



Department of Planning,  
Lands and Heritage



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Western Australia.*



# Land Use and Employment Survey 2019

## City of Karratha

July 2020

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## Summary

This report provides a summary of the 2019 Land Use and Employment Survey (LUES) conducted by the Department of Planning, Lands and Heritage (the Department) within the City of Karratha.

The Land Use and Employment Survey is undertaken as part of the Urban Development Program to support the Western Australian Planning Commission's strategic planning processes.

The survey focuses on businesses located on land zoned commercial, industrial, public purpose and recreation. As residential zoned land does not normally generate employment, it is not covered in the survey. Mention of the residential Planning Land Use Categories (PLUC) in the survey refers to hotels, key worker housing and caretakers.

In regional areas, the survey targets townsites but does not include surrounding agricultural land. It focuses on the number and type of establishments, the floorspace occupied within a building and the number of employed persons. These three main variables are coded according to the Western Australian Standard Land Use Classification (WASLUC) codes and PLUC. Information garnered from this analysis serves to identify significant patterns, themes and emerging trends within the City of Karratha. Comparisons will be made between the previous two surveys conducted in the City of Karratha in 1996 and 2003. For the purpose of the survey, the 'City of Karratha' refers to the local government area (the study area) and the 'Karratha townsite' refers to the Karratha city centre and surrounding suburbs.

### Key statistics

- 1,695 activities were captured in the 2019 LUES. This is an increase of 58 per cent from 1996 to 2003 and 18 per cent from 2003 to 2019.
- From 1996 to 2019, the number of employees increased from 2,721 to 10,266 persons.
- Between 2003 and 2019, the total floorspace increased by approximately 250 per cent from 242,554m<sup>2</sup> to over 862,410m<sup>2</sup>.
- Residential land uses occupy the largest amount of floorspace at 195,027m<sup>2</sup> (23 per cent of the total floorspace recorded).
- The Service Industry PLUC recorded the highest number of employees with 1,827 persons (18 per cent of total employment).

## 1 Introduction

This report presents an overview of trends within the City of Karratha through consideration of floorspace, employment and land uses. The information underpinning this study is from the 2019 LUES.

The LUES collects key information relating to land use and employment, including the type of activities conducted by businesses, the floorspace occupied and the number of people employed in each business. Data collected by the survey is valuable information for decision-making and assists in employment forecasting and transport modelling. The data is also widely used by internal and external stakeholders such as local governments, State Government agencies, academic institutions and property and planning consultants. The last major analysis of land use in the area was completed in 1996 and 2003.

## 1.1 Study area – the City of Karratha

The City of Karratha (the City) is located within the Pilbara region approximately 1,535 kilometres north of Perth. The local government area consists of the towns of Karratha, Dampier, Roebourne, Wickham, Cossack and Point Samson and covers 15,237 square kilometres. The City currently has an estimated population of 21,473 people. The data collected has been grouped into the four main townsites;

- Dampier
- Karratha
- Roebourne
- Wickham

Karratha is mostly known for its prominent mining industry and the abundance of natural resources surrounding the City, including iron-ore, sea-salt, petroleum and natural gas. Originally built in 1968, Karratha was intended to accommodate workers mining iron ore in the Hamersley Ranges. However, continuing demand for natural resources exports and the flow through effects into the economy has elevated the City to become the regional administrative hub of the Pilbara. Growth in the mining sector has also allowed support services such as construction, engineering and manufacturing to advance in the City. In recent times, diversity in the City's economy is occurring through tourism, agriculture, aquaculture and renewable energy.

## 1.2 Townsite profiles

### **Karratha:**

The Karratha townsite is considered the regional hub of the Pilbara region, providing administrative industrial, retail, educational, health, commercial and recreational services. While originally established in the late 1960s to accommodate the mining workforce, Karratha's demographic has now shifted towards a family-orientated population.

### **Dampier:**

Dampier is located 20km west of Karratha, and was also established to accommodate the mining industry workforce, in particular the large export facilities of Hamersley Iron in the early 1960s. Today, Dampier is a major shipping port and houses export facilities of Rio Tinto, Dampier Salt and the North West Shelf Gas Project. The townsite also contains a small quantity of residential dwellings and commercial uses.

### **Roebourne:**

Roebourne is an inland town located on North West Coastal Highway, approximately 40km east of Karratha city centre. Roebourne is a historic town within the Pilbara and was one of the first towns to be established in the North West following the discovery of gold, copper and tin as well as the development of the pearling industry at Cossack. Roebourne is a residential town as well as a stopping point for passing visitors traveling to the various national parks in the Pilbara region. The town consists of amenities including a TAFE campus, library and telecentre, as well as a small hospital.

### **Wickham:**

Wickham is located approximately 50 kilometres north-east of Karratha city centre and had a population of 1,572 at the 2016 census. It was originally established in 1970 to create a processing plant for the iron ore mined in Pannawonica and the port at Cape Lambert, as well as to accommodate employees. In 2012, Rio Tinto expanded the town's facilities to support the expansion of the Cape Lambert Port. This is now known as Wickham South and consists of over 200 company houses. The small localities of Cossack and Point Samson are included within this townsite.



Figure 1: City of Karratha



## 2

## Summary of Change (City of Karratha)

The LUES was previously conducted in the City of Karratha in 1996 and 2003. The City has experienced significant growth since the previous surveys, mostly due to significant growth in the mining sector. The City's economy is still largely dependent on mining as an economic base, however, investments in mining has flowed through to other industries including manufacturing, construction and engineering. This has resulted in large industrial areas emerging within the City. Further changes are listed below.

- From 2003 to 2019, floorspace increased by 619,856 m<sup>2</sup> (256 per cent).
- The PLUC occupying the largest proportion of floorspace has differed in each survey year, with shop/retail in 1996 (19 per cent of total floorspace) to health/welfare/community services in 2003 (17 per cent of total floorspace) to residential in 2019 (23 per cent).
- Land uses under the residential PLUC occupied 23 per cent (195,027m<sup>2</sup>) of total floorspace in 2019 compared with three and four per cent in 1996 and 2003.
- Vacancy rates were at their highest in 2003 at 11 per cent, however have since dropped to six per cent in 2019, similar to rates observed in 1996.
- Karratha remains the townsite with the greatest proportion of total floorspace (74 per cent). Wickham townsite's share of total floorspace increased from five per cent in 2003 to 17 per cent in 2019.
- The data captured from the LUES showed employment within the study area increased from 4,176 to 10,266 persons, between 2003 to 2019.
- Office/business contained the greatest share of total employment in 1996 and 2003 at 45 and 27 per cent respectively. In 2019, the service industry PLUC comprised the greatest share of total employment at 18 per cent. Office/business recorded the second highest share of total employment at 16 per cent.



## 3 City of Karratha land use and employment

### 3.1 Floor Space

The survey captured a total floorspace (net lettable area) of 862,410m<sup>2</sup> in the City of Karratha in 2019, of which 94 per cent was occupied. In 1996, a total of 153,502m<sup>2</sup> of floorspace was recorded and in 2003, this grew to 242,554m<sup>2</sup>. Total floorspace increased by 58 per cent between the 1996 and 2003 surveys and more than doubled from 2003 to 2019.

Overall, the survey reveals continuing, rapid growth in the City, particularly between the 2003 and 2019 LUES. In the latest survey, the Karratha townsite accounted for 74 per cent of the total floorspace, followed by Wickham (17 per cent), Roebourne (five per cent) and Dampier (four per cent). Karratha's high share of total floorspace is likely attributed to the townsite being the primary service centre, as well as the largest settlement/urban centre in the Pilbara region.

Vacancy rates have fluctuated throughout the survey years (Figure 2). The City recorded a six per cent vacancy rate in 2019, compared to 11 per cent in 2003 and seven per cent in 1996. In the latest survey, Roebourne townsite showed the highest vacancy rate at 12 per cent and Dampier the lowest at one per cent. Vacancy rates were most consistent in Dampier, only varying by one per cent between all survey years. Dampier's low vacancy rates throughout the survey years may be owing to the townsite's small share of total floorspace (four per cent) as well as having limited area to expand the current townsite footprint. Wickham showed the highest degree of change, shifting from 47 per cent in 1996 to four per cent in 2019.

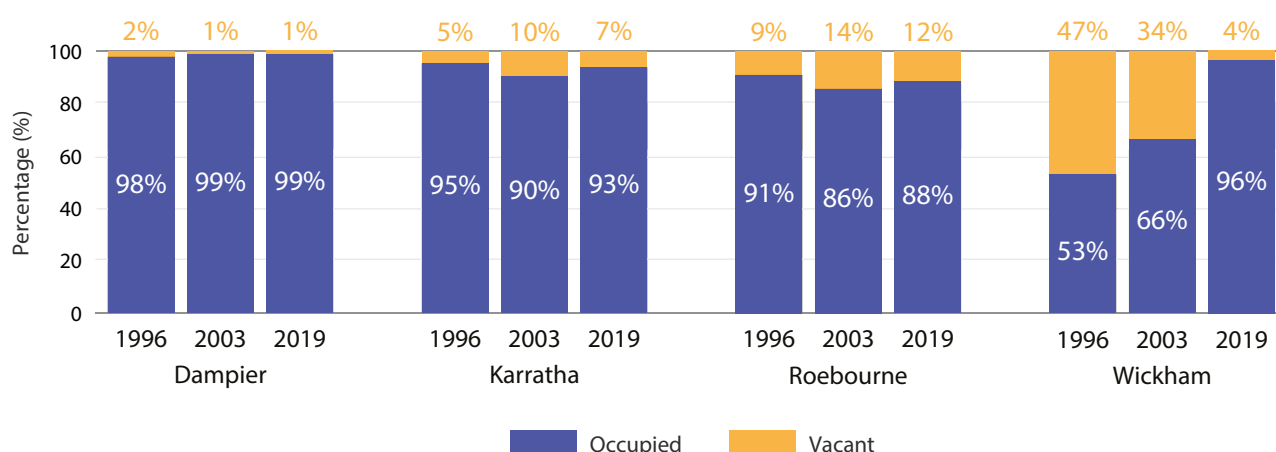


Figure 2: Occupancy and vacancy rates by townsite and year

## 3.2 Land Uses

The residential PLUC accounted for the highest share of total floorspace, with 195,027m<sup>2</sup> or 23 per cent. This was followed by health/welfare/community services with 140,745m<sup>2</sup> (16 per cent) and service industry with 84,669m<sup>2</sup> (10 per cent) (Figure3). As residential zoned land does not normally generate employment, it is not covered in the survey. The residential PLUC in the survey refers to hotels, key worker housing and caretakers.

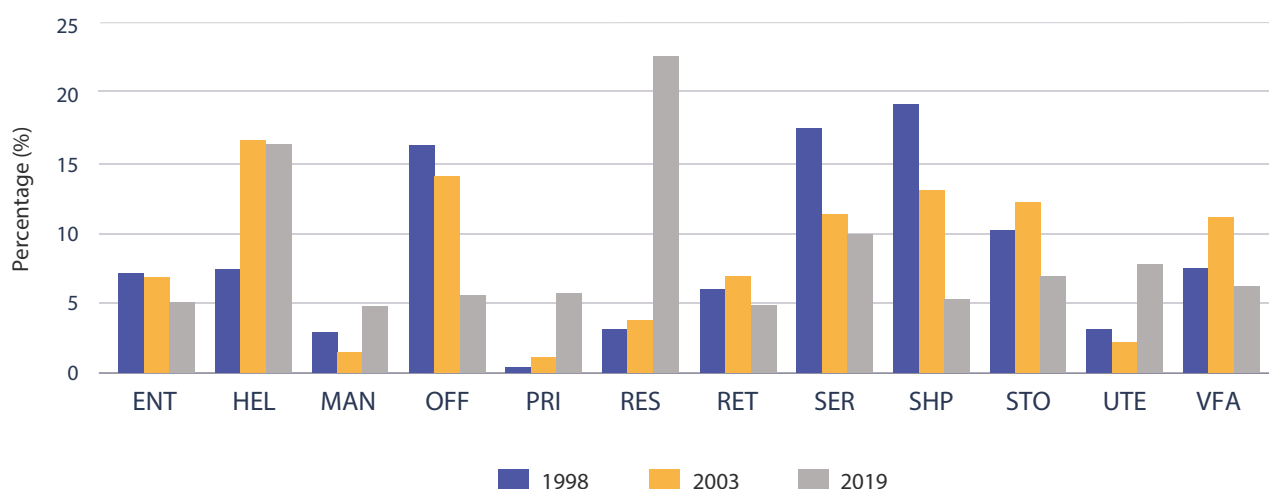
FIFO (Fly in Fly out) workers quarters in Wickham and other short stay accommodation (also mostly used by the FIFO workforce) in Karratha attributed to the majority of floorspace recorded for residential land uses. Dampier townsite recorded a high share of residential floorspace relative to other land uses within the townsite however, only contributed to seven per cent of total residential floorspace in the City of Karratha. Residential land uses accounted for the highest proportion of floorspace given the City's proximity to large scale mining operations and prevalence of the FIFO workforce.

Land uses such as schools, hospitals and community health centres were the predominant contributors to floorspace within the health/welfare/community services PLUC. The bulk of health/welfare/community service activities were recorded in the Karratha and Roebourne townsites, with schools mostly located in Karratha and health/welfare/community services in Roebourne. Demand for medical and educational facilities in these locations is expected, owing to the townsite's demographic largely consisting of young families.

Activities captured falling within the service industry PLUC were primarily concentrated in industrial estates, particularly the Karratha Industrial and Gap Ridge industrial estates. These activities include manufacturing, construction, engineering and mechanical repair services, which provides support to the surrounding mining operations.

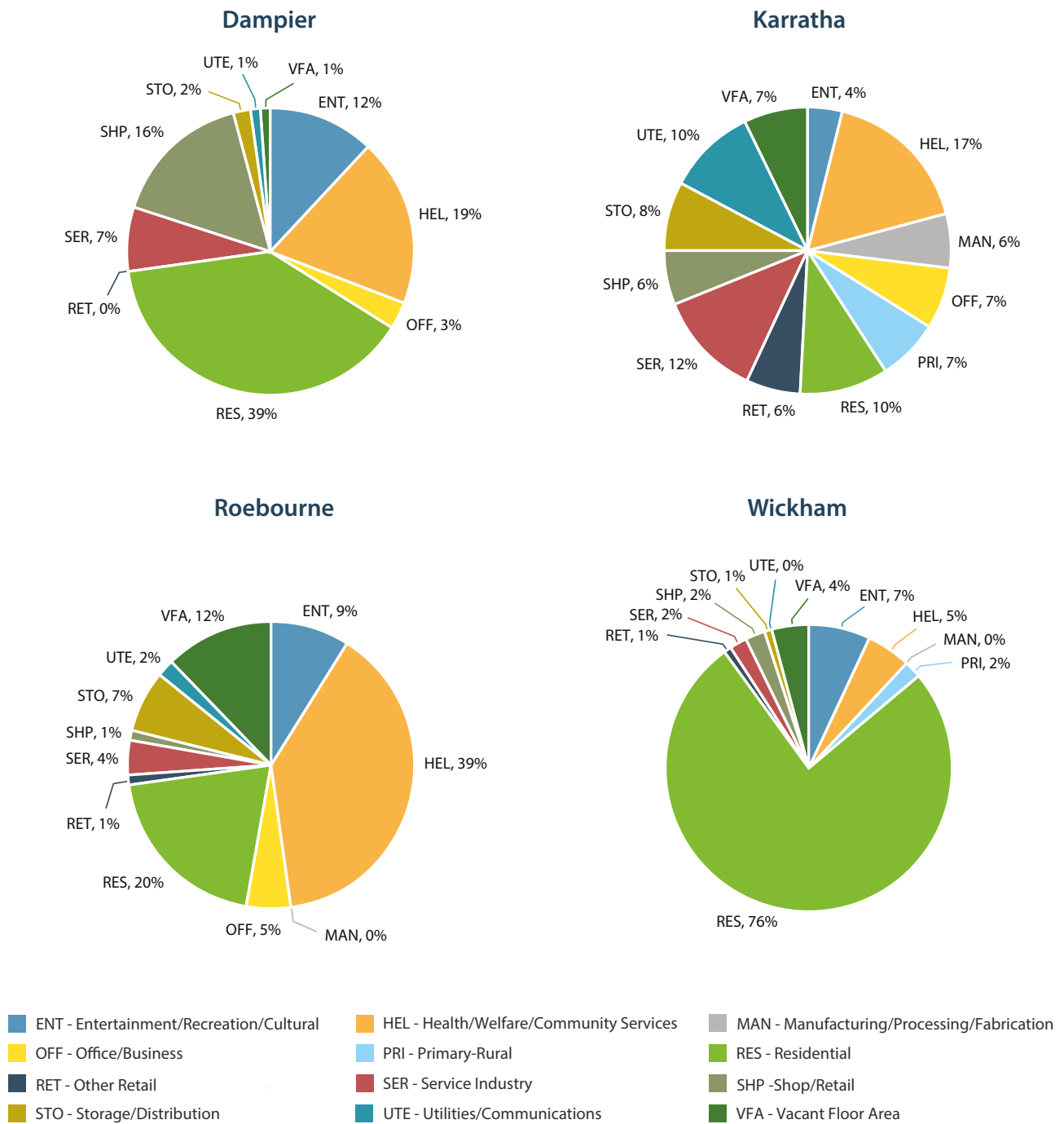
Residential land uses recorded the largest increase in occupied floorspace, jumping from three per cent in 1996 to 23 per cent in 2019. This was followed by health/welfare/community services, occupying seven per cent in 1996 to 16 per cent in 2019. Shop/retail showed the greatest decline in floorspace occupied across the City, with a 19 per cent share of the total floorspace in 1996 to only five per cent in 2019.

Of the 12 PLUCs, the only categories to have a consistent share of the total floorspace recorded across all survey years were other retail and entertainment/recreation/cultural. Other retail includes businesses specialising in equipment hire, motor vehicle rental services as well as fuel and motor vehicle retailers. The entertainment/recreation/cultural category showed sports assembly areas and religious organisations as the main contributor to floorspace over the years.



**Figure 3: Comparison of land use floorspace in the City of Karratha by category**





**Figure 4: Land use in the Dampier, Karratha, Roebourne and Wickham townsites 2019**

### 3.3 Employment

The 2019 LUES recorded a total of 10,266 persons employed in the City of Karratha. The service industry employed 18 per cent (1,827 persons) followed by office/business and health/welfare/community services, both employing a 16 per cent share of the workforce. As expected, businesses specialising in building construction, engineering and plumbing, heating and air conditioning were the top three employers within the service industry category. These industries are dominant trades within the City's industrial areas, providing services to the mining sector as well as services to cater for the rapid expansion occurring in and around the City. For the office/business category, State and local government and businesses specialising in employment services were the top three employers in the City. As the City is the primary service centre as well as the largest settlement in the Pilbara, high employment in administrative professions are anticipated.

Karratha townsite is larger in population and encompasses a greater variety of land uses relative to the three other surveyed townsites. As a result, 87 per cent of persons were found to be employed in Karratha, with the remaining townsites all recording five and four per cent of the total employment (Figure 5). Of the four townsites, the largest growth in employment from 1996 to 2019 was observed in Roebourne. Total employment in Roebourne increased by 570 per cent, from 81 to 543 persons. In comparison, Karratha's total employment increased by 267 per cent, Wickham by 250 per cent and Dampier by 161 per cent.

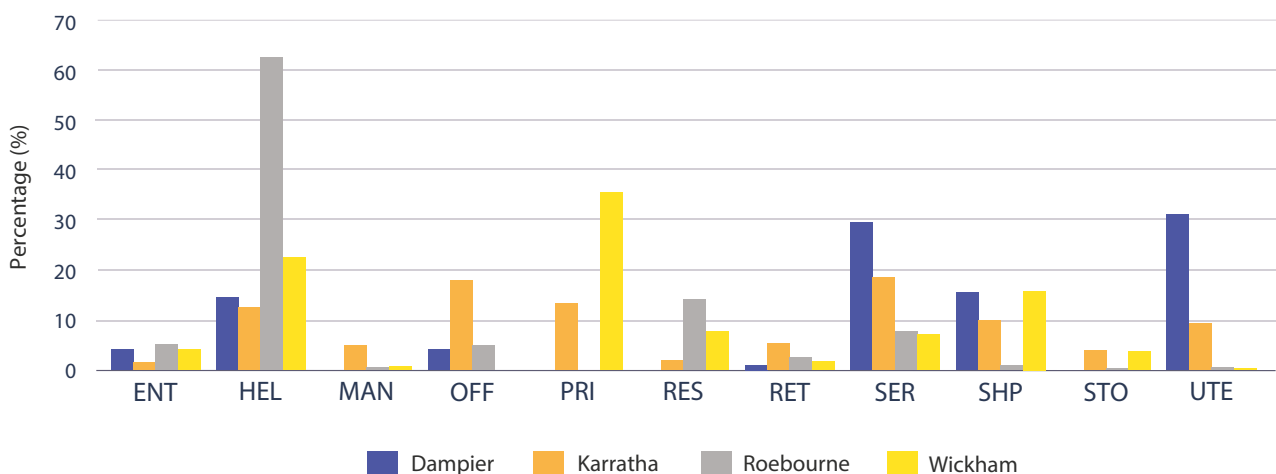
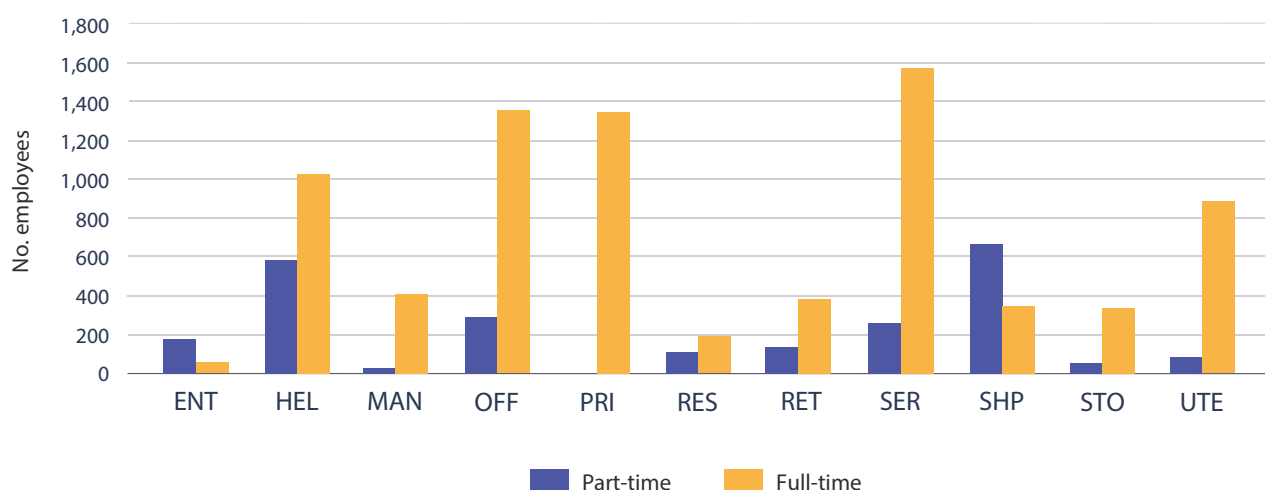


Figure 5: Proportion of employment by land use and townsite 2019

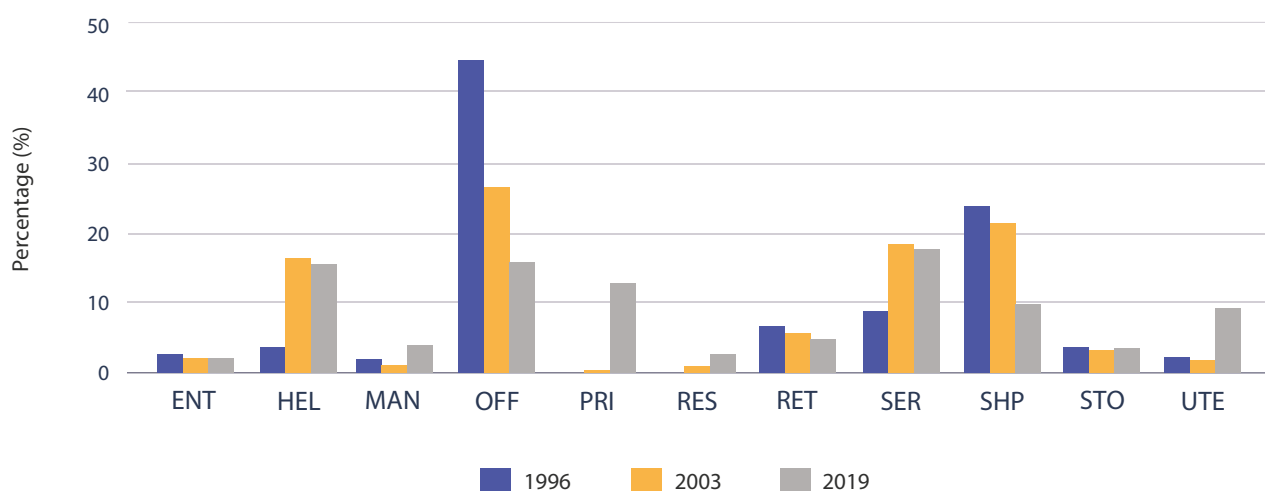
77 per cent of the captured workforce were employed full-time and 23 per cent part-time (Figure 6). The top three industries that account for the greatest share of total employment (mentioned above) in the office/business and service industry category generally employ persons on a full-time basis. Consequently, a higher full-time employment in the City is likely due to a greater number of full-time based occupations and office/business and service industry containing the largest share of total persons employed.

Employment has exponentially grown in the City of Karratha. The 1996 LUES recorded a total employment of 2,721 persons. This figure grew by 53 per cent with a total of 4,176 persons employed in 2003. Since 2003, the number of employees within the City has more than doubled, increasing by 146 per cent to 10,266. This growth in employment is intertwined with a significant population increase and expansion in the mining sector.

Office/business and shop/retail contained the largest share of total employment in both 1996 and 2003. In 1996, office/business and shop/retail recorded a 45 and 24 per cent share respectively. This dropped to 27 and 21 per cent in 2003 and 16 and 10 per cent in 2019. The categories which demonstrated an increase in the total share of employment from 1996 to 2019 were the health/welfare/community services and service industry PLUCs.



**Figure 6: Number of employees in City of Karratha by land use**



**Figure 7: Proportion of total employment by land use and year**

## Appendices

### Appendix A – Planning Land Use Category (PLUC)

#### PRI – Primary-Rural

Land use activities which usually involve the use of large areas of land, including mining, agriculture, fishing and nature conservation. The function of many of these activities is to make use of, or extract from, the land in its natural state. Since such activities are the first step in the production process they are quite distinct from the other categories.

#### MAN – Manufacturing/Processing/Fabrication

This category includes land use activities involving the manufacture, processing and fabrication of all general goods. Both the scale and associated environmental impact of these activities separate them from other land use categories.

#### STO – Storage/Distribution

Any land use activity which involves the storage, warehousing or wholesaling of goods usually conducted from large structures, or involving large bulk goods, but does not include activities that attract the general retail trade activities.

#### SER – Service Industry

This category includes service industries offering a range of services. The scale and environmental impact of such activities require their separation from other land uses. These services include film processing, cleaning, motor vehicle and other repair services, and other servicing activities, including some construction activities.

#### SHP – Shop/Retail

Any activity which involves the sale of goods from a shop located separate to, and/or in, a shopping centre other than those included in Other Retail.

#### RET – Other Retail

Many of these activities are not normally accommodated in a shopping centre. By virtue of their scale and special nature the goods of these activities separate them from the Shop/Retail category (e.g. car sales yard, carpet showroom).

#### OFF – Office/Business

Administrative, clerical, professional and medical offices are activities which do not necessarily require the land area/floor space or exposure of other land uses. Although offices require building and parking facilities, these needs are quite distinct from those of commercial uses and service industries.

#### HEL – Health/Welfare/Community Services

Includes government, government subsidised and non-government activities, which provide the community with a specific service, such as hospitals, schools, personal services and religious activities.

#### ENT – Entertainment/Recreation/Cultural

Activities which provide entertainment, recreation and culture for the community and which occur in buildings and/or on land, such as passive and active sports venues, museums, amusements and gambling services.

#### RES – Residential

Includes all types of residential land use ranging from single housing to nursing homes for the aged, residential hotels, motels, other holiday housing, institutions and religious housing.

#### UTE – Utilities/Communications

All forms of local, state national and international communication, transportation and other utilities (e.g. electricity, gas, water, sewerage, roads, parking and other transport or communications related activities) covering the public and private sectors.

#### VFA – Vacant Floor Area

This category accounts for vacant floor areas of buildings, including both non-residential and residential.

#### VLA – Vacant Land Area

Includes land which has not been improved by development and remains unused.