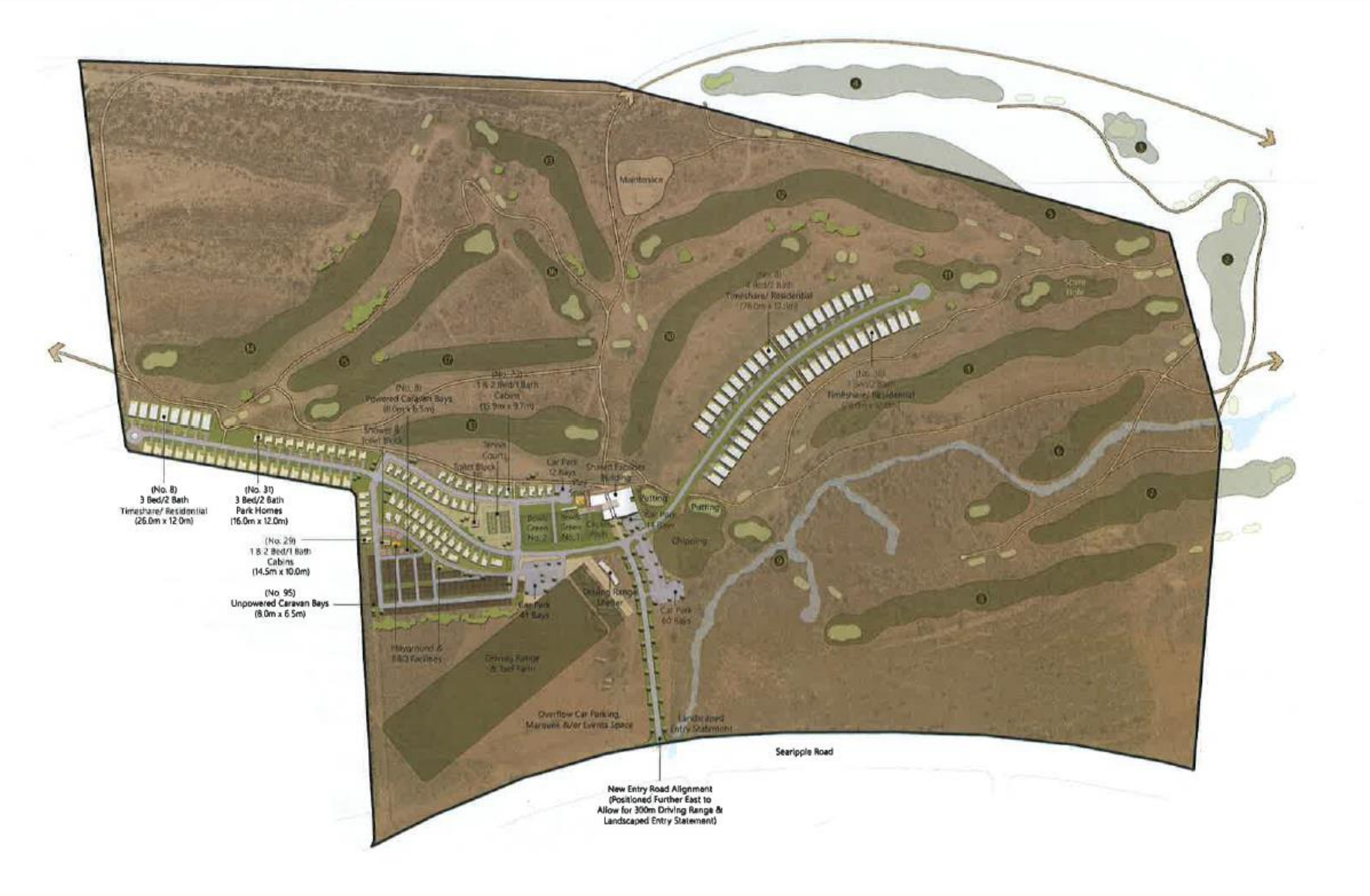
It is noted that both large and medium format retail may be appropriate on the periphery of the Karratha City Centre provided built form objectives are satisfied and car parking provision is appropriate.

TOURISM

Considerable potential exists to increase the City's role as the tourist hub of the Pilbara and gateway to North Western Australia. However a shortage of tourist accommodation regularly occurs due to ongoing competition for short stay accommodation.

Tourism associated land uses are encouraged within the City Centre. The construction of a hotel, as being considered at the intersection of Sharpe Avenue and Karratha Terrace, is supported by the City.

The *KCN Growth Plan* identifies land to the north of the City Centre encompassing the local golf course that is not constrained by storm surge or environmentally sensitive coastal areas. Master planning of the *Searipple Precinct* is underway, with initial concepts including a range of short-stay accommodation options and associated recreational activities.



TRANSIENT WORKFORCE ACCOMMODATION

Local Planning Policy DP10 outlines the City's position as it relates to Transient Workforce Accommodation (TWA). The City acknowledge the critical role of TWA, the need for a base level supply of TWA beds, and potential future need of short-term TWA camps for specific construction projects. However, there is a clear intent at the State, Regional and Local Government level to promote a local skilled workforce that is beneficial to the workers, families, employers and the local community.

The City's preference is to accommodate workers in more permanent forms of town-based accommodation where possible, preferably dwellings. Where there are intentions to accommodate FIFO operational workers on a permanent basis, the City expects the development to be of a high standard, suitably integrated with surrounding development, not a typical camp situation or layout.

RURAL LIVING

The *KCN Growth Plan* acknowledges rural lifestyle opportunities and identifies the *Regals Long Term Growth Area* to the southwest of town as an area with the potential to accommodate this land use. This is in addition to the existing, but as yet undeveloped area adjacent North West Coastal Highway. This area requires careful consideration as part of any forthcoming development proposal, due to its highly exposed position at the south west entrance to the District. Regals is identified as a Long Term Development Investigation Area on the Strategy Plan. More detailed investigation is required to determine the suitability of the land for this purpose.

OPEN SPACE

Karratha is surrounded by open space valued for its conservation, recreation and landscape qualities. To the north is the coastline and Karratha foreshore. To the south are the Karratha Hills. Access to these open spaces must be managed so as to encourage recreational enjoyment, but avoid degradation of the natural environment and landscape amenities.

New open space reservations should be located on land which is low-lying and unconstrained in regard to Aboriginal cultural heritage or environmental significance. These open space areas, which may incorporate natural creek lines, are intended to be multi-purpose providing recreational opportunities. The management of drainage associated with major storm events may also feature prominently.

Currently there is an oversupply of smaller recreational space, particularly in the Baynton, Tambrey, Nickol and Nickol West areas of the townsite. The provision, quality and accessibility of the public open space network is currently under review with potential rationalisation and associated redevelopment of open space facilities with higher levels of amenity being considered.

New district level open space facilities are proposed at Mulataga, and Gap Ridge to meet the future needs of the population and address a potential over-reliance upon existing district level open space facilities in Bulgarra and Millars Well.

COMMUNITY FACILITIES

Karratha contains the majority of community services, particularly those of a higher order. This includes the regional hospital, the Pilbara Institute (TAFE), two high schools, a number of primary schools and a number of Federal and State Government regional offices.

Existing civic, community and recreational land uses are located throughout both the City Centre and within existing residential areas. The City's *Community Facilities Plan and Matrix (2011)* provides guidance for the strategic planning for community facilities, taking into consideration levels of service benchmarks based on population. Future community facility needs, based on forecast population growth out to 2031, include the following:

Community Facilities	Existing	Required by 2031	Anticipated Location	Commentary
Regional Open Space	3	-	-	Bulgara & Karratha Leisureplex sufficient for forecast growth
District Open Space	3	2	Mulataga	New Facility
			Tambrey	Upgrade of existing Neighbourhood Park
Neighbourhood Parks	17	1	Jingarri	New Facility
Local Parks	5	-	-	Existing facilities sufficient for forecast growth
Skate Park	2	1	Bulgarra	New Facility
Boat Ramps	2	-	-	In combination with Dampier existing facilities are sufficient for forecast growth
Libraries	1	-	Cultural Precinct	Proposed to be incorporated into Cultural Precinct and increased to 800m ²
Cultural Centre	-	1	Cultural Precinct	New District Level Facility
Senior & Aged Care	-	1	Co-located with Seniors Aged Care Facility	New District Level Facility
Community Centres	7	1	Tambrey Pavilion	New Neighbourhood Level Facility (Planned for 2016)
Youth Centres	1	-	-	Existing facilities sufficient for forecast growth
Family Support	16	2	Incorporated in Community Centres/Hubs	New Childcare Facilities
Community Health	2	-	-	Existing facilities sufficient for forecast growth



The extent of new provision required to service the population growth based purely on a standard benchmark figure can often be excessive. It may not fully take into account the multi-function use of current and future infrastructure resulting in a mixture of service levels. This is particularly relevant in Karratha when considering the needs of pitch space and community centre provision.

Another important consideration is the relatively young demographic profile of the City population meaning a greater demand (than the typical capita based benchmark) for childcare and other family support facilities. Playgroups should therefore be incorporated within community centres wherever possible.

A key recommendation of the *KCN Growth Plan* was the creation of a civic precinct. In February 2014 the City released its *Concept Design Report* for the *Karratha Cultural Precinct*, which proposes the development of an iconic building facing Sharpe Avenue, as a gateway element to the City Centre. The City of Karratha Arts and Community Precinct is proposed to include a 450 seat theatre and performing arts centre, a new library, rooftop cinema, art gallery, outdoor amphitheatre and local history museum. When developed, this facility will be a premier community centre of North Western Australia.

This facility will complement the recently completed Karratha Leisureplex which is a significant community facility servicing the region. The Karratha Leisureplex is regional Western Australia's premier sport and leisure facility featuring a fitness centre, aquatic centre, indoor and outdoor courts as well as playing fields.

Expected to open in early 2018, the *Karratha Health Campus* will become the major regional hospital for North Western Australia and will be supported by an array of complementary health and aged care facilities such as the GP Super clinic. An area has been designated as an *Education Precinct* to support coordination and partnerships in secondary and tertiary education development. A university research centre that could expand into a larger university campus (with space for future growth) could be incorporated into this precinct..



Karratha-Cultural-Precinct-(2014)1



AIRPORT

Karratha is currently WA's busiest regional airport for passenger movements with over 716,800 passengers per year. A major refurbishment of the airport is underway, scheduled for completion in 2016. This refurbishment includes the capacity to cater for international flights, immigration processing, and improved boarding and processing facilities.

The *Karratha Airport Master Plan & Land Use Plan (2013)* sets out a long term framework for the development of facilities within the airport site. It also sets out requirements and restrictions on land surrounding the airport site, to ensure that airport development and operations are not restricted. This is presented on the opportunities and constraints mapping as ANEF contours for forecast noise exposure and N70 contours for frequency of noise events louder than 70dB(A) based on the forecast number of improvements to 2031-32, and an extended runway (2,500m in total length). For planning purposes the ANEF 20 and N70 contours should be used together to define a Special Control Area (SCA) in the Scheme to enable consideration of suitable land uses and development controls.

Building height restrictions are also depicted on the opportunities and constraints mappings as the OLS – inner and outer horizontal surface and regard should be given to this in all planning decisions.

Also included is an ultimate land use plan for the total site that initially promotes complementary development of available land north of the runway, expanding on existing activities (largely aviation-related with potential for some non-aviation retail and/or commercial).

Karratha Airport is currently WA's busiest regional airport for passenger movements with over 716,800 per year.



Additional land is also identified south of the airport for both aviation and non-aviation commercial uses i.e. freight. This land, subject to detailed investigation, may leverage upon activity generated by a centrally positioned Passenger Terminal. The use of surplus land for non-airport related operations requires further investigation particularly in the context of land use suitability nearby planned uses and the need to ensure future uses do not detract from other planned centres.

The Airport Masterplan is recognised for its long term development potential in the context of the short to medium term development of the Gap Ridge area.

INDUSTRY

Infrastructure and industrial areas are generally co-located in Karratha, either around the *Karratha Industrial Estate (KIE)* south of Karratha or the *Gap Ridge Industrial Estate* west of Karratha

Future need, based on forecasted population growth out to 2031, is as follows:

Additional Industrial Gross Area Required (Ha)	2016	2021	2026	2031
Light Industrial Floorspace (Assumes 80% in Karratha)	*	246.4	*	321.6

* Data not available

This Strategy identifies new industrial growth areas to the west and north of the existing KIE consolidating these uses to the south of the Karratha Hills away from sensitive land uses and in proximity to regional transport routes. In this area there exists approximately 640ha of zoned industrial land, of which a third is undeveloped. LandCorp's Gap Ridge Industrial Estate, comprising 114 lots already has substantial General Industry activity in place.



The following Industrial Expansion Areas are identified numerically on the Strategy Map and reflect planned industrial growth areas:

Karratha Strategic Plan		
IEA #	Name	Approx. Area (ha)
1	Karratha Gateway	98
2	Karratha Industrial Area East (LI)	172
3	Karratha Industrial Area East (GI)	249

Some industrial activities and service Infrastructure have the potential to create adverse impacts necessitating buffers to sensitive land uses. Such uses may include solid waste recovery and recycling, renewable energy generation, research projects, additional low impact industrial development, infrastructure expansion or open space for conservation and/or recreation. This Strategy encourages the clustering of compatible nuisance uses within buffer areas.

The planning for the *Anketell* and *Maitland Strategic Industrial Areas* is an important consideration to the co-ordination of industrial land within the City. These areas will be significant employment generators for the City's existing and future population, generating the need for additional housing. The City believes these strategic industrial areas should not provide for industries that can be accommodated in the Karratha Industrial Estate or Gap Ridge. This will ensure the primacy of Karratha as the principal centre for economic activity in the City and support Karratha in reaching Regional centre status.

In May 2014 the WAPC resolved to prepare *Improvement Plans* to facilitate the delivery of project-ready strategic industrial land over the *Anketell* and *Maitland Strategic Industrial Areas*. Following gazettal of Improvement Plans *Improvement Schemes* for each area will be prepared to guide the WAPC in making decisions of land use and development in these Improvement Plan areas. The Improvement Plan for Anketell has been gazetted.



MOVEMENT NETWORK

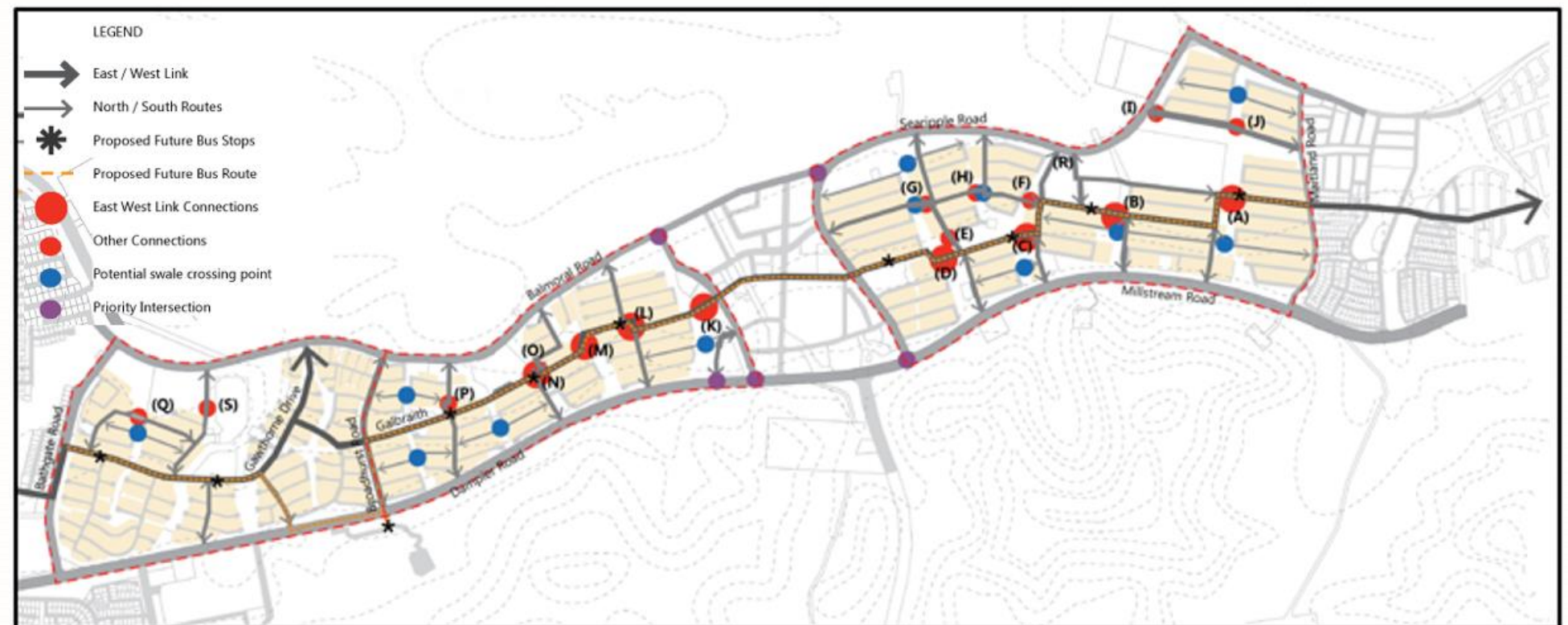
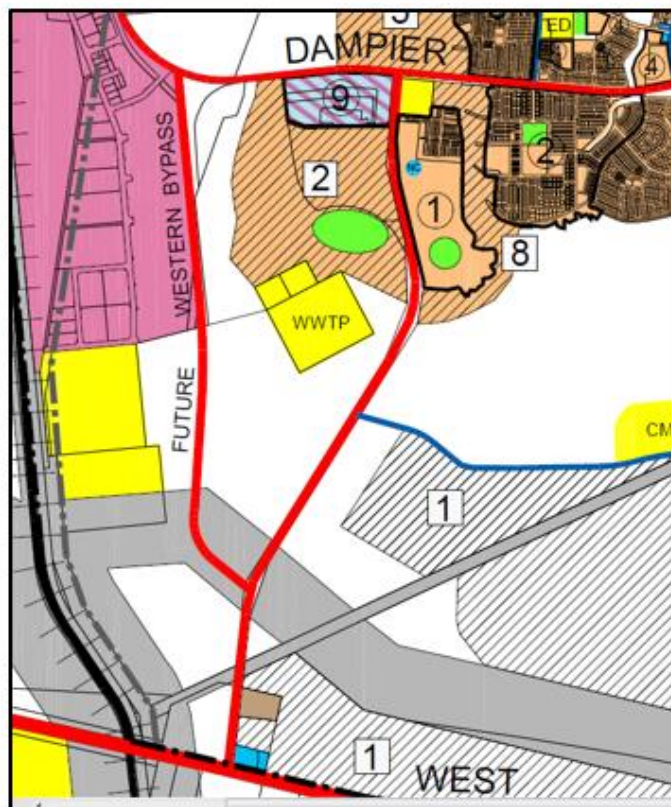
The Karratha City Growth Plan advocates a new Green Spine improving connections within the study area which comprises Bulgarra, Millars Well, and Pegs Creek. The Green Spine will provide connectivity between existing residential areas and reduce reliance upon the Distributor Roads for local traffic movements. The Green Spine will provide a low-speed, high amenity environment suitable for bus services at a future time.

The detailed design of the Green Spine Road will include a variety of traffic calming methods and design response to slow traffic and encourage pedestrian and cyclist movement. A high density of tree planting within the verge and the provision of on-street parking will emphasise the Green Spine as 'high friction' shared movement environment.

The Green Spine will connect destinations of activity and amenity including: primary schools; public open space; and community facilities. The Green Spine will have direct connection to the Karratha City Centre, including Sharpe Avenue, via an enhanced Karratha Terrace.

New growth areas are to be serviced by a permeable shared movement network that provides good connections to existing urban areas and the broader movement network.

The Karratha Western Bypass is one future road link which will be an important new road link for heavy vehicle traffic. This bypass will reduce the use of Madigan Road for use by heavy vehicle traffic.



5.2 Dampier Overview

ROLE IN THE SETTLEMENT HIERARCHY

The *Pilbara Planning and Infrastructure Framework* groups Dampier with Karratha as a Pilbara City however this Strategy, in accord with the *Karratha City of the North*, views Dampier as a Major Town.

Dampier is recognised as an emerging town with a period of limited growth but substantial development ahead. Historically a relocation of services to Karratha has occurred however it is envisaged that some services will return to Dampier aided by the construction of the Dampier Community Hub which is scheduled for completion in 2016. The draft *Dampier Structure Plan* is being prepared which will identify potential development areas and in conjunction with the *Draft Dampier Revitalisation Strategy* will facilitate revitalisation of the town and its town centre.

This Strategy recognises the maritime focus of Dampier and recommends that the town strengthen its role as the gateway for emerging recreation and tourism opportunities. There exists a strong history of enjoyment of the Burrup Peninsula and the waters of the Dampier Archipelago which may be further developed.

POPULATION & DISTRIBUTION

Forecast ID predict Dampier will only experience limited growth by 2031.

Dampier	Raw Population	Adjusted Population (excl. FIFO)	Dwelling Occupancy Rate (%)	Average Household Size	Total Dwellings Required	Additional Dwellings Required
2011	1,310	1,221	70.90	2.91	591	0
2016	1,334	1,245	72.32	2.89	596	5
2021	1,340	1,251	74.04	2.81	601	10
2026	1,355	1,266	75.41	2.77	606	15
2031	1,363	1,274	75.78	2.75	611	20

Source ID Consulting Forecast (City of Karratha); Syme Marmion

KEY CONSTRAINTS FOR GROWTH

The growth potential of Dampier is physically constrained by surrounding Strategic Industrial development and environmental factors of the landscape - primarily geological and drainage in nature.

The most significant constraint to the growth of Dampier is the current limitations in capacity of its wastewater treatment plant (WWTPC) and infrastructure. This WWTP is operated by Rio Tinto and represents a legacy of Dampier from its mining town origins.

The WWTP is currently operating close to capacity with a recent assessment identifying capacity for up to 150 new dwellings. The cost of relocating or expanding the WWTP is very high. Rio Tinto have advised that they are not

considering an upgrade or relocation of the existing WWTP.

The extent that the WWTP constrains development is uncertain as the identification of an appropriate buffer will be subject to a separate investigation. It is acknowledged that the prospective buffer would include a large portion of the Dampier town centre and existing residential areas.

Drainage reserves also need to be remediated to reduce the risk from flooding events. The City has undertaken a drainage study and will work with Rio Tinto, the community and state government agencies to implement its recommendations. Both of these matters will be considered in more detail as part of the draft *Dampier Structure Plan* due for completion in 2016.

TRANSIENT WORKFORCE ACCOMMODATION

The potential relocation of Rio Tinto’s workforce to vacant land north of Dampier Oval is to be considered as part of the *Dampier Structure Plan* in consultation with RTIO. The vacant land north of Dampier Oval is owned by RioTinto and it is understood that the relocation of the short stay units adjacent to Peninsula Palms may be appropriate.

RESIDENTIAL DEVELOPMENT

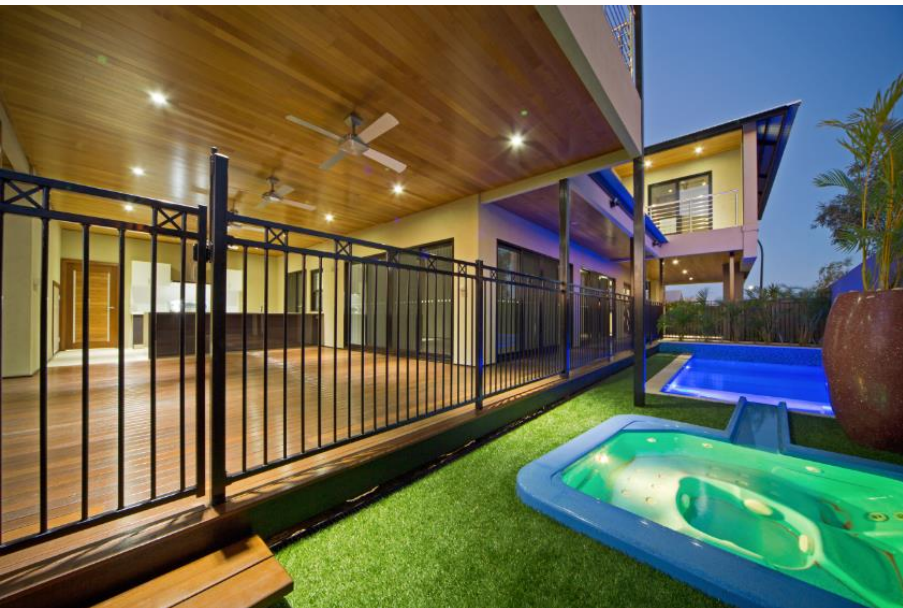
Demand for housing with Dampier has consistently been strong with above average prices within the local market reflecting the amenity attractions of the town and its coastal location. Dampier has established neighbourhoods with mature trees and a high level of amenity.

In light of surrounding constraints the future redevelopment scenario for Dampier is based on consolidation and renewal with relatively minor expansion. The draft *Dampier Structure Plan* considers a coordinated approach to redevelopment, with delivery to be undertaken on a precinct by precinct basis.

This is has been considered in the growth forecast with The Lookout Precinct (encompassing grouped housing, cottage and garden blocks) likely to be the preferred residential precinct to be developed.

The draft *Dampier Structure Plan* is considering the potential for a variety of dwelling types to be provided as alternatives to the dominance of the single detached dwellings. Given the age of housing and demographic base of the town’s population it is anticipated that over time existing residents will downsize dwelling size if there are viable local accommodation options available in line with ‘Aging in Place’ principles. As consequence, the renewal of housing stock is envisaged to occur as ownershi patterns change and new residents are attracted to town.

This Strategy recognises that the replacement of existing housing stock with larger houses is likely to occur to reflect current market demands. It is further recognised that ‘high end’ housing stock may be constructed in response to the amenity character and attraction of the town and its coastal location. This would be supported by the City as further diversification of accommodation types and diversity of town character.



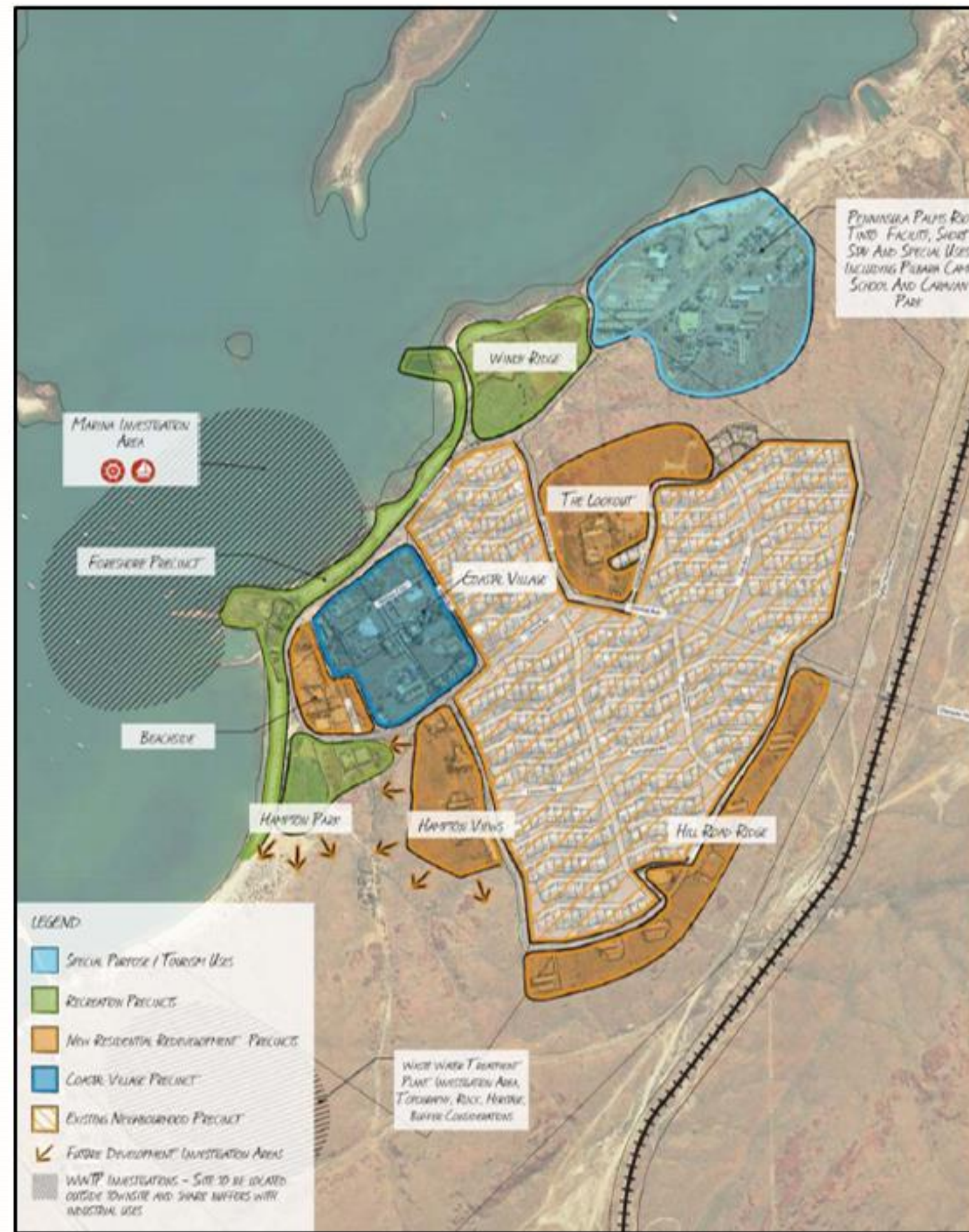
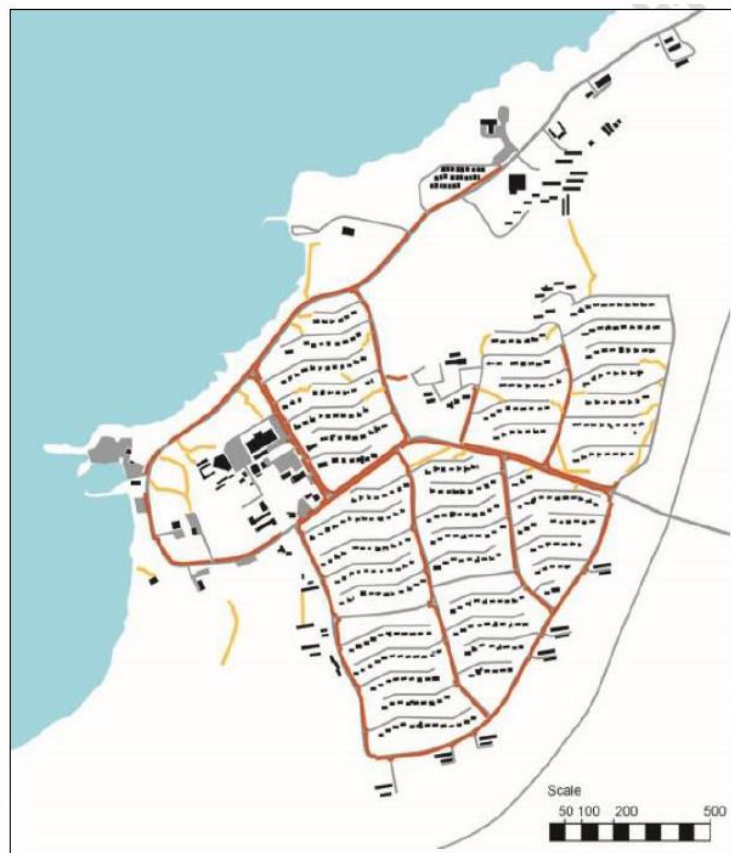
DEVELOPMENT INVESTIGATION AREAS

The draft *Dampier Structure Plan* plans for a diverse range of infill housing development, from a mix of apartments and town houses within the *Beachside* and *Hampton Views Precincts*, to grouped housing, cottage (400m²+). Where topographical constraints dictate the need for larger lots on the *Hill Road Ridge Precinct* garden blocks (700m²+) are being considered.

This Strategy identifies Development Investigation Areas recognising that there are constraints to the development of these sites. These sites may offer opportunities for accommodating growth in the future should constraints be overcome

The following Development Investigation Areas are identified numerically on the Dampier Strategy Map and require further detailed investigation.

Dampier Strategic Plan		
DIA #	Name	Approx. Area (ha)
1	Marina (Urban)	50
2	Peninsula Palms (Urban/Tourism)	33
3	Beachside (Urban)	4
4	Hampton Views (Urban)	8
5	The Lookout (urban)	11
6	Hill Road (urban)	11
7	Cinders Road (Relocation of Industry Uses)	412



TOWN CENTRE

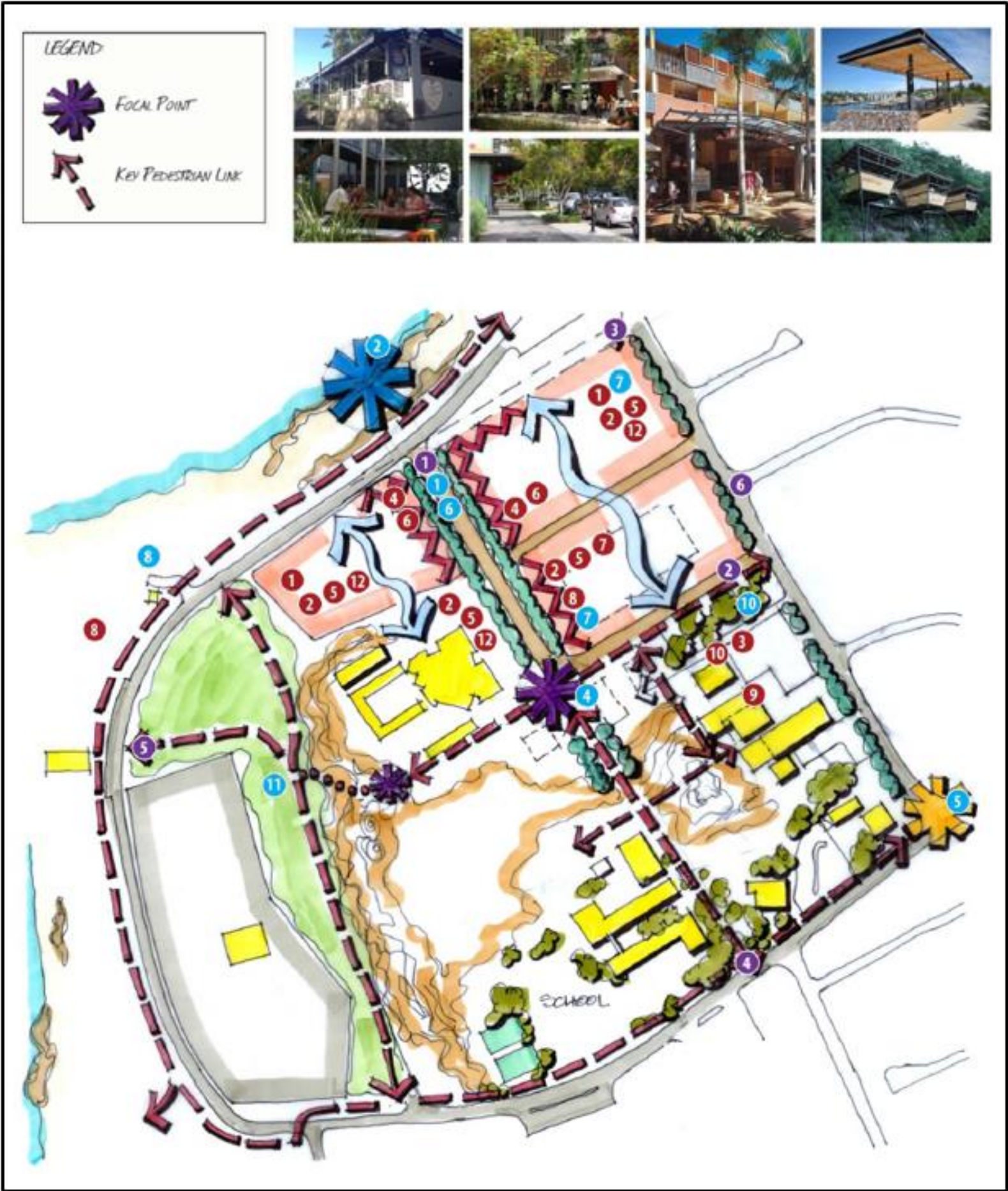
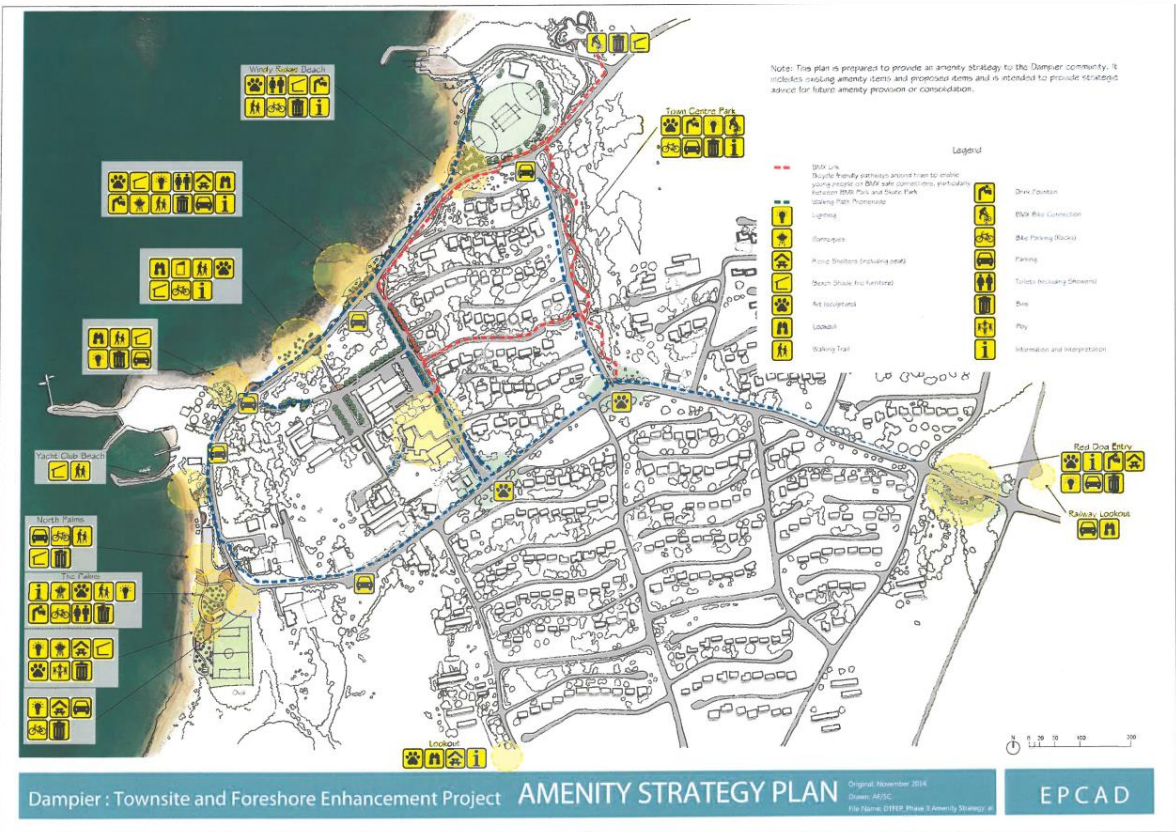
At present the Town Centre includes a small retail centre with gross lettable area of approximately 2,084m². The *Karratha City of the North Plan* recommends that the provision of community and commercial facilities and services in Dampier continue to be limited to local needs and conveniences, with residents being directed to the nearby *Karratha City Centre* for broader needs.

Future need, based on forecasted population growth out to 2031, is as follows:

Additional Commercial Floorspace Required (m ²)	2009 (Survey)	2016	2021	2026	2031
Retail Floorspace	2,084	91	92	96	97
Bulky Goods Floorspace	*	120	121	122	123

* Data not available

The draft *Dampier Structure Plan* identifies the Town Centre within its *Coastal Village Precinct* and promotes redevelopment and revitalisation to improve local commercial and retail facilities. Key public infrastructure improvements and streetscape enhancements are also expected to emanate from the forthcoming *Dampier Townsite and Foreshore Enhancement Plan (2015)*.



TOURISM

Expansion of the tourism industry is currently limited by a lack of amenity and accommodation. This is largely due to competition for accommodation from peak workforces. The draft *Dampier Structure Plan* seeks to address this by identifying a *Tourism Precinct* at the northern edge of the Townsite encompassing the Peninsula Palms facility, the caravan park and the Pilbara Camp School.

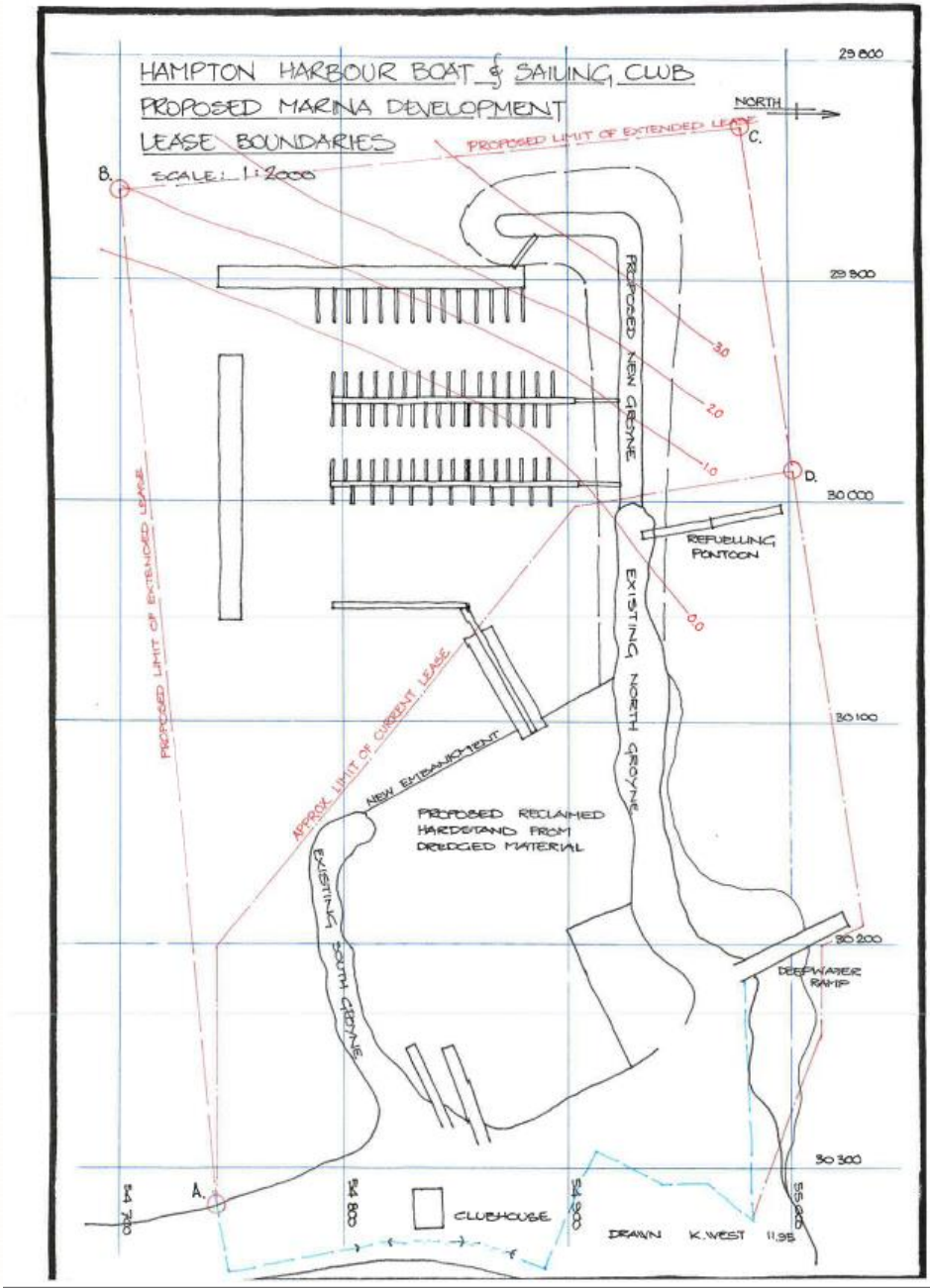
The *Dampier Townsite and Foreshore Enhancement Plan (2015)* identifies four separate nodes for amenity enhancements. The amenity of the townsite and foreshore will be improved over time to ensure Dampier’s appeal to residents and visitors.

MARINA

There is a considerable history to the investigation of a potential marina at Dampier. This Marina would have the capacity to generate a number of benefits to residents and increase visitors to the town.

A long term vision to establish a waterfront commercial strip is recognised in the form of a *Marina Investigation Area* located directly adjacent the Coastal Village Precinct. Development of a recreational marina at Dampier is a key catalyst project to harness Dampier’s potential as a hub for marine recreation. A marina will improve accessibility to the Dampier Archipelago and general marine recreation activities. This Strategy recognises these sites as *Development Investigation Areas* for tourism purposes.

In the interim there is scope for some limited growth of Hampton Boat Harbour (private marina). Recent investigations by the Hampton Harbour Boat and Sailing Club have identified a potential marina design which will not require the relocation of the existing Waste Water Treatment Plant. Investigations to transfer land, and extend lease boundaries to accommodate the proposed marina, have commenced.



COMMUNITY FACILITIES

Dampier’s community facilities currently consist of a library, civic centre, a separate AFL oval and football (soccer) pitch, a high standard skate park, the Dampier Primary School, Dampier Playgroup, St Peter’s Catholic Church, and a police station.

The *Dampier Community Plan 2014-19* identifies the retention, regaining and development of additional local services and facilities. The *Dampier Community Hub Project* is the mechanism currently being used to achieve this outcome. The project includes the refurbishment of the existing community hall and playgroup, the development of additional child care and the development of community meeting areas.

The *Dampier Community Hub Project* will provide the community focus for the town and potentially stimulate development nearby. Consolidation of government services (the police station and fire station) into one development near the community hub is also highly encouraged. Construction of the project is underway and scheduled for completion in 2016.

The following key facilities are expected to be required based on the ratios set out in the City’s *Community Facilities Plan and Matrix (2011)* and forecast population growth out to 2031:

Community Facilities	Existing	Required by 2031	Anticipated Location	Commentary
Regional Open Space	-	-	-	Serviced by Karratha
District Open Space	1	-		Windy Ridge Oval sufficient for forecast growth
Neighbourhood Parks	2	-	-	Existing facilities sufficient for forecast growth
Local Parks	1	-	-	Existing higher level facilities sufficient for forecast growth
Skate Park	1	-	-	Existing facilities sufficient for forecast growth
Libraries	1	-	-	To be incorporated into Community Hub
Cultural Centre	-	-	-	Serviced by Karratha
Senior & Aged Care	-	-	-	Serviced by Karratha
Community Centres	2	-	-	Existing facilities to be enhanced (Dampier Hub)
Youth Centres	-	1	Coastal Village	To be collocated with the Community Hub
Family Support	3	-	-	Existing facilities sufficient for forecast growth
Community Health	-	-	-	Serviced by Karratha



OPEN SPACE

This Strategy recognises the *Windy Ridge Precinct*, as identified in the *Draft Revitalisation Strategy*, as the active playing fields within Dampier. In the longer term, the site is also identified for the investigation of indoor sports. In addition, the precinct incorporates a number of coastal amenities within its foreshore area, most notably the town boat ramp. This boat ramp is subject to a high level of use.

The *Hampton Park Precinct* is recognised as having significant value for both passive and active recreation. In addition to accommodating rectangular field sports, the precinct regularly accommodates a variety of community gatherings and festivals. Future consolidation of local sporting facilities (i.e. relocation of the Town’s Tennis Courts adjacent to the existing Bowls Club) is recommended.

PORT FACILITIES & INDUSTRY

Dampier Port is a major regional export port servicing the mining and resources industry in the Pilbara and offshore LNG operations, and facilitates the nationally significant export of iron ore, LNG and salt. The port and exporting activities are located immediately north east of Dampier town and to the west on East Intercourse Island port. Buffers relating to dust and rail movements involved in these operations form notable constraints to expansion of the Townsite.

MOVEMENT NETWORK

A Traffic Impact Assessment of the Town was undertaken by Riley Consulting in the preparation of the draft *Dampier Structure Plan*. The assessment identified the need for a number of intersection upgrades to facilitate compliance with *Liveable Neighbourhoods*, in addition to the desirability of a number of minor alterations to the *Coastal Village Precinct* movement network, aimed at improving permeability and legibility within the Town Centre.

A truck lay-over area (accessed via either Parker Point Road or East Intercourse Island Road) is proposed to address truck movement and parking concerns.

A drainage study has been undertaken to identify shortfalls in the drainage network which will inform the *Dampier Structure Plan*. The City is upgrading the culverts within Dampier road reserves to improve drainage function and ensure the existing road reserves do not erode as a result of malfunctioning culverts. .



5.3 Roebourne Overview

ROLE IN THE SETTLEMENT HIERARCHY

Roebourne is situated within the *Eastern Corridor* of settlements comprising Roebourne, Wickham, Cossack, and Point Samson. Roebourne has a significant history as a European settlement in the 1880’s. Roebourne is now a significant focus for Aboriginal people and provides an important centre of Aboriginal enterprise. Roebourne is home to a number of Aboriginal Corporation offices which provide services to the Indigenous communities within the City and broader region.

In terms of Roebourne’s role within the *Eastern Corridor*, the focus will be on facilitating the development of Roebourne in accordance with *Roebourne Structure Plan* (2014). Roebourne contributes to the industrial land supply of the *Eastern Corridor*.

POPULATION & DISTRIBUTION

Roebourne’s population is predicted to grow to around 1,082 residents by 2031.

Roebourne & Surrounds	Raw Population	Adjusted Population (excludes Outer Areas)	Dwelling Occupancy Rate (%)	Average Household Size	Total Dwellings Required	Additional Dwellings Required
2011	2,979	1,040	52.44	3.33	595	0
2016	3,224	976	52.46	2.96	629	34
2021	3,237	989	52.43	2.78	679	84
2026	3,266	1,018	52.57	2.69	721	126
2031	3,291	1,082	52.25	2.64	756	161

Source ID Forecast: August 2014



KEY CONSTRAINTS ON GROWTH

Roebourne is bounded to the east by the Harding River which is subject to infrequent flooding. The Harding River is also affected by major storm surge events. Flooding and storm surge modelling highlights parts of Roebourne should not be developed and areas where mitigation measures should be incorporated into development proposals. Steep ridge lines west of townsite also pose significant limitations to future expansion.

RESIDENTIAL GROWTH (URBAN EXPANSION AREAS)

The *Roebourne Structure Plan* (2014) identifies the potential for an additional 305 dwellings on both existing vacant (161) and under developed sites (144). This Strategy supports the recommendations of the *Roebourne Structure Plan* and identifies Development Investigation and Urban Expansion Areas accordingly.

Based on a reduced average household size of 2.64 by 2031 (as identified above by ID Forecast), there is capacity for an additional 805 people (or 1,015 people based on Roebourne’s current average of 3.33 people/dwelling).

It is unlikely that there will be a demand for additional residential land beyond that identified, within the next 20 years. Given the low population growth forecast for Roebourne current zoned land is considered sufficient to meet demand.

The *Roebourne Structure Plan* advocates a program of renewal over the existing urban area required to be sensitive to buildings of cultural heritage significance in and around the Town Centre. The Ngarluma Aboriginal Sustainable Housing (NASH) project is the only Urban Expansion Area identified on the Strategy Plan to cater for population growth in Roebourne, as shown in the table below:

Roebourne Strategic Plan				
UEA #	Name	Approx. Area (ha)	Lot Yield	Dwelling Yield
1	NASH	15	300	400

DEVELOPMENT INVESTIGATION AREAS

Notwithstanding the above, the *Roebourne Structure Plan* establishes a framework for the staged release of additional residential land in Roebourne, with Future Urban areas (unconstrained by the Harding River floodplain) identified on the northern and western peripheries of the settlement. The potential for a limited number of large lots or semi-rural lots on the east side of the Harding River is also identified.

Expansion into the south-western area identified on the *Roebourne Structure Plan* is unlikely to occur for a considerable period unless demand for large residential lots can be established. The potential of this land requires further investigation as it relates to the management of potential contamination (asbestos). These areas are identified as *Development Investigation Areas* on the Strategy Plan (see table below).

Roebourne Strategic Plan		
DIA #	Name	Approx. Area (ha)
1	West of Water Pipeline (Urban)	6
2	Back of Mount Welcome (special residential)	14
3	Corner of Point Samson – Roebourne Road & Hwy (Service Commercial)	4

TOWN CENTRE

Being the only settlement located directly on the North West Coastal Highway route, Roebourne acts as a service centre to passing traffic. Despite this role, Roebourne presently has very limited commercial and retail offering, with approximately 1,350m² of gross lettable retail floor area of which the general store encompasses some 780m².

Future need, based on forecasted population growth out to 2031, is as follows:

Additional Commercial Floorspace Required (m²)	2009 (Survey)	2016	2021	2026	2031
Retail Floorspace (*Assumes Current Provision Sufficient)	41,000	677	680	686	691
Bulky Goods Floorspace	*	290	291	294	296

* Data not available

The *Structure Plan* promotes the *Roebourne Centre Precinct* as the principal retail, commercial and community services hub for Roebourne, with Wellard Street to form an intimate scale main street featuring the primary retail and commercial offerings. Key re-development opportunities expected to encourage a stronger economy and community include:

- Roebourne Cultural Centre –Cultural Performance Area
- NAC Community Centre – Focus of Community Development
- Victoria Hotel – Key Commercial, Hotel & Tourist Accommodation
- Key sites in Roe and Padbury Street – Mixed Use Development
- General Store – Nucleus of Retail Functions
- Yaandina Centre – Indigenous Services

SERVICE COMMERCIAL

A *Commercial Precinct* is also identified at the corner of North West Coastal Highway and Roebourne-Point Samson Road. Development within this precinct is expected to be constrained to light industrial uses and associated commercial uses that do not compete with the existing retail centre, such as motor vehicle accessories, tyre store or car wash services.

This precinct is expected to form a transition zone to more intensive industrial activity further north. The timing of this development is likely to be influenced by the fluctuations in the resources industries.

MIXED USE

Mixed Use development is encouraged throughout the *Roebourne Centre Precinct*, with an initial focus on Padbury Street, where development will be encouraged to maintain an activated street level while providing office space on first levels and above.

TOURISM

Tourism land uses are encouraged within the *Heritage Precinct* located at the southern edge of town, which includes a large number of historic buildings dating back to European settlement in the 1880’s.

The potential for development of low key tourist accommodation is also recognised in the *Roebourne Structure Plan* within the existing caravan park to the east of the town. Due to the high risk of inundation, damage and temporary isolation as a result of riverine flooding, development potential is limited to that which is temporary and relocatable, with an Emergency Management Plan regarded as an essential component of any development proposal for this land.

OPEN SPACE

Mount Welcome is the dominant land feature in the locality. It is a regional landmark and is worthy of protection.

There is currently limited provision of open space within the built-up areas of the Roebourne townsite, with the function of a number of existing reserves being dominated by water management requirements. A program of gradual enhancement of the open space and recreational values of the Harding River is recommended by the *Roebourne Townsite Structure Plan* including the provision of seating, shade and other facilities.

COMMUNITY FACILITIES

Centred on the school and key recreational facilities in town, the *Community and Education Precinct* will provide for Roebourne’s leisure and educational services which enhance opportunities to foster life and artistic skills, encouraging traditional, contemporary and cultural activities.

The following key facilities are expected to be required based on the ratios set out in the City’s *Community Facilities Plan and Matrix (2011)* and forecast population growth out to 2031:

Community Facilities	Existing	Required by 2031	Anticipated Location	Commentary
Regional Open Space	-	-	-	Service by Wickham
District Open Space	1	-	-	Existing facilities sufficient for forecast growth
Neighbourhood Parks	2	-	-	Existing facilities sufficient for forecast growth
Local Parks	1	-	-	Existing facilities sufficient for forecast growth
Skate Park	-	1	Community & Education Precinct	New Facility
Libraries	1	-	-	Existing facilities sufficient for forecast growth
Cultural Centre	-	1	Community & Education Precinct	New Sub-District Level Facility
Senior & Aged Care	1	-	-	Existing facilities sufficient for forecast growth
Community Centres	1	-	-	Existing facilities to be enhanced.
Youth Centres	2	-	-	Existing facilities sufficient for forecast growth
Family Support	1	1	Community & Education Precinct	New Playgroup Facility
Community Health	1	-	-	Existing facilities sufficient for forecast growth

The *Recreation Sub-Precinct* is a City-led, ten year re-development program over three sites. This project will feature sports and leisure amenities with the aquatic centre, kiosk, community outdoor kitchens, meandering interactive skatescape, community hall and meeting rooms.

The important and emerging role of Aboriginal Corporations in community development and cultural awareness are captured in developments such as the Roebourne Cultural Centre and the Ngarluma Community Centre.

Due in part, to there being a high indigenous population in the *Eastern Corridor* needing preventative health care, it is important that sub-district health centres such as the Mawankarra Health Centre be retained (and where possible enhanced), rather than these services being diminished or absorbed within the *Karratha Heath Campus*..

INDUSTRY

The rezoning of the existing Mixed Business development to an Industry Zone will allow development of a more intensive nature within what is referred to as the *Industry Precinct* is supported. This area is expected to service the mining industry as well as logistics, mechanical and other light industries related to the residential needs of Roebourne.

Expansion of this area westward, where it will form a compatible use within the 500m buffer of the waste water treatment plant is also supported. Such expansion will need to be designed in such a way as to manage drainage from local catchment runoff.

Roebourne Strategic Plan		
IEA #	Name	Approx. Area (ha)
1	West of Existing Mixed Business Area	16

TRANSIENT WORKFORCE ACCOMMODATION

The *Roebourne Structure Plan* specifically recommends that no further residential development, including TWA camps, be permitted within either the *Commercial Precinct* or the *Industry Precinct*.

This Strategy considers Roebourne town as unsuitable for further TWA camp development and recommends TWA proposals not be supported within the townsite boundary of Roebourne.

MOVEMENT NETWORK

The movement network is a critical component of the *Roebourne Structure Plan*. Key improvements include construction of a southern ‘truck-only’ bypass to reduce heavy vehicle traffic through the settlement. This initiative would only be triggered by significant traffic increases along this section of North West Coastal Highway.

It is also recommended that consideration be given to the realignment of the North West Coastal Highway around the Education and Recreation Precinct, so as to free-up space, and negate potential expansion of those facilities on the northern side of the road. A number of intersection upgrades are also recommended, as well as the establishment of a heavy vehicle breakdown area, possibly at the junction of the heavy vehicle diversion route to the west of town.

Foremost is the need to focus on the provision of a safe and connected environment for pedestrians. This will require the formalisation of a number of important informal pathways through and around the town. The formal construction of these pedestrian links will improve the linkages between residential areas, services, the town centre and the river. The *Roebourne Structure Plan* suggests these pathways be formalised incorporating shade, lighting, seating and signage.

5.4 Wickham Overview

ROLE IN THE SETTLEMENT HIERARCHY

Wickham is a major town within the *Eastern Corridor* and is the largest settlement in the City outside of Karratha. The primary role of the settlement is to provide accommodation and facilities to support Rio Tinto’s iron ore processing and shipping operations at Cape Lambert.

This Strategy recognises the role of Wickham as a mining town servicing the needs of the resource sector and also providing local community and commercial facilities to Point Samson and Cossack.

Reflective of its higher population base which is growing at a relatively high rate, Wickham will provide the main retail facilities servicing the *Eastern Corridor* population.

POPULATION & DISTRIBUTION

Forecast ID predict the population of Wickham (exclusive of FIFO) will grow to around 3,347 residents by 2031.

Wickham & Pt. Samson	Raw Population	Adjusted Population (excl. FIFO)	Dwelling Occupancy Rate (%)	Average Household Size	Total Dwellings Required	Additional Dwellings Required
2011	2,336	1,995	62.84	3.11	1,020	0
2016	3,004	2,351	62.94	2.98	1,252	232
2021	3,127	1,805	62.93	2.97	1,322	302
2026	3,332	2,679	62.90	2.95	1,442	422
2031	3,347	2,694	62.86	2.93	1,462	442

Source ID Forecast: August 2014



Wickham Townsite Aerial (2012)

KEY CONSTRAINTS ON GROWTH

Rio Tinto is the dominant landowner (Crown Land under Special Lease) and the primary infrastructure provider. As a result Wickham’s growth is closely tied to the expansion of Rio Tinto’s Cape Lambert operations.

The surrounding topography, road and rail infrastructure physically constrain growth of Wickham beyond the existing areas identified for urban development.

RESIDENTIAL GROWTH (URBAN EXPANSION AREAS)

This Strategy notes that Wickham has considerable capacity for urban expansion to the south as identified by the framework established within the *Wickham Townsite Structure Plan (2011)* and the *Wickham South Development Plan (2011)*.

Residential consolidation opportunities are also identified for central Wickham (generally along Wickham Drive and south of the Town Centre). Central Wickham and Wickham South will accommodate the anticipated level of growth out to 2031. The Urban Expansion Areas identified on the Wickham Strategy Plan are listed below:

Wickham Strategic Plan		
UEA #	Name	Approx. Area (ha)
1	Wickham South	68
2	Saltbush	1
3	Cajuput Way	2
4	Wickham Lodge	3
5	Surplus Drainage Reserve	3
6	Carse Street and UCL	8

DEVELOPMENT INVESTIGATION AREAS

Longer term population growth may be accommodated within undeveloped zoned land to the north of Wickham. The potential of this area has been identified as a Development Investigation Area.

The development of the northern area may be constrained by servicing and proximity to recently upgraded rail facilities. This area has therefore been identified as a *Development Investigation Area* to allow for further consideration of the extent of suitable land for any long term expansion.

A portion of Wickham North has been identified on the *Wickham Structure Plan* for future urban and town centre uses which includes medium density residential. These areas have been identified on the Wickham Strategy Plan as *Development Investigation Areas* as outlined below:

Wickham Strategic Plan		
DIA #	Name	Approx. Area (ha)
1	Wickham North (Urban)	43
2	Town Centre & Urban/Medium Density Residential	6

TOWN CENTRE

Despite having the greatest amount of gross lettable retail floor area outside the Karratha City Centre, Wickham’s current offering is relatively modest at 2,600m² GLA. This includes a small shopping complex with a Woolworths supermarket, liquor store, pharmacy, snack bar, newsagency and post office.

Future need, based on forecasted population growth out to 2031, is as follows:

Additional Commercial Floorspace Required (m²) (Wickham & Pt. Samson)	2009 (Survey)	2016	2021	2026	2031
Retail Floorspace	3,800	1,481	1,507	1,550	1,555
Bulky Goods Floorspace	N/A	270	282	300	301

Wickham has a well located central community land use pattern, however it is currently underutilised. The *Wickham Structure Plan* proposes to revitalise the Town Centre area to meet the needs of its growing population. In doing so it is also expected that the Town Centre will diversify the offering of local services for the greater *Eastern Corridor*.

Consolidation of the Town Centre area will also facilitate the revitalisation of community elements associated with the town by providing an important community hub and meeting place. The *Wickham Structure Plan* emphasises connectivity to the Town Centre in order to facilitate ease of access and encourage the local population to frequent community areas.

There is a development site on unconstrained land at the entry to town. This high exposure site may provide an opportunity to new business and improve the entry to town.

MIXED USE

Mixed Use development is encouraged within the Town Centre, particularly in the eastern sector. The eastern sector is where the introduction of medium to high density residential and mixed uses is recommended.

TRANSIENT WORKFORCE ACCOMMODATION

High quality, operational FIFO facilities have recently been constructed at the western end of the Town along Wickham Drive and on the other side of Wickham Drive on Cajuput Way.

The City’s preference is that as much as possible Wickham’s residents are in the town on a permanent basis forming part of an active local community.

OPEN SPACE

Areas suitable for additional open space and drainage are identified on the *Structure Plan*. Drainage has generally been depicted along the main access streets which run in a north-south direction. Areas of local open space are generally located centrally within residential population catchments in order to maximise the accessibility of POS to residents (400m walkable catchments).

COMMUNITY FACILITIES

The City is currently in the process of planning a new community facility on Wickham Drive. In combination with the Wickham recreation centre, this expanded community hub will be able to service the Town’s growing population needs.

The following key facilities are expected to be required based on the ratios set out in the City’s *Community Facilities Plan and Matrix (2011)* and forecast population growth out to 2031:

Community Facilities	Existing	Required by 2031	Anticipated Location	Commentary
Regional Open Space	1	-	-	Wickham Sporting Complex sufficient for forecast growth
District Open Space	3	-		Existing facilities sufficient for forecast growth
Neighbourhood Parks	2	-	-	Existing facilities sufficient for forecast growth
Local Parks	-	-	-	Existing higher level facilities sufficient for forecast growth
Skate Park	1	-	-	Existing facilities sufficient for forecast growth
Boat Ramps	-	-	-	Nearby Port Walcott, Balla Balla & Point Samson facilities sufficient for forecast growth.
Libraries	1	-	-	To be incorporated into Community Hub
Cultural Centre	-	-	-	Serviced by Roebourne
Senior & Aged Care	-	1	Co-located with Community Centre	New Sub-District Level Facility
Community Centres	3	-	-	Existing facilities to be enhanced.
Youth Centres	1	-	-	Existing facilities sufficient for forecast growth
Family Support	3	1	Incorporated in Community Centre/Hub	New Playgroup Facility
Community Health	1	-	-	Existing facilities sufficient for forecast growth

The *Structure Plan* also identifies the potential to undertake redevelopment of the land previously occupied by the Wickham Medical Centre. A new medical centre is now proposed to form part of the planned Community Hub which will release the medical centre site for other Town Centre and urban uses in the future.

Population allocations for the *Eastern Corridor* have been based upon the creation of a population catchment sufficient to support a secondary school. The existing primary school site is capable of expansion as population growth occurs. The High School is no longer operational and the building is currently being used for a variety of temporary community uses, including the City’s library and playgroup. These uses will be accommodated in the new Community Hub.

The Wickham Community Hub is proposed to include:

- New public Library;
- Early learning centre;
- Multipurpose meeting rooms;
- Not-for-profit and community spaces;
- Refurbished community hall;
- Landscaped courtyard;
- Youth Centre and external space; and
- Skate park.

PORT FACILITIES

Expansion of production out of Cape Lambert augers well for continued growth and improvements, in particular the creation of a greater number and wider provision of accommodation and recreational facilities.

It should be noted that the State Government’s recent decision to approve the development of a new deepwater port and associated mining and industrial precincts at Anketell will have a significant influence within the City. It is the City’s preference that direct connection to Anketell be provided from Karratha rather than Wickham.

Anketell Port is currently being planned as a deep-water, multi-user port capable of exporting in excess of 350 million tonnes of iron ore per annum, with provision for the export of other bulk commodities and importation of fuel and general cargo.



INDUSTRY

Industrial uses are predominantly located at Cape Lambert approximately 10 kilometres north of Wickham. Demand and scope exists to expand the light industry area north east of town, which has a distinct function from the Karratha and Gap Ridge industrial estates, providing local services and employment for the broader *Eastern Corridor*. It is noted that expanding the Wickham Light Industry area will take considerable time and resources to make available.

It is noted that the State Government’s recent decision to approve the development of the Anketell Improvement Plan will influence the provision of Industrial land in the Eastern Corridor, particularly Industrial land suitable for General Industry.

MOVEMENT NETWORK

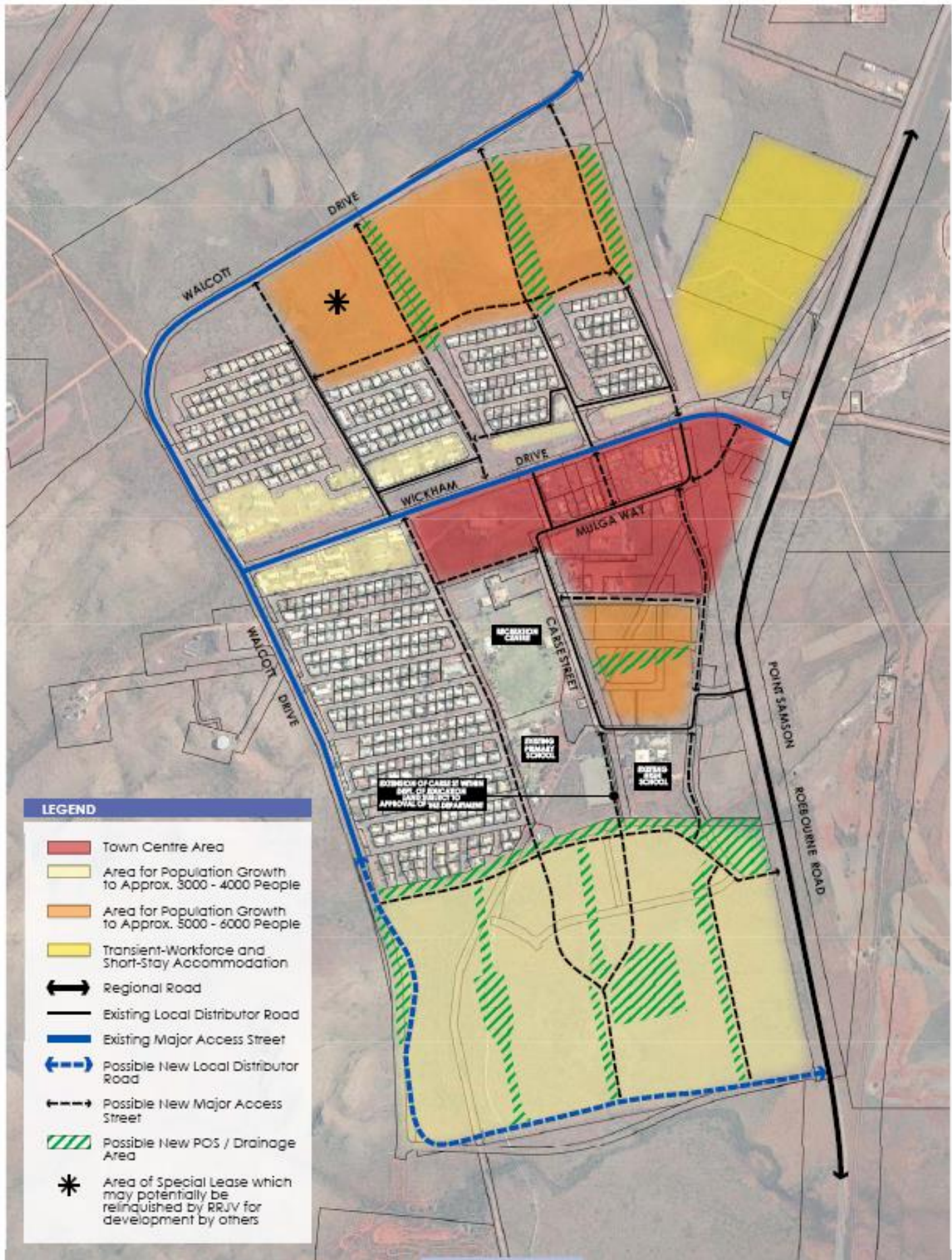
The *Wickham Structure Plan* depicts the location of future possible local distributor roads and major local access streets in a grid layout. This layout is generally based upon a north-south and east-west alignment which is advantageous for solar orientation.

The grid configuration provides for ease of access to the Town Centre Area, primary recreation area and the regional road network. The road network is well integrated with existing constructed roads which generally return to Wickham Drive at the heart of the town. The broader road network takes into consideration existing constraints and reacts accordingly to natural aspects, such as topography.

A more attractive street environment is another important aspect of revitalising the town, with soft landscaping, pedestrian paths, street parking embayments, road carriageway realignments all promoted within the *Wickham Structure Plan*.

The City has initiated a street and tree landscape project to improve the amenity of the street network of Wickham. This project will commence in 2015 and be completed in 2016.





Wickham Townsite Structure Plan (2011)



Wickham Town Centre Revitalisation Master Plan (2011)



Wickham South Development Plan (2011)

5.5 Point Samson Overview

ROLE IN THE SETTLEMENT HIERARCHY

With a current resident population in the order of 300 people Point Samson is a popular tourist destination, offering quality fishing and swimming spots, along with a variety of accommodation options and restaurants for locals and tourists. Point Samson is known for its ‘coastal lifestyle’ with a significant focus on the coastal environment and marine recreation.

This Strategy recognises the role of Point Samson as a coastal tourist node providing lifestyle, residential living and tourist accommodation for the West Pilbara region. In terms of its role within the *Eastern Corridor*, the focus of Point Samson is as a coastal tourism and fishing village with potential for growth and development once infrastructure constraints are overcome.

POPULATION & DISTRIBUTION

The draft *Point Samson Structure Plan* (2015) provides the broad planning framework for a small coastal settlement capable of accommodating a population of approximately 500 people, with the potential of accommodating up to 1,000 people, in a planned and staged manner.

The key objective of the draft *Point Samson Structure Plan* is to facilitate the development of Point Samson as a sustainable tourist node and enable additional residential land release. The development of the Town Centre with a coastal aspect and the retention of the ‘fishing village’ atmosphere of Point Samson are relevant considerations.



Point Samson Aerial (2012)

Pt. Samson	Raw Population	Dwelling Occupancy Rate (%)	Average Household Size	Total Dwellings Required	Additional Dwellings Required
2011	298	62.84	3.11	95	0
2016	310	62.94	2.98	104	9
2021	326	62.93	2.97	110	15
2026	390	62.90	2.95	131	36
2031	500	62.86	2.93	171	76

KEY CONSTRAINTS ON GROWTH

The future growth potential of Point Samson is heavily constrained by infrastructure capacity and the risk of storm surge and inundation.

The draft *Point Samson Structure Plan* notes that Point Samson is supplied with potable water via a gravity-fed main from a storage facility nine kilometres away at Wickham. An upgrade to this main is critical in providing additional capacity to serve Point Samson as the network is presently at capacity.

Wastewater service provision is hampered by proximity to sensitive receiving environments. This includes coastal areas in the north east, mangrove forests in the south west, site specific geology (potential presence of rock in some central and western areas), and hydrogeology constraints (achieving separation to groundwater).

The draft *Point Samson Structure Plan* concludes that installation and operation of a reticulated waste water system is not viable. Current practices of disposing waste water onsite in compliance with Department of Health requirements are anticipated to continue which has implications for the development potential of future growth areas. It is recommended that consideration be given to innovative ways of disposing of treated wastewater for prime town centre and tourism sites to enable their full development potential to be realised.

The power supply for Point Samson currently comes from the Cape Lambert sub-station which has a capacity of 1.5 MVA. The current summer peak load reaches 1.2 MVA. On this basis, power supply is adequate at present and there is some spare capacity to accommodate moderate growth. An upgrade of infrastructure is required to accommodate new development areas.

TOWN CENTRE

Point Samson has a small commercial precinct at Bartley Court, incorporating a general store, restaurant and tavern with a collective gross lettable retail floor area of around 1,200m².

Point Samson’s commercial and retail offering is anticipated to be limited in the short to medium term. Limited growth targeting local convenience and tourist needs is envisaged. Residents are expected to continue travelling to Wickham for services not provided in Point Samson, and to Karratha for needs not serviced locally.

A Commercial & Retail Property Analysis undertaken on behalf of the City by Imani Developments in late 2013 recommends that should a viable retail business case be presented by a prospective investor that this be given full consideration as it would strengthen the community.

TOURISM

Point Samson is a popular tourism and holiday destination with a range of accommodation options from camping and caravan parks, to boutique bed and breakfasts, holiday homes and a four-star resort. It has an attractive coastline, including quality fishing and swimming spots such as Town Beach and Honeymoon Cove.

Located south of the town centre, John’s Creek Boat Harbour serves the local commercial fishing industry as well as providing launching facilities for recreational boating. This Strategy promotes the expansion of the harbour to create a marina with an emphasis on the integration of tourism and recreation activities development (in particular Marine recreation tourism).

HARBOUR

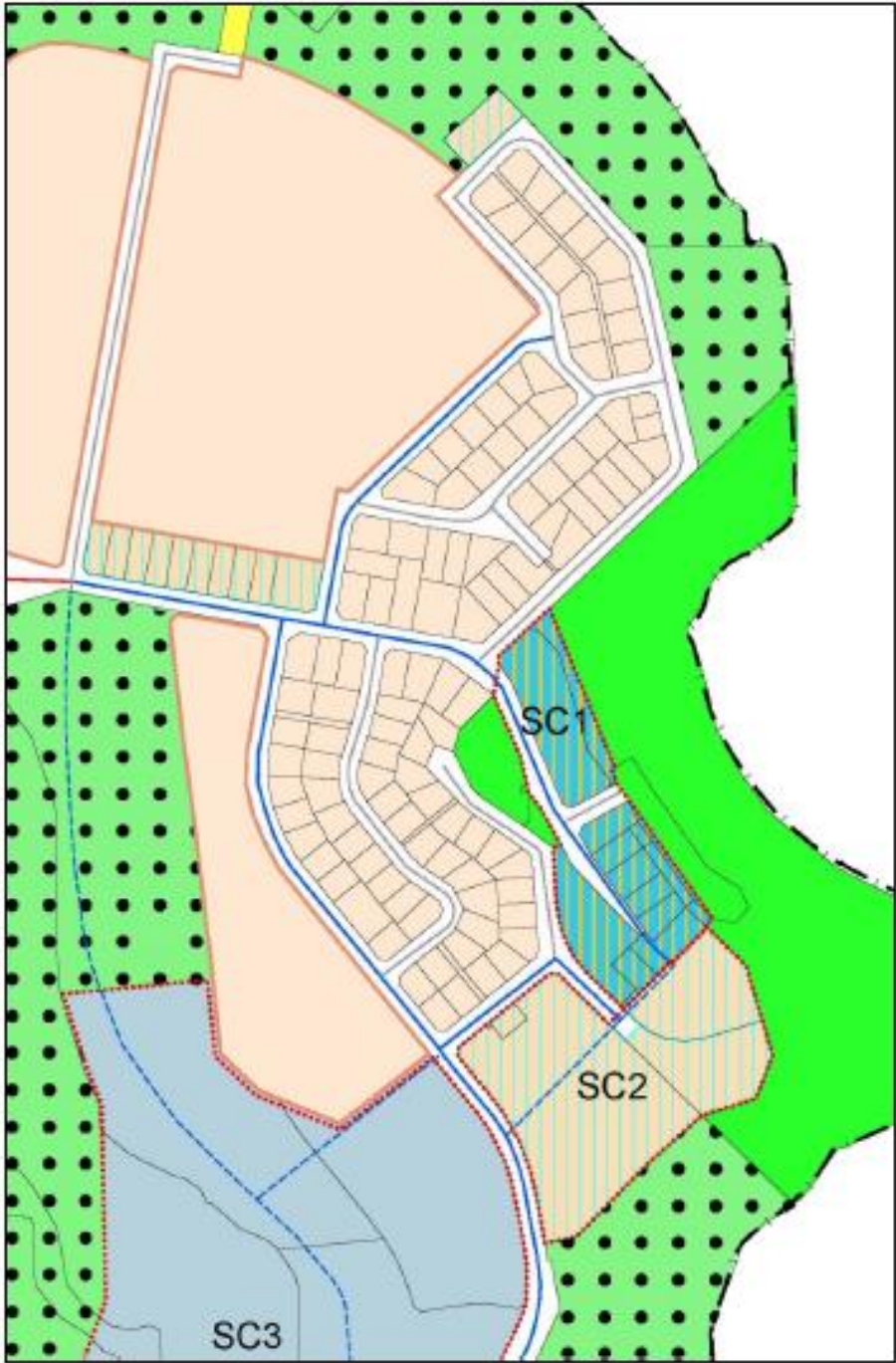
A Harbour zone is proposed over the area currently zoned Industry within Town Planning Scheme No.8. The proposed Harbour zone is intended to accommodate existing uses within the area whilst recognising the opportunity for the harbour and its surrounding area to accommodate growth in tourism and recreational uses.

SPECIAL CONTROL AREAS

Three Special Control Areas have been identified within Point Samson. The three Special Control Areas correspond to the boundaries of the town centre zone, the tourism zone, and the harbour zone.

Under TPS8, if a Special Control Area is shown on the Scheme Maps, the provisions of the Special Control Area apply. The inclusion of the proposed Special Control Areas into TPS8 will necessitate the preparation of a Development Plan (Local Structure Plan) demonstrating a co-ordinated approach to development prior to subdivision or development.

It is noted that TPS8 allows Council to make recommendation on subdivision proposals and to approve the development of land prior to a Development Plan coming into effect if it is satisfied that this will not prejudice future development.



RESIDENTIAL GROWTH

The dominant land use in Point Samson will remain residential with tourism accommodation i.e. short stay accommodation, becoming an increasingly important land use activity. This Strategy recognises the importance of retaining Point Samson’s coastal fishing village character which should be enhanced into the future.

This Strategy identifies approximately 43 hectares of land west of the existing residential areas for future urban development. As previously identified, there are considerable constraints to development which will need to be addressed however ample land has been identified for feasibility analysis.

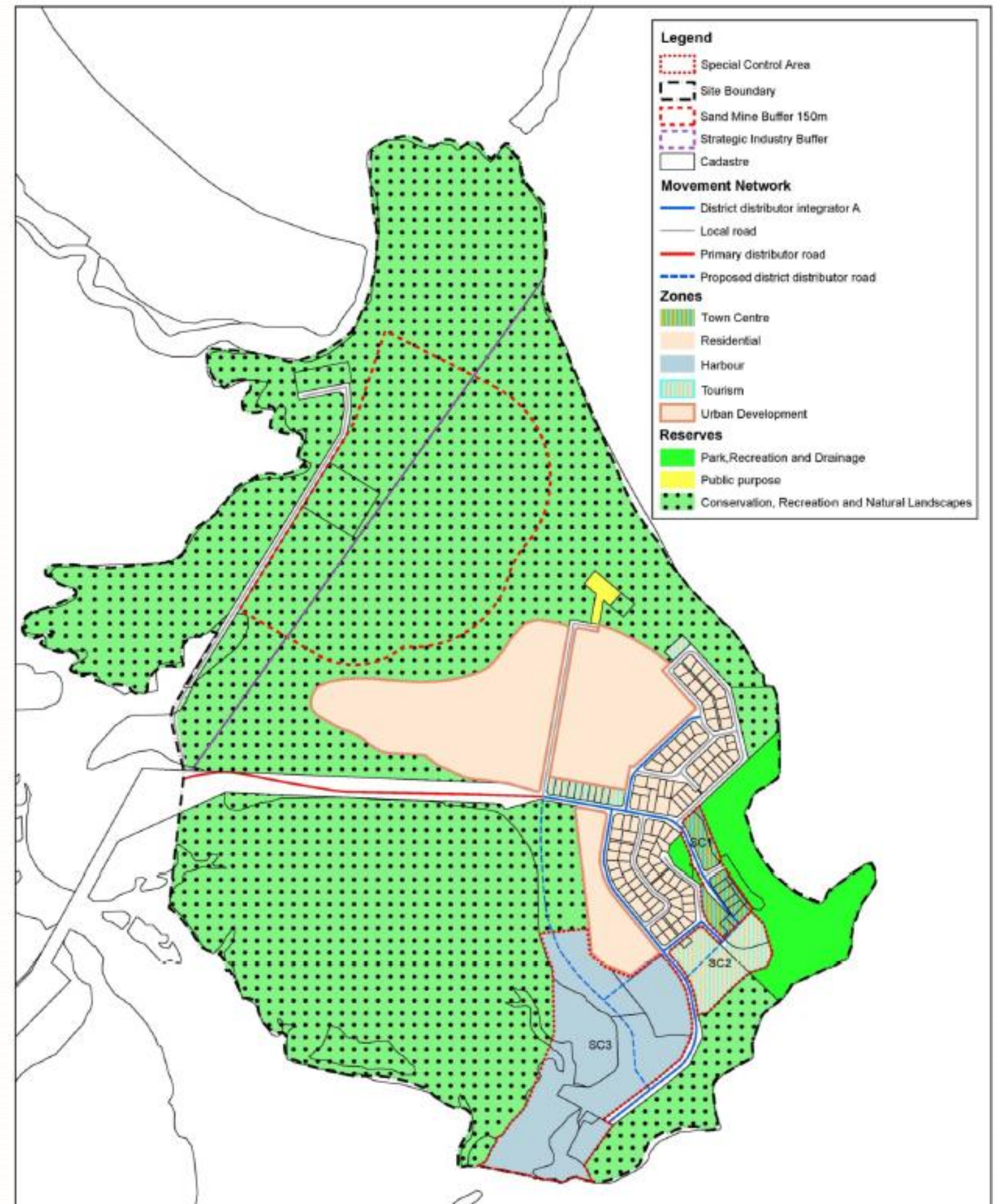
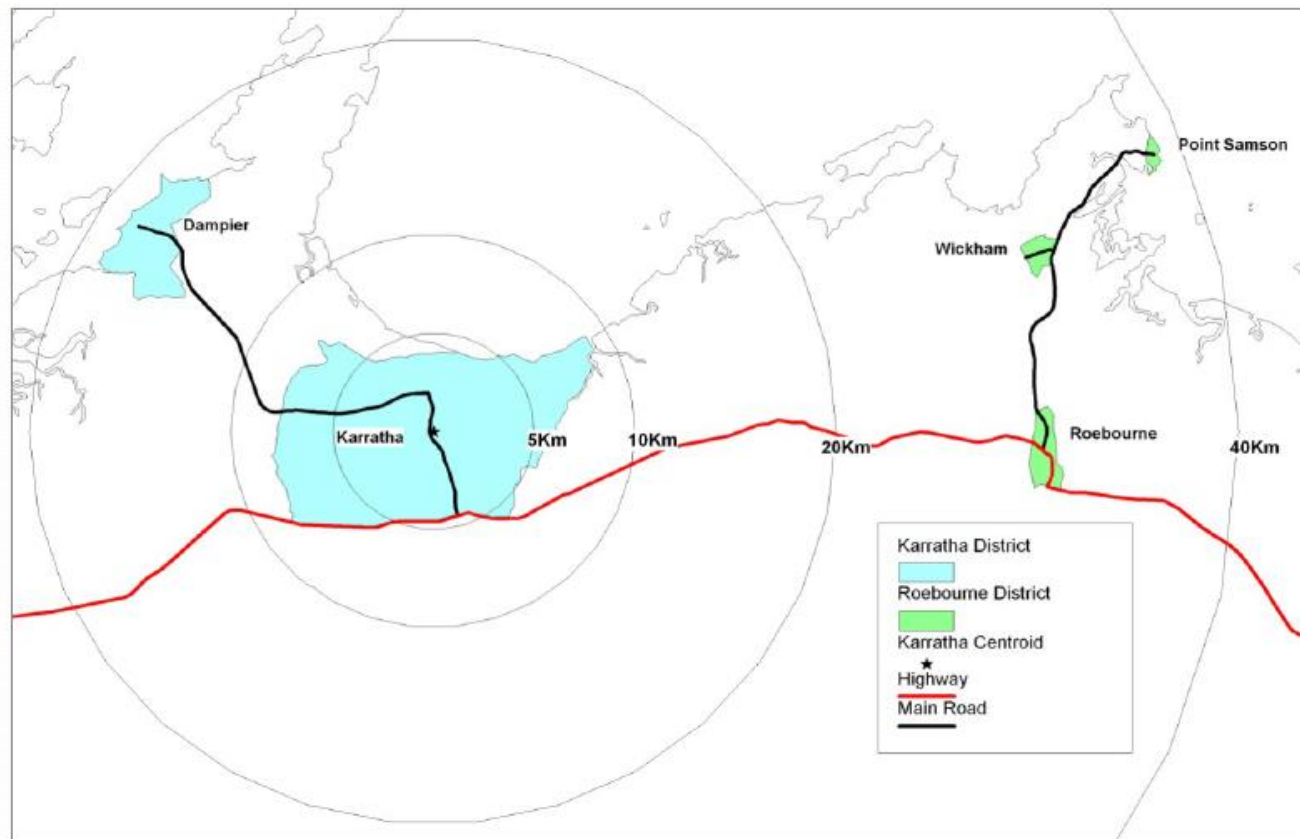
COMMUNITY FACILITIES

Point Samson is characterised by minimal community facilities and public open space. The Point Samson Community Hall is the primary community facility, located within the Town Centre zone.

Due to the small population, continued reliance by residents on Wickham for community services and facilities is expected to continue, as detailed below:

Community Facilities	Existing	Required by 2031	Anticipated Location	Commentary
Regional Open Space	-	-	-	Serviced by Wickham
District Open Space	-	-		Serviced by Wickham & Roebourne
Neighbourhood Parks	1	-	-	Existing facilities sufficient for forecast growth
Local Parks	1	-	-	Existing facilities sufficient for forecast growth
Skate Park	1	-	-	Existing facilities sufficient for forecast growth
Boat Ramps	2	-	-	Existing facilities sufficient for forecast growth
Libraries	-	-	-	Neighbourhood Facility provided in Wickham
Cultural Centre	-	-	-	Serviced by Roebourne
Senior & Aged Care	-	-	-	Serviced by Wickham
Community Centres	1	-	-	Serviced by Wickham
Youth Centres	-	-	-	Serviced by Wickham
Family Support	-	-	-	Serviced by Wickham
Community Health	-	-	-	Serviced by Wickham





5.6 Cossack Overview

ROLE IN THE SETTLEMENT HIERARCHY

The historic port town of Cossack, formerly known as Tien Tsin Harbour, is a small historic settlement at the mouth of the Harding River that is still a popular recreation destination. Established in 1872 the port was the first in the North West, providing the point of access for settlement of the Pilbara.

During the period from 1866 to the late 1890’s several substantial public and private commercial buildings were erected which today form the current Cossack ‘Historic Precinct. Though the town itself failed to flourish due to devastation by two separate cyclones, several significant heritage buildings exist. These buildings accommodate an art gallery, hospitality and craft centre uses.

Aboriginal cultural heritage is strong in Cossack with surrounding lands containing identified shell midden sites, rock art, and other evidence of the continued cultural association of the Ngarluma people within this unique landscape, over a significant period.

The remnant civic buildings of Cossack are important references to its rich, layered history, relating to its pearling, agricultural, merchant and industrial past. This history gives Cossack a unique character that cannot be replicated.

The character of Cossack substantially informs its role within the City’s settlement hierarchy. This Strategy recognises the role of Cossack as an attractive historic townsite with well restored heritage buildings providing unique tourism opportunities. The potential for tourism opportunities is being captured by the *Cossack Visioning Document* (2014) and is being further investigated through the preparation of the draft *Cossack Development Guidelines* (2015).

KEY CONSTRAINTS ON GROWTH

Cossack is heavily constrained by its low lying coastal environment. Cossack is subject to significant inundation and extensive areas of steep topography. As such, there is no future population growth planned for this historic settlement. Tourism development which is sensitive to environmental heritage character and visual amenity considerations may be appropriate.

TOURISM

Cossack is a secluded hamlet capable of offering a broad range of tourism experiences to promote and enhance the natural, cultural and recreational values, taking advantage of the settlement’s unique history and character of the place.

In addition to serving as a day-tourist destination, the townsite also hosts the Cossack Art Awards, recognised as the largest art event in regional Australia and as the most isolated acquisitive art exhibition in the world.

Potential development considered for Cossack must be sensitive to the unique heritage character of the townsite. Additional use and development at Cossack would increase visitor and event opportunities, which in turn would help to preserve and enhance heritage town buildings and infrastructure.

DEVELOPMENT INVESTIGATION AREAS

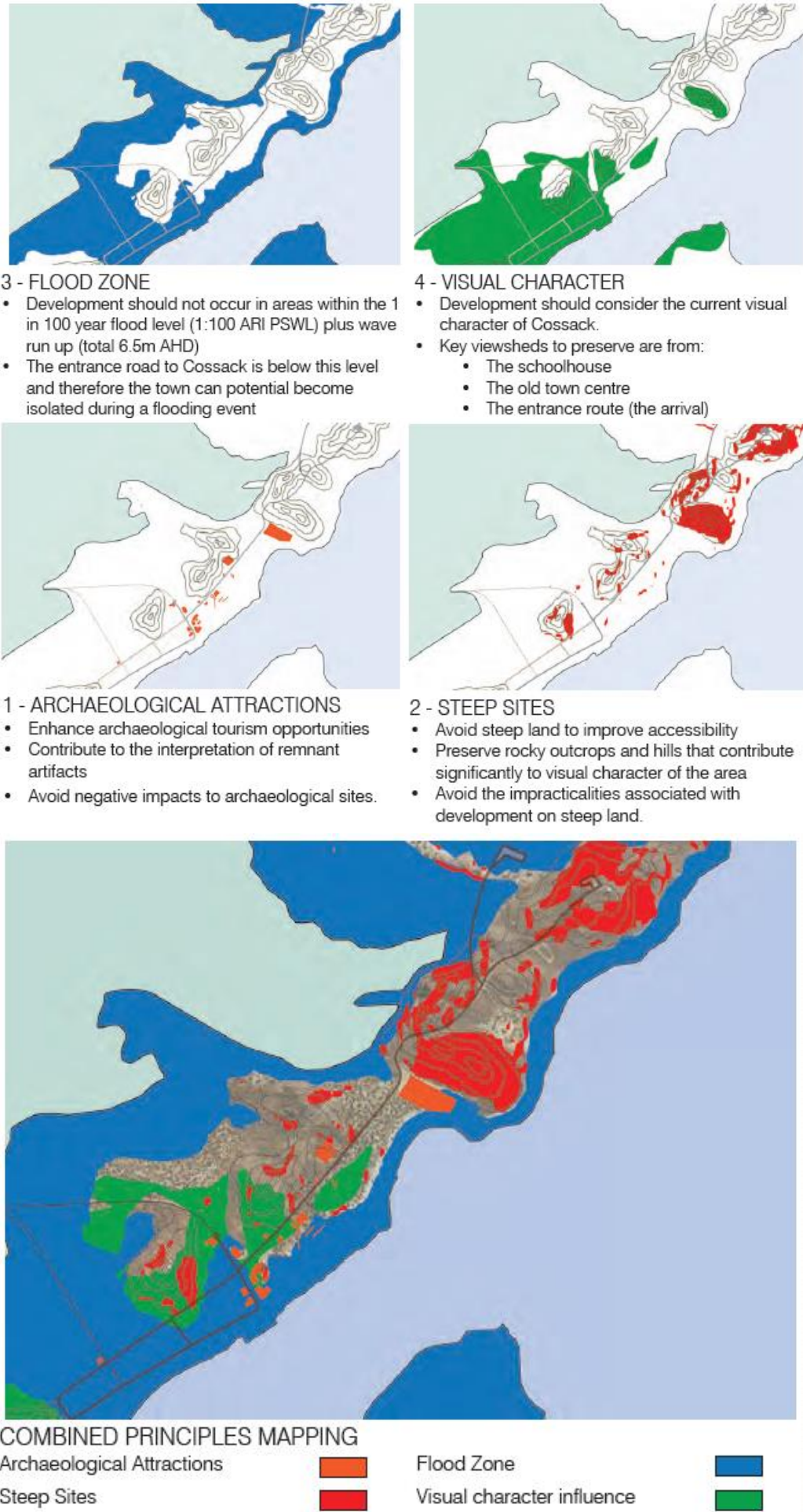
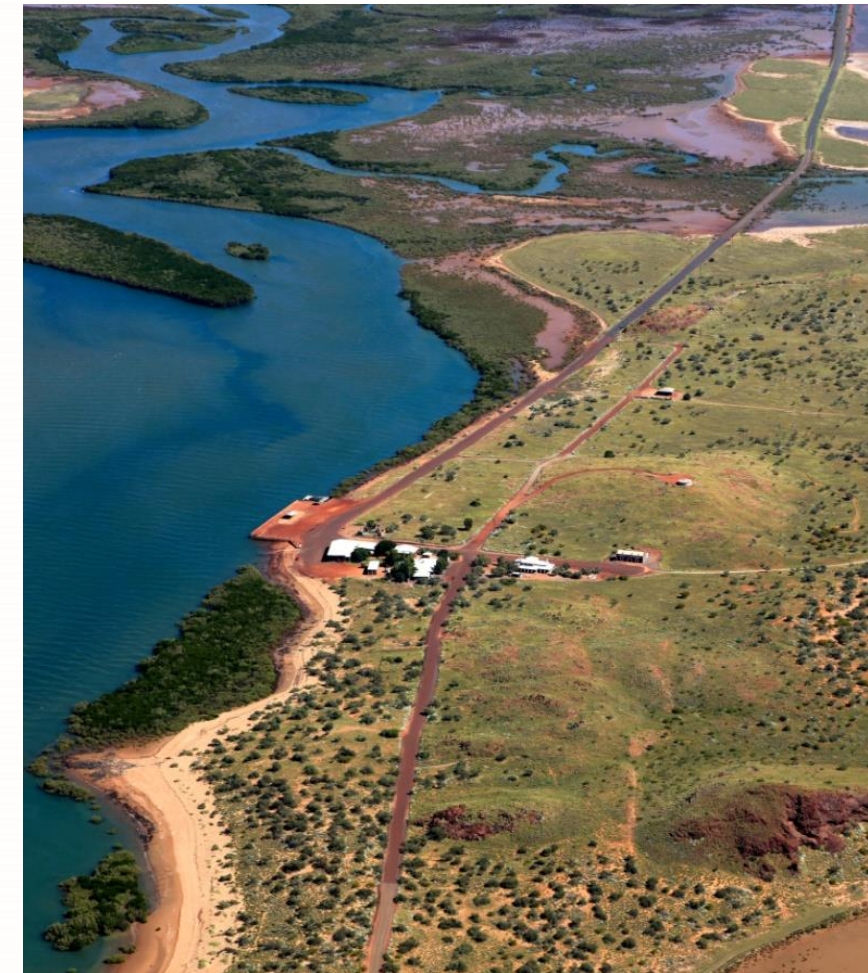
A ‘place’ responsive development approach is considered necessary to afford a feasible, environmentally sensitive, and socially-rich experience. The *Cossack Visioning Study* (2014) investigates options to ensure the long-term maintenance of the existing historical value and character of the town, whilst providing more of a tourist draw-card for the region that is economically viable and sustainable.

In June 2014 the *Cossack Advisory Group* (CAG) resolved to support a vision with multiple accommodation options including shack-like cabins that reinstate the character of the past in the town centre and concealed camping and high end glamour camping or “Glamping”.

Further detailed guidance on the form of accommodation options is set out in the draft *Cossack Design Guidelines* project. These guidelines will shape the form and function of future development at Cossack with the aim of capitalising on the appeal of Cossack as a low-key tourist destination.

It is noted that close consultation with the Department of Lands, Department of Planning, and the Heritage Council WA will be required to realise the vision of Cossack.

The application of a Tourism and Recreational Development Zone over Cossack and the requirement for the preparation of a Development Plan (Local Structure Plan) is considered appropriate in the context of the tourism and recreation focus of the settlement.



5.7 Minor Settlements and Aboriginal Communities

The remaining settlements within the City are expected to maintain current population levels or reduce in size with relocation of residents to permanent settlements. The role played by each of these minor settlements is briefly discussed below.

WHIM CREEK

The historic mining settlement of Whim Creek is now represented by the Whim Creek Hotel which acts as a convenient stop for people travelling between Karratha and Port Hedland. The Whim Creek Hotel has recently been reopened by the Ngarluma and Yindjibarndi Foundation Limited. Opportunities exist to develop and enhance the Whim Creek Hotel as a small tourist node. Potential land uses include tourist accommodation, a function centre, a service station and interpretative tours of nearby areas.

FORTESCUE RIVER

There are two activity nodes on the Fortescue River. The first is the existing roadhouse (comprising accommodation and a workers camp) on North West Coastal Highway and the second is the informal area at the Fortescue River Mouth. The roadhouse represents a minor service centre for travellers, mining activity at Cape Preston, and the remote western portion of the City. There is potential to enhance the range of services and accommodation available at this location, subject to demand.

The Fortescue River Mouth is an unserviced recreational area without ablution or other facilities. The City's Coastal Management Strategy (2011) identifies the Fortescue River Mouth as one of ten coastal nodes requiring a Management Plan to address various issues. These issues include: the formalisation of access and campsite areas; protection of biodiversity; fragile ecosystems; station owner rights; and the provision of basic amenities such as ablution facilities.

MINGULLATHARNDU, WEYMUL & CHEEDITHA

Aboriginal settlements within the City house Yindjibarndi and Ngarluma people whose ancestors have been living in the Pilbara for over 30,000 years. There are three small Aboriginal settlements within the City of Karratha: Mingullatharndo, Weymul, and Cheeditha. These communities are serviced and administered by State Government agencies.

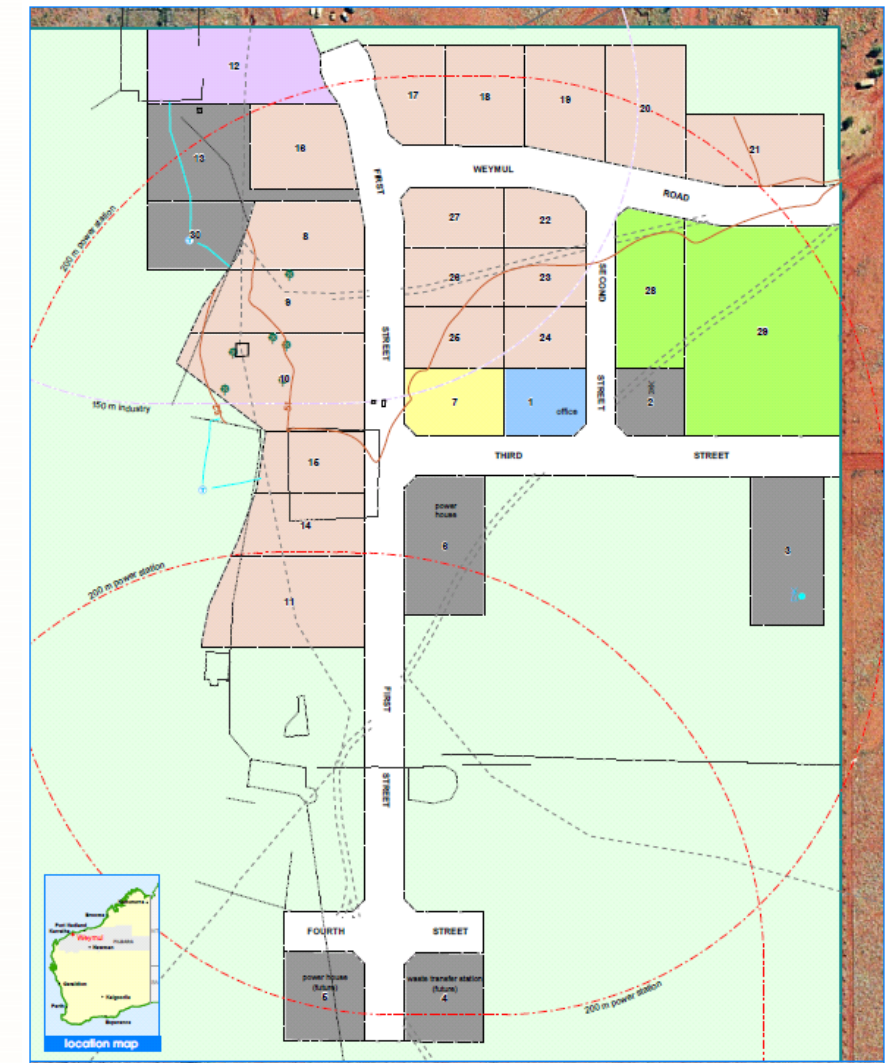
The continuation of the existing state-led process for the management of Aboriginal communities is supported by this Strategy.

In accordance with State Planning Policy 3.2 all Aboriginal settlements within the City are to have a Layout Plan endorsed by the Western Australian Planning Commission. Mingullatharndo and Weymul both currently have Community Layout Plans that have been endorsed by the WAPC in accordance with SPP3.2. These layout plans provide a framework for the community on land use planning matters.

The future for these communities will depend on decisions by the State Government in relation to Aboriginal communities more broadly.



Mingullatharndo Community Layout Plan



Weymul Community Layout Plan



Cheeditha Settlement



Whim Creek Settlement



Fortescue River Roadhouse

The preparation of a Community Layout Plan is highly recommended to coordinate any future development(s). Such a plan would provide important context to community aspirations.

6.0 Community Services & Spaces

The timely provision of well planned community infrastructure such as community centres, pavilions, parks, sporting fields and other civic amenities is critical to the formation of a sustainable well connected community.

In 2013 the City commissioned preparation of a *Community Facilities Plan and Matrix* (the matrix), which identifies necessary demands arising from levels of population growth.

The matrix forecasts the demand for future facilities under the medium and high population growth scenarios. The majority of population growth, and therefore demand for community facilities and services is anticipated to be in Karratha.

Population growth in other settlements, Wickham in particular, will inform an increase in services and facilities. These increased services are planned to be of a local nature and will not substitute the larger and more regionally-based facilities that will be provided in Karratha.

Embracing the opportunity afforded by *State Planning Policy 3.6 – Developer Contributions for Infrastructure*, it is the City's intention to prepare a Developer Contribution Plan and Developer Contribution Scheme as means to assist the funding and future provision of community infrastructure.

The preparation of Local Planning Scheme No.9 and a Developer Contribution Plan will provide certainty to developers, infrastructure providers and the community in regard to applicable charges. How funds are to be collected and spent will require explicit agreement(s).

Although capital works for new facilities are a major issue, an additional consideration for the City will be the asset-management of community facilities. It is noted that there can be ongoing costs that cannot be accommodated within such schemes. The City will continue to strive to provide the best possible community facilities in the most efficient and effective way.

6.1 Community Facilities and Spaces

The delivery of key community infrastructure has already begun with a number of important projects having progressed through planning design. These projects are at various stages of development with some already in operation. Projects of note include:

- *The Karratha Leisureplex*: Regional Australia's premier sport and leisure facility, it performs a regional, district and local level function for sport, recreation and leisure uses. Use of this space has been maximised, with provision of court space and facilities exceeding the capacity of the former *Karratha Entertainment Centre* facility and local pools
- *The Karratha Arts and Community Precinct*: This precinct is anticipated to perform a regional, district and local level function for community and performing art services. The City is implementing the *Concept Design Report* (2014) which advocates development of a 450 seat theatre and performing arts centre, a new library, rooftop cinema, art gallery, outdoor amphitheatre and local history museum.

When constructed, the precinct is expected to form the community heart of the City Centre, and go a substantial way towards addressing the immediate gaps in community facilities, in particular performing arts, since closure of the Walkington Theatre in 2011.

- *The Karratha Education Precinct*: This precinct is within an identified area southwest of the City Centre. The precinct has been set aside to support coordination and partnerships in secondary and tertiary education development. A university research centre that could expand into a larger university campus (with space for future growth) could be accommodated in this precinct.
- *The Dampier Community Hub*: Identified by locals as a key community priority, the project seeks to redress the gradual loss of local services and facilities as a result of its proximity to higher order health and community facilities within the Karratha City Centre developed under a RTIO partnership.

Works include refurbishment of the existing community hall and playgroup, plus the development of additional child care facilities and meeting rooms. These upgrades will strengthen the community focus for the town. Consolidation of government services (the police station and fire station) into one development near the community hub will also occur.
- *The Roebourne Recreation Sub-Precinct*: A City-led, three stage redevelopment program over ten years will feature upgrades to sport and leisure amenities. These amenities will include: an enhanced aquatic centre; kiosk; community outdoor kitchen; skate park, community hall; and meeting rooms.
- *The Wickham Community Hub*: This is planned to incorporate a new medical centre, a new library, an early learning centre, a multipurpose community meeting facilities, not-for-profit and community spaces, landscaped courtyard, youth centre and skate park that will satisfactorily service the Town's growing population.
- *District Playing Fields*: the City currently meets or exceeds benchmark requirements for provision of district and local public open space, including playing fields, parks and playgrounds. Despite this, continued growth will necessitate the provision of new public open space, in particular new playing fields in Baynton West, Nickol West and Mulataga.

The City plans to upgrade playing fields at Millars Well and to create additional playing fields at Gap Ridge in the longer term. The City has a program of upgrading of existing clubhouse facilities to ensure they meet assessed service standards.

This Strategy recommends the investigation of management options for a *Karratha Hills Nature and Recreation Reserve* with the pursuit of reservation and management orders over land as appropriate and recognised within the forthcoming local planning scheme.

6.2 Educational and Youth Services

As noted in the demographic projections outlined in **Section 5.2 of Part B** of this Strategy, an important consideration is the increasing proportion of infants and school-aged children within the demographic profile of the City. This translates to a greater demand (than the typical per capita based benchmark) for childcare, other family support facilities and youth based recreational opportunities. To address this imbalance the *Community Facilities Plan* recommends:

- Wherever possible, playgroups be incorporated within community centres; and
- The provision of a relatively high number of skate parks and BMX type facilities.

Primary school provision will also need to expand in line with population growth, with new primary schools required in the urban expansion areas of Karratha in the medium to long term.

It is recommended that Karratha Senior High School become a leading secondary school in North Western Australia including the provision of boarding facilities to accommodate students from regional areas.

Planning for the *Eastern Corridor* is supportive of an increased population capable of supporting a High School at Wickham.

Planning for Roebourne District High School includes arts based specialisation. A specialist arts program presents an opportunity for the school to provide a unique offering to students and provides for student engagement through alternative pathways.

An opportunity also exists to enhance the quality and scope of tertiary education in the City. Tertiary education opportunities within the City are currently very limited. Expanding both technical training through TAFE and apprenticeship programs, as well as university level education in Karratha will allow more North West students to stay in the North West rather than having to move to Perth to receive higher levels of education and training, with the risk they will not return.

In the longer term, it is envisaged that tertiary education will develop to a level that will attract population to the City to study in areas of regional specialisation. Expansion of tertiary education is therefore not only an element of community infrastructure, but an important contributing component to the realisation of Karratha as the City of North Western Australia.

6.3 Health and Aged Care

The Nickol Bay Regional Hospital in Karratha and the Mawarnkarra Health Service in Roebourne are currently the principal health service providers within the City. The Karratha Health Campus, a State Government project that will bring a new hospital to the Karratha City Centre when completed in 2018.

The Karratha Health Campus is the largest expenditure on a single health infrastructure project in regional Australia to date. This project is expected to significantly improve health services for people in the City, the region and North Western Australia

The GP Super Clinic is being constructed within the Karratha City Centre and construction will be completed in 2015.

This Strategy recognises the importance of the identification of sites suitable for retirement villages and aged care facilities. This is necessary to accommodate a growing elderly demographic. A site adjacent to the Karratha Health Campus has been zoned for aged care accommodation.

The City is therefore well equipped to service future health needs of a growing community, particularly the expected growth in retirees and people who have higher order medical needs.

7.0 Natural Environment & Resource Protection

7.1 Flora & Fauna

The City is characterised by a tropical coastline and arid interior, with a diverse range of terrestrial, aquatic and marine landscapes, flora and fauna. Large areas of relatively intact native vegetation and healthy ecological processes occur within the City. However less than one percent of the City's total land area is estimated to be protected within the conservation estate.

The conservation estate is expected to be enlarged as a result of the partial surrender of portions of several pastoral stations, upon the expiry of pastoral leases across WA in 2015.

Major threats to biodiversity arise from land clearing for development, transportation networks, infrastructure, mining, feral animals and invasive plants. The City has adopted the *Environmental Strategy* (2013) which sets out overall aims, outcomes and strategies for the environmental themes of water, biodiversity, coasts and built environments. A detailed list of actions are presented in the *Environmental Strategy* for each of the environmental themes. In particular, the *Environmental Strategy* recommends as an action, the consideration of important biodiversity corridors in the preparation of future Development Plans where key linkages to ecological areas are warranted.

7.2 Water Resource Protection

The City contains significant water resource assets including the Fortescue River and other highly variable flowing waterways. The major surface water source used for water supply is the Harding Dam catchment area, which is limited in reliability due to high rates of evaporation and largely dependent upon cyclonic events to replenish reserves. Variability of cyclonic activity due to potential climatic conditions may limit the reliability of this resource.

Groundwater is an important water resource in the City, limited to small coastal aquifers and harder to locate fractured rock aquifers. Inland aquifers are mainly used for mining purposes.

Water security and contamination risk are key issues. Proclaimed *Public Drinking Water Source Areas* for the Harding Dam Catchment Area (which includes the Millstream Aquifer) and Roebourne Water Reserve are protected under the *Country Areas Water Supply Act 1947*. The *Bungaroo Creek Borefield* within the Shire of Ashburton also supplies water to the City. Water is supplied to Karratha, Dampier, Roebourne, Wickham, Point Samson and Cape Lambert.

The West Pilbara water supply scheme is expected to meet demand to 2018-19. Further sources may be required, which may include desalination. Water reuse, recycling and other measures including water sensitive urban design can assist with maximising water efficiency within the City.

It is noted that industrial use accounts for approximately one third of total water consumption from the West Pilbara Supply Scheme. The investigation of water retention initiatives (i.e. non-potable replacements), can also assist in maximising water efficiency within the City.

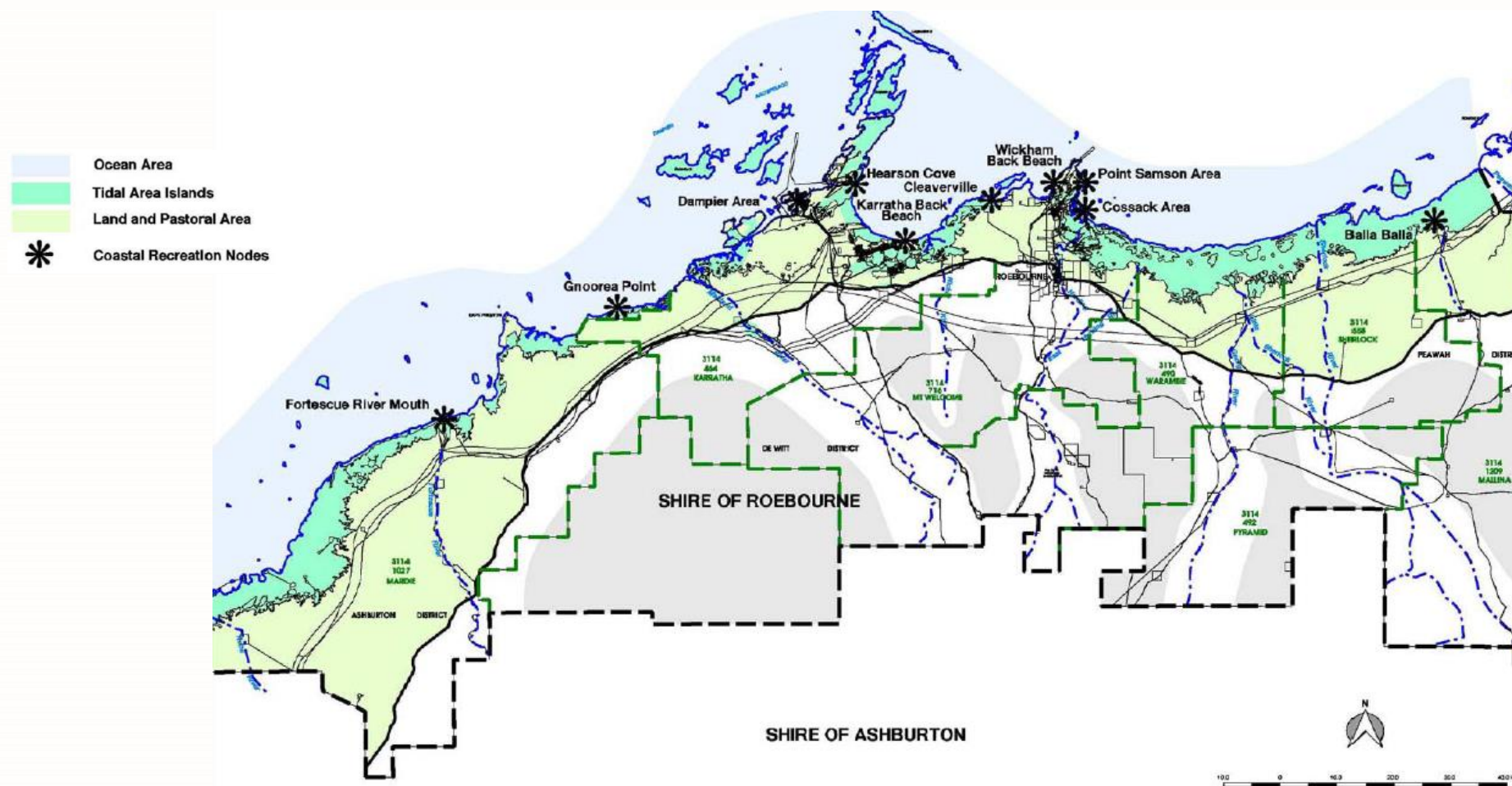
The City is preparing a District Water Management Strategy to guide its water use and water management practices in the future.

7.3 Marine Environment

The mainland coastline of the City stretches for 350 km and contains a diverse range of ecosystems. These marine waters fall within the *Northwest Shelf Province* of the *Northwest Marine region*, an area that supports a complex range of habitats including rocky coastlines, sandy substrates with mangroves and seagrass, and a number of islands and associated reefs. These habitats support a high diversity of marine wildlife, including significant populations of state and nationally protected marine mammal, reptile and shark species.

Areas identified for protection include the *Dampier Archipelago Marine Park* and the proposed *Cape Preston Marine Management Area*, which exclude the Department of Transport and Port Authority controlled waters located off the Karratha and Dampier coastlines. Management of these areas will be guided by the *Indicative Management Plan for the Proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area* (2005).

The *City of Karratha draft Coastal Management Strategy (2015)* sets out the City's objectives for the management of its coastline. Foreshore Management Plans are recommended for coastal recreation nodes. Each of these nodes will have a designated role in servicing coastal recreational use. Development and recreational activity is to be directed towards those nodes, striking a balance between conservation and protection of environmental values.



Outside of coastal recreation the *Coastal Management Strategy* designates land use priorities for each management unit. Key issues at a Coastal Management Strategy level include:

- Sustainable use and management of popular coastal nodes;
- Potential conflicts between coastal extractive industries; and other coastal uses and users;
- Protection of coastal areas important for their environmental values and functions; and
- The interface between large scale resource industries and the marine environment inclusive of other surrounding interests in those areas.

A number of Management Plans have been advanced by the City including: Gnoorea (40 Mile) Foreshore Management Plan; Karratha Foreshore Management Plan; and the Point Samson Foreshore Management Plan. The Dampier Foreshore Management Plan is also underway. The Strategy acknowledges these documents and the need to implement their recommendations.

7.4 Coastal Processes

Coastal areas of the City are potentially vulnerable to changing ocean levels including tidal ranges, storms surges, wave set-up, sea level rise and tsunamis. Coastal vulnerability studies have been completed for all settlements in the City. Coastal Hazard Risk Management and Adaption Planning has been undertaken.

The Council has adopted DP.19 Storm Surge Local Planning Policy. This Policy guides planning proposals and decision making in areas susceptible to modelled storm surge and is consistent with State Planning Policy 2.6 – *Coastal Planning Policy*.

7.5 Flooding & Cyclones

Low lying predominantly coastal areas of the City are vulnerable to inundation during tropical cyclones, storms and tsunami events. Modelling has been undertaken to identify the extent of flooding for 100-year ARI events. This indicative modelling indicates that all townsites are vulnerable to varying degrees.

Land use and development needs to be protected from the potential of flooding, however this is typically limited up to 100-year ARI events. Townsite expansion may be constrained by modelled flooding scenarios in order to contain and minimise flooding risk.

Climate change modelling and scenarios currently trend towards gradually increasing temperatures, declining annual rainfall and more prevalent major storm events that deliver more widespread rainfall penetration further inland.

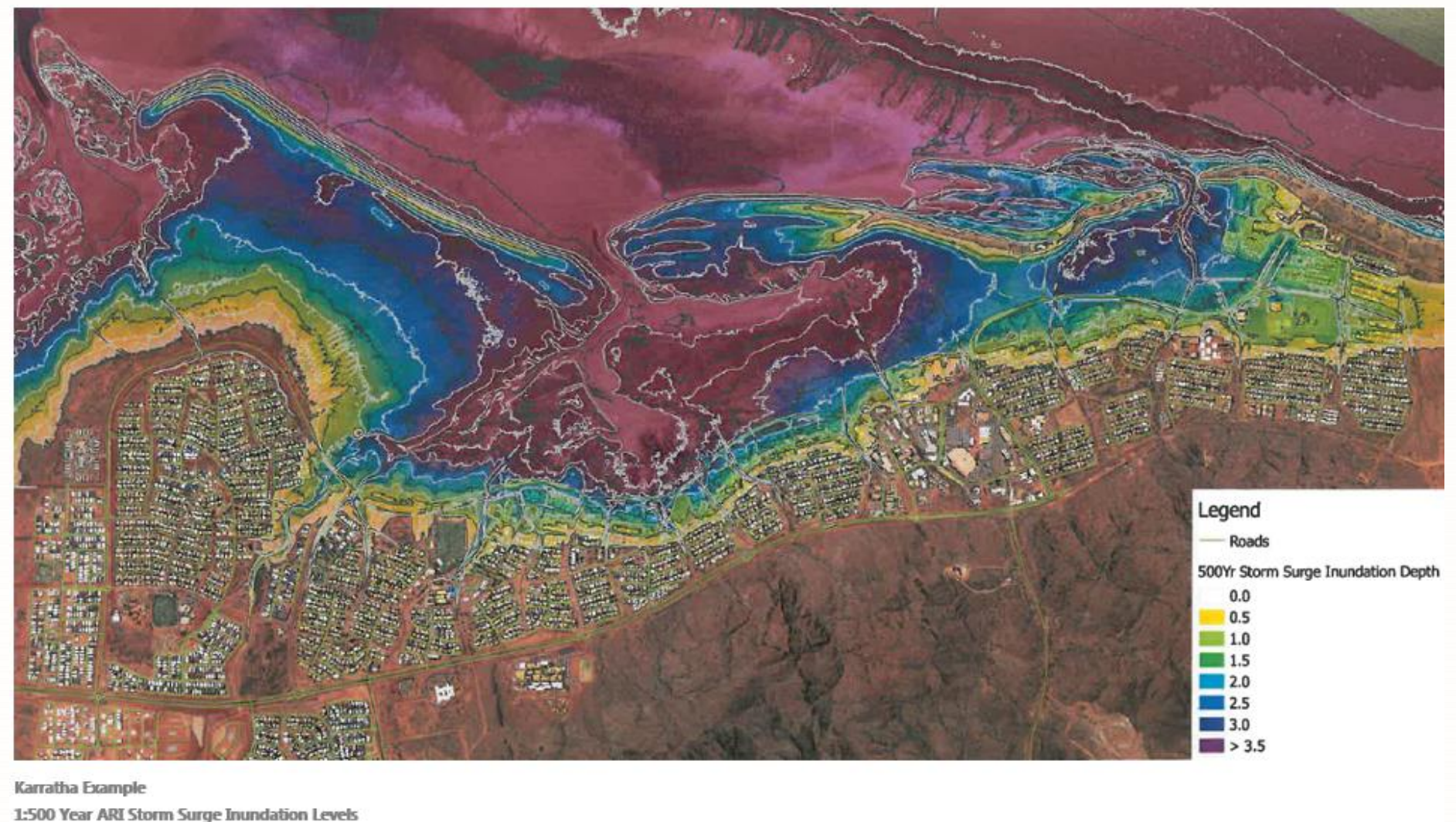
Climate change projections suggest increased occurrence and severity of tropical cyclones for the City area into the future. These climatic changes are anticipated to have implications on the extent of cyclone / storm risk and flooding risk within the City and upon the City's settlements. The lessons learnt from cyclones will be incorporated into management responses and a precautionary approach will be used at all times.

All new development areas within the City will be assessed for vulnerability to flooding and a risk management approach has been implemented to reduce risks to an acceptable level. This approach allows for the incorporation of new and better information as it becomes available in an equitable and efficient manner.

This Strategy promotes a risk management approach based on available flood modelling information. The use of available flood modelling information to plan and implement upgrades to parts of the drainage network as part of a reduction in risk of flooding.

7.6 Bushfire Management

Bushfire management aims to mitigate risk of uncontrolled or more damaging bushfires to people, infrastructure and property. The lessons learnt from bushfire events will be incorporated into management responses and a precautionary approach will be used at all times. The City intends to develop a bushfire management plan once regional bushfire hazard mapping has been prepared by the Department of Fire and Emergency Services.



7.7 Basic Raw Materials

Access to Basic Raw Materials, particularly fill for residential development is under considerable pressure and can have the effect of constraining housing affordability. Priority areas for sand extraction are identified at Point Samson, 40 Mile and Cleaverville. Each of these locations have been identified as sensitive areas, requiring a careful balance to be established with the protection of key environmental attributes and future recreational opportunities.

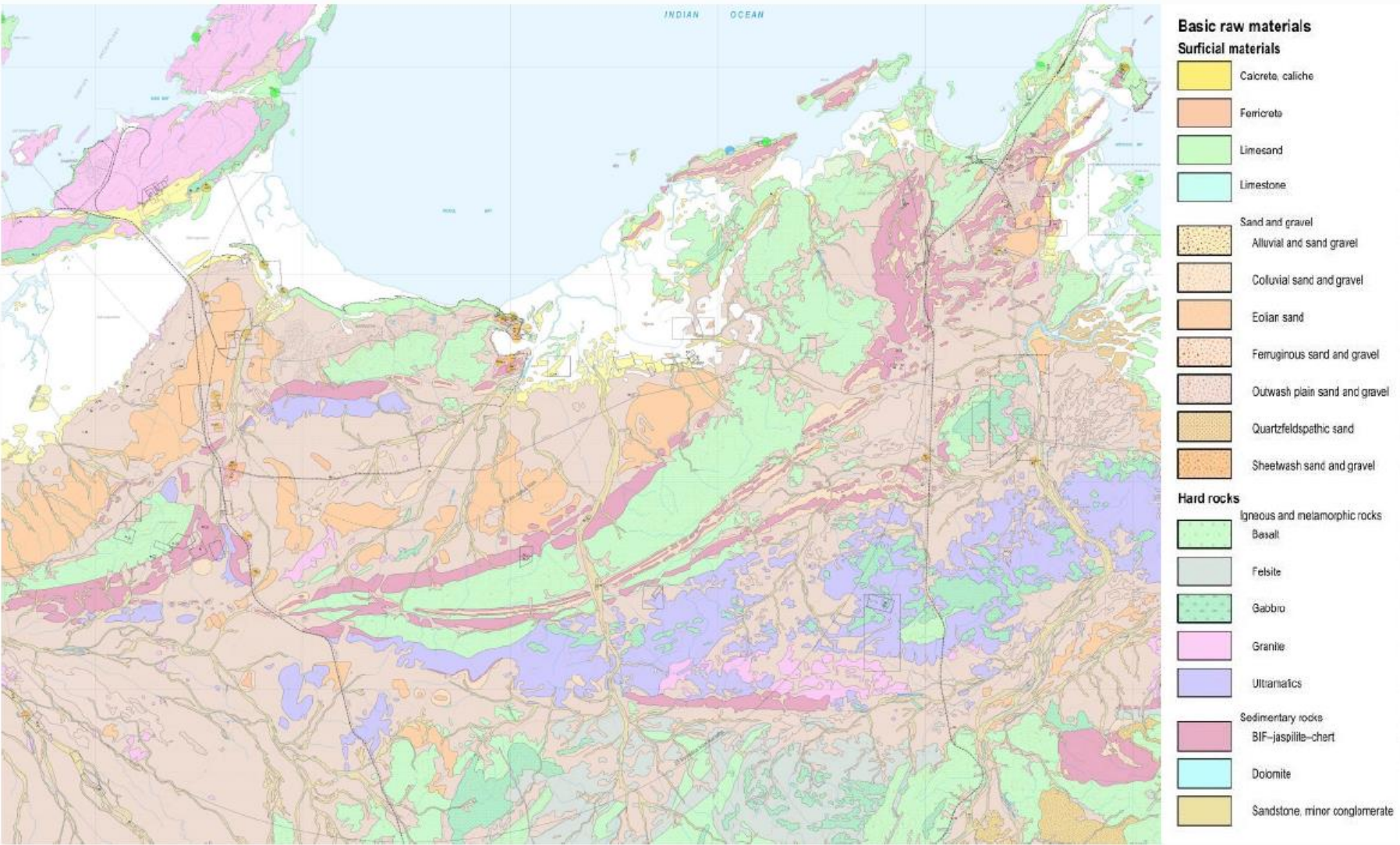
The Department of Mines and Petroleum maintains a database for all mine sites including extractive industries for basic raw materials on Crown land approved under the *Mining Act*, known as MINEDEX. However it is not mandatory for operators to reveal the commodities they are mining. Basic raw materials extraction on Crown land is recorded by Department of Mines and Petroleum along with other minerals for the purposes of calculating Royalties. The information on quantities of materials extracted is not publically available and is not fully disaggregated.

There is currently no mechanism for ensuring that the City is made aware of mining lease applications within the municipality. The only mandatory referral is on freehold land (does not apply to basic raw materials) and on Crown land over which the City has management responsibility. In these circumstances it is a requirement for the applicant to serve notice on the City of any application.

This Strategy recommends the establishment of an administrative process for identifying applications and dealing with mining on Crown land for referral and comment by the City.

It is recommended that any applications for mining require a Coastal Hazard Risk Management and Adaption Plan indicating how impacts within the coastal foreshore reserve and on the adjacent coastline would be mitigated. This should include applications which may reduce the supply of sediment to the coastal zone from rivers and creeks.

Mining proposals should be considered in terms of potential visual impacts with staging and rehabilitation plans aiming to ‘repair’ visual impacts as quickly as possible.



8.0 Transport Infrastructure

8.1 Airports

Karratha Airport is currently Western Australia's second busiest airport for passenger movements and is owned and managed by the City of Karratha.

The *Karratha Airport Master Plan and Land Use Plan 2013-2033* plans for its expansion to 1.8 million passengers per year and capacity to accommodate international flights. Upgrades to boarding and processing facilities to facilitate this expansion are well progressed. Construction works are scheduled for completion in 2015.

The airport land also provides the opportunity for future commercial and industrial development to be undertaken as future demand requires.

Revision of the existing Special Control Area based on the N70 and ANEF contours will ensure compatible uses develop adjacent to the airport enabling long term continued operation and future expansion.



8.2 Rail

Within the City of Karratha there are a number of private heavy haulage rail lines that transport iron ore to the ports of Dampier and Port Walcott (Cape Lambert). These rail lines carry the vast majority of the substantial iron ore volumes exported from the City. These rail lines are privately owned and operated.

There is the potential for new railway lines to link the planned new Anketell Port and Strategic Industrial Area. As per existing rail lines, these routes require protection inclusive of sufficient buffers from encroaching development in accordance with State Planning Policy 5.4 – *Road and Rail Transport Noise and Freight Considerations in Land Use Planning*.

At-grade rail crossings on the regional road network can cause delays for traffic where iron ore trains can be in excess of 1.4km and require several minutes to pass over the road. The City supports grade separated rail crossings as exemplified through the recently constructed overpass on the North West Coastal Highway. This crossing allows increasing numbers of trains to access Cape Lambert without disrupting traffic on the Highway.



8.3 Ports

The ports within the City play an important role in the economy of the City Region, State and Nation. This Strategy recognises the importance of protecting the ports and their associated transport corridors to ensure continued operation.

The Pilbara Ports Authority operates as a corporate entity under the *Port Authorities Act 1999*. Port Walcott (Cape Lambert) was established under the *Shipping and Pilotage Act 1967*. The majority of ports within the City are Pilbara port authority ports. An exception is Port Walcott which is a non-port authority port.

In general, non-port authority ports comprise one or more single-user export facility operated by private resource companies. These ports and related facilities are operated with limited guidance from the State Government.

It is important to note the tonnages for some of these ports are substantial and further add to the State's existing and future port throughput. Port Walcott located at Cape Lambert is of particular significance, exporting more than 80 million tonnes in 2011. Recent expansion at Port Walcott was part of a plan to raise Rio Tinto's annual production in the Pilbara to more than 350 million tonnes per annum.

There are a number of existing and proposed ports within the City including the well-established port at Dampier/Intercourse Island and the proposed port at Balla Balla.

The recent gazettal of a Regional Improvement Plan and preparation of a Regional Improvement Scheme for the Anketell Port and Strategic Industrial Area secure the opportunity for further port-related Strategic Industry to establish on the City's coast. Future construction of the Anketell Port and Strategic Industrial Area will enhance the resource exportation potential of the City.

There exists limited provision of common user and general cargo ports within the City which places limitations on non-resource based port activity. The City encourages the creation of common user and general cargo port(s) / berth(s) which would facilitate diversification of the economy. This could extend to the accommodation of cruise ships, most likely via trans-ship passage between ship and berth. This has been exemplified at the City of Busselton where due to shallow waters the cruise ship will anchor offshore and utilise tender vessels to get passengers to shore.

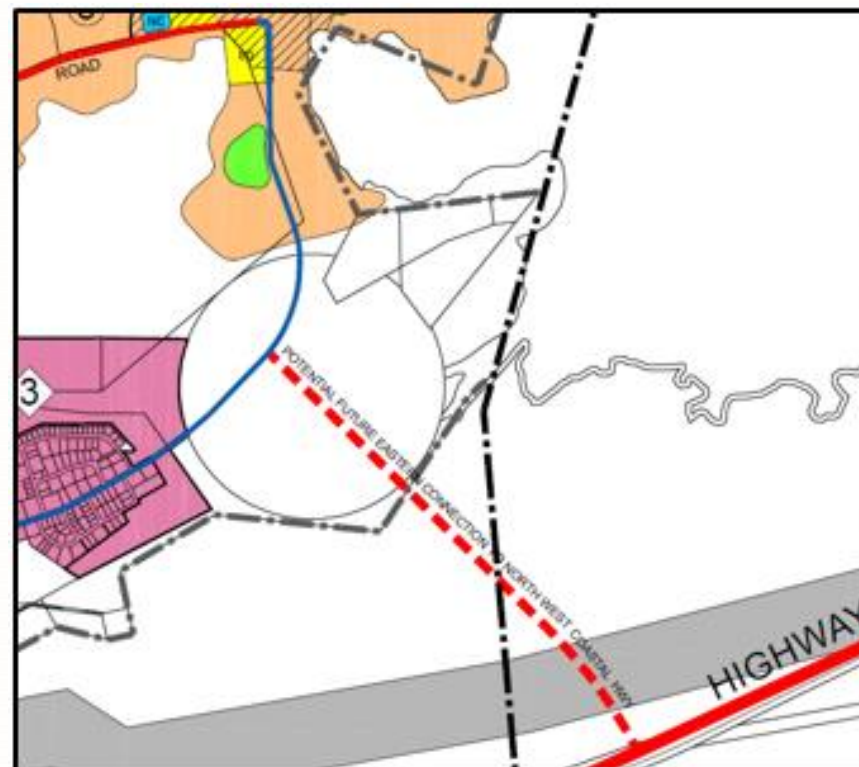


8.4 Primary Roads

The primary road system within the City of Karratha falls under the control of Main Roads Western Australia. These roads serve the resources industry that contributes so substantially to the State and National economy, as well as providing access for a growing number of tourists. It is important that these roads are maintained at a suitable standard for these purposes.

This Strategy recognises the importance of Primary Roads in maintaining freight accessibility to *Strategic Industrial Areas* and the associated ports. In this regard the City's *Freight Strategy* identifies suitable road reservations which will be represented in the forthcoming local planning scheme.

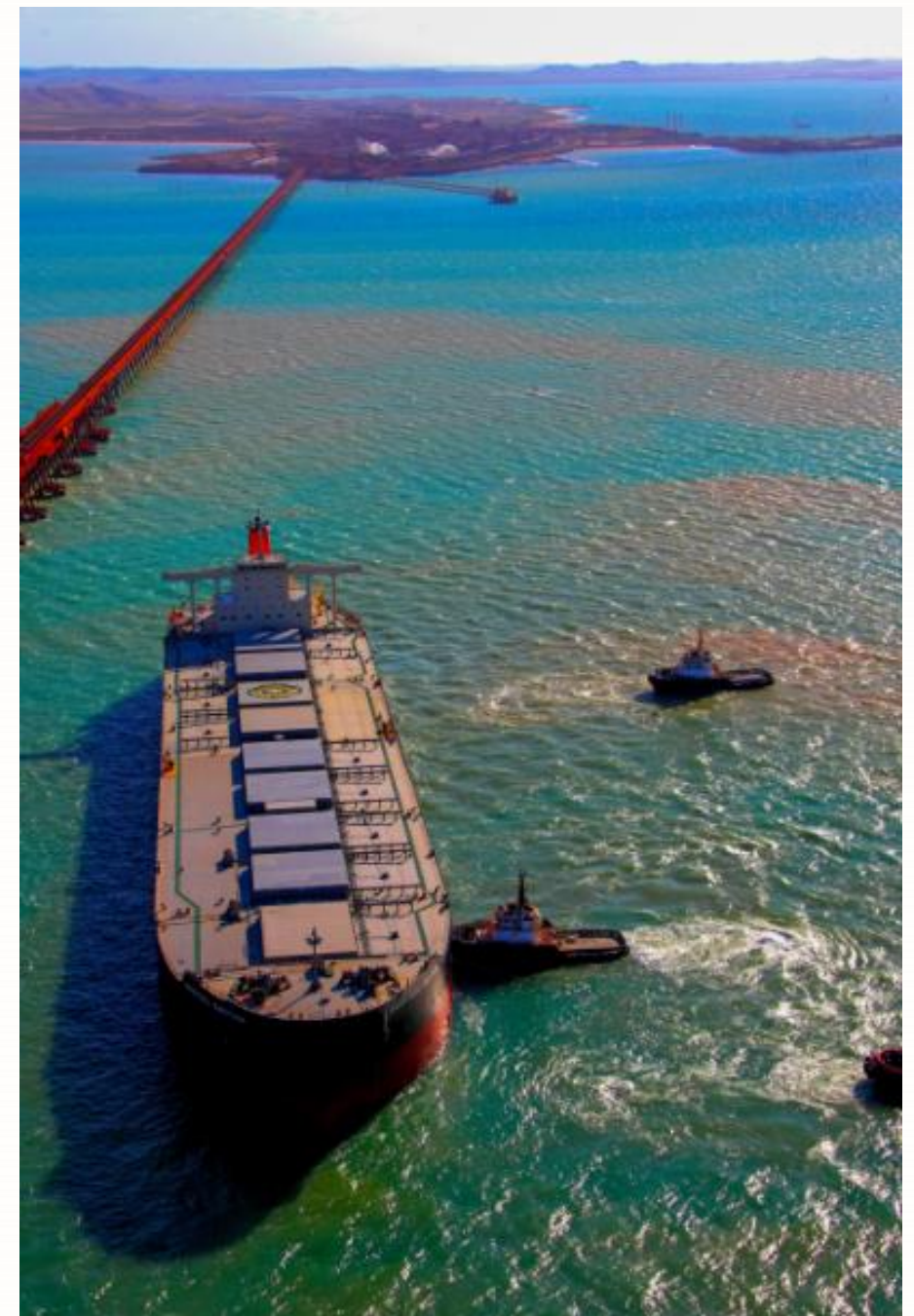
A potential future road connection between Mulataga, the *Karratha Industrial Area* and the North West Coastal Highway will provide more convenient access from Bularra to the KIE and Anketell.



8.5 Green Spine Street

The draft *Karratha Revitalisation Strategy* (2015) recommends an improved transport linkages network connecting isolated residential cells and decreasing reliance upon the Distributor Roads for short journeys. The Green Spine is a long term plan to upgrade select road reserves to improve amenity and facilitate improved connections as part of a shared movement network.

The upgrades to the road reserve will include extensive verge treatments and landscaping with high standard pedestrian and cyclist paths and crossings. Several drainage reserves will require bridges to be constructed. Numerous road reserves will require modification as new intersections are created and cul de sacs converted to through roads.



8.6 Network Upgrades

A variety of movement network improvements are necessary to accommodate future growth within the City. This improvement is required at many levels, with priorities identified below.

In July 2014 Riley Consulting reviewed the operational capacity of the Regional Road network based on a predicted annual increase in traffic volumes of 3% to the year 2031, and a doubling in truck movements in line with freight forecasts. An assessment of the future traffic movements to the local road network (non-regional roads) was also undertaken based upon the population projections discussed earlier in this report.

Based on a population of 35,268 by 2031 (exclusive of FIFO 2.9 persons per household and 8 trips per dwelling (equating to 2.7 trips per person), forecasted traffic increases for each settlement are expected to be in the order of the following:

- Karratha +9,839 persons
 - Mulataga (65% increase) +17,267 vehicle movements per day
 - Gap Ridge/Madigan (35% increase) +9,298 vehicle movements per day
- Dampier +850 persons +2,295 vehicle movements per day
- Wickham / Point Samson +820 persons +2,216 vehicle movements per day
- Roebourne +125 persons +338 vehicle movements per day

Whilst this work contains differences in the population growth of different centres (in particular Dampier whose infrastructure constraints weren't fully understood at the time) it does not affect the conclusion that forecast traffic increases as a result of the population expansion are significant within the Karratha townsite. Increases to other towns are not high and can generally be accommodated by the current road network.

Based on the traffic modelling undertaken, this Strategy anticipates that the following road links should be constructed or upgraded by 2031 based on the future demand forecast. Dampier Hwy/Millstream Rd (Searipple Rd to Maitland Rd) – dual carriageway (4 lanes).

- Balmoral Rd (Millars Rd to Warambie Rd) – dual carriageway (4 lanes).
- Dampier Road (Burrup Rd to Dampier) – dual carriageway (4 lanes) – only if Dampier WWTP is upgraded.
- Point Samson-Roebourne Rd (Roebourne to Wickham) – dual carriageway (4 lanes).
- Roebourne northern highway realignment (Point Samson-Roebourne Rd to North West Coastal Hwy) – construct as 2-lane road (to reduce traffic volumes including heavy vehicles on the corresponding section of Point Samson-Roebourne Rd in Roebourne townsite).
- Roebourne southern bypass (North West Coastal Hwy to North West Coastal Hwy) – construct as 2-lane road (to reduce traffic volumes including heavy vehicles on the corresponding section of North West Coastal Hwy in Roebourne townsite).

- Karratha Western Bypass (Dampier Road to Madigan Rd) – construct as 2-lane road (to reduce heavy vehicle traffic on the corresponding section of Madigan Rd in Karratha townsite).
- New road link from Millstream Rd southward through the Mulataga area to the Karratha Industrial Area and beyond to northwest coastal highway – construct as 2-lane road (to keep traffic volumes on the northern section of Karratha Rd below 10,000vpd as the Mulataga area continues to develop) and Anketell is developed.
- Millars Rd (Balmoral Rd to Karratha Airport) – upgrade to sealed road standard (2 lanes).

It is also known that at some future time MRWA will provide a diversion to Madigan Road and provide grade separation at Dampier Road. This proposal would not be expected to impact traffic patterns, nor is it likely to significantly improve journey times.

The future Anketell Port project adds significantly to traffic volumes. Indicatively, Anketell could generate between 15,000 to 25,000 additional vehicle movements per day, necessitating the provision of up to three single two lane roads or one four lane divided road. The City's preference is for a four lane divided road linking Mulataga to North West Coastal Highway.

North West Coastal Highway will require upgrading to a four lane divided road between the future Anketell Port and Karratha. De Witt Road will need to be upgraded between the Highway and Karratha. These upgrades should precede commencement of any construction at Anketell

North West Coastal Highway and the Karratha Western Bypass will provide a direct line between Anketell and Gap Ridge and the Burrup Peninsula.

Other key movement network improvement initiatives embraced by the Strategy include:

- Improved connectivity through the suburbs of Karratha and Wickham – this includes roads, footpaths and cycleways;
- Increased shade provision for pedestrians and cyclists;
- Provision for the development of the public transport network across the City;
- The provision of adequate truck breakdown areas; and
- Sealing of the Karratha to Tom Price Road beyond the City's boundary to improve road safety and reduce journey times, in recognition of the Regional Centre role of Karratha to the West Pilbara.

8.7 Truck Breakdown Areas

Main Roads has classified the road network in regard to truck movements. The Restricted Access Vehicle (RAV) network covers the State and specifies what size vehicle may use each road. At locations where long vehicles (road trains) are not permitted, there is a need to provide breakdown areas where trucks can disassemble the road train into acceptable lengths to reach the load destination.

The provision of breakdown areas is a function of the Main Roads RAV system and as such breakdown areas should be provided (by MRWA) at locations where the RAV network changes. Within the City of Karratha breakdown areas should be provided (in order of priority) at:

- North West Coastal Highway at De Witt Road and/or Madigan Road
- Point Samson-Roebourne Road south of Wickham – to service Cape Lambert Point Samson and Wickham OR Roebourne – close to the intersection of Point Samson-Roebourne Road
- Karratha Light Industrial Area – to service the industrial estate and Karratha
- Dampier Highway by Kangaroo Hill Access
- Gap Ridge – to service Dampier and Karratha

A new truck break down area may also be required for the Anketell Port project in the vicinity of Cleaverville Road. This truck breakdown area could service the port and deliveries to Wickham/Point Samson.

Main Roads policy for the provision of truck breakdowns areas is where the MRWA road network requires the provision of a breakdown area, it would be provided by Main Roads. Thus where a RAV route terminates, but a road under the control of Main Roads continues, Main Roads would provide a breakdown area. Main Roads does not take responsibility for truck break down areas where a main road intersects with a local road. Main Roads will assess requests for truck breakdown areas their merits and reasons for requirement.



9.0 Public & Private Utilities

The Annual population growth review will underpin capital investment decisions. The integration of this careful monitoring of population growth into growth management strategies will assist the City in its long term capital expenditure planning. This improved information base will strengthen the City's position when advocating for improved infrastructure and provide a sound basis to assess social and economic impacts of large resource projects as they arise.

Each of the different infrastructure classes have different characteristics in terms of supply, demands and the age of the existing infrastructure.

The Strategy acknowledges the need to adequately plan for future key infrastructure which serves the Pilbara Region as part of the wider State network. The Strategy recognises the importance of adequate capacity of infrastructure and public utilities to support growth and the need for compatibility of adjacent land uses to ensure long term operation of this infrastructure.

There is an increasing need for the forward planning of integrated infrastructure delivery to support the growth of the population and Karratha's industries. It is important that there is an alignment between planned growth and planning of service infrastructure to ensure efficient, economical and timely delivery of services. This requires ongoing consultation and coordination between the City, the development industry and service agencies.

Encouraging the private sector to invest in infrastructure or to provide more open access to existing infrastructure will help to spread the investment cost and reduce the potential for duplication and redundancy. This is particularly relevant to power infrastructure, where major resource companies frequently supply and reticulate their own power independent of the NWIS.

The major issues for each class of infrastructure including current capacity and the state of the current infrastructure are summarised in the table at the end of this section.



9.1 Water

The City of Karratha relies on the West Pilbara Water Supply Scheme (WPWSS) which covers Karratha, Dampier, Roebourne, Wickham, Point Samson, Cape Lambert and the Burrup Peninsula. The Harding River Dam, located inland near the southern boundary of the City, makes up the surface water component of the WPWSS. In June 2010 the Water Corporation advised that the WPWSS was under extreme pressure to supply sufficient water to towns and industry, placing supply security under a high level of risk.

In order to alleviate immediate concern, agreement was reached with Rio Tinto to surrender its draw from the Millstream aquifer and source an alternative water supply in the Bungaroo Valley, reducing the industrial demand on the WPWSS.

West Pilbara also has a non-potable seawater supply scheme and desalination plant capable of supplying water for industrial use. The WPWSS is expected to meet growth demand industrial, residential and commercial demand to 2018/19. A further source may be required earlier if demand from large industry growth is to be met.

In 2013 the Department of Water advised that future water demand for the City, its coastal towns and ports were expected to be met through a combination of improved water efficiency and recycling, expansion of existing sources and new water sources, such as the West Canning Basin.

When approached in late 2014 the Water Corporation advised that it expects the next water source for the West Pilbara Water Supply Scheme to be additional water from the Rio Tinto Bungaroo groundwater borefield, however work has not yet proceeded on this source as they believe it will be many years before the source is required. Desalination is unlikely unless the Bungaroo source proves too difficult/expensive to develop.



Currently around 3 gigalitres of spare source capacity exists in the Harding Dam and Millstream groundwater sources. Assuming the current growth rate (about 300 - 500 services or 1000 people per year) continues, the Water Corporation believe that this will be sufficient for another 10-15 years of growth. There are lots of factors to consider such as

- Amount of industrial growth requiring a water supply service;
- Quantity of water used & number of people per service; and
- Ongoing growth rates.

The Water Corporation will continue to monitor growth and then make decisions accordingly. If the population rises to the ID Forecast prediction of 38,000 people by 2031, then a new water source will most definitely be required.

Ongoing improvements in water efficiency and recycling are important as they can help delay large investment in new water sources. Significant gains have been made over the past decade, for example Rio Tinto has reduced water used at the Dampier port by almost 30 per cent.

The Water Corporation has also implemented a program expected to save 3.4 GL/yr across the Pilbara and will continue to identify and implement further improvements. The water demand-supply balance will be reviewed with stakeholders at least every two years to determine if there have been any significant changes.

Planning for water utility infrastructure in increments of 5,000 people is encouraged by this Strategy to stage expansion to match demand.



9.2 Wastewater & Recycling

Wastewater recycling and reuse projects, such as the *Karratha Treated Waste Water System*, will help to reduce the consumption of scheme water, while also providing for the ‘greening’ of the urban environment. Given the constraints on water supply, wastewater recycling and reuse is recognised as a priority.

The City’s *Effluent Reuse Scheme* enables the use of treated sewerage water to contribute to the watering of public open space..

9.3 Electricity

The Strategy advocates a reduction in the duplication of power supplies and seeks greater integration and cooperation from industry partners and suppliers. Encouraging the private sector to invest in infrastructure or to provide more open access to existing infrastructure will help to spread the investment cost and reduce duplication and redundancy.

The City supports investigation of the potential for wind and solar renewable energy generation, and expanding the use of these alternative sources. The City is participating in a solar power scheme at the airport and is considering solar power generation for other city-managed facilities.

The *Pilbara Underground Power Project* is a partnership between the State Government, through Royalites for Regions and Local Government, delivered by Horizon Power. The project aims to provide cycle affect North West towns with a safe and reliable Underground Power supply, by replacing aging overhead electricity infrastructure with underground networks. The project is well advanced with more than half of Karratha and Roebourne now connected to underground power.

This Strategy supports the initiatives of the *Pilbara Power Project Board* to oversee procurement of power from the private sector and co-ordinate management/ownership of the existing *North West Interconnected System* transmission network.

9.3 Renewable Energy Initiatives

The natural environment of the City is highly suitable for the development of green power initiatives. The City will continue to investigate this activity and is prepared to work with key stakeholders to further develop such initiatives.

9.4 Telecommunications

Further telecommunications improvements, including enhancement of mobile voice and data network coverage as well as broadband, are required for the City to remain competitive with other areas of the State and address the challenges of the remote location. Quality telecommunications infrastructure is also considered essential to realising economic development opportunities.

Existing and proposed communication installations and infrastructure are identified to ensure that adjacent land uses do not compromise future operations.

The National Broadband Network is being rolled out in the City with the Pelago East building already connected.

9.5 Solid Waste

The City’s tonnage records show that overall, waste received at the City’s 7 Mile landfill increased by approximately 16% between 2008/9 and 2012/13. This increase was driven by construction activities associated with the recent mining boom. 2013/14 saw a 14% reduction of total waste compared with the previous year and the trend continued downward over 2014/15. This reduction is primarily associated with the commercial waste and liquid waste streams.

The City aims to address critical waste issues to improve the sustainability of the City’s waste management practices. The City has established recycling capacity at the 7 Mile tip with a Waste Transfer Station. This station provides additional re-use and recycling options for residents through the tip shop and drop-off recycling stations.

In 2013/14 the City recycled approximately 5% of the total waste delivered to the 7 Mile landfill facility comprising concrete, steel, lead acid batteries and waste oil.



Settlement	Water	Waste water	Electricity	Telecommunications
Karratha	All settlements in the Shire of Roebourne are serviced by the West Pilbara Water Supply Scheme, which is nearing capacity and vulnerable to climate changes.	Currently constrained, but upgrade projects will deconstrain growth.	All settlements are serviced by the North West Interconnected System which is sufficient to meet demand to 2015, and will need expansion to the ATCO Karratha facility to meet forecast demand from 2016 onwards.	
Dampier		Aging infrastructure needs replacement/upgrading.		
Wickham		Sufficient capacity for foreseeable growth.		NBN rollout Sept 2016
Point Samson		Sufficient capacity for foreseeable growth.		NBN rollout Sept 2016
Roebourne		Sufficient capacity for foreseeable growth.		
Legend	Constrained with additional investment required			
	Constrained, but investment is already underway or committed to upgrade infrastructure networks.			
	Sufficient capacity to meet foreseeable demand.			

10.0 Strategies & Actions

<div>IDENTITY</div> <div><i>An active empowered and multicultural community</i></div>		
Theme	Strategies	Actions
ENGAGED & STABLE COMMUNITY	Engage with community members and associations which are actively participating in making the City of Karratha a great place to live.	Continuously review and improve community engagement as part of planning processes to better inform the City's decision making.
	Promote and enable permanent residency as an attractive and healthy accommodation option for workers and their families	Anticipate land supply requirements to facilitate affordable private accommodation.
		Implement the recommendations of the Karratha Revitalisation Strategy (2015).
		Facilitate the accommodation of workforces in permanent forms of town-based accommodation wherever possible, preferably dwellings integrated into existing neighbourhoods.
THE CITY OF KARRATHA, A GREAT PLACE TO BE.	Promote and celebrate the unique character and sense of place which contribute to the lifestyle and amenity of the City which residents and tourists enjoy.	Implement adopted Strategic Plans that draw on the unique character of the City and deliver a desirable lifestyle and amenity for residents.
		Enable tourism opportunities that position Karratha as the 'Gateway to North-West Australia Tourism'.
HERITAGE CULTURE AND ARTS	Ensure the recognition, protection, enhancement and promotion of places of Aboriginal and European heritage significance and exemplary local character.	Periodically review the City's Heritage Inventory as part of the development assessment process. Recognise the significance of this area in relation to aboriginal heritage and consult with appropriate agencies, groups and representatives as part of the planning process.
		Prepare design guidelines for heritage precincts and introduce appropriate Scheme provisions to preserve and enhance the character of heritage sites within the City. Encourage the utilisation of heritage buildings for active purposes, such as tourism related activities.
		Provide a planning framework that supports the establishment of precincts, centres, and buildings that promote aboriginal and European heritage.
		Protect heritage sites through reference to the Aboriginal Heritage Act, preparation of the City of Karratha Heritage List, and undertaking heritage surveys as part of the Native Title process.
	Embrace and promote Karratha's strengths as a diverse and multicultural community with a wide variety of cultural and entertainment activities.	Plan for and provide spaces that are suitable for festivals and/or events which enable: <ul style="list-style-type: none"> - Collective celebration of the City's cultural diversity; - Celebrations by groups with common cultural background(s); and - Public art exhibits, food festivals and markets.
		Develop the Karratha Arts and Community Precinct.

ECONOMIC DEVELOPMENT

Growth and diversification of the local economy

Theme	Strategies	Actions
DIVERSIFYING THE ECONOMY	Position Karratha as Administrative Hub for the Pilbara and strive to develop a concentration of government offices and agencies for North-West Australia to establish improved collaboration practices between public and private sectors.	Continue to support the federal and state government investment in making the Karratha City Centre the administrative hub of North-West Australia
		Continue to advocate for an increased defence presence within the City.
	Investigate opportunities to develop oil and gas support services.	Continue to build upon the City's competitive advantage and work undertaken to ensure there is sufficient land supply and servicing to support development of a permanent high quality supply and logistics hub for LNG and marine related support services.
		Promote investment in LNG and Marine sector through provision of quality research, information and market analysis.
		Lobby for the expansion of strategic marine industry infrastructure.
		Promote the City of Karratha as the preferred location for the processing and servicing of new oil and gas supplies both onshore and offshore i.e. Canning Basin.
	Promote the City as an Industrial Hub on an international scale.	Enable the development of Anketell as a world class strategic industrial estate.
		Implement the City's <i>Operational Economic Development Strategy 2014-2016</i> and align land use planning accordingly.
	Position Karratha as the 'Gateway to North-West Australia Tourism'	Ensure an adequate supply of tourist accommodation through relevant statutory controls.
		Implement various land use planning initiatives advocated within the relevant 'Growth Management Approach' and 'Built Form Pattern' sections of this Strategy to address housing affordability challenges in recognition of the relationship between housing affordability and the attraction & retention of tourism/hospitality workforces.
		Support the role of an upgraded Karratha Airport as a hub for tourism. Support businesses utilising Karratha airport to connect to tourist destinations of North-West Australia and aviation reliant tourism.
		Within an infrastructure provision framework, investigate road network upgrades for improved vehicular access to tourism destinations i.e. the extension of the bitumen road to Millstream National Park.
	Increase tourism opportunities and activities within the City.	Support the development of marine-based tourism including enhancing existing coastal/island eco-tourism, a marina at Dampier and increasing tourist access to the Dampier Archipelago.
		Implement the City's <i>Operational Economic Development Strategy 2014-2016</i> .
		Implement the land use recommendations of the <i>Searipple Land Precinct Masterplan</i> (2014).
		Implement relevant recommendations of the <i>State Aboriginal Tourism Strategy</i> and support initiatives in the development of Indigenous tourism.
INVESTMENT ATTRACTION	Leverage Karratha's competitive advantages of assets, location, lifestyle pursuits, and recreational opportunities to attract businesses, residents and visitors.	Implement the recommendations of the City's <i>Operational Economic Development Strategy 2014-2016</i> .
		Provide an ample supply of serviced land for future development in accordance with the 'Population and Preferred Growth Pattern' section of this Strategy. Continue to deliver well planned consolidated settlements and suburbs and attractive neighbourhoods.
	Ensure the Karratha City Centre retains the largest amount of commercial activity in North-West Australia whilst increasing the provision of entertainment and hospitality services within the City Centre.	Increase commercial and retail floorspace within the Karratha City Centre commensurate with orderly and rational planning.
		Implement a planning framework and settlement structure that supports the primacy of Karratha City Centre.
	Facilitate development of the Karratha City Centre towards a pedestrian-friendly, high amenity urban environment that attracts investment and accommodates an attractive night-time economy.	Invest in City Centre streetscapes, public spaces, public art and street furniture to improve amenity, stimulate investment, and accommodate a wide range of uses.
		Implement the recommendations of the <i>Karratha City Centre Masterplan</i> (2010).
		Review Local Planning Policy DP1 - <i>City Centre Development Requirements</i> as required to implement the <i>Karratha City Centre Masterplan</i> (2010) to facilitate developments which address the street at the human scale with activated ground floor frontages and contribute to a vibrant pedestrian environment.

ECONOMIC DEVELOPMENT

Growth and diversification of the local economy

Theme	Strategies	Actions
	Develop a transportation network which accommodates a variety of transportation modes within the City Centre and provides an appropriate supply of car parking to support local businesses and facilitate investment.	Ensure that all demographic groups are considered in the design of City Centre spaces, including specific spaces for young adult activity outside standard business hours.
		Implement and monitor the <i>City Centre Parking Strategy</i> and City Centre Parking Policy to ensure parking supply best meets parking demands of a growing city centre.
		Require City Centre parking areas to be designed in a manner which is appropriately integrated with the streetscape i.e. sleeved development.
		Create a high amenity street environment through landscaping and implement the City's <i>Footpath Strategy</i> .
		Ensure sufficient parking for motorbikes, bicycles, loading bays, universal access parking, and larger vehicle parking.
BUSINESS ENABLING ENVIRONMENT	Facilitate sufficient land supply to accommodate demand for the full spectrum of industrial land uses i.e. 'Strategic Industry', 'General Industry', and 'Light Industry'.	Identify and zone additional land for 'General Industry' and for 'Light Industry' as an extension to the <i>Karratha Industrial Area</i> .
		Identify <i>Development Investigation Areas</i> to expand areas zoned 'General Industry' and 'Light Industry' (DIA areas 9-11 on the Strategy Plans) and facilitate investigations to enable future rezoning and structure planning.
		Not support expansion of industrial uses outside industrial zoned areas.
		Not support the rezoning of land on Tom Price Road to Industry and only allow for additional uses to be approved where appropriate.
		Support the State Government actions that are aiming to enable the provision of land to facilitate 'Strategic Industry' and/or industry of state importance i.e. Improvement Plans and Improvement Schemes for Anketell and Maitland.
		Recognise and implement buffers to industry and infrastructure uses in accordance with <i>State Planning Policy 4.1 - State Industrial Buffer</i> policy.
		Maintain freight accessibility to <i>Strategic Industrial Areas</i> and the associated ports with suitable road and railway reservations in the Scheme.
	Expand commercial services within the City.	Facilitate expansion of commercial and retail floorspace through the provision of sufficient land appropriately zoned and serviced, ready for commercial / retail land uses.
		Include a 'Service Commercial' zone to primarily cater for Large Format Retail / bulky goods and showrooms.
		Implement the recommendations of the <i>Operational Economic Development Strategy 2014-2016</i> .
	Ensure planning and management of rural land enables appropriate use of the land and its resources.	Support the continued use of Pastoral Leases for agricultural purposes.
		Support diversification of uses on Pastoral Leases to facilitate development of alternative rural and tourism enterprises consistent with the City's <i>Economic Development Strategy</i> (2014).

POPULATION AND PREFERRED GROWTH PATTERN <i>Efficient and effective land and residential development to accommodate future growth</i>		
Themes	Strategies	Actions
GROWTH MANAGEMENT APPROACH	Facilitate the provision of sufficient amounts of Urban land ready for zoning, subdivision, and development in anticipation of growth periods.	Facilitate provision of sufficient unconstrained, and appropriately zoned land to accommodate population growth up to 38,000 and beyond by 2031 allowing for significant industry-led boom periods.
		Identify sufficient land for each settlement as Development Investigation Areas to accommodate population growth to at least 50,000.
		Implement the land use planning recommendations from the various Townsite Structure Plans in relation to future development areas.
		Prioritise the assessment, review, approval, and clearance of structure plans and subdivision proposals to facilitate timely release of urban land to match industry-led high demand periods. Continue to advise the Western Australian Planning Commission and relevant state authorities aware of land supply priorities.
		Support industries whose operational workforce models are based on a permanent residential workforce being accommodated within the City of Karratha, consistent with the preferred growth pattern of this Strategy.
		Facilitate timely resolution with Native Title groups for identified Urban Expansion and Development Investigation Areas.
		Identify and provide for redevelopment opportunities.
URBAN CONSOLIDATION AND RENEWAL	Consolidate housing activity by encouraging development in existing (or identified) residential areas	Implement the land use planning and density coding recommendations of the <i>Karratha Revitalisation Strategy</i> (2015) for Bulgarra, Millars Well and Pegs Creek.
		Review density codes as part of the preparation of Town Planning Scheme No.9 with a view to identifying appropriate areas for upcoding and redevelopment.
		Facilitate the development of identified Lazy Land sites.
		Enable the development of surplus Public Open Space identified as suitable for rationalisation and reinvestment processes.
	Provide a liveable and climate responsive model for urban development.	Review Local Planning Policy DP7 Residential Frontages and adopt expanded acceptable development provisions of the Residential Design Codes.
		Investigate opportunities for conveniently located Common Boat and Caravan Storage Areas as an alternative to private lot storage.
		Permit compatible and appropriate mixed use development within residential areas on the basis that they do not adversely affect the amenity of the residential areas.
HOUSING DIVERSITY	Facilitate the provision of diverse, high standard housing options to accommodate a range of demographic groups and respond to demographic trends.	Target a gross residential density between 10 and 15 dwellings per hectare across existing 'Urban' and 'Urban Expansion' areas. Apply variations in gross residential density to reflect local character and site specific constraints.
		Ensure a mix of housing types and density options generally as follows: a. 75 per cent low to medium density with a wide range of lot sizes; b. 15 per cent medium to high density grouped dwellings; and c. 10 per cent apartment buildings.
		Adopt and implement the recommendations of the following documents: a. Karratha Revitalisation Strategy; b. Draft Dampier Structure Plan; c. Roebourne Townsite Structure Plan; d. Wickham Structure Plan; and e. Draft Point Samson Structure Plan.
		Require high quality Transient Worker Accommodation developments which are integrated with neighbourhood environments for operational FIFO workers in accordance with Local Planning Policy DP10 Transient Worker Accommodation.
		Regulate and incentivise the implementation of the Pilbara Vernacular handbook and the Karratha Vernacular handbook
		Work with Landcorp, Department of Housing and others to explore alternative and innovative lot typologies which respond to the housing needs of the growing community.

COMMUNITY SERVICES AND SPACES		
<i>Community services and spaces that contribute to attracting people to the City and retaining people locally</i>		
Themes	Strategies	Actions
COMMUNITY FACILITIES	Promote liveability of the City by developing a variety of community services, facilities and recreational areas to support the forecast population growth.	Have regard to the <i>Community Facilities Plan</i> (2013) in planning for the provision of land to accommodate community facilities required to meet the needs of the forecast population.
		Pursue reservation and management orders for the <i>Karratha Hills Nature and Recreation Reserve</i> .
		Implement the recommendations of the City's: a. Karratha Foreshore Management Plan; b. Gnoorea (40 Mile Beach) Foreshore Management Plan; c. Point Samson Foreshore Management Plan; and d. Draft Dampier Foreshore Management Plan.
		Ensure, where practical and reasonable, that community facilities are located within/adjacent identified Activity Centres.
	Provide an appropriate balance of local, district and regional open space to meet needs for passive and active recreation, conservation and drainage functions	Have regard to the <i>Community Facilities Plan</i> (2013) in planning for Public Open Space areas to meet the needs of the forecast population.
		Prepare a <i>Drainage Reserve Upgrade Plan</i> to consider staged enhancements to drainage reserves.
	Ensure equitable sharing of costs for new community facilities between the City and development industry	Prepare a Developer Contribution Plan and Developer Contribution Scheme based on the <i>Community Facilities Matrix</i> .
EDUCATION AND YOUTH SERVICES	Enable a broad range of education and youth faculties to be developed.	Establish and recognise an <i>Education Precinct</i> under the Scheme to promote coordination of land use for allied secondary and tertiary education development (including the provision of boarding facilities to service secondary education needs of North West Australia) incorporating the expansion of the Karratha District High School and Pilbara Institute Campus.
		Enable creation of population of threshold within Eastern Corridor to support a new Wickham High School.
		Plan for a range of attractive youth facilities and spaces accessible outside standard business hours as part of key community sites.
HEALTH AND AGED CARE	Facilitate the provision of a diverse range of quality health and aged care services and accommodation types for the population.	Investigate and identify sites appropriate for retirement villages, aged care and respite centres to enable aging in place.
		Assess long-term demographic trends to inform review in the provision of such services.
		Establish a Health Precinct that encourages complimentary and specialist health services to co-locate in the vicinity of the <i>Karratha Health Campus</i> , including aged care accommodation.
		Implement the recommendations of the 'Housing Diversity' section of this Strategy to facilitate a variety of dwelling options and enable 'Aging in Place'.

NATURAL ENVIRONMENT & RESOURCE PROTECTION		
Conserve natural resources and cultural heritage values and minimise risks associated with natural disasters		
Themes	Strategies	Actions
BIODIVERSITY AND NATURAL HERITAGE	Support conservation, protection and management of natural resources and native vegetation where possible, to enhance soil and land quality, water quality, biodiversity, fauna habitat, landscape, amenity values and ecosystem function.	Implement, where possible and appropriate, the land use planning recommendations of the <i>Shire of Roebourne Environmental Strategy</i> (2013).
		Investigate best means to recognise and protect significant landscape features such as the Karratha Hills, including consideration of inclusion in the Conservation Estate with joint management responsibility between the City and Traditional Owners.
		Identify, where possible and appropriate, opportunities in subdivision and development to establish: a. reserves for locally significant bushland and habitat; and b. cultural and environmental corridors to provide connectivity between environments.
		Support inclusion of regionally significant vegetation identified in Mardie, Karratha and Pyramid Pastoral Leases within the Conservation Estate.
	Conserve natural heritage for the benefit of visitors and future generations.	Work with Murujuga National Park Management Group to protect, provide guided access to and effectively manage the Murujuga National Park.
COAST	Preserve the pristine coastline and marine environment.	Engage with community, traditional owners, State and Federal Governments, non-government organisations, industry and developers to improve facilities, management and use of coastline.
	Consider access, infrastructure requirements and management of coastal recreation activities to enable environmental conservation and protection of natural heritage values of coastal reserves.	Implement the land use planning recommendations of the City's <i>Coastal Management Strategy</i> .
		Implement the Coastal Foreshore Management Plans for coastal nodes i.e. Point Samson, Dampier, Cossack and Cleaverville.
FLOODING CYCLONES AND BUSHFIRE MANAGEMENT	Where appropriate in the planning process, utilise the coastal hazard risk management and adaption planning measures provided for by State Planning Policy 2.6 - <i>Coastal Planning Policy</i> to minimise risk associated with coastal processes.	Ensure land use decision making has due regard for the recommendations of the <i>Karratha 2D Flood Study and Local Water Management Framework</i> (2013).
		Implement the City's <i>Coastal Hazard Risk Management and Adaption Plan</i> to reflect the best available information using the most recent predictions for sea level rise and coastal processes, to provide for up-to-date storm surge and flood risk information.
	Plan for Bushfire risk management to protect people, property and infrastructure.	Where appropriate, consider bushfire risk management as part of structure planning, scheme amendments, land use and development and decision-making.
WATER SOURCE PROTECTION	Ensure land use and development growth is commensurate with reliable, dependable and sustainable sources of potable and non-potable water.	Establish <i>Special Control Areas</i> in the Scheme that encompass water source protection areas.
		Ensure that land use and development is compatible with the protection and long-term sustainable management of water resources for water supply.
		Work with Water Corporation and Department of Water to secure long term potable water supplies for population growth.
		Ensure continued delivery of the Effluent Reuse Scheme in accordance with the 'Utilities' section of this Strategy to reduce the drawing of water from natural sources.
HERITAGE	Conserve areas of heritage significance and where appropriate, consider complimentary land uses.	Update the City's Municipal Heritage Inventory and enable the co-location or occupation of heritage buildings with appropriate land uses.

INFRASTRUCTURE

Adequate infrastructure to support economic and population growth

Themes	Strategies	Actions
AIRPORTS PORTS AND RAIL	Encourage compatible development and appropriate support industries in proximity to the Karratha Airport.	Implement the airport operations related land use planning recommendations from the <i>Karratha Airport Masterplan & Land Use Plan 2013 - 2033</i> .
		Include a Special Control Area for the Karratha Airport (based on the N70 and ANEF contours) and provisions that allow for development subject to compliance with the relevant Australian Standards.
		Identify the southern part of the Airport Reserve as 'Development Investigation Area - Airport' on the Strategy Plan and investigate the potential for complimentary use of land not required for airport operations under the <i>Karratha Airport Masterplan & Land Use Plan 2013-2033</i> .
	Support port upgrades which stimulate economic development and deliver community benefits.	Continue to work with the State Government, the Pilbara Port Authority and industry to plan, protect and utilise port facilities as an important part of the local, State and National economy.
		Encourage the concentration of investment on key port infrastructure.
		Encourage common user and general cargo port(s) / berth(s) which facilitate diversification of the local economy.
	Protect Rail Corridors that from the encroachment of incompatible uses.	Implement land use controls to protect rail functions.
		Promote the addition of grade separated rail crossings on the regional road network.
ROADS	Encourage the continued investment into inter-regional and intra-regional roads to provide safer and more efficient regional road connections to North Western Australia, and within the Pilbara.	Promote construction of a regional road connection between the eastern extent of Millstream Road, the Karratha Industrial Estate and North West Coastal Highway (avoiding low lying tidal flats) as the preferred link between Karratha and Anketell.
		Support the upgrade of North West Coastal Highway to a four-lane divided road between the future Anketell Port and Karratha.
		Subject to agreement with Main Roads regarding acquisition, create Scheme reservation for the Western Bypass Road within Karratha.
		Advocate for the provision of formalised and well maintained truck breakdown facilities.
		Continue to monitor the performance of the local road network and determine priority upgrades and the costs of those upgrade works (traffic model).
		Develop the concept design for the East West Spine Road in Karratha, including a staging plan and construct stages as funding becomes available.
	Facilitate coordinated, timely upgrade and extension of the service infrastructure networks in line with forecast population growth and in accordance with the Economic Development and Tourism Strategies and ensure the equitable sharing of public works infrastructure in new development and redevelopment areas.	Prepare a Development Contribution Plan for new infill development areas which identifies necessary public works as a result of additional development and gazette a <i>Development Contribution Scheme</i> as a funding mechanism for the necessary works.
		Facilitate implementation of the movement network initiatives outlined in the LPS <i>Supplementary Transport Paper</i> (2014).
		Progressively review the traffic demand forecasts to confirm long term future transportation needs are appropriately provided for.
		Prioritise the planning and construction of the <i>Western Bypass</i> and road connections between Mulataga and the <i>Karratha Industrial Area</i> in accordance with the Strategy Plan.
		Support the inclusion of North West Coastal Highway on the National Road Network.

	Identify road construction and upgrading requirements to support major industries and the role of Karratha as the City of the North	Advocate the upgrading of the <i>Tom Price to Karratha Road</i> to a sealed standard in recognition of the role of Karratha in providing higher order health and retail services.
BUFFERS AND INFRASTRUCTURE PROTECTION	Ensure that essential infrastructure (and their associated corridors) servicing industrial areas are identified and protected to avoid conflict between industry and/or essential infrastructure and sensitive land uses.	Protect key infrastructure including: a. 330kv electrical transmission network; b. Other high order power infrastructure using the <i>Pilbara Power Project Board</i> as a resource; c. Dampier to Bunbury Natural Gas Pipeline; and d. Balla Balla Pipeline.
		Apply a <i>Community and Public Purpose</i> reservation to relevant infrastructure.
		Support the initiatives of the <i>Pilbara Power Project Board</i> to oversee procurement of power from the private sector and coordinate management/ownership of the existing fragmented <i>North West Interconnected System</i> transmission network.
		Continue to implement the <i>Pilbara Underground Power Project</i> .
		Recognise and implement buffers to industry and infrastructure uses in accordance with <i>State Planning Policy 4.1 - State Industrial Buffer</i> policy.
		Include and revise Special Control Areas in the Scheme to reflect the buffers required for the Karratha Airport and Waste Water Treatment Plants.

<div>UTILITIES</div> <div>Efficient Utility provision to accommodate a growing population</div>		
Themes	Strategies	Actions
PUBLIC AND PRIVATE UTILITIES	Align infrastructure service planning to staging of growth to meet predicted supply demands.	Support and facilitate provision of key service infrastructure required for economic development and diversification.
		Encourage planning for water utility infrastructure in increments of 5,000 people to stage expansion to match demand.
		Work with the Department of Water, the Water Corporation, and other stakeholders to ensure an adequate water supply for future growth.
		Design and implement integrated water management strategies consistent with State Planning Policy 2.9 - Water Resources for all settlements.
		Attend to urgent infrastructure expansion requirements. Prioritise investigations into relocation and upgrading of the wastewater treatment plant to enable Dampier to support Karratha in meeting the population of 50,000 and beyond.
		Work with service providers to make sure upgrades in public utility capacity are staged well ahead of demand-driven requirements.
		Monitor power supply schemes to ensure timely upgrade of distribution network as required to facilitate development.
	Plan for and invest in sustainable systems for energy and water provision.	Participate in initiatives established to: <ul style="list-style-type: none"> a. Investigate alternative long term water supply options for the City with the view to secure a supply option in the immediate future; and b. Investigate opportunities for wastewater recycling and other non-potable water sources to meet industry needs and relieve demand on the West Pilbara Water Supply Scheme (e.g. mine dewatering).
		Adopt scheme provisions that encourage and facilitate alternative power supply opportunities.
		Ensure scheme provisions encourage water sensitive urban design, water-wise retrofitting and increased wastewater recycling for Public Open Space irrigation, horticulture and other non-potable uses, consistent with WAPC Guidelines for Better Urban Water Management.
		Investigate alternative power supplies to meet future power needs of the City's assets.
		Work with others to facilitate the continued delivery of the Effluent Reuse Scheme.
		Support the development of a solar farm at the airport and the consideration of solar infrastructure at other community facilities i.e. Karratha Leisureplex.
	Improve telecommunication infrastructure to support economic development.	Support enhanced mobile phone coverage in the City, especially highways.
		Promote the installation of advanced telecommunications infrastructure.
STORMWATER	Facilitate an effective drainage network that provides additional amenity.	Use the City's flood modelling information and upgrade the drainage network to reduce flooding risk.
		Identify parts of the drainage network that can be upgraded to function as high amenity public open space. Prepare and implement enhancement plans.
		Prepare local planning policies to guide the use of drainage reserves in residential areas.
WASTE SERVICES	Centralise waste management services.	Promote the City's Seven Mile waste facility as a suitable central point for most waste services including Class 2 and future Class 3 waste facilities.
		Encourage new industries and mine operations to utilise the City's existing waste facilities.

ADVERTISING

The City of Karratha Local Planning Strategy certified for advertising on

.....201...

Signed for and on behalf of the Western Australian Planning Commission

_____Date

An officer of the Commission duly authorised by the Commission
(pursuant to the Planning and Development Act 2005)

ADOPTED

The City of Karratha hereby adopts the Local Planning Strategy, at the Ordinary meeting of the Council held on the _____ day of _____201

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CITY MAYOR

.....

CHIEF EXECUTIVE OFFICER

ENDORSEMENT

Endorsed by the Western Australian Planning Commission on _____ day of _____201

_____Date

an officer of the Commission duly authorised by the Commission
(pursuant to the Planning and Development Act 2005)