

Port Hedland

Regional HotSpots Land Supply Update

April 2011



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Department of
Planning

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Published by the
Western Australian Planning Commission
Albert Facey House
469 Wellington Street
Perth WA 6000

Published April 2011
Data current as at November 2010

ISBN: 0 7309 9717 0

website: www.planning.wa.gov.au
email: corporate@planning.wa.gov.au

tel: 08 9264 7777
fax: 08 9264 7566
TTY: 08 9264 7535
infoline: 1800 626 477

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1 Executive summary

1.1 Context

Port Hedland is located on the northern coast of the Pilbara region, approximately 1700 kilometres north of Perth, Western Australia. Originally the home to the indigenous Karriyarra and Nyamal people who are called Marapikurrinya, it was gazetted as a townsite in 1896 to take advantage of the natural harbour. The settlement operated in its early years as a service centre for the sparsely settled pastoral hinterland, goldmining and short-lived pearling industries.

The discovery of large deposits of iron ore in the Pilbara region in the 1960s resulted in major changes for the town such as the dredging of the harbour, construction of railway lines to Goldsworthy and Newman, and the construction of housing and facilities to accommodate iron ore workers and their families. To accommodate the rapidly expanding population in the mid-1960s, a satellite suburb was established 23 kilometres south of Port Hedland. South Hedland is now home to approximately two-thirds of the town's population.

Renewed investment in resource projects during the 2000s, again boosted Port Hedland's role as a major service and administration centre. Today, the Town of Port Hedland estimates a total service population of approximately 18,650 persons, of which approximately 3500 are fly-in, fly-out (FIFO) workers.

In November 2009, the Western Australian Government announced its Pilbara Cities vision to build on the resource boom to improve life in the Pilbara and turn Port Hedland and Karratha into diverse, 21st century cities. This report is a component of the essential planning process to enable that vision.

1.2 Key points

- Port Hedland's greatest current challenges are developing land, housing and infrastructure to keep pace with rapid, and sometimes unpredictable, population and employment growth.
- Land and infrastructure upgrades currently in progress will initially satisfy unmet demand from the recent resource boom of the 2000s, and then meet future growth needs.
- Preparation of the Port Hedland City Growth Plan is a high priority to address complex planning, infrastructure and development constraints.
- The longer-term growth of Port Hedland will require a more diversified economy and a broader range of amenities, services and community facilities.

Economic outlook and business investment

- Port Hedland is at the coastal gateway to some of the world's richest resource deposits of iron ore. Continued world demand for steel drives major investment in mining and transport infrastructure to feed export markets. As well as acting as a transport hub, Port Hedland is a service centre for accommodation, goods and services which support the construction and operational phases of resource projects.
- A round of massive investment in the 2000s to increase the throughput capacity of existing operations and to open up new resources caused a proportional increase in demand for developed land and infrastructure. This investment also had considerable multiplier effects for ancillary employment, goods and services, further increasing demand for developed land and housing.
- The positive economic outlook for commodity demand and prices may trigger a new round of expansion as long as there is access to investment capital. A number of recent announcements indicate a return to investment following a period of uncertainty surrounding the Australian Government's proposed mineral resource rent tax.
- As projects move from construction to operational phases, workforces can shift from a predominance of FIFO employment to higher proportions of resident

employees. Business decisions regarding the mix of FIFO and resident employees are therefore critical to determining the impact on land and housing demand.

- Attracting and retaining workers will remain a high priority in Port Hedland for the medium term. Incentives such as housing and social amenity will be an essential part of keeping key workers in the town. Normalisation of Port Hedland will potentially offer additional opportunities for business investment.
- The State Government has announced its desire to develop Pilbara's major urban settlements so they are self-sustaining communities that offer attractive lifestyle opportunities. A more diverse and sustainable economic base will enable Port Hedland to evolve from a regional town to a regional city with a wide range of amenities, services and facilities.

Employment and wages

- Estimates of future resource-related employment for Port Hedland are highly variable, due in part to the unpredictability of resource sector investment, and are exacerbated by difficulties accessing projected employment numbers from resource companies due to commercial confidentiality.
- Pilbara Industry's Community Council (PICC) 2010 projections, based on a conservative resource project investment outlook, show that even after taking the Gorgon project into account, construction employment in the Pilbara is likely to peak at approximately 28,000 in 2012, and decline as the capital investment phases of these projects is completed. Resource companies indicate that this may be a sharp decline across the region with a loss of around 25,000 workers over six years representing nearly 90 per cent of the current construction workforce. However, the actual rate of this decline will depend on whether resource companies commit to new investment on projects that are currently under consideration. These industry estimates may be overly conservative as a number of resource companies reported only construction employment for new and existing projects that are at an advanced planning or approvals stage, and excluded the more speculative projects.
- In contrast, operational, maintenance and service employment will increase, predominantly driven by expansion of mining projects. PICC projections indicate that the Pilbara region's resource-related employment (excluding construction workers) is projected to grow from 31,000 in 2010 to 47,000 in 2015, and reach 54,000+ by 2020. Figures include residential employment increasing by 28 per cent over the period 2010 to 2015, and FIFO employment increasing by 83 per cent between 2010 and 2015, and by a further 23 per cent to 2020.
- Increasing operational, maintenance and service employment related to resource projects will underpin demand for local housing, depending on the proportion of workers who are resident versus FIFO.
- PICC projections suggest that the contribution of FIFO workers to the total resource related employment will increase over time, from 49 per cent in 2010 to more than 61 per cent of total resource related employment in 2020. This larger component of FIFO workers is an increase over 2008 projections.
- Strong resource-related employment in Port Hedland has created a highly competitive market for skilled construction workers. This has created labour shortages in the local housing construction industry, contributing to the high cost of housing.
- Compared with Western Australia as a whole, Port Hedland has a relatively large proportion of residents on very high incomes. Few Port Hedland households are in the State's middle-income bracket.
- Income disparity between those who are, and those who are not, employed by the resource sector is directly affecting housing affordability. Growing numbers of people outside the resource industry are finding Port Hedland housing difficult to afford. Port Hedland residents who work in the retail, hospitality, tourism and general service sectors are in critical need of affordable accommodation.
- Attracting and maintaining workers will remain a high priority in Port Hedland for the medium term. Incentives such as housing and social amenity will be an essential part of keeping key workers in the town.

Population

- The Australian Bureau of Statistics (ABS) provides an annual statistic of the estimated resident population (ERP) which is more accurate than the figures from the Census of Population and Housing as ERP corrects for the undercount and discrepancies associated with multiple places of residence from the 2006 Census. A limitation of ERP is that it does not include transient workers. The Pilbara region has a large number of transient workers (including FIFO) who are not included in ERP. This group accounts for a significant proportion of the population in many Pilbara towns, adding approximately 10 to 25 per cent to the population of larger towns.
- The Town of Port Hedland had an estimated resident population of 14,624 persons in June 2010 (the most recent ABS statistic), and recorded an average annual growth rate of 2.8 per cent over the period 2005 to 2010 (and 4 per cent over the year to 30 June 2010).
- As at the end of August 2010, the Town of Port Hedland estimated the total service population (ERP plus transient workers) to be in the order of 18,650 persons. This figure is based on a survey of all accommodation facilities, including permanent dwellings, workers camps and tourist accommodation facilities, and is considered an accurate reflection of the Town of Port Hedland's actual service population at any one time (although they may not cover smaller settlements which constitute around 4 per cent of the total population in the local government area).
- PICC projections suggest a total service population for Port Hedland of 18,846 persons in 2010, rising to 24,562 persons in 2013 before dropping to 21,062 persons by 2015. These industry estimates may be overly conservative as they only include employment for new and existing projects at an advanced planning or approvals stage; with the more speculative projects excluded.
- The WAPC, in its role as State demographer, has endorsed the use of the population projections prepared by the PICC by all agencies for forward planning in the Pilbara. PICC estimates a resident population of 19,012 for the Port Hedland area by 2015.
- Planning by the Town of Port Hedland is currently based on growth to a population of 40,000 by 2025.
- The demographic structure of Port Hedland differs from the rest of the State: there are proportionally more young people, more males and fewer elderly persons than the State average. Port Hedland's population is also more mobile than the State's population in general.
- Population growth in Port Hedland has traditionally depended on the investment phases for major projects and has generally stagnated when there has been no new resource-related construction. The Pilbara Cities vision is a departure from project-led population growth to a policy-led position and will require significant Government intervention to achieve aspirational growth targets. The Pilbara Cities vision targets a population for both Karratha and Port Hedland of 50,000 people by 2035, which would require each centre achieving an annual average population growth of 4 to 5 per cent maintained over the next 25 years.

Zoned and development land

- Land supply in Port Hedland is limited with only 115 ha of undeveloped residential/urban development zoned land currently available. The majority of this land is located in South Hedland (109 ha).
- Government agencies are progressing planning and feasibility work for a number of sites including the Spoilbank Marina, east Port Hedland and areas to the south and southeast of South Hedland. These areas could potentially yield several thousand dwellings. Development in these areas is subject to the outcomes of the Town of Port Hedland's City Growth Plan, which is currently being prepared with completion anticipated by September 2011.
- The *Port Hedland Land Use Master Plan* identified more than 200 ha of land for potential rezoning to future residential development (areas not currently zoned residential or urban development). The Port Hedland City Growth Plan will further investigate this potential.
- The Town of Port Hedland has investigated the development potential of vacant residential, rural residential, commercial and industrial land (which is

in both Government and private ownership) through the *Port Hedland Public Land Rationalisation Plan* and *Hedland Land Availability Plan*. These plans summarise development opportunities and constraints for each site, aiming to rationalise and facilitate the development of identified sites.

- The Town of Port Hedland has also prepared a report on housing capacity, identifying land which can potentially be developed for housing purposes, as well as the processes and timeframes involved in developing land for housing and the ultimate housing capacity of individual sites.
- As at June 2010, there were approximately 111 ha zoned for commercial, town centre and mixed business uses in Port Hedland and South Hedland, of which approximately 28 ha were undeveloped. The majority of the undeveloped zoned land is in the South Hedland town centre, with little undeveloped land available for these uses in Port Hedland.
- There is currently more than 6350 ha of land zoned for industrial uses in the vicinity of Port and South Hedland. Approximately two-thirds of this land area is the Boodarie Industrial Estate, zoned for strategic industrial uses, the majority of which remains undeveloped. There is little undeveloped land zoned for general and light industrial uses across Port Hedland.
- In some areas, land identified for potential future development may be flood-prone which further constrains development.

Subdivision and building approvals

- At 30 September 2010, there were 332 residential lots with conditional approval for subdivision, the majority of which were in South Hedland (262 lots). A large portion of these lots will likely reach final approval stage in the short-term, improving the supply of residential lots to the market.
- The statistics indicate a drop in the number of building approvals and lots receiving final approval in the first three quarters of 2010 when compared to the high level of approvals over the previous three calendar

years. Construction by the Department of Housing has accounted for a significant portion of total development in South Hedland in recent years.

- Industrial subdivision activity in Port Hedland has been very low over the past 10 years, which has constrained supply. There were 27 industrial lots with conditional approval for subdivision at 30 September 2010, most of which are in LandCorp's Wedgefield stage 2 subdivision.

Residential land and housing demand

- Demand for housing in Port Hedland is heavily influenced by the economic cycles of the mining industry. Demand is constantly shifting, resulting in difficulties in developing and maintaining an adequate supply of housing.
- There is a backlog of unmet land and housing demand from the previous investment boom, estimated at approximately 1400 dwellings at the end of 2009 (draft *Pilbara Towns Housing Study*). While building approvals increased over the period 2007 to 2009, the number of new dwellings being constructed is still falling short of meeting the existing demand.
- The housing shortage means house prices will remain a major challenge in the short term. While residential land prices during 2010 were less than those recorded in metropolitan Perth, Port Hedland's median house price was significantly higher - highlighting the Pilbara's very high construction and replacement costs. In the year to September 2010, the median house price for the Port Hedland urban area was \$703,750 compared with Perth's \$480,000. Port Hedland is significantly more expensive than South Hedland, recording a median house price of \$960,000 (year to September 2010), compared to South Hedland's \$670,000.
- Scarce housing limits the ability for private and public organisations to provide services and the opportunity for the towns to develop mature, functioning housing and labour markets. In Port Hedland this causes a high turnover of workers and the displacement of lower-income households from town.

- There is a critical need for a more diverse range of housing in the region including more affordable accommodation for service workers (to support the retail, hospitality, tourism and general service sectors) and increased numbers of medium and higher density dwellings.
- Building costs in the Pilbara region are significantly higher than that of the Perth metropolitan region. This is due to a number of factors including a lack of competition, distance and freight costs, increased building standards due to environmental factors (for example cyclones) and high labour costs as a result of labour shortages.
- Developing and selling residential lots does not have an immediate effect on satisfying demand because real demand is for housing, not just the land. Dwelling construction can be protracted due to a number of factors including unwillingness to invest in a volatile market, limited local building companies, delays in mobilisation of materials and labour and extreme seasonal weather conditions.

Land release

- LandCorp and the Department of Housing are progressing development of sites in both Port Hedland and South Hedland. A number of lots are currently under construction in South Hedland, primarily by the Department of Housing as part of the New Living program.
- A number of sites in South Hedland have been released by the Department of Regional Development and Lands and the Town of Port Hedland, with two stages released to date via an expression of interest process. Some of the sites were only available to not-for-profit organisations for the development of affordable/key-worker housing. Further stages are planned.
- Port Hedland's East End has capacity for the development of a large number of lots/dwellings. The area presents significant challenges in terms of resolving complex development constraints, which will be considered as part of preparation of the Port Hedland City Growth Plan. The plan will identify and prioritise

sites suitable for future urban development, and will need to consider the Pilbara Cities growth scenario and its implications for land use in both Port and South Hedland.

- A \$106 m project to relocate the Port Hedland wastewater treatment plant was announced in January 2011, freeing-up approximately 75 ha of land for residential development.
- The private sector is becoming increasingly involved in development in the town and is likely to develop a number of larger sites in the short-to-medium term.
- Sites in the South Hedland Town Centre have the capacity to yield a large number of additional dwellings, some of which will be released to the market in the short to medium-term. Subject to further planning and approvals, sites to the west and south of the town centre, and southeast of the town have also been identified for potential urban development.
- There is continuing strong demand for industrial lots, given few industrial land releases over recent years.
- Land to the south of the airport has been identified for development of transport/light industrial uses in the longer-term. Development in this area is subject to further investigation and outcomes of the Port Hedland City Growth Plan.

Infrastructure

- Current commitments to industrial and residential growth will fully utilise existing water capacity and there is a need to expand these schemes. The Water Corporation is currently undertaking groundwater investigations for the Yule and De Grey borefields.
- Relocation of the Port Hedland wastewater treatment plant to the South Hedland facility was announced by State Government in January 2011. The project is estimated to cost \$106 m, and will likely cater for growth through to the mid-2030s. It is anticipated that the facility will be decommissioned by mid-2014.
- Horizon Power's load in the Pilbara has grown significantly in recent years. The current demand-supply balance is becoming increasingly tight and does

not cater for expansion in the region. Horizon Power is presently evaluating a range of options to procure additional capacity, with a preference to have new high-efficiency generation installed prior to the summer period of 2012/13.

- A key feature of the Pilbara Cities blueprint is to improve the liveability of regional centres by investing in community infrastructure and facilities.
- Limitations to the supply of and access to, sufficient quantities of basic raw materials increases construction costs and may potentially pose a constraint to some developments.

1.3 Regional HotSpots and the Urban Development Program

The Regional HotSpots series assesses land for future residential, industrial and commercial uses and identifies the planning and infrastructure coordination needed to meet demand across selected regional centres in Western Australia. The series has been prepared by the Department of Planning (DoP) for the Western Australian Planning Commission (WAPC).

Key aspects of these reports are:

- demand drivers specific to each regional centre including an assessment of the major economic factors that influence employment and population growth, and therefore the demand for land and housing;
- assessment of zoned land supply for residential, commercial, industrial and tourism uses;
- detailed infrastructure assessments coordinated with land development;
- planning and environmental approvals assessments including Native Title agreements as well as environmental heritage and subdivision approvals; and
- infrastructure mapping indicating sites, buffer areas and corridors required for existing and future infrastructure.

This Regional HotSpots series has been prepared as part of the Urban Development Program (UDP), and is the result of consultation with a number of stakeholders, including local governments and servicing authorities. The series is a key component of the Pilbara Planning and Infrastructure Framework and Pilbara Infrastructure Implementation Plan.

The most recent edition of all Regional HotSpots publications can be accessed online at: www.planning.wa.gov.au.

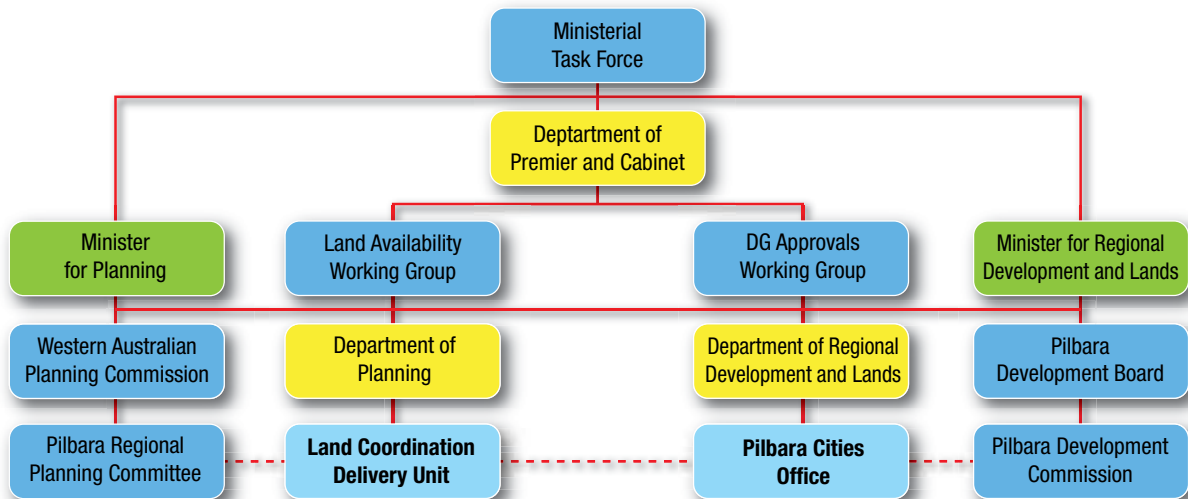
1.4 Pilbara Cities

On 27 November 2009, the State Government announced the Pilbara Cities blueprint, an initiative to encourage more people to live and settle in the Pilbara. The State Government's vision for Pilbara Cities is for modern vibrant regional centres that can support and deliver a skilled workforce for major economic projects in the Pilbara. The realisation of this vision rests on the promotion of quality regional living with modern services and facilities which will encourage the development of strong local communities. The blueprint includes proposals for major revitalisations of South Hedland, Karratha, Newman, Dampier, Tom Price and Onslow town centres, in addition to plans to create new marinas and improved waterfronts at Port Hedland, Dampier and possibly Onslow. New infrastructure and facilities such as schools, TAFEs, medical facilities, leisure and entertainment facilities and retail precincts are also proposed as part of the plan. The initiative also aims to maximise opportunities for indigenous communities.

Critical to the success of the plan is the attraction of residents and businesses not involved in the traditional mining, oil and gas sectors to the region, creating places where people choose to settle on a permanent basis with access to high standards of services.

To be successful, the Pilbara Cities vision must build on the joint contribution of the private sector, State Government and Australian Government to support the development and prosperity of the region. The private sector will play a crucial role in achieving the plan, including assisting with the delivery

Figure 1: Pilbara Cities governance structure (State Government)



of affordable accommodation solutions by the release of development sites and superlots for the development of land and housing, including opportunities in the private rental market.

The relationship between key State government agencies and groups is outlined in Figure 1.

1.5 Port Hedland overview

The area around Port Hedland is the traditional home to the Karriyarra people who call the place Marapikurrinya for the hand-shaped formation of the tidal creeks coming off the natural harbour.

Port Hedland was gazetted as a townsite in 1896 and operated in its early years as a service centre for the sparsely settled pastoral hinterland, gold mining and short-lived pearling industries. The remnants of this early history are concentrated in the West End, which was virtually the extent of the town until the 1960s. By the end of the second world war only 150 people resided in the town.

The discovery of large iron ore deposits in the Pilbara region and the lifting of the Commonwealth embargo on iron ore exports in 1962 gave rise to the formation of the Mt Goldsworthy Joint Venture and the Mt Newman Mining Co Ltd, which were to have a great affect on the fortunes of Port Hedland. The boom which then began sparked the establishment of nine new towns in the region by 1970, increasing the region's population tenfold.

Associated with the development of the iron ore industry were major infrastructure projects such as the dredging of the harbour,

construction of railway lines to Goldsworthy and Newman, and the construction of housing and facilities to accommodate iron ore workers and their families. At the same time the Leslie Salt Company (now Dampier Salt Ltd) commenced development of a solar salt industry. A new land backed wharf was built to cater for salt exports and to improve the facilities available for the import of fuel and producer items. The first shipment of iron ore from the region occurred in June 1966 from Finucane Island.

Another significant event that also occurred at this time was the introduction of the pastoral award (1968). As a result, many pastoralists could not afford to pay full wages to station workers which triggered a substantial movement of Aboriginal people from inland stations to coastal settlements.

As Port Hedland grew, it was realised that the expanding population could not be accommodated in the existing town centre, so the decision was made to establish a satellite town 23 kilometres from Port Hedland. The town was based on the Radburn style of development which promoted a walkable living environment, with houses facing onto open space areas and being linked by walkways. The result was a highly convoluted road network and development unsuitable for the area's extreme climatic conditions.

Discoveries of offshore oil and natural gas, and development of these resources in the 1980s further expanded the region's economy and population.

In 2009/2010 exports through the Port Hedland port reached 178.6 million tonnes, approximately 97 per cent of which was iron ore exports. Other exports include salt, manganese, chromite and copper.

Overview – for more information see the following links:

Australian Bureau of Statistics: www.abs.gov.au
see 2006 Census QuickStats: Port Hedland (urban centre/locality)

Pilbara Cities: www.pilbaracities.com

Pilbara Development Commission:
www.pdc.wa.gov.au

Spotlight on the Pilbara:
www.regionalspotlights.com.au

Town of Port Hedland: www.porthedland.wa.gov.au

2 Economic outlook and business investment

Key points

- World demand for iron ore drives Port Hedland's economy, constituting 97 per cent of the port's throughput by volume in 2009/2010.
- The long-term economic outlook for commodity demand in the region is underwriting major investment decisions in new projects. Port Hedland is in the midst of major investment in mines (expansions and new projects), rail and port infrastructure, particularly by BHP Billiton Iron Ore and Fortescue Metals Group (FMG).
- In 2009/2010 the port of Port Hedland regained its status as the largest tonnage port in Australia and the largest bulk minerals export port in the world, exporting a total of 178.6 million tonnes of cargo.
- Port throughput in the Port Hedland inner harbour is expected to double on the current tonnage levels in the next three years, and grow to 450 million tonnes per annum in the next five years.
- Most exports through Port Hedland are destined for China, although significant quantities are also exported to Korea.
- A number of smaller new investment projects are progressing through the feasibility stage.
- Projects can take many years to progress through to investment commitments; nonetheless, some mining companies are accelerating their project implementation growth plans in the Pilbara region.
- The impact on the town of Port Hedland by these various projects is largely determined by their physical proximity, the proportion of fly-in, fly-out workers employed by each project and whether the project has on-site, work camp or residential accommodation for its employees.
- Iron ore royalties to the State Government are forecast to grow from \$1.9 billion in 2009/2010 to \$3 billion in 2012/13.
- As well as long-term benefits, major investment by the State and Australian Governments in infrastructure projects will also bring short-term economic benefits to Port Hedland during the construction phase.

2.1 Economic outlook

The Town of Port Hedland's main industries are iron ore processing and export, salt production and export from extensive evaporation ponds, shipping of manganese and other minerals and livestock production (mainly cattle).

The Pilbara region plays a key role in the economy of the State and the nation. The region is dominated by resource industries including iron ore, oil and gas extraction and processing. Based on data from the Department of Mines and Petroleum, in 2009/2010 the Pilbara region accounted for 47 per cent of the value of the State's mineral and petroleum production. Offshore petroleum accounted for an additional 27 per cent of the total value.

The Australian Commodities December Quarter 2010 report produced by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) predicts that for the 2010/11 year the volume of iron ore exported will increase by 5 per cent Australia wide. A predicted 119 per cent increase in world iron prices as well as an expected recovery of the Australian dollar is forecast to result in a 46 per cent increase in Australian export earnings from iron ore in 2010/11. During 2010, iron ore spot prices averaged around US\$134 a tonne, and are expected to decrease to US\$105 a tonne in 2011.

Total earnings from mineral resource exports across the nation decreased by 14 per cent to \$137.2 billion in 2009/2010, reflecting lower contract prices for bulk commodities for the first three quarters of 2009/2010 as well as a significant appreciation of the Australian dollar against the US dollar. This was partly offset by higher prices for a range of commodities in 2009/2010.

Port throughput tonnage in the Port Hedland inner harbour for the 2010/11 financial year is forecast to grow to around 200 megatonnes per annum (Mt/a), with iron ore estimated to reach around 194 Mt/a. Should existing port customer expansion plans and a number of proponent development plans within the inner harbour proceed, it may well see the port double the current tonnage levels in three years, and grow to 450 Mt/a in the next five years. As export capacity in the inner harbour is limited (assessed capacity 495 Mt/a), planning for an outer harbour port facility to provide for future capacity is essential. A multi-user outer harbour port facility off Finucane Island in the Port Hedland Port is planned to provide additional capacity of 400 Mt/a to meet demand.

The economic outlook for the Western Australia is for a return to strong growth over the next few years as business investment recovers strongly and takes the place of public investment as the primary stimulus for the State's economy. This is demonstrated by the components to the Gross State Product (Table 1).

The contribution of iron ore royalties to the State's economy will be boosted by more than 50 per cent (Table 1) by several factors as identified by the Department of Treasury and Finance, including:

- a recent surge in prices indicating that iron ore royalties, which are set to rebound sharply in 2010/11, reflecting strong international demand, especially in China, against a backdrop of a relatively limited global supply response;

- agreements between major producers and a number of Asian steel mills to abandon the traditional annual benchmark pricing system in favour of shorter-term contracts with direct links to spot prices; and
- a substantial increase in production volumes of Pilbara iron ore producers as a result of major capital investment over the past several years, particularly by Rio Tinto and BHP Billiton Iron Ore.

The Western Australian Department of Treasury and Finance prepared its outlook prior to the Australian Government announcing agreement with major mining companies for a new minerals resources rent tax. Consequently the figures do not take into account any possible effects the tax may have on mining investment decisions.

Table 1: Key economic forecasts, statistics and assumptions for Western Australia

	2008-09 actual	2009-10 actual	2010-11 mid year revision	2011-12 forward estimate	2012-13 forward estimate	2013-14 forward estimate
Gross State product (GSP) and selected components	%	%	%	%	%	%
Real gross State product growth	0.7	4.3	4.0	4.75	4.5	4.0
Real State final demand growth	4.4	3.5	5.25	5.75	5.25	3.75
Business investment growth	10.5	1.25	12.0	10.0	8.0	4.0
Dwelling investment growth	-4.2	3.25	6.5	3.5	5.0	5.5
Public investment growth	8.1	18.5	0.5	3.75	-3.0	-10.5
Key economic statistic forecasts						
Employment growth (% p.a.)	3.2	0.3	3.55	2.5	2.5	2.5
Unemployment rate (%)	3.7	5.0	4.75	4.75	4.5	4.25
Wage price index growth (% p.a.)	5.2	3.3	4.25	4.25	4.5	4.5
Average weekly earnings growth (% p.a.)	5.2	5.5	4.5	5.25	5.75	5.75
State population growth (% p.a.)	3.2	2.6	2.3	2.2	2.2	2.1
Other key economic forecasts and assumptions						
Oil price (US\$ per barrel)	68.9	75.0	85.6	87.9	88.8	89.0
\$US / A\$ (cents)	74.6	88.3	97.1	92.1	85.8	79.6
Iron ore price (\$US per tonne)	-	61.7	107.4	96.5	85.7	74.9
Iron ore royalties (A\$ m p.a.)	1933	1720	2676	2970	3062	2929
Petroleum royalties (A\$ m p.a.)	21	30	40	42	43	41

Notes: Growth figures are annual averages over the respective period. Forecasts assume no Commonwealth policy changes.

Source: WA State Budget Papers 2010-11, Economic and Fiscal Outlook, Budget Paper No. 3, 20 May 2010, pages 3, 12, 50 & 80 and 2010-11 Government Mid-year Financial Projections Statement December 2010 pages 3 and 43.

2.2 Trade statistics

In 2009/2010, the Port Hedland Port recorded a total trade of 178.6 megatonnes, which represents an increase of 19 Mt from the previous year. Current capacity expansions include a multi user Panamax berth at Utah Point and proposed additional berths over the next five years mean the port is likely to increase its lead as the largest tonnage port in Australia.

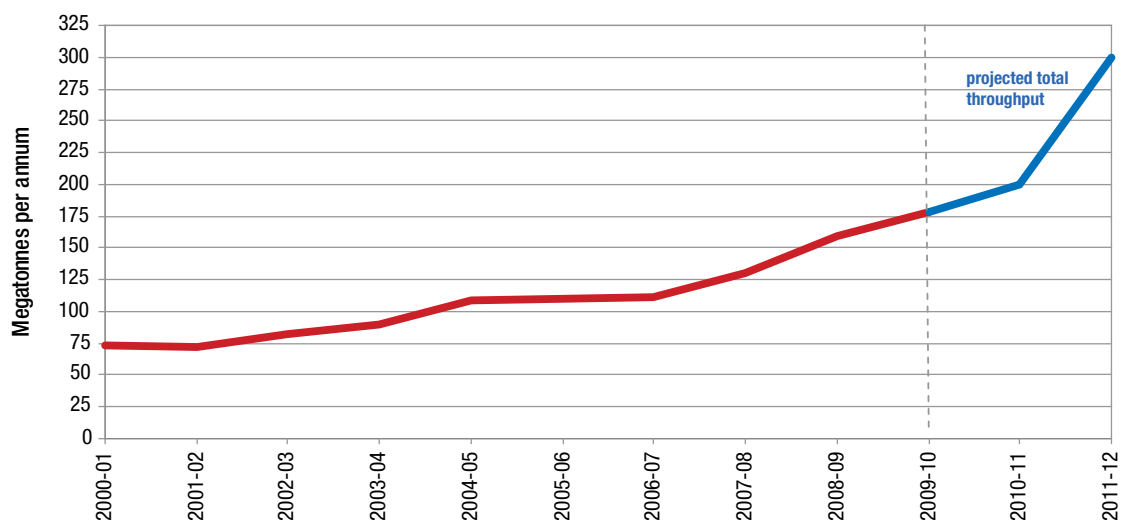
The port exported 174 Mt of iron ore in 2009/2010 representing approximately 97 per cent of total throughput. Other commodities exported through the port include manganese (1 per cent), chromite, copper concentrates and livestock. The port imported 1 megatonne in 2009, primarily fuel and construction materials. Port throughput has increased by approximately 2.5 times over the last ten years, with significant increases recorded over the last three financial years, where throughput has increased by 19-28 Mt/a (Figure 2).

2.3 Business investment

The Access Economics Investment Monitor September Quarter 2010 report indicates sustained levels of business investment which is expected to drive Australia's continued economic recovery. The mining sector is expected to lead the next big surge in project investment, underpinned by strong commodity prices and continued demand for resources from the emerging Asia region. Investment interest in Western Australia's mining sector hardly faded during the global financial downturn, and recent months have seen a renewed lift in project announcements and approvals.

ABARES reports that expenditure on mineral exploration in 2009/2010 in Australia is estimated at \$5.5 b, the third highest on record, and nearly double the average exploration expenditure of the past 30 years. Iron ore exploration expenditure is estimated to decline by 6 per cent to \$555 m in 2009/2010, following a 31 per cent increase in expenditure in 2008/09. New capital expenditure in the mining industry in 2009/2010 was the highest on record, at \$41.3 b, with indications that this may increase further in 2010/11. These figures provide a positive indication of the pace and scale of development in the mineral and energy sector across the nation.

Figure 2: Port Hedland Port Authority - total cargo throughput (2000/01 to 2009/10 financial years) and projected throughput



Source: Port Hedland Port Authority (2010), Port Hedland Port Authority (2009)

BHP Billiton Iron Ore's Rapid Growth Project 5 is under way with the construction of two more berths at Harriet Point and additional rail and mine infrastructure. In January 2010, BHP Billiton Iron Ore announced that it has received approval of capital expenditure for significant portions (long lead-time items and detailed engineering) of its Rapid Growth Project 6, to further accelerate growth of its iron ore business. BHP Billiton Iron Ore engaged the Leonardo da Vinci dredger to start dredging two berths at Burgess Point in the second quarter of 2010.

Fortescue Metals Group (FMG) is also proposing major expansion with its Three Hub -Two Ports strategy comprising development of Chichester, Solomon and Western Hubs with exports through Port Hedland and the proposed Anketell Port. Fortescue's existing mining operations at Cloudbreak and Christmas Creek mines, collectively referred to as the Chichester Hub, are ultimately projected to produce 95 Mt/a for export through Port Hedland. The recent Chichester optimisation project will lift capacity to 20 Mt/a from early 2011.

The Solomon Project includes two new iron ore mining areas (Firetail and Kings), located approximately 60 kilometres north of Tom Price. The deposits will produce a combined total of up to 80 Mt of iron ore per annum. Ore from stage 1 of the Solomon mining areas (60 Mt/a) will be transported to Port Hedland for export via the proposed Solomon rail line. This 127 kilometre line will link the two new mines to Fortescue's existing north-south rail line. A 15 kilometre rail spur between the Firetail and Kings deposits will also be constructed.

While there are a number of projects still in the pre-feasibility stage, some have secured sales contracts, thereby increasing the likelihood of them proceeding in the short-to-medium term.

A study into the development of a further 400 megatonne capacity multi-user outer harbour facility off Finucane Island in Port Hedland Port Authority waters, to meet demand for iron ore post 2014, has been completed. To alleviate pressure on the inner harbour, which currently has an approved capacity of 470 Mt/a, planning for a privately funded multi-user outer harbour facility to provide for additional capacity at Port Hedland is essential. Concept plans for the outer harbour were finalised last year and are currently being considered by the State Government.

BHP Billiton Iron Ore has expressed interest in potentially developing an outer harbour port facility for its proposed growth program, which may involve further mine, rail and port expansions. The Port Hedland Port Authority, Department of Transport and BHP Billiton Iron Ore have undertaken significant research over a number of years to ensure there are no fatal flaws with developing the outer harbour facilities (up to 20 berths).

Investment in the port includes plans to add 11 berths in the inner harbour over the next five years, increasing the throughput to 470 Mt/a. Berth developments are being progressed by The Pilbara Infrastructure Pty Ltd (TPI)/Fortescue Metals Group (FMG), Hancock Prospecting and the North West Iron Ore Alliance. TPI/FMG has been allocated 120 Mt/a of capacity in the inner harbour and four berths, with two of these berths already developed and dredging work completed on the third berth. The Port Hedland Port Authority has earmarked two berths in South West Creek with a total capacity of 55 Mt/a for Hancock Prospecting Pty Ltd's Roy Hill 1 Project. Two berths at the back of South West Creek have also been earmarked for the North West Iron Ore Alliance and other non-aligned juniors with a total capacity of 50 Mt/a. These companies are actively progressing their design, engineering and relevant project and regulatory approvals to progress the development of their infrastructure.

The development of a multi-user export facility at Utah Point has been completed. The berth has a 7500 tonne per hour ship loader and the potential to export around 18 Mt/a. This facility represents the port's commitment to facilitating trade of the junior iron ore miners and other port users.

Growth in import and export of containers and general cargoes, including break-bulk and project cargoes to support project development, and future industrial proponents of the Boodarie Industrial Estate, is also anticipated and planned to be accommodated in the Port Hedland inner harbour. The Port Hedland Port Authority is planning for a potential general cargo container hub to enable the import and export of containers directly through Port Hedland to service the Pilbara and North West region. The *Pilbara Freight Study* (2008) examined the potential of container services at Port Hedland Port, and identified that one of the potential benefits would be a reduction in the proportion of the total Perth-Pilbara freight task that would be carried by road.

The logistics base planned at Port Hedland Port's Lumsden Point could also support general cargo trade as well as rig tender vessels, construction support craft, cement, fuel, ammonium nitrate, and import of Pre Assembled Modules (PAM) and major earth moving, mining and processing equipment. The proposed development of the Lumsden Point support infrastructure facility includes the reclamation of initially 140 ha of port authority land for proponent needs and industrial use to facilitate the development of the oil, gas, mining, processing and infrastructure industries in the North West, and future industry development at the Boodarie Industrial Estate. The Port Hedland Port Authority has commissioned expert consultants to develop a concept design for the support infrastructure facility/logistics base and discussions are being held with a potential major user of the facility, who has expressed interest in developing the facility within three years.

Table 2 lists proposed major investments that are likely to affect demand for land and housing in Port Hedland. The location of these projects in relation to Port Hedland is shown in Map 2. In the short-to-medium term, all projects now under construction or committed will have some impact on the town, although the degree of impact is highly variable. Much depends on the proximity of the project to the regional centre, the proportion of fly-in, fly-out workers verses local employees and whether the project has on-site or work camp accommodation for its employees.

Understanding the local impact is a critical factor in determining the timing and quantum of future demand for land and housing in regional centres. It is not always possible to accurately determine these demand factors as they are driven by investment decisions which are most often commercial-in-confidence.

Throughout the challenging economic conditions of the Global Financial Crisis, the Pilbara has maintained a number of resource projects which has kept demand for land and housing high. The projects currently under construction around Port Hedland have maintained both strong employment and wage income in the town. In addition, the number and scale of committed projects drives strong business and private confidence in the area. This directly influences investment decisions of both businesses and individuals for commercial, industrial and residential land.

Table 2 also includes projects that are under consideration, typically meaning future stages of projects that are not yet committed or projects in the pre-feasibility stage. While these projects can be in the very early stages of consideration or be quite speculative, they provide an indicator of the potential long-term project investment that could take place.

The continued operation of major resource projects in the Pilbara will maintain resource-related employment and drive demand for housing in Port Hedland. The establishment of new resource projects is also likely to generate additional demand for residential, commercial and industrial land in Port Hedland. The State Government has announced its desire to "normalise" major regional centres so that they are self-sustaining communities that offer attractive lifestyle opportunities, rather than being "mining towns".

The timing of existing and new resource projects will also influence the level of demand for land in Port Hedland. As projects move from construction to operational phases, workforces are likely to shift from a predominance of fly-in fly-out employment to higher levels of resident workforces.

Table 2: Major projects (selected)

Proponent / project	Resource / commodity	Location	Nearest major centre	Production		Capital investment	Construction workforce ¹	Additional permanent workforce ¹	Start	Status / comment
Committed / under construction										
BHP Billiton Iron Ore – Rapid Growth Project 5	Iron ore	Port Hedland and Newman	Port Hedland	Increase production by 50 Mt/a		\$4.8 b	fluctuating	unknown	Second half 2011	Under construction.
Fortescue Metals Group – Chichester Optimisation	Iron ore	Port Hedland and Chichester (~250 km south of Port Hedland)	Newman (mine operations) Port Hedland (port operations)	Increase in production initially to a total of 20 Mt/a then expansion to a total of 95 Mt/a. Maximum port capacity available 120 Mt/a.		US\$3 b	unknown	3200	2011 to reach 20 Mt/a. Expansion to 95 Mt/a estimated by 2012.	Rail extensions from Cloudbreak to Christmas Creek 95% complete. Processing plant on schedule for commissioning first quarter 2011.Capital expenditure to facilitate expansion to 55 Mt/a approved. Advancing with plans to expand to 95 Mt/a.
Fortescue Metals Group – Solomon Hub Stage 1	Iron ore	70 km north of Tom Price	Tom Price (mine operations) Port Hedland (port operations)	60 Mt/a (stage 1), increasing to 160 Mt/a (stage 2)		US\$4 b	1000	1000	Late 2012/early 2013. Two year construction period to begin in 2011.	Stage 1 feasibility study completed for 60 Mt/a project - initial development awaiting final board approval. Stage 2 mine and rail feasibility studies progressing. Exploration ongoing. Requires 127km rail spur to existing FMG line (stage 1), stage 2 rail line to Anketell port.
Moly Mines – Spinifex Ridge Iron Ore	Iron ore	170 km southeast of Port Hedland and 50 km north-east of Marble Bar	Port Hedland	1 Mt/a		\$20 m	400	350	Commissioning of processing plant commenced fourth quarter 2010. First shipment mid-December 2010.	
Total investment / workforce (projects committed/under construction)						\$11 b+	1400+	4550+		
Under consideration										
Atlas Iron Ltd – Abydos	Iron ore (hematite)	130 km south of Port Hedland	Port Hedland	3 Mt/a hematite (10 Mt by 2012)		\$60 m	unknown	unknown	2011	Decision made 2009 to promote Wodgina (commenced production January 2010) ahead of Abydos in the production schedule. Pre-feasibility study completed for 3 Mt/a direct shipping ore operation.
Atlas Iron Ltd – Balla Balla	Iron ore (magnetite) concentrate + vanadium, titanium, phosphate	12 km north-west of Whim Creek	Port Hedland	6 Mt/a (increasing to 10.1 Mt/a in 2015)		\$1.7 b	680	860	First half 2012	In process of securing project funding. Operations scheduled to commence first half 2012. Two 15 yr sales contracts in place. Bankable feasibility study completed for staged expansion approach. Environmental approval granted.
Atlas Iron Ltd – Ridley Magnetite	Iron ore (magnetite)	75 km east of Port Hedland	Port Hedland	15 Mt/a		\$3 b	960	unknown	2013 (construction commencement)	Pre-feasibility completed. Progressing discussions for sale of a majority interest.
Atlas Iron Ltd – Turner River Hub (centralised processing/haulage point for Wodgina, Abydos & Mt Webber projects)	Iron ore (processing/haulage hub)	95 km south of Port Hedland	Port Hedland	Increase from 6 Mt/a to 10 Mt/a (blend & process ores from Wodgina, Abydos & Mt Webber)		\$178 m	unknown	unknown	Expansion to be commissioned December 2012	Pre-feasibility study completed. Definitive feasibility study due to be completed second quarter 2011.
BHP Billiton Iron Ore – further growth	Iron ore	Port Hedland and Newman	Port Hedland	Increase production		\$2.2 b	unknown	unknown	2013	Dredging of two berths at Burgess Point commenced 2010. Pre-commitment expenditure of US\$1.7 b and US\$570 m have been announced since January 2010 for funding of detailed engineering of inner harbour expansion, rail dual tracking work and expansion of the Jumblebar mining operation.
Fortescue Metals Group - Central Pilbara Project (Solomon 2 & Western Hub)	Iron ore	70 km north of Tom Price	Tom Price (mine operations) Port Hedland (port operations)	20 Mt/a (increasing to 100 Mt/a by 2017)		\$7b	unknown	unknown	2014	Project comprises mines, railway linking mines to Anketell port.
Hancock Prospecting Pty Ltd – Roy Hill Iron Ore mine, rail and port project	Iron ore	105 km north-east of Newman	Newman (mine operations) Port Hedland (port operations)	55 Mt/a capacity (by 2018)		\$7.2 b	1500	750	Mid-2011 (construction commencement). Production by 2014.	Pre-feasibility completed. Bankable feasibility study commenced and expected to be completed by October 2010. State agreement announced June 2010 to facilitate construction of railway. Environmental approval received for mine stage 1 and 2.
North West Iron Ore Alliance – (Atlas Iron, Brockman Resources, FerrAus)	Iron ore	Port Hedland and various mining locations in the Pilbara	Port Hedland	50 Mt/a capacity		\$2.1 b	unknown	unknown	2013	Alliance members are conducting intensive exploration, evaluation and feasibility programs covering a range of iron ore deposits in the Pilbara region. Also advancing the development of its South West Creek port and stock handling facility, with pre feasibility works completed and definitive feasibility studies underway.
Moly Mines Spinifex Ridge - Molybdenum/Copper	Molybdenum, copper	50 km north-east of Marble Bar	Port Hedland	10 Mt/a expansion to 20 Mt/a		\$556	400	375		Permits obtained. Project subject to financing. Ready for immediate construction (two year construction period).
Port Hedland Port Authority – Lumsden Point	Port infrastructure, including 140 hectares of reclaimed land in phase 1 of the project	Port Hedland	Port Hedland			\$ unknown	unknown	unknown	2012	
Total investment / workforce (projects under consideration)						\$21 b+	3540+	1985+		
Prefeasibility										
CBH Resources – Panorama (Sulphur Springs) open cut	Zinc, copper, pyrite, silver	160 km south-east of Port Hedland	Port Hedland	50 kt zinc, 20 kt Copper, 0.5 Mt pyrite		\$242 m	176	150		New project, scoping underway, CBH has confirmed project is economically viable.
Total investment / workforce (projects at pre-feasibility)						\$242 m	176	150		

Source: Prospect magazine, Department of Mines and Petroleum (2010), Pilbara Development Commission (2009), Minerals and Energy Projects – Major development projects, ABARE (2010), Access Economics Investment Monitor (2009).

¹ Workforce is the anticipated number of people who will be employed by a project during construction or operational (permanent) phases. These figures may differ to the number at commencement of the project and should be read as indicative. In some cases workforces may be split across various project elements and therefore various locations.

Mtpa – megatonnes per annum ktpa – kilotonnes per annum

2.4 Tourism

According to Tourism WA's Overnight Visitor Fact Sheet for the Town of Port Hedland, on average 81,100 overnight visitors came to the Town of Port Hedland each year across 2007, 2008 and 2009. Business was the main purpose of visit for domestic visitors at 63 per cent, and holiday/pleasure for international visitors at 81 per cent. The average room occupancy for hotels, motels and serviced apartments with 15 or more rooms in 2008 was 77.7 per cent and in 2009 occupancy averaged 85.3 per cent. Domestic overnight visitors spent a total of \$34 m annually (average over period 2004/05 to 2006/07), with international overnight visitors spending another \$2 m annually over this time.

Research by the Tourism Forecasting Committee shows that between 1999-2009 the annual growth rate for visitor nights in regional Western Australia (excluding Perth) was -1.2 per cent. Total visitor nights in regional WA are predicted to increase by 0.4 per cent each year between 2009 and 2019, which is lower than that forecast for Perth, at 2.5 per cent. Domestic visitor nights in regional Western Australia are forecast to change by -0.5 per cent annually over the period 2009-2019.

Development of the tourism industry in Western Australia relies on the provision of appropriate infrastructure, which services the needs of tourists and encourages investment by the private sector. Tourism WA facilitates infrastructure development through its report *Tourism Development Priorities*, which identify key infrastructure projects for tourism development across the State.

Tourism WA monitors private and public sector tourism development activity across the State, maintaining a comprehensive database that tracks the progress of tourism accommodation projects. A summary is published annually in the *Register of Significant Tourist Accommodation Development*. At June 2010, the register reported six projects at the planning stage in the North West tourism region, with an estimated cost of \$155 m.

The Town of Port Hedland has commenced preparation of a tourism strategy, which is due to be completed by April 2011.

Economic outlook and business investment – for more information see the following links:

Access Economics: www.accesseconomics.com.au
see Investment Monitor

Australian Bureau of Agricultural and Resource
Economics and Sciences: www.abares.gov.au
see Australian Commodities Report, Australian Mineral
Statistics, Minerals and Energy – Major Development
Projects and Economic Outlook

Australian Bureau of Statistics: www.abs.gov.au
see Catalogue 8635.5.55.001 - Tourist Accommodation,
Small Area Data, Western Australia

Department of Mines and Petroleum: www.dmp.wa.gov.au
see Prospect magazine

Department of Treasury and Finance: www.dtf.wa.gov.au
see Treasury - Economic Indicators and State Budget

Pilbara Development Commission: www.pdc.wa.gov.au
see Pilbara Projects Update

Port Hedland Port Authority: www.phpa.com.au
see Statistics and PortTalk Newsletter

Tourism WA: www.tourism.wa.gov.au
see Research and Statistics

3 Employment and wages

Key points

- Demand for skilled labour in Port Hedland will be at a premium, given that most of the State's record \$112 b worth of under construction or committed projects are in the Pilbara. High demand will sustain high wages for these workers and high house prices.
- In addition to the direct construction and operational workforces, project investment has considerable multiplier effects for ancillary employment, goods and services.
- Business decisions regarding the mix of FIFO and resident employees are critical to determining the impact on land and housing demand.
- Wage disparity between resource company employees and other workers in Port Hedland create challenges for land and housing affordability.

Actions and priorities

- Attracting and maintaining workers will remain a high priority in Port Hedland for the medium-term. Incentives to improve social amenity, such as housing, retail and service improvements will be an essential part of keeping key workers in the town.

3.1 Industry of employment

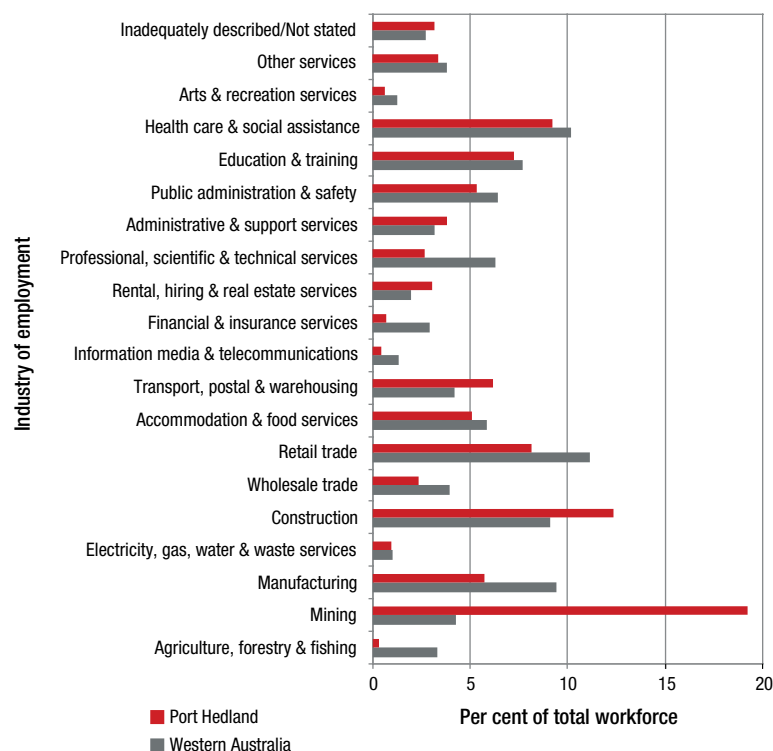
Census 2006 data indicates the following trends with employment and wages in Port Hedland:

- mining and construction employment accounts for 32 per cent of all employment in Port Hedland (based on place of usual residence);
- employment in the mining and construction industries is tied heavily to the price of commodities and the market decisions and strategies of major resource companies;
- there is a shortfall in employment in the tertiary (service) sector; particularly health care and social assistance occupations in comparison to the State;
- a lower proportion of residents working in the professional, scientific and technical services and financial services sector in comparison to the State.

Industry of employment data collected from the 2006 Census is shown in Figure 3.

The high demand for workers and accommodation in Port Hedland has led to increased wages, higher property prices and rents. Flexible working practices such as extended shift rosters and greater provision of temporary housing have made FIFO arrangements common for mining company employees in Port Hedland.

Figure 3: Census 2006 industry of employment - Port Hedland



Source: Catalogue 2068.0 Census Tables – Industry of employment by occupation, Australian Bureau of Statistics (2007)

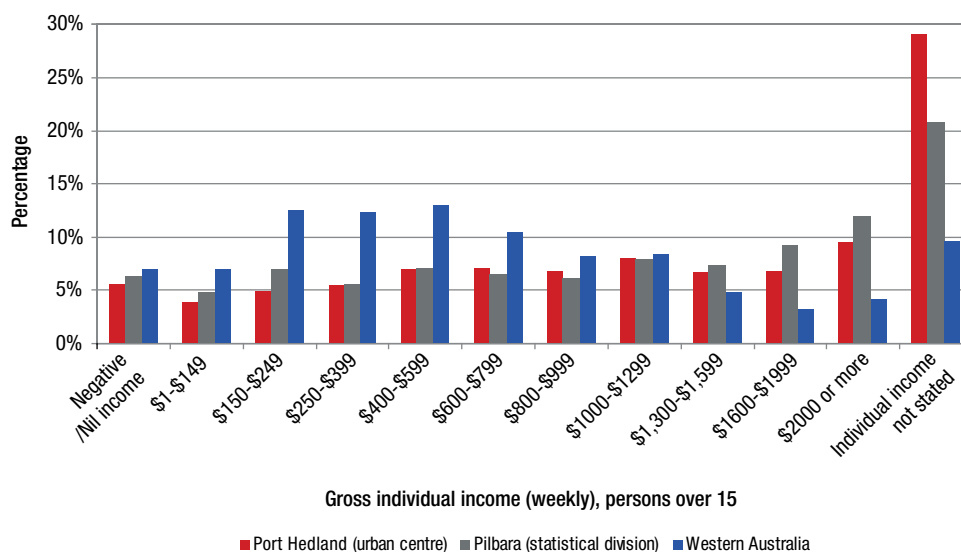
3.2 Income distribution

Compared with Western Australia as a whole, Port Hedland has a relatively large number of residents on very high incomes. Few Port Hedland households are in the State's middle-income bracket.

Based on data collected in the 2006 Census, in Port Hedland (urban centre/locality), the median weekly individual income for persons aged 15 years and older who were usual residents was \$862. This is significantly higher than the median weekly individual income for Western Australia at \$500. The median weekly household income in Port Hedland was \$1890, compared with \$1066 in Western Australia. In 2006 approximately 29 per cent of census respondents in Port Hedland (based on place of usual residence) reported a gross individual weekly income of above \$1000. This compares with around 20 per cent for the State.

Income distribution for Port Hedland, Pilbara and Western Australian residents is shown in Figure 4.

Figure 4: Census 2006 income distribution - Port Hedland, Pilbara and Western Australia



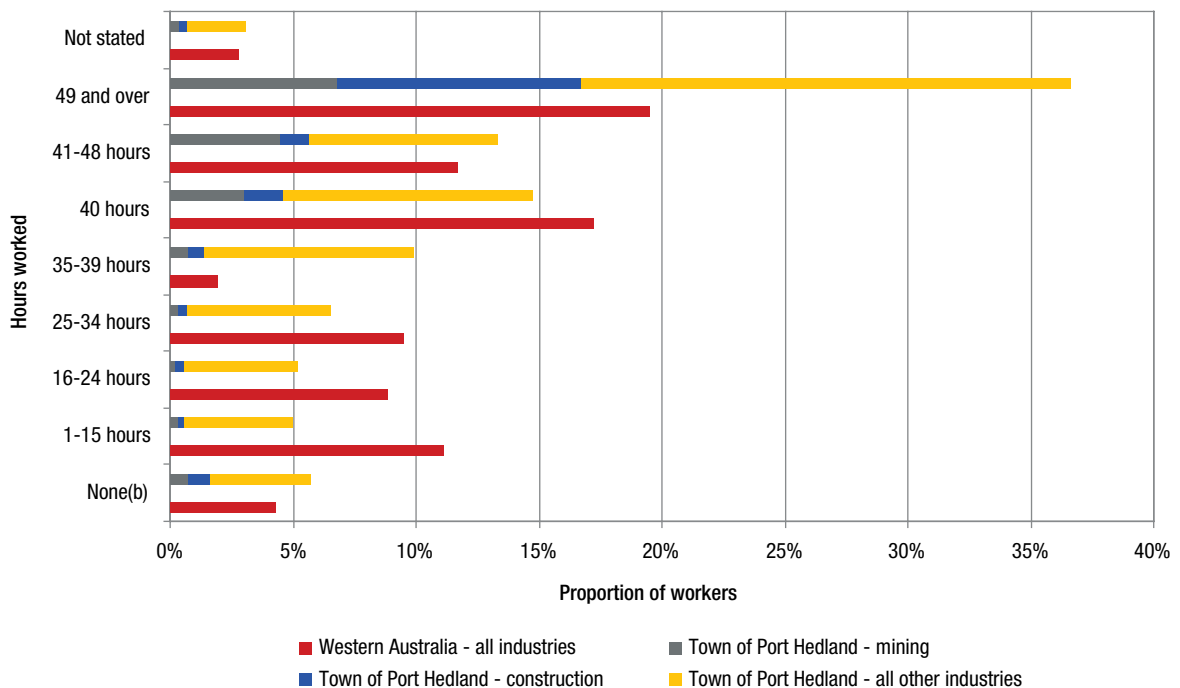
Source: Catalogue 2068.0 Census Tables – Gross individual income (weekly) by age by sex, Australian Bureau of Statistics (2007)

3.3 Working patterns

According to the ABS, the median wage in Western Australia grew at an average annual growth rate of 6.4 per cent over the period 2003/04 to 2007/08. Data for the Town of Port Hedland indicates an average growth rate of 6.6 per cent over the same period. Port Hedland recorded an average and median wage of \$63,661 and \$55,409 respectively in 2007/08, significantly higher than that of the State (\$46,199 and \$37,986 respectively) and the nation.

The pattern of working hours in the Town of Port Hedland shows a high proportion of employees that worked in excess of 40 hours per week, at around 50 per cent. This compares with 31 per cent of all workers in Western Australia working in excess of 40 hours per week. When broken down by industry, approximately 65 per cent of mine workers and more than 70 per cent of construction workers are working extended hours (more than 41 hours per week).

Figure 5: Census 2006 working patterns by industry - Town of Port Hedland and Western Australia



(b) Comprises employed persons who did not work any hours during the week prior to census night.

Source: Spotlight on the Pilbara, Census of population and housing – Working patterns by hours worked, Australian Bureau of Statistics (2009)

3.4 Labour force

Small area employment data compiled by the Department of Education, Employment and Workplace Relations indicates the labour force for the Town of Port Hedland was 6906 in June 2010, which is a significant increase from 6032 in June 2009. Data from the ABS publication *Spotlight on the Pilbara* indicates that while unemployment rates are generally higher in Port Hedland than anywhere else in the Pilbara, unemployment rates fell steadily from 1996 to 2006. The participation rate also dropped sharply from 2001 to 2006. The unemployment rate in June 2010 was 7.3 per cent, which represents an increase from 6.1 per cent in June 2009.

Income disparity between those who are, and those who are not, employed by resource companies is having a direct affect on housing affordability. Growing numbers of people outside the resource industry are finding Port Hedland housing difficult to afford.

With so many resource projects now being built, Port Hedland's own skilled construction workers operate in a highly competitive market. Anecdotal evidence suggests that many local tradesmen are lured away by higher wages offered by resource companies. Consequently the skills needed for residential construction is in short supply with the result that Port Hedland homes not only cost more but they also take longer to build.

Employment and wages – for more information see the following links:

Australian Bureau of Statistics: www.abs.gov.au
see Catalogue 2068.0 - 2006 Census tables: Port Hedland (urban centre/locality) - Industry of employment by occupation (place of usual residence and location on census night)

Catalogue 2068.0 - 2006 Census tables: Port Hedland (urban centre/locality) - Industry of employment by gross individual income (weekly) (place of usual residence)

Catalogue 5673.0.55.003: Port Hedland (local government area) - Wage and salary earner statistics for small areas, Time series, 2003-04 to 2007-08

Department of Education, Employment and Workplace Relations: www.deewr.gov.au
see Small Area Labour Markets - Australia

Department of Mines and Petroleum: www.dmp.wa.gov.au
see Western Australian Mineral and Petroleum Statistical Digest

4 Employment projections

Key points

- Iron ore projects remain the dominant driver of operating employment in the Pilbara.
- Estimates of resource related employment for Port Hedland are highly variable; however, PICC projections indicate that construction employment will peak in 2012 and decline over the period to 2015 as the capital investment phases of the projects is completed. These estimates may be overly conservative as they include construction employment for projects at an advanced planning and approvals stage, and exclude the more speculative, medium-to-longer term projects.
- In contrast, PICC data suggests that resource project operational, maintenance and service employment will increase.
- There are difficulties in estimating employment numbers due to the changeable and confidential nature of employment estimates by resource companies.
- Varying assumptions are made regarding consequential and indirect workforce multipliers, single/family status of workers and the FIFO/resident workforce components.
- There is no single comprehensive database currently available to source resource related employment information (especially for projects at earlier or pre-feasibility stages of development).

Actions and priorities

- Establishment of a single comprehensive database to source resource related employment information (especially for projects at earlier or pre-feasibility stages of development).
- Comprehensive employment projections need to include the construction workforces employed on existing projects that are coming to completion.

The Pilbara region has a large number of transient workers (including FIFO) which are not addressed through estimates of the resident population. This population accounts for a significant proportion of the population in many Pilbara towns, adding approximately 10 to 25 per cent to the resident population. Estimates of the size of this workforce are critical in order to plan for the demand for services in both the town and region. The Town of Port Hedland estimates that approximately 3500 FIFO workers are accommodated within its jurisdiction (as at August 2010).

Resource related employment information is not currently available in a single comprehensive database, making it difficult to estimate the size and nature (resident/FIFO) of the workforces associated with future resource and/or infrastructure projects. An understanding of the proportion of FIFO and construction workers for each project is also critical in determining the relationship between employment growth and the demand for residential, commercial and industrial land. The most current source of this information is employment projections data prepared by Heuris Partners Ltd for the Pilbara Industry's Community Council (PICC). This information is summarised below.

4.1 Pilbara Industry's Community Council (PICC)

Part of the Chamber of Minerals and Energy, the Pilbara Industry's Community Council (PICC) was established in 2006 to develop a shared vision and strategy in relation to the sustainability of Pilbara towns, and improve indigenous employment participation. PICC is also working to develop strategies to reduce gaps in education and training, health and housing. Membership of PICC includes BHP Billiton Iron Ore, Chevron Australia, Fortescue Metals Group, North West Shelf Venture, Rio Tinto Iron Ore and Woodside.

PICC is undertaking joint planning for major growth in the output of the resources sector in the Pilbara region to 2020. As part of this work, PICC is looking to broaden the understanding of the implications of this growth for service and infrastructure provision arising from the resulting employment and population changes in the region. In 2008, PICC engaged Heuris Partners Ltd to compile a bottom-up picture of major planned and potential resource projects and model the resulting direct and multiplier impacts on Pilbara employment and population growth out to 2020.

These figures build on the WAPC's population projections by providing projections on townsite populations and assumptions about service and FIFO populations. Completion of this work coincided with the onset of the Global Financial Crisis, which resulted in the delay or cancellation of a number of projects. Recent economic activity has seen a return of strong interest in new or expanded resource projects in the Pilbara region. In light of the renewed investment outlook in the Pilbara region, a review of the employment and population projections was prepared and published in May 2010.

The PICC approach involved estimating workforce numbers and then applying multiplier assumptions to determine the total workforce and resident population. The projections produced in 2008 represent the impact from PICC members, and not the total impact from all resource and infrastructure investment in the region. The projections prepared in 2010 however, include input from a broader range of sources, including non-PICC member projects.

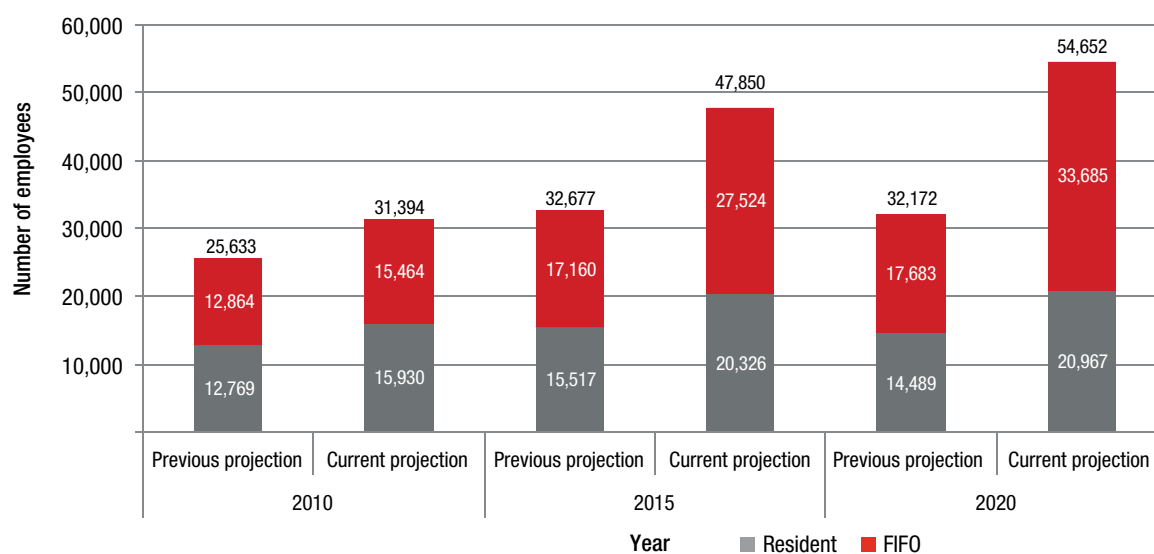
The 2008 figures were considered by government and industry, and stakeholders reached a consensus to use an agreed set of population figures. The WAPC supported the use of the PICC figures for planning purposes, but notes that the WA Tomorrow figures should be used for predicting resident population growth in the region.

The 2010 PICC data indicates that, at a regional level, resource related employment is projected to grow from 31,000 in 2010 to 47,000 in 2015, and reach 54,000+ by 2020 (excluding construction workers). These figures are significantly higher than the 2008 projections (an additional 15,000 workers by 2015). Other key points include residential employment increasing by 28 per cent over the period 2010 and 2015, and FIFO employment increasing by 83 per cent between 2010 and 2015, and by a further 23 per cent to 2020. This information is detailed in Figure 6.

PICC data suggests that the contribution of FIFO workers to the total resource-related employment will increase over time, from 49 per cent in 2010 to more than 61 per cent of total resource related employment in 2020. This larger component of FIFO workers is an increase over 2008 figures. Data specific for Port Hedland is shown in Table 3.

Construction employment is anticipated to peak at approximately 28,000 in 2012 and drop away sharply from 2015 onwards. These estimates are likely to be conservative due to a number of resource companies choosing only to include construction employment for new and existing projects at an advanced planning or approvals stage. The estimated construction employment for the Pilbara region over the period 2008 to 2020 is shown in Figure 7.

Figure 6: PICC resource related employment (2008 and 2010 projections) - Pilbara region



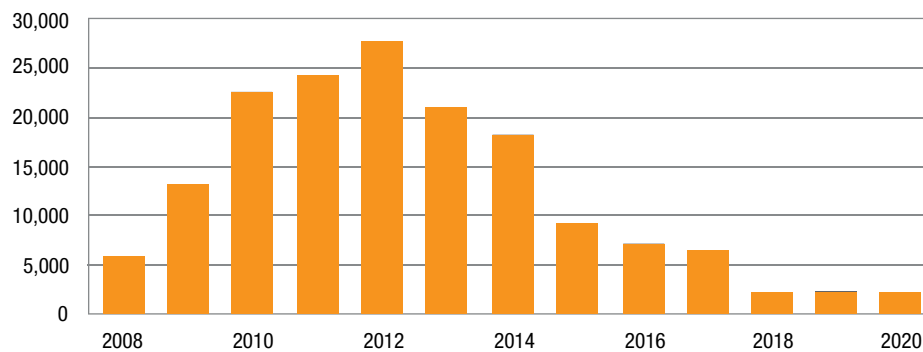
Source: Pilbara Industry's Community Council (PICC): Revised employment and Population Projections to 2020 (2010)

Combined resident, FIFO and construction workforce projections by location are shown in Figure 8. This data indicates that the combined population for the Pilbara region reaching more than 103,000 by 2012 before stabilising to approximately 98,000 persons over the period 2015 to 2020. This is significantly higher than the 2008 projections which estimated a peak of 75,000.

Data for Port Hedland is shown in Table 3. This data reflects the total service population for the Port Hedland locality, including resident, FIFO and construction workforces. An estimate of the total service population is important in determining the total population who access services and facilities in an area, especially in planning for future service delivery.

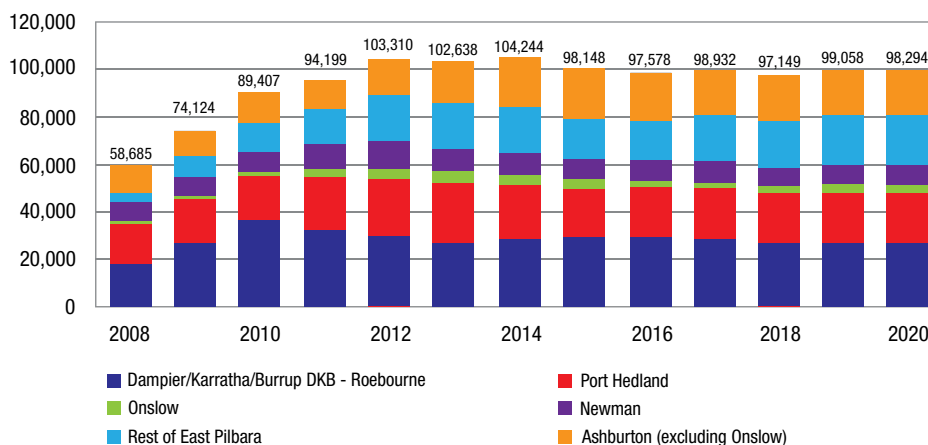
The population share for FIFO workers is expected to rise steadily to 1307 in 2013 before declining in 2014. The total construction workforce is anticipated to increase from 1980 in 2010 to 4590 in 2013, before decreasing to 1050 in 2014 and 2015. The non-resident element accounts for 16 per cent of the total population in 2010, peaking at 24 per cent by 2012 before declining again to under 10 per cent by 2015 as construction activity included in the projections falls away.

Figure 7: Construction employment projections (2008 to 2020) - Pilbara region



Source: Pilbara Industry's Community Council (PICC): Revised employment and Population Projections to 2020 (2010)

Figure 8: Combined resident, FIFO and construction workforce projections by location



Source: Pilbara Industry's Community Council (PICC): Revised employment and Population Projections to 2020 (2010)

Table 3: PICC settlement population projections 2010 to 2015 - Port Hedland

	2010	2011	2012	2013	2014	2015
Resident	15,826	17,007	17,945	18,705	19,012	19,012
FIFO	1040	1156	1261	1307	1050	1050
Construction	1980	3480	4590	4550	2300	1000
Total	18,846	21,643	23,796	24,562	22,362	21,062

Source: Pilbara Industry's Community Council (PICC): Revised 2010 employment and population projections to 2020

The PICC projections use local multipliers between 0.2 and 1.0 to estimate additional indirect employment generated from the resource projects.

The use of local employment multipliers for resource industry projects needs to be treated with caution. A true local employment multiplier relies on an employee spending enough of their income to support other businesses and employees in the local economy. Even with the high incomes of resource workers, it is practically impossible for a single employee to spend enough of their gross income in the local Port Hedland economy to fully support the wages of another 1.2 or 1.6 workers. Instead, the multiplier benefits of resource projects rely primarily on the contracting practices of the resource company itself and whether it buys goods and services locally, or whether it sources them from other locations.

Employment projections – for more information see the following links:

Australian Bureau of Statistics: www.abs.gov.au
see Catalogue 4102.0 Australian Social Trends 2008 article
- Towns of the Mineral Boom

Chamber of Minerals and Energy Western Australia:
www.cmewa.com.au
see Pilbara Industry's Community Council (PICC)

Department of Education, Employment and Workplace
Relations: www.workplace.gov.au
see Labour Market Analysis

Department of Planning, Western Australian Planning
Commission: www.planning.wa.gov.au
see WAPC Statement – Agreement to use PICC
population and employment projections for forward
planning in the Pilbara

Regional Development Australia Pilbara:
www.rdapilbara.org.au
see Pilbara Plan

5 Population and demography

Key points

- As at August 2010, the Town of Port Hedland estimated the total service population to be in the order of 18,650 persons. This figure takes into account all accommodation facilities, including permanent dwellings, workers' camps and tourist accommodation facilities.
- ABS data indicate that the Town of Port Hedland's resident population grew at 2.8 per cent per annum between 2005 and 2010, and at 4 per cent between 2009 and 2010.
- According to ABS data, as at 30 June 2010, the Town of Port Hedland had an estimated resident population of 14,624.
- WAPC projections (published in 2005) suggest that the resident population will increase by 0.9 per cent annually between 2010 and 2020, which is lower than that for WA as a whole.
- There are ongoing issues with population counts, estimates and projections.
- Determining the total service population is critical for service provision, but this can be difficult to estimate.

5.1 Estimated resident population – Town of Port Hedland estimate

The Town of Port Hedland estimates the locality's service population as at August 2010 to be approximately 18,650 (as per Table 4). This estimate has been calculated by using existing information from the 2006 Census, surveys of businesses/industries that provide accommodation, and Government departments and/or agencies which have the most up-to-date information on population numbers at any given site/location/operation.

To better validate the information, figures in many instances are provided on two levels:

- actual number of persons; and
- available number of beds/rooms/dwellings.

This method is considered to better reflect actual population rather than probable population. In addition, allowances have also been made in the population calculations for persons per dwelling (PPD), with the State average of 2.6 PPD being used rather than the Pilbara average of 2.9 PPD as contained within the 2006 Census. The State average has been used as it is a more conservative measure. To account for increases in numbers of dwellings since the 2006 Census, the Town's building department has supplied statistics for the number of dwellings built and demolished between January 2007 and January 2010. These numbers have been further compared with the number of residential lots released via subdivision during the same period.

This data takes into account all accommodation facilities, including permanent dwellings, workers camps and tourist accommodation facilities and is considered an accurate reflection of the Town of Port Hedland's actual service population at any one time. It is necessary to note that the data does not take into account any dwellings which may be vacant.

**Table 4: Estimated resident population
- Town of Port Hedland estimate**

Property	Persons	Multiplier	Dwellings/rooms/beds	
All Seasons	106	nil	65	rooms
Atlas Iron - Pardoo	60	nil	75	rooms
Beachfront	342	nil	450	rooms/beds
BHPB - Turner River	282	nil	300	rooms/beds
Blackrock Caravan	200	nil	200	sites
Club Hamilton	400	nil	456	rooms/beds
Cooke Point Caravan Park	363	nil	205	sites/rooms
Dwellings	14,443	2.6	5555	dwellings
Esplanade	23	nil	23	rooms
FMG rail camp 145	10	nil	129	rooms/beds
FMG rail camp 195	71	nil	263	rooms/beds
Hospitality	41	nil	40	rooms
Indee Station		nil		rooms/beds
Jinparinya	12	nil	9	dwellings
Marta Marta	5	nil	3	dwellings
Mia Mia	83	nil	192	rooms/beds
Petermurra	13	nil	4	dwellings
Pier Hotel	19	nil	20	beds
Pippingarra	closed	nil	closed	dwelling
Port Haven	829	nil	1,202	rooms/beds
Port Hedland Caravan Park	195	nil	164	sites/rooms
Pundulmurra	147	nil	186	rooms/beds
Punju Numal	13	nil	7	dwellings
Rural/Pastoral	129	nil	13	dwellings
South Hedland Motel	104	nil	104	rooms
Strelley	5	nil	4	dwellings
The Lodge		nil	135	rooms/beds
Tkalka Boorda	54	nil	15	dwellings
Tkalka Wara	closed	nil	closed	dwellings
Walkabout	74	nil	61	rooms
Wedgefield Camp	547	nil	710	rooms/beds
Wodgina	273	nil	315	rooms
Woodstock Homestead		nil	1	dwellings
Yandeyarra	110	nil	52	dwellings
Total	18,644		10,955	

Source: Town of Port Hedland (2010). Data as at August 2010

5.2 Estimated resident population - ABS

Population data published by the Australian Bureau of Statistics (ABS) for the Town of Port Hedland is detailed in Table 5 and Table 6. Data for the estimated resident population (ERP), place of usual residence and place of enumeration is shown. Further information on these different count methods is detailed in the glossary of this document.

The Town of Port Hedland had an estimated resident population of 14,624 persons in 2010 (Table 5). Over the period 2005 to 2010, the town experienced an annual average growth rate of 2.8 per cent, which was lower than that of the State, at 2.6 per cent. The growth rate over the period 2009 to 2010 however, was significantly higher at 4.9 per cent. Approximately two-thirds of the town's population reside in South Hedland.

Port Hedland accounted for more than 96 per cent (11,557 persons) of the total Town of Port Hedland local government area population in the 2006 Census (place of usual residence) (Table 6). However, the number of persons present in Port Hedland on census night 2006 (place of enumeration) was larger, with 12,908 persons recorded. This figure includes residents, tourists, visitors and service populations.

In the 2006 Census, Western Australia recorded a net undercount of 3.2 per cent, higher than the national average of 2.7 per cent. While regional figures are not available, it is understood that the undercount is more significant where higher population of indigenous communities and young males (aged 20 to 29) reside. After adjustments to accommodate the undercount and discrepancies associated with multiple places of residence, the estimated resident population was increased (intra-censal update). These figures reflect only the resident population, not the total service population (resident plus FIFO and construction workers). Current Census methods do not adequately identify FIFO and construction workforces - many workers residing in mining towns may report that they usually live elsewhere, such as in a capital city, and are therefore classified as visitors on the basis of their response to the Census.

Table 5: Estimated resident population 2002 to 2010 – Town of Port Hedland

Local government	2002 no.	2003 no.	2004 no.	2005 no.	2006 no.	2007 no.	2008 no. (r)	2009 no. (r)	2010 no. (p)	2005- 2010 (p)a	2009(r)-2010(p)	
											no.	per cent
Town of Port Hedland	12,997	13,126	13,077	12,754	12,871	12,980	13,411	14,068	14,624	2.8	556	4.0

Source: Catalogue 3218.0 Regional Population Growth, Australian Bureau of Statistics (2011)

pr preliminary rebased (based on results of 2006 Census of Population and Housing)

p preliminary

a average annual growth rate

Table 6: Census 2006 locality populations - Town of Port Hedland

Locality	Census locality population 2006 (place of usual residence)	Locality population 2006 (per cent of local government)
Port Hedland	11,557	96.6

Source: Catalogue 2068.0 Census Tables, Australian Bureau of Statistics (2007)

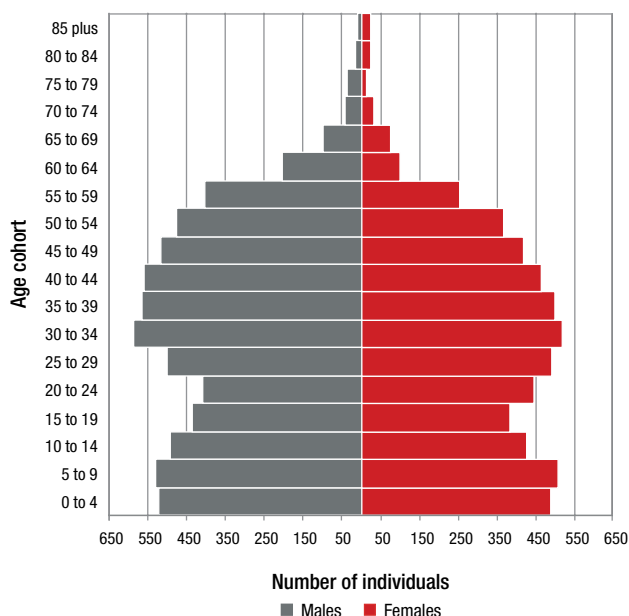
5.3 Population structure

The ABS reports that the increasing mobility of Australians and use of population numbers for the allocation of resources has created a growing demand for estimates of service populations within local government boundaries. Directions for ABS population estimates in the future will be influenced by the need for service population estimates and their application in matters related to decision making and policy and program formulation and monitoring. The ABS paper *Population Concepts, 2008* (Catalogue 3107.0.55.006) discusses various service population definitions and associated measurement issues.

The Town of Port Hedland currently estimates the FIFO population in Port Hedland at approximately 3500 persons.

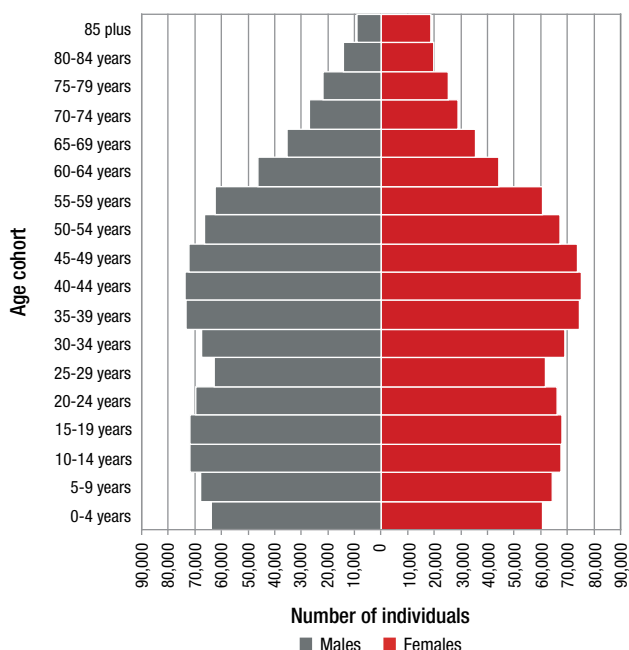
The age sex profile for the Town of Port Hedland (Census 2006) highlights the significant differences of the age spread of residents when compared to that of the State (Figure 9 and Figure 10). The town had 42.1 per cent of the population aged between 20 and 44 as opposed to 35.4 per cent recorded for the State. The town also had a larger proportion of the population aged between 0 and 9 (17.1 per cent), compared to that of the State (13.1 per cent). Interestingly, the proportion of the town's population at retirement age or older (65+) was only 3.2 per cent, significantly lower than that of the State, at 12 per cent. A higher proportion of the population in the town was male (53.8 per cent), compared to 49.8 per cent in the State. The median age of the Port Hedland population at the 2006 census was 31, which is equivalent to that for the Pilbara region. Across the State, the median age in 2006 was 36.

Figure 9: Census 2006 age sex profile - Town of Port Hedland



Source: Catalogue 2068.0 Census Tables – Age by sex, Australian Bureau of Statistics (2007)

Figure 10: Census 2006 age sex profile - Western Australia



Source: Catalogue 2068.0 Census Tables – Age by sex, Australian Bureau of Statistics (2007)

5.4 Population stability

Compared to the rest of WA, Port Hedland has a high resident churn factor, recording a lower proportion of usual residents who resided at their current address one and five years ago. Approximately 48.6 per cent and 24.8 per cent of Port Hedland residents lived at their current address one and five years ago respectively, compared to 74.7 per cent and 47.7 per cent for that of the State (Figure 11 and Figure 12). This data reflects the transient nature of many of Port Hedland's workers. A large number of residents resided at different addresses within the same statistical local area or elsewhere within the State. In terms of Port Hedland residents who previously resided in other states (5 years ago), the largest number were from Queensland (3.7 per cent), followed by New South Wales (1.6 per cent).

5.5 Household formation

In terms of household structure, the majority (72.8 per cent) of occupied private dwellings recorded at the 2006 Census were family households (Table 7). Lone person households accounted for 23.2 per cent of occupied private dwellings, and group households 3.9 per cent. A group household consists of two or more unrelated people where all persons are aged 15 years or over. Evidence suggests that the proportion of group households reported in the 2006 Census may have been under stated in the Pilbara region.

Based on data from the 2006 Census the average household size in Port Hedland was 2.7 and the average number of persons per bedroom was 1.1. This compares with the Western Australian average household size of 2.5 and the average number of persons per bedroom of 1.1.

Figure 11: Census 2006 - Place of usual residence 1 and 5 years ago - Port Hedland



Figure 12: Census 2006 - Place of usual residence 1 and 5 years ago - Western Australia

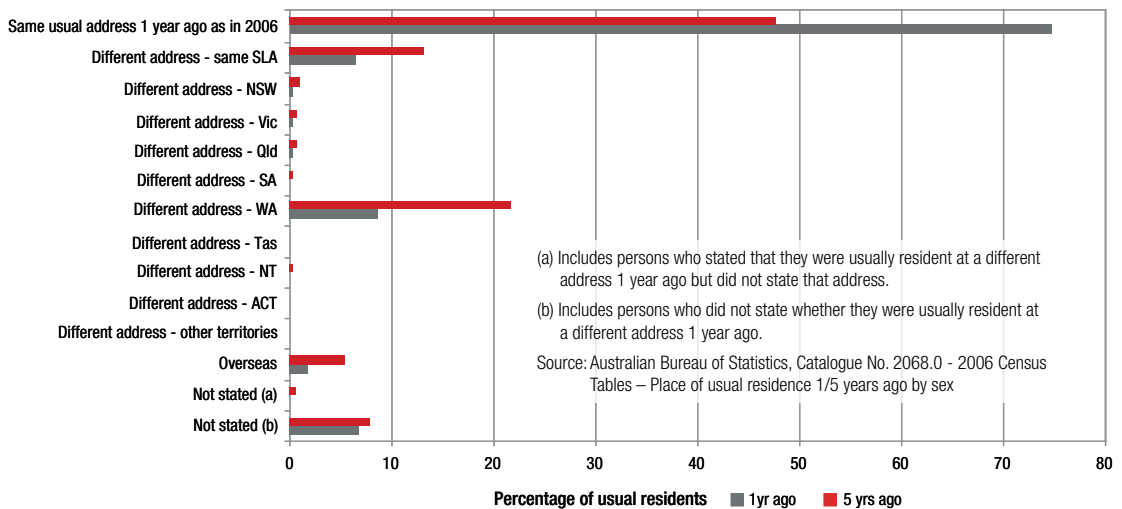


Table 7: Census 2006 household types - Port Hedland

Household type	Family household type	Number of households	% of total households
Family households	Couple families with children	1106	36.2
	Couple families without children	801	26.2
	One parent families	295	9.7
	Other families	25	0.8
	Total family households	2227	72.8
Lone person households		711	23.2
Group households		120	3.9
Total households		3058	100.0

Source: Catalogue 2001.0 Basic Community Profile - Port Hedland urban centre/locality, Australian Bureau of Statistics (2008), Census 2006 QuickStats, Australian Bureau of Statistics (2007)

5.6 Population projections - WAPC

In its role as the State's demographer, the Department of Planning produces forecasts of the State's estimated resident population for the WAPC. These are based on assumptions about fertility, mortality and migration.

According to projections released in 2005, the Town of Port Hedland's resident population is expected to grow at a rate of 1 per cent and 0.9 per cent annually over the next 5 and 10 years respectively (from 2010). This is lower than that forecast for the State, at 1.5 per cent (Table 8).

Figures in Table 8 reflect a business as usual approach and do not take the Pilbara Cities initiative into account. The State government's intention is to encourage growth and support initiatives which will grow the twin Pilbara Cities of Port Hedland and Karratha. If these initiatives are delivered, the DoP/WAPC would anticipate higher growth rates in both the resident and service population than those shown in Table 8.

While population projections are often represented as average annual growth rates, in Pilbara towns, population and employment growth tends not to occur at a steady annual rate, but rather as step change in response to other factors, such as resource project construction cycles.

There are significant population pressures in the Pilbara caused by FIFO workers and short-term contract workers which are not represented by the WAPC forecasts. This additional service population is significant and could add up to 25 per cent to the resident population. The impact of these extra people is not uniform and it is likely that those living in remote areas will exert different pressures to those in regional towns. These issues are addressed in the ABS report, *Towns of the Mineral Boom*.

Population figures in this document reflect the best available data. The use and interpretation of this data is complex (see Australian Bureau of Statistics information paper - Catalogue 3107.0.55.006, *Population Concepts*, 2008) and will be subject to ongoing review and discussion with stakeholders.

An update to the WA Tomorrow projections is due to be released in 2011 (long-term projections, 25 yrs). Future updates will include both short-term and scenario based projections (25 yrs+), which are particularly relevant for the Pilbara region.

Age sex profiles based on WAPC projections to 2021 for the Town of Port Hedland (Figure 13) show similar characteristics to that prepared for the 2006 Census (a larger proportion of the population in the working age range). It is also expected that a larger proportion of the population will be aged 60 and above, in line with general trends of an ageing population.

Table 8: WAPC population projections¹ 2010 to 2030

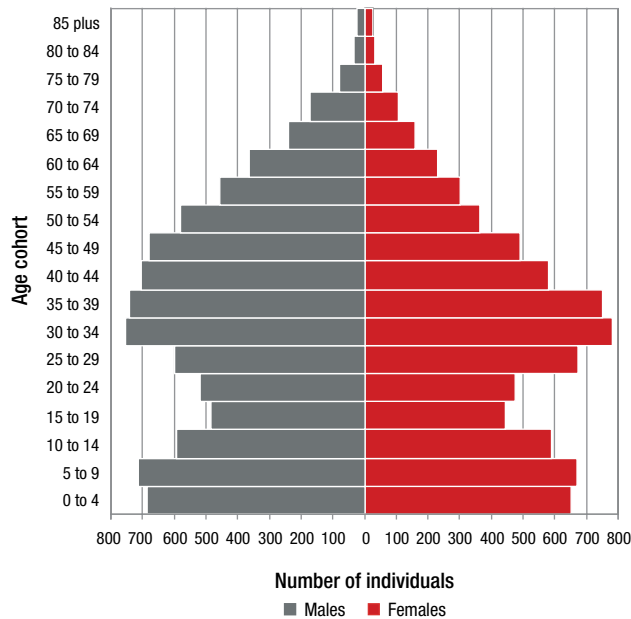
Local government authority	Projected population 2010	Projected population 2015	Projected population 2020	Projected population 2030	Average annual growth 2010-2015 (per cent)	Average annual growth 2010-2020 (per cent)	Average annual growth 2010-2030 (per cent)
Ashburton	6000	6000	6000	5700	0.0	0.0	-0.3
East Pilbara	7700	7500	7100	6300	-0.5	-0.8	-1.0
Port Hedland	14,300	15,000	15,700	16,700	1.0	0.9	0.8
Roebourne	16,200	17,700	19,100	21,300	1.8	1.7	1.4
Total Pilbara region	44,200	46,200	47,900	50,000	0.9	0.9	0.6
Total Western Australia	2,177,630	2,343,380	2,503,690	2,778,310	1.5	1.4	1.2

Source: Western Australia Tomorrow, Western Australian Planning Commission (2005)

¹ Projection for resident population

Figure 13: WAPC age sex profile 2021 - Town of Port Hedland

Source: Western Australia Tomorrow, Western Australian Planning Commission (2005)



5.7 Population projections - PICC

Projections prepared by Heuris Partners Ltd for the PICC (see section 4.1) include an estimate of the resident population in addition to the employment projections. These have been prepared by applying indirect employment and family multiplier assumptions to the projected resident employment data. Preparation of this data utilised the 2008 ABS estimated resident population data which is available at local government level only, and not by townsite. Townsite populations were therefore estimated by applying a pro-rata share of the total increase in estimated resident population on the basis of their share in the 2006 census.

The PICC data reports a 2010 resident population of 15,826 for Port Hedland, increasing to 19,012 in 2015 and remaining relatively stable to 2020.

5.8 Population targets - Pilbara Cities

The Pilbara Cities initiative, announced in November 2009, aims to encourage more people to live and settle in the Pilbara. The State Government's vision is for modern vibrant regional centres that can support and deliver skilled workforces for the Pilbara's major economic projects. Realising the vision rests on the promotion of quality regional living with modern services and facilities which will encourage the development of strong local communities.

Resident population growth is critical to achieving the Pilbara Cities vision, with targets of 50,000 persons set for each of Port Hedland and Karratha by 2035. To achieve this target, both centres would need to sustain an average population growth of approximately 4 to 5 per cent annually over the next 25 years.

Population and demography – for more information see the following links:

Australian Bureau of Statistics: www.abs.gov.au
see Catalogue 3218.0 - Regional Population Growth, Australia, 2008-09
Catalogue 3107.0.55.006 - Information Paper, Population Concepts, Australia (2008)
Catalogue 3236.0 - Household and Family Projections, Australia, 2001 to 2026
Catalogue 2001.0 - 2006 Census Community Profile Series, Port Hedland (urban centre/locality)

Chamber of Minerals and Energy Western Australia: www.cmewa.com
see Pilbara Industry's Community Council (PICC)

Department of Planning/Western Australian Planning Commission: www.planning.wa.gov.au
see Western Australia Tomorrow - Population Report 6
WAPC Statement - Agreement to use PICC population and employment projections for forward planning in the Pilbara

6 Land and housing demand

Key points

- Demand for housing in Port Hedland is heavily influenced by the economic cycles of the mining industry. Demand is constantly shifting, resulting in difficulties in quantifying demand and developing and maintaining an adequate supply of housing.
- Port Hedland is still experiencing a shortage of housing, evidenced by median house prices and rentals costs, which are considerably higher than that recorded in the Perth metropolitan region.
- It is likely that housing demand will rise further in the future due to increased activity in the resources sector and implementation of the State Government's Pilbara Cities initiative.
- The Pilbara Towns Housing Study (unpublished) identified an existing unmet demand of 1400 dwellings in Port Hedland as at late 2009.
- Based on an average annual growth rate of five per cent, Port Hedland would require an additional 3500 dwellings over the next 5 years (2300 dwellings at growth rate of two per cent).
- Landgate data indicates that the current median sales price of vacant residential lots is \$145,750 which is lower than that recorded in the Perth metropolitan region at \$224,000 (year to December 2009).
- September 2010 data indicates a median house price of \$703,750 for the Port Hedland urban area which is significantly higher than that recorded for the Perth metropolitan region at \$480,000. The median sales price has increased sharply since 2004.

Actions and priorities

- A greater diversity of housing is needed, including more affordable accommodation for service workers. More medium and higher density dwellings should also be established.
- A study investigating building costs in the region is needed to determine which of the construction component costs account for the overall increased costs experienced in the region, and how these costs could potentially be reduced.

6.1 Pilbara Towns Housing Study

The Pilbara Towns Housing Study (2009, unpublished) assessed the housing market conditions and unmet housing needs (to 2015) in the Pilbara towns of Karratha, Port Hedland, Onslow, Newman, Roebourne and Tom Price.

A joint initiative of the Department of Housing and the Pilbara Development Commission, the study reported the following:

- a current apparent demand for 1433 dwellings across the Pilbara region (503 dwellings for Port Hedland). This includes unmet housing needs from existing residents.
- a latent demand for 2445 dwellings (899 for Port Hedland). This includes populations outside the region whose residence in the Pilbara region is constrained by a lack of available housing.
- a future demand of 1014 dwellings across the region in a low growth scenario, 3037 and 4736 dwellings for medium and high growth scenarios respectively (443, 1358 and 1799 under low, medium and high growth scenarios for Port Hedland). This represents the highest anticipated demand for housing of all towns included in the study.

The report also provides information on affordability, overcrowding and homelessness, and puts forward a number of recommendations to improve the quantity, quality and affordability of housing in the region. The study is yet to be published.

6.2 Land sales

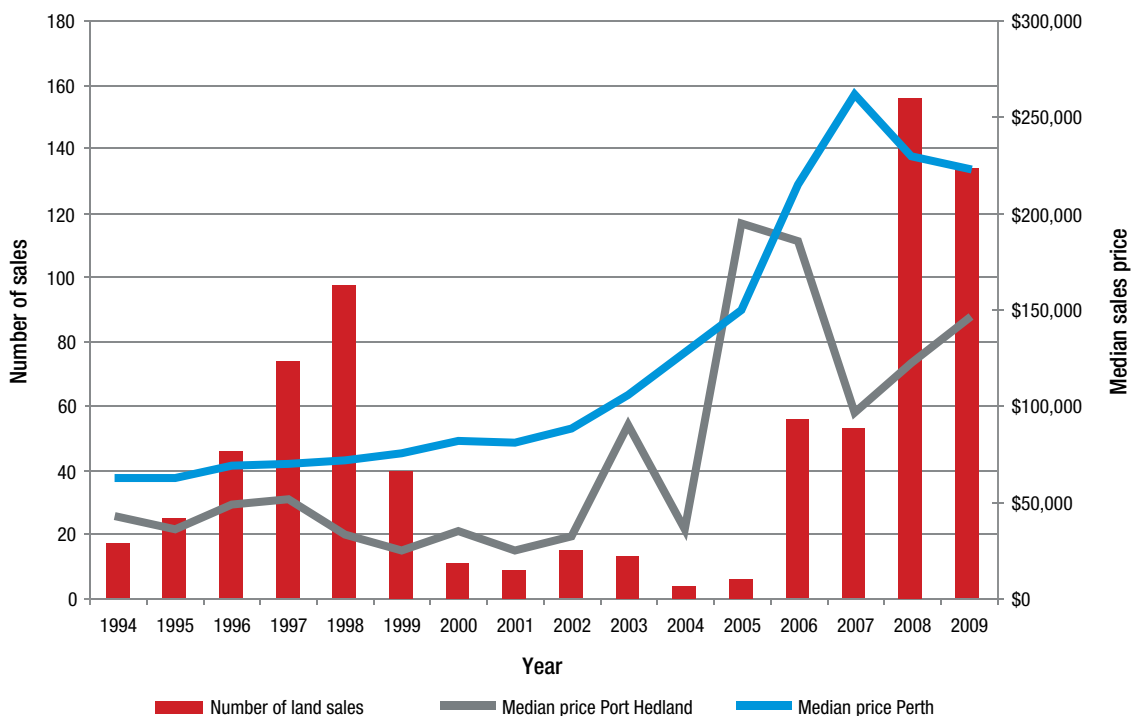
Since 1994, there has been an average of 47 vacant land sales per year. This has varied considerably, with fewer sales recorded in the period 2000 to 2006 and a peak of 156 sales recorded in the year to December 2008 (Figure 14). The median sales price for vacant residential lots in Port Hedland has increased by more than five times over the last 10 years (\$145,750 for year ending December 2009), but is still significantly less than that recorded for the Perth metropolitan region (\$224,000).

6.3 House and unit sales

The median house price is significantly higher (approximately 45 per cent) than that recorded in Perth (\$703,750 compared to \$480,000 in the year to September 2010), and has increased sharply since 2004 (Figure 15). This can be attributed to increased demand and constrained supply. Similar trends are evident in the data for unit sales (Figure 16), with the median unit sale price for Port Hedland approximately 15 per cent more than that recorded for the Perth metropolitan region (\$422,500 compared to \$380,000 for year to December 2009).

The cost of housing is significantly higher in Port Hedland compared to South Hedland. The Real Estate Institute of Western Australia reports a median house price of \$960,000 in the year to September 2010 for Port Hedland and \$670,000 for South Hedland. Both localities have recorded average annual growth of more than 20 per cent over the past five years; however, growth slowed in Port Hedland over the last 12 months, recording 11.1 per cent (South Hedland recording 25.1 per cent). The Port

Figure 14: Land sales 1994 to 2009 - Port Hedland



Source: Real Estate Institute of Western Australia (2010)

Hedland urban area recorded a 25.3 per cent annual growth rate over five years, significantly higher than the average for regional Western Australia at 13.6 per cent.

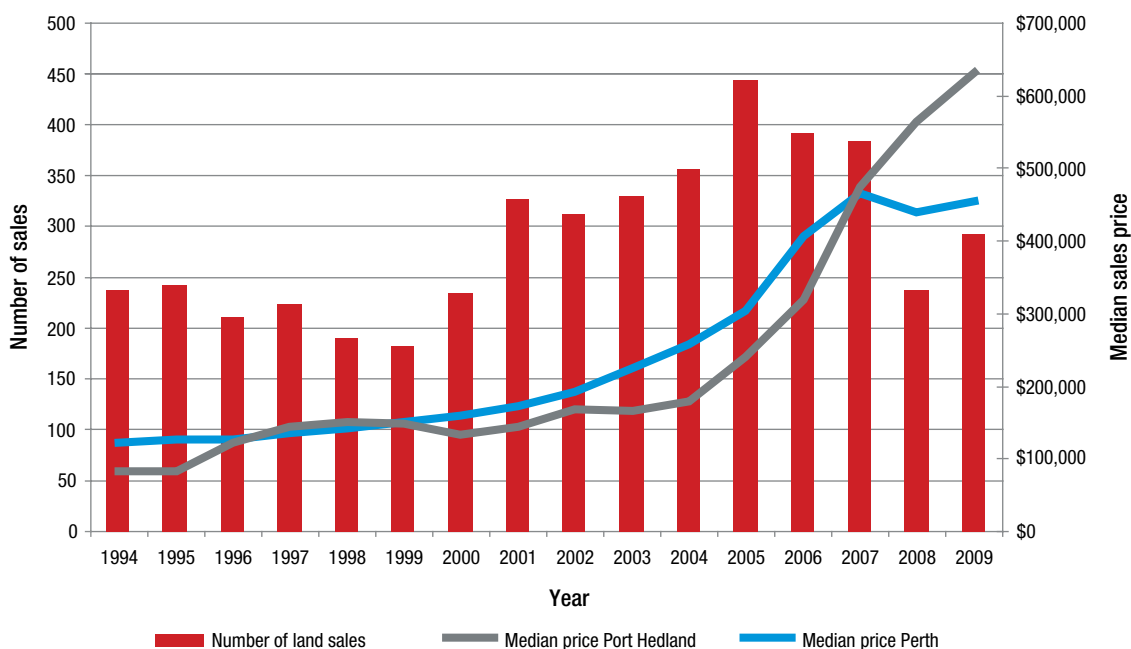
High housing costs make it difficult for employees to live in Port Hedland unless employees receive significant accommodation support from their employer. Resource companies often provide staff with this assistance; however many retail, personal services, hospitality and tourism companies are unable to provide this level of accommodation support.

A significant amount of Port Hedland's dwelling stock is either owned or controlled by resource companies. As well as purchasing new homes, the companies rent privately owned properties as they become available. Resource company schemes are also offered to employees to either buy or rent houses on the open market. While provision of rent-subsidised accommodation drives the refurbishment and construction of units, it can also contribute to a more expensive and volatile housing market.

Scarce housing limits diversity in the local economy and hampers the ability of private and public organisations to provide the services and opportunities for the town to develop mature, functioning housing and labour markets. In Port Hedland this causes a high labour turnover as workers and their families tend to only stay in the town for as long as jobs last. High-cost housing also displaces lower-income households whether they are renters or potential buyers.

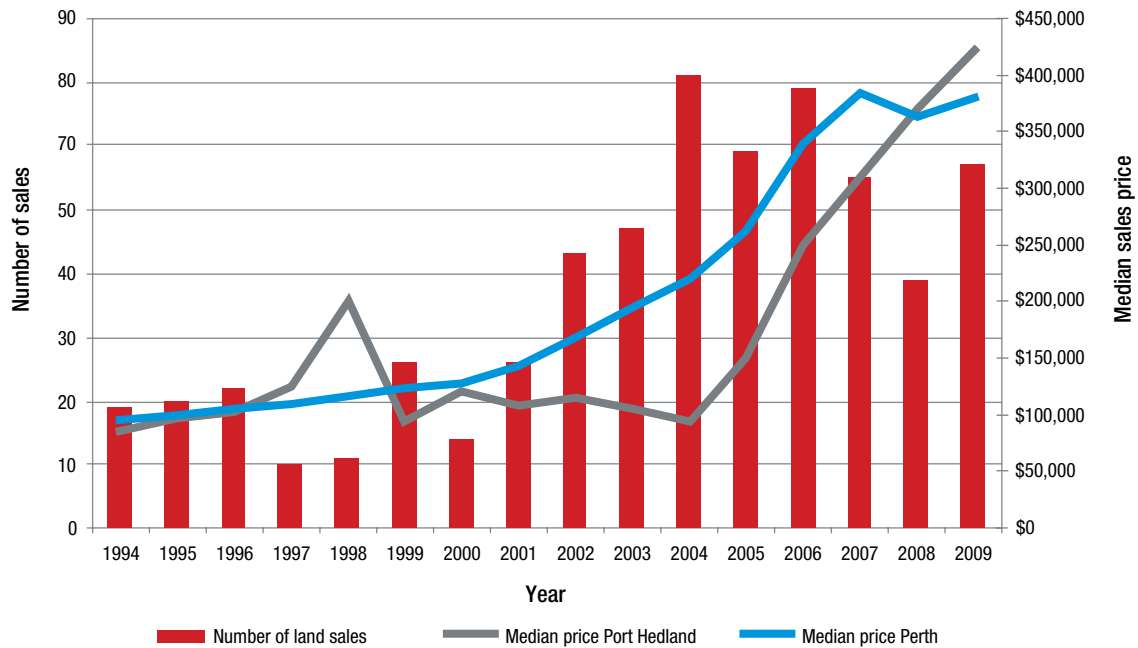
Volatile house prices are a disincentive to prospective, longer-term residents and deter them from making a financial commitment to Port Hedland. Market volatility also works against the private property sector, with high levels of uncertainty making it difficult for developers to attract finance for both residential and large-scale commercial projects.

Figure 15: House sales 1994 to 2009 - Port Hedland



Source: Real Estate Institute of Western Australia (2010)
Excludes properties >1 ha

Figure 16: Unit sales 1994 to 2009 - Port Hedland



Source: Real Estate Institute of Western Australia (2010) Excludes properties >1 ha

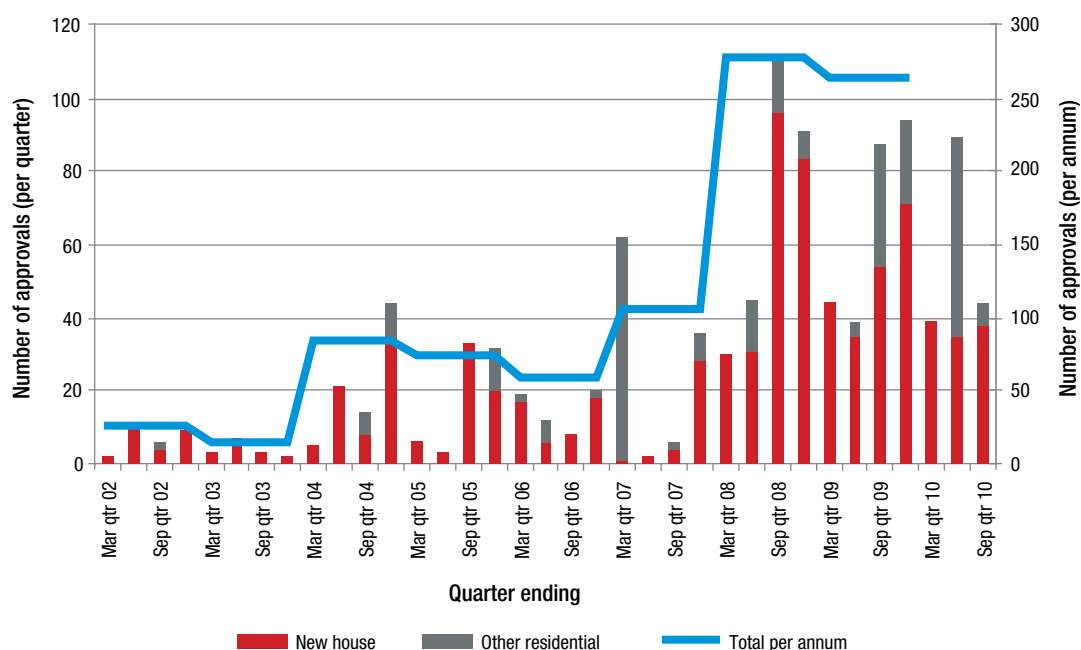
6.4 Building approvals

On average, 113 building approvals (new houses and other residential dwellings) were recorded per annum in Port Hedland over the period 2002 to 2009 (Figure 17). Approvals have generally increased since 2007, recording an average of 215 approvals per annum over the last three calendar years (2007 to 2009). Building approvals for new houses peaked in the September quarter 2008 with approvals for 101 new dwellings recorded, with the largest number of total building approvals (277) also recorded in the 2008 calendar year. A total of 183 new houses and 83 other residential dwellings received building approval in the 12 months to September 2010.

Statistics report a drop in the number of building approvals in the first three quarters of 2010, when compared to the high level of approvals in the previous three calendar years. Construction by the Department of Housing has accounted for a significant portion of development in South Hedland over the past few years.

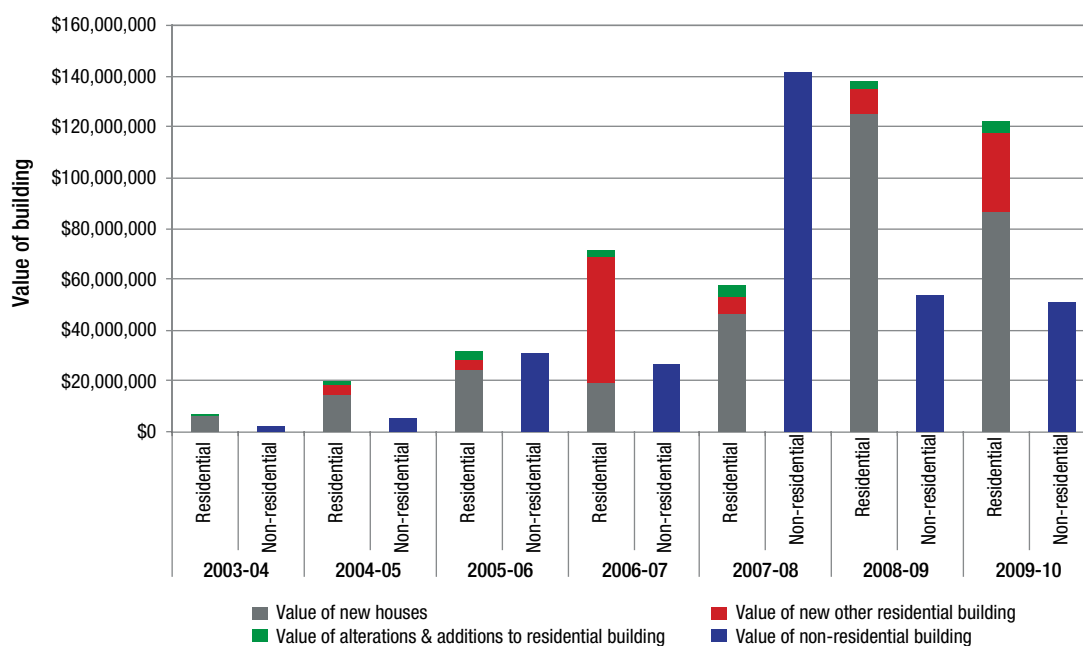
The value of total residential building in Port Hedland in 2009/2010 was over \$122 m which represents an increase of \$115 m from \$7 m in 2003/04 (Figure 18). In 2009/2010 new houses represented over 70 per cent of residential building value at \$86 m. The value of new other residential buildings has increased significantly from over \$3 m in 2004-05 to \$31 m in 2009/2010. Alterations and additions to residential building represented around 4 per cent of the value of total residential building in 2009/2010 at over \$4 m. The value of non-residential building in Port Hedland peaked at \$141 m in 2007/08 and was just under \$51 m in 2009/2010.

Figure 17: Building approvals 2001 to 2009 - Port Hedland



Source: Building approvals (data available on request), Australian Bureau of Statistics (2010)

Figure 18: ABS Value of building 2003/04 to 2009/10 - Town of Port Hedland



Source: Building Approvals, Australian Bureau of Statistics (2010)

6.5 Residential building costs

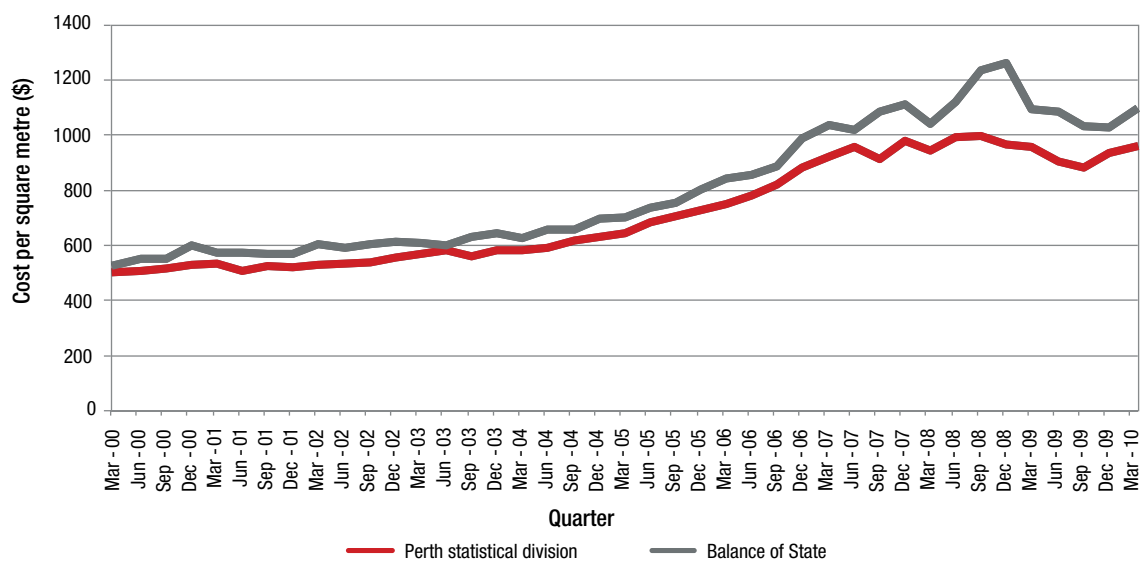
Relative to other states, Western Australia along with the Northern Territory experienced the largest increases in house building costs over the five years to September 2009, at 8 per cent growth per annum. This was likely due to the boom in the mining and construction sectors. Macromonitor's *Australian Construction Cost Trends* report (2010) forecasts construction costs in Western Australia to increase by five to six per cent per annum over the period 2011 to 2013 before slowing to two per cent by 2015.

Building costs in the Pilbara region are significantly higher than that recorded for the Perth metropolitan region. Anecdotal evidence suggests that the cost of building a standard home in Pilbara towns (four bedroom, two bathroom) is approximately \$400,000-\$500,000 (excluding land costs). A typical standard dwelling costs approximately \$180,000-\$250,000 to construct in the metropolitan region, therefore the costs for a similar product in the Pilbara are approximately double that of the Perth metropolitan region.

Building approval data obtained from the ABS indicates that the average cost per square metre for new houses has almost doubled over the last 10 years (Figure 19). Costs per square metre in the March quarter 2010 were calculated at \$955 for the Perth statistical division and \$1101 for the balance of the State (for new houses). A peak of \$1260 per square metre was recorded in the December quarter 2008 for the balance of the State.

The National Housing Supply Council's 2008 State of Supply report indicated that the average cost per square metre of new work for detached houses in 2008 was \$961 for Perth and \$1092 for the balance of WA. The total figure for WA at \$1006 per square metre was the second most expensive in the country, second only to the Northern Territory. Costs per square metre for semi-detached dwellings were slightly higher at \$1186 and \$1354 respectively. Analysis undertaken by the Department of Planning using data sourced from the Town of Port Hedland indicate an average cost per square metre of \$2205 for new single houses. Average cost per square metre was calculated using building licence data over the period January 2009 to April 2010.

Figure 19: Average building costs per square metre for new houses - 2000 to 2010



Source: Building approvals (data available on request), Australian Bureau of Statistics (2010)

Information in the Pilbara Towns Housing Study (unpublished) notes that the cost differential may be due to a lack of competition among builders, distance and freight costs, and high labour costs as a result of labour shortages. Difficulties in securing affordable accommodation also impacts on the availability of tradespersons, and ultimately labour costs. These costs are generally passed on to the purchaser.

A report prepared by Pracsys (2010) for LandCorp and the Shire of Roebourne identifies the lack of a local construction capability as one of the primary reasons for high construction costs, reporting that local producer services capability is taken up with servicing resource and infrastructure projects at the expense of civil infrastructure and housing projects. High housing and accommodation costs for employees who don't have access employer subsidies or employer housing makes it difficult for this type of workforce to establish themselves in Pilbara towns.

A detailed study into building costs in the Pilbara would be beneficial in determining which of the construction component costs account for the overall increased costs experienced in the region, and how these costs could potentially be reduced.

6.6 Residential rentals

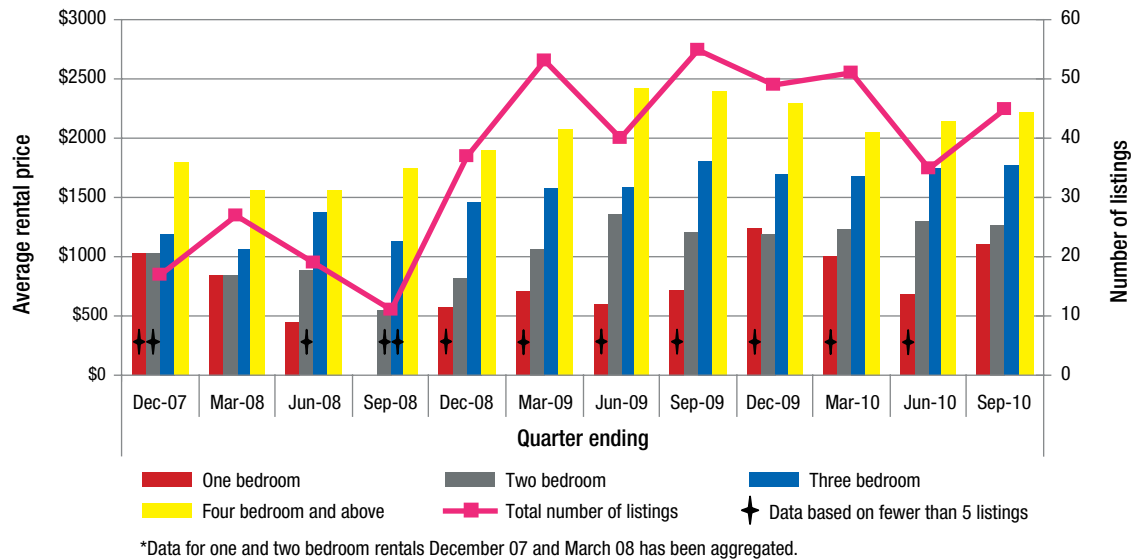
Data compiled by the Pilbara Development Commission on the cost of advertised rental properties indicates there have been significant increases in rental costs for two, three and four bedroom dwellings in both Port Hedland and South Hedland over the past two to three years (Figure 20 and Figure 21). The average cost of renting a three bedroom dwelling in Port Hedland during the September quarter of 2010 was \$1767. This represents a decrease of \$36 from the September quarter of 2009. Dwellings with four or more bedrooms cost \$2214 on average in the September quarter 2010, down \$178 on the same period in 2009.

Rental costs in South Hedland are less expensive with the average cost of renting a three bedroom dwelling at \$1272 per week, and a four bedroom dwelling at \$1786 (September quarter 2010).

The number of rental listings has more than doubled in Port Hedland over the past two years with just under 50 properties listed in each of the last four quarters. The number of listings in South Hedland is approximately double that of Port Hedland with 110 properties listed on average in each of the last four quarters. While the number of listings has increased, the level of available rental stock remains relatively low, especially for one and two bedroom dwellings, with more than 80 per cent of the listings being for larger three and four bedroom dwellings. This highlights the need for a greater diversity of housing stock in the town.

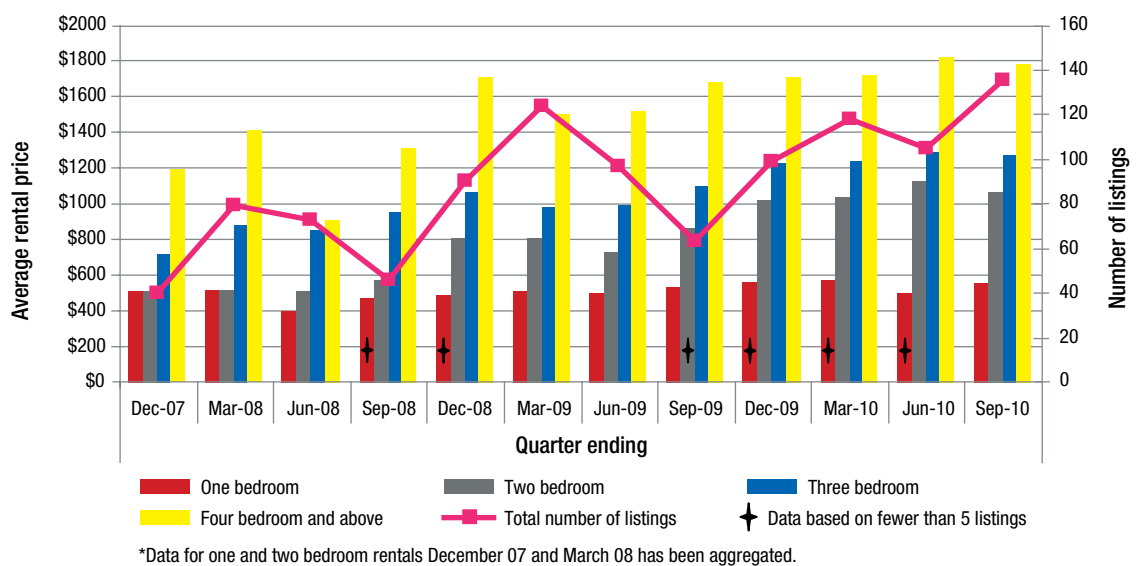
Data collected in the 2006 Census show 1693 residential dwellings were reported as being rented in Port Hedland. A total of 648, or approximately 38 per cent of all rented dwellings were classed as being rented through "other landlord type" which includes government and private employers or through residential parks (Figure 22). Where rent was below \$225 per week "other landlord type" and "state or territory housing authority" provided 559 and 422 dwellings respectively.

Figure 20: Average cost of advertised rental properties 2007 - 2010 - Port Hedland



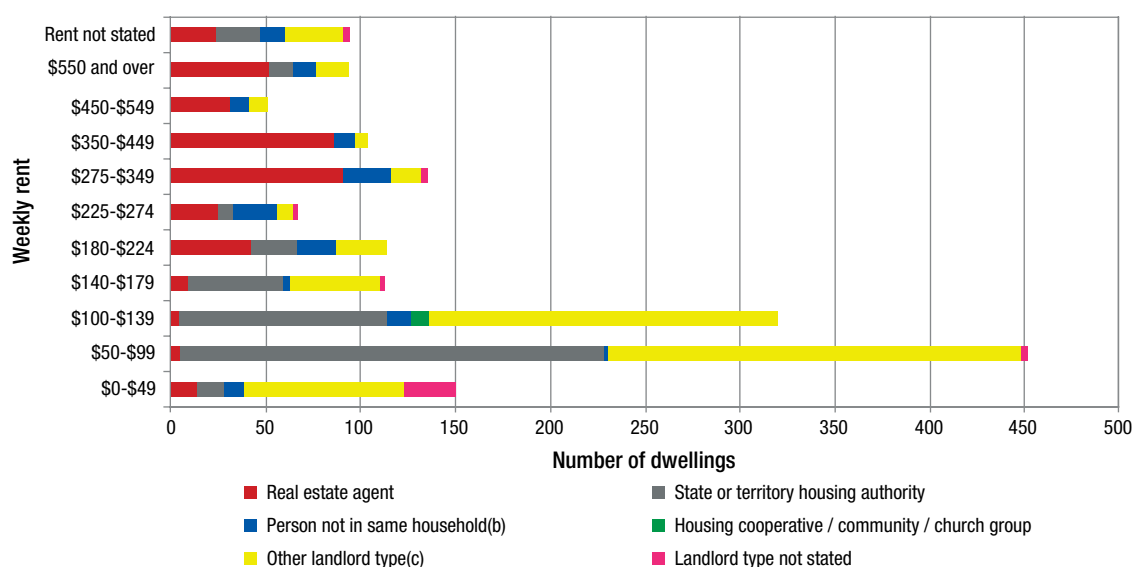
Source: Pilbara Housing and Land Snapshot, Pilbara Development Commission (2010)

Figure 21: Average cost of advertised rental properties 2007-2010 - South Hedland



Source: Pilbara Housing and Land Snapshot, Pilbara Development Commission (2010)

**Figure 22: 2006 Census weekly rent by landlord type (occupied private dwellings being rented^(a))
- Port Hedland (urban centre)**



(a) Excludes "visitors only" and "other not classifiable" households.

(b) Comprises dwellings being rented from a parent/other relative or other person.

(c) Comprises dwellings being rented through a "residential park (includes caravan parks and marinas)", "employer-government (includes Defence Housing Authority)" and "employer-other employer" (private).

Source: Catalogue 2068.0 Census Tables – Weekly rent by landlord type, Australian Bureau of Statistics (2007)

6.7 Demand for State Government housing

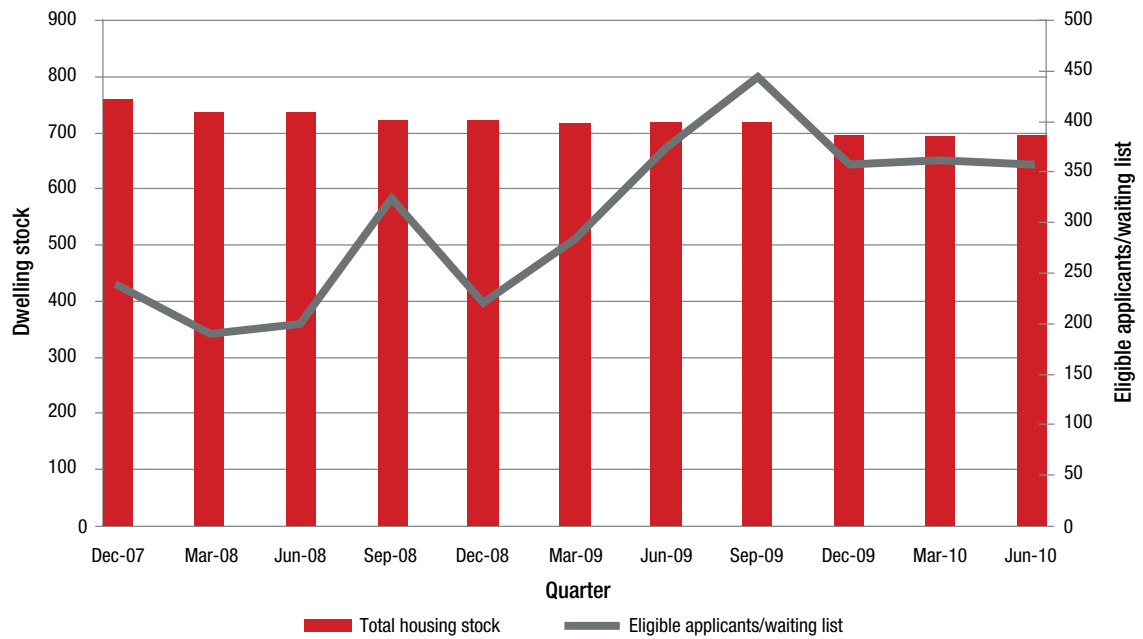
Information on Department of Housing dwelling stock and waiting lists is shown in Figure 23 and Figure 24. Social housing stock in Port Hedland has remained relatively stable over the past two to three years at approximately 700 dwellings. However, the number of eligible applicants/waiting list more than doubled in the 18 months to the September quarter 2009, peaking at 444 eligible applicants. At the end of the June quarter 2010 there were 358 applicants on the waiting list for public housing, indicating significant and continued demand for additional public housing.

Government Regional Officers' Housing (GROH) stock has increased somewhat with approximately 30 dwellings added to the housing stock over the two years to June 2010 (total stock of 359 dwellings). The stock comprises both dwellings fully owned by the Authority and leases over private dwellings. The

proportion of private leases compared to the overall housing stock has remained relatively stable and currently accounts for approximately one-third of the overall housing stock. There was demand for an additional 26 dwellings at the end of the March quarter 2010, which has remained relatively stable over the past two years. The most significant challenge in meeting this additional demand continues to be the high cost of housing provision in what is arguably the most costly region in the country.

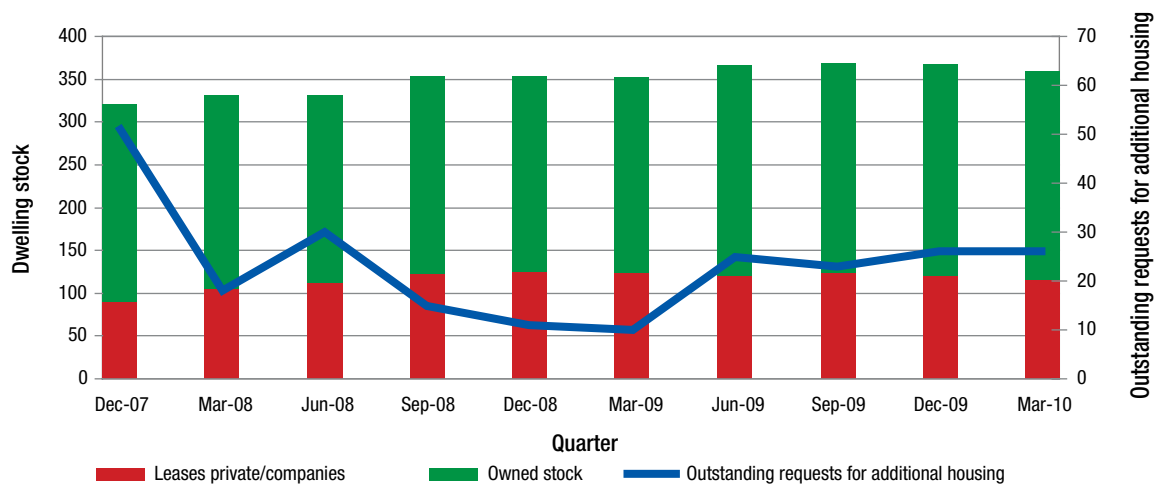
As part of the Royalties for Regions initiative, \$200 m was allocated to GROH to deliver approximately 400 new dwellings across WA's regions. Approximately 120 of these dwellings will be built in the Pilbara region, with completion anticipated by June 2011. Approximately 30 of these dwellings will be delivered to Port Hedland and South Hedland. GROH is also actively seeking opportunities to secure additional land to facilitate construction projects in Karratha, Port Hedland and Tom Price.

Figure 23: Social housing dwelling stock - Port Hedland



Source: Pilbara Housing and Land Snapshot, Pilbara Development Commission (2010)

Figure 24: Government Regional Officer's Housing (GROH) dwelling stock - Port Hedland



Source: Pilbara Housing and Land Snapshot, Pilbara Development Commission (2010)

6.8 Demand for industrial land

Many factors influence demand for industrial land, and quantifying this demand is a complex process. The demand for industrial land generally derives from a local, national or international demand for goods and services, with value adding to both locally generated products and products generated in other regions. The *Industrial Land Needs Study* identified industrial land supply and demand cycles as having three main drivers, summarised as follows:

Population and settlement growth

- Increased population growth and labour force participation rates equating to more jobs and increased demand for industrial land (20 per cent of jobs across the State are likely to be in the industrial sector).

Economic growth and decline cycles

- High levels of economic growth and productivity will result in an increased demand for land for industrial activity. This is particularly true for the Pilbara region, given the contribution of the mining industry to the economy of the region.
- The cyclical nature of economic growth can make short-term predictions difficult, therefore long-term predictions provide the best indication of demand.
- An additional supply (land bank) of 25-30 per cent above the long-term requirements should be allowed to create flexible market choice, respond to short-term hyper growth situations and for emerging and inward investment opportunities.

Location criteria and market preferences

- Industries will seek sites with sufficient amenity and location advantage in order to perform their activity in a competitive way (for example proximity to services, proximity to transport such as roads and ports, protected and buffered sites and sites where industry is able to expand).

- When land is in short or limited supply industries may be forced to limit expansion plans, seek alternative sites (interstate or overseas) or cease trade altogether. Industry may also experience increased levels of competition from all land uses, particularly retail and commercial uses.

Strong growth in the resource, building and construction industries, coupled with limited land releases have led to the current strong demand being experienced for industrial land in Port Hedland. While no detailed analysis has been undertaken to quantify demand for industrial land in Port Hedland, LandCorp has previously conducted a survey in order to determine the level of market demand and specific end user requirements for land at Wedgefield. Many respondents indicated they were looking to purchase land to enable expansion of their existing businesses, and were mainly interested in lots suitable for light industrial (< 5000 m²) or transport related uses (0.5 to > 5 ha). Recognising the gap in available data on the demand for industrial land, LandCorp has recently initiated a project to gather information on demand for industrial land in regional Western Australia. The online Regional Industrial Land Survey commenced in November 2010 and will provide an annual measure of light, general, heavy or special industrial land demand in regional areas across the State. The information resulting from the survey will assist with the coordination, planning and delivery of industrial land, and support the ongoing development of industry attraction programs.

Demand for land suitable for transport, light and general industrial uses will likely be met by future land releases in the Wedgefield area. There is also existing demand for sites to accommodate noxious land uses. A site was identified in the *Port Hedland Land Use Master Plan*, and is currently being investigated. Development of this site would facilitate relocation of these uses from the Wedgefield estate.

6.9 Demand for retail/commercial floorspace

Demand for retail/commercial floorspace is influenced by the following factors:

- population (resident, FIFO and visitors)
- expenditure (resident, FIFO and visitor expenditure)
- retail turnover (turnover per square metre of floorspace)
- employment structure (industry type and floorspace (m²) per employee)

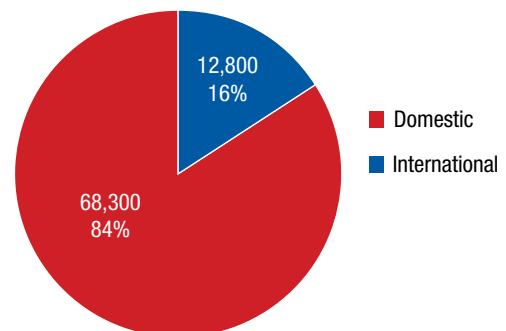
Commercial/retail uses are concentrated in three areas, these being the West End and Boulevard Plaza in Port Hedland and the town centre area in South Hedland. Anticipated growth of the resident and service population will increase demand for commercial and retail floor space. No detailed analysis has been undertaken to quantify demand for commercial/retail land in Port Hedland; however, preparation of a local retail/commercial strategy is planned as part of the wider Port Hedland City Growth Plan project (revision of *Port Hedland Land Use Master Plan*). The study will investigate the town's future growth and resulting implications for commercial and retail land uses. The majority of future retail/commercial development however, will likely be accommodated by further development of the South Hedland Town Centre, which currently accommodates approximately 60 per cent of Port Hedland's existing commercial/retail uses.

6.10 Demand for tourist accommodation

North-West visitor summary

In the 12 months to December 2009, WA's North West, which encompasses both the Pilbara and Kimberley regions, had an estimated 500,600 visitors. The figure was down on the previous two years with visitors in 2007 numbering 568,900 and in 2008, 540,400. In 2009, international visitors stayed the longest - an average 25.2 days. Interstate visitors followed with an average stay of 8.6 days while intrastate visitors averaged 5.7 days. Data for the Town of Port Hedland indicates that domestic visitors averaged 6.6 days and international visitors 12.7 days for the same period. Average visitor numbers to the Town of Port Hedland are shown in Figure 25.

Figure 25: Average annual visitors to the Town of Port Hedland 2007 to 2009

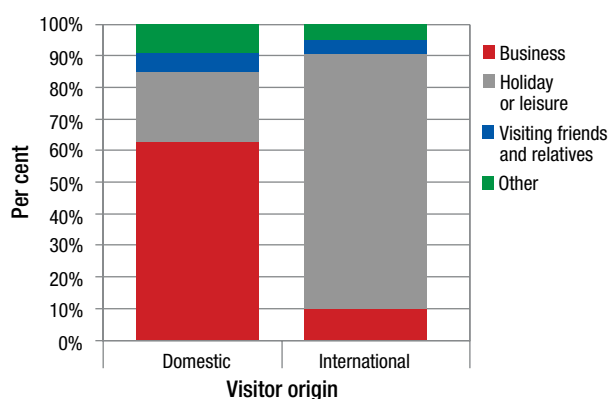


Source: Town of Port Hedland Overnight Visitor Fact Sheet (years ending December 2007/08/09), Tourism WA (2010)

Data sourced from Tourism Research Australia's National and International Visitor Surveys

Data collected by Tourism WA shows that the leading purpose of visit to the Town of Port Hedland for domestic visitors was business (63 per cent), an increased proportion on previous years. Holiday or leisure visits was prominent among international visitors (84 per cent). This data is shown in Figure 26.

Figure 26: Main purpose of visit to Town of Port Hedland, visitors 2007 to 2009¹



¹Based on visitor numbers averaged over 2007/08/09. Purpose of visit is a multiple response question - totals may not add up to 100 per cent.

Source: Town of Port Hedland Overnight visitor fact sheet (years ending December 2007/08/09), Tourism WA (2010)

Data collected by the ABS indicates a high average occupancy rate for the Town of Port Hedland of 84.4 per cent (hotels, motels, serviced apartments) and 67.1 per cent (caravan parks) in the June quarter of 2010. Availability of short-stay accommodation has been reduced in recent years as a result of housing and workforce accommodation supply shortages. Much of the available tourist accommodation is occupied by long-term guests such as resource company employees (contractor block bookings) or lower paid service workers unable to afford more permanent accommodation (caravan parks). Long-term guests staying two months or more occupy about a third of sites in caravan parks.

The high level of permanent occupancy of the visitor accommodation means that many visitors face difficulty finding affordable accommodation, requiring them to book months in advance of their stay. As a result of the crowded nature of caravan parks, visitors are now seeking alternate, more remote camping locations. Evidence suggests that there is significant demand for all types of accommodation in Port Hedland, ranging from four to five star rooms to caravan parks, backpacker hostels and camping grounds. In addition to accommodation shortages, Port Hedland also suffers from a lack of organised attractions and visitor experiences, even though the town and surrounding area offer a variety of potential tourism opportunities, including eco-education tours and environmental conservation camping experiences, indigenous culture and heritage tours, and outdoor recreation activities.

Research by the Tourism Forecasting Committee shows that between 1999 and 2009 the annual growth rate for visitor nights in regional Western Australia (excluding Perth) was -1.2 per cent. Total visitor nights in regional WA are predicted to increase by 0.4 per cent each year between 2009 and 2019, which is lower than that forecast for Perth, at 2.5 per cent. Domestic visitor nights in regional Western Australia are forecast to fall by -0.5 per cent annually over the period 2009 to 2019.

Development of the tourism industry in Western Australia relies on the provision of appropriate infrastructure, which services the needs of tourists and encourages investment by the private sector. Tourism WA facilitates infrastructure development through its report *Tourism Development Priorities*, which identify key infrastructure projects for tourism development across the State.

Land and housing demand – for more information see the following links:

Australian Bureau of Statistics: www.abs.gov.au
see Catalogue 2001.0 - 2006 Census Community Profile Series, Port Hedland (urban centre/locality) and Port Hedland (local government area)

Australian Housing and Urban Research Institute:
www.ahuri.edu.au
see Housing market dynamics in resource boom towns (July 2009)

Pilbara Development Commission: www.pdc.wa.gov.au
see Housing and Land Snapshots

Real Estate Institute of Western Australia: www.reiwa.com.au
see Regional Centres Profile

Tourism Western Australia: www.tourism.wa.gov.au
see Research and statistics

7 Land and housing supply

Key points

- There is currently approximately 100 ha of undeveloped land zoned for residential/urban uses in the Port Hedland area. Almost all of this land is located in South Hedland, with supply in Port Hedland being limited.
- There is a critical need for provision of affordable employee accommodation to support the retail, hospitality, tourism and general service sectors.
- Capacity of some essential services is limited, and will require significant investment in the short-to-medium term.
- The existing Wedgefield industrial estate is almost fully utilised and additional land will be required in the short to medium term to meet current and future demand. It is anticipated that additional transport and light industrial lots will be released to the market in 2011.
- The Town of Port Hedland have investigated the potential of vacant residential, rural residential, commercial and industrial land (in both Government and private ownership) through the Port Hedland Public Land Rationalisation Plan and Hedland Land Availability Plan. These plans summarise development opportunities and constraints for each site, aiming to rationalise and facilitate the development of identified sites.
- A housing capacity study has also been prepared, identifying land which can potentially be developed for housing purposes, the processes and timeframes involved in developing land for housing and the ultimate housing capacity of individual sites.
- A key feature of the Pilbara Cities blueprint is attracting private developers to the market through the release of development sites and super lots for the construction of medium and high density housing.

Actions and priorities

- Native Title negotiations are progressing, but there is a need to clear additional land for future development.

7.1 Issues affecting delivery of land and housing to market

Many issues affect the delivery of land and housing to the Port Hedland market. These can be summarised as follows:

- flood plain and storm surge development requirements.
- management of dust emissions and impacts from mineral export port operations.
- inadequate capacity in potable water, wastewater, energy and power distribution networks is affecting the release of residential, commercial and industrial land. Funding has been sought from Infrastructure Australia and agencies capital works programs may need to be revised.
- highly volatile house prices create difficulties in attracting the finance necessary to develop new residential areas or to undertake larger scale commercial projects.
- difficulties and high cost of obtaining supplies of basic raw materials.
- difficulties and long timeframes associated with progressing Government approvals. The Ministerial Taskforce on Approvals, Development and Sustainability is investigating these issues and developing initiatives to address the problems.
- indigenous heritage and Native Title issues.
- clearance under the Mining Act enabling Crown land to be released for development.
- construction capacity is hampered by Port Hedland's various industries competing for skilled and unskilled labour and other resources.

- lack of short-term accommodation for contractors and builders.
- long construction timeframes.
- issues with population estimates and determining agreed land supply requirements. Agreed growth rates are required to assist infrastructure agencies with their forward planning. There is also inadequate information available relating to employment numbers for major resource projects.

7.2 Planning context

State and regional planning

State Planning Strategy (1997)

The 1997 *State Planning Strategy* provides a strategic guide for land use planning through to the year 2029, Western Australia's bicentenary. The strategy is aimed at developing a land-use planning system to help the State achieve a number of key goals. These include generating wealth, conserving and enhancing the environment, and building vibrant and safe communities for the enjoyment of this and subsequent generations of Western Australians.

The *State Planning Strategy* is currently being reviewed, with a draft due to be released for public comment in 2011. The draft strategy will provide a basis for coordinating urban and regional land-use planning, development and infrastructure. It will guide government departments and trading enterprises plus local governments on those matters. The strategy enables and facilitates decisions across government, embracing the State strategic directions of global competitiveness, strong and resilient regions, integrated infrastructure networks, liveable communities, responsive built environments and conserved natural environments.

State planning policies

State planning policies are prepared and adopted by the WAPC under statutory procedures set out in part 3 of the *Planning and Development Act 2005*. These policies are concerned with broad planning controls and can be made for matters which may be the

subject of a local planning scheme or which relate to a specific region or area of the State. Examples include State policies for coastal planning, rural land use planning, and residential design codes (R-Codes). The WAPC and local governments must have due regard to the provisions of state planning policies when preparing or amending local planning schemes and when making decisions on planning matters. Further information can be accessed at the Department of Planning's website, www.planning.wa.gov.au

Blueprint for Pilbara Cities (2009)

The State Government's Pilbara Cities initiative is designed to encourage more people to live and settle in the Pilbara. The Pilbara Cities blueprint provides a framework to transform the region by creating modern higher density centres, supported by infrastructure and amenity upgrades and improvements. The blueprint includes proposals for major revitalisations of South Hedland, Karratha, Newman, Dampier, Tom Price and Onslow town centres, in addition to plans to create new marinas and improved waterfronts at Port Hedland, Dampier and possibly Onslow. New infrastructure and facilities such as schools, TAFEs, medical facilities, leisure and entertainment facilities and retail precincts are also part of the plan.

Critical to the success is the attraction of new residents and businesses not involved in the region's traditional sectors of oil, gas and mining, creating places where people choose to settle on a permanent basis with access to high standards of services. The private sector is expected to play a crucial role in achieving the plan, including assisting with the delivery of affordable accommodation solutions by the release of development sites and superlots for land and housing, including opportunities in the private rental market. For further information see the Pilbara Cities website, www.pilbaracities.com

Pilbara Planning and Infrastructure Framework

The Pilbara Planning and Infrastructure Framework defines a strategic direction for the future development of the Pilbara region over the next 25 years. It addresses the scale and distribution of future population growth and housing development as well as identifying strategies for dealing with: economic growth, environmental issues, transport, infrastructure, water resources, tourism and the emerging impacts of climate change. It seeks to ensure that development and change in the Pilbara region is

achieved in a way that improves people's lives and enhances the character and environment of the region.

The Framework sets out regional planning principles together with goals, objectives and actions to achieve these. The strategy also addresses the Pilbara's priority infrastructure needs over the next five years.

The Framework represents an agreed "whole of government" position on the broad future planning direction for the Pilbara and will guide the preparation of local planning strategies and local planning schemes. It will be particularly important in informing government of infrastructure priorities in the Pilbara and giving the private sector confidence to invest in the region.

The draft framework was released for public comment in March 2011.

Pilbara Framework: Regional Profile (2009)

The *Pilbara Framework: Regional Profile* provides a spatial planning profile for the Pilbara region. The document provides a background and rationale for the Pilbara Planning and Infrastructure Framework, which will set out the spatial strategic direction for the region. This will inform State Government investment in infrastructure and provide the context for local government planning in the region.

The document provides detailed information on the existing settlement structure within the region. The regional profile was released in August 2009.

Pilbara Regional Water Plan 2010–2030 (2010)

Released by the Department of Water in June 2010, the *Pilbara Regional Water Plan 2010–2030* provides a strategic and long term approach to sustainable water resource planning and management for the Pilbara region. The plan presents a strategic overview of the region's water resources and the major challenges facing the region, both today and in the future. Included in the document is an action plan which lists priority actions for water planning in the region for the next five years.

Actions included in the plan are intended to address the current shortage of regional, district and local water management plans and strategies that are necessary to guide future developments, and demonstrate the lands capability to support these developments from a water perspective.

Better Urban Water Management (2008)

Better Urban Water Management (BUWM) provides guidance on the implementation of *State Planning Policy 2.9 Water Resources* and has been adopted as the State policy approach in integrating land and water planning and working towards water sensitive urban design. This approach was collaboratively developed by the Department of Planning and Infrastructure, Department of Water, the Western Australian Local Government Association and the Australian Government Department of Environment, Water, Heritage and the Arts.

BUWM is designed to facilitate better management and use of water resources by ensuring an appropriate level of consideration is given to the total water cycle at each stage of the planning system. The document intends to assist regional, district and local land-use planning, as well as subdivision phases of the planning process. The document is to be used by all stakeholders and decision makers and has state-wide application for new urban, commercial, industrial and rural-residential developments.

Local planning

Port Hedland Land Use Master Plan (2008)

Endorsed in 2008, the master plan guides the growth and development of Port Hedland through the next 15–20 years. Adopted as a local planning strategy, the plan focuses on the use of land and its development character, defining the community's long-range vision of how the physical form of the town should develop. It sets out policies to resolve existing land use conflicts, guide the location and form of new development, and promote strategic new investment opportunities. The specific purposes of this plan are to:

- develop broad agreement on the desired disposition and character of development throughout the Town;
- develop a tool to guide Council in making decisions on all development proposals;

- streamline the development approval process; and
- build confidence in Port Hedland and attract new investment through clarification of its development future.

Port Hedland City Growth Plan (underway)

Since the endorsement of the *Port Hedland Land Use Master Plan*, Port Hedland has experienced unprecedented growth in all sectors, resulting in the need for the master plan to be revised. The review has commenced and a preliminary concept plan prepared. Entitled the Port Hedland City Growth Plan, the plan aims to:

- ensure that planning is in line with the State Government's Pilbara Cities vision, the Pilbara Planning and Infrastructure Framework and the Pilbara Plan;
- provide a sustainable growth strategy in line with projected population growth;
- provide an economic development framework that provides for a diversified economy that would support a population of 50,000;
- address the concerns of the Port Hedland Dust Taskforce Report;
- provide the Town of Port Hedland with a strategic plan and allow the progression of the review of Town Planning Scheme No. 5; and
- provide an implementation plan on how to achieve the goals and vision of the Port Hedland City Growth Plan.

As part of the plan, preparation of a housing strategy and commercial centres strategy may also be required. The project is anticipated to be completed by September 2011. The revised document will be used to inform the land use component of a new local planning scheme.

Port Hedland Air Quality and Noise Management Plan (2010)

The *Port Hedland Air Quality and Noise Management Plan* has been prepared by the Port Hedland Dust Management Taskforce to develop a comprehensive and integrated framework that supports the responsible development of Port Hedland for its residents, the port and its users. The key issues driving the need for the plan include the scale of industry coupled with regional and national economic importance of the port and the close proximity of residential housing to expanding industrial operations at the port.

The Taskforce considered land-use planning in the context of providing guidance to the Environmental Protection Authority on proposed Amendment 22 to the Town Planning Scheme No. 5. The Management Plan recommends that the following three actions in relation to land use planning be undertaken concurrently:

- Undertake an education program that provides information on the risks of dust exposure; promotes the retro-fitting of design solutions to existing dwellings; provides clear advice to developers and industry on future planning directions; and encourages development of short term accommodation in the West End of Port Hedland.
- Progress proposed Amendment 22 with the following inclusions/modifications within the amendment:
 - building design and performance standards should be incorporated into all new developments in the proposed "West End residential zone" as a mechanism to manage population density and the demographic mix of the area; and
 - a cap for residential density of R80 in the new West End residential zone.
- Prepare a development plan for the entirety of the Port Hedland area to:
 - identify sites for proposed new development within the entirety of Port Hedland;
 - promote a predominance of future residential development opportunity in the more eastern areas of Port Hedland;

- identify appropriate locations in the West End of Port Hedland for the redevelopment of properties for the purpose of additional commercial premises, entertainment complexes and short stay accommodation facilities;
- provide greater detail regarding residential density, dwelling types and building design for all areas of Port Hedland; and
- prescribe additional planning controls that assist in addressing amenity issues associated with residing in those areas that have elevated noise and dust levels.

The plan was endorsed by State Cabinet in March 2010.

Town of Port Hedland Town Planning Scheme No. 5

Local planning schemes set out the way land is to be used and developed. They classify areas for land use and include provisions to coordinate infrastructure and development in a locality. They also include controls to ensure long-term strategic planning objectives are achieved. The general objectives of the Town of Port Hedland scheme are to:

- encourage an appropriate balance between economic and social development, conservation of the natural environment, and improvements in lifestyle and amenity;
- implement strategic planning for the municipality, including the recommendations of the State Planning Strategy and relevant regional planning strategies;
- reserve certain portions of land required for public purposes;
- zone the balance of the land within the scheme area for purposes described in the scheme;
- define the uses and types of development to be permitted on land within the scheme area; and
- control and regulate the development of land, erection and demolition of buildings and the carrying out of works.

Residential development is controlled by the residential and urban development zones, with non-residential development predominantly covered by the commercial, industry, industrial development, strategic industry and mixed business zones. Urban development and industrial development zones identify land where detailed planning and the provision of infrastructure are required prior to the further subdivision and development of land. These areas may require preparation of a development plan.

The scheme was gazetted on 31 August 2001. Preparation of a new local planning scheme is anticipated to commence following a revision of the *Port Hedland Land Use Master Plan* (Port Hedland City Growth Plan).

Town of Port Hedland local planning policies

Local planning policies are prepared to provide guidance on the preparation of development applications and communicate the objectives of the Town in relation to development and use of land. The Town of Port Hedland has prepared a number of policies which provide guidance on development requirements in various areas and assist with decision making for various land use proposals. Further information can be found on the Town of Port Hedland's website www.porthedland.wa.gov.au

7.3 Role of LandCorp

LandCorp is Western Australia's Government land development agency, acting commercially to identify, design and implement major land, tourism and infrastructure projects which have a lasting and positive impact for Western Australians.

Projects are statewide and fall into industrial, metropolitan and regional categories. LandCorp works with all levels of Government and business on projects ranging from discrete residential subdivisions to the creation of whole new towns, industrial infrastructure and tourism development to support the long term growth of the State.

Principal services include:

- providing sufficient industrial land to assist the growth of WA's economy;

- urban development and renewal projects where unique opportunities or constraints exist;
- optimising triple bottom line outcomes from government-owned land;
- providing asset management and expert services to government; and
- supporting the growth of regional towns state-wide by providing suitable land.

LandCorp operates with an independent board and is responsible to the Minister for Regional Development and Lands.

7.4 Role of Department of Regional Development and Lands

State Land Services within the Department of Regional Development and Lands is responsible for the administration, assembly and allocation of Crown land. Operating under the *Land Administration Act 1997*, the department has the following functions in dealing with Crown land:

- administer Crown land;
- conduct land assembly for Government land;
- support and advise other agencies in relation to Government land tenure issues under the *Land Administration Act 1997*;
- provide advice and input on land solution over Government land;
- liaise with LandCorp to complement the roles of the respective agencies; and
- sell Crown land to other government agencies, local governments and private customers.

The Department of Regional Development and Lands also delivers and oversees the Pilbara Revitalisation Plan funded under the *Royalties for Regions Act 2009*. The Pilbara Revitalisation Plan includes initiatives to provide housing for workers accommodation and sustainable housing for Aboriginals.

7.5 Role of Department of Housing

The Department of Housing, through the Housing Authority, assists the Minister for Housing in administering the *Housing Act 1980*, *Government Employees' Housing Act 1964* and the *Country Housing Act 1998*.

The Housing Authority is responsible for:

- creating social and affordable housing in Western Australia;
- setting policy and regulating community housing; and
- providing housing for State Government employees in regional and remote areas of the State.

Its primary role is to provide and support housing for Western Australians who cannot otherwise afford their own homes. The authority does this by offering affordable land and housing, assisting with housing finance, providing rental housing and supplying government employees in country areas with quality homes (Government Regional Officers Housing - GROH).

The GROH program plays a vital role in attracting and retaining key Government workers in regional and remote communities, especially in areas which have a limited housing supply and lack a rental market.

The Department of Housing administers the New Living program which currently involves the renewal of a number of public housing dominated areas across the State, including South Hedland. This program aims to:

- to reduce the public housing presence which dominated the area;
- to refurbish houses for sale to the public or existing tenants;
- reduce the social stigma caused by the density of inappropriate and outdated public housing;
- upgrade and refurbish public rental housing;
- improve the social mix;
- improve the total area with streetscapes and parks to create a satisfied community; and

- encourage a sense of added security for local residents by eliminating areas which provided venues for anti-social behaviour.

The Department of Housing has a range of programs in place to assist Aboriginal people access rental housing and home ownership. This includes the provision of 2500 additional rental homes for Aboriginal people beyond the mainstream program, managed by the Department. Also available are a range of counselling and support services, a targeted home loan scheme and various construction and housing initiatives for Aboriginal communities across the State.

The Department of Housing has been developing a State Affordable Housing Strategy based on 53 recommendations made by the Social Housing Taskforce report (Housing 2020, October 2009), which included such reforms as collaboration with the private sector, assigning housing via a needs register, and making greater use of community housing.

The strategy aims to provide affordable housing to West Australians with some 20,000 new houses by 2020 through public and private partnerships.

More than one-third of private dwellings in Port Hedland are three bedroom, with little stock of one and two bedroom dwellings. The majority of homes are of fibro or brick construction. Given its location within a cyclone-prone area, buildings in Port Hedland must be built to withstand cyclone region D wind loadings – the highest category.

Significant housing stock owners in Port Hedland include resource companies (BHP Billiton Iron Ore, FMG, Dampier Salt), the Department of Housing (social housing and GROH housing), Commonwealth Government and the Town of Port Hedland.

The Town of Port Hedland databases estimate a current dwelling stock of approximately 5550 dwellings at the end of August 2010. This is estimated by analysing data stored by the Town's Building Department for the number of dwellings built and demolished since January 2007. These numbers have been further compared with the number of residential lots released via subdivision during the same period.

The Town of Port Hedland's Housing Capacity Study (unpublished) reports a total of 1656 dwellings in Port Hedland, 3537 dwellings in South Hedland plus an additional 201 caretaker dwellings in Wedgefield. This equates to a total dwelling stock of 5394 dwellings as at mid-2010.

7.6 Residential

Existing dwelling stock

Approximately 70 per cent of all occupied private dwellings recorded in the 2006 Census were separate houses (Table 9). More than 550 "other dwellings" were also recorded. These include caravans, cabins or houseboats, tents or sleep outs, or houses or flats attached to shops and offices. Just over half of the occupied dwellings recorded in the census consisted of three or more bedrooms.

A large portion of dwellings in Port Hedland are rented (41 per cent), which is fewer than that recorded in other centres in the Pilbara region. However, tenure type was not stated for a large number of occupied dwellings in the 2006 Census, at almost 30 per cent for Port Hedland. More than two-thirds of residential dwellings are located in South Hedland.

Table 9: Census 2006 dwelling stock - Port Hedland

Dwelling type	Number of dwellings	Per cent of total occupied private dwellings
Total private dwellings (including unoccupied private dwellings)	5075	-
Occupied private dwellings	4513	-
Separate house	3190	70.7
Semi-detached, row or terrace house, townhouse	417	9.2
Flat, unit or apartment	347	7.7
Other dwellings	554	12.3
Not stated	5	0.1

Source: Census 2006 QuickStats, Australian Bureau of Statistics (2007)

Much of Port Hedland's housing was built between the late 1960s and the mid-1980s (Figure 27). Dwelling construction peaked in 1983 with more than 300 dwellings constructed in a single year. Dwelling construction has remained at relatively low levels since 2001. Maps showing decade of construction (all land uses) have been prepared for both Port and South Hedland (Map 3 and Map 4).

Existing vacant lots

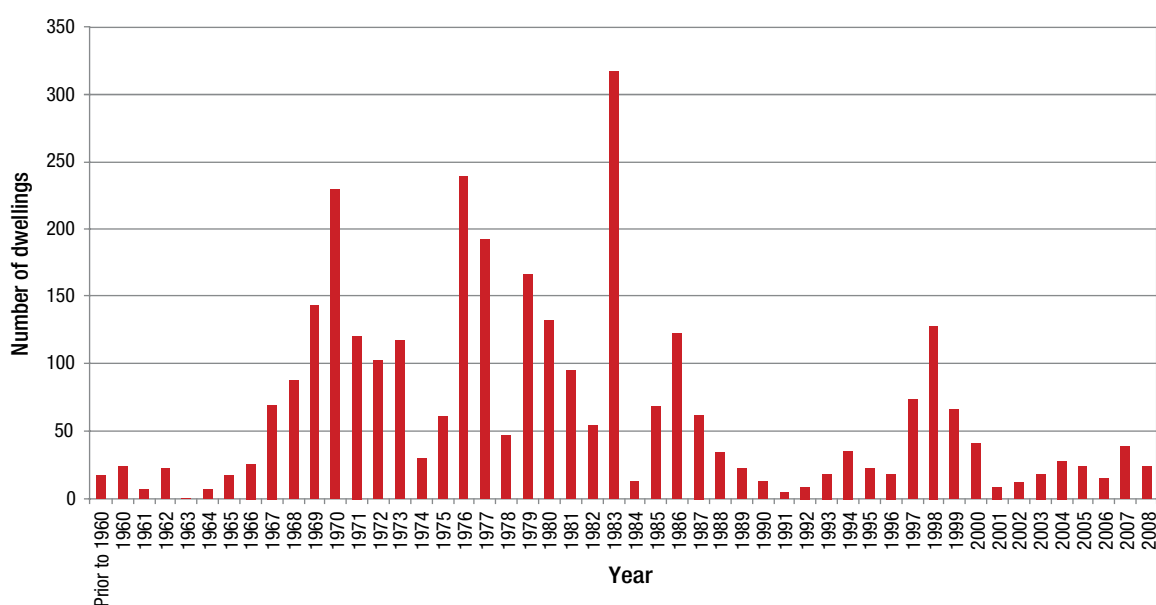
Analysis of satellite imagery capture on 1 June 2010 revealed a total of 389 vacant residential lots across Port and South Hedland. Less than one-third of the vacant lots are in Port Hedland (122 lots), with the majority located in South Hedland (267 lots). There are few vacant lots in established areas with the majority of vacant lots located in newly developed estates such as Pretty Pool in Port Hedland and Department of Housing developed estates in South Hedland.

Residential zoned land supply

Data in Table 10 details the area of developed and undeveloped residential zoned land in Port Hedland. The analysis focused on undeveloped greenfield areas, and as such, single vacant lots within the existing urban area have been classified as developed. However, the analysis classified the larger, identified infill sites in South Hedland (New Living projects) as undeveloped.

This data highlights the differences between South and Port Hedland in terms of residential zoned land supply, with limited undeveloped residential zoned land being available in Port Hedland in comparison to approximately 110 ha being available in South Hedland. There are a number of undeveloped sites in South Hedland zoned for residential development, some of which have conditional approval for subdivision. The largest parcel of undeveloped zoned land is a 56 ha parcel of Crown land in the southeast quadrant of South Hedland. While there is undeveloped zoned land available in South Hedland there is a local preference to live in Port Hedland. Comparative to other towns in the Pilbara region, residential zoned land supply in both Port and South Hedland is limited.

Figure 27: Dwellings built per year (1960 to 2008) - Port Hedland



Source: Valuer General's Office (2009)

The *Port Hedland Land Use Master Plan* identifies an additional 201 ha for future residential development which does not already have a residential or urban development zoning. These areas will require an amendment to the local planning scheme along with the resolution of a number of other development issues before development can proceed.

Areas currently undergoing planning or further investigation for residential uses in Port Hedland include the Spoilbank Marina Precinct (mixed uses), Styles Road, Pretty Pool Creek Precinct and the area accommodating the wastewater treatment plant, Telstra communications tower and the racecourse/sportsground. If investigations find these areas suitable for residential development, more than 400 ha could potentially be added to the zoned land supply in the medium to long term. In South Hedland, areas to the south of the town centre and southeast of townsite (southeast quadrant) have been identified for possible future residential development. These areas could potentially add more than 200 ha to the zoned land supply. Development of these areas is subject to outcomes of the Port Hedland City Growth Plan strategic planning process. The endorsed *South Hedland Town Centre Development Plan* also includes provision for more than 600 dwellings.

Existing development density/lot size and additional development potential

Development density and the potential for Port Hedland to absorb additional development has been assessed using the DoP's Integrated Land Information Database (ILID). The database is a net land-use assessment and capability model that is generated at a cadastral level for the whole of Western Australia. Outputs from this spatial model are shown in Table 11 and Maps 5 and 6.

The data indicates that there may be opportunities for infill development in both Port Hedland and South Hedland, where larger lots exist with higher density codes. In the case of split R-codes the highest R-code is used (maximum potential) to calculate additional dwelling potential. Additional infill development utilising existing infrastructure should be encouraged where possible.

Table 10: Residential zoned land supply - Port Hedland

Zone	Developed (ha)	Undeveloped (ha)	Total (ha)
Port Hedland			
Residential R12.5/30	17.0	3.0	20.0
Residential R12.5/50	12.0	0.2	12.2
Residential R15	38.5	0	38.5
Residential R20	2.6	0	2.6
Residential R25	14.3	0	14.3
Residential R30	9.4	0	9.4
Residential R50	9.0	0	9.0
Urban development	16.1	2.6	18.7
Port Hedland total	118.9	5.8	124.7
South Hedland			
Residential R20	173.5	14.4	187.9
Residential R30	42.7	17.2	59.9
Residential R30/60	0.9	0	0.9
Residential R40	1.1	0	1.1
Residential R50	7.9	0.6	8.5
Urban development R20	21.0	69.7	90.7
Urban development R30	3.6	7.2	10.8
South Hedland total	250.7	109.1	359.8
Total	369.6	114.9	484.5

Source: Internal databases, Department of Planning (2010)

There is also potential for additional dwellings in the West End area of Port Hedland (redevelopment opportunities). The area is constrained by dust impacts and was recently investigated by a task force led by the Department of State Development which recommends a number of planning controls to manage land use in the area.

The ILID data was prepared in August 2009 using Valuer General's Office data from July 2009.

Table 11: Integrated land information database outputs - Port Hedland

Suburb	R-code	No. of lots	No. of dwellings ¹	Vacant lots	Average net density	Additional dwelling potential ²	Average area per dwelling (m ²)
Port Hedland	Null ³	172	28	76	2.0	101	4994
	R12.5/30	195	210	8	10.5	249	951
	R12.5/50	139	175	13	13.9	343	719
	R15	480	469	4	12.2	7	821
	R20	29	40	0	15.6	3	642
	R25	163	181	1	12.6	143	790
	R30	66	248	0	23.5	95	426
	R50	10	119	0	13.2	195	759
Total Port Hedland		1254	1470	102	12.1	1136	827
South Hedland	Null ³	4	0	1	0.00	0	n/a
	R20	2287	2247	203	8.2	877	122
	R30	1126	684	158	10.0	719	1004
	R30/60	1	24	0	27.9	23	358
	R40	1	21	0	18.9	28	530
	R50	63	215	10	25.4	227	393
Total South Hedland		3482	3191	372	9.0	1874	1109
Total		4736	4661	474	9.8	3010	1020

Source: Integrated Land Information Database, Department of Planning (July 2009)

¹ Only includes those dwellings that are within residential zones of the current local planning scheme.

² Additional dwelling potential refers to existing developed lots and is based on current R-codes and lot size. In the case of split R-codes the highest R-code is used (maximum potential) to calculate the additional dwelling potential.

³ Refers to areas zoned urban development that do not have an R-code applied.

In 2009, the Town of Port Hedland, in conjunction with the Department of Planning and Department of Regional Development and Lands (DRDL) prepared the *Port Hedland Public Land Rationalisation Plan*. The plan identified all vacant Government land in Port and South Hedland and summarised development opportunities and constraints for each site. Land parcels were classified into various categories ranging from immediate development potential to areas requiring extinguishment of reserves or local scheme amendments, to long-term or heavily constrained areas.

The plan aims to facilitate the development of land to ease supply issues in the town and to rationalise over width verges and remnant public open space left over in South Hedland as a result of the failed Radburn Plan. Some of the sites identified in this plan have since been released through a DRDL/Town of Port Hedland expression of interest process (two stages released to date), which has further improved the supply of development sites to the market.

The plan was reviewed in 2010 and the scope broadened to include rural residential and non-residential (commercial and industrial) land in private ownership. The draft Hedland Land Availability Plan identifies sites across an area of 11,800 square kilometres. Sites identified in the plan include undeveloped/surplus Crown reserves, vacant single residential lots, grouped housing sites, both private and Government ownership. Sites were categorised into one of three categories, according to the level of constraints as follows:

Category 1:

The existing zoning and site particulars appear to offer immediate development potential.

Category 2:

Site review suggests amalgamation or extinguishment of an existing reserve would offer early development potential.

Category 3:

Site review suggests that road closure, rezoning and/or development planning will be necessary to realise development potential. The site may also be constrained by the requirement for major infrastructure; for example, reticulated sewer.

Key findings of the draft *Hedland Land Availability Plan* include:

Residential land

- The majority of sites in Port Hedland and in particular the West End were found to be in private ownership.
- Greater land development opportunities are found in east Port Hedland - progression of strategic planning in these areas should be seen as a priority, with the accompanying land release of smaller land parcels where appropriate.
- There are a significant number of surplus land parcels within the South Hedland urban area that can be either combined with adjoining land or developed in their own right. Many are also readily serviceable and therefore developable in the short-term.
- There is a need to review drainage functionality as many identified land parcels are either apparent surplus drainage land, or offer greater potential when combined with adjoining drainage land.
- Opportunities for rural residential land releases were identified at South Hedland Rural Estate (expansion), Twelve Mile and Turner River. Rural residential land releases should be managed by the Town of Port Hedland and focus on similarly established areas with good accessibility and amenity.
- Approximately 245 ha of vacant land (category 1, 2 and 3) was identified for residential development purposes across Port Hedland and South Hedland, with more than 90 per cent (225 ha) of this land being in public ownership. Approximately 180 ha of this land requires rezoning/development planning, highlighting the need for urgent progression of the Town Planning Scheme No. 5 review process. A further 358 ha was identified as being long-term/heavily constrained.

- To support timely progression of the development of the identified site, the clearance of Native Title on all un-alienated zoned land in Port and South Hedland should be initiated immediately.

Non-residential land

- There is development potential on zoned land along Anderson Street and on Wilson Street in proximity to the BHP Billiton Iron Ore lease area. Land use decisions in these areas will ultimately need to consider the outcomes of the Port Hedland City Growth Plan and the recommendations of the *Port Hedland Air Quality and Noise Management Plan*.
- Many of the South Hedland non-residential opportunities identified may include residential elements but will primarily be mixed use development outcomes in the town centre area.
- If progressed, development of the Boodarie Industrial Estate will provide much needed general industrial land away from Wedgefield and the West End. Ideally, this will result in improved industrial land pricing and opportunities for the rationalisation of land use in the West End and Wedgefield.

To ensure the plan remains a valid and useful resource, it is intended to review the plan on an annual basis.

Table 12 and Table 13 detail the additional residential dwelling potential of a number of the areas identified as part of the Hedland Land Availability Plan. Given that a large number of the parcels identified in the plan have been included as individual HotSpots projects (see Table 32), the remaining sites have been grouped together by category, and a dwelling yield calculated, to give an estimate of the additional dwelling supply that may result from development of these areas.

Sites identified for amalgamation into adjoining land parcels (such as road reserves where additional dwelling potential is unlikely to result), and sites categorised as long-term/heavily constrained have been excluded from this analysis. Assumptions regarding the development of these potential additional dwellings have been developed for each category and included in the residential land release summary table (Table 14). The addition

of these sites to the HotSpots projects enables a more complete picture of potential future lot/dwelling release to be generated. Following on from the Hedland Land Availability Plan, the Town of Port Hedland has engaged consultants to prepare a report on housing capacity in the town. The Housing Capacity Study (unpublished) aims to identify land which can potentially be developed for housing purposes; the processes and timeframes involved in developing land for housing; and the ultimate housing capacity of individual sites. The study investigates the potential ultimate housing capacity of the town, and also tests the impact of the Town of Port Hedland's Recoding Matrix on the potential housing capacity by applying this to the study area. The study is yet to be published.

Table 12: Additional residential dwelling potential¹
- Hedland Land Availability Plan

Locality	Category 1	Category 2	Category 3
Port Hedland residential			
Pretty Pool	98	0	7
Cooke Point	32	0	5
Cemetery Beach/West End	106	0	117
Total Port Hedland	236	0	129
South Hedland residential			
Koombana	46	27	61
Cassia	9	4	47
Shellborough	134	14	7
Walnut Grove	91	1	57
Lawson	28	15	220
Total South Hedland	308	61	392
Total	544	61	521

Source: Draft Hedland Land Availability Plan (2010)

¹ Lot/dwelling yields are indicative only. Detailed design and concept planning is required before further accurate lot/dwelling yields can be determined, and all constraints can be fully understood and taken into account.

Table 13: Additional rural residential lot/dwelling potential¹
- Hedland Land Availability Plan

Locality	Category 1	Category 2	Category 3
Rural residential			
Redbank	9	0	0
South Hedland Rural Estate	15	0	0
Turner River	3	0	0
Twelve Mile	0	0	To be determined by structure planning
Total Port Hedland	27	0	Not determined

Source: Draft Hedland Land Availability Plan (2010)

¹ Lot/dwelling yields are indicative only. Detailed design and concept planning is required before further accurate lot/dwelling yields can be determined, and all constraints can be fully understood and taken into account.

Recent subdivision activity

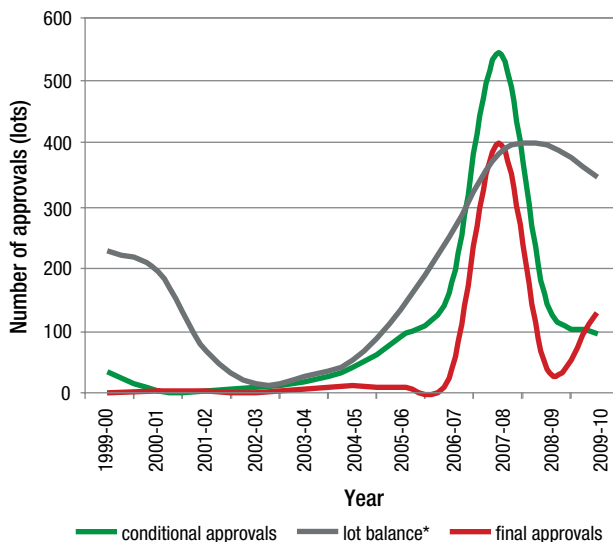
Residential subdivision activity has increased in recent years, with increases in both conditional and final subdivision approvals being recorded (Figure 28). Conditional and final approvals peaked in 2007/08 and have since dropped back to relatively low levels. At 30 September 2010, there were 332 residential lots with conditional approval for subdivision, with the majority of these approvals (262) for developments in South Hedland. A large portion of these lots will likely reach final approval stage in the short-term, improving the supply of residential lots to the market.

Residential land development pipeline

The residential land development pipeline detailed in Figure 29 presents data for key points of the land development process, from identification of land in strategic plans, through to subdivision and building approvals. Regular monitoring of the amount of land and approvals flowing through the pipeline will assist with identifying bottlenecks in the development process, and potential periods of over or under supply.

The pipeline data identifies a steady level of applications for subdivision flowing through the system and a steady stock of lots with approval for subdivision. However, there has been a significant drop in the number of lots receiving final approval in the first three quarters of 2010, when compared to the three previous calendar years.

**Figure 28: Residential conditional and final approvals¹
1999/00 to 2009/10 - Port Hedland**



¹Includes subdivision/strata approvals for the purposes of subdivision, amalgamation, boundary realignment, resubdivision and road purposes.

*As at 30 June each year. Refers to conditional approvals for which construction or servicing has not yet commenced, or is currently under way (i.e. has not reached final approval stage).

Source: Approvals database, Department of Planning (2010)

Residential land release summary

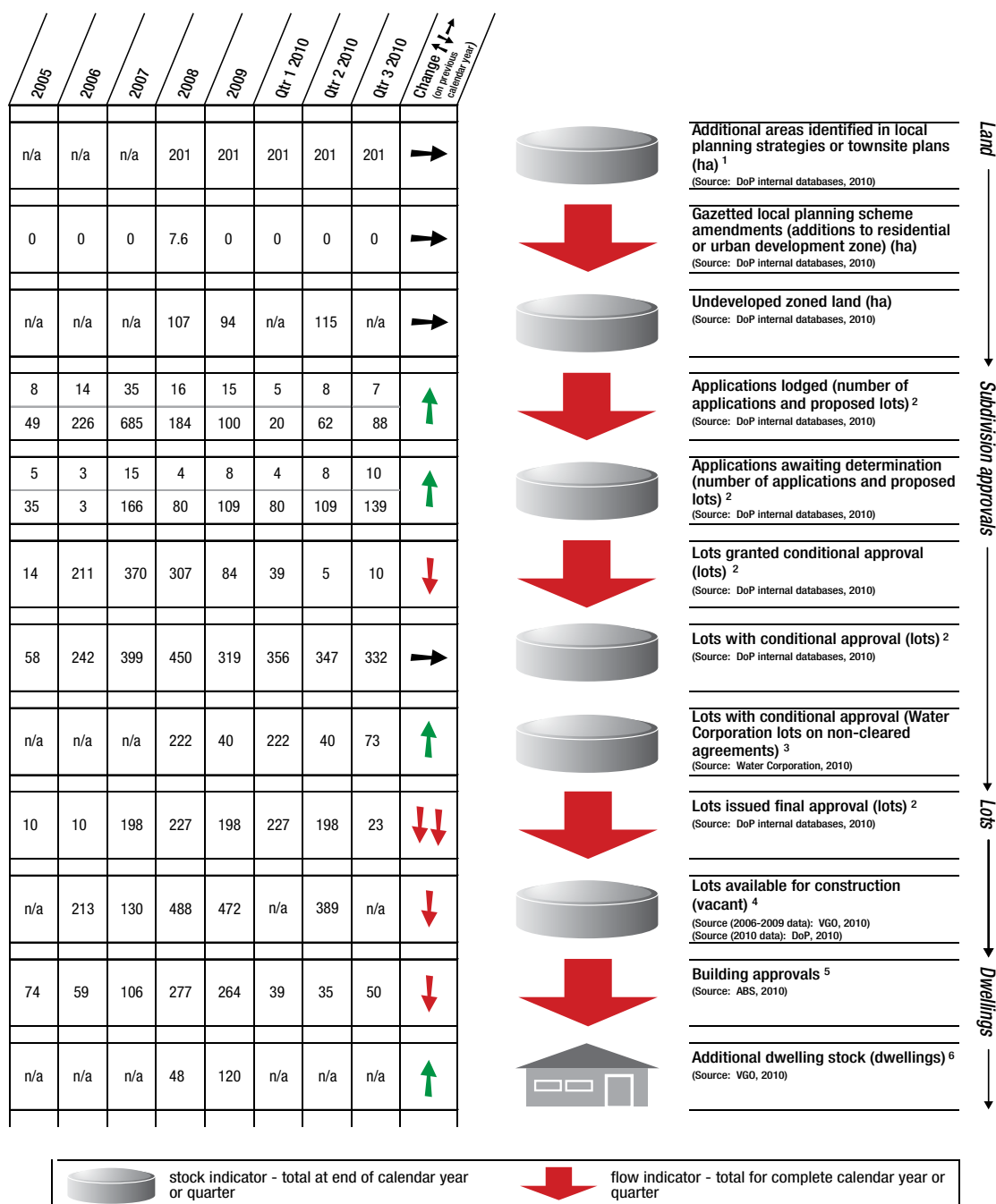
In summary:

- Both LandCorp and the Department of Housing are progressing planning for the development of sites in both Port Hedland and South Hedland. There are a number of lots currently under construction in South Hedland, the majority of which have been developed as part of the Department of Housing's New Living program.
- Zoned land supply in Port Hedland is generally limited, with areas affected by the impact relating to iron ore dust, coastal setbacks to protect from cyclonic storm surge and other environmental issues. These issues will impact heavily on land release timeframes.
- There is capacity for the development of more than 3500 dwellings in Port Hedland's East End and Spoilbank Marina Precinct. These areas present

significant challenges in terms of resolving complex development constraints, and will be considered as part of preparation of the Port Hedland City Growth Plan. Preparation of the plan is considered a high priority, and will identify and prioritise sites suitable for future urban development. The plan will need to consider the Pilbara Cities growth scenario and its implications for land use in both Port Hedland and South Hedland.

- A \$106 m project to relocate the Port Hedland wastewater treatment plant was announced in January 2011, freeing-up approximately 75 ha of land for residential development.
- Sites in the South Hedland Town Centre have the capacity to yield a large number of additional dwellings, some of which will be released to the market in the short-to-medium term. Subject to further planning and approvals, sites to the west and south of the town centre, and southeast of the town have also been identified for potential urban development.
- A number of sites in South Hedland have been released by the Department of Regional Development and Lands and the Town of Port Hedland, with two stages released via an expression of interest process to date. A portion of sites has been made available to not-for-profit organisations only, for the development of affordable/ key worker housing. Further stages are planned.
- Demand for rural residential land is expected to be met with land releases at the South Hedland Rural Estate. Subject to further planning, additional lots could also be released at Twelve Mile.
- The private sector is becoming increasingly involved in development in the town, with a number of larger sites likely to be developed by the private sector in the short-to-medium term.
- South Hedland Town Centre Revitalisation (stage 2), development of the Spoilbank Marina and relocation of the Port Hedland wastewater treatment plant have been identified as top 10 priority projects in the Town of Port Hedland's *Hedland's Future Today* report. Progression of these projects will improve the supply of developable land to the market, but are subject to further planning and approval processes.

Figure 29: Residential land development pipeline - Port Hedland



¹ Additional residential development areas (not currently zoned) identified in draft Karratha City Growth Plan adopted by the Shire of Roebourne in May 2010.

² Includes subdivision and strata applications/approvals for the purposes of subdivision, amalgamation, boundary realignment, road purposes etc.

³ Refers to conditionally approved lots where a servicing agreement (agreement to construct) has been signed between the Water Corporation and the developer. These are termed lots on non-cleared agreements.

⁴ Vacant lot data as at July of each calendar year.

⁵ In some cases approvals have not been coded to a specific census collector district. These records have been excluded from this data.

⁶ Calculated from Valuer General's Office data (variance between total number of residential dwellings between each year). May include transient workforce accommodation if identified as residential dwelling by VGO. As at July of each calendar year.

Recognising the need for more affordable/controlled rental accommodation suitable for key service workers, a number of sites have recently been made available DRDL/ToPH land release processes (two stages released to date). A portion of the sites have been released to not-for-profit organisations only for the purposes of developing worker accommodation, and will likely be developed in the short-to-medium term. These types of facilities are generally more affordable self-contained facilities of a more permanent residential nature (compared with transient workforce accommodation facilities).

Without affordable accommodation available, the key service sector will continue to experience staff shortages and a high employee turnover. The Pilbara Towns Housing Study (unpublished) reports a latent demand of 678 dwellings for key service workers and 221 dwellings for residential construction workers in Port Hedland (as at 2008).

Area B (south of Pilbara TAFE) will be developed by Auzcorp (named Australia Cove) and will include permanent accommodation such as units, townhouses and apartments, along with supporting facilities and services. Preliminary engineering works for the first stage of this site have commenced and an application for subdivision lodged. The plan is to develop the project in five consecutive stages to provide approximately 400 dwellings. Purchase of the land is conditional on the workforce accommodation component being converted to permanent residential in the future. Completion is expected in 2015.

The Town of Port Hedland has also recently given support to a proposal to moor a four-star, 332 room floating hotel at South West Creek. The facility is intended to address growing worker accommodation needs.

Land and dwelling release information is summarised in Table 14. Further project specific information is available in Table 26 and Maps 7 - 10.

Table 14: Residential land release summary

Project	Short-term (0-2yrs)	Medium-term (2-5yrs)	Medium-term (5-10yrs)	Total
Hedland Land Availability Plan - Category 1 sites ¹	211	162	113	486
Hedland Land Availability Plan - Category 2 sites ¹	0	18	24	42
Hedland Land Availability Plan - Category 3 sites ¹	0	156	208	364
Pretty Pool R60/80 development site (PH08A)	20	40	0	60
Pretty Pool R40 development site (PH08B)	0	33	0	33
Pretty Pool stage 3 (PH08C)	0	0	130	130
Pretty Pool R60/80 development site - BHP Billiton Iron Ore (PH08D)	44	0	0	44
Morgans Street (PH26)	6	0	0	6
Moore Street (PH30)	0	12	0	12
Kingsmill Street (PH31)	0	11	0	11
Ocean Breeze Villas (PH34)	15	0	0	15
Spoilbank Marina Precinct – residential component (PH112)	To be determined			1000-1700
Lot 9 The Esplanade - residential component (PH118)	0	22	0	22
Arabella Apartments - residential component (PH119)	0	6	0	6
Lot 95 Kingsmill Street (PH120)	6	0	0	6
Lot 175 Morgans Street (PH121)	8	0	0	8
Port Authority Precinct (PH125)	12	0	0	12
East End - WWTP/McGregor Street (PH127A)	To be determined			2500-3500
East End - Pretty Pool Creek Precinct (PH127B)				
East End - Styles Road (PH127C)				

Table 14: Residential land release summary (continued)

Project	Short-term (0-2yrs)	Medium-term (2-5yrs)	Medium-term (5-10yrs)	Total
Baler Close (SH06) ²	19	0	0	19
Pettit Place (SH09) ²	30	0	0	30
Osprey Drive (SH18A) ²	0	200	420-650	620-850
Kariyarra Mugarinya (SH18B)	0	150	0	150
Traine Crescent/Catamore Court (SH23) ²	34	0	0	34
Coppin Place/Cottier Drive (SH24) ²	54	0	0	54
Cottier Drive (SH26) ²	0	95	0	95
Cottier Drive (SH29A) ²	29	0	0	29
Cottier Drive (SH29B) ²	52	0	0	52
Cottier Drive/Trumpet Way (SH38) ²	0	33	0	33
Limpet Crescent (SH39) ²	5	0	0	5
Masters Way (SH41) ²	33	0	0	33
Paton Road (SH48) ²	11	0	0	11
South Hedland Town Centre (SHTC) stage 1A - residential component - proposed lot 21 (SH54A)	0	70-104	0	70-104
SHTC stage 1B - proposed lot 23 (SH54B)	0	36	0	36
SHTC stage 1C - (SH54C)	0	144	0	144
SHTC stage 1A - nurses accommodation - proposed lot 22 - (SH54D)	0	45	0	45
Pepper Street & other locations (SH59) ²	0	104	0	104
Limpet Crescent (SH60)	9	0	0	9
Godrick Place/Barrow Place (SH61)	16	0	0	16
Road reserve - Lawson Street/Corbet Place - residential component (SH63)	0	16	0	16
Murdoch Drive (SH65)	To be determined			1230-1680
Somerset Crescent (SH66)	0	20	0	20
Frisby Court (SH71)	3	0	0	3
Acacia Way (SH72)	3	0	0	3
Parker Street (SH73)	0	0	55	55
Parker Street (SH74)	150	0	0	150
McDonald Street (SH75)	19	0	0	19
SHTC - Colebatch Way mixed use - residential component (SH76)	0	157-252	0	157-252
Denman Place (SH77)	7	0	0	7
Kwinana Street (SH78)	2	0	0	2
Masters Way (SH79)	0	24	0	24
Kennedy Street/Acacia Way (SH85)	0	52	0	52
Brodie Crescent (SH88)	0	17	0	17
Hamilton Road (SH90)	0	13	0	13
Roberts Street (SH91)	0	54	0	54
Stanley Street/Kennedy Street (SH92)	0	46	0	46
Dorrigio Loop/Captains Way (SH93)	0	104	0	104

Project	Short-term (0-2yrs)	Medium-term (2-5yrs)	Medium-term (5-10yrs)	Total
Lawson Street/Somerset Crescent (SH97)	0	44	0	44
SHTC west (SH102)	To be determined			220
SHTC west (SH103)	To be determined			165
Throssell Road (SH104)	To be determined			30
Scadden Road (SH105)	To be determined			30
Rutherford Road (SH115) ²	23	0	0	23
Minderoo Avenue (SH116) ²	17	0	0	17
Cottier Drive (SH117) ²	0	18	0	18
Clam Court (SH122)	36	0	0	36
Rutherford Road (SH123)	10	0	0	10
Arcadia Villas (SH124)	18	0	0	18
Collier Drive (SH126)	7	0	0	7
Lawson Street/Weaver Place (SH128)	0	39	0	39
Pt lot 308 (SH131)	To be determined			2000
Rutherford Road (SH135)	14	0	0	14
Total residential³	923	1941-2070	950-1180	10,989-13,498
Key worker housing				
Greene Place (SH64)	12	0	0	12
Area B (SH70)	40	360	0	400
Curlew Crescent (SH80)	8	0	0	8
Greene Place/Traine Crescent (SH81)	0	15	0	15
Godrick Place (SH84)	0	29	0	29
Hamilton Road/Forrest Circle (SH129)	To be determined			
North Circular Road (SH130)	To be determined			
Total key worker housing	60	404	0	464
Rural residential				
Greenfield Street (SH110)	19	25	27	71
Greenfield Street (SH111)	8	0	0	8
Great Northern Highway (SH134)	0	51	47	98
Total rural residential	27	76	74	177
Total all residential³	1010	2421-2550	1024-1254	11,630-14,139

¹ Category 1 - sites are less constrained, therefore assumes 90% of sites developed in total over next 10 years at the following rate - single, duplex & triplex sites 50% over 0-2 yrs, 30% over 2-5yrs, 10% over 5-10 yrs - other sites 20% over 0-2 yrs, 30% over 2-5yrs, 40% over 5-10 yrs.
Category 2 & 3 - sites are more constrained, therefore assumes 70% of sites developed in total over next 10 years at the following rate - 0% over 0-2yrs, 30% over 2-5yrs, 40% over 5-10 yrs.

² Part of New Living Program.

³ Potential yield data for the medium-term (5-10 yrs) does not take into account yields for projects which are yet to be determined such as Spoilbank Marina (PH112), East End (PH127A/B/C), south-east South Hedland (SH65) and South Hedland Town Centre projects (SH102-SH105 & SH131). Development of these projects is subject to further planning and approvals, but if approved, would likely yield a large number of dwellings in this time period (5-10 yrs).

Adequacy of supply

Data presented in Table 14 indicates that if land were to be released as planned, approximately 3500 dwellings could be developed over the next five years. This equates to the development of 500 dwellings each year over the next two years, followed by 800 dwellings each year thereafter. Fast tracking the resolution of development constraints may however enable a larger number of lots and/or dwellings to be released over the short to medium-term. Realising this potential is subject to resolution of development issues, demand factors and capacity of the local building industry (noting that a doubling or tripling of existing construction levels would be required to realise the identified yields).

Combined, the development projects identified in this document could potentially yield approximately 11,500 to 14,000 residential dwellings. Development timing and yields are yet to be determined for a number of larger projects including Port Hedland's Spoilbank Marina Precinct, East End and areas to the west and south of the existing South Hedland Town Centre. Development of these areas is subject to resolution of a number of complex development constraints (such as Native Title, planning, environmental, hydrological and servicing issues), with development not expected to commence in the short-term. Demand is also a critical factor, with land and dwellings unlikely to be developed unless considerable demand is evident.

Analysis of potential dwelling yield data indicates that if these yields were realised, a population of 44,000 to 50,000 persons (i.e. Pilbara Cities vision) could be accommodated in the identified areas. This assumes an existing dwelling count of approximately 5400 dwellings, and an occupancy rate of 2.6 persons per dwelling.

Projected future dwelling requirements have been calculated using a range of average annual growth rates (as an indication of demand) and assumptions regarding existing unmet demand

(Table 15). This information has been compared to potential supply using existing dwelling stock information and potential supply data presented in Table 14. Note that this data does not include transient workforce accommodation facilities.

Assuming no existing unmet demand and potential supply as detailed above, supply is expected to meet demand over the short, medium and long term (Table 15), although supply in the short-term under high growth rates (four to five per cent)

Table 15: Projected total residential dwelling requirements¹

Growth rates/ assumptions	Short-term (0-2yrs)	Medium-term (2-5yrs)	Medium-term (5-10yrs)
Assuming no existing unmet demand			
1.5% average annual demand growth	5856	6123	6596
Projected over/under supply	+548	+2702	+4729
2.0% average annual demand growth	5943	6306	6963
Projected over/under supply	+461	+2519	+4362
3.0% average annual demand growth	6119	6687	7752
Projected over/under supply	+285	+2138	+3573
4.0% average annual demand growth	6299	7086	8621
Projected over/under supply	+105	+1739	+2704
5.0% average annual demand growth	6483	7504	9578
Projected over/under supply	-79	+1321	+1747
Assuming existing unmet demand of 1400 dwellings (as determined by Pilbara Towns Housing Study)			
1.5% average annual demand growth	7256	7523	7996
Projected over/under supply	-852	+1302	+3329
2.0% average annual demand growth	7343	7706	8363
Projected over/under supply	-939	+1119	+2962
3.0% average annual demand growth	7519	8087	9152
Projected over/under supply	-1115	+738	+2173
4.0% average annual demand growth	7699	8486	10,021
Projected over/under supply	-1295	+339	+1304
5.0% average annual demand growth	7883	8904	10,978
Projected over/under supply	-1479	-79	+347

¹ Calculated using assumption of 2.5 persons per dwelling, and dwelling stock in mid-2010 at 5394 dwellings. Resident population at mid-2009 assumed at 14,000 persons. Potential additional dwelling yield over medium term (5-10 yrs) assumed at 500 dwellings per annum. Population and dwelling requirement calculated as at end of each time period (0-2 yrs calculated as at mid-2012, 2-5 yrs calculated as at mid-2015).

7.7 Rural residential

is relatively tight. Assuming an existing unmet demand for 1400 dwellings (as determined by the *Pilbara Towns Housing Study*), there is a potential undersupply in the short term, with supply meeting demand over the medium and long term. This information is displayed graphically in Figure 30. Unmet demand was calculated by determining the current apparent and latent demand for housing. Apparent demand was determined by analysing waiting lists for social and Government Regional Officer's Housing and estimating the extent of primary, secondary and tertiary homelessness in Pilbara communities. Latent demand was estimated using an input/output model to determine the gap in the supply of workers, which was then converted to dwelling requirements.

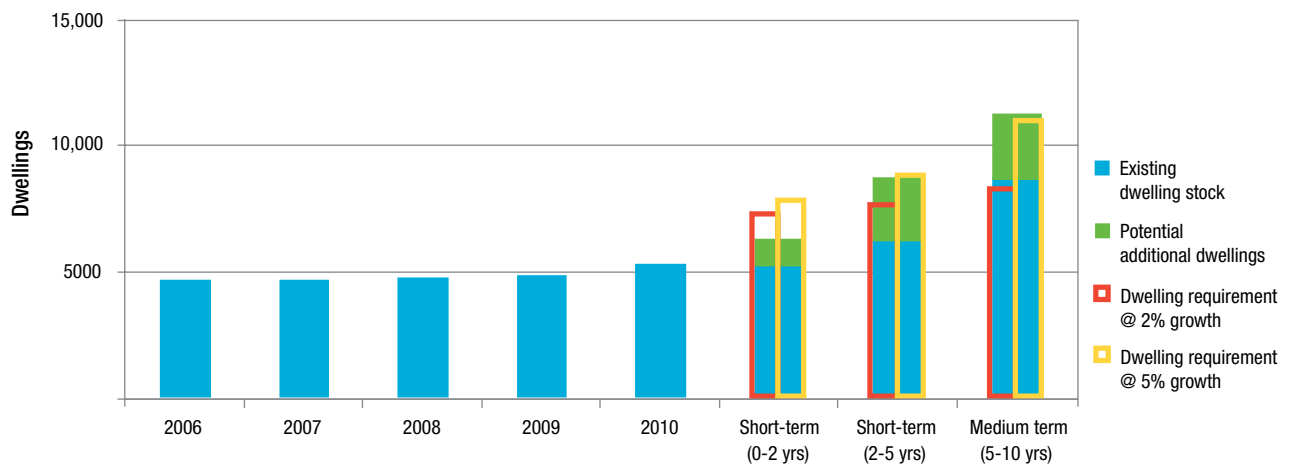
Annual land and dwelling releases will need to increase if the existing backlog of demand and anticipated demand is expected to be met. The required rates are significantly above what has been achieved in recent years. Greater private sector involvement will assist with improving the supply of land and dwellings to the market, and meeting Pilbara Cities growth targets.

Anecdotal evidence suggests there is existing demand for the release of further rural residential lots in Port Hedland. There are currently four areas zoned for rural residential purposes in the Town of Port Hedland, these being the South Hedland Rural Estate (3 kilometres south of South Hedland), Redbank (midway between Port and South Hedland), Twelve Mile (8 kilometres east of South Hedland) and Turner River (20 kilometres south-west of South Hedland). There are 378 ha of zoned rural residential land in Port Hedland of which approximately 202 ha is developed. Large areas of undeveloped zoned land are located at Twelve Mile (84 ha) and South Hedland Rural Estate (92 ha). The majority of existing lots have been taken up although not all have been developed.

The *Port Hedland Land Use Master Plan* does not recommend that new rural residential areas be established and supports only modest expansion of the existing estates, as indicated by market demand. This, therefore, minimises the need for additional infrastructure and contains the unnecessary spread of development into undisturbed areas.

While forming only a limited part of the future land supply/development pipeline, these lots do however provide for an alternative lot product for those wishing to live in a rural setting with the possibility of operating a small business or rural enterprise on the same site.

Figure 30: Potential future dwelling supply and requirement¹ (assuming existing unmet demand²)



Source: Internal databases, Department of Planning (2010)

¹ Calculated using assumption of 2.5 persons per dwelling, and dwelling stock in mid-2010 at 5394 dwellings. Resident population at mid-2009 assumed at 14,000 persons. Potential additional dwelling yield over medium term (5-10 yrs) assumed at 500 dwellings per annum. Population and dwelling requirement calculated as at end of each time period (0-2 yrs calculated as at mid-2012, 2-5 yrs calculated as at mid-2015).

² Assumes existing unmet demand of approximately 1400 dwellings (as identified in the *Pilbara Towns Housing Study*).

There is currently conditional approval for the subdivision of 79 lots in the South Hedland Rural Estate (SH110 and SH111), and these lots are likely to be developed in the short-to-medium term. Proposals to develop further rural residential land at Twelve Mile have also recently been submitted to council (SH134). If developed, these lots will more than double the number of existing rural residential lots and will therefore easily meet anticipated demand for this type of product. Preparation of a development/structure plan for the wider Twelve Mile area is required before further rural residential can proceed. Indicative information on rural residential lot release is shown in Table 14.

7.8 Transient workforce accommodation

Port Hedland has accommodated a large transient workforce over recent years. There are currently established workforce accommodation facilities in Wedgefield, South Hedland and adjacent to the airport. These facilities are of a temporary nature and usually consist of single rooms with shared facilities. There is currently only one site zoned transient workforce accommodation in the Town of Port Hedland which accommodates an existing facility in Wedgefield. Subject to planning approvals, facilities may also be permitted in rural, airport, strategic industry, residential and urban development zones. The capacity/occupancy of the main workforce accommodation facilities is detailed in Table 16. A number of other hotels/motels in Port Hedland also let a portion of rooms to transient and longer-term workers. The Town of Port Hedland estimates a total of approximately 2500 transient and 400 longer-term workers were accommodated in these types of facilities as at the end of August 2010 (3100 and 600 across the whole Town of Port Hedland respectively).

The *Port Hedland Land Use Master Plan* proposes more formalised accommodation for these workers in areas that are closer to retail, food, entertainment, sporting and education facilities, such as in the South Hedland town centre and in the West End, acknowledging that integration of facilities will provide greater benefit to the community. The Town of Port Hedland has prepared a guidance note for developers of workforce accommodation, detailing appropriate styles and locations for various types of these facilities across the town. These can be summarised as follows:

Mining/rail camps (short-term construction camps outside of the urban area)

Possible/preferred locations: Locations greater than 50 kilometres from Port Hedland otherwise "in-town" accommodation should be sought.

Student accommodation facilities (for students undertaking training or further education)

Possible/preferred locations: Pundulmurra College, South Hedland TAFE

Traditional donga camps (temporary and short-term facilities to address spikes in construction workforce numbers)

Possible/preferred locations: Port Hedland International Airport.

Higher quality, more permanent accommodation facilities (including hotels/motels - facilities designed and built for permanent residential/tourism purposes)

Possible/preferred location: Port and South Hedland CBD areas and Port Hedland Golf Course (resort style).

Building construction camp (short-term construction camp for builders constructing major facilities such as civic buildings, hospitals)

Possible/preferred location: this is not the Town of Port Hedland's preferred option; however, is potentially allowable on specific larger scale building construction projects with a construction period of no longer than 18 months.

Table 16: Occupancy of transient workforce accommodation facilities - Port Hedland

Facility	Capacity	Occupancy (number of persons as at August 2010)
Beachfront	450 (rooms/beds)	342
Club Hamilton	456 (rooms/beds)	400
Cooke Point Caravan Park	205 (sites/rooms)	363
Mia Mia	192 (rooms/beds)	83
Port Haven	1202 (rooms)	829
Port Hedland Caravan Park	164 (sites/rooms)	195
Pundulmurra	186 (rooms)	147
Wedgefield Camp	710 (rooms)	547
Total	3565	2906

Source: Town of Port Hedland (2010)

Transient workforce accommodation zoned land supply

As at June 2010, there was 6.2 ha of land zoned specifically for transient workforce accommodation in Port Hedland, all of which is developed (Table 17). The site, located on Schillaman Street in Wedgefield includes 710 rooms transient workers. Subject to planning approvals, facilities may also be permitted in rural, airport, strategic industry, residential and urban development zones.

Table 17: Transient workforce accommodation zoned land supply - Port Hedland

Zone	Developed (ha)	Undeveloped (ha)	Total (ha)
Transient workforce accommodation	6.2	0	6.2
Total	6.2	0	6.2

Source: Internal databases, Department of Planning (2010)

Transient workforce accommodation development summary

Given the ongoing housing affordability issues and continuing unmet demand for housing in Port Hedland, demand for workforce accommodation facilities remains strong. Additional workforce accommodation facilities are planned for Area A (SH69) in South Hedland and at the Port Hedland Airport. Area A (behind Pilbara TAFE) will be developed by the West End Integration Group (consortium). The project will accommodate approximately 1200 to 1500 persons.

In response to increased demand for workforce accommodation, the Town of Port Hedland recently entered into a 10-year lease arrangement with the Compass Group for 12 ha of land at the airport. Under the terms of the lease the Compass Group built a 1200 person workforce accommodation village (Port Haven Accommodation Village) on the leased land. Infrastructure will be removed at the conclusion of the lease. A portion of the rooms has been provided free of charge or at reduced rates for essential workers from the small business sector or health professionals.

The draft *Port Hedland International Airport Master Plan* also identifies an area of land as being potentially suitable for development of further transient workforce accommodation. Identified as Precinct 2, the draft master plan suggests that further workforce accommodation could be developed in this area; however, it recommends that long-term use of the land be embargoed to ensure that any requirement for the use of this land for airport related uses can be pursued. Accordingly, the report recommends that land be leased rather than sold to developers.

Land and dwelling release information is summarised in Table 14. Further project specific information is available in Table 26 and Maps 7 - 10.

Table 18: Transient workforce accommodation (key worker housing) development summary

Project	Short-term (0-2yrs)	Medium-term (2-5yrs)	Medium-term (5-10yrs)	Total
Area A (SH69)	1200 - 1500 (beds)	0	0	1200 - 1500 (beds)
Airport (SH133)	To be determined			
Total	1200 - 1500	0	0	1200 - 1500

Adequacy of supply

PICC settlement population projections estimate a combined FIFO/construction workforce for Port Hedland of approximately 5800 persons across 2012/2013, rising from approximately 3000 in 2010 (Table 3). This indicates that an almost doubling of the existing available beds (approximately 3000-3500) will be required in order to meet demand. While there are a number of projects at various stages of planning suitable for accommodating transient/key service workers, these will need to be developed in the immediate short to medium-term in order to meet demand. Demand for these types of facilities is also heavily influenced by the accommodation/FIFO policies of resource companies.

7.9 Industrial

Industrial zoned land supply

Industry is the largest land use in Port Hedland, accounting for more than half of all developed land in the town. There is currently more than 6350 ha of land zoned for industrial uses in the vicinity of Port and South Hedland (Table 19). Approximately two-thirds of this land area is the Boodarie Industrial Estate, zoned for strategic industrial uses. The area is generally undeveloped (except for the power station located on the eastern boundary), and is suitable for downstream processing facilities and strategic industry support uses. The now-closed hot briquetted iron (HBI) plant lies to the immediate north of the industrial area. There is also a significant area (~1750 ha) zoned for strategic industry at Nelson Point and Finucane Island which accommodate port operations.

General industrial zones are located in the West End area of Port Hedland and at Wedgefield, located northwest of South Hedland urban area. These areas are almost fully developed, with only a small portion of undeveloped zoned land at Wedgefield. Given the lack of an ongoing industrial land release program and lack of available alternative sites for higher impact uses, Wedgefield presently accommodates uses ranging from noxious and heavy industry

to light industrial uses and caretakers' dwellings. This has resulted in land-use conflicts.

The *Port Hedland Land Use Master Plan* proposes sites to accommodate general, light and noxious industry, and mixed business uses. Proposed land areas are as follows:

- transportation uses - 165 ha
- light industry - 167 ha
- mixed business - 148 ha
- general/noxious industry (Boodarie)

The *Port Hedland Land Use Master Plan* also recommends the following general policies on industrial land use:

- Contain the spread of industrial uses in well planned, orderly precincts that are located to take advantage of existing infrastructure wherever possible, to support existing industrial development, and avoid conflicts with adjacent land uses.
- Identify appropriate locations for different types of industrial uses, promoting synergies among related businesses and avoiding conflicts between noxious and light industrial uses.

The master plan also recommends rezoning the Wedgefield special control area to light industry, making noxious uses non-conforming, and converting existing general industrial uses to additional uses for a period of 10 years from the date that new land suitable for general industrial uses is released for development. Following this 10-year period, all general industrial uses in Wedgefield also become non-conforming.

Local planning scheme amendment No. 24 proposes the rezoning of approximately 250 ha of land to the east and south-east of the existing Wedgefield estate to light industry and transport development zones. The amendment has been adopted by council but is yet to be finalised by the WAPC/Minister for Planning. Land to the south of the airport has also been identified for future transport/light industrial uses. This is likely longer-term and is subject to further investigation.

Existing vacant lots

Analysis of satellite imagery captured on 1 June 2010 revealed a total of 41 vacant industrial lots across Port Hedland. The majority of these were in Wedgefield (30 lots) and were both in private and Government ownership (including Crown reserves and some unallocated Crown land). Some of the vacant lots are of a small size and may be suitable only for amalgamation into adjoining land parcels. The majority of lots in Port Hedland were BHP Billiton Iron Ore owned lots, located south of Wilson Street.

Recent subdivision activity

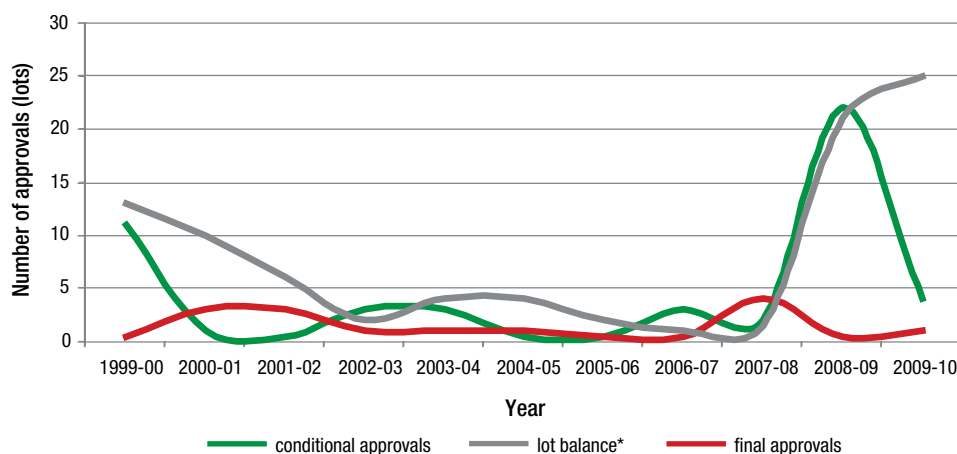
Over the past 10 years, Port Hedland has experienced relatively low levels of industrial subdivision activity, with the majority of activity relating to minor subdivision and amalgamation in Wedgefield. Activity increased sharply in 2009 with conditional approval being granted in February 2009 for the subdivision of 19 lots (Wedgefield). Few new industrial lots have been created in the past 10 years, which has further constrained supply (Figure 31).

Table 19: Industrial zoned land supply - Port Hedland

Zone	Developed (ha)	Undeveloped (ha)	Total (ha)
Boodarie			
Industrial development	0	169.1	169.1
Strategic industry	567.9	3765.2	4333.1
Boodarie total	567.9	3934.3	4502.2
Finucane			
Strategic industry	90.8	0	90.8
Finucane total	90.8	0	90.8
Port Hedland			
Industry	23.0	1.6	24.6
Strategic industry	390.8	478.0	868.8
Port Hedland total	413.8	479.6	893.4
Redbank			
Strategic industry	0	688.6	688.6
Redbank total	0	688.6	688.6
Wedgefield			
Industry	157.2	20.5	177.7
Wedgefield total	157.2	20.5	177.7
Total	1229.7	5123.0	6352.7

Source: Internal databases, Department of Planning (2010)

Figure 31: Industrial conditional and final approvals¹ 1999/00 to 2008/09 - Port Hedland



¹ Includes subdivision/strata approvals for the purposes of subdivision, amalgamation, boundary realignment, resubdivision and road purposes.

*As at 30 June each year. Refers to conditional approvals for which construction or servicing has not yet commenced, or is currently underway (has not reached final approval stage).

Source: Approvals database, Department of Planning (2010).

Industrial land release summary

In summary:

- There is continuing strong demand for industrial lots, given few industrial land releases over recent years.
- LandCorp has recently released 19 light industrial lots to the market, with titles likely to become available in early 2011.
- Planning for development of further light industrial lots and lots suitable for transport uses (approximately 190 lots in total) is substantially progressed, with construction of lots likely to commence in mid-2011.
- Staged release of these lots is planned over an eight-year timeframe (subject to demand).
- Land suitable for general and noxious uses (Boodarie), is likely to become available over the next 2-5 years (subject to approvals).
- Land to the south of the airport has been identified for development of transport/light industrial uses in the longer-term. Development in this area is subject to further investigation and outcomes of the Port Hedland City Growth Plan.

Development of the Boodarie Industrial Estate land will ultimately provide significant long-term certainty for strategic industrial land requirements tied to the port, but also establish the Boodarie General Industrial Area (support precinct). Development of general

industrial land will result in improved industrial land supply, potentially resulting in reduced industrial land costs, and also providing opportunities for the rationalisation of land use in the West End of Port Hedland and in the Wedgefield area.

Land release information is summarised in Table 20. Further project specific information is available in Table 26 and Maps 7-10.

Adequacy of supply

While it is difficult to calculate actual demand for industrial land, anecdotal evidence suggests that demand for industrial land has been high over recent years, with few lots becoming available to the market. Unmet demand for transport and light industrial land is anticipated to be met in the short to medium term with the release of additional lots at Wedgefield (LandCorp's stage 2-5 subdivision). Stage 2 lots were recently released to the market. Land suitable for general and noxious uses is likely to become available in the Boodarie area (SH109) over the next two to five years, subject to the completion of a number of studies and relevant planning approvals.

Beyond the expansion of the Wedgefield Industrial Area and development at Boodarie, surplus land at the airport has been identified for potential future industrial uses. The area (362 ha), identified as precinct three in the draft Port Hedland International Airport Master Plan, could potentially accommodate transport and light industrial uses (at a range of lot sizes). The draft master plan estimates the potential yield at 200 lots; however, this is subject to further detailed planning. The majority of the site is

Table 20: Industrial land release summary - Port Hedland

Project	Short-term (0-2yrs)	Medium-term (2-5yrs)	Medium-term (5-10yrs)	Long-term (10yrs+)	Total
Wedgefield Transport Development Area (SH50) (transport industry)	34	18	27	0	79
Wedgefield Stage 3 & 4 (SH51) (light industry)	0	30	3	0	33
Wedgefield Stage 2 (SH55) (light industry)	19	0	0	0	19
Wedgefield Stage 5 (SH56) (light industry)	0	47	11	0	58
Port Hedland Airport - Precinct 3 (SH57)	0	0	0	200	200
Boodarie (SH109) (general and noxious industry)	0	40	40	0	80
Total	53	135	81	200	469

in the ownership of the Town of Port Hedland with a portion of unallocated Crown land fronting Great Northern Highway/ Wallwork Road. Subject to further investigations and planning, and outcomes of the Port Hedland City Growth Plan, this area could be regarded as a longer-term land bank for lower impact industrial uses.

7.10 Commercial/retail

Commercial/retail zoned land supply

Commercial/retail uses are concentrated in three areas, these being the West End and Boulevard Plaza in Port Hedland and the town centre area in South Hedland. There is currently 86 ha zoned town centre, 20 ha zoned mixed business and approximately 5 ha zoned commercial. Just under two-thirds of this land is developed. The *Pilbara Framework: Regional Profile* estimates that Port Hedland has approximately 34,000 m² of retail floorspace.

It is estimated that the downtown area contains approximately 8475m² of retail space and 10,855m² of office space. The Boulevard area is the smallest of Port Hedland's three commercial nodes and contains approximately 7885m² of convenience retail space. The South Hedland town centre accommodates approximately 60 per cent of all commercial development in the town containing approximately 41,000m² of retail, office and service uses.

The *Port Hedland Land Use Master Plan* recommends the following policies in terms of commercial land uses:

- build on existing commercial strengths, reinforcing the existing town centres in their present locations;
- encourage higher densities of development and a richer mix of land uses in commercial centres, balancing retail and office uses with a range of cultural, entertainment and residential uses to increase the level of activity throughout the day and at night;
- focus each town centre on a quality public open space, such as a plaza or special street, which is designed for a variety of occasional events such as flea markets, community parades and festivals; and

Table 21: Commercial/retail zoned land supply - Port Hedland

Zone	Developed (ha)	Undeveloped (ha)	Total (ha)
Port Hedland			
Commercial	4.1	0	4.1
Mixed business	1.3	3.0	4.3
Town centre	15.3	0	15.3
Port Hedland total	20.7	3.0	23.7
Redbank			
Mixed business	7.2	0	7.2
Redbank total	7.2	0	7.2
South Hedland			
Commercial	0.4	1.0	1.4
Mixed business	8.0	0	8.0
Town centre	47.2	23.7	70.9
South Hedland total	55.6	24.7	80.3
Total	83.5	27.7	111.2

Source: Internal databases, Department of Planning (2010)

- promote uses and activities that allow the commercial centres to complement, rather than compete with, each other, producing a variety of places to go in Port Hedland that offer a range of different activities, different kinds of experiences, and opportunities to interact with different groups of people.

Areas on either side of Wallwork Road, between South Hedland and the railway, were also identified for potential development of mixed business uses (large scale retail and services) as part of the *Port Hedland Land Use Master Plan*. These areas are considered ideal for this use given the excellent visibility from North Circular Road and easy access to the range of services available in the town centre. Development would also increase employment opportunities in South Hedland and build the connection between Wedgefield and South Hedland. The master plan further recommends that development be phased from west to east, starting with sites on Hamilton Road and west of Wallwork Road.

The *South Hedland Town Centre Development Plan* was recently prepared to provide a framework for the orderly release and

development of land in the South Hedland town centre. The master plan outlines areas for residential, town centre, retail, community and public purpose uses. The plan was adopted under Town Planning Scheme No. 5 in 2009.

There is also additional development potential for these uses in the West End of Port Hedland. Land use decisions will need to consider outcomes of the Port Hedland City Growth Plan (and the commercial/retail component of this strategy), which is due to be completed in late 2011. Development in the West End will also need to consider outcomes of the *Port Hedland Air Quality and Noise Management Plan*.

Commercial/retail land release summary

In summary:

- The *South Hedland Town Centre Development Plan* (recently endorsed) provides for additional development of retail/commercial/mixed uses in the South Hedland town centre. These sites are reflected in Table 22. Two mixed use sites were released in 2010, with further sites to be released in 2011.
- Preparation of a retail/commercial strategy is urgently required to determine the location and estimate the amount of floorspace needed to meet future demand.
- Actual retail/commercial floorspace for many of the sites is unavailable and will be determined by further detailed planning.
- There are currently a number of mixed uses sites that include a small amount of commercial or retail floorspace that are likely to be developed in the short-term.
- Sites suitable for mixed business uses (large scale/bulky goods retail) will likely become available in the medium-term.

The Port Hedland Port Authority is planning to develop a port office accommodation precinct. The precinct will include office accommodation for the authority and port service providers and also include a new port control tower for port operations, emergency response centre, pilotage/towage simulator and pilot and crew accommodation. The Port Authority has sought

expressions of interest from developers for the finance, design, construction and management of the proposed new mixed use development.

Land release information is summarised in Table 22. Further project specific information is available in Table 26 and Maps 7- 10.

Adequacy of supply

In the absence of a local commercial/retail strategy and quantification of future demand for commercial and retail uses, it is difficult to make an assessment on the adequacy of potential commercial and retail supply. Demand for retail/commercial uses will likely be met by the ongoing release of key sites within the South Hedland Town Centre. Similar opportunities are anticipated as a result of the review of land use allocation in Port Hedland's West End in due course. Demand for larger sites, suitable for bulky goods uses are expected to be met through the release of land to the south of Wedgefield. Development is subject to further planning.

7.11 Tourism

Accommodation/occupancy summary

Small area data from the ABS indicates there were six recorded hotels, motels and serviced apartments with five rooms or more in the Town of Port Hedland during the June quarter of 2010 (ABS). During this period there were 462 rooms and a total of 1043 bed spaces available (Figure 32). This represents an increase of 54 bed spaces from the June quarter of 2009.

During the three months to June 2010, 35,487 room nights were occupied which equates to an average room occupancy rate for the quarter of 84.4 per cent. The average length of stay was 4.1 days. This compares with an occupancy rate of 86.5 per cent for the June quarter of 2009 and an average length of stay of 4.5 days (Figure 32). Occupancy rates have remained at relatively high levels over the last two to three years.

Data for caravan parks indicates four caravan parks operating in the June quarter 2010 with capacity for around 815 persons (Figure 33). Two thirds of the sites were other powered sites, with

Table 22: Commercial/retail land release summary

Project	Short-term (0-2yrs)	Medium-term (2-5yrs)	Medium-term (5-10yrs)	Total
Pretty Pool R60/80 development site (PH08A)	0	343 m ²	0	343 m ²
Pretty Pool R60/80 development site - BHP Billiton Iron Ore (PH08D)	210 m ²	0	0	210 m ²
Spoilbank Marina - commercial component (PH112)	To be determined			6000 m ²
Lot 9 The Esplanade - commercial component (PH118)	0	1400 m ²	0	1400 m ²
Arabella Apartments - commercial component (PH119)	0	304 m ²	0	304 m ²
Port Authority Precinct (PH125)	8000 m ²	0	0	8000 m ²
Lot 5867 Wedge Street (PH132)	420 m ²	0	0	420 m ²
Mixed business North Circular Road (SH52)	To be determined			
South Hedland Town Centre (SHTC) stage 1A - commercial component - proposed lot 21 (SH54A)	0	17 (tenancies)	0	17 (tenancies)
SHTC stage 1A - proposed lot 23 (SH54B)	To be determined			
SHTC stage 1A - proposed lot 22 (SH54D)	To be determined			
Road reserve - Lawson Street/Corbet Place - commercial component (SH63)	0	Floorspace to be determined	0	To be determined
SHTC Colebatch Way - commercial/retail component (SH76)	To be determined			
Hamilton Road (SH90)	0	Floorspace to be determined	0	To be determined
SHTC commercial (SH98)	To be determined			
SHTC retail/office (SH99)	To be determined			
SHTC commercial (SH101)	To be determined			
SHTC – expansion of shopping centre (SH106)	To be determined			
SHTC retail/cinema (SH107)	To be determined			
SHTC showroom/ commercial (SH108)	To be determined			
Arcadia Villas (SH124)	400 m ²	0	0	400 m ²
Total	9030 m²	2047 m²+	To be determined	11,000 m²+

cabins, flats, units and villas accounting for approximately 25 per cent of remaining sites. Unpowered sites accounted for 10 per cent of total sites.

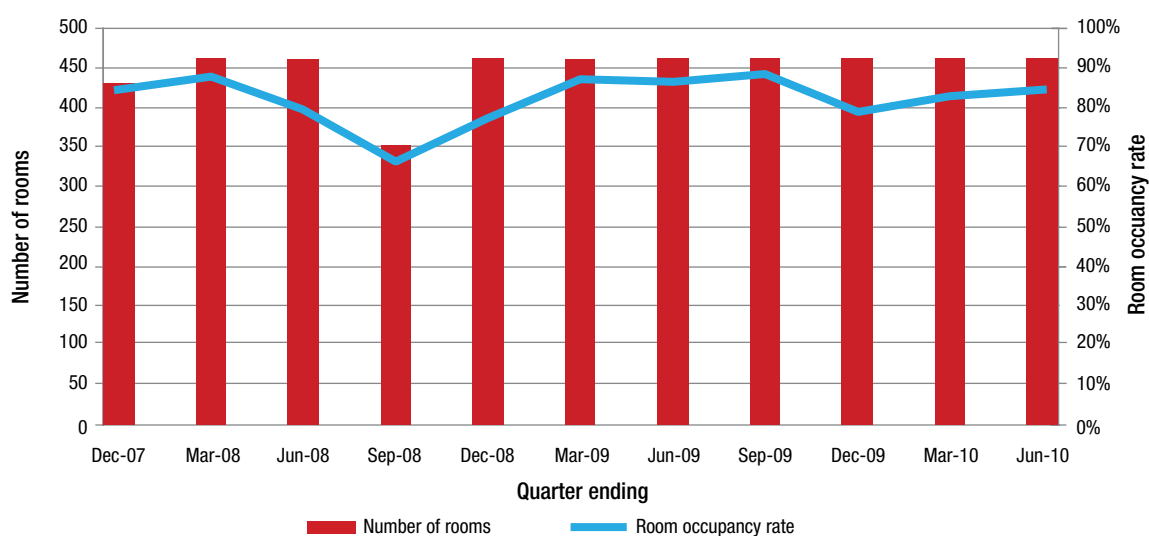
There were 49,801 site nights occupied for the quarter ending June 2010 which equates to a site occupancy rate of 67 per cent over the period. During the June quarter, 230 sites (approximately 28 per cent of total sites) were occupied by long term guests (stays of longer than two months). Occupancy rates for caravan parks are more changeable, reflecting seasonal variation.

Data on the capacity of various tourist accommodation facilities (sourced from the Town of Port Hedland) is shown in Table 23.

Availability of short-stay accommodation has been greatly reduced in recent years as a result of housing and workforce accommodation supply shortages. Much of the available tourist accommodation is occupied by long-term guests such as resource company employees (contractor block bookings) or lower paid service workers unable to afford more permanent accommodation (caravan parks).

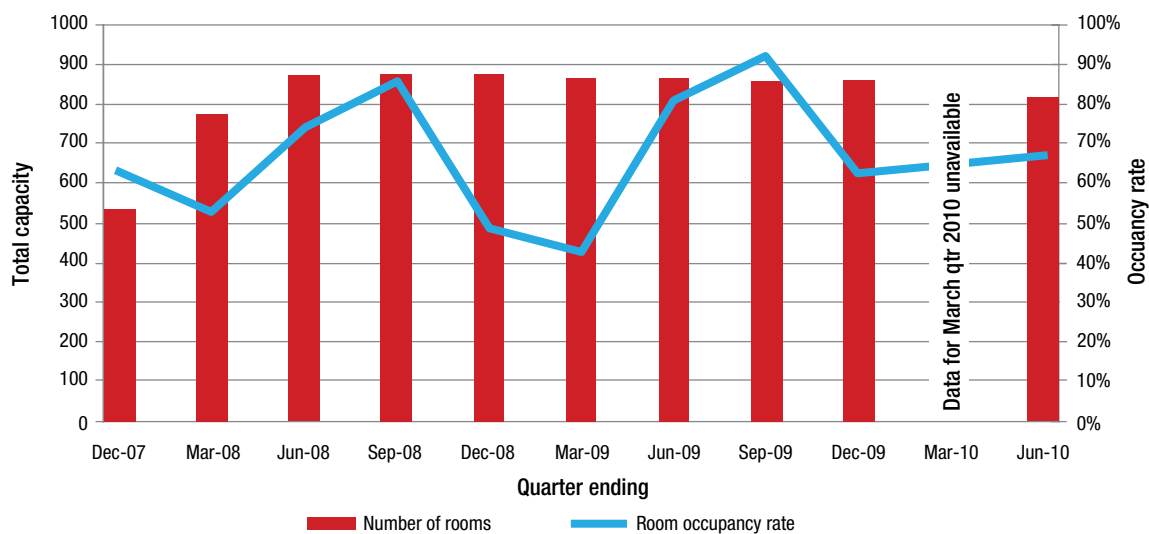
The high level of permanent occupancy of the visitor accommodation in the area means that many visitors face difficulties in securing affordable accommodation, requiring them to book months in advance of their stay.

Figure 32: Hotels, motels and serviced apartments with more than 5 rooms - Town of Port Hedland



Source: Catalogue 8635.5.55.002 - Tourist Accommodation, Small Area Data, Western Australia, Australian Bureau of Statistics (2010)

Figure 33: Caravan parks - Town of Port Hedland



Source: Catalogue 8635.5.55.002 - Tourist Accommodation, Small Area Data, Western Australia, Australian Bureau of Statistics (2010)

Table 23: Tourist accommodation summary - Port Hedland

Site	Accommodation type	Capacity
Blackrock Caravan Park	Caravan park	200 sites
Cooke Point Holiday Park	Caravan park	205 sites
Port Hedland Caravan Park	Caravan park	164 sites
Best Western Hospitality Inn	Hotel	41 rooms - including 1 staff room
Beachfront Port Hedland	Hotel (workers accommodation)	450 rooms - including 32 staff rooms
All Seasons Port Hedland	Hotel	65 rooms
Esplanade Hotel	Hotel	23 rooms currently (92 by July 2010)
Pier Hotel	Hotel	20 beds
The Lodge	Motel	135 rooms
South Hedland Motel	Motel	104 rooms
Total		569 sites 838 rooms - (including 33 staff rooms)

Source: Town of Port Hedland (2010)

Tourism zoned land supply

There is just over 20 ha of land zoned for tourism uses, of which the majority is located in Port Hedland. Approximately 80 per cent of the land is developed, with only the Mirvac site and a small area adjacent to the Port Hedland Caravan Park remaining undeveloped.

Table 24: Tourism zoned land supply - Port Hedland

Zone	Developed (ha)	Undeveloped (ha)	Total (ha)
Port Hedland			
Tourism	12.9	3.7	16.6
South Hedland			
Tourism	4.7	0	4.7
Total	17.6	3.7	21.3

Source: Internal databases, Department of Planning (2010)

Tourism accommodation development summary

In summary:

- Development of the Mirvac hotel site (within Spoilbank Marina Precinct PH112) has been delayed, awaiting outcomes of the Dust Taksforce report. A revised development model is to be presented, having regard for the *Port Hedland Air Quality and Noise Management Plan*.
- The *South Hedland Town Centre Development Plan* includes provision of a site for tourism uses. Development is subject to further planning and land assembly.
- The Town of Port Hedland's *Hedland's Future Today* report lists development of permanent backpackers' facilities as a goal for the short-term (2011-2013), and development of new caravan park and resort facilities in the medium-term (2013-2018).
- The Town of Port Hedland has commenced preparation of a tourism strategy, which is due to be completed by April 2011.

Land release information is summarised in Table 20. Further project specific information is available in Table 26 and Maps 7-10.

Tourism WA continually monitors private and public sector tourism development activity occurring across the State, maintaining a comprehensive database which tracks the progress of tourism accommodation projects. The department publishes summary information in the *Register of Significant Tourist Accommodation Development*, published on an annual basis.

Note that additions to caravan park facilities have not been captured by DoP research of land development projects.

Table 25: Tourism accommodation development summary

Project	Short-term (0-2yrs)	Medium-term (2-5yrs)	Medium-term (5-10yrs)	Total
South Hedland town centre (SH100)	To be determined	0	0	To be determined
Mirvac hotel/res site - tourism component (PH112)	116 (rooms) (initial proposal)	0	0	116
Arabella Apartments - short-stay component (PH119)	0	14	0	14
Lot 4867 Wedge Street (PH132)	94	0	0	94
Total	210	14	0	227+

Adequacy of supply

Anecdotal evidence suggests that all types of tourist accommodation is in demand in Port Hedland, ranging from four to five star rooms to caravan parks, backpacker hostels and camping grounds. Due to the ongoing housing availability and affordability issues, many accommodation facilities are being occupied by transient workers and longer-term residents, making it difficult for tourists to find affordable accommodation. Visitors may therefore bypass Port Hedland altogether or seek more remote

camping locations, which in turn impacts the local economy. This existing/latent demand and future demand has not been quantified.

Accommodation shortages should be relieved somewhat with the development of additional key worker housing and the Mirvac hotel project in Port Hedland. The Town of Port Hedland has also recently given support to a proposal to moor a four-star, 332 room floating hotel at South West Creek. The facility is intended to address growing accommodation needs. This will assist with meeting some of the existing unmet demand; however, additional sites will need to be identified as part of preparation of the Port Hedland City Growth Plan.

Table 26: Project summaries - Port Hedland

Identifier	Land ownership *	Location ¹	Existing tenure ²	Purpose	Zoning / planning			Area / yield ³			Subdivision approvals ⁴				Anticipated release ⁶ (commencing late 2010)				Constraints ⁷				Comments
					Current zoning	Amendment required / initiated	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Lots on non cleared agreements ⁵		Short term (0-2 yrs)	Medium term (2-5 yrs)	Medium term (5-10 yrs)	Long term (10+ yrs)	Resolved	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	
PH08A	P	Lot 676 Counihan Crescent	Port Hedland Development Fund No8 Pty Ltd	Mixed use	Urban development	No	Pretty Pool Development Plan prepared and adopted	0.75	1	60 (dwellings) + 343m ² (NLA)	0	0	0		20	40 (dwellings) + 343m ² (NLA)	0	0	P,Z				R60/R80 development site. Lot released through request for proposal process in 2008. Project includes 60 apartments (30 x 2 bedroom, 30 x 3 bedroom). Stage 1 – 20 apartments, with balance to be constructed in stages as off the plan sales are completed. Development includes 3 commercial tenancies (total 343 m ²). Development approval granted February 2010. Parking issues resolved, new approval issued May 2010.
PH08B	G	Lot 724 Dowding Way	WA Land Authority	Residential	Urban development	No	Pretty Pool Development Plan prepared and adopted	0.75	1	33	0	0	0		0	33	0	0	Z	P			R40 development site. Site investigation to be finalised prior to sale of lot. Yield calculated at development density of R40.
PH08C	G	Lot 5007 Counihan Crescent (Leasehold J948171)	State of WA	Residential	Rural	Yes (not initiated - this portion excluded from amendment 14)	Excluded from Pretty Pool Development Plan based on advice from DEC. This portion subject to separate planning & environmental approval	5.05	23	130	0	0	0		0	0	130	0				E,L,P,Z	Pretty Pool stage 3. Scheme amendment no. 20 referred to EPA in February 2009. EPA has deemed the proposal as being incapable of being made environmentally acceptable, due to proximity of flatback turtle nesting beach and migratory shorebird foraging area. Development on hold for at least 5 years. The development also would require approval under federal environmental legislation.
PH08D	P	Lot 675 Dowding Way	BHP Billiton Minerals Pty Ltd, Itochu Minerals & Energy Of Australia Pty Ltd, Mitsui-Itochu Iron Pty Ltd	Mixed use	Urban development	No	Pretty Pool Development Plan prepared and adopted	0.55	1	44 (dwellings) + 210m ² (NLA)	0	0	0		44 (dwellings) + 210m ² (NLA)	0	0	0	P,Z				R60/R80 development site. Land sold to BHP Billiton 2009. Proposal for development of 44 multiple dwellings (contained within seven buildings), communal open space facilities and one commercial tenancy (210 m ²). Development approval granted October 2010.

Table 26: Project summaries - Port Hedland (continued)

Identifier	Land ownership *	Location ¹	Existing tenure ²	Purpose	Zoning / planning			Area / yield ³			Subdivision approvals ⁴				Anticipated release ⁶ (commencing late 2010)				Constraints ⁷				Comments
					Current zoning	Amendment required / initiated	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Lots on non cleared agreements ⁵		Short term (0-2 yrs)	Medium term (2-5 yrs)	Medium term (5-10 yrs)	Long term (10+ yrs)	Resolved	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	
PH26	G	Lot 106 Morgans Street	Auzcorp Accommodation Pty Ltd	Residential	Residential R12.5/ R50	No (within area of amendment no. 22 proposing rezoning from residential -> 'West End', with an applied density code of 'minimum R30 with R80 maximum')		0.10	1	6	0	0	0		6	0	0	0	P,Z				Group housing site - lot released through request for proposal process. To be developed by Auzcorp. Proposal has development approval (6 grouped dwellings).
PH30	G	Lot 414, 416 & 416 Moore Street	State Housing Commission	Residential	Residential R12.5/30	No (within area of amendment no. 22 proposing rezoning from residential -> "West End", with an applied density code of "minimum R30 with R80 maximum")		0.23	1	12	0	0	0		0	12	0	0	S	P,Z			Identified in the Port Hedland Public Land Rationalisation Plan (category 1 - immediate development potential). Potential to yield 12 dwellings subject to the provision of reticulated sewer (part of Infill Sewerage Program area). Yield calculated at R50 density (grouped dwellings).
PH31	G	Lot No 201 & 202 Kingsmill Street	State of WA (UCL)	Residential	Residential R12.5/50	No (within area of amendment no. 22 proposing rezoning from residential -> 'West End', with an applied density code of 'minimum R30 with R80 maximum')		0.21	1	11	0	0	0		0	11	0	0		L,NT,P,Z			Identified in the Port Hedland Public Land Rationalisation Plan (category 1 - immediate development potential). Requires amalgamation, land may be subject to Native Title. Yield calculated at R50 density (grouped dwellings).
PH34	P	Lot 200 Morgans Street	Maximise Developments Pty Ltd	Residential	Residential R12.5/50	No (within area of amendment no. 22 proposing rezoning from residential -> 'West End', with an applied density code of 'minimum R30 with R80 maximum')		0.20	1	15	0	15	0		15	0	0	0	P,Z				Ocean Breeze Villas- Proposal for construction of 15 grouped dwellings. Project has conditional development approval and survey strata approval. Project under construction.
PH112	G	Lot 5178, 5550 & 5751 The Esplanade (CR 30768), Lot 452 Sutherland Street (CR 25209), Lot 252, 253, 347, 348 & 349 Morgans Street (CR 30037), Lot 406 Acton Street, Lot 2469 Frewer Street, Lot 1399 (CR 28839) & 3830 (CR 29782) Moore Street, Lot 6173 Beart Street (CR 30090), Lot 475 Morgans Street, Lot 476 Wilson Street (CR 30037), Lot 400, 401, 477, 478 & 479 Anderson Street (CR 30037)	State of WA (UCL - Lot 2469), State Housing Commission (Lot 475), Minister for Health (lot 406)	Mixed use	Parks and recreation, ocean, community health - hospital, mixed business, tourism, residential R12.5/30, Other public purposes – cemetery, local road	Yes (not initiated) (portion of site within area of amendment no. 22 proposing rezoning from residential -> "West End", with an applied density code of "minimum R30 with R80 maximum"). Amendment no. 16 initiated -> residential R12.5/R50 (lots 1399 & 2469 removed from scheme amendment no. 16 as these lots are part of scheme amendment no. 22 also).	Concept plans prepared	40.23		1000-1700 dwellings (including short-stay) + 6000 m² commercial/ retail (floorspace subject to further planning)	0	0	0		To be determined						L,P,Pw, S,W,Z	E	Spoilbank Marina Precinct (including spoilbank, Mirvac hotel site, hospital site and Moore Street). Concept plans prepared for marina precinct. Community consultation outcomes reported majority of residents support development of Spoilbank area. Current proposal includes construction of marina (258 berths), residential dwellings, short-stay accommodation and retail/entertainment strip. Preliminary feasibility studies completed. Further work on economic feasibility and development design principles to be undertaken. Project may need to be packaged with additional residential, tourism and/or commercial development opportunities in order to be feasible. Construction of marina estimated to cost \$67 m. Outcomes of Port Hedland Dust Management Taskforce Report (released March 2010) determines appropriate land uses in this area. Delivery method and timeframe is yet to be determined - requires further planning, local scheme amendment, environmental approvals (possibly state and federal), land assembly and further investigative studies (including coastal vulnerability study). Estimated dwelling yield based on development at R80 to maximum height of four storeys. Preliminary retail analysis indicates area could support approximately 6000 m2 of commercial/retail space (approximately 41 shops) based on development of 1750 dwellings - further planning and analysis required. Hotel site (Lot 406) - Mirvac announced as preferred proponent November 2007. Project stalled due to uncertainty around dust issues in the West End (dust issues addressed through the Port Hedland Dust Management Taskforce Report). Previous proposal was for development of a quality hotel and serviced apartments (116 rooms), as well as a restaurant, bar, coffee shop, conference facilities, gym and outdoor recreation area. Project to consider development opportunities directly to the north (spoilbank marina), and further residential development to the east of the site. Mirvac to present a revised development model having regard to Dust Taskforce report. Hospital site (Lot 452) - facility vacated in November 2010 with opening of South Hedland Health Campus. Port Hedland facility to be demolished. Moore Street site has conditional approvals in place (31 lots including a super lot of 1.8 ha for development of group dwellings).
PH118	P	Lot 9 The Esplanade	Maximise Developments Pty Ltd	Mixed use	Town centre	No		0.10	1	22 (dwellings) + 1400m² (NLA)	0	0	0		0	22 (dwellings) + 1400m² (NLA)	0	0	Z	P			Proposed West End development (\$12 m). Proposal consists of 16 one bedroom apartments, 6 two bedroom apartments and 1400 m² commercial space.
PH119	P	Lot 41 Edgar Street	Australian Timber Craft Products Pty Ltd, Peringillup Nominees Pty Ltd	Mixed use	Town centre	No		0.10	1	20 (6 residential and 14 short-stay) + 304 m² commercial	0	0	0		0	20 (6 residential and 14 short-stay) + 304 m² commercial	0	0	Z	P			Arabella Apartments. Project consists of 20 units (6 residential and 14 short-stay) and two ground floor commercial tenancies (shop/reception area). Project granted development approval November 2009 (12 months only if development not commenced, 24 months if development commenced within 12 months).

Table 26: Project summaries - Port Hedland (continued)

Identifier	Land ownership *	Location ¹	Existing tenure ²	Purpose	Zoning / planning			Area / yield ³			Subdivision approvals ⁴				Anticipated release ⁶ (commencing late 2010)				Constraints ⁷				Comments
					Current zoning	Amendment required / initiated	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Lots on non cleared agreements ⁵		Short term (0-2 yrs)	Medium term (2-5 yrs)	Medium term (5-10 yrs)	Long term (10+ yrs)	Resolved	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	
PH120	P	Lot 95 Kingsmill Street	Dziombak M	Residential	Residential R12.5/50	No (within area of amendment no. 22 proposing rezoning from residential -> "West End", with an applied density code of "minimum R30 with R80 maximum")		0.12	1	6	0	0	0		6	0	0	0	P,Z				Proposed West End development (\$4 m). Proposal for six grouped dwellings. Project has development approval (March 2010).
PH121	P	Lot 175 Morgans Street	Kazari Nominees Pty Ltd	Residential	Residential R12.5/50	No (within area of amendment no. 22 proposing rezoning from residential -> "West End", with an applied density code of "minimum R30 with R80 maximum")		0.10	1	8	0	0	0		8	0	0	0	P,Z				Proposal for development of eight grouped dwellings. Project has development approval (March 2010).
PH125	G	Lot 6098 The Esplanade (CR 29082)	State of WA	Mixed use	Other public purposes - port facilities	Yes? (not initiated)		0.39	1	8000 m ² commercial + 12 units	0	0	0		8000 m ² commercial + 12 units	0	0	0					Proposed development within Port Hedland Port Authority Precinct. Current proposal is for 11 storey building including 8000 m ² of commercial floorspace and 12 accommodation units. Construction anticipated to commence March/April 2011 with 18 month development timeframe. Development approval not required.
PH127A	P/G	Lot 2, 4, 6023 (CR45638) & 1796 (CR 30221) Clark Street, Lot 952 (CR29085) & 2046 (CR 29085) Tindale Street, Lot 954 (CR28949), 2523 (CR 28949) & 5855 Wilson Street, Lot 5987 Cooke Point Road, Lot 1 (CR 8214), 1607 (CR 8214), 2052 (CR 30517), 2915 (CR 33315) & 6022 (CR 8214) McGregor Street, Lot 5810 Styles Road (CR 29084)	State of WA (some UCL), Telstra Corporation Ltd (Lot 2), Hilzinger M G (Lot 4)	Residential	Other public purposes - telecommunications, other public purposes - waste disposal & treatment, other public purposes - water & drainage, parks & recreation, community	Yes (not initiated)		138.77	2500-3500	2500-3500	0	0	0		To be determined						L,NT,P,Z, Pw,S,W	E	East End (WWTP/McGregor Street). Relocation of WWTP to South Hedland facility announced by State Government January 2011. Relocation of wastewater infrastructure will create development opportunities and resolve land use conflicts in this area. Relocation project estimated to cost \$106 m. LandCorp currently investigating development opportunities and preparing business case. Decommissioning of site expected to be completed by mid-2014. Extensive fill and remediation required to develop WWTP site. Development of portion of surrounding crown and freehold land (including telecommunications site) also requires relocation of WWTP. Relocation of racecourse requires further investigation. Project requires land assembly, further planning, local planning scheme amendments, environmental approvals etc. Comprehensive strategic planning and preparation of implementation strategy required in East End area.
PH127B	G	Lot 5552 The Esplanade (CR30768), Lot 5755 Cooke Point Road (CR 31506), Lot 5770 Johnson Land (CR 31462), Lot 1444 (CR30768), 1732 (CR30220), 5552 (CR30768) & 5747 (CR39832) Athol Street, Lot 300 Styles Road (CR 39832), Lot 1382 & 5822 Taylor Street (CR 29044)	State of WA	Residential	Rural, parks and recreation, other public purposes – energy, other public purposes – water and drainage, other public purposes – waste disposal and treatment, tourism	Yes (not initiated)	Concept plans prepared	144.29			0	0	0		To be determined						L,P,Z,Pw, S,W	E	East End (Pretty Pool Creek Precinct). Concept plans (three options) prepared for this area. Creek option - development of housing on higher ground along Athol Street and Styles Road. Weir option - lake formed by a weir and a road connecting Pretty Pool and Cooke Point neighbourhoods, enabling development of low and higher density housing. Loch option - development of canals, including mix of low and higher density housing, private docks and a public harbour. Council endorsed further investigation of development design principles for a hybrid creek/weir option at March 2010 meeting. Project could be staged to develop less constrained areas along Styles Road and Athol Street initially, then further investigate expansion of development area towards creek (considering relocation of wastewater treatment plant and caravan park). Requires further planning, local scheme amendment, land assembly, environmental approvals. Further investigations under way, currently negotiating project delivery methodology. Comprehensive strategic planning and preparation of implementation strategy required in East End area.
PH127C	G	Lot 5557 and 5558 Styles Road	State of WA (UCL)	Residential	Rural	Yes (not initiated)		124.76				0	0		To be determined						L,NT,P,Z, Pw,S,W	E	East End (Styles Road). Consortium appointed (Satterley, Leighton and Ngarda) to investigate development potential of this site (now withdrawn). Development is subject to resolution of substantial environmental, hydrological and storm surge issues. Site requires significant fill. Also requires land assembly, local scheme amendment and further planning. Potential yield of 800–1000 lots. Likely development timeframe beyond 5 years. Site requires deconstraining before possible release to private sector. Comprehensive strategic planning and preparation of implementation strategy required in East End area.
PH132	P	Lot 5867 Wedge Street	Gray D T, Gray R J	Mixed use	Industry	Yes (amendment no. 27 initiated June 2010 -> town centre, adopted by council September 2010)		0.53	1	94 (short-stay units) + 420 m ²	0	0	0		94 (short-stay units) + 420 m ²	0	0	0		P,Z			Proposed mixed use development comprising commercial/retail uses on ground floor (restaurant, office, conference facilities) and short stay accommodation above (94 one bedroom self contained units). Local planning scheme amendment no. 27 initiated June 2010 to rezone lot from industry to town centre (excluding permanent residential/ aged persons/caretakers dwellings etc). Scheme amendment adopted by council September 2010. Awaiting finalisation of scheme amendment. Construction anticipated to commence 2nd qtr 2011 (15 month construction timeframe).

Table 26: Project summaries - Port Hedland (continued)

Identifier	Land ownership *	Location ¹	Existing tenure ²	Purpose	Zoning / planning			Area / yield ³			Subdivision approvals ⁴				Anticipated release ⁶ (commencing late 2010)				Constraints ⁷				Comments
					Current zoning	Amendment required / initiated	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Lots on non cleared agreements ⁵		Short term (0-2 yrs)	Medium term (2-5 yrs)	Medium term (5-10 yrs)	Long term (10+ yrs)	Resolved	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	
SH06	G	Lot 340 & 2590 Baler Close	State Housing Commission	Residential	Residential R30, local road	Yes (amendment no. 30 initiated March 2010 to rezone portion of closed road from local road to residential R30)		0.80	2	19	0	0	0		19	0	0	0		P,Z			Part of New Living Program. Proposed grouped housing development (2 group lots yielding 19 dwellings). Local planning scheme amendment no. 30 initiated March 2010 to rezone portion of closed road from local road to residential R30.
SH09	G	Lot 501 Mitchie Crescent, Lot 1 & 3124 Pettit Place, Lot 3736 Kennedy Street	State Housing Commission, State of WA (UCL - Lot 501 & 3736)	Residential	Residential R20, residential R30, Other public purposes - water and drainage	Yes (amendment no. 30 initiated March 2010 to rezone areas from residential R20 and other public purposes (water and drainage) to residential R30)		1.10	14	30	0	0	0		30	0	0	0		L,P,Z			Part of New Living Program. Proposed single lot and grouped housing development (13 single lots and 1 grouped housing lot yielding 17 dwellings). Local planning scheme amendment no. 30 initiated March 2010 to rezone areas from residential R20 and other public purposes (water and drainage) to residential R30. Requires land assembly and finalisation of scheme amendment.
SH18A	G	Osprey Drive	State of WA (UCL)	Residential	Urban development R20	No	Development/ structure plan to be prepared	56.38	620 (at 55% developable area) 850 (at 75% developable area)	620 (at 55% developable area) 850 (at 75% developable area)	0	0	0		0	200	420 - 650	0	Z		L,N,T,P, Pw,S,W		Site has capacity to yield more than 600 lots. Requires clearance of Native Title and further planning (structure plan/ subdivision application). Portion of area likely to be developed by New Living as affordable housing. Estimated yield assumes development at density of R20 (average lot size of 500 m ²).
SH18B	P	Lot 502 Murdoch Drive	Kariyarra Mugarinya Property Joint Venture Pty Ltd	Residential	Urban development R20	No		11.96	118	150	0	118	0		0	150	0	0	L,P,Z				Kariyarra Mugarinya housing development. Subdivision includes 3 group housing sites. Conditional approval for subdivision granted April 2008. Due diligence work progressing. Development proposal may be revised.
SH23	G	Lot 2332 Traine Crescent, Lot 27, 2333, 2354, 2355 & 5573 Catamore Court, Lot 9000 Pundal Avenue	Housing Authority (Lot 27, 2332, 2333 & 9000), Town of Port Hedland (Lot 2355), State of WA (UCL) (Lots 2354, 5573)	Residential	Residential R20, residential R30, local road	Yes (amendment no. 18 initiated February 2008 -> residential R30, local road)		2.52	29	34	0	40	6		34	0	0	0		L,P,Z			Project is a joint development between Town of Port Hedland and Department of Housing (New Living project) proposing development of 27 single lots and 2 grouped housing sites (yielding 7 dwellings). Subdivision application granted conditional approval November 2010. Local planning scheme amendment no. 18 initiated February 2008. Requires finalisation of scheme amendment (endorsed by WAPC September 2010).
SH24	G	Lot 2424, 2429 & 2430 Coppin Place, Lot 6107, 6108 & 6177 Cottier Drive	State Housing Commission	Residential	Residential R30	No		3.17	41	54	0	44	43		54	0	0	0	P,Z				Part of New Living Program. Project to include single lots, duplex lots and grouped housing site. Conditional approvals for subdivision in place. Construction commenced, titles due first quarter 2011.
SH26	G	Lot 5996 Cottier Driv, Lot 3112 Lovell Place	State Housing Commission	Residential	Urban development R30	No		2.76	35	95	0	0	0		0	95	0	0	Z	P			Part of New Living Program. Proposed single lot (32 lots) and grouped housing (3 lots yielding 95 dwellings) development. No current subdivision application.
SH29A	G	Lot 6162 Cottier Drive	State Housing Commission	Residential	Residential R30, local road	Yes - for portion of road reserve (amendment no. 30 initiated March 2010 to rezone portion of road reserve from local road to residential R30)		1.04	9	29	0	9	0		29	0	0	0		L,P,Z			Part of New Living Program. Proposed grouped housing development. Conditional approval for subdivision granted November 2010 to subdivide into 9 lots (including one group housing site capable of yielding 13 dwellings). Other lots could potentially yield two dwellings each, but likely to be developed as single dwellings. Local planning scheme amendment no. 30 initiated March 2010 to rezone portion of road reserve from local road to residential R30. Road link between Pedlar Street and Weaver Place proposed as part of subdivision application.
SH29B	G	Lot 6163 Cottier Drive	State Housing Commission	Residential	Residential R30, local road	Yes (amendment no. 30 initiated March 2010 to rezone portion of road reserve from local road to residential R30)		1.98	15	52	0	0	0		52	0	0	0		L,P,Z			Part of New Living Program. Proposed single lot and grouped housing development. No current subdivision application. Local planning scheme amendment no. 30 initiated March 2010 to rezone area of road reserve to residential R30. Dwelling yield from preliminary design.
SH38	G	Lot 5992 (CR 41675) & 5993 (CR 39660) Cottier Drive	State of WA	Residential	Urban development R30	No		1.54	9	33	0	0	0		0	33	0	0	Z	L,P			Part of New Living Program. Proposed single lot and grouped housing development. No current subdivision application. Lot 5992 & 5993 unused reserves for recreation. Requires extinguishment of reserve.
SH39	G	Lot 2908 Limpet Crescent	State Housing Commission	Residential	Residential R20	No		0.38	5	5	0	5	6		5	0	0	0	P,Z				Part of New Living Program. Proposed single lot development. Conditional approval for subdivision of 5 lots granted September 2009.
SH41	G	Lot 6041 Masters Way, Lot 6042 Masters Way (CR 46180)	State of WA (UCL - Lot 6041)	Residential	Residential R30 (Lot 6041), parks and recreation (Lot 6042)	Yes (amendment no. 30 initiated March 2010 to rezone areas from parks and recreation to residential R30)		2.64	33	33	0	33	0		33	0	0	0		L,P,Z			Part of New Living Program. Conditional approval for subdivision of 21 lots granted September 2009 (stage 1). Application for subdivision of stage 2 lodged August 2010 (approved December 2010). Portion of area (stage 2) currently undeveloped crown reserve - requires de-vesting or reserve and then rezoning. Local planning scheme amendment initiated March 2010 to rezone area of parks and recreation to residential R30.

Table 26: Project summaries - Port Hedland (continued)

Identifier	Land ownership *	Location ¹	Existing tenure ²	Purpose	Zoning / planning			Area / yield ³			Subdivision approvals ⁴				Anticipated release ⁶ (commencing late 2010)				Constraints ⁷				Comments
					Current zoning	Amendment required / initiated	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Lots on non cleared agreements ⁵		Short term (0-2 yrs)	Medium term (2-5 yrs)	Medium term (5-10 yrs)	Long term (10+ yrs)	Resolved	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	
SH48	G	Lot 6128 Paton Road	State Housing Commission	Residential	Residential R20	Yes (amendment no. 30 initiated March 2010 to rezone areas from residential R20 and local road to residential R20, residential R30 and local road)		0.74	8	11	0	8	8		11	0	0	0		L,P,Z			Part of New Living Program. Proposed single lot development. Conditional approval for subdivision of 8 lots granted November 2009 (seven single lots and one group housing lot yielding four dwellings). Requires creation of road reserve (link Huxtable Crescent and Paton Road) and road closure (Huxtable Crescent). Local planning scheme amendment no. 30 initiated March 2010 to rezone areas from residential R20 and local road to residential R20, residential R30 and local road.
SH50	G	Lot 503 Great Northern Highway	State of WA (UCL)	Industrial (transport)	Other purposes - infrastructure	Yes (amendment no. 24 initiated January 2010 -> transport development, adopted by council July 2010)	Wedgefield Industrial Estate Development Plan adopted by council July 2010	168.31	79	79	36	0	0		34	18	27	0	NT	P,Z	Pw,W		Wedgefield Industrial. Identified in Port Hedland Land Use Master Plan for transport related uses. Local scheme amendment initiated January 2010 to rezone to transport development zone. Local scheme amendment and development plan adopted by council July 2010. Construction of stage 1 and 2 (34 lots - ranging from 0.43 - 3 ha) anticipated to commence April/May 2011, titles by November 2011/early 2012 (pending subdivision approval). Development to be staged over approximately 8 years. Within 100-yr flood plain - LandCorp sought review of the coastal planning policy for storm surge levels at Wedgefield, as full compliance with the policy would render the project unfeasible now resolved. Requires further planning (subdivision approval), traffic study and local water management strategy (under way - to be finalised by end of 2010). Application for subdivision of 34 lots submitted December 2010.
SH51	G	Lot 501 Dalton Road, Lot 5908 Cajarina Road	State of WA (UCL)	Industrial (light)	Other purposes - infrastructure	Yes (amendment no. 24 initiated January 2010 -> light industry, adopted by council July 2010)	Wedgefield Industrial Estate Development Plan adopted by council July 2010	19.77	33	33	22	0	0		0	30	3		NT	P,Z	Pw,W		Wedgefield Industrial (LIA 3 & 4 subdivision). Proposed light industrial subdivision by LandCorp. Planning under way - release targeted for second half of 2011, subject to land clearances and planning approvals. Local scheme amendment initiated January 2010 to rezone to light industry zone. Local scheme amendment and development plan adopted by council July 2010. The realignment of the Port Access Road will impact the land areas and lot yield (3 lots affected - to be released beyond 2014). Requires further planning (subdivision approval), traffic study and local water management strategy (under way - to be finalised by end of 2010). Application for subdivision of 22 lots submitted December 2010 (ranging in size from 2256 - 5715 m²).
SH52	G	Crown land North Circular Road/Shoata Road, Lot 2520 North Circular Road (CR 32697)	State of WA (UCL)	Mixed business	Other purposes - infrastructure, rural	Yes (not initiated)		129.08	Not determined		0	0	0		To be determined						L,NT,Pw,S,W,Z		Identified in Port Hedland Land Use Master Plan for development of mixed business (large scale retail) uses. Development would improve connection between Wedgefield and South Hedland. Initial feasibility work under way. Outcomes of survey will assist with determining lot size/layout requirements for this area.
SH54A	G	Lot 306 Colebatch Way, pt lot 6054 & 6055 Forrest Circle (proposed lot 21)	WA Land Authority	Mixed use	Town centre	Amendment no. 28 initiated to facilitate development at densities above R50 in areas zoned town centre (in line with adopted SHTCDP)	South Hedland Town Centre Development Plan (SHTCDP) endorsed (WAPC) November 2009	1.20	1	70-104 dwellings + 17 commercial tenancies	0	0	0		0	70-104 dwellings + 17 commercial tenancies	0	0		P,Z			Identified in the Port Hedland Public Land Rationalisation Plan. Land parcel released through DRDL expression of interest process (stage 1) March 2010. Site is subject to Native Title. Cedar Woods announced as successful proponent.
SH54B	G	Lot 306 Colebatch Way, Part lot 6054 & 6055 Forrest Circle (proposed lot 23)	WA Land Authority	Mixed use	Town centre		South Hedland Town Centre Development Plan (SHTCDP) endorsed (WAPC) November 2009	0.58	1	36 dwellings + commercial/ retail (floorspace to be determined)	0	0	0		0	36 dwellings + commercial/ retail (floorspace to be determined)	0	0		P,Z			Identified in South Hedland Town Centre Development Plan for mixed use development (at R50) (stage 1B). Released by EOI in July 2010 (closed 12 August 2010). Site can yield up to 36 dwellings and be developed as residential only or mixed use (commercial/retail at street level with residential dwellings above). Conditional approval in place to create superlots. Yield is an estimate only - residential and commercial/retail yields to be determined by further detailed planning.
SH54C	G	Lot 306 Colebatch Way, Lot 6056 (CR 35325), 6057 (CR 45891) Forrest Circle, Lot 6058 (CR 35325) & 6059 (CR 35325), Lot 3346 (CR 35325) Collier Drive, Lot 4509 (CR 35655) Murdoch Drive, portion of road reserve	State of WA	Residential	Town centre, Residential R20, district road, local road, parks & recreation, other public purposes – water & drainage	Yes (amendment no. 34 initiated July 2010 to amend various zonings and density codings)	South Hedland Town Centre Development Plan endorsed (WAPC) November 2009	3.69	7	144	0	7	0		0	144	0	0		L,P,Z			Identified in South Hedland Town Centre Development Plan for residential development (at R40 and R50) and infill residential development (at R30) adjacent to existing residential area (stage 1C). Portion of area currently reserved for parklands and drainage purposes. Open space areas unused. Requires closure of road, de-vesting of reserves and local planning scheme amendment (amendment no. 34 initiated July 2010). Subdivision application proposing to subdivide area into seven lots and amend road layout to improve connectivity approved December 2010. Request for closure of parkland reserve (lot 6056, 6058 & 6059 - Crown reserve 35325) supported by council November 2010.
SH54D	G	Lot 306 Colebatch Way (proposed lot 22)	WA Land Authority	Mixed use	Town centre	No	South Hedland Town Centre Development Plan endorsed (WAPC) November 2009	0.79	1	45 dwellings + commercial/ retail (floorspace to be determined)	0	0	0		0	45 dwellings + commercial/ retail (floorspace to be determined)	0	0		P,Z			Identified in South Hedland Town Centre Development Plan for mixed use development (R50), including medical/retail uses on ground floor and residential uses above (stage 1A). Conditional approval in place to create superlots. Site allocated to WA Country Health for development of nurses accommodation. Yield is an estimate only - residential and commercial/retail yields to be determined by further detailed planning.

Table 26: Project summaries - Port Hedland (continued)

Identifier	Land ownership *	Location ¹	Existing tenure ²	Purpose	Zoning / planning			Area / yield ³			Subdivision approvals ⁴				Anticipated release ⁶ (commencing late 2010)				Constraints ⁷				Comments
					Current zoning	Amendment required / initiated	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Lots on non cleared agreements ⁵		Short term (0-2 yrs)	Medium term (2-5 yrs)	Medium term (5-10 yrs)	Long term (10+ yrs)	Resolved	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	
SH55	G	Lot 500 Iron Ore Street	State of WA (UCL)	Industrial (light)	Industry	No		8.01	19	19	0	19	20		19	0	0	0	L, NT, P,Z				Wedgefield Industrial. Conditional approval for subdivision of 19 lots granted February 2009. Construction of phase 2 (19 lots) commenced May 2010, with completion anticipated end of November 2010 (titles anticipated early 2012). Lots released to market via registration of interest process on 29th September.
SH56	G	Lot 502 Great Northern Highway	State of WA (UCL)	Industrial (light)	Other purposes - infrastructure, state and regional road	Yes (amendment no. 24 initiated January 2010 -> light industry, adopted by council July 2010)	Wedgefield Industrial Estate Development Plan adopted by council July 2010	63.61	58	58	0	0	0		0	47	11	0	NT	P,Z	Pw,W		Wedgefield Industrial. Planning under way (LandCorp LIA 5 subdivision). Development to be staged (5 stages) over approximately 8 years, with stage 1 (~20 lots) scheduled for release from 2013 (following the development of LIA 2 & 3 at Iron Ore Street and Cajarina Road). Local scheme amendment initiated January 2010 to rezone to light industry zone. Local scheme amendment and development plan adopted by council July 2010. Requires further planning (subdivision approval), traffic study and local water management strategy (under way - to be finalised by end of 2010).
SH57	G	Lot 11, 31, 253, 2443 & 2444 Great Northern Highway	Town of Port Hedland, Commonwealth of Australia (Lot 11), State of WA (UCL - lot 253)	Industrial	Other purposes - infrastructure, airport	Yes (not initiated)	Draft master plan prepared, requires preparation of further detailed development plan	362.51	200	200	0	0	0		0	0	0	200		L,NT,P,Z	Pw,W		Identified in Port Hedland Land Use Master Plan for development of light industrial uses. Lot yield is an initial estimate. Draft airport master plan identifies area as precinct 3, suitable for industrial and transport uses (extension of Wedgefield Industrial Area). Development could provide for a range of lot sizes (including larger lots up to 20 ha if market demand requires). May require preparation of further detailed development plans. Land uses will be constrained by height restrictions, requiring further detailed analysis (and implementation of land use controls). Lot 253 is unallocated Crown land - would need to be acquired by ToPH or developed as joint venture (lot subject to Native Title). Lot 253 critical to overall development as lot provides access and lot yield advantages that improve the viability of subdivision. Land release/development likely to follow release of Wedgefield land (i.e. long-term project). Master plan also identifies 50 ha for potential development of Department of Defence base.
SH59	G	Lot 5981 Pepper Street (CR44827), Lot 3017 Kennedy Street (Cr 46653), Lot 6000 Trumpet Way (CR 46653), Lot 2 Limpet Crescent, Lot 3087, 3734 & 3735 Brown Place, Lot 3098 & 6115 Jibson Close, Road reserve	State of WA, UCL (Lot 3087, 3734, 3735 & 6115), State Housing Commission (Lot 2 & 3098)	Residential	Urban development R30 (Lot 2), residential R20 (Lot 3735), parks and recreation (Lot 5981), other public purposes – water and drainage (Lot 3017 & 6000), local road	Yes (for portion) (amendment no. 30 initiated March 2010 to rezone some areas from residential R20 and local road to residential R30 - lots 3087, 3098, 3734, 3735 & 6115 only). Further amendment required to rezone lot 5981.		11.72	79	104	0	0	0		0	104	0	0		L,NT,P,Z	Pw,S,W		Identified in the Port Hedland Public Land Rationalisation Plan. Part of New Living Program - proposed single and grouped housing development. Portion of lot 5981 currently used for open space. Application to close portion of road reserve (Jibson Court & Brown Place) approved by council March 2010. Portion of area requires clearance of Native Title and local scheme amendment. Lots 3017 & 6000 reserved for drainage purposes - further investigation into drainage system required prior to consideration for development. Request for closure of recreation reserve (lot 5981 - reserve 44827) supported by council November 2010. Lot/dwelling yield is initial estimate only - actual yield will be determined by further detailed planning.
SH60	G	Lot 2907 Limpet Crescent	State of WA (UCL)	Residential (retirement housing)	Residential R20	No		0.31	1	9	0	0	0		9	0	0	0	Z	NT,P			Identified in the Port Hedland Public Land Rationalisation Plan. Land parcel released through DRDL expression of interest process (stage 1) March 2010. Requires clearance of Native Title.
SH61	G	Lot 6160 Godrick Place, Lot 6159 Barrow Place	State of WA (UCL)	Residential	Residential R30 (Lot 6160), residential R20 (Lot 6159)	No		0.51	1	16	0	0	0		16	0	0	0	Z	NT,P			Identified in the Port Hedland Public Land Rationalisation Plan. Land parcel released through DRDL expression of interest process (stage 1) March 2010. Requires clearance of Native Title. Pindan announced as successful proponent.
SH63	G	Road reserve (cnr Lawson Street and Corbet Place)		Mixed use	Commercial	No		0.28	1	16 dwellings + commercial/ retail (floorspace to be determined)	0	0	0		0	16 dwellings + commercial/ retail (floorspace to be determined)	0	0	Z	L,P			Identified in the Port Hedland Public Land Rationalisation Plan. Existing car park (may not be required in future). Requires road closure. Determination of need for reserve for parking should be established. The land is otherwise suitable for mixed use development subject to the road closure (in process with TOPH).
SH64	G	Lot 2240 Greene Place, Road reserve	State of WA (UCL) (Lot 2240)	Residential (key worker housing)	Residential R20 (Lot 2240), local road	Yes (amendment no. 30 initiated March 2010 to rezone areas from residential R20 and local road to residential R30)		0.40	1	12	0	0	0		12	0	0	0		L,NT,P,Z			Identified in the Port Hedland Public Land Rationalisation Plan. Land parcel released through DRDL expression of interest process (stage 1) March 2010. Colin Wilkinson Developments announced as successful proponent. Site is subject to Native Title (not yet resolved). Cul-de-sac over portion of site requiring local scheme amendment and road closure. Local scheme amendment no. 30 initiated March 2010 to rezone areas from local road and residential R20 to residential R30. Development approval required. Proposal for 2 bedroom/2 bathroom executive style workers accommodation.
SH65	G	Crown land Murdoch Drive, Lot 5185 (CR 37746)	State of WA (UCL)	Residential	Rural	Yes (not initiated)		112.32	1230 (at 55% developable area) 1680 (at 75% developable area)	1230 (at 55% developable area) 1680 (at 75% developable area)	0	0	0		To be determined					s	E,L,NT,P, Pw,S,W,Z		Development of this area subject to further investigation. Requires clearance of Native Title, local scheme amendment and further planning (preparation of development plan, subdivision approval). Southern portion of lot affected by buffer to landfill site. Yield is estimate only, based on development at R20 (average lot size of 500 m²). Ultimate yield will be determined by further detailed planning.
SH66	G	Lot 13 Somerset Crescent	Minister for Training	Residential	Residential R50	No		1.84	1	20	0	0	0		0	20	0	0	Z	P			Lot contains existing development. Potential for additional dwellings on this site. Dwelling yield is estimate only.

Table 26: Project summaries - Port Hedland (continued)

Identifier	Land ownership *	Location ¹	Existing tenure ²	Purpose	Zoning / planning			Area / yield ³			Subdivision approvals ⁴				Anticipated release ⁶ (commencing late 2010)				Constraints ⁷				Comments
					Current zoning	Amendment required / initiated	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Lots on non cleared agreements ⁵		Short term (0-2 yrs)	Medium term (2-5 yrs)	Medium term (5-10 yrs)	Long term (10+ yrs)	Resolved	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	
SH69	G	Lot 503 Forrest Circle	State of WA (UCL)	Transient workforce accommodation	Community - education	Yes (amendment no. 26 initiated January 2010 -> urban development)	Development plan prepared	11.88	1	1200-1500 person facility	0	0	0		1200-1500 person facility	0	0	0		L,P,Z	Pw, S, W		Area A - to be developed by West End Integration Group (Rapley Wilkinson) for transient workforce accommodation (TWA), yielding 1200–1500 units. Local scheme amendment has been initiated to rezone site to urban development. Requires preparation of a development plan. Local scheme amendment to be finalised (gazettal). Proposal also includes development of 60–70 townhouse/apartment dwellings. A number of outstanding issues require resolution before development can proceed. Long-term plan is to convert TWAs into permanent accommodation (10 yrs+).
SH70	G	Lot 502 Scadden Road (Leasehold L307529), Lot 504 Scadden Road	State of WA (UCL – Lot 504)	Residential (key worker housing)	Rural (Lot 502), town centre (Lot 504)	Yes (amendment no. 31 initiated March 2010 -> urban development – lot 502). Adopted by council July 2010.	Amendment to South Hedland Town Centre Development Plan adopted by council April 2010	14.78	400	400	40	0	0		40	360	0	0	L,NT	P,Z	Pw,S,W		Area B - to be developed by Auzcorp as Australia Cove. To be developed in 5 stages. Project will yield approximately 400 dwellings (at range of residential densities). Initial phase of development will be for facility for transient workforce accommodation (40 single storey four bedroom dwellings). Development approval granted for this stage (March 2010). Construction anticipated to commence 1st quarter 2011. Purchase of the land is conditional on the workforce accommodation component being converted to permanent residential in the future. Local scheme amendment to rezone lot 502 to urban development initiated March 2010. Application to amend South Hedland Town Centre Development Plan submitted concurrently with amendment. Subdivision and strata applications currently deferred - pending preparation of a local water management strategy/flood study (under way) and finalisation of local planning scheme amendment. Development of stage 2 will require construction of a new wastewater pump station.
SH71	G	Lot 6121 Frisby Court	State of WA (UCL)	Residential	Residential R20	No		0.14	3	3	0	0	0		3	0	0	0	Z	NT,P			Identified in the Port Hedland Public Land Rationalisation Plan. Land parcel released through DRDL expression of interest process (stage 1) March 2010. Site is subject to Native Title. Cedar Woods announced as successful proponent.
SH72	G	Lot 2784 Acacia Way (CR 34806)	State of WA	Residential	Residential R20	No (amendment required to develop at R30 density)		0.09	3	3	0	0	0		3	0	0	0		NT,P,Z			Identified in the Port Hedland Public Land Rationalisation Plan. Land parcel released through DRDL expression of interest process (stage 1) March 2010. Site is subject to Native Title. Dwelling yield of 3 if density increased to R30.
SH73	G	Pt Lot 1694 Parker Street (CR 31664)	State of WA	Residential	Community - education	Yes (not initiated)		3.75	55 (at 75% developable area)	55 (at 75% developable area)	0	0	0		0	0	55	0		L,P,Z			Identified in the Port Hedland Public Land Rationalisation Plan. Southern portion of lot contains Pundulmurra College. Discussions with Department of Education and Training required to determine future land requirements. Requires local scheme amendment and extinguishment of reserve. Dwelling yield based on 75% developable area and average lot size of 500 m² (R20).
SH74	G	Lot 1693 Parker Street, Lot 2119 Stanley Street	State of WA (UCL)	Residential	Community	Yes (amendment no. 25 initiated January 2010 -> urban development, adopted by council July 2010)	Development/ structure plan to be prepared	11.50	150	150	0	0	0		150	0	0	0		NT,P,Z	Pw,S,W		Identified in the Port Hedland Public Land Rationalisation Plan. Land parcel released through DRDL expression of interest process (stage 1) March 2010. Cedar Woods announced as preferred proponent to acquire and develop land. Local planning scheme amendment adopted by council July 2010 (requires finalisation by WAPC/ Minister). Amendment not supported by Water Corporation. Requires clearance of Native Title and further planning (development plan/subdivision approval). Proposal includes a mix of residential, affordable, key worker, social and indigenous housing options.
SH75	G	Lot 2241 McDonald Street (CR 44830)	State of WA	Residential	Parks and recreation	Yes (amendment no. 30 initiated March 2010 to rezone from parks and recreation to residential R30)		1.06	1	19	0	0	0		19	0	0	0		L,P,Z			Identified in the Port Hedland Public Land Rationalisation Plan. Land parcel released through DRDL expression of interest process (stage 1) March 2010. Unused public open space. Requires local scheme amendment (amendment no. 30 initiated March 2010 to rezone areas from parks and recreation to residential R30) and extinguishment of reserve (request for closure of recreation reserve supported by council November 2010). North West Developments announced as successful proponent.
SH76	G	Lot 301 & 302 Colebatch Way	WA Land Authority	Mixed use	Town centre	Amendment no. 28 initiated to facilitate development at densities above R50 in areas zoned town centre (in line with adopted SHTCDP	South Hedland Town Centre Development Plan endorsed (WAPC) November 2009	4.37	3	157-252 dwellings + commercial/ retail (floorspace to be determined)	0	0	0		0	157-252 dwellings + commercial/ retail (floorspace to be determined)	0	0		P,Z			Identified in South Hedland Town Centre Development Plan for residential (town centre) mixed uses at density of R80. Development plan proposes ground level office development with apartments above. Built form design flexibility proposed should parts of the site not be sustainable for mixed use in the short term. Identified as phase 1 (stage 2) timeframe. Yield is an estimate only - residential and commercial/retail yields to be determined by further detailed planning.
SH77	G	Lot 3668 Denman Place (CR 37553), Local road	State of WA	Residential	Residential R20	Yes (to rezone portion of road reserve, amedment no. 35 initiated September 2010 to rezone portion of road reserve to residential R20)		0.32	1	7	0	0	0		7	0	0	0		L,P,Z			Identified in the Port Hedland Public Land Rationalisation Plan. Land parcel released through DRDL expression of interest process (stage 1) March 2010. Site is unused reserve for parkland (requires extinguishment of reserve). Amendment no. 35 initiated September 2010 to rezone adjacent portion of road reserve to residential R20. Guardian Affordable Housing Pty Ltd announced as successful proponent. Request for closure of parkland reserve (lot 3668 - reserve 37553) supported by council November 2010.
SH78	G	Lot 3463 Kwinana Street (CR 35332)	State of WA	Residential	Residential R20	No		0.12	1	2	0	0	0		2	0	0	0	Z	L,P			Identified in the Port Hedland Public Land Rationalisation Plan. Land parcel released through DRDL expression of interest process (stage 2). Applications for this parcel open to not for profit organisations only. Site is unused reserve for parkland. Requires extinguishment of reserve. Dwelling yield increased to four if recorded to R30. Request for closure of parkland reserve (lot 3463 - reserve 35332) supported by council November 2010.
SH79	G	Lot 3685 Masters Way (CR 37551)	State of WA	Residential	Residential R20, residential R30	No		0.73	1	24	0	0	0		0	24	0	0	Z	L,P			Identified in the Port Hedland Public Land Rationalisation Plan. Proposed land release via private EOI. Site is unused reserve for parkland. Requires extinguishment of reserve. Dwelling yield based on development at density of R30.

Table 26: Project summaries - Port Hedland (continued)

Identifier	Land ownership *	Location ¹	Existing tenure ²	Purpose	Zoning / planning			Area / yield ³			Subdivision approvals ⁴				Anticipated release ⁶ (commencing late 2010)				Constraints ⁷				Comments
					Current zoning	Amendment required / initiated	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Lots on non cleared agreements ⁵		Short term (0-2 yrs)	Medium term (2-5 yrs)	Medium term (5-10 yrs)	Long term (10+ yrs)	Resolved	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	
SH80	G	Lot 5948 Curlew Crescent	State of WA (UCL)	Residential (key worker housing)	Residential R30	No		0.16	1	8	0	0	0		8	0	0	0	Z	NT,P			Identified in the Port Hedland Public Land Rationalisation Plan. Land parcel released through DRDL expression of interest process (stage 1) March 2010. Site is subject to Native Title. Irregular shaped lot. Karika Nyiyaparli JV announced as successful proponent to develop workers accommodation units.
SH81	G	Lot 5972 Greene Place, Lot 5833 Traine Crescent (CR 34193), Lot 5973 Traine Crescent	State of WA (UCL - Lots 5972 & 5973)	Residential (key worker housing)	Residential R20, other public purposes - water and drainage (Lot 5833)	Yes (for portion – not initiated)		0.80	1	15	0	0	0		0	15	0	0		L,NT,P,Z			Identified in the Port Hedland Public Land Rationalisation Plan. Land parcel released through DRDL expression of interest process (stage 2). Applications for this parcel open to not for profit organisations only. Amalgamation of lots would facilitate a consolidated development. Lot 5833 reserved for drainage purposes – further investigation into drainage system required prior to consideration for development. Requires clearance of Native Title (for portion), local scheme amendment (not initiated) and extinguishment of reserve (if not required for drainage purposes). Dwelling yield based on development at density of R20.
SH84	G	Lots 3747, 5453, 5454 & pt 6160 Godrick Place	State of WA (UCL - Lot 3747 & 6160), State Housing Commission (Lot 5453 & 5454)	Residential (key worker housing)	Residential R30 (Lot 6160), residential R50 (Lot 3747, 5453 & 5454)	No		0.53	1	29	0	0	0		0	29	0	0	Z	NT,P			Identified in the Port Hedland Public Land Rationalisation Plan. Proposed land release for key workers/non commercial development. Lots to be packaged for release. Portion of lots require clearance of Native Title. Amalgamation of lots required. Dwelling yield based on development at density of R50.
SH85	G	Lot 2927, 2928, 2983 & 2984 (CR 46651) Kennedy Street, Lot 2912 Acacia Way (CR 33385), Lot 320, 2934, 2975 & 2994 (CR 38099) Boronia Close, Road	State of WA (UCL - Lot 320, 2927, 2928, 2934, 2975 & 2983)	Residential	Residential R20 (Lot 2912, 2927, 2928, 2934, 2975, 2994) , other public purpose - water and drainage (Lot 2984), local road	Yes (for portion, not initiated)		2.91	1	52	0	0	0		0	52	0	0		L,NT,P,Z			Identified in the Port Hedland Public Land Rationalisation Plan. Requires local scheme amendment and extinguishment of reserves (drainage, pumping station and school site – determine whether surplus to future needs). Portion of lots require clearance of Native Title. Portion of road reserve to be amalgamated into adjoining lots. Dwelling yield based on Housing Capacity Study data (mostly R20/R30).
SH88	G	Lot 3731 Hollings Place, Lot 3730 Brodie Crescent, Lot 3744 Huxtable Crescent	State of WA (UCL)	Residential	Residential R20	No		0.86	1	17	0	0	0		0	17	0	0		NT,P,Z			Identified in the Port Hedland Public Land Rationalisation Plan. Irregular shaped land parcel with limited conventional development opportunities. Suitable for amalgamation into adjoining residential properties. Requires clearance of Native Title. Dwelling yield based on average lot size of 500 m² (R20).
SH90	G	Lot 5977 Hamilton Road	State of WA (UCL)	Mixed use	Parks and recreation	Yes (amendment no. 30 initiated March 2010 -> urban development R50)	Development plan to be prepared	0.72	1	13 dwellings + commercial (floorspace to be determined)	0	0	0		0	13 dwellings + commercial (floorspace to be determined)	0	0		NT,P,Z			Identified in the Port Hedland Public Land Rationalisation Plan. Site is unused public open space. Land parcel released through DRDL expression of interest process (stage 1) March 2010. Colin Wilkinson Developments announced as successful proponent. Local planning scheme amendment no. 30 initiated March 2010 to rezone to urban development R50. Requires clearance of Native Title (yet to be resolved). Current proposal for three separate blocks of 2-3 storeys each comprising office suites, residential accommodation and a medical/specialist centre. Requires preparation/approval of development plan prior to development. Construction period of approximately 14 months.
SH91	G	Lot 2939 Roberts Street	Regional Power Corporation	Residential	Parks and recreation, local road	Yes (amendment no. 30 initiated March 2010 -> urban development R50)	Development plan to be prepared	0.98	1	54	0	0	0		0	54	0	0		P,Z			Identified in the Port Hedland Public Land Rationalisation Plan. Area is undeveloped. Local planning scheme amendment no. 30 initiated March 2010 to rezone to urban development R50. Requires preparation/approval of development plan prior to development. Dwelling yield based on density of R50.
SH92	G	Lot 89 (CR 29612), 2462 (CR 29612), 2940 & 2945 (CR 29612) Stanley Street, Pt lot 5954 Kennedy Street	State of WA, Regional Power Corporation (Lot 2940)	Residential	Other public purpose - water and drainage (Lot 89, 2940 & 2945), community - education (Lot 5954), community – institutional/public uses (Lot 2462)	Yes (not initiated)		4.53	46	46	0	0	0		0	46	0	0		L,P,Z			Identified in the Port Hedland Public Land Rationalisation Plan. Lots to be packaged for release. Area consists of land reserved for water supply (accommodating water tower) and training - need to determine whether full sites are required or are surplus to future requirements. Requires local scheme amendment and extinguishment of reserve. Dwelling yield based on Housing Capacity Study data (development of this site assumed at density of R20).
SH93	G	Lot 3435 Dorrigio Loop (CR 35312), Lot 3625 (CR 37548) & 3570 (CR 37546) Captains Way, Lot 3505 (CR 35320), 3506 (CR 35319), & 3508 (CR 35318) Koojarra Crescent, Lot 3509 (CR 35324) Kabbarli Loop	State of WA	Residential	Parks and recreation	Yes (not initiated)		8.19	104	104	0	0	0		0	104	0	0		L,P,Z	Pw, S, W		Identified in the Port Hedland Public Land Rationalisation Plan. Land parcel released through DRDL expression of interest process (stage 1) March 2010. Jaxon Pty Ltd announced as preferred proponent to acquire and develop land. Portion is unused public open space and unused reserves for school site, kindergarten, parking and public open space (no longer required). Requires local scheme amendment and extinguishment of reserve. Lots 3505, 3506 and 3508 subject to Native Title. Proposal includes affordable housing. Initial stages likely to be available in approximately two years (subject to land assembly, planning approvals and availability of water services).
SH97	G	Vacant crown land, Lot 3726 Lawson Street (CR 34970)	State of WA (UCL)	Residential	Residential R30 (Crown lot), other public purposes – water and drainage (Lot 3726)	Yes (for portion, not initiated)		1.34	1	44	0	0	0		0	44	0	0		L,NT,P,Z			Identified in the Port Hedland Public Land Rationalisation Plan. Need to determine whether lot 3726 is required for drainage purposes (reserved for drain). Requires local scheme amendment and extinguishment of reserve. UCL lot is land locked, requires clearance of Native Title. Dwelling yield based on development at density of R30.

Table 26: Project summaries - Port Hedland (continued)

Identifier	Land ownership *	Location ¹	Existing tenure ²	Purpose	Zoning / planning			Area / yield ³			Subdivision approvals ⁴				Anticipated release ⁶ (commencing late 2010)				Constraints ⁷				Comments
					Current zoning	Amendment required / initiated	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Lots on non cleared agreements ⁵		Short term (0-2 yrs)	Medium term (2-5 yrs)	Medium term (5-10 yrs)	Long term (10+ yrs)	Resolved	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	
SH98	G	Lot 6077 (leasehold), pt lot 301 & 6106 Hamilton Road	State of WA (UCL – Lot 301 & 6106)	Commercial	Town centre	No	South Hedland Town Centre Development Plan endorsed (WAPC) November 2009	0.98	Not determined		0	0	0		To be determined				Z	L,NT,P			Identified in South Hedland Town Centre Development Plan as potential new commercial/office/civic development. Land is currently vacant. Preparation of commercial/retail strategy required. Yield to be determined by further detailed planning. Identified as phase 2 timeframe.
SH99	G/P	Lot 5162 Colebatch Way, Lot 5812 Forrest Circle (CR 39012)	Perpetual Ltd (Lot 5162), State of WA (Lot 5812)	Commercial	Town centre	No	South Hedland Town Centre Development Plan endorsed (WAPC) November 2009	0.47	Not determined		0	0	0		To be determined				Z	L,P			Identified in South Hedland Town Centre Development Plan as potential new multi-storey office/retail development (potentially housing the Department of Housing and Works and Child Protection) and including smaller retail tenancies on the ground level. Conditional approval granted July 2010 to resubdivide lots and realign road reserves to create a new main street (Colebatch Way). Preparation of commercial/retail strategy required. Yield to be determined by further detailed planning. Identified as phase 2 timeframe.
SH100	G	Pt lot 5772 Colebatch Way (CR 39012), Pt lot 5815 Leak Street (CR 41003), Road reserve (proposed lot 3 & 4)	State of WA	Tourism	Town centre	No	South Hedland Town Centre Development Plan endorsed (WAPC) November 2009	0.96	Not determined		0	0	0		To be determined				Z	L,P			Identified in South Hedland Town Centre Development Plan as potential hotel development. Proposal contingent upon relocation of existing library (possible relocation to aquatic centre site requires preparation of master plan). Conditional approval granted July 2010 to resubdivide lots and realign road reserves to create a new main street (Colebatch Way). Portion of road to be closed (Leake Street) and amalgamated with proposed lot 3.
SH101	G	Lot 5486 Hamilton Road	State Housing Commission	Commercial	Town centre	No	South Hedland Town Centre Development Plan endorsed (WAPC) November 2009	0.22	Not determined		0	0	0		To be determined				Z	P			Identified in South Hedland Town Centre Development Plan as potential new commercial/office/civic development. Land is currently vacant. Bloodwood Association site for commercial use and possible key worker housing at rear. Yield to be determined by further detailed planning.
SH102	G/P	Lot 510 & 6102 Hamilton Road, Pt lot 450 & pt lot 3257 Hamilton Road, Pt lot 500 Colebatch Way	State of WA, (UCL – Lot 450, 500, 3257 & 6102), Aboriginal Hostels Ltd (Lot 501)	Residential	Town centre (Lot 500, 501 & 6102), rural (Lot 500 & 3257)	Yes (for portion, not initiated)	South Hedland Town Centre Development Plan endorsed (WAPC) November 2009	8.92	220	220	0	0	0		To be determined					NT,P,Z			Identified in South Hedland Town Centre Development Plan for residential uses (at density of R30 & R40). Density to increase from outer western edges at R20/R30 increasing to R40 in proximity to Hamilton Road. Other facilities could include over 55s or retirement housing. Requires local scheme amendment for portion of development area. May require clearance of Native Title. Dwelling yield estimate based on 75% developable area and average lot size of 300 m² (R30). Identified as phase 3 timeframe.
SH103	G	Lot 3259 Forrest Circle, Pt lot 500 Colebatch Way, Pt lot 450 & 3257 Hamilton Road	State of WA (UCL)	Potential residential	Rural	Yes (not initiated)		6.73	165	165	0	0	0		To be determined					NT,P,Z			Identified in South Hedland Town Centre Development Plan as 'subject to further investigation'. Will need to consider future land uses west and south of Forrest Circle. Flood/drainage study prepared. Requires local scheme amendment and further planning. May require clearance of Native Title. Dwelling yield estimate based on 75% developable area and average lot size of 300 m² (R30). Identified as phase 3 timeframe.
SH104	G	Lot 310 Throssell Road	State of WA (UCL)	Residential	Town centre	No	South Hedland Town Centre Development Plan endorsed (WAPC) November 2009	0.67	1	30	0	0	0		To be determined				Z	L,NT,P			Identified in South Hedland Town Centre Development Plan for residential uses (at density of R40). May require clearance of Native Title. Identified as phase 3 timeframe.
SH105	G	Pt lot 501 Scadden Road	State of WA (UCL)	Residential	Town centre	No	South Hedland Town Centre Development Plan endorsed (WAPC) November 2009	0.65	1	30	0	0	0		To be determined				Z	L,NT,P			Identified in South Hedland Town Centre Development Plan for residential uses (at density of R40). May require clearance of Native Title.
SH106	P	Lot 4 (proposed lot 11), pt lot 311 & 6109 Throssell Road	State of WA (UCL), Perpetual Ltd (Lot 4)	Commercial	Town centre	No	South Hedland Town Centre Development Plan endorsed (WAPC) November 2009	6.72	Not determined		0	0	0		To be determined				Z	L,NT,P			Identified in South Hedland Town Centre Development Plan for retail uses. Lot 4 contains existing South Hedland Shopping Centre. Proposal to refurbish shopping centre façade and allow for inclusion of new small retail tenancies fronting Colebatch Way. Additional retail development proposed over lots 311 & 6109. Conditional approval granted July 2010 to resubdivide lots and realign road reserves to create a new main street (Colebatch Way). Portion of road to be closed and amalgamated with proposed lot 11. Lot 311 & 6109 may require Native Title clearance. Preparation of commercial/retail strategy required. Yield to be determined by further detailed planning. Identified as phase 2 timeframe.

Table 26: Project summaries - Port Hedland (continued)

Identifier	Land ownership *	Location ¹	Existing tenure ²	Purpose	Zoning / planning			Area / yield ³			Subdivision approvals ⁴				Anticipated release ⁶ (commencing late 2010)				Constraints ⁷				Comments
					Current zoning	Amendment required / initiated	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Lots on non cleared agreements ⁵		Short term (0-2 yrs)	Medium term (2-5 yrs)	Medium term (5-10 yrs)	Long term (10+ yrs)	Resolved	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	
SH107	G	Lot 303 Colebatch Way (CR 35607), road reserve (proposed lot 1)	State of WA	Commercial	Town centre	No	South Hedland Town Centre Development Plan endorsed (WAPC) November 2009	1.84	Not determined		0	0	0		To be determined				Z	L,P			Identified in South Hedland Town Centre Development Plan for retail uses. Site contains existing community health centre. Development plan proposes mixed use development comprising a cinema and specialty shops, with residential apartments also encouraged. Contingent upon existing community health services being relocated to new health campus. Conditional approval granted May 2010 to resubdivide lots and realign road reserves to create a new main street. Portion of road to be closed and amalgamated with proposed lot 1. Preparation of commercial/ retail strategy required. Yield to be determined by further detailed planning. Identified as phase 2 timeframe.
SH108	G	Lot 309, 310 & pt 311 Throssell Road, Pt lot 301 Hamilton Road	State of WA (UCL)	Commercial	Town centre	No	South Hedland Town Centre Development Plan endorsed (WAPC) November 2009	1.92	Not determined		0	0	0		To be determined				Z	L,NT,P			Identified in South Hedland Town Centre Development Plan for retail uses. Development plan proposes showroom/ commercial development over this site. Requires clearance of Native Title. Southern portion of site earmarked for town council offices. Preparation of commercial/retail strategy required. Yield to be determined by further detailed planning. Identified as phase 2 timeframe.
SH109	G/P	Lot 203 Great Northern Highway (Leasehold)	State of WA, BHP Billiton Direct Reduced Iron Pty Ltd	Industrial (general & noxious)	Strategic industry	No		671.10	80	80	0	0	0		0	40	40	0		H,L,P,Z	Pw,W		Identified in Port Hedland Land Use Master Plan for noxious uses (operations that generate excessive noise, odour, dust or other negative impacts). Part of Boodarie pastoral lease, held by BHP Billiton. Site is within power station buffer. Site also has good access to Great Northern Highway. Subject to further investigation – key studies under way (drainage patterns, flood elevations, soil conditions, air quality impacts, heritage etc). Concept plans to be prepared by end of 2010 and lodgement of structure plan by early 2011.
SH110	P	Lot 226 Greenfield Street	Famsun Pty Ltd, Pound B M, J M, Simslik Pty Ltd, Summers P J D	Rural residential	Rural residential	No		92.73	71	71	0	71	19		19	25	27	0	P,Z				Conditional approval for subdivision granted April 2010 (71 lots). Area is subject to flooding and drainage issues. Hydraulic impact assessment concludes that the site can be developed subject to mitigation measures in the form of drainage channels.
SH111	P	Lot 73, 74 , 77 & 78 Greenfield Street,	Anagnostopoulos G, L P, M, Levissianos G M, Tanner T G	Rural residential	Rural residential	No		12.55	8	8	0	8	0		8	0	0	0	P,Z				Conditional approval for subdivision granted February 2010 (8 lots). Area is subject to flooding and has drainage issues.
SH115	G	Lot 253 Rutherford Road	State Housing Commission	Residential	Residential R20	Yes (amendment no. 30 initiated March 2010 to rezone to residential R30)		0.70	1	23	0	0	0		23	0	0	0		P,Z			Part of New Living Program. Proposed grouped housing development. Local planning scheme amendment no. 30 initiated March 2010 to rezone from residential R20 to residential R30.
SH116	G	Lot 9003 Minderoo Avenue	Housing Authority	Residential	Urban development R20	Yes (amendment no. 30 initiated to rezone single lots from urban development to residential R20, group housing site to residential R30 and POS to parks and recreation)		1.35	10	17	0	10	0		17	0	0	0		P,Z			Part of New Living Program. Proposed single lot and grouped housing development. Conditional approval for subdivision granted October 2010. Amendment no. 30 initiated July 2010 (omnibus amendment) to rezone single residential lots to residential R20, group housing site to residential R30 and public open space to parks and recreation.
SH117	G	Crown land Kennedy Street/Cottier Drive, Lot 3091 Kennedy Street, Lot 501 Mitchie Crescent	State of WA (UCL)	Residential	Residential R20, local road	Yes (amendment no. 30 initiated to rezone from residential R20 and local road to residential R30 and local road)		1.39	8	18	0	0	0		0	18	0	0		L,P,Z			Part of New Living Program. Proposed single lot and grouped housing development. Local planning scheme amendment initiated to rezone to residential R30. Area is unallocated Crown land and road reserve. Application to close portion of road approved by council March 2010.
SH122	P	Lot 2594 Clam Court	Cusack Properties Pty Ltd, Cusack Properties Pty Ltd, Kedi Trading Pty Ltd	Residential	Residential R30/60	No		0.86	1	36	0	0	0		36	0	0	0	P,Z				Site contains 24 existing one bedroom dwellings. Proposal to develop 36 additional two bedroom dwellings. Project has planning approval (July 2010).
SH123	P	Lot 251 Rutherford Road	Pulitano Building Co	Residential	Residential R30	No		0.47	10	10	0	12	0		10	0	0	0	P,Z				Survey strata application approved May 2010 to facilitate development of 10 additional dwellings on this site (2 existing dwellings). Application approved by council March 2010. Due for completion late 2010.
SH124	P	Lot 1700 Lawson Street	Megara Developments Pty Ltd	Mixed use	Commercial	No		0.30	1	18 (dwellings) + 400 m² (commercial)	0	0	0		18 (dwellings) + 400 m² (commercial)	0	0	0	P,Z				Arcadia Villas. Project consists of 10 three bedroom villas, 8 two bedroom villas and four 100 m² commercial units on ground floor. Due for completion late 2010.
SH126	P	Lot 3281 Collier Drive	Toicolli Homes Pty Ltd	Residential	Residential R20	No		0.34	7	7	0	7	0		7	0	0	0	P,Z				Survey strata application granted conditional approval October 2010.

Table 26: Project summaries - Port Hedland (continued)

Identifier	Land ownership *	Location ¹	Existing tenure ²	Purpose	Zoning / planning			Area / yield ³			Subdivision approvals ⁴				Anticipated release ⁶ (commencing late 2010)				Constraints ⁷				Comments
					Current zoning	Amendment required / initiated	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Lots on non cleared agreements ⁵		Short term (0-2 yrs)	Medium term (2-5 yrs)	Medium term (5-10 yrs)	Long term (10+ yrs)	Resolved	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	
SH128	G	Lot 305 Lawson Street (CR 33928), Lot 5570 Weaver Place, Crown land Weaver Place	State of WA (portion UCL)	Residential	Residential R20	No		1.19	1	39	0	0	0		0	39	0	0	Z	P	NT		Identified in the Port Hedland Public Land Rationalisation Plan. Land parcel released through DRDL expression of interest process (stage 2). Applications for this parcel open to not for profit organisations only. Portion is unallocated Crown land requiring clearance of Native Title. Remaining portion is Crown reserve (for purposes of recreation, public access way and public utility services). Requires extinguishment of reserve and further planning. Amalgamation of lots required. Yield based on Housing Capacity Study data (development at R30 assumed for this site).
SH129	G	Lot 5530 Hamilton Road (CR 31895), Lot 5435 Forrest Circle (CR 36025), Crown land Forrest Circle	State of WA (portion UCL)	Key worker housing (potential)	Rural, district road, other public purposes - water and drainage			21.53	Not determined		0	0	0		To be determined					L,P			Land parcel released through DRDL expression of interest process (stage 2) for key worker accommodation. Portion of site is unallocated Crown land and subject to Native Title. Remaining portion is reserve for recreation and reserve for drainage. Development requires preparation of flood study.
SH130	G	Crown land North Circular Road	State of WA (UCL)	Key worker housing (potential)	Other purposes - infrastructure	Yes (not initiated)		15.57	Not determined		0	0	0		To be determined					L,P			Land parcel released through DRDL expression of interest process (stage 2) for key worker accommodation. Site is unallocated Crown land and subject to Native Title. This area identified for development of mixed business uses in Port Hedland Land Use Master Plan - requires further planning.
SH131	G	Pt lot 308 Forrest Circle	State of WA (UCL)	Potential residential	Rural	Yes (not initiated)		95.67	2000	2000	0	0	0		To be determined						L,NT,P,Z, Pw,S,W		Land identified for potential future residential development. Due diligence work required. Will need to consider outcomes of Port Hedland Growth Plan. Dwelling yield is estimate only.
SH133	G	Lot 2444 Great Northern Highway	Town of Port Hedland	Potential transient workforce accommodation	Airport	No	Draft Port Hedland Internation Airport Master Plan prepared	35.89	1 (TWA) or 11 (transport dvlpt)	unknown	0	0	0		To be determined				Z	L,P	Pw, S, W		Area identified for transient workforce accommodation (TWA) uses in draft airport master plan. Concept plan for this precinct includes two options - one proposing 11 transport development lots (two of which require the relocation of existing evaporation ponds serving the Mia Mia TWA facility), the other proposing a single TWA lot. TWA, transport development or hotel/motel uses identified as compatible uses in master plan (uses cannot impact on non-directional beacon or antenna array). Master plan recommends that land be leased rather than sold to protect land for airport uses in the long-term. Ultimate land uses to be determined by further planning.
SH134	P	Lot 126 Great Northern Highway	Stubbs K G	Rural residential	Rural, other purposes - infrastructure	Yes (not initiated)	Draft development plan prepared for lot 126. Development plan required for wider area.	201.92	98	98	0	0	0		0	51	47	0		P,Z	Pw,W		Twelve Mile rural residential (Brookdale subdivision). Proposal to initiate amendment to planning scheme (rural to rural residential) rejected by council May 2010 (need to consider interrelation with surrounding lands - requirement for development/structure planning for wider area). Majority of site is subject to inundation - hydrology report prepared (concluding that site can be developed subject to mitigation mechanisms and specified minimum floor levels). A demand assessment study has also been prepared noting a significant demand for non-suburban land with registrations of interest documented for over 50% of the total proposed lots. Current proposal is to develop lots ranging in size from 1–2 ha east of Beebingarra Creek (subject to provision of reticulated water), and larger lots to west of creek. Project (if approved) likely to be developed over 3 stages.
SH135	P	Lot 250 Rutherford Road	Northwesterly Three Pty Ltd	Residential	Residential R30	No		0.52	1	14	0	14	0		14	0	0	0	P,Z				Site has subdivision (strata) and development approval for 14 units (3 bedroom villas).

¹ CR = Crown reserve
² UCL = unallocated Crown land
³ In some cases the yield for the project is indicative only. Final lot/dwellings yields will be determined by further detailed planning.
⁴ Refers to the number of lots/units with current subdivision or strata approval, and the number of lots/units for which a subdivision/strata application has been lodged but which is yet to be determined (pending). Does not include local government development approvals. As at 17th December 2010.
⁵ Refers to conditionally approved lots where a servicing agreement (agreement to construct) has been signed between the Water Corporation and the developer. This gives further indication of lots likely to become available to the market in the short-term. As at 29 November 2010.
⁶ In some cases the anticipated release of lots is yet to be determined. This could be for reasons such as market conditions, demand/supply of services or a requirement to resolve issues and constraints.
⁷ Constraints and issues codes: Environmental (E), heritage (H), land assembly (L), native title (NT), planning (P), power (Pw), sewer (S), water (W) and zoning (Z).

Land and housing supply - for more information see the following links:

Australian Bureau of Statistics: www.abs.gov.au
see Catalogue 2068.0 - 2006 Census tables: - Port Hedland (urban centre/locality) - Dwelling structure

Government of WA Ministerial Media Statements: www.mediastatements.wa.gov.au
see Blueprint for Pilbara Cities (27 November 2009)

LandCorp: www.landcorp.com.au
see Port Hedland projects (Land search > Port Hedland/ South Hedland)

Town of Port Hedland: www.porthedland.wa.gov.au
see Port Hedland Land Use Master Plan
Port Hedland Public Land Rationalisation Plan
Pretty Pool Development Plan
Spoilbank Marina Concept
Port Hedland International Airport Master Plan (draft)

Western Australian Planning Commission: www.planning.wa.gov.au see
Town of Port Hedland Town Planning Scheme No. 5

8 Infrastructure

Key points

- To supply the infrastructure Port Hedland needs to meet its expansion will require significant government funding and improved coordination between agencies and service providers.
- Some essential service infrastructure, notably water and wastewater will reach capacity in the short-to-medium term. Significant infrastructure investment will be required to meet land and housing demand pressures.
- A key feature of the Pilbara Cities blueprint is to improve the liveability of regional centres by investing in community infrastructure.
- The Town of Port Hedland has recently endorsed Hedland's Future Today 2010 which identifies 10 priority infrastructure projects for the town. The document will assist with strategic infrastructure planning and development of Port Hedland. The list of priority projects was endorsed by Council in October 2010. The document will be used to guide the development of a ten year financial plan.
- The Town of Port Hedland has identified its priority infrastructure needs through its report Hedland's Future Today 2010, which was endorsed by Council in October 2010. Infrastructure projects are identified over a 15-year timeframe and are based on a population of 40,000 by 2025.

Actions and priorities

- Port Hedland's expansion is being held back by its water supply limitations and a series of infrastructure upgrades will be needed in all serviced areas as the town grows.
- It is critical that long-term electricity supplies are secured and that they are ready to meet forecast demand beyond 2012.
- Obtaining basic raw materials can be difficult and expensive. The problem not only increases construction costs, but also have the potential to constrain Port Hedland's long-term growth. Short-term solutions must be found, including identifying alternative sources of supply.

8.1 Water

Port Hedland is supplied with potable water by the Water Corporation from two main sources:

- Yule River Water Reserve
- De Grey River Water Reserve

The Yule River wellfield is located on the eastern bank of the Yule River, approximately 45 kilometres west of Port Hedland. The scheme was commissioned in 1966/67 to supplement supply from the Turner River wellfield which had become insufficient to supply the town's requirements. The Turner wellfield was closed in the 1980s due to its high operational costs yet small production volume. Water is supplied to the town of Port Hedland from bores in the semi-confined deposits of the Yule River. Recharge to the alluvial aquifer occurs through the river bed sands when the river is in flood and through direct recharge during high intensity rainfall events. Water is extracted through seven production bores which pump water to the Yule River collector tank before being pumped to South Hedland and then Port Hedland.

The De Grey River wellfield is located on the eastern bank of the De Grey River near the confluence with the Shaw River, approximately 60 kilometres east of Port Hedland. Aquifer

recharge occurs predominantly from infiltration during riverflows, with some direct recharge during high intensity rainfall events. Water is extracted through 11 production bores which pump water to the Strelley pump station tanks where water is treated with chlorine before being pumped to South Hedland and then Port Hedland.

The scheme allocation from the two main sources is currently 13.5 GL per year, with 6.5 GL per year from the Yule River and 7 GL per year from the De Grey River. The total scheme demand for the year ending March 2010 was 9.5 GL. Water is stored in tanks in South Hedland and then transferred to other bulk storage tanks in the port area and on Finucane Island. Water consumption in the area is significantly higher than that of the metropolitan region due to the large volumes of potable water used by the mining industry for dust suppression.

The existing water supply network is shown on Map 11.

Future requirements and planning

Groundwater and surface water sources in the Pilbara are recharged by cyclonic weather events which can be highly variable in their intensity and frequency. Climate change in the North West is predicted to result in a more variable climate regime with the potential for less frequent, but higher intensity cyclonic events. While the reliability of supply for Port Hedland benefits because the two sources are not necessarily dependent on the same cyclones, to manage increasing demand it will be important for Port Hedland to have access to a diversity of approaches to conserve, re-use and supply water.

Current commitments to industrial and residential growth will fully utilise existing capacity and there is a need to expand these schemes. The Department of Water has identified a number of potential options to meet future water demand in the Port Hedland (under low, medium and high growth scenarios), which can be grouped into the following categories:

- expansion of current potable sources;
- new potable source/s;
- new non-potable source/s; and
- reducing water use through demand management.

The Water Corporation is currently undertaking water planning based on the growth and land uses indicated in this Regional Hotspots report. Groundwater investigations for the existing De Grey River and Yule River borefields show that abstractions can be increased from these sources, though the extent is yet to be confirmed. The Yule River investigations are anticipated to be finalised in early 2011, with additional abstraction commencing by 2012. Up to another 2 GL of water could be abstracted from the Yule River borefield without requiring any infrastructure upgrades. Any increased abstraction beyond that, possibly up to another 2GL, will require upgraded transmission infrastructure. The Department of Water is working with the Water Corporation to confirm the additional abstraction from the Yule River area, and Water Corporation will then progress infrastructure arrangements. De Grey investigations are expected to be completed by mid-2011.

The West Canning Basin is a large potential groundwater resource situated approximately 80 kilometres from the existing De Grey borefield, and is a likely option as a next groundwater source. Investigations to confirm the sustainable level of abstraction from this resource are being undertaken with the Water Corporation and Department of Water. The distance to the aquifer from the Port Hedland scheme would necessitate infrastructure investment by the water service provider.

Pre-feasibility studies are also being undertaken on the potential for a desalination plant, including an assessment of costs relative to groundwater sources. If desalination is feasible, it is only likely to be further considered if local groundwater sources prove inadequate to meet increasing demand.

The cost of undertaking source identification, investigation and development, extending and upgrading the distribution network and water treatment infrastructure to service anticipated growth in the Port Hedland area, is currently estimated to be in the order of \$170 m (of which a portion is funded). The Pilbara Infrastructure Implementation Plan is being developed by Department of Planning in conjunction with relevant service agencies to provide recommendations on priority infrastructure requirements for the region to support Government decision making.

Recycling wastewater for non-drinking water purposes to relieve pressure on the existing potable water supply scheme use has been considered for the town. However, the majority of wastewater produced by the town is already recycled to provide irrigation for

public open space and community facilities. As the community expands, any water from new or expanded waste treatment facilities could be considered as a possible source for fit for purpose industrial use, or third pipe schemes for garden or public open space irrigation in residential areas. Work has commenced on the feasibility of fit for purpose options.

The Water Corporation is also currently undertaking a water efficiency program in the Pilbara with an estimated cost of \$11.2 m, jointly funded by the Commonwealth Government to target community behavioural change, retrofitting properties, industrial efficiency and reducing leaks. The scheme aims to save 10 per cent of current scheme supply across the Pilbara. The program commenced in July 2010 and will run for two years. Average household water use in the Pilbara varies significantly from town to town, but is generally much higher than average water use in the southern part of the State. This is partially due to higher water needs resulting from living in a hotter and drier part of the State.

Future development (industrial, commercial and residential uses) can contribute to sustainable water use by incorporating:

- water efficient and climate appropriate building design to minimise cooling requirements;
- water wise gardening appropriate to the climate;
- developing public open space that is responsive to climate as well as minimising water use; and
- increasing urban density.

The Department of Regional Development and Lands announced an expression of interest early in 2010 as part of the Pilbara Revitalisation Plan. Nine pilot water projects were approved in May 2010 that proposed innovative approaches to water use in the region.

Port Hedland Port Authority water requirements

The high amounts of water required by the port authority are determined by the current delivery and storage system for ore. Dust suppression of ore stockpiles is the major water use by the port and is undertaken for health and safety reasons. The water used for dust suppression must be of a high quality as the water can have significant impacts on the smelting process and affect the quality of iron produced. Possible changes to how ore is transported (slurry versus dry) or more integrated delivery and loading processes to minimise stock piling are more likely to assist in reducing overall water demand by the Port. Accessing alternative sources such as recycled wastewater is unlikely as the town currently re-uses most of its existing wastewater supply and the quantities required by the Port are far greater than could be met by recycled wastewater.

There are plans to expand the port capacity by existing iron ore companies and establishing mining companies. A number of firms including BHP Billiton Iron Ore, Fortescue Metals, Hancock Prospecting, the North West Iron Ore Alliance, and other junior minors propose to begin iron ore shipments or expand current capacity from port facilities at Port Hedland. Expansion of the port and its associated infrastructure will increase water demand well beyond the current system capacity.

BHP Billiton Iron Ore has commenced community consultation on the environmental approval process for the outer harbour development to commence construction for stage 1 in calendar year 2012/13 with first iron ore shipment expected in calendar year 2015/2016. The results of an independent study commissioned by the Department of Transport and the Port Hedland Port Authority on the proposed outer harbour concept recommended that new water supply sources will be required with a potential total demand of 50 GL once the outer harbour facility is fully expanded to 400 Mt/a.

The Port Hedland Port Authority requires 1.3 GL per annum of water associated with the Utah Point project and additional water would be required by BHP Billiton Iron Ore for its future expansion plans. Water supply for new major expansion projects of The Pilbara Infrastructure Pty Ltd/Fortescue Metals Group, Hancock Prospecting and the North West Iron Ore Alliance and non-aligned juniors would also be required.

8.2 Wastewater

There are currently two wastewater treatment plants (WWTP) servicing Port Hedland, one located at Spinifex Hill in Port Hedland, and the other located to the west of the South Hedland urban area. Wastewater from the plants is treated to a secondary standard (level 2), of which the majority is used to irrigate public open spaces and recreation facilities.

The Port Hedland WWTP has capacity to cater for expected growth; however, relocation of the WWTP from its current location would create residential development opportunities and resolve existing land use conflicts in the area. After considering various options for the relocation of the WWTP, the State Government announced a \$106 m relocation project in January 2011. Funded through the Royalties for Regions program and Water Corporation's capital works program, the project will include decommissioning of the Port Hedland facility, an upgrade of the South Hedland WWTP and remediation of the Port Hedland site. It is anticipated that flows from Port Hedland will be transferred to the South Hedland facility by mid-2014.

The area between the old hospital and McGregor Street in Port Hedland is not currently serviced by reticulated sewerage, which is constraining higher density development in the area. This is a significant issue given the limited land supply in Port Hedland. Provision of reticulated sewerage for this area was announced in August 2010 as part of the State Government's Infill Sewerage Program. It is expected that work will commence in March 2011 and be completed by spring 2012. The project includes 250 residential lots and is estimated to cost \$7.5 m. Provision of sewerage services will facilitate additional development in this area.

The existing wastewater network is shown on Map 12.

Future requirements and planning

The Water Corporation is currently undertaking wastewater infrastructure planning (including treatment, conveyance and treated wastewater management) as a matter of priority. This planning is based on the land uses and growth rates indicated in this Regional HotSpots report. The cost of combining the two plants to the South Hedland facility is estimated at \$106 m, which will be funded through the State Government's Royalties for Regions initiative and the Water Corporation's capital works program. The Water Corporation anticipates that this upgrade will accommodate growth through to the mid-2030s.

8.3 Power

Electricity generation

Port Hedland is supplied with electricity by Horizon Power through the North West Interconnected System (NWIS). The NWIS extends across an area measuring 400 kilometres east to west and 350 kilometres north to south. The system serves the communities of Dampier, Wickham, Pannawonica, Paraburdoo and Tom Price through the Pilbara Iron (Rio Tinto) network and Port Hedland, South Hedland, Karratha, Roebourne and Point Samson through the Horizon Power Network. Multiple parties own and operate parts of the NWIS, including Horizon Power, Pilbara Iron (Rio Tinto), Alinta and BHP Billiton Iron Ore. The system has moved from stand alone systems owned and operated by resource companies in the 1970s to interconnection in 1985.

The Babcock and Brown gas-fired power station (175 MW) located at the Boodarie Industrial Estate is the primary source of BHP Billiton Iron Ore's Port Hedland electricity supply, and also provides power for Horizon Power's customers. The power station is operated under three power purchase agreements (PPA) which expire in 2014. Power is distributed by a network of 66 kV lines to substations in Port Hedland, Wedgefield, South Hedland and Finucane Island. A 220 kV transmission line links the Karratha terminal station with the Port Hedland station.

The existing power network is shown on Map 13.

ATCO power plant

A new power station has been constructed adjacent to Horizon Power's base facility on Stove Hill Road, south of the Karratha Hills. The plant, developed by ATCO Power, employs two 43 MW high efficiency gas turbines, and was fully commissioned in April 2010. The new power station, with a capacity of 86 MW, has been designed to meet the growing needs of the region, and has current capacity to cater for the power needs of 75,000 households (excluding other activity usage). The power station could, in the future, be expanded to 150 MW to meet the future energy demands on the NWIS. The ATCO power station replaces 70 MW of supply previously sourced from Rio Tinto's Dampier (120 MW) and Cape Lambert (105 MW) power stations under a PPA.

Additional power sources

A similar plant is planned for Port Hedland. Power from this source would be available to settlements serviced via the NWIS. Citic Pacific is developing a major power plant at Cape Preston, which will have the ability to generate 450 MW, but at this stage there is no plan for Citic Pacific to interconnect to the NWIS.

Underground power

Funding has been allocated under the Pilbara Revitalisation Plan (Royalties for Regions) to install underground power in South Hedland. The costs of the program are proposed to be shared, with the State Government contributing 75 per cent and the Town of Port Hedland responsible for the remaining 25 per cent. The total project costs for the South Hedland and Wedgefield components of the project are estimated at \$36 m. A total of 2028 residential lots and 225 industrial lots are proposed to be connected to underground power. This will improve system reliability and network performance and reduce maintenance costs. On ground works are scheduled to commence in May 2011, with construction expected to be completed by July 2012.

Future requirements and planning

Horizon Power's load in the Pilbara has grown significantly in recent years. The current demand supply balance is becoming increasingly tight and does not cater for expansion in the region. In addition to the 86 MW ATCO power plant in Karratha (replacing the Rio Tinto PPA), a further 100 MW of new generation capacity will be required by December 2012 to meet existing known loads. Horizon Power is presently evaluating a range of options to procure this capacity, with a preference to have new high efficiency generation installed prior to the summer period of 2012/13.

Additional funding will be required for the region to continue to grow, and costs are estimated at:

- Stage 1 - new power station to meet Pilbara demand (\$350 m).
- Stage 2 - Roebourne to Karratha transmission line (\$70 m).
- Stage 3 - Cape Lambert to Port Hedland transmission line upgrade (\$20 m).

Planning for an outer harbour facility to provide for future capacity at Port Hedland Port is well advanced. BHP Billiton Iron Ore plans to commence construction for stage 1 in calendar year 2012/13 with first iron ore shipment expected in calendar year 2015/16. The results of an independent study commissioned by the Department of Transport and the Port Hedland Port Authority on the proposed outer harbour concept estimate that a fully developed outer harbour (doubling the capacity of the existing inner harbour) will have a significant additional power requirement which may not be met by present supply. Development of this facility could potentially double the port's existing power requirement.

8.4 Transport

Roads

Existing transport networks are shown on Map 14.

Port Hedland is strategically located on Great Northern Highway, which is the part of the national highway network. Port Hedland Road from GNH into the Port Hedland townsite is a State highway.

Approximately 80 per cent of the Pilbara region's inputs are transported by road. The majority of the region's outputs are transported by rail, with only 3 per cent being transported by road. The inputs (including industrial inputs, large-scale equipment, personal consumables, construction materials and transit freight) mainly originate from centres such as Perth, Port Hedland and Dampier by road transport. Road freight volumes are likely to increase as a result of a number of smaller scale resource projects being approved which do not have access to rail.

The Pilbara Freight Study concluded that the road freight task in the Pilbara region is expected to increase significantly in the long term. Existing traffic volumes on Great Northern Highway and Port Hedland Roads are expected to increase from 10,000-11,000 vehicles per day to around 40,000 vehicles per day.

General road transport issues include:

- growing traffic pressure on the safety, efficiency and reliability of the regional road network caused by the increase in total traffic and conflict between regional

traffic, including very large heavy vehicles and local traffic particularly during peak periods in townsites; and

- growing operational conflicts caused by the growth of pre-assembled large module transport across the road network to service the resource sector.

Construction of a new berth at Utah Point and the continued growth of the iron ore export trade will result in an increase in heavy vehicles and road trains (double and triple) and conflict with local and tourist traffic in the Port Hedland area. Recently, improvement works to the Great Northern Highway intersections were completed in order to increase the safety and efficiency of this section of the highway in Port Hedland. The improvement works included:

- construction of a new port access from Great Northern Highway (near Dalton Road) to the developing port facilities on the western side of the port;
- minor realignment of Great Northern Highway and upgrading of intersections between Dalton Road and Wallwork Road; and
- construction of a fourth lane on Great Northern Highway from Wallwork Road to Port Hedland Road intersection

Construction of a four-lane bridge over the railway crossing along Wallwork Road in South Hedland is anticipated to commence in late 2010. Due to expected growth in the number and length of trains crossing Wallwork Road and increasing population the bridge will be constructed to improve traffic flows and reduce delay times for local residents. The State Government has provided \$3 m in funding through the Royalties for Regions program, with a further \$24 m of funding provided by BHP Billiton Iron Ore. Completion is anticipated by mid-2011. A sidetrack will be constructed to allow traffic to continue to use Wallwork Road until the bridge construction and road works are completed.

Investigations are also proceeding for a future re-alignment of Great Northern Highway around the north and west side of the Wedgefield industrial area to further improve the safety and efficiency of the road network. Construction of the Great Northern Highway deviation is scheduled to commence construction in early 2011 and be completed by mid-2014, at an estimated cost

at around \$200 m. There was \$29.4 m allocated in the State Budget 2010/11 towards the reconfiguration of Great Northern Highway in Port Hedland. The project is to be partly funded by the Commonwealth Government.

In the medium to long term consideration should be given to upgrading Port Hedland Highway to a four lane divided standard including a new bridge at a cost estimated at around \$55 m. There is also increasing pressure to grade separate a number of railway level crossings to avoid significant delays for other freight vehicles accessing the port.

Rail

There are currently three mineral export rail systems operating in the Pilbara region. These heavy duty standard gauge railways transport iron ore to port facilities in the region and are operated by BHP Billiton Iron Ore, Rio Tinto and Fortescue Metals Group. These railways are on leased land and subject to Agreement Acts. The leases are 60 metres wide to accommodate service roads as well as railway facilities.

In the Port Hedland area, BHP Billiton Iron Ore owns and operates the Goldsworthy line, running east west to Finucane Island and the Newman line running north-south to Nelson Point. Fortescue Metals Group recently completed construction of a 310 km railway line extending from their mining operations at Cloud Break to Port Hedland (south of the Goldsworthy line). Ore is then transported to stockpiles at Anderson Point via conveyor. Increased traffic on the Goldsworthy line may require the Wallwork Road rail crossing to be grade separated in the future.

Hancock Prospecting plans to construct a railway from its proposed Roy Hill 1 Iron Ore Mining Project, approximately 110 km north of Newman and 285 km south of Port Hedland, to the proposed Port Hedland port multi-user stockyard area located north west of the Boodarie Industrial Estate.

Public freight or passenger rail does not operate in the area.

Ports

In 2009/2010, the Port Hedland Port recorded a total trade of 178.6 million tonnes, which represents an increase of 20 megatonnes from the previous year. The port exported 174 megatonnes of iron ore in 2009/2010 representing approximately 97 per cent of total throughput.

Port Hedland Port currently has 3 public user berths managed by the Port Hedland Port Authority. The capacity of these berths is measured as percentage berth utilisation rather than volume capacity. The maximum capacity of general user berths is 75-80 per cent berth utilisation.

Berth No. 1 is used for bulk commodities such as manganese, chromite ores, and copper concentrate, and is currently operating at close to maximum capacity (67 per cent). To address this issue the Port Hedland Port Authority recently completed construction of a new berth at Utah Point on Finucane Island. The new berth is a bulk commodity export berth catering for smaller resource companies and will assist with alleviating increasing congestion at the three existing common user berths. Relocation of manganese and chromite stockpiles to the Utah Point berth will also improve amenity and reduce dust and health risks at Port Hedland's west end, and will alleviate the impact of truck movements through the town.

Berth No. 2 is used for the export of general cargo and is operating at full capacity (77 per cent). Berth No. 3, which is predominantly used for the export of salt, has a ship loader owned and operated by Dampier Salt. General cargo is also handled at Berth No.3 including fuel and oil, acid, container and break bulk cargoes. Berth No. 3 is operating at approximately 49 per cent capacity.

Planning is under way for the development of an additional 11 berths in the inner harbour over the next five years. It is estimated the additional berths will increase the annual throughput of the port above 470 Mt/a. BHP Billiton Iron Ore has begun construction of an additional two berths at Harriet Point, with a further two within the inner harbour planned as a part of its future growth program. Other berth developments are being progressed by Fortescue Metals Group, Hancock Prospecting and the North West Iron Ore Alliance.

A study into the development of a further 400 million tonne capacity multi-user outer harbour facility off Finucane Island in Port Hedland Port Authority waters, to meet demand for iron ore post 2014, has been completed. To alleviate pressure on the Inner harbour, which currently has an approved capacity of 470 Mt/a, planning for a privately funded multi-user outer harbour facility to provide for additional capacity at Port Hedland is essential. Concept plans for the outer harbour were finalised last year and are currently being considered by the State Government. BHP Billiton Iron Ore has expressed interest in developing part of the outer harbour port facility by calendar year 2015/16 for its future growth program, which involve mine, rail and port expansions.

Growth in import and export of containers and general cargoes, including break-bulk and project cargoes to support project development, and future industrial proponents of the Boodarie Industrial Estate, is also anticipated and planned to be accommodated in the Port Hedland inner harbour. The logistics base planned at Port Hedland Port's Lumsden Point could also support general cargo trade as well rig tender vessels, construction support craft, cement, fuel, ammonium nitrate, and import of Pre Assembled Modules (PAM) and major earth moving, mining and processing equipment. The proposed development of the Lumsden Point support infrastructure facility includes the reclamation of initially 140 ha of port authority land for proponent needs and industrial use to facilitate the development of the oil, gas, mining, processing and infrastructure industries in the North West, and future industry development at the Boodarie Industrial Estate. The Port Hedland Port Authority has commissioned expert consultants to develop a concept design for the support infrastructure facility/logistics base and discussions are being held with a potential major user of the facility, which has expressed interest in developing the facility by 2012.

Construction of a new multi-user deepwater port and industrial precinct at Anketell, 30 kilometres east of Karratha, was announced in March 2010. Complementing existing facilities at Dampier and Port Hedland, the completed port will have an annual export capacity of more than 350 million tonnes and accommodate a range of users and different mineral commodities. The development will also include an industrial area of more than 1400 ha and a corridor for transport and services.

Potential foundation investors in the new precinct include:

- API Management for its 30-40 Mt/a West Pilbara Iron Ore Project.
- Fortescue Metals Group Ltd for its 30-60 Mt/a Solomon Project.
- China Metallurgical Group Corporation for its 15 Mt/a Cape Lambert Iron Ore Project.

The port will be built by a private proponent under an agreement with the State government, with operations anticipated to commence by 2015. A cap will be placed on the port in the future to ensure the viability of existing ports.

Port Hedland International Airport

The Port Hedland International Airport (PHIA), located between Port Hedland and South Hedland, provides for regular passenger transport and general aviation air services. The airport consists of two runways, one at 2500 metres and the other at 1000 metres, and can accommodate aircraft up to and including 737s. The airport currently receives flights from Melbourne, Brisbane, Darwin, Perth and Bali, and is the only airport in the North West with the capacity to handle Antonov freight aircraft.

The Port Hedland International Airport Terminal Expansion Project (under way) is investigating the extension/redevelopment of the terminal to accommodate long-term growth in passenger numbers. In order to accommodate the increase in passenger numbers, it has been estimated that the existing floor space of the airport would need to be increased from 3000 square metres to 4900 square metres. Research undertaken for the draft PHIA Master Plan has predicted that passenger numbers at the airport will increase from 300,000 in 2009/2010 to 600,000 annually within the next five years. The master plan has investigated development potential and development issues over the whole 900 ha airport site, aiming to guide subdivision and development of land owned by the Town of Port Hedland over time, while providing security to airport related uses.

Forecast project activity and associated growth in the short, medium and long term will mean successive upgrades of the airport are required. It is expected that the finalised master plan will include a staged design based on 10, 20 and 30+ year timeframes. The airport upgrade has been identified by the Town of Port Hedland as a priority project with an indicative cost of \$45 m. The current program of improvement aims to create another 200 long-term parking spaces, upgrades of the runway, taxiway and apron and enable the extension of the terminal over the next two years. Private air charter operator facilities may also require upgrades in the future.

The Town of Port Hedland has also authorised a survey to be undertaken to identify the extent of land on the International Airport site which could be leased as a location for transient workforce accommodation. It is intended that the maximum length of the lease period will be set at 10 years. Any further development will need to ensure adequate provision is made so that no additional interference to air traffic is created.

Public transport

A school bus service operates within the Port Hedland public transport area. The service is responsible for providing eligible rural students and those with special educational needs, free transport assistance to and from school on contracted "orange" school buses. These services are critical to ensure students are able to attend school. Twenty three taxis and a regular passenger transport bus service operate between Port Hedland and South Hedland. A review of current and future public transport needs within the town was identified as an action in the Town of Port Hedland's Strategic Plan (2010-2015).

8.5 Education

Port Hedland is served by four government and one Catholic primary school and one government high school, located in South Hedland (see Map 15). Data indicates relatively stable student enrolments for both primary and secondary students over the past five years.

In early 2010 the Pilbara Education Partnership between the State Government and BHP Billiton Iron Ore was launched to provide almost \$3 m funding over two years. The partnership will fund scholarships at Hedland and Newman Senior High Schools, collaborative strategies between primary schools in the Port Hedland area and trade training programs at Hedland Senior High School.

An upgrade of the Hedland Senior High School has been identified by the Town of Port Hedland as a key education project in the short-term (2011-13). Funding of \$4 m has been provided under the Royalties for Regions program with an additional \$4 m provided by BHP Billiton Iron Ore. The upgrade is expected to provide sufficient capacity for an additional 5000 residents in Port Hedland. The total cost of the project has been estimated at between \$8 m to \$14 m.

Future requirements and planning

Of the four public primary schools in the Port Hedland area, two are at their permanent accommodation capacity, but have further room for expansion. The remaining two primary schools have a

number of surplus permanent classrooms. There are currently no plans to develop another primary school for Port Hedland. The Department of Education has indicated that current student numbers and growth potential suggest that an additional high school would be required in the next five to six years. Additional education facilities will be developed subject to local demand.

The Department of Education and Training owns an additional undeveloped site in South Hedland and due to various issues with the site will consider swapping it for a site in the future development area located to the southeast of the townsite (SH18A). This flexibility will ensure the correct siting of any facility in the mid-term future. Additional school sites will be identified as part of strategic planning processes.

Tertiary education

Tertiary education in Port Hedland is provided by two TAFE campuses in South Hedland and a branch of Curtin University operating from the TAFE campus on Hamilton Road. Courses include accounting, construction, engineering, health, hospitality, IT and mining. Curtin University also provides courses in early childhood and primary education through Curtin's regional centre in South Hedland.

Commencing operation in 2007, the Australian Technical College offers courses to year 11 and 12 students. Students enter into an Australian school based apprenticeship in various trades, providing incentives for more students to stay on at school and

encouraging more students to pursue trade qualifications. An initiative of the Department of Education, Employment and Workplace Relations, the college locations were selected based on areas experiencing gaps in the skills required for local industry. The colleges are supported locally through the involvement of local industry groups such as Rio Tinto, BHP Billiton Iron Ore, Woodside Energy and Chevron Australia, and offer courses in metals and engineering, construction, automotive, electrotechnology and commercial cookery.

Table 27: Port Hedland school enrolment trends: 2005-2010 (semester one)

School	2005	2006	2007	2008	2009	2010
Port Hedland						
Port Hedland Primary School	396	351	332	314	304	346
St Cecilia's Catholic Primary School	178	220	229	221	260	270
South Hedland						
Baler Primary School	463	454	460	443	468	548
Cassia Primary School	287	242	267	253	259	272
Hedland Senior High School	736	722	677	636	666	605
South Hedland Primary School	289	291	245	223	218	238
Total primary students	1613	1558	1533	1454	1509	1674
Total secondary students	736	722	677	636	666	605

Source: Schools Online, Department of Education and Training (2010)
Annual Reports 2005, 2006, 2007, 2008, Directory of Catholic Schools 2009, 2010 Catholic Education Office

Future requirements and planning

An upgrade to the Pundulmurra TAFE in South Hedland has been identified in the Town of Port Hedland publication *Hedland's Future Today* as a potential project in the medium-term. The upgrade would include refurbishing, pre-trade workshops, new classrooms, upgraded security, landscaping and has been estimated at \$40 m (indicative cost only).

8.6 Health

Residents of Port Hedland and the wider region are currently served by the recently completed Hedland Health Campus (see Map 15). The \$138 m facility was completed in October 2010 and commenced services in November 2010. This facility replaces the Regional Resource Centre and all associated infrastructure and services on the Kingsmill Street site in Port Hedland. The hospital has 63 beds on site, a 24-hour emergency department and support services buildings. The design intention is to consolidate most hospital, health and administration services onto a single site.

The campus offers a comprehensive range of inpatient services including surgical, specialist obstetrics and emergency services. Population health services are located in both Port Hedland and South Hedland.

Construction of a hostel for renal dialysis patients from Indigenous communities in the Pilbara commenced in late 2009. The hostel will accommodate 20 residents and staff with the possibility to extend to 40 beds in the future. A joint initiative between the State Government and Aboriginal Hostels Limited, the hostel will be built on Crown land adjacent to the new hospital in South Hedland at a cost of \$6 m.

Bed numbers for each of the Pilbara's hospitals is detailed in Table 27.

Future requirements and planning

A partnership was recently established between the State Government (under Royalties for Regions) and the Pilbara Industry Community Council (PICC). The Pilbara Health Initiative

will fund urgently needed equipment and services in the region, through \$32.96 m Royalties for Regions funding and \$5.28 m industry funding delivered over the next three years. Upgrades to the services in the Port Hedland area will include:

- improved emergency transport services including employing rural paramedics to support volunteer ambulance services;
- advanced training to be provided to staff to enhance the region's ability to respond to large-scale emergencies; and
- improved emergency, surgical and paediatric services through employment of specialists in the West Pilbara.

The *WA Health Clinical Services Framework 2010-2020* released by the Department of Health will guide the delivery of public health services across the State for the next 10 years. The blueprint is available at www.health.wa.gov.au/publications/subject_index/.

The Department of Health is also currently preparing a State Health Infrastructure Plan which will outline the management and development of capital assets over the next 10 years.

Table 28: Hospital facilities - Pilbara region

Hospital facility	Same day (number of beds)	Overnight (number of beds)
Newman Hospital	n/a	8
Nickol Bay Hospital (Karratha)	8	20
Onslow Hospital	n/a	6
Paraburdoo Hospital	n/a	2
Hedland Health Campus	18	43
Karlarra House Aged Care (South Hedland)	n/a	56
Roebourne Hospital	n/a	8
Tom Price Hospital	n/a	8
Pilbara total	24	151

Source: Government of Western Australia Department of Health (2010)

Data as at 30 November 2010

Beds: The total number of beds allocated for use by a hospital patient within the hospital or facility. Where n/a is displayed, data is not available or the bed count does not apply to these hospitals or facilities.

The bulk of the Health Services accommodation assets are currently concentrated in Port Hedland. Due to the relocation of the hospital to South Hedland, there is a need to develop more staff accommodation options in this area. A site in the South Hedland town centre (SH54D) has recently been allocated for the development of nurses' accommodation.

Aged care

High and low aged care places are offered at the 56-bed Karlarra House facility in South Hedland. The facility became operational in January 2007.

Pilbara Aged Care Services is a regional service that facilitates and coordinates the provision of non-residential aged care services across the Pilbara, including Port Hedland. Access to Aged Care Assessment, Home and Community Care services and Commonwealth Aged Care Packages are available along with access to the Commonwealth Care Link and Respite Service.

Other health services

There are currently two medical centres operating in the town, one located in Port Hedland, the other in South Hedland. A public dental clinic operates at the community health centre in South Hedland.

8.7 Police, justice and emergency services

Police

The new South Hedland Police Station (replacement facility) was opened in May 2010. The station will provide 24-hour policing to both Port Hedland and South Hedland. The new station houses general duties, traffic enforcement, detectives, prosecuting officers and a modern forensics laboratory. It also contains public and offender interview rooms, a major incident command room, dedicated armoury and custodial facility with six cells, including one padded cell. A smaller station is also located in Port Hedland's West End.

Justice

The South Hedland Courthouse is located adjacent to the police station, and provides services to the surrounding region. The court also acts as a district court registry for the commencement of civil actions.

Emergency services

The town is serviced by a State Emergency Service (SES) unit, volunteer fire brigade and ambulance service. These services operate out of dispersed facilities in the West End, South Hedland and the Port Hedland airport. While it may be necessary to maintain separate facilities in both Port Hedland and South Hedland, amalgamation of resources in a more central location may reduce costs and improve responses to large scale emergencies.

The location of police, justice and emergency service facilities is shown on Map 15.

Future requirements and planning

The South Hedland Police Station is a new facility designed to meet the anticipated needs of the expanding community. The Port Hedland Police Station is currently programmed for replacement in the medium-term. The level and timing of any future investment will be influenced by evolving statewide service delivery priorities and available funding.

The Town of Port Hedland publication *Hedland's Future Today* identifies an upgrade of the court facilities to provide capacity for extra magistrate/s as a potential project in the medium-term (2013-18). The Town of Port Hedland has also recognised a need to identify a site for a manned fire station in South Hedland in the short-term (2011-13).

8.8 Waste management

The South Hedland landfill facility located at the end of North Circular Road is a class 2 landfill, which means it is authorised to accept certain hazardous wastes including asbestos, synthetic mineral fibres and some potentially hazardous industrial materials. The site is adjacent to an area identified for future urban development (see Map 15).

Future requirements and planning

The Town of Port Hedland has engaged consultants to review management and operations of the South Hedland Waste Management Facility. The scope of works for the Landfill Strategic Plan includes formulating options for expansion of the current landfill facility or development of a new facility and investigating opportunities for recycling. The Town of Port Hedland has also identified development of a regional recycling facility at Port Hedland as a potential waste management project in the medium-term (2013-18).

8.9 Communications

Port Hedland and South Hedland are connected to the Telstra fibre network which provides broadband internet capability. There is currently capacity for additional connections in the fixed line ADSL Telstra network in both Port Hedland and South Hedland. Wireless internet is provided by Telstra and Optus in both Port Hedland and South Hedland.

Future requirements and planning

The Town of Port Hedland has identified the Wireless North project as a potential short-term (2011-13) telecommunications project in *Hedland's Future Today*. The aim of the project is to upgrade the existing network to achieve continuous mobile phone coverage along North West Coastal Highway to Broome and offshore shipping. The provision of fibre optic connections to all houses in Port Hedland, including the South Hedland Fibre Optic Program has also been included as a potential project in the short-term at an estimated cost of \$36 m.

In 2009 the Federal Government announced the establishment of a new company to build and operate a new super-fast National Broadband Network. For most premises, the National Broadband Network will use either Gigabit Passive Optical Network (GPON) or Ethernet Point-to-Point fibre and will link some premises

by wireless or satellite, depending on location and geography. Indicative planning shows that residences in Port Hedland are likely to receive optical fibre services. It is expected that it will take approximately eight years to build and operate a National Broadband Network. The Town of Port Hedland has identified a goal of early inclusion in National Broadband Network, to provide affordable access to high-speed broadband telecommunications.

8.10 Basic raw materials

No comprehensive regional assessment has yet been made of the availability and source of all the basic raw building materials needed for Port Hedland's expansion. These include sand, clay, hard rock, limestone, metallurgical limestone, gravel and other construction and road building materials. The materials themselves are relatively cheap to produce, but to keep building costs down it is essential that supplies are identified as close to the town as possible.

Port Hedland's expansion will consume large quantities of basic raw materials. For example, several proposed industry and residential sites will need large quantities of fill to raise them above flood levels.

There has not been a comprehensive regional assessment of basic raw materials. Although some site-specific studies for Karratha were undertaken - notably Gozzard (1989), and Martinick (1997) - they did not extend to Port Hedland. In addition, the information is limited and data for some resource extraction areas may be out of date. The Karratha studies revealed a shortage of materials suitable for fill and it is likely that a similar shortage exists in Port Hedland. Locations where sand is available may also be constrained by environmental considerations or the fact that it is located in significant heritage sites. To date, the utilisation of potential substitutes have not been fully explored.

This has become a critical issue to be addressed in the Pilbara. It is essential that a program be introduced to determine the availability of supplies and consider the cost effectiveness of using alternative sources where supplies are limited. Estimation of the amount of fill required is critical in determining the feasibility of various projects in Port Hedland. Completion of the coastal vulnerability assessment (currently being prepared) will assist with determining fill requirements for these projects.

8.11 Other community infrastructure

Provision of community infrastructure is essential for maintaining health and wellbeing of communities. This type of infrastructure is often planned, funded and delivered in an uncoordinated manner through federal, state, local and private-sector mechanisms and, in some cases, is not adequately aligned with population growth and urban expansion. There is now significant pressure to ensure that social infrastructure is delivered in line with population growth, and a need to better define the roles and responsibilities of federal, state, and local governments and the private sector in the delivery of this type of infrastructure and services. More effective outcomes may also be realised as a result of more integrated land use and infrastructure planning.

In recent times, local government has experienced an increasingly expanding role in the provision of community infrastructure, which may not necessarily be aligned with their revenue raising capacity. Limited funding, coupled with evolving community demands, increased expectations and lifestyle changes has put pressure on State and local governments to maintain existing infrastructure and develop new infrastructure.

The location of some of these facilities is shown on Map 15. The dispersed development pattern of Port Hedland has led to duplication of many public facilities, which stretches the available resources and limits the range and quality of services possible in each location.

Open space and recreation

Both Port Hedland and South Hedland are well supplied with open space and recreation facilities. There is some duplication of facilities given the need for these facilities to be close to existing residents. Existing recreation facilities in Port and South Hedland are listed in Table 28 and Table 29. There are a wide range of sporting clubs operating in the town.

Construction of a new multi-purpose recreation centre commenced in late-2010 following the appointment of contractors in July 2010. The project includes construction of a new recreation centre, covered outdoor courts, a new oval, access roads and a caretaker's residence, with the aim for the centre to become the focal point of organised recreational activity in Hedland. The project has a total cost of \$35.3 m, with funding coming via a partnership between the Town of Port Hedland, BHP Billiton Iron Ore, Royalties for Regions, Compass Group, Auzcorp and others. Completion is anticipated for May 2012.

Table 29: Recreation facilities - Port Hedland

Facility	Number	Usage (high/medium/low)
Aquatic centre (50m pool)	1	medium
Race course	1	low
Equestrian centre	1	low
Soccer/ hockey oval	1	high
Oval	2	high
Rugby oval	1	high
Cricket nets	2	medium
Tennis club	1	medium
Skate park	1	low/medium
Boat ramps	2	high

Table 30: Recreation facilities - South Hedland

Facility	Number	Usage (high/medium/low)
Aquatic centre (50m pool)	1	high
Netball courts	7	medium
Cricket nets	1	medium
Tennis and bowling club	1	high
Skate park	1	high
Youth Centre	1	high
Base Pitch	1	high
Oval	1	high
Boat ramps (Finucane Island)	2	high

To facilitate construction of the multi-purpose recreation centre, Kevin Scott Oval will be closed until early 2012. The Town of Port Hedland is continuing consultation with stakeholders to secure alternate facilities for sporting clubs which currently use Kevin Scott Oval. A proposal has been put forward to use Hedland Senior High School Oval in the short-term after upgrading facilities to include lighting, ablution, a temporary kiosk and an upgrade to the playing surface.

Concept designs for a staged upgrade of the South Hedland Aquatic Centre have been accepted by the Town of Port Hedland for use in public consultation. Funding for stage 1 of the upgrade has been provided by the Department of Sport and Recreation, BHP Billiton Iron Ore and the Town of Port Hedland. Stage 1 of works would include an upgrade of the 50 metre competition pool, a new spectator stand and an upgrade to existing change rooms. Funding for stages 2 and 3 of the redevelopment project is yet to be finalised.

Following consultation which commenced in October 2008, a landscape masterplan has been prepared for the proposed development of Marquee Park. The proposed park is located on Cottier Drive in the centre of South Hedland. Construction is expected to commence in late 2010. The first phase of the project has been estimated to cost \$4.5 m and will be funded through the Town of Port Hedland, BHP Billiton Iron Ore, the South Hedland New Living Project and Newcrest Mining. Council is currently seeking additional funding required for the second phase of the construction works.

Future requirements and planning

Proposals have been put forward for relocation of the racecourse and greater sportsground currently located on McGregor Street in Port Hedland. Relocation and rationalisation of these uses to the eastern portion of this site would unlock the western portion to be developed for town centre purposes. A master plan has been prepared. Redevelopment of the McGregor Street reserve has been identified as one of the Town of Port Hedland's top 10 priority projects as part of the *Hedland's Future Today* document.

It is expected that sporting and community programs will be transferred from the JD Hardie Centre to the Multi Purpose Recreation Centre in South Hedland in 2012.

As part of the South Hedland revitalisation project, LandCorp has requested the Town of Port Hedland to consider relocating the existing skate park to another location. The Town of Port Hedland has previously indicated it does not support the LandCorp proposal to relocate the existing South Hedland skate park. The Town of Port Hedland has indicated support for the closure of a portion of the skate park to allow construction works associated with the realignment of Colebatch Way. Further consultation with the community will be undertaken by LandCorp to assess the possible extension of the eastern end of the existing skate park.

The Town of Port Hedland has identified continuation of the Hedland Park Improvement Program as a short-term sports and leisure project in *Hedland's Future Today*. The project involves development of additional facilities at Cemetery Beach (cost of \$6 m funded from Royalties for Regions) and the creation of Koombana Community Park in South Hedland (cost of \$3 m funded from Royalties for Regions). Other neighbourhood park upgrades include Shay Gap, Demarchi, Marapikurrinya and Pretty Pool Parks.

The Town of Port Hedland has also identified a need to develop local sports facilities including construction of the South Hedland Bowling and Tennis club, including a café, play centre and function room at an estimated cost of \$3.5 m. Upgrades to lighting at sports facilities, and an upgrade/resurface of the Faye Gladstone Netball Courts have also been identified. These works have been identified as short-term projects.

Youth services

Current youth services in Port Hedland include:

- Youth services at Hedland Youth Zone (formerly JD Hardie Centre)
- Youth Development Coordinator funded by the Town of Port Hedland
- Youth leadership development through Hedland Youth Leadership Coalition
- Hedland Young Leaders Program facilitated annually
- Youth Involvement Council services to at-risk youth

Refurbishment of the Hedland Youth Zone commenced in mid-2010. The refurbished Hedland Youth Zone will include active and passive recreation spaces, offices for youth service providers (government and non-government) and external recreational facilities and spaces including courts, multi-wheeled tracks and shaded spaces. The project has been funded through a partnership between the Town of Port Hedland, BHP Billiton Iron Ore, Royalties for Regions, Newcrest Mining and others at a cost of \$9.55 m.

Future requirements and planning

The Town of Port Hedland will continue developing the Hedland Youth Zone (formerly the JD Hardie Centre) including a youth lounge, basketball courts, outdoor stage, kiosk and Youth Council office. The project is expected to be completed in late May 2011.

Arts and cultural facilities

The Port Hedland Courthouse Gallery offers visual arts, retail and some performing arts facilities. The facility is managed under contract by FORM for the Town of Port Hedland.

The Matt Dann Cultural Centre in South Hedland provides movies and live shows. The centre is funded and run by the Town of Port Hedland.

Future requirements and planning

The Town of Port Hedland publication *Hedland's Future Today* identifies development of a cultural and tourist precinct in West End of Port Hedland as a potential project in the short-term (2011-13). The project would include relocating the visitor centre to allow development of Marapikurrinya Tower and Interpretation Centre Project in conjunction with the Port Hedland Port Authority. The cost to develop the facility is estimated at \$22.5 m.

The Town of Port Hedland has also identified development of an Aboriginal arts and cultural centre as one of the top 10 priority projects in *Hedland's Future Today*. The centre will provide a range of opportunities for local indigenous people to practice art and showcase their culture. The estimated cost of the project is \$40 m with commencement in the short-term (2011-13). Feasibility studies are currently underway, including identification of potential sites.

Libraries

Library sites are operated by the Town of Port Hedland in both Port Hedland (Keesing Street, Cooke Point) and South Hedland (town centre, adjacent aquatic centre). The libraries offer a range of print materials, computing and internet services and pre-school and holiday activities. Both facilities are heavily utilised by the community.

Future requirements and planning

Both facilities could be more conveniently located, and would benefit from being integrated with commercial and retail facilities. The South Hedland Town Centre Development Plan identifies the site accommodating the existing library as suitable for tourism uses (hotel development). The Town of Port Hedland has prepared a draft *Library Services Plan* which recommends the construction of a new Library and Community Centre on the South Hedland Aquatic Centre site. It is proposed that the redevelopment site in South Hedland include commercial facilities including a book shop and cafe. The Town of Port Hedland will undertake master planning for the integrated development of the new South Hedland Library and Community Centre and the Aquatic Centre on one site. The South Hedland Community Centre and Library has been identified as one of the top 10 priority projects by the Town of Port Hedland in *Hedland's Future Today*. The cost of the project is estimated at \$21 m with completion anticipated by August 2012.

The draft *Library Services Plan* also recommends the existing Port Hedland library be relocated to downtown Port Hedland (corner MacKay and Richardson Streets) in line with the West End renewal project. It is anticipated that a feasibility study to determine the optimal location for a new library in Port Hedland will be undertaken in 2012/13.

Childcare

There has been a critical shortfall in childcare services across many towns in the Pilbara region over recent years. The situation is exacerbated by the region's demographic profile, characterised by a high workforce participation rate, coupled with low numbers of extended family, who would traditionally provide childcare support. Low wages for childcare workers also means that qualified and experienced staff may seek higher paid positions with less responsibility.

Centre based childcare:

There are childcare providers in Port Hedland offering long day care and out of school care. There are three childcare providers in South Hedland, one operating long day care, and one offering long day care and out of school care. The average waiting time for the three centres has been reported at between 6 and 12 months for two of the centres and at approximately 24 months for the third centre. An additional centre in Port Hedland which will add 118 places has yet to officially open.

Family day care:

The Pilbara Family Day Care Scheme offers child care in the home of a licensed provider. The Pilbara Family Day Care Scheme has been managed by the Town of Port Hedland since its inception 1994.

Playgroups:

Two playgroups are currently operating: Cooke Point Playgroup and baby club in Port Hedland and South Hedland Playgroup.

All childcare services have waiting lists due to the lack of qualified staff. Centres currently have places, but are not able to meet the child/staff ratio licensing requirements.

Future requirements and planning

The Town of Port Hedland has signalled its intent to undertake further detailed studies into existing and projected childcare demand and to identify strategies to increase the provision of childcare places. The Town of Port Hedland publication *Hedland's Future Today* has identified implementation of a Child Care Plan as a medium-term project (2013-18) including the refurbishment or development of a childcare centre to create 100 places plus staff quarters at an indicative cost of \$12 m.

8.12 Town of Port Hedland priority projects

A list of 10 priority infrastructure projects (Table 30) has been prepared by the Town of Port Hedland to assist in the strategic planning and development of Port Hedland. The list of priority projects was endorsed by Council in October 2010 and forms the basis of an update of the action blueprint *Hedland's Future Today*. Endorsement of the priorities list does not commit Council to funding; however, the document will be used to guide the development of a ten year financial plan.

Table 31: Priority projects - Hedland's Future Today

Project	Budget	Implementation
Airport upgrade	\$45 m	2011/12
South Hedland Town Centre Revitalisation - Stage 2	\$40 m	2011
Development of the Spoil Bank Marina	\$78 m	2013
Marapikurrinya Tower	\$22.5 m	2012
Relocation of the Port Hedland sewerage treatment ponds	\$45 m	2012
Utilities infrastructure for city growth		
South Hedland Community Centre and Library	\$21 m	2011
Coastal access and managed camping	\$5.5 m	2012
McGregor Street Reserve development		2010
Aboriginal arts/cultural centre	\$40 m	2012

Source: Town of Port Hedland (2010)

Infrastructure – for more information see the following links:

Department of Treasury and Finance: www.dtf.wa.gov.au see Western Australian State Budget 2010-11: www.ourstatebudget.wa.gov.au

Horizon Power: www.horizonpower.com.au see Pilbara Underground Power Project

Infrastructure Australia: www.infrastructureaustralia.gov.au see Government Infrastructure Plans - Western Australia

Port Hedland Port Authority: www.phpa.com.au

Town of Port Hedland: www.porthedland.wa.gov.au see Hedland's Future Today 2010

Water Corporation: www.watercorporation.com.au see Pilbara Water and Wastewater Service > East Pilbara Water Supply Scheme

9 Royalties for Regions

Each year the State Government's Royalties for Regions initiative will see the equivalent of 25 per cent of the State's annual revenue from mining and resources royalties reinvested in regional communities. The initiative will provide additional investment to help regional communities plan for their longer term sustainable development. Funds will be available for regional infrastructure, services and capacity building projects.

Funds will be invested in rural and regional Western Australia based around six policy objectives:

- building capacity in regional communities;
- retaining benefits in regional communities;
- improving services to regional communities;
- attaining sustainability;
- expanding opportunity; and
- growing prosperity.

9.1 Delivery Mechanisms

Country Local Government Fund

The fund aims to address infrastructure backlogs across the country local government sector and promote strategic infrastructure development and asset prevention and renewal. In 2010/11, \$101.7 m has been allocated between three components, these being:

- Country local governments - allocation to individual local governments;
- Regional groups of country local governments - allocation to fund larger-scale infrastructure projects providing wider community benefits across a region; and
- Department of Local Government - to support those local governments moving towards voluntary amalgamation along with support for strategic and asset management planning within the local government sector.

Local governments in the nine regional development regions, as defined by the *Regional Development Commissions Act 1993* are eligible for funding.

Regional Community Services Fund

The fund is designed to improve the access to services in the regions. Some of the projects supported by the fund include the Patient Assisted Travel Scheme, Boarding Away From Home Allowance, Royal Flying Doctors Service, Community Resource Centres and Country Age Pension Fuel Card.

Regional Infrastructure and Headworks Fund

The fund supports large scale, strategic regional infrastructure and headworks projects. The fund also includes an annual allocation for the Regional Grants Scheme which offers contestable funds for private and public organisations to improve and develop infrastructure and services in the regions.

9.2 Decision-making criteria

Country Local Government Fund

Funding in 2010/11 will be provided to individual local governments and regional groups of local governments to promote strategic infrastructure development and asset preservation and renewal. Individual local government allocations must be spent on individual local government infrastructure asset renewal and/or infrastructure asset creation (capital works component). Allocations to regional groups of local governments are to be spent on larger scale infrastructure projects which clearly demonstrate wider community benefits across a region (infrastructure such as roads, railways, communications, ports, energy related initiatives or any other infrastructure projects considered to provide regional benefits). Funding allocated to the Town of Port Hedland in 2010/11 under the various components of this fund is shown in Table 31.

Regional Community Services Fund

Allocations will be provided to programs that:

- assist regional communities achieve improved access to a range of community services;
- assist regional communities overcome disadvantages caused by remoteness; and
- attract and retain essential regional government employees.

Regional Infrastructure and Headworks Fund

Funds will be allocated to projects that:

- are acknowledged as being of strategic importance to Western Australia;
- apply broadly to a region; and
- do not fall neatly into the responsibilities of one State Government department or local government for implementation.

The Regional Grants Scheme will be administered by the nine Regional Development Commissions, including assessing applications and determining grants.

Table 32: Country Local Government Fund Allocations

Local Government	Allocation type	2010/11 allocation (\$ excluding GST)
Port Hedland	Direct to local government	918,883
Port Hedland	Regional groups of local government	494,783

Source: Country Local Government Fund Allocations 2010/11, Department of Regional Development and Lands (2010)

Royalties for Regions – for more information see the following links:

Department of Regional Development and Lands:
www.rdl.wa.gov.au

Royalties for Regions:
www.royaltiesforregions.wa.gov.au

10 Glossary

Crown land

Alienated land is land held in freehold.

Crown land is defined as all land, not being alienated land, within the limits of the State of Western Australia that form the airspace, seabed and subsoil of marine waters and coastal waters as defined under the *Commonwealth's Coastal Waters (State Powers) Act 1980*. Crown land is referred to as State land in Western Australia.

Freehold land is land held in fee simple, whether absolute, conditional or otherwise, of that land.

Notice of intention to take is a notice issued under section 170 of the *Land Administration Act 1997* and served on a landowner and any person affected by land the subject of a proposed public work. The notice provides interest holders with the opportunity to formally object to the taking of the land for the public work.

Tenure means the manner of possessing or holding Crown land for a specific purpose or purposes, for example: reserve tenure, road tenure.

Unallocated Crown land (formerly known as vacant Crown land) is Crown land that is not subject to any interest (other than Native Title interests under the *Native Title Act 1993*) and which is not reserved or declared or otherwise dedicated under the *Land Administration Act 1997* or any other Act.

Population

Estimated resident population (ERP) - Available for local government areas only, this figure represents the number of people counted in an area on 30 June. It is calculated by:

- adding the people who were temporarily absent from the area on census night;
- subtracting the overseas visitors counted in the area on census night;
- augmenting the figure for estimated net undercount in the census;
- adjusting for difference between census night and 30 June; and

- updating each year using administrative data from a variety of sources.

ERPs are the official population figures for Australia. They are widely used as a basis for Government decision-making, including the allocation of seats in federal parliament and distribution of Commonwealth grants.

Net undercount - Immediately following the census, the Australian Bureau of Statistics (ABS) conducts a post-enumeration survey in randomly selected households to get a picture of the net undercount. This factors-in the human error associated with collection of census data. Factors contributing to undercount include geographic location, ethnicity, people travelling, errors with the census form, confidentiality. People may also be counted more than once if they were away from home on census night, but were included on the census form at their usual residence. In the 2006 census the estimated net undercount in WA was 3.2 per cent. This figure was 4.4 per cent for the balance of Western Australia, and 2.7 per cent for Perth.

Place of enumeration - This count includes every person who spent census night in Australia based on where they were on census night. The figure includes residents, tourists, visitors and service populations. This data is available for towns, localities and postcode areas.

Place of usual residence - The number of people who state an area on the basis of where they usually live, rather than where they were on census night. This can be a subjective measure as it depends where people consider their home to be. This data is available for towns, localities and postcode areas.

Service populations - People who demand goods or services from providers of such commodities. Such persons may be permanent or temporary residents of the area from which the service is sought, or they may be daytime visitors (including commuters), overnight or short-term visitors to the area or fly-in fly-out workers. Service populations are not counted separately at the census but may represent up to 25 per cent (in the Pilbara) of the number of people enumerated in a town or locality on census night.

Subdivision approvals

Conditional approval is granted by the Western Australian Planning Commission (WAPC) for subdivision to begin subject to certain conditions being met. The approval is preceded by an assessment of the proposed subdivision plan by statutory referral agencies, including servicing authorities. On receipt of conditional approval, the proponent may commence subdivision development in accordance with the conditions of approval. A conditional approval remains valid for three years where five lots or less are approved and for four years where six lots or more are approved.

Current valid conditional approvals refer to those conditional approvals that are still valid but have not yet been issued with final approval. In general, these are approvals for which construction/servicing has not yet commenced or is currently underway (see **active conditional approvals**).

Active conditional approvals refer to conditionally approved lots where a servicing agreement (agreement to construct) has been signed between the Water Corporation and the developer. These are termed lots on non-cleared agreements.

Inactive conditional approvals are where conditional approval has been granted and the approval is still valid, but where a servicing agreement (agreement to construct) has not been signed between the Water Corporation and the developer.

Lapsed conditional approvals are those where the approval has expired and the conditions have not been met.

Final approval is the WAPC endorsement of the proponent's submitted plan/diagram(s) of survey describing the now complete subdivision; constructed in accordance with the conditions set down in the conditional approval. Final approvals are then registered with the Office of Titles where certificates of titles for the newly created lots can be issued.

Planning

Local planning schemes are detailed planning schemes developed by local governments to identify the range of permitted land uses within specified locations. Within the Metropolitan Region Scheme and Peel Region Scheme areas, local planning schemes must be consistent with the provisions identified within the relevant region scheme.

A scheme amendment is the process of changing zones or reservations from one use to another. The amendment process requires proposed amendments to be advertised for wider community and government comment. The amendment process is regulated by the *Planning and Development Act 2005*, allowing for extensive community consultation to review the proposal before a final decision is made.

Local planning strategy contains the strategic plan and policy context of a local planning scheme. The strategy sets out the general aims, intentions and desired outcomes for long-term growth and change, having regard to social, economic and environmental factors. An assessment of the capacity of infrastructure such as water, sewerage, electricity and roads is also usually considered in a local planning strategy. Residential densities and commercial centres may also be identified.

Structure plan refers to a document including spatial plans that details the proposed layout of a future development area. The preparation of a **structure plan** is one of the first steps in progressing proposals for the development of new areas. In addition to illustrating details such as road configuration and the location of retail and community facilities such as shops, schools and public open space, a structure plan can also show details such as housing density, land use classifications and buffer zones. Structure plans highlight opportunities and constraints in an area, and can provide the basis for amendments to local planning schemes. Structure plans can generally be categorised as either region, district or local structure plans.

Building approvals

A house is a detached building primarily used for long-term residential purposes. It consists of one dwelling unit. For instance, detached "granny flats" and detached dwelling units (for example, caretaker's residences) associated with a non-residential building are defined as houses. Also includes "cottages", "bungalows" and rectories.

Other dwellings include all dwellings other than houses. They can be created by: the creation of new other residential buildings (for example, flats); additions/alteration work to an existing residential building; either new or alteration/addition work on a non-residential building; conversion of a non-residential building to a residential building creating more than one dwelling unit.

Dwelling commencements - A dwelling unit is a self-contained suite of rooms, including cooking and bathing facilities and intended for long-term residential use. Units (whether self-contained or not) within buildings offering institutional care, such as hospitals, or temporary accommodation, such as motels, hostels and holiday apartments, are not defined as dwelling units. A building is commenced when the first physical building activity has been performed on site in the form of materials fixed in place and/or labour expended (this includes site preparation but excludes delivery of building materials, the drawing of plans and specifications and the construction of non-building infrastructures, such as roads).

Other

Vacant lots refer to those lots that are undeveloped (ie have no premises constructed on the lot) and that are located on residential or special zones as designated under the various local planning schemes in Western Australia. The base information is provided by the Valuer General's Office.

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Australian Bureau of Statistics

www.abs.gov.au

Australian Housing and Urban Research Institute

www.ahuri.edu.au

Chamber of Commerce and Industry Western Australia

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Chamber of Minerals and Energy Western Australia

www.cmewa.com

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Department of Education, Employment and Workplace Relations

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Department of Fisheries

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Department of Health

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Department of Housing

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Department of Local Government

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Department of Mines and Petroleum

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Department of Regional Development and Lands

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Department of State Development

www.dsd.wa.gov.au

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Department of Water

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LandCorp

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Main Roads Western Australia

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Pilbara Cities

www.pilbaracities.com

Pilbara Development Commission

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Tourism Western Australia

www.tourism.wa.gov.au

Town of Port Hedland

www.porthedland.wa.gov.au

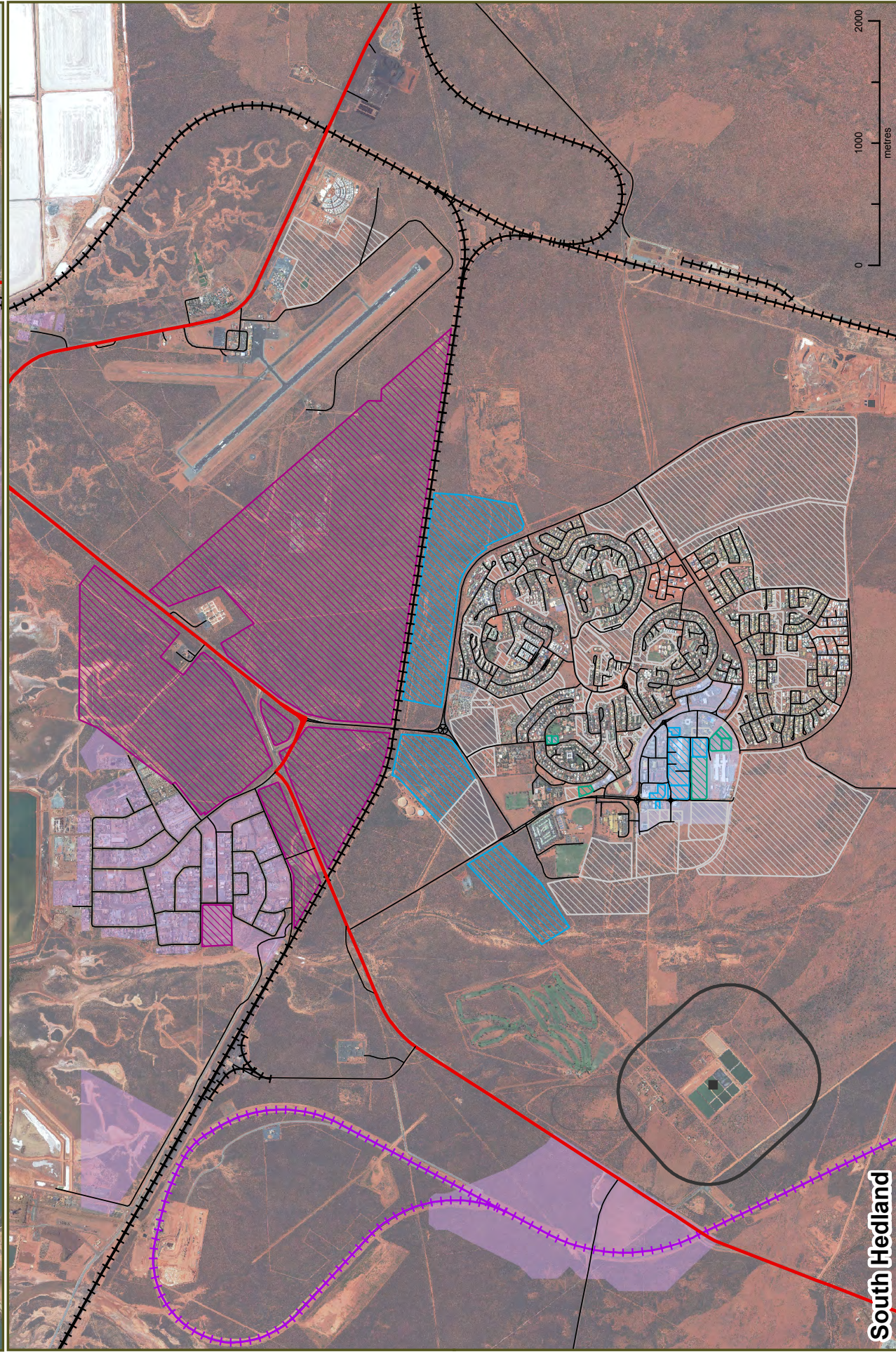
Water Corporation

www.watercorporation.com.au

13 Acknowledgements

The following agencies/organisations were invited to contribute to this report:

- BHP Billiton Iron Ore
- Chamber of Minerals and Energy
- Department of Agriculture and Food
- Department of Child Protection
- Department of Corrective Services
- Department of Education
- Department of Education Services
- Department of Environment and Conservation
- Department of Health
- Department of Housing
- Department of Indigenous Affairs
- Department of Mines and Petroleum
- Department of Regional Development and Lands
- Department of Sport and Recreation
- Department of State Development
- Department of Transport
- Department of Treasury and Finance
- Department of Water
- Disability Services Commission
- Fortescue Metals Group
- Horizon Power
- LandCorp
- Main Roads Western Australia
- Office of Energy
- Pilbara Development Commission
- Port Hedland Port Authority
- Tourism WA
- Town of Port Hedland
- Water Corporation
- Western Australia Police



MAP 1:

Future Development Overview - Port Hedland

Urban Development Program

Legend

Potential expansion areas

- commercial/retail/mixed business
- industrial
- residential/workforce
- accommodation/tourism
- mixed use
- rural residential

Existing zoned areas (by zone category)

- commercial, mixed business, town centre zones
- industry, strategic industry zones
- residential/urban development zones

Infrastructure

- wastewater treatment plant
- wastewater treatment plant buffer

Road network

- highways (sealed)
- local roads (sealed)

Rail network

- BHP Billiton
- Fortescue Metals Group (FMG)

Map Details

Port Hedland

South Hedland

Logos

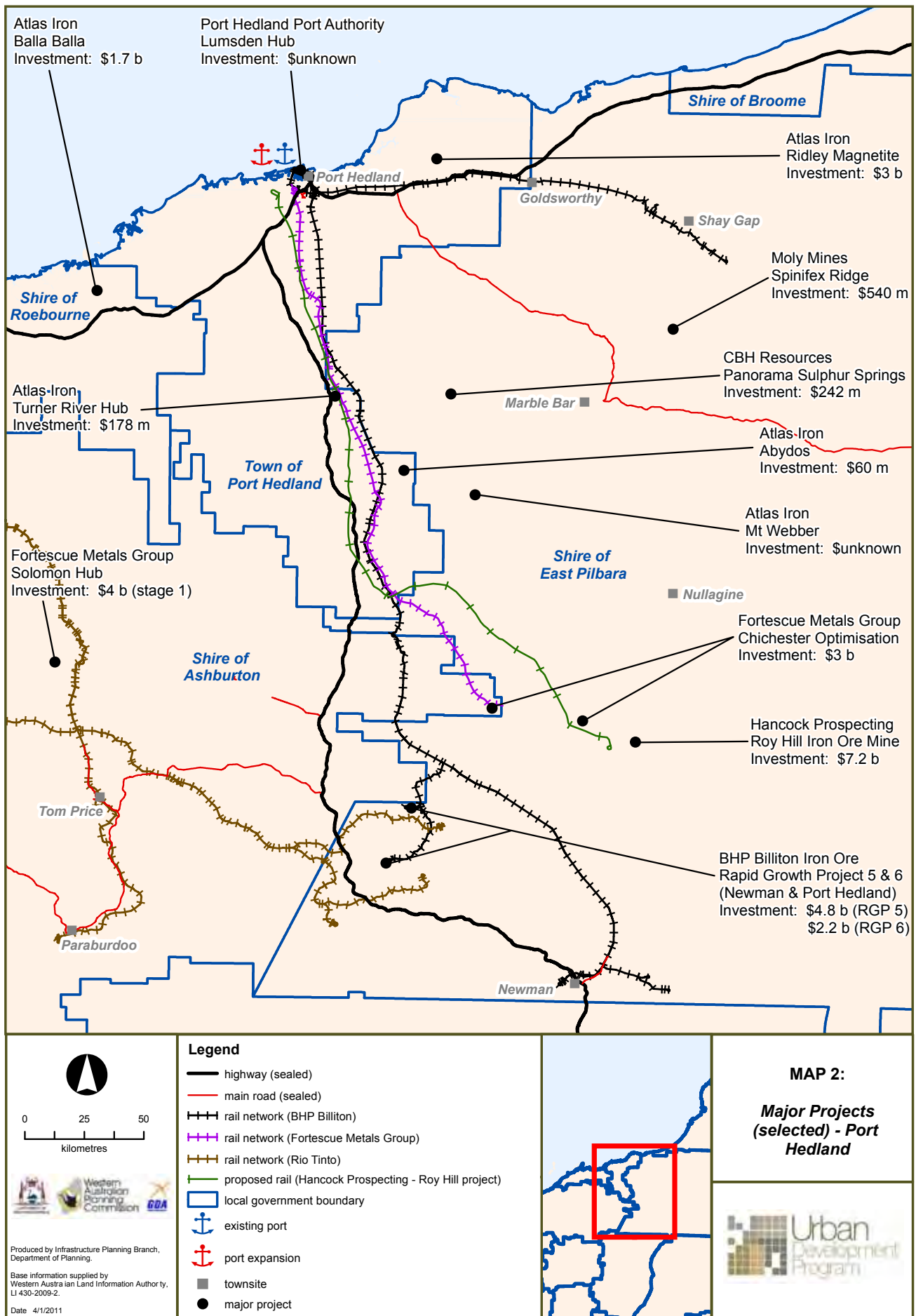
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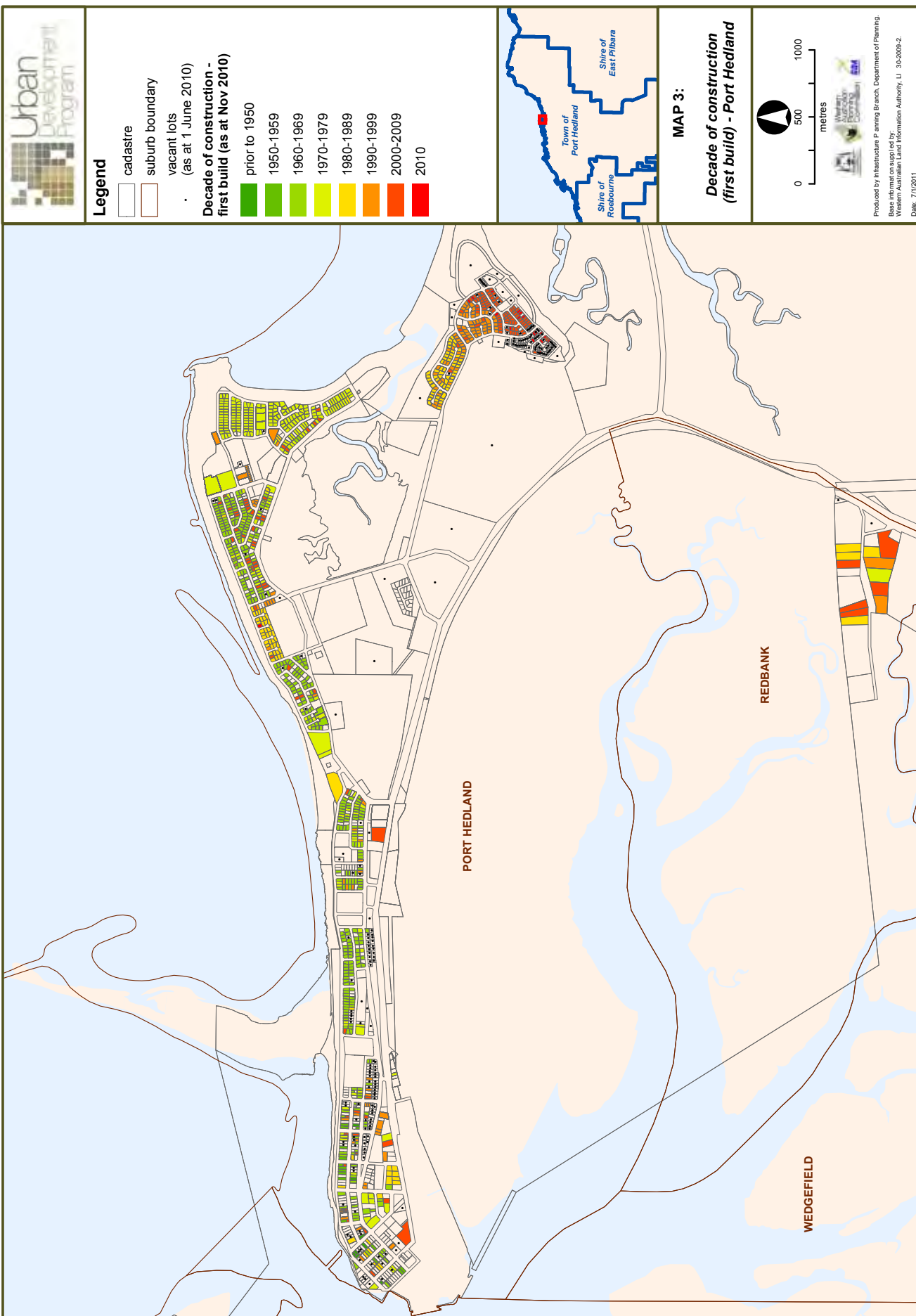
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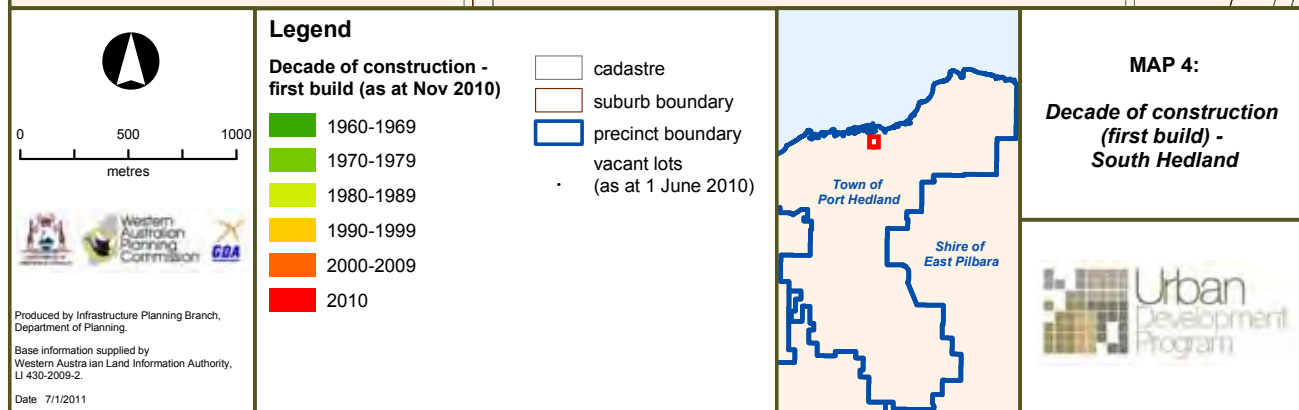
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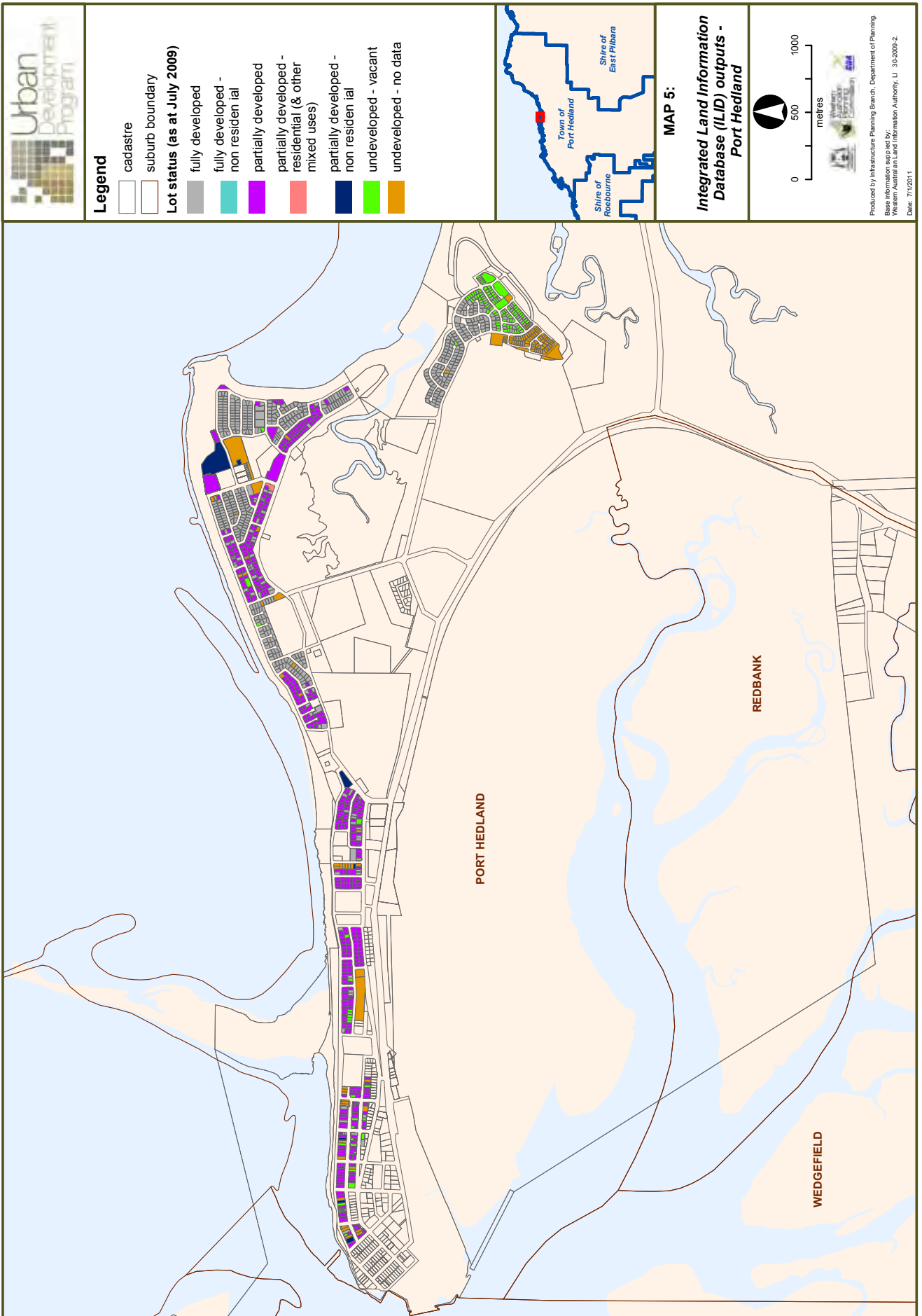
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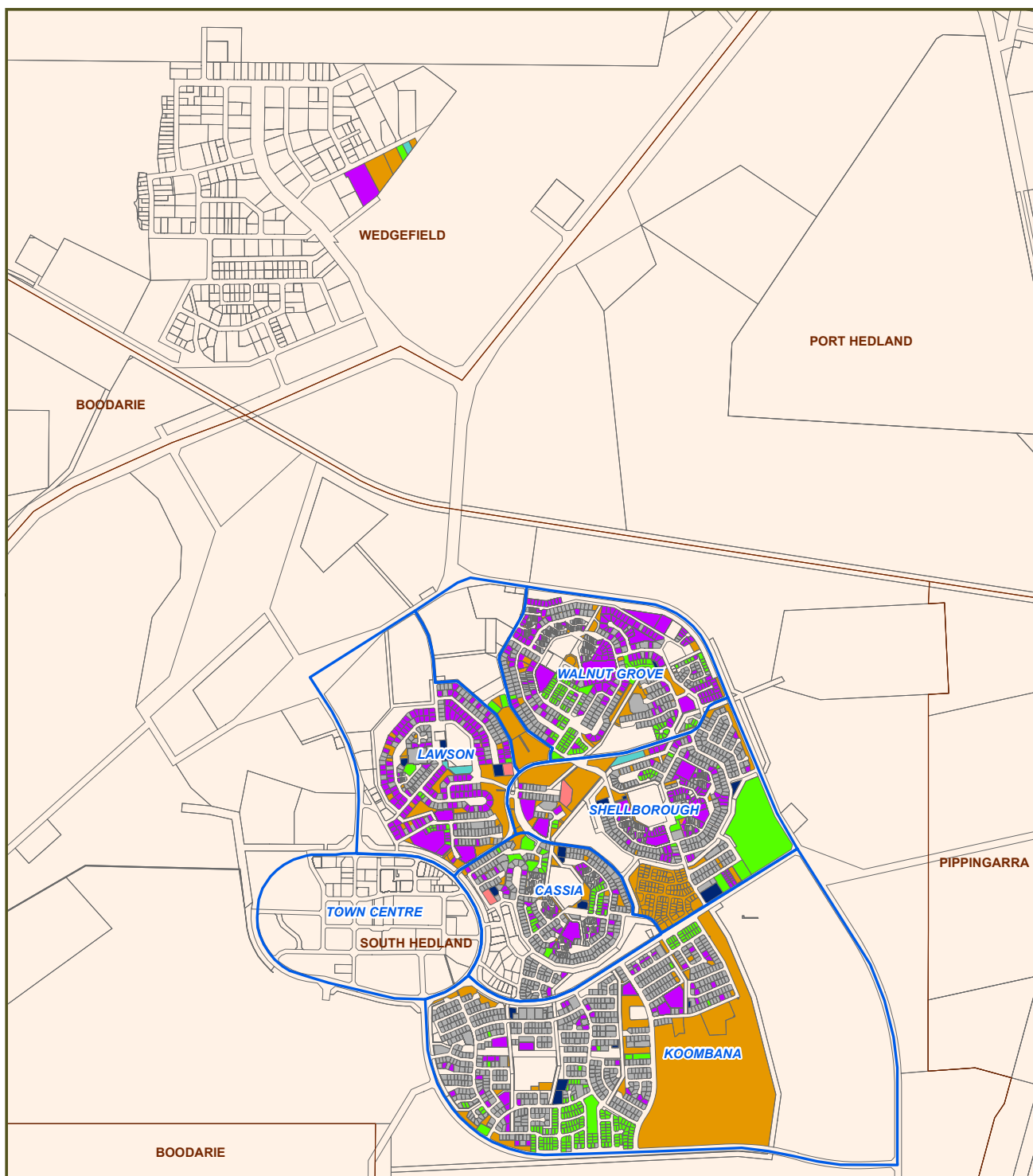
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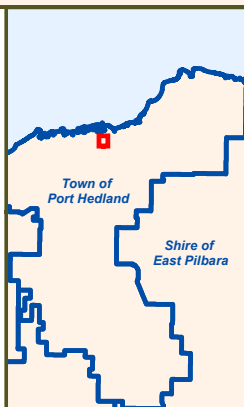
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Legend

Lot status (as at July 2009)

- fully developed
- fully developed - non residential
- partially developed
- partially developed - residential (& other mixed uses)
- partially developed - non residential
- undeveloped - vacant
- undeveloped - no data

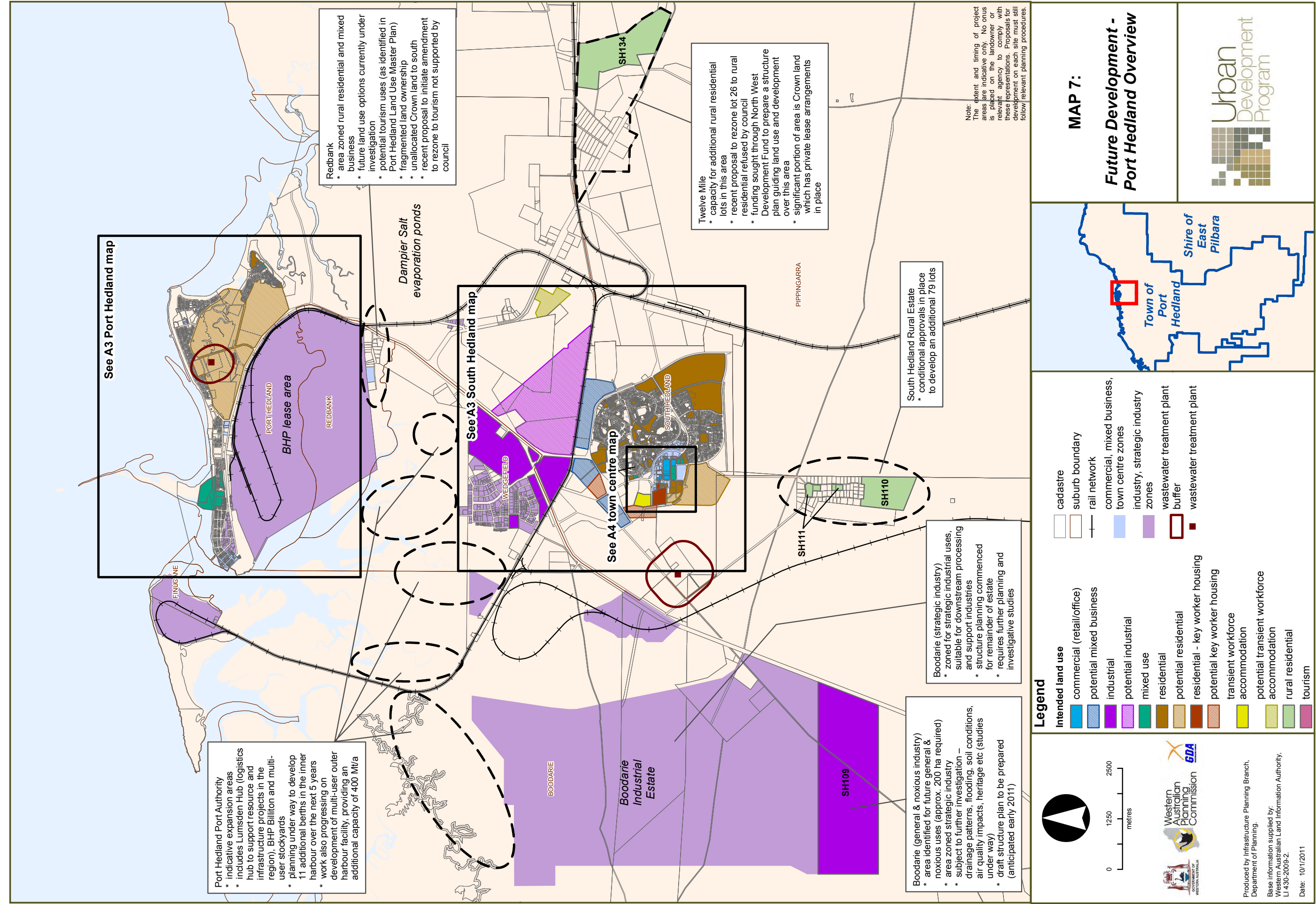
- cadastre
- suburb boundary
- precinct boundary

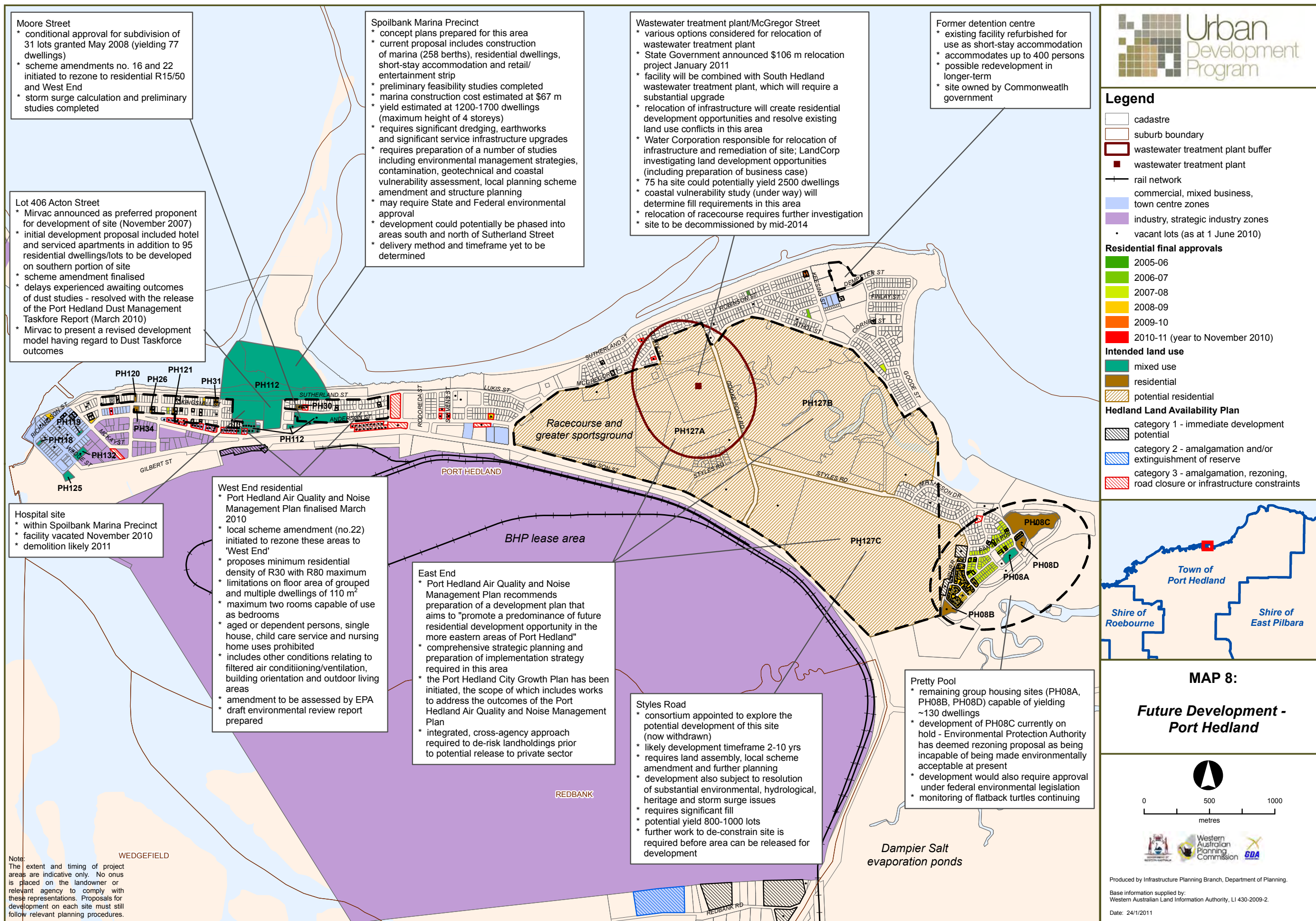


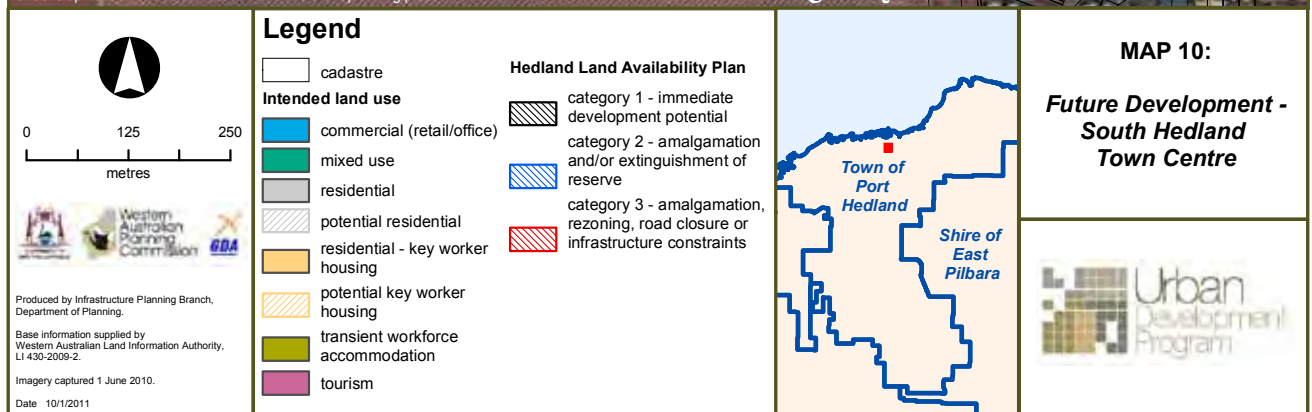
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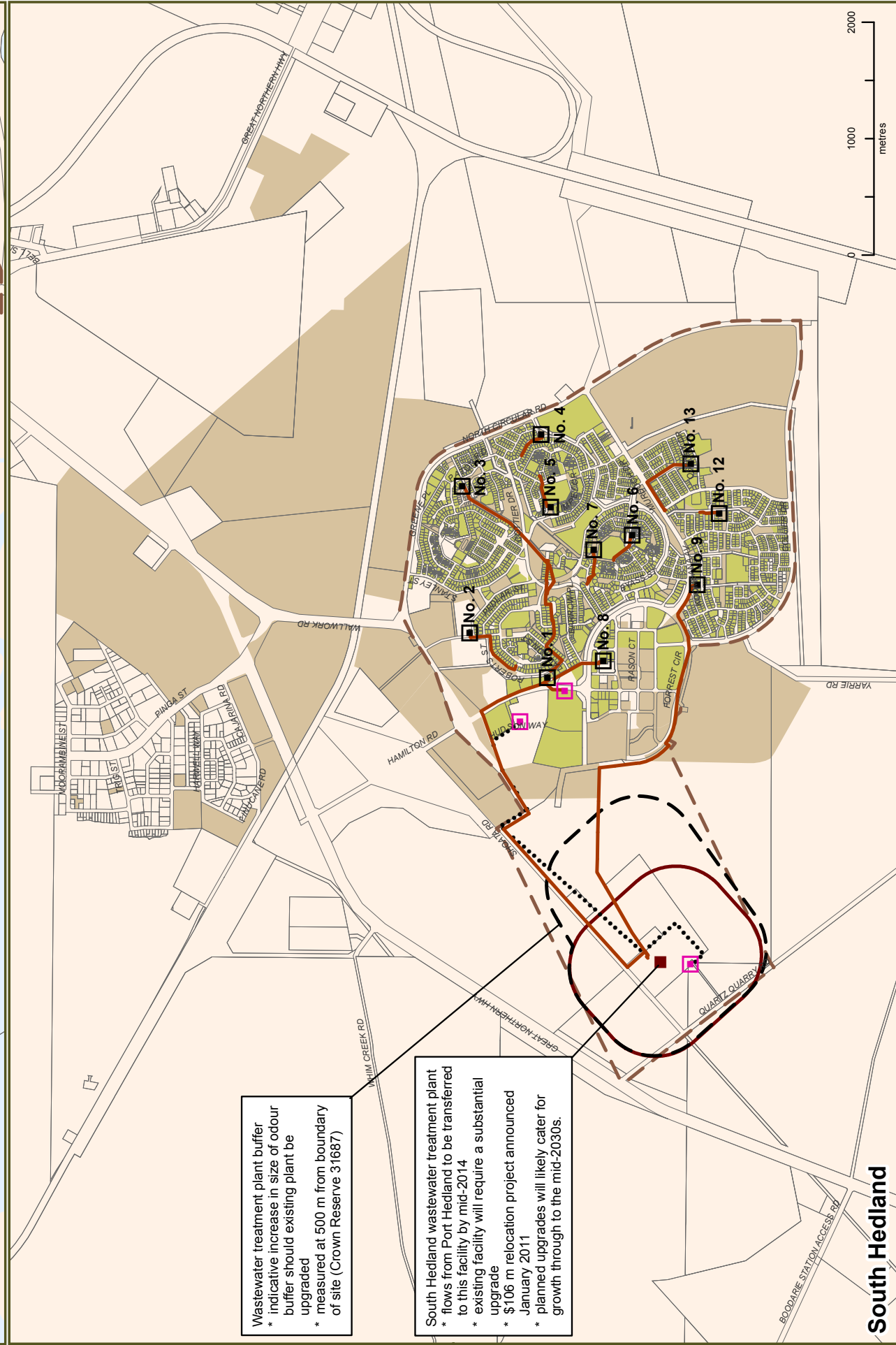
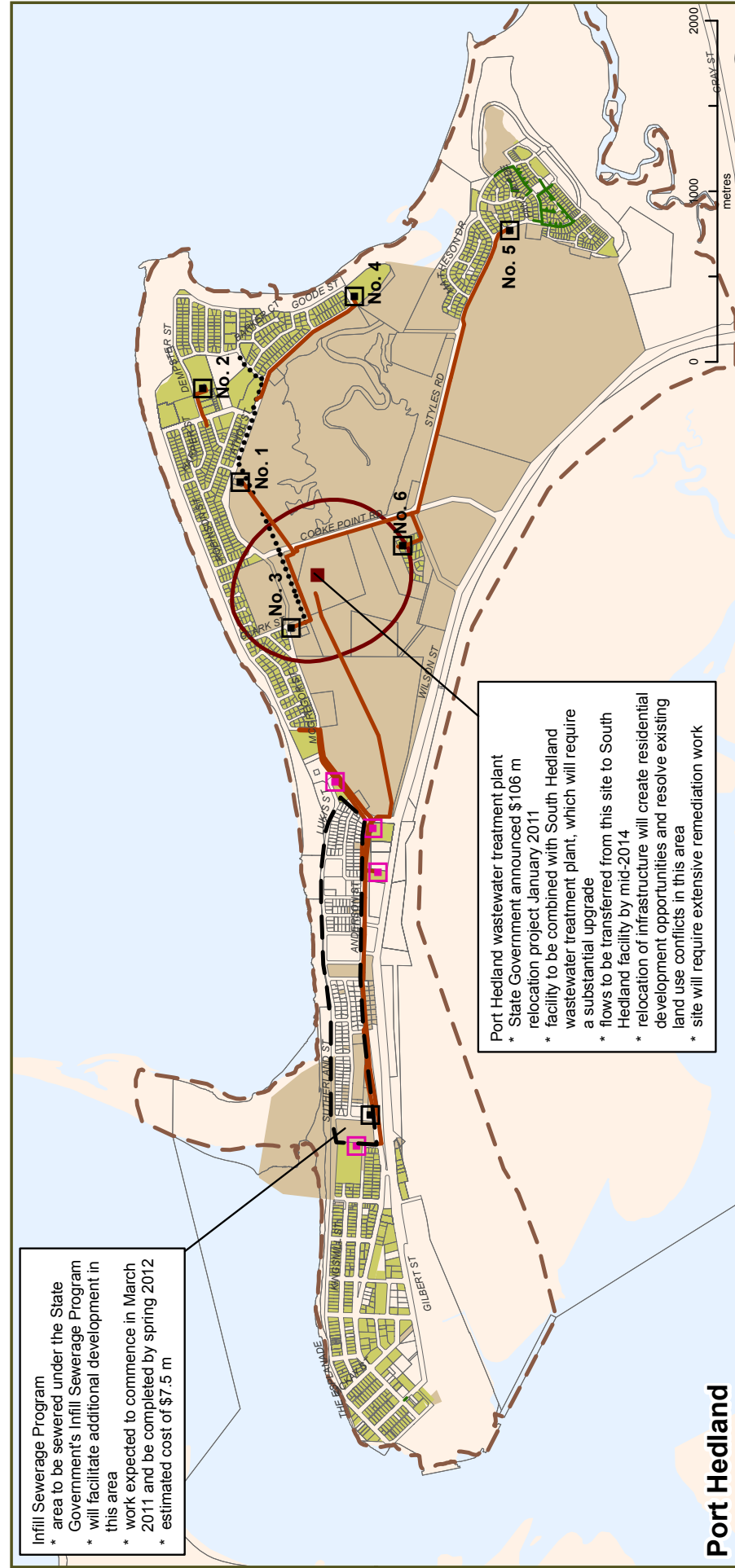
Integrated Land Information Database (ILID) outputs - South Hedland

Urban Development Program









MAP 12:

Wastewater Infrastructure - Port Hedland

Legend

- cadastre
- possible expansion areas
- wastewater treatment plant
- wastewater treatment plant buffer
- operating area - sewerage services
- sewered areas
- sewer pressure main
- wastewater re-use main
- wastewater pump station (Water Corporation)
- wastewater pump station (private)

Port Hedland

South Hedland

Urban Development Program

Western Australian Planning Commission

GDA

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Base information supplied by: Western Australian Land Information Authority, LI 430-2009-2.

Date: 24/1/2011

