WORKFORCE NEEDS ANALYSIS

September 2011
(Revised)

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For the
Cairns Regional Council

Ref: J2382
September 2011
(Revised)

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SUMMARY OF MAIN FINDINGS

The report is structured in three sections:

1. "Looking Back" at available data on workforce changes and their relationship to changes in the economy.
2. "Looking Forward" over the next 5 to 10 years and modelling likely workforce needs in the light of likely growth and changes in the economy.
3. A review of future "Needs & Issues" incorporating comments that came out of the Workshops with employment agencies and training institutions.

Looking Back Over the Past 20 Years

- Strong average growth in population and workforce over the past 20 years above national averages indicates the city and region have recorded a high average job creation rate.
- There has been substantial volatility in workforce, employment and unemployment levels, with three periods of downturn and higher unemployment in the last 20 years.
- Average unemployment rate since 1989 has been 7%, ie. well above national averages with indigenous recorded unemployment contributing only about 1% to the recorded level. The region has run a high job creation rate alongside relatively high unemployment rates indicating a tendency to attract population and workforce and hold on to them in downturn periods.
- The region's downturns have produced two periods of very high unemployment levels well over 10% - those in 1989 to 1991 and 2009 to present. These were both characterised by the region being in 'full flight' with high population growth and construction rates when cut off almost overnight - in 1989 by the pilots' dispute followed by the national recession and in late 2008 by the global financial crisis. By comparison, a more prolonged downturn in the late 90's associated with the Asian financial crisis did not produce such extreme rises in unemployment. The economy had already been edging off when the Asian crisis hit.

  The study indicates that the high unemployment rates in the early 90's and recently were strongly contributed to by population and workforce growth continuing after employment growth was checked with a lag of up to 2 years evident before population and workforce growth fully responded to the economic slow-down. The same lag tended to be there when acceleration took place.

- There has been a range of responses to growth and changes in economic conditions by industry sectors.

  Construction workforce and associated suppliers in business services (eg. real estate, hiring, finance) has been volatile showing very strong movements upwards in good times and down strongly when growth slows.

  The base industries earning outside income (eg. agriculture, fishing, mining, tourism) react to short term conditions. However, they compete on wider and global markets and seem to be exhibiting the results of strong pressure to contain costs and increase productivity, often by outsourcing to and creating jobs in other sectors.

  Government services, especially health and education, are showing strong growth regardless of shorter term economic conditions.

- Comparisons with the group of 15 main cities in Australia (Cairns is 14th) indicate many of the industry employment trend movements in Cairns have been similar to movements at a national level in fields like retailing, wholesaling, public administration and security, education and training, health and social services, but with more volatility in the composition.
- Proportion of females in the employed workforce has been slowly drifting upwards and now stands at about 46%.
- There is a long term underlying high proportion of the unemployed in the 15 – 24 age group (around 40%). (NOTE: The percent temporarily fell post GFC as unemployment rose strongly in main workforce age groups.)
- There are marked differences in male/female percentages of employment in industry sectors with females very high in health care and social assistance 78%, education and training 72%, financial and insurance services 63%, retail trade 59%. Males are very high in mining 90%, construction 86%, electricity, gas and water 82%, manufacturing 78%, agriculture, etc., 72%.
- In occupation, males predominate in machinery operators and drivers, technician and trades, and managers. Females predominate in clerical and administration, sales and community and personal service.
- Younger workers are high in retail and as labourers. Those 65+ are high as machinery operators and drivers and managers.
- Data is also presented on non school qualifications, fields of study and hours worked per week.

Looking Forward Over the Next 5 to 10 Years

The first task was to model estimated workforce for 2011.

This was carried out by extending past trends in workforce data from Census years 1996, 2001 and 2006 with known information about industry trends 2006 to 2011.

DEWR sample survey information at industry level over the period to 2006 and 2010 at industry level was not used because of obvious unreliability.

The general finding was that total population and workforce growth 2006 to 2011 was similar to 2001 to 2006, but was likely to have had a different composition with little growth in construction and accommodation and services but strong growth in mining (from a small base), public administration and safety, health and education.

Forward modelling to 2016 and 2021 was at two levels, the State Government's medium forward population projections from the Population Information and Forecasting Unit (PIFU) and continuation of long term 'trend' for Cairns. NOTE: Appendix 13, identifies that PIFU projections have consistently underestimated growth of Cairns and their forward projections imply a major long term reduction in the city's growth rate.

After reviewing global economic conditions, forward growth was estimated as slower 2011 to 2016 and higher 2016 to 2021, on the basis that growth 2011 to 2016 would be affected by a continuing high dollar suppressing tourism demand but high commodity prices opening up opportunities in mining and agricultural commodities.

Assumption was that 2016 to 2021 would see world supply of commodities catching up, prices falling and the exchange rate coming down offering more tourism opportunities. By the 2016 to 2021 period, growing incomes in China and India were also likely to see tourism opportunities increasing.

Forward modelling was first carried out by likely total population and total workforce and then modelled by industry with continuing strong growth of mining, public administration and security, health and education throughout.

Timing of construction downs and ups is difficult to model and projections have been put through at average growth levels.

Summary of resulting projected estimated additional workforce needs by industry by 2021 are as follows.

Ref: Table #40 : Estimated Growth in Workforce, Rankings by Industry Sectors, 2011 to 2021

	PIFU	Trend
Health care, etc.	2781	3588
Mining	1331	3106
Retail trade	1883	3061
Construction [(1)]	1418	2604
Public administration & safety	1595	2470
Education & training	1417	2195
Transport, postal & warehousing	1288	2051
Manufacturing	734	1474
Professional scientific & technical services	741	1407
Accommodation & food services	552	957
Other services	529	879
Administrative & support	221	517
Rental, hiring & real estate [(1)]	211	391
Financial & insurance [(1)]	178	332
Wholesale trade	148	275
Information, media & telecommunication	102	198
Electricity, gas, etc.	82	169
Arts & recreation services	93	161
Total	**15,681**	**26,407**

Note [(1)] : It should be noted that construction and related services are likely to fluctuate and possibly be substantially above or below these figures depending on the timing of short term movements.

The projected workforce proportions by industry in 2021 under the Trend scenario were compared with 2006 composition for Townsville and Brisbane indicating movements towards similar patterns to Brisbane but with:

- Manufacturing still low.
- Construction still higher.
- Retail still relatively high.
- Accommodation and food services still high.
- Transport, etc., still high.

- Services of finance and insurance, professional scientific and technical services remaining below Brisbane.
- Health care and social assistance up to Townsville's 2006 level.
- Public administration and safety (includes defence) increasing but still well below Townsville.

Workforce was modelled by occupation, based on 2006 occupation to industry ratios.

Resulting increases 2011 to 2021 are as follows.

Ref: Table #49 : Estimated Workforce Increases by Occupation, 2011 – 2021

	PIFU	TREND
Professionals	3241	5129
Technicians & trades workers	2618	4852
Clerical & administrative workers	2295	3793
Community & personal service workers	1862	2757
Managers	1548	2685
Sales workers	1477	2489
Labourers	1269	2199
Machinery operators & drivers	1134	2126

Largest demand indicated is for professionals and technicians and trades.

Workforce was modelled by males and females based on 2006 ratios by industry indicating the projected composition by industry is not likely to cause a major change, perhaps males increasing slightly. However, trends for higher female participation in given industries is likely to result in female employment, especially full time employment creeping up.

On the projected pattern by industries, there would be only minor changes in composition by age, with a small tendency for a lesser need for younger age group 15 – 19 and 20 – 24 and small increase in the main working age groups.

The projected workforce pattern is not likely to change the proportion with non school qualifications.

Fields of study of those with non school education would be mildly positive for engineering and related, architecture and building, health and education.

The foregoing relates to Cairns Statistical Sub Division (SSD). Outside of Cairns SSD, Douglas' growth is likely to remain modest over the next five years under the influence of the high dollar but pick up over 2016 to 2021.

Babinda area's high level of manufacturing will fall with the mill closure over the period 2011 to 2016 but likely to exhibit a general growth across service sectors 2016 to 2021.

Future Needs & Issues

Needs

- Cairns has been recording growth rates in population averaging about 30% each decade for the last four decades and strong growth can be expected over the next decade, but with continuing volatility.

- While the scale of the task of meeting a need for a 20 – 30% (16,000 – 26,000) increase in workforce over the next decade seems large, it is within scale of past trends.

- Volatility in the level of construction activity with consequences for associated sectors is likely to remain a special problem.

- The next ten years is likely to see an upsurge in mining and associated workforce needs and based on work in recent years, the city's employment and training institutions have recognised this and are gearing up to cope with it.

- Direct agricultural employment in the city is low but the sector is important in the surrounding region with a feature of 'outsourcing' employment from farms into district centres and the regional city of Cairns.

- Tourism employment is facing efficiency and outsourcing pressures. The city's training institutions might seek wider markets.

- Long term chronic need to attract skilled workforce will be in:

    - Education, especially higher education.
    - Health and allied health services.
    - Professional and managerial staff.
    - Engineering and skilled trades.

- Oversupply of youth workers seems likely to continue and worsen mildly with projected industry changes.

Issues

- It is implicit in the projections that Cairns will be a larger more multidimensional city as scope for 'outside earnings' changes, and as the city 'catches up' in the extent and range of its service industries.
- In seeking to influence job creation prospects, there is a need for a more holistic regional approach that recognizes the importance of the full range of the region's 'base' industries in underpinning the Cairns economy.
- There will continue to be a real need to cope with volatility, especially in construction and related sectors, with a need

    - for businesses to factor this into their financial arrangements, and
    - for the city/region to be ready with projects to quickly initiate if major downturns occur.

- There is a need to recognize the impact that falling transport and communication costs has on the scale and composition of growth.
    - = To ensure the city is not late in the NBN roll out and further studies made into positive and negative effects on employment.
    - = To ensure that in the changed international circumstances, the region's freight transport infrastructure is improved.
    - = To use Cairns' strategic position in air and sea transport (especially in the wider north Australia, Papua New Guinea, Pacific, and Papua Indonesia area), to counter centralizing trends to metropolitan centres caused by improved transport. This involves a need to take a "wider regional market approach" not just for supply of workforce to mines, but across the supply of a wide range of goods and services. This will require a whole range of businesses and institutions to change their conception of their market/service boundaries including media, employment and education and training institutions.
- Better information on employment and unemployment composition needs to be made public.
- While it is desirable to maximize training, the scale of workforce needs means that large workforce numbers will need to be attracted.
- The major issue about training is the lack of training support for many jobs beyond schooling, apprenticeship systems and HEC's schemes. While this is common at a national level, the region needs to address it.
- Cairns faces a range of negatives in attracting workforce.
    a) Wages and salaries offered not being high enough.
    b) Being away from career path opportunities available in metropolitan centres.
    c) Social problems of distance from family.
    d) Social problems of adaptation of employees and family members to a different climate and perceptions of that climate.
    e) Inferior availability compared to metropolitan centres of health, education, sporting and entertainment facilities.

    The following gives suggestions for overcoming some of the problems:

    a) The city needs to keep up with social infrastructure that can be justified for its size. It can be argued that at present, it is well below what it should be in higher education, health, and some sporting and entertainment facilities.

    b) The city needs to be able to present a good image of itself to prospective workforce. The employment agencies are often in the front line of this and the Council needs to engage with the employment agencies to review what is available in this field with a view to helping to correct any deficiencies.

c) Well adapted skilled potential employees can be available locally, who are missed by some institutions that fail to advertise locally. Employers should be encouraged to advertise locally (especially governments) rather than just transfer in staff who often do not adjust well.

d) At times, lack of availability of suitably skilled staff within Australia can be overcome by recruiting from overseas. The system set up by the Commonwealth with the Chamber of Commerce acting as a recommending agency on the question of local availability of skills appears to have worked well and should be supported.

- The youth unemployment question needs to be addressed and the education and training institutions 'take on board' some of the underlying causes raised by the employment agencies.

- Scope for a higher rate of female participation is becoming limited and likely to occur mainly from transfer from part time/casual to full time work and older workers are likely to be able to and want to stay in the workforce longer.

- The importance of an employer's perspective needs to be appreciated, especially in a city like Cairns, and it is recommended that the analysis in this report be used to help restore confidence after the great deal of recent negative publicity and views about the city's prospects.

PART A
INTRODUCTION

Abbreviations

ABS – Australian Bureau of Statistics.

PIFU – Queensland Government Population, Information & Forecasting Unit.

Cairns SSD – Cairns Statistical Sub Division (ie. urban area Gordonvale to Ellis Beach).

SD – ABS Statistical Division (for Far North Queensland, Cardwell to Papua New Guinea border and west to Croydon).

SLA – ABS Small Local Area (eg. Cairns Part B).

Special Terminology

'TREND' – Used in context of Sections 11 & 12 means at continuation of long term trends in population and workforce growth for Cairns.

'OUTSIDE EARNINGS' – Refers to regional exports of goods and services (including tourism income), overseas but also to other parts of Australia.

'BASE INDUSTRIES' – Those industries mainly earning income from outside the region (eg. agriculture, mining, fisheries, tourism, some manufacturing and services).

'

1. INTRODUCTION

1.1 Background

The North Australia Research Group was asked by Cairns Regional Council to research and advise on likely workforce needs for the Cairns Regional Council area on a 5 to 10-year time frame to help inform and guide employment agencies and education and training institutions in an effort to better match supply with demand.

In particular, the project was:

1) To research and analyse the composition of the workforce in the Cairns Regional Council area currently and over a period of time including identification of bottlenecks, shortages and over supplies.
2) To understand the process through which workforce supply matches demand in the Cairns region including the role of employment agencies, education and training providers and inward/outward migration of workforce.
3) To seek to project forward over 5-year and 10-year periods, likely changes in the economy of the area and likely changes in workforce needs.
4) To identify issues of potential shortages and oversupply of types of workforce, and in consultation with employment agencies and training institutions, recommend actions to address the issues raised.

The research activity proposed was based on a mix of desk research and inquiry with consultation and workshopping with key persons in employment agencies and training institutions.

It was proposed to be carried out as follows:

1) Desk research into available data on past workforce composition and responses and the current situation.
2) Workshop the results of (1) with workforce employment agencies and training organisations to help elucidate where past bottlenecks, shortages and oversupplies have occurred and reactions to them.
3) Model likely trends in the economy in the Cairns Regional Council area on a 5 and 10-year time frame (probably more than one scenario) and identify as best possible, implications for workforce needs and identify as best possible, potential issues of bottlenecks and oversupply.
4) Workshop with employment agencies and training organisations findings and issues to help identify and discuss potential issues for their organisations and recommendations.
5) Produce a written report including recommendations.

1.2 Layout

This report is laid out in four sections.

PART A **Introduction**

PART B **Looking Back**

(An analysis of past changes in the workforce and their relationship to economic conditions at the time.)

PART C **Looking Forward**

(Estimations and modelling of what the future workforce needs of the region are likely to be based on assumptions about the levels and patterns of future economic growth.)

PART D **Analysis of Future Needs & Issues**

(Based on the outcome of the research and of the discussions held in the Workshops with employment agencies, training organisations and regional development organisations.)

1.3 Area Covered

The prime study area is that of the Cairns Regional Council (CRC) that until recently was comprised of the local government areas of Cairns City and Douglas Shire.

It should be noted that a great deal of statistical data is available only at a regional level of the wider Far North Queensland Statistical Division.

However, the changes in regional figures will tend to approximate those in Cairns because:

a) The CRC area represents close to two-thirds of the population and workforce in the statistical division.

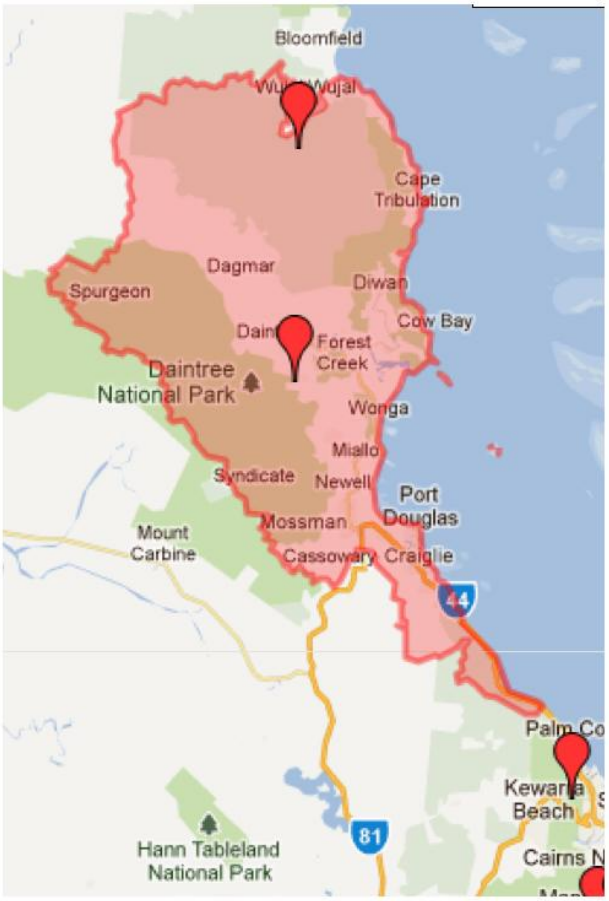
b) Cairns as a regional servicing city tends to react to trends in its wider servicing area and in fact part of the CRC area, Babinda and Douglas, has similarities in economic structures to the other rural areas in the wider region.

Within the Cairns Regional Council area, the main analysis is carried out for the urban area of Cairns as defined by the Cairns Statistical Sub Division ie. the area from Gordonvale to Ellis Beach. This area accounts for almost 90% of Cairns Regional Council population and workforce.

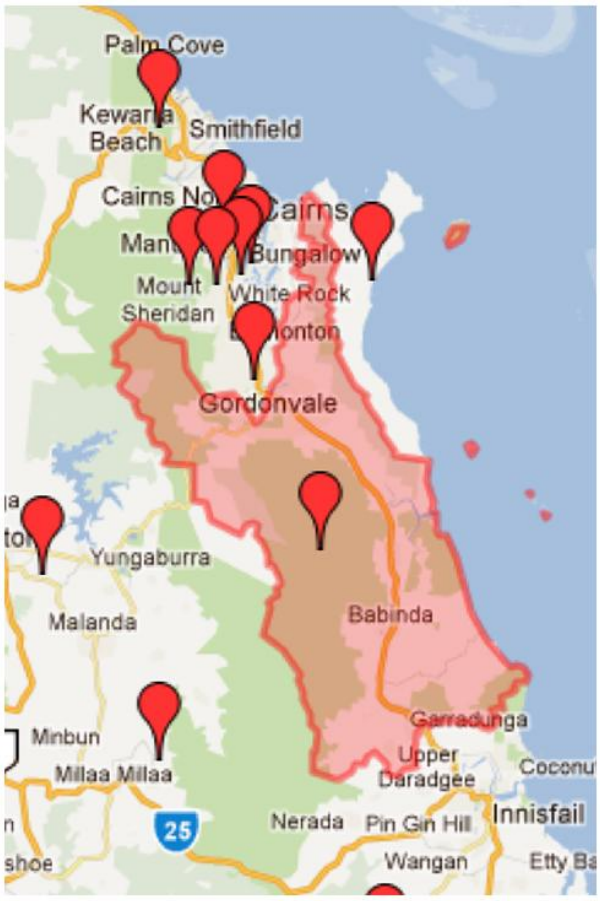
A brief supplementary analysis is included for the Babinda area (defined as Cairns Part B) and the former Douglas Shire area now defined as Cairns – Douglas, based on less comprehensive data available for those areas.

Cairns Statistical Sub Division

FNQ Statistical Division



Cairns – Douglas



Cairns Part B

PART B
LOOKING BACK

2. THE ECONOMY OF THE CRC AREA

2.1 Two Major Functional Elements

The economy of the Cairns Regional Council area is composed of two major functional elements – its regional city role and the rural areas to the south and north.

1) The urban area of Cairns that performs the function as a typical regional hub city, with a capital city relationship with the area it services.

   Cairns city's major role is as an administrative, distribution, manufacturing, transport, wholesaling, retailing, business and professional servicing hub for the Far North Queensland Peninsula Australia Region with an area 1½ times the size of Victoria.

   For decades now, this has been the fastest growing region in northern Australia and is now the largest in population having passed the Townsville/Mt Isa region in recent years. Cairns hinterland residential population is now 50% larger than that of Townsville. Much of the region's growth has been in Cairns that now accounts for 55% of the region's residential population.

   Against this background, Cairns has grown from being 50% the size of Townsville 50 years ago, to being 88% the size of Townsville today. That it is not larger than Townsville can be partly attributed to some key regional functions being located outside the city, eg. Corrective Services Tablelands and Foundry at Innisfail.

   Employment in the Cairns urban area is located in a crescent that is centred on the CBD but with a medical and tourism precinct north towards the airport and a maritime servicing and industrial area to the west of the CBD of Portsmith, Balaclava, Bungalow and Parramatta Park. This area accounts for something over 60% of all jobs in the Cairns area.

   The influences of the two horns of the crescent now stretch further afield with tourism development north along the coast from the airport and industrial development south to the Edmonton area.

   Typically, for a city of its size, regional shopping centres have developed. The first phase of this development was along Mulgrave Road to the west. The second phase has been the development of regional shopping centres in the Edmonton and Smithfield areas that will potentially develop into sub regional hubs.

   A further recent major influence has been the location of the James Cook University Campus north of Smithfield.

   For statistical purposes, the urban area is defined as Cairns Statistical Sub Division covering the area from Gordonvale to Palm Cove also referred to as Cairns Part A. The following paper concerns itself mainly with this area.

2) The CRC area includes the rural districts of the Babinda area (defined in statistics as SLA Cairns Part B) and the former Douglas Shire area (now defined in statistics as SLA Cairns – Douglas).

   This area was traditionally dominated by the sugar industry including the sugar mills of Mossman, Mulgrave and the recently closed Babinda Mill.

   Tourism has extended north along the Douglas coast to become the predominant activity in that area.

   Further special analysis of this area is included in Section 13.7.

2.2 Regional Capital/Servicing Centre Role

Employment in the CRC area is thus dominated first by Cairns' role as a servicing centre that in the first place relates to the size of the region's population (city and region).

In this, it has major aspects similar to most Australian regional cities of similar size.

As with most regional cities, its growth is heavily influenced by the size of the region's 'base' industries earning income from outside the region – primary industries (agriculture, forestry, fisheries, etc.), mining and tourism.

Cairns' size as a servicing city is modified from typical regional patterns.

It is made bigger than what could be expected by a number of factors.

1) Unlike primary industries and mining where most of the prime activity takes place away from the regional city, tourism which is a relatively large part of the economy is located heavily in the regional city, especially accommodation. This tends to increase the size of the city relative to the region.

2) The distance of the city from major metropolitan centres and the large area covered by the region leads to a disproportionately large transport sector.

3) Transport costs arising from distance from major metropolitan centres has in the past 'protected' some local manufacturing and services – again tending to increase its relative size as a regional servicing capital.

4) The city has developed two classic 'clusters' based on concentration of skills that earn wider regional income, namely the maritime and aviation service sectors.

5) While the city does not have the defence presence to the extent of Townsville and Darwin, it does have a substantial defence presence in the form of the navy base, coastal surveillance based at Cairns airport, and relatively heavy employment in customs, immigration, AQIS, etc. compared with most regional cities.

It is made smaller than might be expected however, by some fundamental factors.

1) Its late development and strong recent growth has meant that many service functions are still lagging and catching up, especially government functions, and especially in higher education and higher levels of health services. In this, there is a special problem of reluctance to see Cairns develop functions that were previously only available in Townsville.

2) Although the Far North Queensland (FNQ) region has the largest population in the north, some 14% of the population is indigenous with lower levels of income and generating lower levels of economic activity and per capita demand for services.

3) Geographical and historical factors limit markets for manufactured goods and services beyond regional boundaries. Thus, most regional cities in southern Australia are within transport distance of major metropolitan and state markets and can be in a position to attract manufacturing and services catering for major national markets. Regional markets in the north and nearby Papua New Guinea (PNG), Papua Indonesia and Pacific markets are relatively small, fragmented, often with stronger transport and communication links back with capital cities in the south and overseas than between one another. Adding to the fragmentation are international boundaries between Cairns and PNG, Papua Indonesia and the Pacific Islands.

4) Poor internal transport infrastructure in the region, especially roads, rail and ports, adds cost pressures and diminishes the role of Cairns, especially efficiency of distribution links between Cairns and the Tablelands, Gulf and Peninsula.

5) The city's development has been negatively impacted by environmental constraints.

2.3 Non-Regional Servicing Centre Areas

The Babinda and Douglas areas are heavily affected by the fortunes of the tourism industry, sugar and to a lesser extent tropical fruit industries.

The Babinda area south of Cairns is being increasingly impacted by influences of Cairns' urban expansion, including semi rural activities such as nurseries, stables, riding schools, sporting activities and rural residential.

3. OVERALL MOVEMENTS IN THE SIZE OF THE WORKFORCE & WORKFORCE STATUS

3.1 Overall Workforce & Population

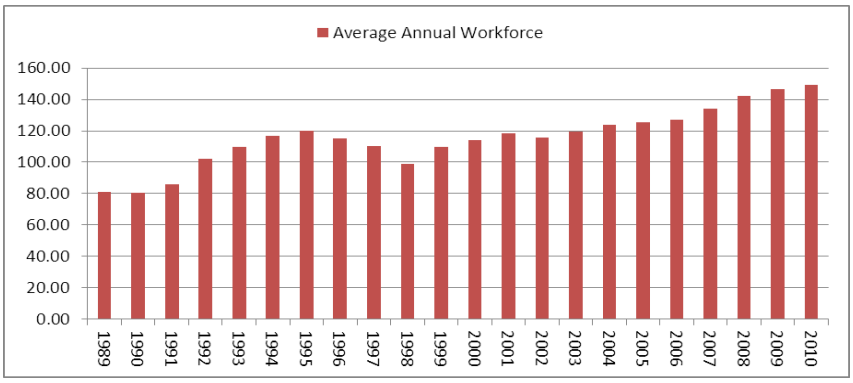
Tables giving Australian Bureau of Statistics (ABS) data on the size of the workforce, employed, unemployed and unemployment rate are given in Appendix 2.

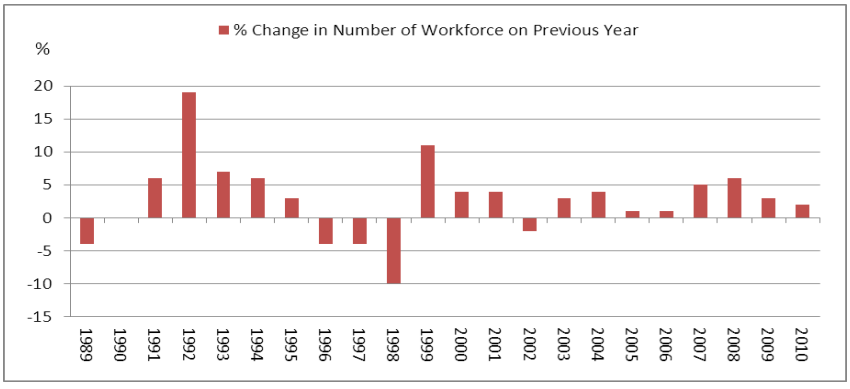
It should be noted that ABS data on workforce size is collected on a sample survey and at regional level can be subject to substantial statistical error. Month by month changes can be very misleading. The data in Appendix 2 is grouped by quarters, half years and calendar years.

The following **Table/Chart #1** gives average workforce since 1987 by years.

Table/Chart #1: Average Yearly Workforce Since 1989, FNQ Statistical Division

Year	Average Annual Workforce	% Change in Number of Workforce on Previous Year
1989	80.94	-4%
1990	80.69	0%
1991	85.65	+6%
1992	102.32	+19%
1993	109.94	+7%
1994	116.61	+6%
1995	120.31	+3%
1996	115.07	-4%
1997	110.51	-4%
1998	99.14	-10%
1999	109.63	+11%
2000	113.96	+4%
2001	118.59	+4%
2002	115.87	-2%
2003	119.47	+3%
2004	123.94	+4%
2005	125.29	+1%
2006	127.15	+1%
2007	134.02	+5%
2008	142.07	+6%
2009	146.66	+3%
2010	149.49	+2%





Source: Cummings Economics from ABS data.

The data indicated that workforce growth on an annual basis has averaged 2.66% per annum over the 23-year period shown. However, annual growth has fluctuated.

Table #2: Annual Growth Fluctuations, FNQ Statistical Division

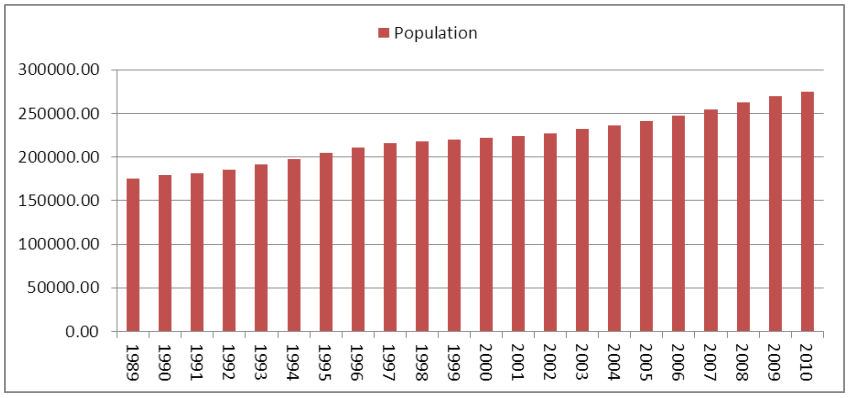
Decliners	1989	-4%	Pilots' dispute
	1996	-4%	
	1997	-4%	
	1998	-10%	Asian crisis
	2002	-2%	
Growth over 5%	1991	+6%	
	1992	+19%	
	1993	+7%	
	1994	+6%	
	1999	+11%	
	2007	+5%	
	2008	+6%	

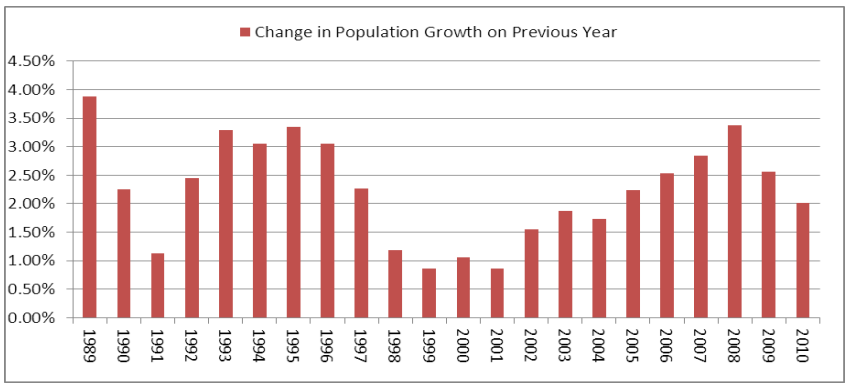
Source: Cummings Economics from ABS data.

The following **Table/Chart #3** gives estimated residential population and growth 1989 to 2010 and following **Table/Chart #4** shows ratio of workforce to population over the period.

Table/Chart #3: Estimated Residential Population & Growth, FNQ Statistical Division, 1989 to 2010

Year	Population	% Change in Population Growth on Previous Year
1989	175432.00	3.88%
1990	179378.00	2.25%
1991	181399.00	1.13%
1992	185848.00	2.45%
1993	191961.00	3.29%
1994	197826.00	3.06%
1995	204452.00	3.35%
1996	210695.00	3.05%
1997	215481.00	2.27%
1998	218037.00	1.19%
1999	219914.00	0.86%
2000	222235.00	1.06%
2001	224163.00	0.87%
2002	227638.00	1.55%
2003	231906.00	1.87%
2004	235921.00	1.73%
2005	241200.00	2.24%
2006	247295.00	2.53%
2007	254309.00	2.84%
2008	262896.00	3.38%
2009	269645.00	2.57%
2010	275058.00	2.01%

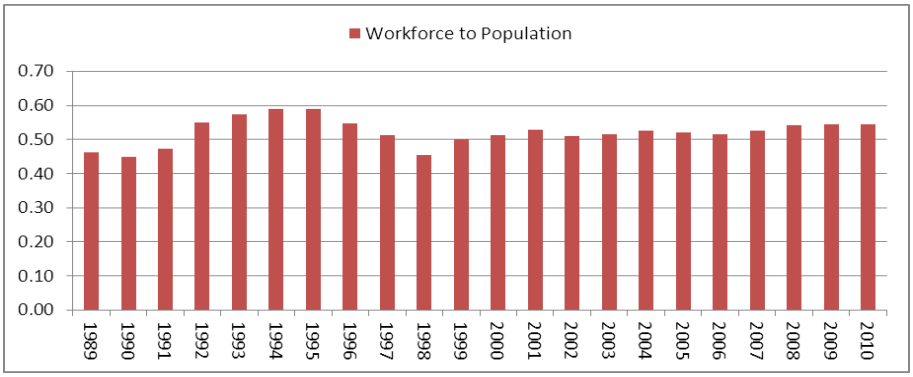




Source: Cummings Economics from ABS data.

Table/Chart #4: Ratio of Workforce to Population, FNQ Statistical Division, 1989 to 2010

Year	Workforce to Population
1989	0.46
1990	0.45
1991	0.47
1992	0.55
1993	0.57
1994	0.59
1995	0.59
1996	0.55
1997	0.51
1998	0.45
1999	0.50
2000	0.51
2001	0.53
2002	0.51
2003	0.52
2004	0.53
2005	0.52
2006	0.51
2007	0.53
2008	0.54
2009	0.54
2010	0.54



Source: Cummings Economics from ABS data.

Average annual growth of population over this period was 2.16 per annum less than the workforce growth of 2.66 per annum. This is reflected in the ratio of workforce to population rising from 46% to 54%.

The pattern of population growth broadly reflected the changes in the workforce but with a lag and while workforce recorded dropped in some years, population did not.

The workforce recorded falls in 1989 and 1990. The population growth rate started falling in 1990 but did not reach a low of about 1% per annum until 1991.

The peak growth of workforce was in 1992 with further but lower advances through to 1995. The population growth rate peaked in 1995.

Falls in workforce were recorded 1996 through to 1998 resulting in a slowing of population growth to reach lows of less than 1% in 1999 and 2001 despite workforce increases being shown in those years.

Apart from 2002, there was continuing growth in workforce and population growth rose to 3% in 2008 but started to tail off in 2009 and 2010.

Despite the global financial crisis in 2008, both workforce and population continued to grow at a slowing pace in 2009 and 2010.

Workforce to population ratio rose during the very strong growth period through to 1994 and 1995, dipped during the slower growth period to 1998 and generally trended upwards with some fluctuations to plateau at 54% over the three years 2008, 2009 and 2010.

Analysis by male/female in Section 3.3 throws further light on the workforce to population ratio.

3.2 Employed & Unemployed

The following three tables and charts show average annual employed **(Table/Chart #5)**, average annual unemployed **(Table/Chart #6)**, and average annual unemployment rate **(Table/Chart #7)**. In addition, **Chart #8** shows the region's unemployment rate compared with Queensland and Australia.

The first thing to note from the data is that over the period of time, 1988 to 2010, the employed workforce grew at the same rate as the total workforce at 2.66% per annum, but slightly faster than the rate of residential population growth of 2.16% per annum. (Note the following section 3.3 giving male female composition that throws light on why this might have happened.)

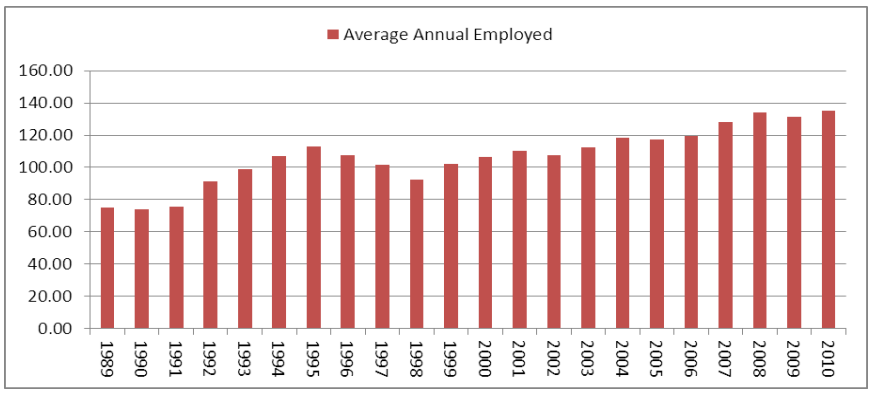
The second point to make is that the average unemployment rate over the period was 7% per annum – much higher than the Australian and Queensland average.

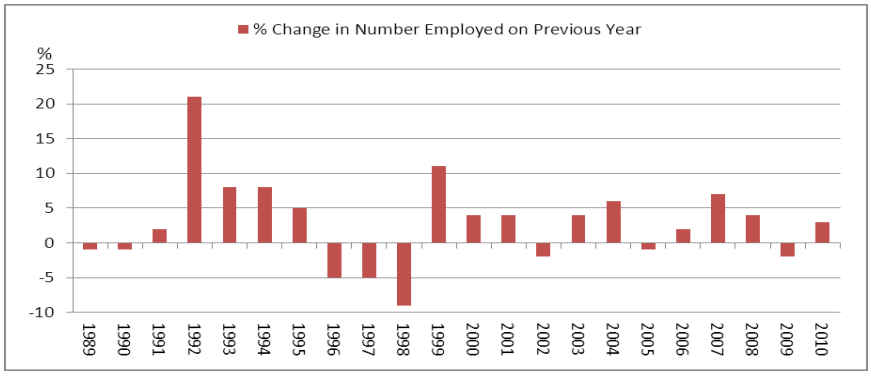
One possible reason for this was explored by Cummings Economics in a paper prepared in 2009 (see Reference 1) which found that, while the unemployment was higher among the region's 14% indigenous population, the rate was disguised by the extensive use of CDEP (Community Development Employment Programmes) in indigenous communities and the net effect was to raise the reported unemployment rate by 1% point only.

Examination of year by year changes indicates similar patterns of a slow down in 1989 and 1990 of employed and a very sharp rise in the unemployed in 1990 and 1991 to a rate of over 10%.

Table/Chart #5: Average Annual Employed, FNQ Statistical Division, 1989 to 2010

Year	Average Annual Employed	% Change in Number Employed on Previous Year
1989	74.95	-1%
1990	73.97	-1%
1991	75.79	+2%
1992	91.58	+21%
1993	98.99	+8%
1994	107.13	+8%
1995	112.91	+5%
1996	107.45	-5%
1997	101.55	-5%
1998	92.21	-9%
1999	102.30	+11%
2000	106.29	+4%
2001	110.21	+4%
2002	107.72	-2%
2003	112.29	+4%
2004	118.61	+6%
2005	117.45	-1%
2006	119.66	+2%
2007	128.43	+7%
2008	134.07	+4%
2009	131.22	-2%
2010	135.42	+3%

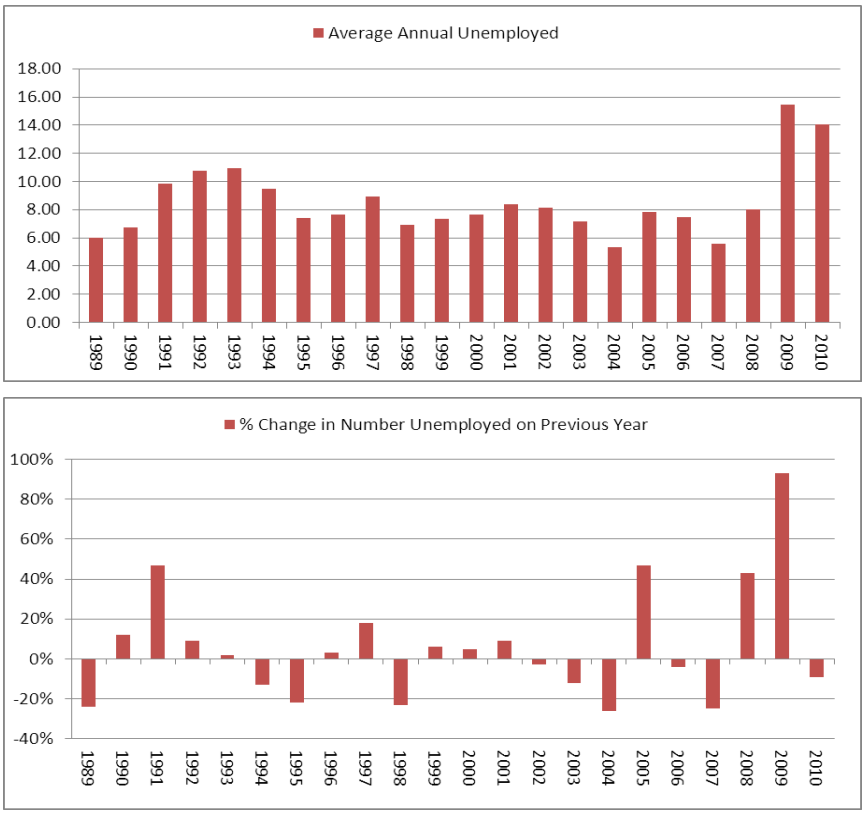




Source: Cummings Economics from ABS data.

Table/Chart #6: Average Annual Unemployed, FNQ Statistical Division, 1989 to 2010

Year	Average Annual Unemployed	% Change in Number Unemployed on Previous Year
1989	5.99	-24%
1990	6.71	+12%
1991	9.86	+47%
1992	10.75	+9%
1993	10.95	+2%
1994	9.48	-13%
1995	7.40	-22%
1996	7.62	+3%
1997	8.96	+18%
1998	6.93	-23%
1999	7.33	+6%
2000	7.66	+5%
2001	8.39	+9%
2002	8.15	-3%
2003	7.18	-12%
2004	5.33	-26%
2005	7.83	+47%
2006	7.49	-4%
2007	5.59	-25%
2008	8.00	+43%
2009	15.44	+93%
2010	14.07	-9%



Source: Cummings Economics from ABS data.

The period was characterised by a boom in construction during the period 1987 to 1989 that was starting to oversupply the market. The onset of the down turn in Cairns was overnight. The pilots' dispute cut off tourism flows overnight and was followed by the effects of the sharp national recession.

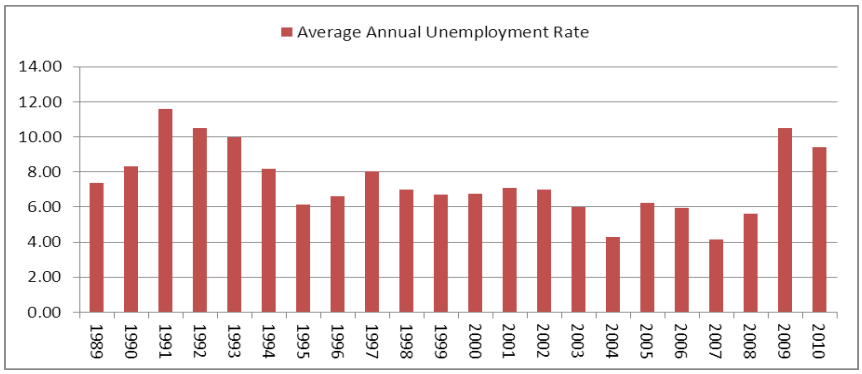
The region bounced out of the downturn in 1992 with a strong rebound in employment growth. But while workforce and strong population growth resumed and it took a further 3 years for the unemployment rate to fall back to 8% and then down to a low of 6% in the peak year of 1995.

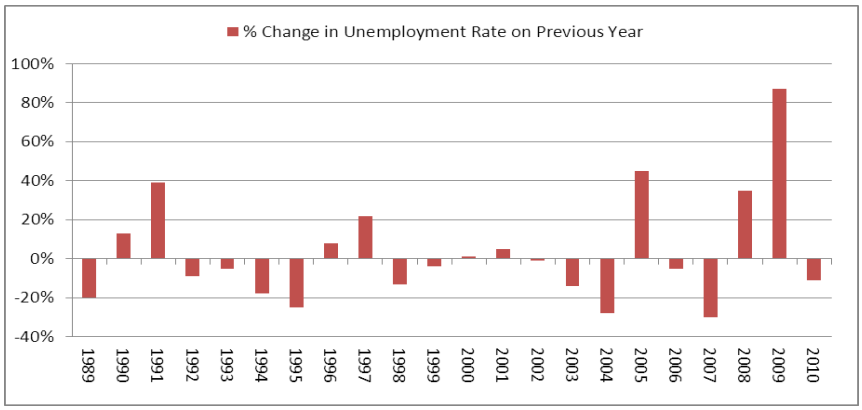
The soft period in the second half of the 1990's was different. Although there was a sharp overnight effect of the Asian crisis in 1998, the economy was already slowing and adjusting and although unemployment rose to 8% in 1997, it hovered around only 6% through to 2002.

The upswing in numbers employed from 1999 onwards however, was accompanied by growth in workforce and it was not until 2004 that the rate of unemployment fell further down to about 4%. The year 2005 was soft for employment and with population and workforce continuing to grow, unemployment rate returned to 6%. However, with strong growth in employment, the unemployment rate fell back again to 4% in 2007. Although 2008 saw continued growth in employment, the growth of population and workforce was stronger and unemployment rose back to being about 5% when the global financial crisis hit.

Table/Chart #7: Average Annual Unemployment Rate, FNQ Statistical Division, 1989 to 2010

Year	Average Annual Unemployment Rate	%Change in Unemployment Rate on Previous Year
1989	7.38	-20%
1990	8.32	+13%
1991	11.59	+39%
1992	10.51	-9%
1993	9.98	-5%
1994	8.17	-18%
1995	6.15	-25%
1996	6.63	+8%
1997	8.06	+22%
1998	6.99	-13%
1999	6.69	-4%
2000	6.75	+1%
2001	7.08	+5%
2002	7.02	-1%
2003	6.02	-14%
2004	4.31	-28%
2005	6.24	+45%
2006	5.93	-5%
2007	4.16	-30%
2008	5.63	+35%
2009	10.52	+87%
2010	9.41	-11%



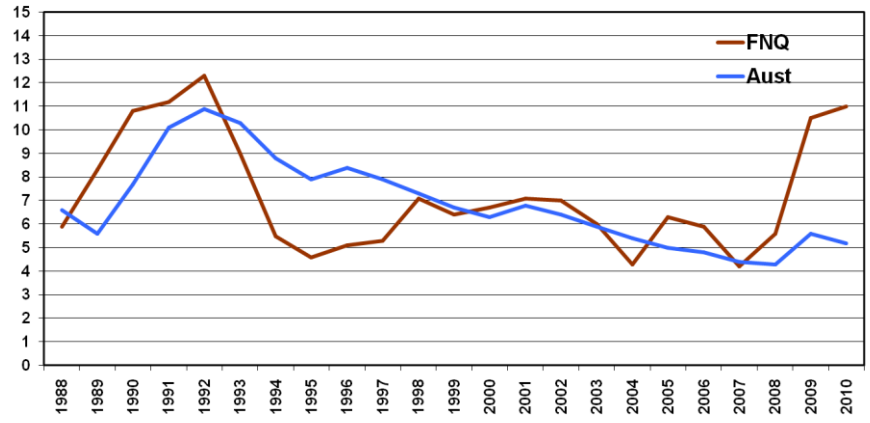


Source: Cummings Economics from ABS data.

The situation in late 2008 was similar to 1989 when the pilots' dispute had an overnight effect on the economy. In 2008, the economy was in full flight and with workforce and population growth continuing, the unemployment rate shot up over 10%. Although workforce and population growth moderated in 2010, and there was some rebound in employment, the unemployment rate moderated but remained high at over 9%.

The foregoing analysis indicates that the region runs a relatively high unemployment rate along with a high job creation rate.

Chart #8: Unemployment Rate FNQ & Australia, 1989 to 2010



Source: Cummings Economics from ABS data.

The region also particularly susceptible to sharp shocks to the economy that come on suddenly while the economy is in full flight and experiencing high rates of construction and population growth. In 1989 prior to the pilots' dispute, the region's population growth was running at over 3.5% (and Cairns at over 5%) and in 2008, the region's population growth was running at over 3% (and Cairns over 4%).

Both indicate that the region does not have a major general problem of attracting and holding workforce and population and the region's long term strong workforce and population growth trajectory is slow to adjust to downturns in economic activity. (In Section 4, there is further analysis at an industry level.)

3.3 Male/Female Trends

The following tables and charts illustrate movements in the male/female balance in the workforce – Total male/female workforce **(Table/Chart #9)**; Total male/female employed **(Table/Chart #10)**; Total male/female unemployed (**Table/Chart #11**); Employed male/female as a percent of total (**Table/Chart #12**).

The tables immediately indicate that the female workforce has risen faster than the male workforce.

The male workforce rose by an average of 2.46% per annum over the period marginally faster than population growth at 2.16% per annum. The female workforce grew at an average of 3.64% per annum. Females in total workforce grew from 40.0% in 1989 to 45.8% in 2010. As a percent of employed workforce females rose from 39.7% to 45.9%.

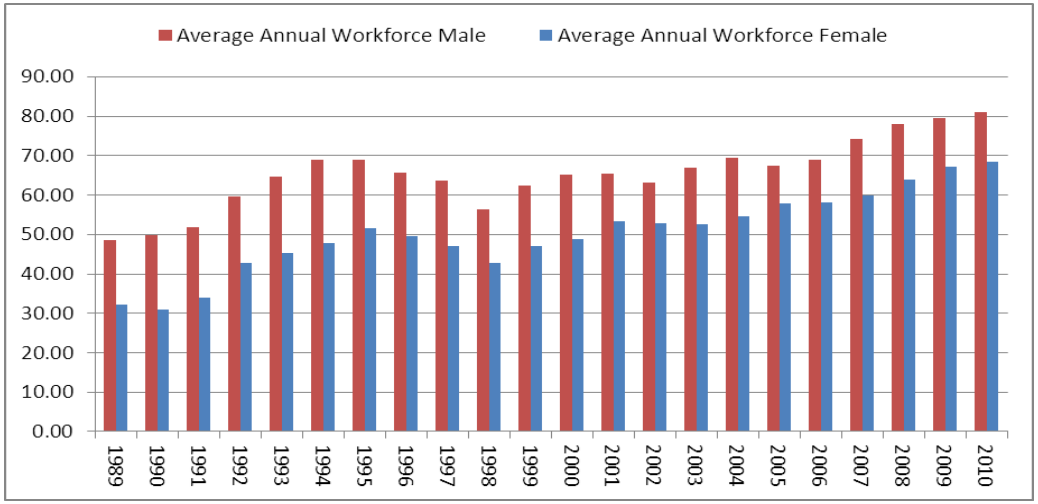
Examination of **Table/Chart #11** indicates that average unemployment rate among males was 7.77% and females 6.98%.

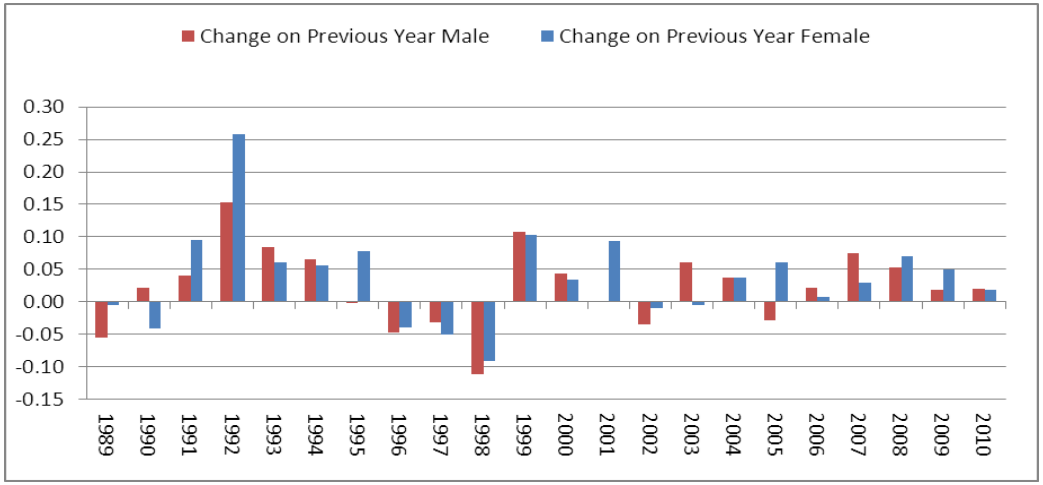
However, the female unemployment rate recorded was higher in 6 of the 22 years shown. In no year has female unemployment been higher than 10% whereas the male unemployment rate has been over 10% in four years.

It is also quite noticeable that the rise in male unemployment was particularly sharp in the peak unemployment years of 1991 and 2009. Thus, the indications are that periods of high unemployment will particularly affect male employment.

Table/Chart #9: Total Male/Female Workforce, FNQ Statistical Division, 1989 to 2010

Year	Average Annual Workforce Male	Average Annual Workforce Female	% Change on Previous Year Male	% Change on Previous Year Female
1989	48.63	32.31	-0.06	0.00
1990	49.71	30.98	0.02	-0.04
1991	51.73	33.92	0.04	0.09
1992	59.63	42.69	0.15	0.26
1993	64.69	45.25	0.08	0.06
1994	68.87	47.75	0.06	0.06
1995	68.84	51.47	0.00	0.08
1996	65.62	49.45	-0.05	-0.04
1997	63.53	46.98	-0.03	-0.05
1998	56.43	42.71	-0.11	-0.09
1999	62.52	47.10	0.11	0.10
2000	65.22	48.74	0.04	0.03
2001	65.33	53.26	0.00	0.09
2002	63.10	52.77	-0.03	-0.01
2003	66.96	52.50	0.06	-0.01
2004	69.47	54.47	0.04	0.04
2005	67.51	57.77	-0.03	0.06
2006	68.99	58.16	0.02	0.01
2007	74.19	59.83	0.08	0.03
2008	78.09	63.99	0.05	0.07
2009	79.48	67.18	0.02	0.05
2010	81.06	68.43	0.02	0.02

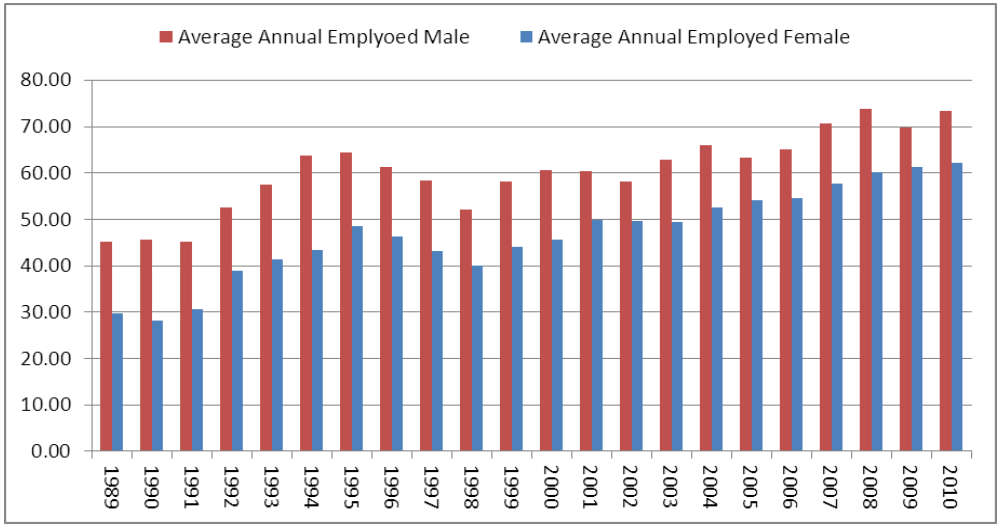


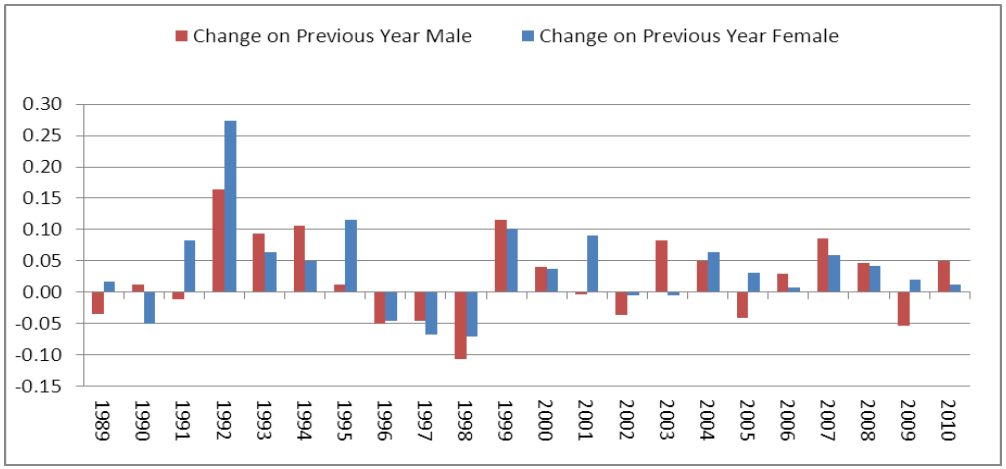


Source*: Cummings Economics from ABS data.*

Table/Chart #10: Total Male/Female Employed, FNQ Statistical Division, 1989 to 2010

Year	Average Annual Employed Male	Average Annual Employed Female	% Change on Previous Year Male	% Change on Previous Year Female
1989	45.21	29.74	-0.03	0.02
1990	45.72	28.26	0.01	-0.05
1991	45.20	30.58	-0.01	0.08
1992	52.64	38.93	0.16	0.27
1993	57.55	41.44	0.09	0.06
1994	63.67	43.46	0.11	0.05
1995	64.46	48.45	0.01	0.11
1996	61.20	46.24	-0.05	-0.05
1997	58.43	43.11	-0.05	-0.07
1998	52.16	40.05	-0.11	-0.07
1999	58.22	44.08	0.12	0.10
2000	60.57	45.73	0.04	0.04
2001	60.33	49.88	0.00	0.09
2002	58.10	49.62	-0.04	-0.01
2003	62.90	49.39	0.08	0.00
2004	66.04	52.58	0.05	0.06
2005	63.26	54.19	-0.04	0.03
2006	65.09	54.56	0.03	0.01
2007	70.62	57.81	0.08	0.06
2008	73.88	60.19	0.05	0.04
2009	69.87	61.36	-0.05	0.02
2010	73.30	62.12	0.05	0.01

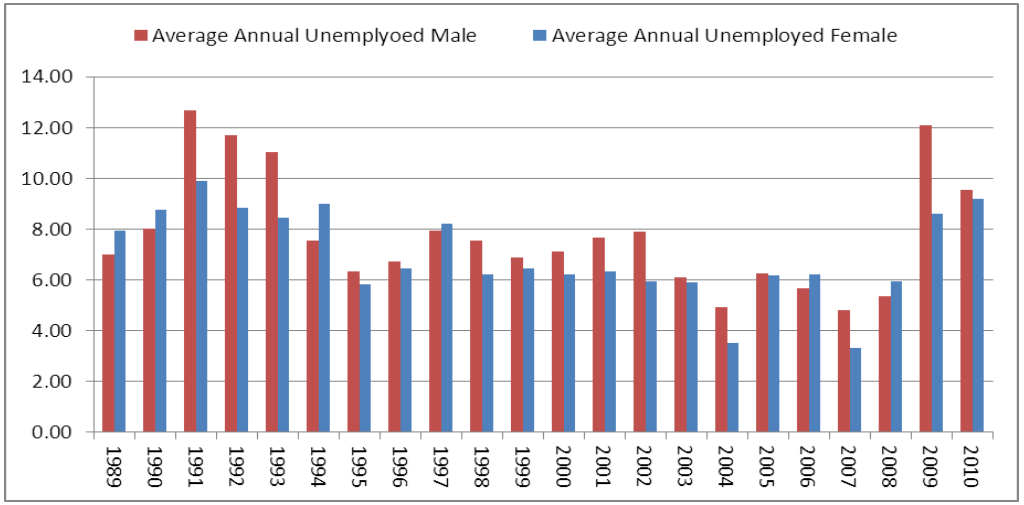


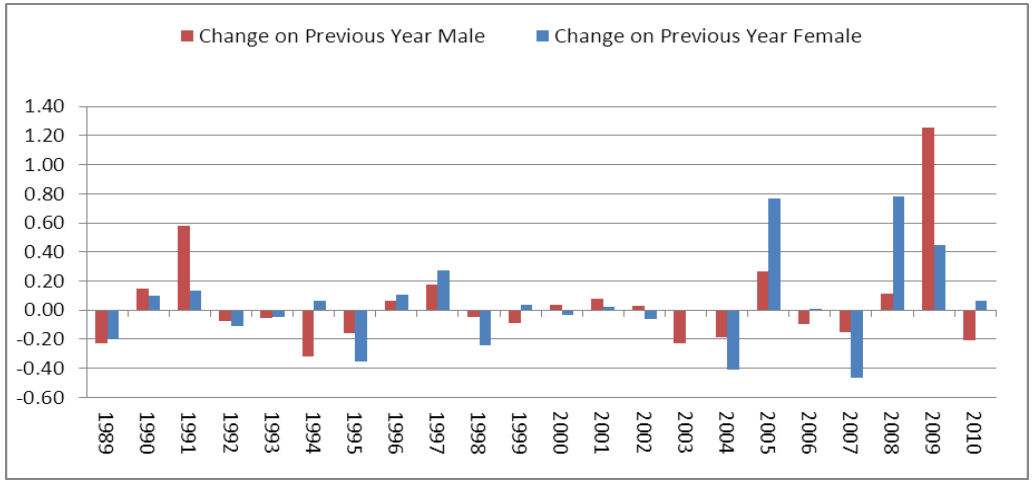


Source*: Cummings Economics from ABS data.*

Table/Chart #11: Total Male/Female Unemployed, FNQ Statistical Division, 1989 to 2010

Year	Average Annual Unemployed Male	Average Annual Unemployed Female	% Change on Previous Year Male	% Change on Previous Year Female
1989	7.01	7.95	-0.23	-0.20
1990	8.03	8.76	0.15	0.10
1991	12.68	9.91	0.58	0.13
1992	11.71	8.83	-0.08	-0.11
1993	11.05	8.45	-0.06	-0.04
1994	7.56	9.02	-0.32	0.07
1995	6.35	5.83	-0.16	-0.35
1996	6.75	6.45	0.06	0.11
1997	7.93	8.23	0.18	0.28
1998	7.55	6.23	-0.05	-0.24
1999	6.88	6.44	-0.09	0.03
2000	7.12	6.22	0.03	-0.03
2001	7.68	6.35	0.08	0.02
2002	7.90	5.96	0.03	-0.06
2003	6.10	5.91	-0.23	-0.01
2004	4.94	3.51	-0.19	-0.41
2005	6.27	6.20	0.27	0.77
2006	5.66	6.23	-0.10	0.01
2007	4.80	3.34	-0.15	-0.46
2008	5.35	5.95	0.12	0.78
2009	12.08	8.63	1.26	0.45
2010	9.57	9.22	-0.21	0.07

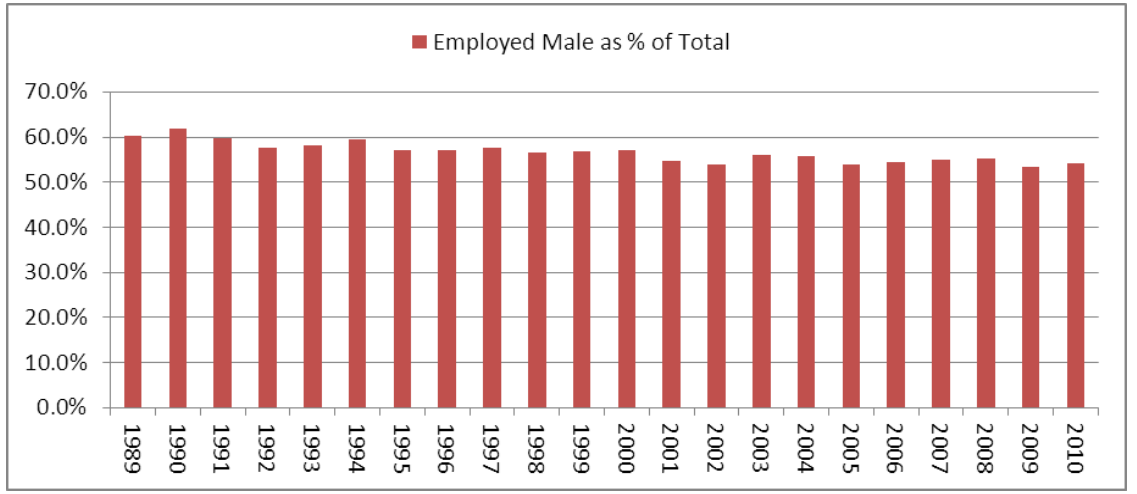


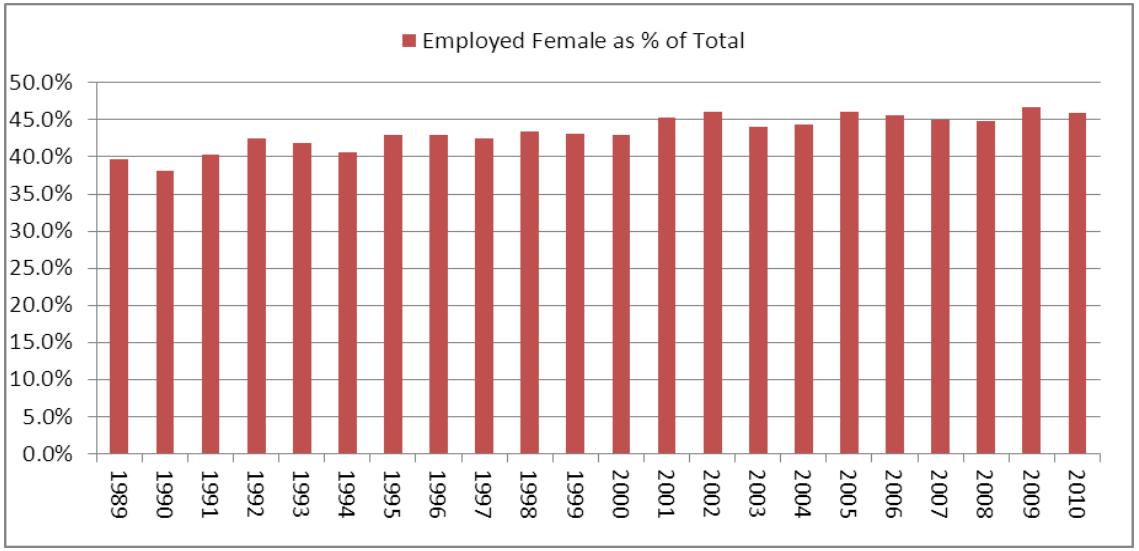


Source*: Cummings Economics from ABS data.*

Table/Chart #12: Employed Male/Female as a Percent of Total, FNQ Statistical Division, 1989 to 2010

Year	Employed Male as % of Total	Employed Female as % of Total
1989	60.3%	39.7%
1990	61.8%	38.2%
1991	59.6%	40.4%
1992	57.5%	42.5%
1993	58.1%	41.9%
1994	59.4%	40.6%
1995	57.1%	42.9%
1996	57.0%	43.0%
1997	57.5%	42.5%
1998	56.6%	43.4%
1999	56.9%	43.1%
2000	57.0%	43.0%
2001	54.7%	45.3%
2002	53.9%	46.1%
2003	56.0%	44.0%
2004	55.7%	44.3%
2005	53.9%	46.1%
2006	54.4%	45.6%
2007	55.0%	45.0%
2008	55.1%	44.9%
2009	53.2%	46.8%
2010	54.1%	45.9%





Source: *Cummings Economics from ABS data.*

3.4 Length of Unemployment

The following analyses average length of unemployment since last full time job since November 2007.

The data is in 6-month rests up to October 2010. The last data is for 4 months, November 2010 to February 2011.

Table #13: Average Length of Unemployment, FNQ Statistical Division,

Period	Average Weeks Unemployed since last full time job
Nov 07 – Apr 08	27.6
May 08 – Oct 08	21.9
Nov 08 – Apr 09	30.0
May 09 – Oct 09	39.6
Nov 09 – Apr 10	40.0
May 10 – Oct 10	39.7
Nov 10 – Feb 11	40.9

Source: Cummings Economics from ABS data.

It can be seen that the length of unemployment rose strongly during 2009 but has remained steady at about 40 weeks since then.

3.5 Age of Unemployed

The following analyses age of unemployed in the Far North Queensland (FNQ) Statistical Division by six monthly periods from November 2007.

Table #14: Percent of Unemployed by Age, FNQ Statistical Division

Period	15 - 19	20 – 24	25 – 34	35 – 44	45 – 54	55 – 59	60 – 64	65+	Total
Nov 07 – Apr 08	8.4%	22.4%	25.3%	17.1%	12.5%	4.0%	1.0%	0	100%
May 08 – Oct 08	23.1%	14.7%	33.6%	12.8%	11.9%	3.9%	0	0	100%
Nov 08 – Apr 09	22.2%	13.2%	21.2%	16.5%	15.9%	3.0%	8.1%	0	100%
May 09 – Oct 09	18.1%	12.2%	25.8%	17.6%	13.2%	6.6%	6.0%	1.0%	100%
Nov 09 – Apr 10	21.5%	10.8%	29.5%	14.7%	15.9%	5.5%	0	1.6%	100%
May 10 – Oct 10	23.8%	15.2%	30.1%	12.5%	15.7%	0	1.8%	1.0%	100%
Nov 10 – Feb 11	20.6%	21.0%	32.3%	10.0%	11.9%	0	2.6%	1.5%	100%

Source: Cummings Economics from ABS data.

It should be noted that the 'sample survey' nature of the figures means that small variations may not be significant.

The following simplifies the table into 3 groups – Young 15 – 24, Main workforce 25 – 54, Older 55 and over.

Table #15: Percent of Unemployed by Age Grouped, FNQ Statistical Division

Period	Young 15 - 24	Main workforce 25 – 54	Older 55 plus
Nov 07 – Apr 08	41%	59%	0
May 08 – Oct 08	38%	62%	0
Nov 08 – Apr 09	35%	57%	8%
May 09 – Oct 09	30%	63%	7%
Nov 09 – Apr 10	32%	66%	2%
May 10 – Oct 10	39%	58%	3%
Nov 10 – Feb 11	42%	54%	4%

Source: Cummings Economics from ABS data.

The figures tend to indicate that before the global financial crisis, the young group 15 – 24 accounted for a disproportionately high proportion of the unemployed at about 40%and the older group aged 55 plus disproportionately low proportion with virtually no unemployment being recorded.

The figures tend to indicate that the post GFC sharp rise in unemployment disproportionately affected the main workforce age group 25 - 54 and the young unemployed group fell as a proportion of the unemployed workforce. There is evidence that the older age group was even more heavily affected.

More recently, the figures have been returning to the pre GFC patterns of a disproportionate percent of the unemployed in the young age group. The implications for future strategy is that there is a long term need to address youth unemployment.

However, with a high proportion of the young age group already unemployed sharp blows to the economy as occurred in 2008/09 will bring substantial numbers in the other age groups into the unemployed.

This is consistent with a remark during the recent sharp rise in unemployment levels that we were seeing people becoming unemployed who had never been unemployed in their life before.

4. ANALYSIS BY INDUSTRY

3.3 General

Unfortunately, data is only available from census snapshots in 1996, 2001 and 2006.

The following analyses changes over these periods based on the census data where possible for the Cairns Statistical Sub Division, ie. the Cairns urban area Gordonvale to Ellis Beach. Additional analysis will be provided for the area south of Gordonvale (Babinda) and the Douglas area to the north in subsequent research.

3.4 Wider Comparisons

To put Cairns in context for the 2001 – 2006 period, the Australian Government Bureau of Infrastructure, Transport and Regional Economics Information Sheet – "*Changes in Australia's Industry Structure : Main Cities 2001 – 2006*" is referred to.

This analysis covers Australia's 15 largest cities with Townsville, Cairns and Darwin in 13th, 14th and 15th place.

Some of the salient features of Cairns' growth over this period identified in the analysis were:

- Cairns was exceeded only by the Gold Cost/Tweed and Sunshine Coast areas in population growth rate, ie. it was third with a rate of about 3% per annum.
- Cairns was the only city that showed faster population growth than workforce growth. It was just lower at about 2.9% per annum. This is consistent with the observations in the previous section about population moving in.
- However, Cairns was still 5th out of the 15 in workforce growth rate.
- By and large, the smaller labour force cities showed more volatility in the structural composition of their workforce with Cairns and Darwin showing the highest levels of structural change.

The following table shows for reference in the following sections, average growth in employment by industries for the 15 main cities analysed (from highest to lowest).

	Main Cities
Mining	+8.7% pa
Government administration & defence	+6.3% pa
Construction	+4.7% pa
Health & community services	+4.0% pa
Electricity, gas & water	+3.5% pa
Education	+2.9% pa
Transport & storage	+2.8% pa
Finance & insurance	+2.2% pa
Personal & other services	+1.7% pa
Retail trade	+1.5% pa
Accommodation, cafes, restaurants	+1.2% pa
Property & business services	+1.2% pa
Wholesale trade	+0.4% pa
Cultural & recreational services	0.0% pa
Manufacturing	-0.4% pa
Communication services	-2.3% pa
Agriculture	-3.3% pa

Source: Cummings Economics from Aust Gvt Bureau of Infrastructure, Transport & Regional Economics.

4.3 ABS Workforce Data for Cairns

4.3.1 General

Table, Appendix 3, gives changes in workforce by broad industry group for 1996, 2001 and 2006 for Cairns Statistical Sub Division.

The following provides further analysis of these figures.

Table #16: Workforce Changes by Industry, Cairns Statistical Sub Division (SSD) Actual 1996 – 2001 & 2001 – 2006 and Estimated 2006 - 2011

		Growth 1996 - 2001	Growth 2001 - 2006	Growth 2006 – 2011 Range	
				Low	High
(2)	Agriculture, forestry & fishing	-15.88%	-27.04%	-12.59%	-8%
(2)	Mining	-23.96%	+74.35%	+173.11%	+200%
(6)	Manufacturing	+5.16%	+0.02%	+12.39%	+16%
(6)	Electricity, gas, water & waste services	+53.28%	+21.68%	+17.8%	+15%
(1)	Construction	-14.66%	+71.93%	-5.03%	-3%
(4)	Wholesale trade	-6.14%	-8.48%	+0.65%	+1%
(4)	Retail trade	+15.23%	+10.94%	+14.06%	+18%
(2)	Accommodation & food services	+1.83%	-2.44%	+0.42%	+1%
(5)	Transport, postal & warehousing	+3.34%	+15.33%	+22.20%	+20%
(6)	Information media & telecommunications	-12.11%	-3.94%	+9.29%	+12%
(1)	Financial & insurance services	-13.77%	+12.50%	+5.30%	+7%
(1)	Rental, hiring & real estate services	-6.55%	+26.06%	+3.02%	+4%
(6)	Professional, scientific & technical services	+0.56%	+21.68%	+17.10%	+24%
(6)	Administration & support services	+4.06%	+3.65%	+5.31%	+7%
(3)	Public administration & safety	+9.21%	+38.48%	+13.86%	+18%
(3)	Education & training	+19.52%	+11.93%	+13.69%	+18%
(3)	Health care & social assistance	+15.14%	+26.57%	+24.98%	+30%
(6)	Arts & recreation services	-6.14%	+2.40%	+12.68%	+16%
(1)	Other services	-12.81%	+12.45%	+18.80%	+20%
	Total	**+1.21%**	**+16.35%**	**+12.00%**	**+12%**

Source: Cummings Economics from ABS data.

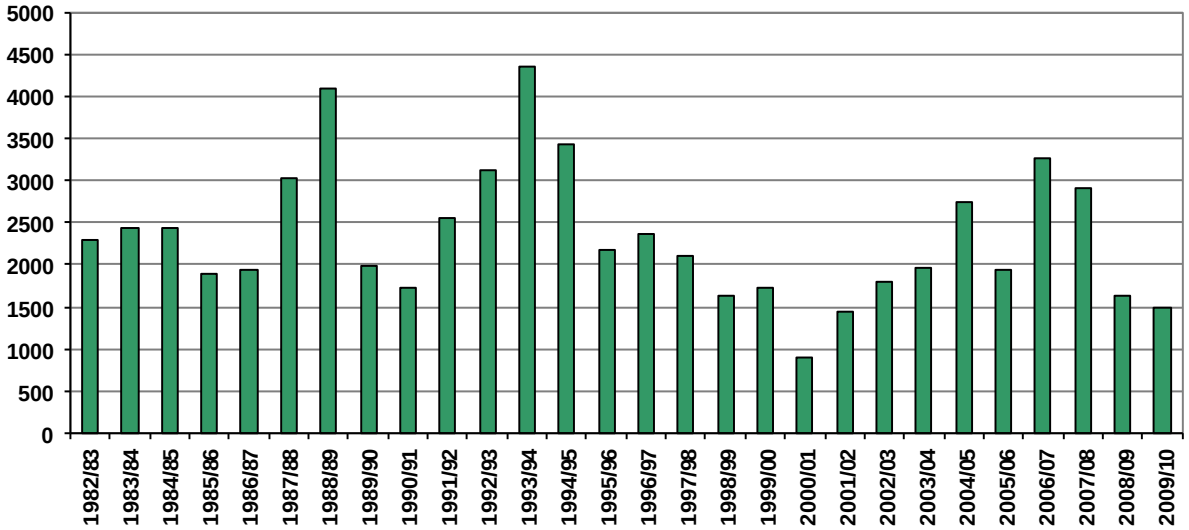
The table illustrates very little growth in total workforce of 1.21% from 1996 – 2001, but strong growth about 17%, 2001 to 2006.

The table above particularly identifies construction affected figures.

4.3.2 Construction

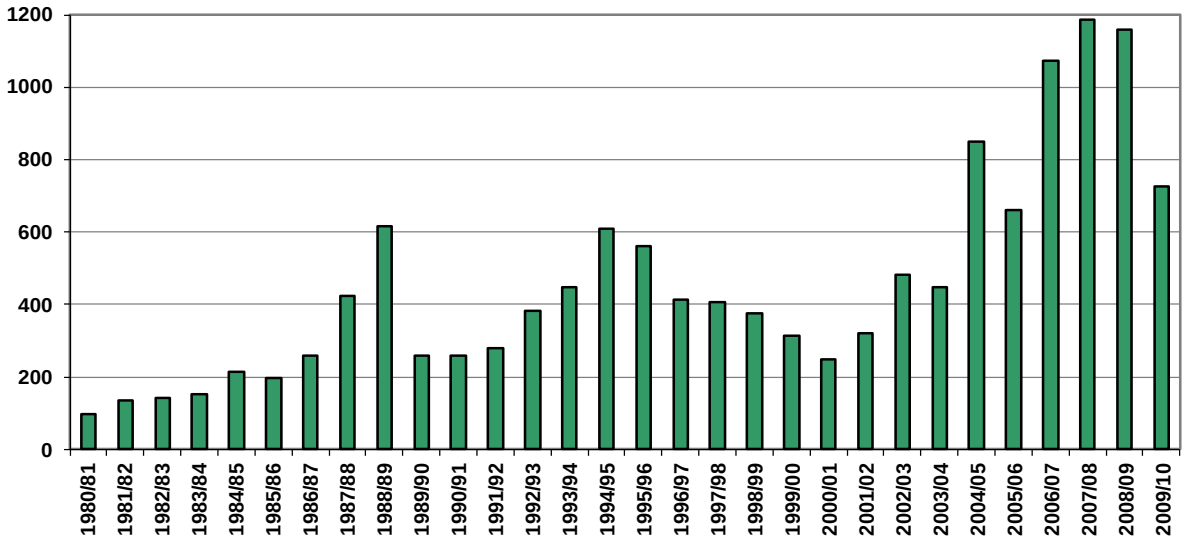
The following charts give for the Far North Statistical Division number of dwelling approvals by financial years and value of building approvals.

Chart #17: Dwelling Approvals, FNQ Statistical Division



Source: Cummings Economics from ABS data.

Chart #18: Value of Building Approvals, FNQ Statistical Division



Source: Cummings Economics from ABS data.

The above two charts illustrate that the construction activity was down strongly in 2001 compared with 1996 but up strongly in 2006 over 2001.

As the previous workforce figures indicate, this reflects itself in the workforce directly in construction which was down 17% 2001 on 1996 but up 46% 2006 on 2001.

While construction workforce was up strongly for the 15 main cities by 26%, 2001 to 2006, Cairns' growth was much faster reflecting the city's faster population growth and the low level of construction in 2001.

Of course, the level of construction affects other sectors. There is evidence of this influence in the figures for rental, hiring and real estate services and financial and insurance services.

The following table shows what happens when the construction affected groups are removed from the workforce.

Table #19: Workforce Growth Rates With/Without the Construction Affected Sectors, Cairns SSD

	Growth 1996 - 2001	Growth 2001 - 2008
Average annual growth		
rate with construction affected sectors	+0.1% pa	+3.1% pa
Average annual growth		
rate without construction affected sectors	+0.5% pa	+2.3% pa

Thus, the changes in construction activity explains part of the changes in total workforce but not all.

4.3.3 Major Base Industries

The following chart looks next at the major 'base' industry employment levels, ie. those major regional industries earning income from outside the region, ie. agriculture, mining and tourism.

Table #20: Workforce Changes, Cairns SSD

	Growth 1996 - 2001	Growth 2001 - 2008	
Agriculture, forestry & fishing	-15.88%	-27.04%	A Agriculture
Mining	-23.96%	+74.35%	M Mining
Manufacturing	+5.16%	+0.02%	
Electricity, gas, water & waste services	+53.28%	+21.68%	
Construction	-14.66%	+71.93%	
Wholesale trade	-6.14%	-8.48%	
Retail trade	+15.23%	+10.94%	
Accommodation & food services	+1.83%	-2.44%	T Tourism related
Transport, postal & warehousing	+3.34%	+15.33%	
Information media & telecommunications	-12.11%	-3.94%	
Financial & insurance services	-13.77%	+12.50%	
Rental, hiring & real estate services	-6.55%	+26.06%	
Professional, scientific & technical services	+0.56%	+21.68%	
Administration & support services	+4.06%	+3.65%	
Public administration & safety	+9.21%	+38.48%	G
Education & training	+19.52%	+11.93%	G Government services
Health care & social assistance	+15.14%	+26.57%	G
Arts & recreation services	-6.14%	+2.40%	T Tourism related
Other services	-12.81%	+12.45%	
Total	**+1.21%**	**+16.35%**	

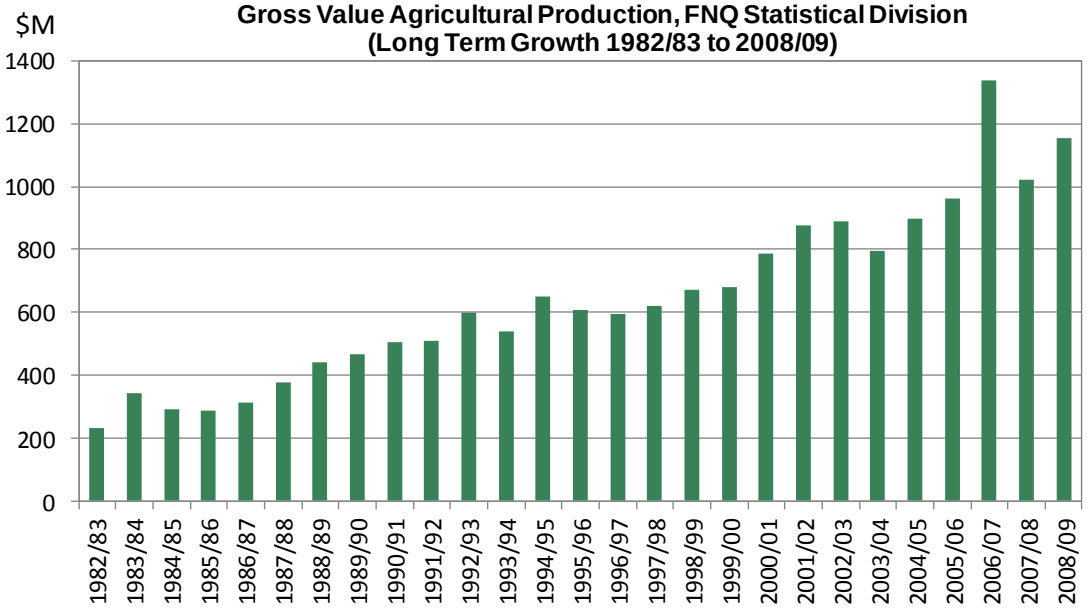
Source: Cummings Economics from ABS data.

The above table indicates that agriculture dropped workforce over both periods, more strongly in the period 2001 to 2006.

Most agriculture, forestry and fishing in the region is located outside the city and urban encroachment is reducing the employment in the city area.

The following chart gives value of agriculture (not including forestry and fishing) at farm gate (ie. not including further processing, transport and distribution) for the Far North Q'ld Statistical Division.

Chart #21: Gross Value Agricultural Production



Source: Cummings Economics from ABS data.

Approximate annual growth over the two periods is 1996 – 2001 5.6%, 2001 – 2006 4.0%, ie. indicating 'real' growth excluding inflation over the two periods of about 3% and 1.5% respectively. This continuing the long term 'real' growth trend of about 2% per annum.

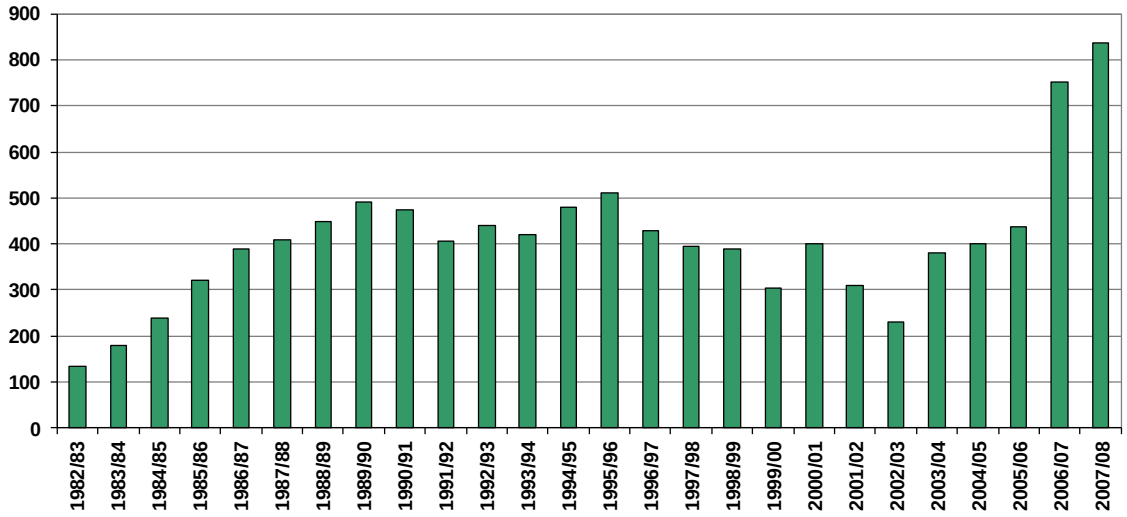
However, at regional level, employment in the sector fell indicating a trend to increasing productivity.

The fall of -4.8% per annum in Cairns over the 2001 – 2006 period is generally consistent with the trend in the 15 main cities that also recorded a fall of -3.3% per annum.

Included with the agriculture figure is fisheries. Contributing to the sharp drop in Cairns, 2001 to 2006, was the major effect of conservation restrictions in the region that saw regional fisheries employment drop by almost 30% from 374 to 266 with much of this effect in Cairns. (See ABS Census 4 digit workforce figures.)

The following chart indicates what happened to mining income over the period.

Chart #22: Value of Mining, FNQ Statistical Division



Source: Cummings Economics from ABS data.

It shows a decline in the region 1995/96 to 2000/01 and a major rise 2000/01 to 2005/06 but not quite back to the 1995/96 figures. This reflects itself in the employment figures for Cairns where the workforce dropped 1996 to 2001, but recovered back to above the 1996 level in 2006, presumably also under the influence of increasing fly-in/fly-out workforce located in Cairns.

The strong increase in mining employment 2001 – 2006 at +8.9% per annum was in line with the increase on the 15 main cities of 8.7% per annum.

The other major 'base' industry is tourism. Tourism is defined by the customer not the product and its influence is spread over many sectors including accommodation, cafes etc., transport, recreation services and retail.

It is of interest that employment in the accommodation and food services sector (the largest tourism sector) fell marginally over the two periods. However, all the indications are that tourism grew over both periods.

Room nights in hotels and motels in the region as follows tend to confirm this.

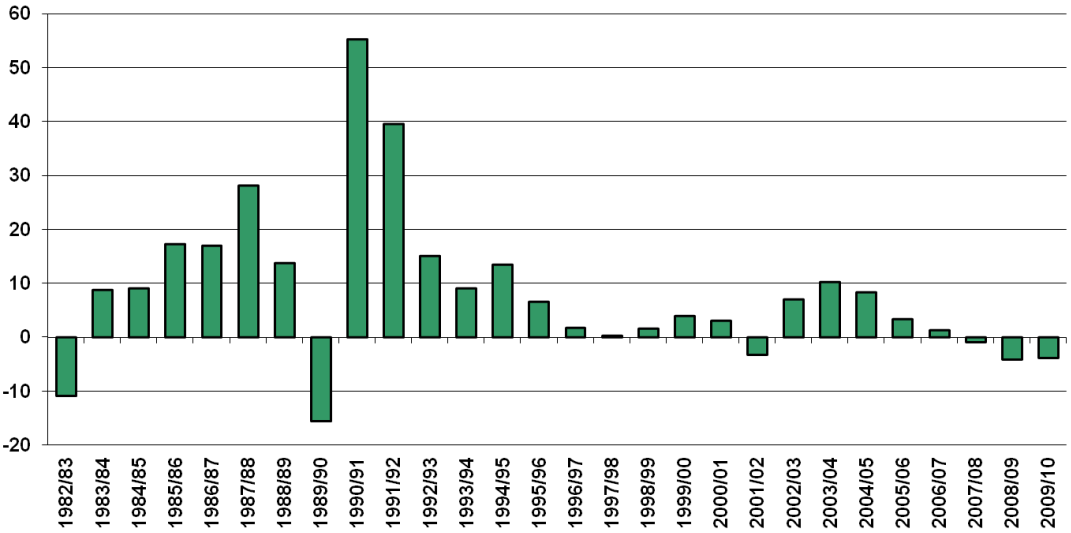
Table #23: Hotel/Motel Room Nights, FNQ Statistical Division

1995/96	2043		
1996/97	2038		
1997/98	2077		
1998/99	2153		
1999/00	2233		
2000/01	2227	Growth over 1995/96	+9.0%
2001/02	2211		
2002/03	2329		
2003/04	2606		
2004/05	2638		
2005/06	2611	Growth over 2000/01	+17.2%

Source: Cummings Economics from ABS data.

Airport growth figures also tend to confirm the same picture of growth over the period 2001 – 2006.

Chart #24: Year on Year Growth in Passenger Numbers, Cairns Airport



Source: Cummings Economics from ABS data.

The comparative workforce results would be consistent with a situation, where tourism like agriculture as an industry exposed to international competition, is making productivity improvements to compete. Some of this could be expected to be outsourcing of services previously delivered in-house.

The data for the 15 main cities showed a low growth of 1.2% per annum for this sector.

It is notable the other tourism related industry sector and arts and recreation services tend to show a similar pattern of decline 1996 to 2001 and small growth 2001 – 2006. This is not inconsistent with national trends that showed no growth in the sector.

4.3.4 Government Services

A further major trend in the figures relates to some major government services of public administration and safety, education and training and health care and social assistance that have grown strongly over both inter-censal periods, especially 2001 to 2006.

First, the figures are consistent with a general trend for government services to increase Australia wide. The 15 main cities' figures also showed strong growth 2001 – 2006.

The public administration and security figures include defence and services like air surveillance, customs, AQIS, immigration, emergency response and federal police. The strong growth would reflect the growth of HMAS Cairns and growth of the other functions. Cairns' figure at +6.4% is similar to the 15 main cities of 6.3%.

It is notable that the strong growth of Cairns over recent decades had led to it being under serviced compared with its comparative population in fields like higher education and hospitals/health.

In the 2001 – 2006 period, education and training growth for Cairns at 2.3% per annum was behind the 15 cities average of 2.9% per annum and for health, etc. at 5.1% per annum ahead of the 15 main cities of 4.0% per annum.

4.3.5 Other Industries & Services

This leaves a number of other categories that need explanation.

There has been a strong expansion in electricity, gas and water and waste services workforce over the two inter-censal periods. Inquiries indicate this has been especially affected by electricity where there was a general expansion under the previous arrangements up to the late 90's followed by major investment work in the period 2000 to 2006. Again, this reflects a national trend with the Cairns growth of 3.9% per annum comparing with growth in the 15 main cities of 3.5% per annum.

While employment in wholesale is down (-0.2% per annum), employment in retail trade was up (+2.2% per annum). This tends also to reflect a trend at national level for growth of retailing employment to be much stronger (for 15 main cities 2001 – 2006 1.5% per annum compared with wholesaling 0.4% per annum). However, retailing employment in Cairns was up more strongly and wholesaling was down.

Indications from examination of regional 4 digit data for wholesale trade is that the drop in wholesale is primarily in the fields affected by the major retail chains – meat,. dairy, fish, fruit and vegetables, confectionary, liquor and grocery wholesaling and in fact is counter balanced to some extent by wholesaling in building supplies, machinery and equipment and motor vehicles being up.

Examination of figures for Townsville/Thuringowa indicate that the loss in wholesale employment is even greater.

Table #25: Wholesale Employment Compared, Cairns & Townsville Local Government Areas (LGA's)

	1996	2001	2006	2006 over 1996
Cairns LGA	2581	2403	2231	(-14%)
Townsville/Thuringowa LGA's	3060	2865	2445	(-21%)

Source: Cummings Economics from ABS data.

Cairns' wholesaling employment is now 91% of that of Townsville/Thuringowa.

Transport, postal and warehousing also grew over both periods – faster in the second period 2001 – 2006,

There are a number of major influences including the growth in tourism (airport and reef trips), retail growth (requiring transport from the south), and a growing need to shift agricultural produce from the region. There is also a segment that would be involved in transporting building materials and fluctuate with the construction sector but was up strongly 2001 to 2006.

Transport and storage was up for the 15 main cities by 14.8% for the five years 2001 – 2006 period compared with 15.3% for Cairns.

The drop in information media and telecommunications in Cairns of -3.9% is a better result than national trends for the 15 main cities where communication services fell by -11%.

The professional, scientific and technical services pattern with low growth 1996 – 2001 accelerating in 2001 – 2006 is consistent with overall population growth. This seems likely to have continued 2006 – 2011.

Administrative and support services show slow but steady slow growth over the two inter-censal periods and this seems likely to have continued 2006 to 2011.

'Other services' show a pattern indicating some influences of construction but also possibly of population growth. It is our expectation that growth 2006 – 2011 was strong.

At national level in the 15 main cities, a decline in workforce of -2.0% per annum occurred in 2001 – 2006. Cairns did better with a rise of +5.16% in 1996 – 2001 and a very small increase of +0.2% in 2001 – 2006.

Manufacturing reflects three major influences – population related local service manufacturing, primary product processing and manufacturing for wider markets.

By and large, primary product processing is dropping employment as productivity improvements take place. In 1996 – 2001, the growth would not have related to population growth or that part related to construction. In the circumstances, the growth of +5.16%, 1996 – 2001, was a good result. However, the fall back to no growth in the period 2001 – 2006 in the face of an expanded construction and population growth is negative result.

Examination of FNQ Statistical Division data gives comparison of important sectors at a Statistical Division level.

Table #26: Sector Comparison, FNQ Statistical Division

	2001	2006	2006 over 2001
Ship building & boat building	458	326	(-132)
Basic iron & steel manufacturing	233	265	+32
Aircraft manufacturing	167	165	(-2)
Agricultural machinery manufacturing	69	70	+1
Industrial machinery & equipment manufacturing	101	101	-
Wooden furniture manufacturing	118	166	+48
Furniture manufacturing	121	81	(-40)
Manufacturing undefined	446	581	+135
Motor vehicle body building	63	40	(-23)
Structural steel fabricating	64	78	+14
Architectural aluminium product manufacturing	60	135	+75
Newspaper printing & publishing	251	264	(-13)
Printing	167	148	(-19)
Wooden structural component	174	194	+20
Sugar manufacturing	1120	888	(-232)
Bread manufacturing	154	113	(-41)
Meat processing	164	179	+15

Source: Cummings Economics from ABS data.

It indicates the main areas of losses were sugar milling, ship and boat building, furniture manufacturing, motor vehicle body building, printing and bread manufacturing.

4. ANALYSIS BY OCCUPATION

Table, Appendix 4, gives time series showing changes in occupation for the 1996, 2001 and 2006 census counts.

The following summarises the changes.

Table #27: Summary Changes in Occupation, Cairns SSD

	1996 - 2001	2001 - 2006
Managers	(-1.4%)	+15.7%
Professionals	+12.2%	+21.3%
Technician & trade workers	(-6.1%)	+22.0%
Community & personal service workers	+7.8%	+19.3%
Clerical & administration	+1.4%	+12.2%
Sales workers	+8.1%	+7.6%
Machinery operators & drivers	(-4.7%)	+1.9%
Labourers	(-6.2%)	+25.0%
Total	**+1.6%**	**+16.4%**

Source: Cummings Economics from ABS data.

Comparing this with the industry tables and general economic trends, it indicates that:

- Professionals have grown consistently and strongly over both periods. This is consistent with a high growth of government, education and health services.
- Sales workers have grown consistently but not as strongly over both periods.
- Community and Personnel Services workers have also grown in both periods but accelerated in the 2001 – 2006 period.
- Clerical and administration growth closely reflects the overall growth in the workforce and population.
- Managers, technician and trade workers and labourers showed negative growth in the 1996 – 2001 period but reacted very positively to the 2001 – 2006 upswing.
- Machinery operators and drivers showed negative growth 1996 – 2001 and only small growth during the 2001 – 2006 upswing.

Table, Appendix 5, gives for 2006 Census occupation by industry.

It highlights the importance of various occupations in the different industries compared with averages (in brackets).

Table #28: Occupation by Industry, Cairns SSD, 2006 Census – Occupations that are comparatively high in that industry

		% for that industry	% of overall workforce
Agriculture, forestry & fishing	Managers (1)	41.6%	(11.4%)
	Labourers	22.3%	(11.0%)
Mining	Technicians and trade workers	33.0%	(16.6%)
	Machinery operators & drivers	22.7%	(11.0%)
Manufacturing	Technicians and trade workers	35.0%	(16.6%)
Electricity, Gas & Water	Technicians and trade workers	39.4%	(16.6%)
	Clerical & administration	21.9%	(14.4%)
Construction	Technicians and trade workers	51.8%	(16.6%)
Wholesale	Machinery operators & drivers	18.0%	(6.0%)
	Managers	17.6%	(11.4%)
Retail trade	Sales workers	52.4%	(11.6%)
Accommodation & food services	Community & personal services	23.5%	(11.2%)
	Labourers	24.3%	(11.0%)
	Managers	17.0%	(11.4%)
Transport, postal & warehousing	Machinery operators & drivers	29.6%	(6.0%)
	Managers	17.0%	(11.4%)
Information, media & telecommunications	Professionals	26.2%	(16.0%)
Financial & insurance workers	Clerical & administrative	51.9%	(14.4%)
	Professionals	26.2%	(16.0%)
Rental, hiring & real estate services	Sales workers	44.9%	(11.6%)
Professional, scientific & technical	Professionals	47.9%	(16.0%)
	Clerical & administrative	30.1%	(14.4%)
Administrative & Support	Labourers	36.0%	(11.0%)
Public Administration & Safety	Clerical & administrative	19.4%	(14.4%)
Education & training	Professionals	58.8%	(16.0%)
Health care & social assistance	Professionals	38.3%	(16.0%)
	Community & personal service workers	29.4%	(11.2%)
Arts & recreation services	Community & personal service workers	32.3%	(11.2%)
Other Services	Technicians & trade workers	33.8%	(16.6%)

(1) Note: Farmers are generally classed as managers.
Source: Cummings Economics from ABS data.

Thus, the very strong rise in the 2001/06 period of professionals was associated with the rise in government services. The rise in technicians and trade workers and labourers in 2001 to 2006 was associated with the strong rise in construction and associated sectors.

5. INDUSTRY, OCCUPATION, RELATIONSHIP WITH GENDER & AGE GROUPS

The balance of males/females by industry in the 2006 Census was as follows.

Table #29: Males/Females Percent by Industry, 2006 Census, Cairns SSD, Place of Usual Residence

	Males	Females	Cf % Female 1996 Census	Change 1996 - 2006 % points
Agriculture, forestry & fishing	72%	28%	28%	-
Mining	90%	10%	14%	-4%
Manufacturing	78%	22%	24%	-2%
Electricity, gas, water & waste services	82%	18%	13%	+5%
Construction	86%	14%	13%	+1%
Wholesale trade	72%	28%	28%	-
Retail trade	41%	**59%**	61%	-2%
Accommodation & food services	44%	**56%**	55%	+1%
Transport, postal & warehousing	71%	29%	27%	+2%
Information media & telecommunications	55%	45%	42%	+3%
Financial & insurance services	37%	**63%**	65%	-3%
Rental, hiring & real estate services	44%	**56%**	48%	+8%
Professional, scientific & technical services	46%	**54%**	47%	+7%
Administration & support services	49%	**51%**	48%	+3%
Public administration & safety	58%	42%	34%	+8%
Education & training	28%	**72%**	66%	+6%
Health care & social assistance	22%	**78%**	81%	-3%
Arts & recreation services	51%	49%	47%	+2%
Other services	55%	45%	42%	+3%
Total	**53%**	**47%**	**45%**	**+2%**

☐ *Denotes industries where female employment exceeds male employment.*
Source: Cummings Economics from ABS data.

The table indicates that over the 10 years there was a rise in female proportion of the workforce by 2% overall.

The table indicates that the high proportion of females in the government services would have contributed to this rise but a strong lift in construction would have counter balanced this, to some extent.

The table also indicates that in 13 out of the 19 industry categories, the proportion of females in the workforce rose especially strongly (5% points or above), in 'Electricity, gas and water', 'Rental, hiring & real estate', 'Professional services', ' Public administrative & safety', and 'Education & training'. However, this was offset to some degree by falls in some industries.

The rise in females in the workforce thus seems to be due to a continuation of a rise in proportion of females in individual industry groups as well as changing industry structure.

The following table shows male/female balance by occupation.

Table #30: Males/Females Percent by Occupation, 2006 Census, Cairns SSD, Place of Usual Residence

	Males	Females	Cf % Female 1996 Census	Change 1996 - 2006 % points
Managers	63%	37%	36%	+1%
Professionals	45%	**55%**	50%	+5%
Technician & trade workers	86%	14%	13%	+1%
Community & personal service workers	35%	**65%**	64%	+1%
Clerical & administration	19%	**81%**	79%	+2%
Sales workers	35%	**65%**	65%	-
Machinery operators & drivers	92%	8%	14%	-6%
Labourers	62%	38%	39%	-1%
Total	**53%**	**47%**	**45%**	**+2%**

☐ *Denotes females over 50%.*
Source: Cummings Economics from ABS data.

The table indicates that the small rise in proportion of females in the workforce was due to a rise in female proportions in 5 out of the 8 occupation groups and changing workforce structure.

The strong rise over the period in professionals and community and personal service workers would have contributed but has largely been offset by the rise in technician and trade and labourers associated largely with construction.

Appendix 6 gives details of occupations by age. The following table gives age proportions for different occupations.

Table #31: Proportion of Workforce in Different Age groups, Cairns SSD, Place of Usual Residence, 2006 Census

	15 - 19	20 – 24	25 – 34	35 – 44	45 – 54	55 – 64	65+
Managers	1.2	5.0	19.6	**28.2**	**27.9**	**15.1**	**2.9**
Professionals	0.8	5.9	**24.6**	**28.4**	**26.6**	11.9	1.9
Technician & trade workers	**8.3**	**12.3**	**26.4**	23.6	19.1	9.1	1.3
Community & personal service workers	**7.4**	**13.3**	**26.1**	25.7	18.1	8.1	1.12
Clerical & administration	3.7	9.0	22.3	**27.9**	**24.2**	11.4	1.5
Sales workers	**22.6**	11.1	18.8	19.1	16.8	10.4	1.2
Machinery operators & drivers	2.3	6.6	18.1	**26.5**	**25.2**	**18.0**	**3.2**
Labourers	**10.3**	**11.0**	18.6	22.6	22.4	**13.3**	**2.4**
Total	**7.1**	**9.3**	**22.3**	**25.3**	**22.4**	**11.7**	**1.9**

☐ *Denotes significantly above average for that age group.*
Source: Cummings Economics from ABS data.

The table indicates:

- Managers tend to be over 35.
- Professionals in the 25 – 54 age groups.
- Technicians and trades and community and personnel service workers up to 34.
- Clerical and administrative workers 35 to 54.
- Sales are very high in the 15 – 19 year olds.
- Machinery operators and drivers are strongest in ages 35 and over.
- Labourers tend to be strongest in the 15 – 24 age groups and over 55.

6. NON-SCHOOL QUALIFICATIONS

Table #32: Proportion of Workforce with Non-School Qualifications by Occupation - Cairns SSD, Place of Usual Residence, 2006 Census

Professionals	81%
Technician & trade workers	70%
Community & personal service workers	56%
Managers	54%
Clerical & administration	41%
Machinery operators & drivers	37%
Labourers	32%
Sales workers	31%
Total	**53%**

Source: Cummings Economics from ABS data.

Thus, the more professional and technical and trade employment, the higher demand for non-school qualifications. Lowest are labourers and sales workers.

Appendix 7 gives fields of study by occupation. The following **Table #33** shows that of those with non-school qualifications, an increase in demand for managers is likely to require a higher qualification than average with qualifications in Management and accounting which also is also high for Community and personal services and Clerical and administration.

Professionals have a much higher than average qualifications in Health and Education.

Technical and trade is associated with a relative high proportion with qualifications in Engineering etc. Architecture etc. and Food etc.

Food qualifications are high for Community and Personal service occupations and Sales.

Machinery operators and drivers are high in Engineering etc. qualifications.

Table, Appendix 8, indicates as might be expected that non-school qualification levels of post graduate and graduate diplomas etc. and bachelor degrees are mainly in the management and professional occupations.

Certificates are dominated by the technicians and trades, community and personal service, and clerical and administrative occupations.

Advanced diplomas are spread across most occupation categories.

Table, Appendix 9, indicates that in terms of industries, the bachelor degrees or higher qualifications are heavily in the government and professional services.

Significant numbers of bachelor degrees however, are also in accommodation and food services, transport and information media groups along with diplomas.

Certificate qualifications are high throughout most industry categories.

Table #33: Percent Fields of Study by Occupation of Those with Non-School Qualifications

	Managers	Professionals	Technicians & trade workers	Community & personnel service workers	Clerical & administrative workers	Sales workers	Machinery operators & drivers	Labourers	Total
Natural & physical sciences	2.3	**4.2**	1.8	2.2	2.0	1.3	1.4	1.2	**2.4**
Information technology	1.3	**1.6**	1.3	0.1	1.7	1.4	0.9	**1.6**	**1.4**
Engineering & related technologies	22.2	12.5	**44.8**	8.3	8.0	12.2	**43.4**	26.7	**21.8**
Architecture & building	**10.8**	2.0	**22.6**	1.8	2.2	2.4	10.8	**11.6**	**8.5**
Agriculture, environmental & related studies	2.2	1.3	2.4	1.4	1.6	2.3	**3.4**	**5.8**	**2.1**
Health	3.7	**24.2**	1.6	**12.5**	6.8	4.2	1.8	3.3	**9.7**
Education	6.7	**22.8**	0.8	8.1	5.0	3.6	2.2	2.0	**8.7**
Management & commerce	**25.4**	13.4	2.2	14.1	**43.7**	**32.8**	7.9	11.4	**16.0**
Society & culture	8.8	10.7	1.5	**26.7**	11.0	9.0	3.8	5.6	**9.6**
Creative arts	2.0	3.8	1.2	3.1	2.6	**4.3**	1.7	2.0	**2.6**
Food, hospitality & personal services	8.1	0.9	13.3	**12.3**	7.4	**14.2**	8.6	11.4	**8.4**
Other/not adequately described	6.3	2.7	6.4	8.3	8.2	**12.1**	**14.0**	**17.0**	**7.9**

☐ *Denotes significantly above average for that occupation.*

Source: Cummings Economics from ABS data.

7. HOURS WORKED

Appendix 10 gives hours worked by industry. Appendix 11 gives hours worked by occupation.

The following gives proportion recorded as working over 40 hours a week by industry from the 2006 Census and then by occupation.

Table #34: Proportion of Workforce Working Over 40 Hours a Week by Industry, Cairns SSD, 2006 Census

Mining	71%
Construction	46%
Agriculture, forestry & fishing	45%
Manufacturing	44%
Wholesale trade	43%
Rental, hiring & real estate services	42%
Transport, postal & warehousing	41%
Electricity, gas, water & waste services	37%
Professional, scientific & technical services	36%
Other services	32%
Information media & telecommunications	29%
Financial & insurance services	29%
Arts & recreation services	28%
Administration & support services	28%
Public administration & safety	28%
Accommodation & food services	28%
Retail trade	24%
Education & training	23%
Health care & social assistance	17%
Total	**31%**

Source: Cummings Economics from ABS data.

Table #35: Proportion of Workforce Working Over 40 Hours a Week by Occupation, Cairns SSD, 2006 Census

Managers	58%
Machinery operators & drivers	47%
Technician & trade workers	41%
Professionals	32%
Labourers	21%
Clerical & administration	21%
Sales workers	20%
Community & personal service workers	19%
Total	**31%**

Source: Cummings Economics from ABS data.

PART C
LOOKING FORWARD

8. ESTABLISHING THE CURRENT POSITION

8.1 Estimates of Total Population & Workforce, 2011

The "Looking Back" working paper worked on firm data from the 1996, 2001 and 2006 Census counts in relation to industry composition of workforce, occupation and education levels.

A task before seeking to project forward to 2016 and 2021 is to seek to estimate current 2011 level and composition of the workforce.

Australian Bureau of Statistics (ABS) Labour Force Series is published at Statistical Division level and gives estimates of workforce, employed, unemployed, male/female and age grouping. Because this is from a sample survey, the data is subject to sampling variance. Averages over three months are more reliable.

The ABS Labour Force Series is controlled by estimates of ABS residential population 15 and over.

The following gives ABS data on residential population and the proportion 15 and over for 1996, 2001 and 2006 at Statistical Division (SD) level.

Table #1 : Estimated Residential Population, 15 & over, FNQ SD

	1996	2001	2006
Total	212,340	224,163	247,295
Aged 15 & over	161,977	171,760	192,858
% Aged 15 & over	76.3%	76.6%	77.9%
% Growth 15 & over		+6.0%	+11.6%

Source: Cummings Economics from ABS Est Residential Population data.

From this data, it is estimated that the population 15 plus in 2011 is about 78.5% of total.

The following compares ABS estimated residential population growth for FNQ Statistical Division (SD), 2006 to 2011, and that of population 15 plus, with ABS Labour Force Series data up to June Qtr 2011.

Table #2 : Estimated Residential Population & Workforce Compared, FNQ SD, 2006 to 2011

	Est Residential Pop'n		Est Workforce				
	Total	Est 15+	Employed	Un-employed	Total	Not in workforce	Total pop'n 15+
2006	247,300	192,858	124,000 (4)	5,900 (4)	130,000 (4)	61,000 (4)	192,000 (4)
2011	277,800 (1)	218,100 (2)	136,900 (3)	13,700 (3)	150,600 (3)	64,400 (3)	215,000 (3)
% Growth	+12.3%	+13.1%	+10.4%	+132.2%	+15.8%	+5.8%	+12.0%

Notes:
(1) *Assumes growth 2010/2011 of 1%.*
(2) *Proportion of population 15+ 78.5% (cf 1996 (76.3%), 2001 (76.6%), 2006 (77.9%).*
(3) *Average 3 months April/May/June 2011.*
(4) *Average 3 months July/August/September 2006.*

Source: Cummings Economics from ABS data.

A total of population 15 plus in 2006 of 192,858 from the Residential Population Series, equates with ABS Labour Force Series of 192,000 for 2006.

Thus, the indications are that population 15 plus grew by 12% - 13% over the 2006 to 2011 period, a very similar rate of growth as the 2001 to 2006 period of 11.6%. However, the ABS data indicates that the labour force grew faster at 15.8% although with higher unemployment, those employed grew by about 10%.

Based on this and other data, the following seeks to translate the above FNQ Statistical Division (SD) data into estimates for Cairns Statistical Sub Division (SSD).

The following table gives growth of estimated residential population for Cairns SSD, 1996, 2001 and 2006 population 15 plus.

Table #3 : Estimated Residential Population, 15 & over, Cairns SSD

	1996	2001	2006
Total	106,694	112,932	131,636
Aged 15 & over	83,318	87,649	103,031
% Aged 15 & over	78.0%	77.6%	78.3%
% Growth 15 & over		+5.2%	+17.5%

Source: Cummings Economics from ABS Residential Population data.

The following table seeks to estimate growth in population aged 15 and over in 2011.

Table #4 : Estimated Residential Population Growth, 15 & over, Cairns SSD, 2006 to 2011

	2006	2011	Growth
Total Population	131,636	153,184 (1)	+16.4%
Pop'n aged 15 & over	103,031	121,015 (2)	+17.2%
% of Total	78.3%	78.9%	

Notes: (1) *Assumes population growth 2010/2011 at 1.5%.*
(2) *Assumes percentage of population aged 15 & over continuing to increase marginally.*

Source: Cummings Economics from ABS data.

We thus have estimated growth of population 15 and over, 2006 to 2011, at 17.2%, a very similar growth as 2001 to 2006 of 17.5%.

The following table seeks to estimate the workforce profile for Cairns Statistical Sub Division for 2011 based on estimated relationship with the Far North Queensland Statistical Division.

Table #5 : Estimated Growth in Labour Force, 15 & over, Cairns SSD					
Est FNQ SD (see previous Table #2)					
	Employed workforce	**Un-employed**	**Total workforce**	**Not in workforce**	**Pop'n 15 +**
2006	124,000	5,900	130,000	61,000 (32%)	192,000
2011	136,900	13,700	150,600	64,400 (30%)	215,000
% Growth	+10.4%	+132.2%	+15.8%	+5.8%	+12.0%
Est Ratio Cairns SSD of FNQ SD					
2006	0.568 (1)	0.569 (1)	0.567 (1)	0.463 (1)	0.538 (1)
2011	0.595 (5)	0.668 (4)	0.602 (3)	0.472 (2)	0.562 (1)
Est Workforce Cairns SSD					
2006	70,432 (1)	3,357 (1)	74,617 (1)	28,453 (1)	103,000 (1)
2011	81,482 (5)	9,150 (4)	90,632 (3)	30,368 (2)	121,000 (1)
% Growth	+15.7%	+172.0%	+21.4%	+6.7%	+17.5%

Notes: (1) *Known ratios & figures based on ABS data. Figures used are from Census 2006 allowing for allocation of numbers not stating workforce status plus 7% for under numeration.*
(2) *Assumes not in workforce in Cairns grows at slower pace than total population 15+.*
(3) *Assumes total workforce grows a bit faster than total population 15+.*
(4) *Assumes unemployed in Cairns grows faster than population 15+.*
(5) *Assumes employed in Cairns grows at about the same rate as population 15+.*

Source: Cummings Economics from ABS data.

Significantly, the ABS Labour Force Series for FNQ Statistical Division indicates that over the 2001 to 2006 period, workforce growth at 15.8% was higher than growth of population 15 years plus at 12%, with proportion not in workforce falling.

The above table provides for Cairns population 15 plus to have increased, 2006 to 2011, by 17.5% compared with the region's increase by 12%.

It provides for proportion not in the workforce to rise by more than the regional figure recognising that ageing of the workforce would be being felt more in Cairns because of its previously younger workforce ratio (6.7% growth for Cairns compared with 5.8% for the region).

The table also provides for the level of unemployment to have affected Cairns more heavily (+172% compared with the region +132%).

Resulting growth in employed is 15.7% compared with a total workforce growth of 21.4%.

Thus, conclusion from the data available is that the 2011 employed workforce in the Cairns SSD has risen by about 16% over 2006.

8.2 Estimates of Workforce in 2011 & Composition by Industry

8.2.1 - General

The following seeks to estimate industry composition of growth, 2006 to 2011, based on known information about the total growth in workforce, the analysis in the working paper "Looking Back" indicating movements in industry composition in relation to changes in economic activity over that period, and information about trends in the region's economy in the 2006 to 2011 period.

8.2.2 - Overall Growth 2006 to 2011

The "Looking Back" working paper identified that the city's economy came out of a low growth period 1997 to 2001 to accelerate strongly through to 2004/05. There was a short moderation of growth in 2005/06 but the three years 2006/07, 2007/09 and 2008/09 saw very strong growth occurring in population and construction.,

Table #6 : Population Growth, Cairns SSD

	Population	Number	Percent
2001	112,932		
2002	115,157	2,225	2.0%
2003	118,503	3,346	2.9%
2004	121,916	3,413	2.9%
2005	126,419	4,127	3.4%
2006	131,636	5,217	4.1%
2007	136,404	4,768	3.6%
2008	142,476	6,072	4.5%
2009	`147,116	4,640	3.3%
2010	150,920	3,804	2.6%
2011 (estimate)	(153,184)	(2,264)	(1.5%)
Total 10 years		40,252	35.6%
(Average 10 years)		(4,025)	(3.1%)

Source: Cummings Economics from ABS data.

While the census will provide a check on what has actually happened, it is clear that estimated overall growth of 3.2% pa. was close to the long term trend rate of about 3.1% per annum.

Table #7 : Average Annual Growth of Cairns SSD, Intercensal Periods

1976 - 1981	3.2% pa
1981 – 1986	3.9% pa
1986 – 1991	3.9% pa
1991 – 1996	3.7% pa
1996 – 2001	1.3% pa
2001 – 2006	3.1% pa
2006 – 2011 (est)	3.2% pa
Long Term Average 1976 - 2011	**3.1% pa**

Source: Cummings Economics from ABS data.

In only one intercensal period has growth of Cairns Statistical Sub Division fallen below 3% per annum, ie. in the 1996 – 2001 period.

8.2.3 - Pattern of Growth

A number of major factors affect the pattern of Cairns' growth.

Hinterland

The first of these is growth in the region's hinterland.

Table #8 : Average Annual Growth of Residential Population of Balance of FNQ SD	
1976 - 1981	1.6% pa
1981 – 1986	2.0% pa
1986 – 1991	1.5% pa
1991 – 1996	1.8% pa
1996 – 2001	1.2% pa
2001 – 2006	0.8% pa
2006 - 2011	1.6% pa
Average 1976 - 2011	**1.4% pa**

Source: Cummings Economics from ABS data.

Growth in this area basically responds to growth in primary industries, mining and some tourism, along with relatively high birth rates and falling death rates in indigenous communities.

At an average of 1.4% per annum, this is well above most rural areas of Australia, many of which are recording no growth or falling populations. Hinterland growth and the demand for services it generates is a very strong contributor to the growth of Cairns as a regional service centre.

The relatively low growth in 1996 to 2001, in part, reflected the effects of the Asian crisis period on primary and mineral commodity prices on hinterland population growth with the effect going through to the early years of the 2001 to 2006 period, especially through low sugar prices.

The 2001 – 2006 lower growth is also likely to have been affected by cyclone Larry's impact on population in Cardwell and Johnstone Shires at time of the 2006 Census.

Clearly, in the 2006 – 2011 period, the growth in primary industries and mining, and indigenous population growth, but not tourism, has been a factor in hinterland growth being above long term averages. The $400m upgrade of Lotus Glen Correctional Centre on the Tablelands would have also contributed.

The higher than normal hinterland growth would have contributed to growth in Cairns across a whole range of functions including manufacturing, transport and services.

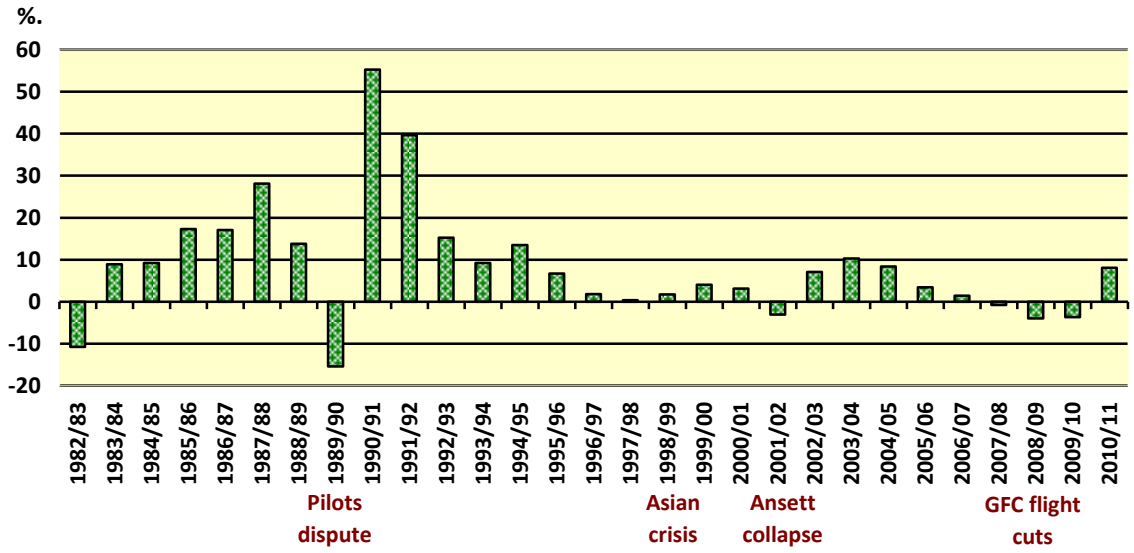
Tourism

The location of much of tourism growth in the Cairns SSD has contributed strongly over the years to the city's growth. The slowing of this growth during the 1996 to 2001 period, along with a slowing of agricultural and mining growth, contributed to the marked slow down in the economy in 1996 to 2001.

Chart #9 showing growth of Cairns airport passenger movements illustrates.

It also illustrates that tourism growth was a significant contributor to the upswing in growth 2001 to 2006.

Chart #9 : Year-on-Year Growth in Passenger Numbers through Cairns Airport



Source: Cummings Economics from Cairns Airport data.

However, clearly, the pattern changed 2006 to 2011 with no growth taking place over that period (see **Table #10** over).

Table #10 : Estimated Tourism Expenditure, FNQ

	DOMESTIC $M	INTERNATIONAL $M	TOTAL $M
2003/04	$1,424	$1,020	**$2,444**
2004/05	$1,319	$1,106	**$2,425**
2005/06	$1,468	$1,110	**$2,578**
2006/07	$1,545	$1,041	**$2,586**
2007/08	$1,546	$1,030	**$2,576**
2009 (YE DEC)	$1,741	$813	**$2,554**
2010 (YE DEC)	$1,440	$795	**$2,235**

Source: Cummings Economics from NVS & IVS data.

It is thus appropriate to model growth in employment in accommodation and restaurants, etc. at modest levels. Efficiency improvements and outsourcing of some functions out of the region would have suppressed growth also.

On the other hand, an element of employment in this sector responds to local demand where overall growth of population was quite strong.

Tourism growth also has an impact on growth in transport, retail and some other sectors.

Primary Industries

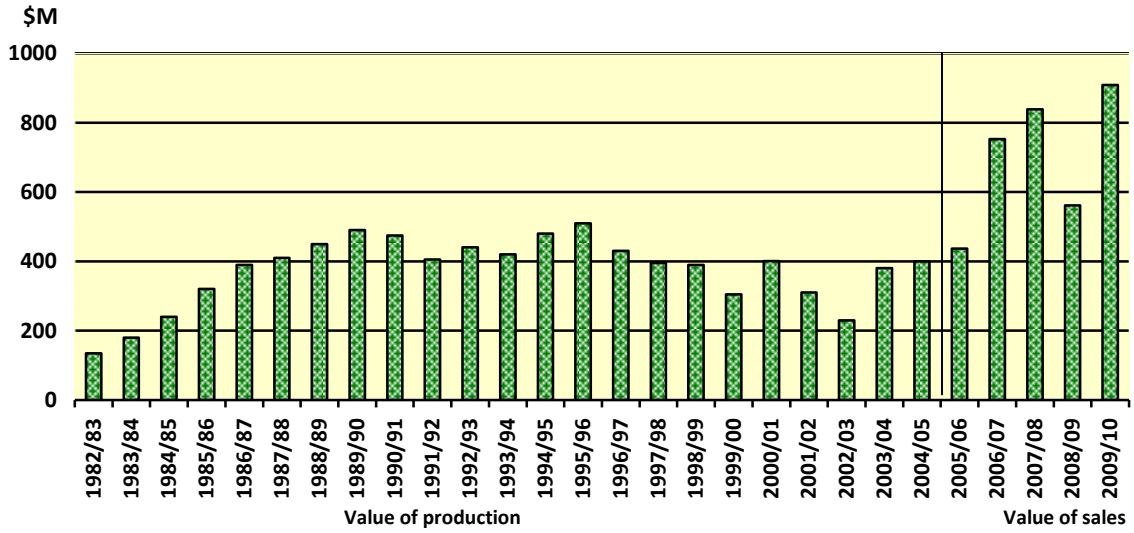
Agriculture, forestry employment in Cairns SSD is low but fisheries is significant. On all fronts, productivity improvements and outsourcing would be having their effect.

However, the decline in fisheries because of environmental constraints that took place 2001 – 2006 would not have been repeated. It is likely that there was still a decline but not as strong as the previous intercensal period.

Mining

Value of mining production in the region has been up very strongly (see **Chart #11**).

Chart #11 : Value of Mining in Far North Queensland



Source: Cummings Economics from Q'ld Government data.

This would have increased demand for mining services ex Cairns. However, there would have been a major impact through greatly increased fly-in/fly-out activity impacting directly on mining category employment, but also of personnel recorded as manufacturing, construction and other categories such as transport.

Construction

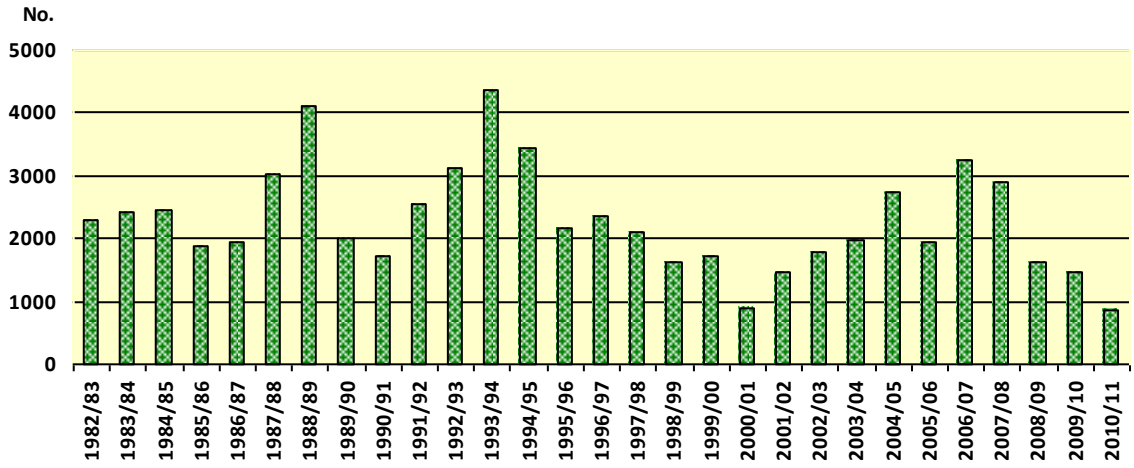
As the "Looking Back" working paper identified, construction activity has a strong influence on the rate and pattern of workforce growth in construction, but also linked business sectors.

The chart below indicates that while construction activity soared in the period 2006/07 to 2008/09, it crashed back in 2009/10 and continued to drop in 2010/11 in dwelling approvals. However, under the influence of government approvals of about $280m, value of construction was up in 2010/11 on 2009/10.

The indications are that despite the crash back, the overall level of building approvals in 2010/11 was roughly in line with those of 2005/06 and that construction workforce has probably not reduced significantly on that of 2005/06. However, it would be well down on the peaks reached in 2007/08.

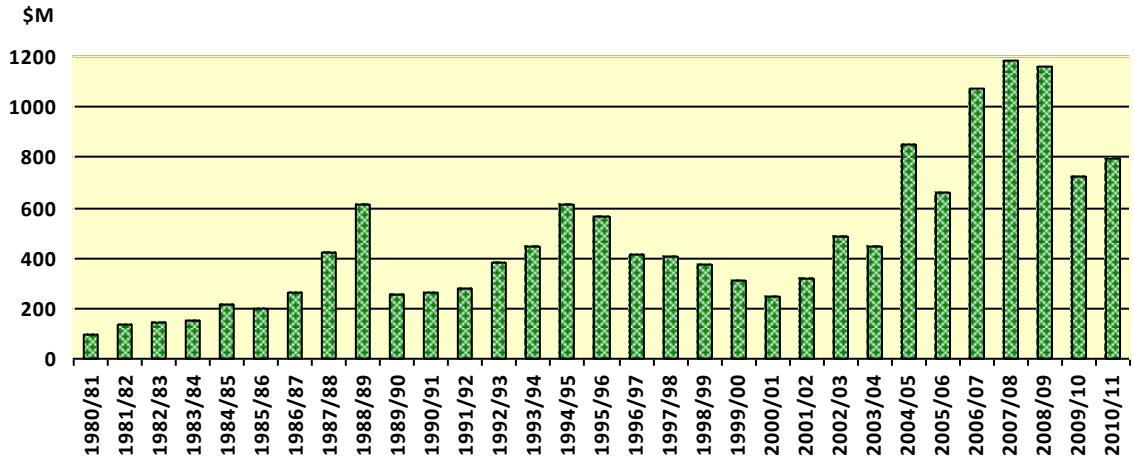
The fly-in element in the construction workforce has probably helped moderate any decline. The no growth situation in construction would have helped moderate any growth in the financial and insurance sector, rental, hiring, real estate and other services.

Chart #12 : Dwelling Approvals, FNQ Statistical Division



Source: Cummings Economics from ABS data.

Chart #13 : Value of Building Approvals, FNQ Statistical Division



Source: Cummings Economics from ABS data.

Government Services

Part of the very strong growth in public administration and safety in the period 2001 to 2006, was probably attributable to Navy Base expansion. There has been a further expansion of the base in 2006 to 2011.

Education and training growth is still likely to have been strong. A negative factor has been the high dollar impacting on the international education sector.

Comparative growth of school ages 5 to 19 have been:

Table #14: Average Annual Growth, School Age Population 5 – 19, Cairns SSD

	1996 – 2001	2001 – 2006	2006 – 2009 (1)
Total population	1.1% pa	3.1% pa	3.8% pa
School age	1.8% pa	2.6% pa	3.1% pa

(1) *Note: Latest available.*

Source: Cummings Economics from ABS data.

Although the school age cohort is not growing as strongly as overall population, it is still growing strongly.

There has been a major upsurge in student numbers and staff at James Cook University Cairns Campus and education institutions have been brought on stream in aviation and maritime fields. It is our overall expectation that growth has remained strong and possibly increased.

With the continuing development of the Cairns Base Hospital, relatively high birth rates and more specialists, it is likely that growth in employment in health services has continued to be strong and growth equivalent to the previous intercensal period, 2001 to 2006.

Wholesale & Retail Trade

The past trend has been for retail trade growth to be strong but wholesale trade to decline.

Growth of mining and primary industries in the region is likely to have moderated the tendency for wholesale trade to decline.

Retail trade employment is likely to have continued growing very strongly in response to strong population and incomes growth 2006 to 2008, but moderated since then. Moderating factors would have been the low growth of tourism and the higher household saving rates post GFC. However, given the strong population growth, level of employment could still be expected to be up on 2006.

Transport, Postal & Warehousing

There are three major elements in this – air, sea and land transport.

The air transport situation has been mixed over the 2006 to 2011 period with major tourism related international and domestic traffic showing little growth. However, regional traffic spurred on by population growth and mining development and mining fly-in services will have increased. Overall expectation is for a continued increase.

Sea transport has elements of tourism (no growth), fishing (decline of 2001 – 06 stabilised), trading vessels (growth especially to Weipa).

Rail transport grew strongly with the construction boom but came back down post GFC. Road transport experienced strong growth due to mining, primary industry and general growth.

Likely overall would be strong growth above general workforce growth.

Manufacturing

Manufacturing is a mixed bag with results in the different elements as follows.

a) Primary product and mineral processing (primary industry steady, mining up).

b) Service manufacturing for local markets (consumer manufacturing up with population growth, agriculture and mining related up, construction after growing strong probably back to about par with 2006, tourism related down).

c) Service manufacturing for outside markets (shipbuilding and repair down, aviation maintenance up, overall about the same).

Overall, probably growth better than 2001 – 2006 when shipbuilding was badly affected and mining and agricultural growth lower.

8.2.4 - Detailed Estimates, 2011

Based on the foregoing comments, the following table shows detailed estimates of employed workforce growth over the period 2006 to 2011, compared with 1996 to 2001 and 2001 to 2006.

Table #15 : Estimated Workforce Changes, Cairns SSD, 2006 - 2011

	Growth 1996 - 2001	Growth 2001 - 2006	Est Growth 2006 - 2011
Agriculture, forestry & fishing	-15.88%	-27.04%	(-3%)
Mining	-23.96%	+74.35%	+150%
Manufacturing	+5.16%	+0.02%	+12%
Electricity, gas, water & waste services	+53.28%	+21.68%	+16%
Construction	-14.66%	+71.93%	+6%
Wholesale trade	-6.14%	-8.48%	+6%
Retail trade	+15.23%	+10.94%	+16%
Accommodation & food services	+1.83%	-2.44%	+3%
Transport, postal & warehousing	+3.34%	+15.33%	+20%
Information media & telecommunications	-12.11%	-3.94%	+6%
Financial & insurance services	-13.77%	+12.50%	+10%
Rental, hiring & real estate services	-6.55%	+26.06%	+10%
Professional, scientific & technical services	+0.56%	+21.68%	+20%
Administration & support services	+4.06%	+3.65%	+8%
Public administration & safety	+9.21%	+38.48%	+30%
Education & training	+19.52%	+11.93%	+25%
Health care & social assistance	+15.14%	+26.57%	+25%
Arts & recreation services	-6.14%	+2.40%	+5%
Other services	-12.81%	+12.45%	+16%
Total	**+1.21%**	**+16.35%**	**+16%**

Source: Cummings Economics from ABS data.

The following notes summarises the basis for the estimated change, 2006 – 2011.

Notes on 2006 – 2011 Estimated Changes

Agriculture - Forestry

Fishing – Severe restrictions on fishing implemented in 2001 – 2006 period not repeated mild contraction only -3%.

Mining – Value of Mining

Value in the region doubled over 2005/06 figures with increased fly-in traffic opportunities. A doubling would take the figure to about 1,000. Not all fly-in to mines would record they were in mining, Some would record construction, some manufacturing and other services. Estimated increase is 150%.

Manufacturing

There is a variety of influences. It could be expected that the large amount of service manufacturing would have expanded with general workforce. That associated with construction was probably similar to 2006. That associated with tourism would have shown no growth but that associated with mining and agriculture in the region substantial growth. The decline in shipping in 2001 to 2006 has probably stabilised. Overall, a growth below average workforce growth of 12% is provided.

Electricity, Gas & Water

Continuing strong growth in line with general growth is assumed, ie. 16%.

Construction

The indications from previous analysis is that no growth has occurred. However, there would have been an element of fly-in construction workforce growth and an increase of 6% is assumed.

Wholesale Trade

The mild decline in previous periods is assumed to have been arrested and a mild increase of 5% is allowed.

Retail Trade

By and large, this could have been expected to have grown in line with general population growth or above. However, more subdued tourism growth would have affected the situation and a growth at average 16% is used.

Accommodation & Services

Because of the subdued situation in tourism, accommodation and food services is projected to have only slow growth with efficiency factors also affecting growth of 3% is projected.

Transport, Postal & Warehousing

This is projected to continue a strong growth generally in line with overall growth and 20% is used.

Information, Media & Telecommunications

This has been down due to strong shedding of labour in telecommunication. This is believed to have slowed and increasing use of computers resulting in a turnaround to a mild growth of 6%.

Financial & Insurance Services
In line with the construction sector, only a modest growth would have taken place, but a post cyclone increase in insurance. Estimated increase is put at 10%.

Retail, Hiring & Real Estate
Again, subdued growth of construction would have led to subdued growth in this sector resulting in more modest growth than average at 10%.

Professional, Scientific & Technical Services
Continuing strong growth in general growth with 2001 to 2006 is projected at 20%.

Administration & Support Services
Trend growth similar to previous inter-censal period is used of 8%.

Public Administration & Safety
Expansion of the navy base in 2006 – 2011 would have contributed to a further strong expansion and 30% is used.

Education & Training
Although there may have been some fall back due to the high dollar in English language study tours, strong expansion has been occurring at the university campus and new aviation and marine schools. A strong growth of 25% is projected, ie. above the 2001 – 2006 period.

Health Care & Social Assistance
Continuing strong growth is taking place and a growth of 25% is used.

Art & Recreation Services
Strong Council investment by State Government and Council is expected to have counter balanced the affects of subdued tourism growth and 5% is used.

Other Services
Growth in line with general growth is projected, ie. 16%.

8.3 Comparison with Some Other Estimates

From the ABS sample labour force survey, industry compositions are estimated in tables produced for Cairns Regional Council as follows. However, because this data is from a sample survey, it must be treated with caution.

Table #15: ABS Sample Survey Workforce Estimates by Industry, 2010 compared with 2006

Employment by industry sector, Cairns Regional Council Modelled data	Financial year ending June 2010			Financial year ending June 2006			Change
Industry sector (2006 ANZSIC)	Jobs (number)	% of total	Regional QLD %	Jobs (number)	% of total	Regional QLD %	2006 to 2010
+ Agriculture, Forestry and Fishing	1,998	2.3	8.9	1,417	1.7	8.4	580
+ Mining	377	0.4	4.8	253	0.3	3.8	124
+ Manufacturing	5,576	6.3	8.4	4,337	5.3	8.2	1,239
+ Electricity, Gas, Water and Waste Services	1,184	1.3	1.6	695	0.9	1.2	488
Construction	16,056	18.2	11.6	8,973	11.0	10.2	7,082
Wholesale Trade	3,871	4.4	3.7	2,344	2.9	3.0	1,527
+ Retail Trade	10,240	11.6	9.6	10,470	12.9	11.4	-230
+ Accommodation and Food Services	9,650	10.9	6.4	9,942	12.2	7.3	-292
+ Transport, Postal and Warehousing	4,629	5.2	5.0	7,012	8.6	5.5	-2,382
+ Information Media and Telecommunications	483	0.5	0.8	1,166	1.4	1.1	-682
Financial and Insurance Services	2,309	2.6	2.4	1,582	1.9	1.7	726
Rental, Hiring and Real Estate Services	3,651	4.1	2.1	2,258	2.8	1.9	1,393
Professional, Scientific and Technical Services	3,164	3.6	3.5	3,876	4.8	3.7	-711
Administrative and Support Services	6,385	7.2	3.4	3,576	4.4	2.7	2,809
+ Public Administration and Safety	4,472	5.1	6.6	5,707	7.0	7.4	-1,235
+ Education and Training	2,668	3.0	6.6	5,400	6.6	7.7	-2,732
+ Health Care and Social Assistance	7,371	8.4	9.2	7,395	9.1	9.6	-24
+ Arts and Recreation Services	1,184	1.3	1.2	1,534	1.9	1.0	-350
Other Services	2,943	3.3	4.3	3,422	4.2	4.0	-478
Total industries	88,221	100.0	100.0	81,368	100.0	100.0	6,852

Source: CRC data.

For instance, the Cairns Regional Council (CRC) table indicates that construction workforce 2010 has grown by almost 80% on 2006.

The following table compares actual levels of building approvals in the year prior (ie. 2009/10 and 2005/06). It shows that dwelling approvals were much lower in 2009/10 than in 2005/06 and value of building approvals were about the same. It is highly unlikely that against this background that workforce in construction would have doubled 2010 on 2006.

The foregoing estimates of construction workforce in the previous sector put the level in 2011 at about the same as 2006.

Table #16: Comparison of CRC Workforce Data for Construction & Actual Building Approvals, 2010 Compared with 2006			
Construction Workforce	**2006**	**2010**	**Change**
CRC Table (CRC area)	8973	16056	+79%
	2005/06	**2009/10**	**Change**
No. Dwelling Approvals	1990	800	-60%
	2005/06	**2009/10**	**Change**
Total Value Building Approvals	$630m	$680m (1)	+8%
	2005/06	**2009/10**	**Change**
Estimated change this report (Cairns SSD)	7116	7544	+6%

(1) *Note: $800m adjusted by CPI Brisbane..*

Source: Cummings Economics from ABS data.

On the other hand, the CRC tables indicate that employment in education and training has halved from 5,400 to 2,668, ie. a fall of 2,732, Given that school age population over the 4 years increased by about 11%, this is highly unlikely to have occurred.

Table #17: Comparison of CRC Workforce Data for Education & Training & Population Growth Figures, 2010 Compared with 2006			
Education & Training	**2006**	**2010**	**Change**
CRC Table (CRC area)	5400	2668	(-49%)
	2006	**2010**	**Change**
School Age Population Age 5 - 19	27728	30364	+10%
	2006	**2010**	**Change**
Estimated change this report (Cairns SSD)	4920	6151	+25%

Source: Cummings Economics from ABS data.

Our conclusion is that the 2010 estimates being used by CRC are unreliable and not suitable for use in this analysis.

The CRC figures are based on data the Department of Employment and Workforce Relations chooses not to publish. It is recommended that CRC cease publishing the figures derived from this source as it is potentially misleading.

Fully reliable figures are not likely to become available until after the 2011 Census data is published.

9. LIKELY FUTURE TRENDS IN THE CAIRNS ECONOMY TO 2016 & 2021

9.1 Understanding the Basics of Regional Economies

The primary economic role of Cairns is that of being a regional servicing capital for the Far North Queensland region down to a line of competition with Townsville at Cardwell, out to the Gulf and up to the Papua New Guinea border.

It is one of a series of such regions across northern tropical Australia with regional capital focal points based on the cities of Rockhampton, Mackay, Townsville and Darwin.

To understand the sources of Cairns' growth, it is important to understand that by and large, regional economies of Australia are based on a number of industries that earn income from outside the region that take advantage of the region's natural resources/attributes of plant growth potential (agriculture, pastoral and forest industries), marine resources (fisheries), minerals (mining) and natural tourism attractions (tourism).

However, based on these industries earning outside income, a service industry structure develops, especially located in district towns and regional cities. The size of this service sector is heavily dependent on the size of the region's outside earnings.

Generally, the service industry structure will come to employ more people than the base industries earning outside income, but the size and fortunes of the service industries depend greatly on the size and fortunes of the base industries. The size of the service sectors is also affected by their ability to compete with outside imports of goods and services.

At times, the region's service industry structure develops special skills supporting activities that become earners of outside income from wider markets.

Other special factors can bring special income into the region – activities like defence and surveillance and special government expenditure such as on indigenous programs.

Like the world and national economies, regional economies can be subject to surges of growth and slow downs with classical cyclical type behaviour of upward and downward multiplier effects, especially associated with investment/construction activity.

The following seeks to analyse the likely economic factors that will affect the scale of growth of the region's economy over the period 2011 to 2021:

- In terms of base industries earning outside income including the service clusters and special outside earning activities.
- In terms of how the service industry structure is likely to develop.

It is difficult to predict the timing of investment/construction peaks and troughs, and workforce needs are projected through at average levels.

9.2 Growth of the Cairns Economy in Recent Decades

Underlying the growth of Cairns over recent decades, has been a massive growth in regional outside earnings.

From an economy in the 1950's that was 60 – 70% dependent on the sugar industry, the region has held onto and in fact expanded its sugar industry. Other agriculture especially tropical fruits and the pastoral industries have expanded to be now worth twice the value of sugar.

From the 1970's, the region emerged as a major fishery and aquaculture area. Mining has been up and down, but is currently worth about $900m in regional sales. Coming in on top of the foregoing has been major growth of tourism to be currently worth about $2.4bn in outside earnings. Trade with the near north has expanded to be now worth over $400m per annum in goods and probably a further $200m in services (including fly-in/fly-out).

Based on a large fleet of fishing, tourism, trading and government vessels, a maritime servicing/shipbuilding 'cluster' has developed that taps into national and Pacific markets and has provided the basis for location of the Australian Navy's north eastern operational base at Cairns. Cairns leads northern Australia by a long way in marine industries.

A parallel aviation servicing cluster has been developing at Cairns airport based on a large fleet of small aircraft.

Special additional outside earnings have come from defence and surveillance spending in the area and support for the region's relatively large indigenous population.

Against this background, Cairns has outstripped all other cities in the north in population growth in absolute and percentage terms over the past 30 years although Townsville's recent surge under the influence of defence spending, mining in the north west Queensland and higher pastoral prices (as it did in the 1960's) has meant that it has equalled Cairns' growth of 38,000 over the past 9 years (2001 – 2010) in absolute terms after being behind Cairns in growth in the previous decade. Supporting Cairns' growth in recent decades has been the growth of its hinterland population which has increased 2001 to 2010 by 13,000 compared with Townsville's hinterland growth of 3,000.

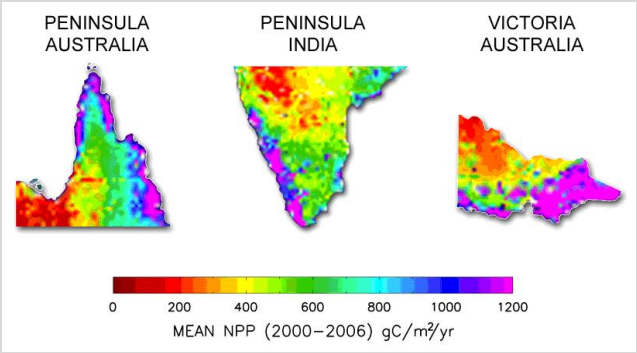
As the tables in the following sections illustrate, part of the current malaise in the regional economy is due to the fact that there has been no growth in tourism income for the past five years. However, this has been compensated to some degree by increases in agricultural and regional mining income as well as fly-in mining income.

9.3 Underlying Trends Likely to Affect the Region's Economy

The first thing to recognise is the extent of the region's underlying resource base. Satellite technology is now giving a picture of underlying plant growth potential that indicates the region's plant growth potential is at least equivalent to the State of Victoria and similar to southern India.

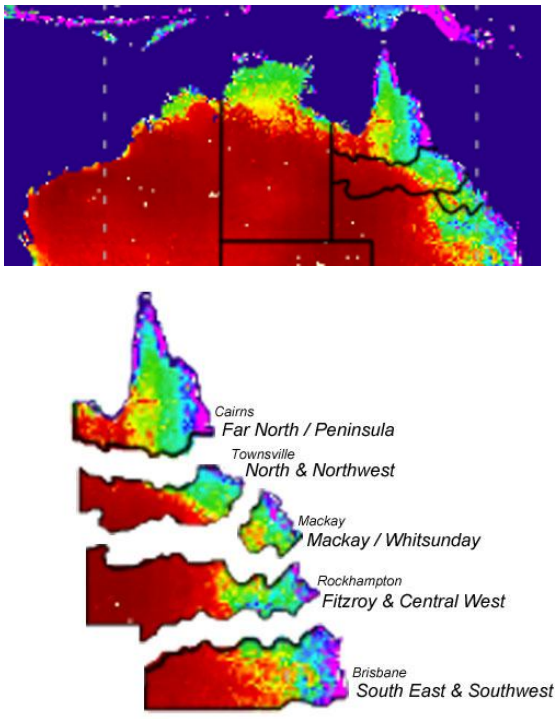
The region's marine resources are substantial.

Map 1 : Nett Primary Production



Source: NTGC University of Montana from Modis Satellite Data.

Map 2 : Comparisons of Plant Growth Potential, Cairns/Peninsula Australia Region, and Other Regions in Northern Australia & Queensland

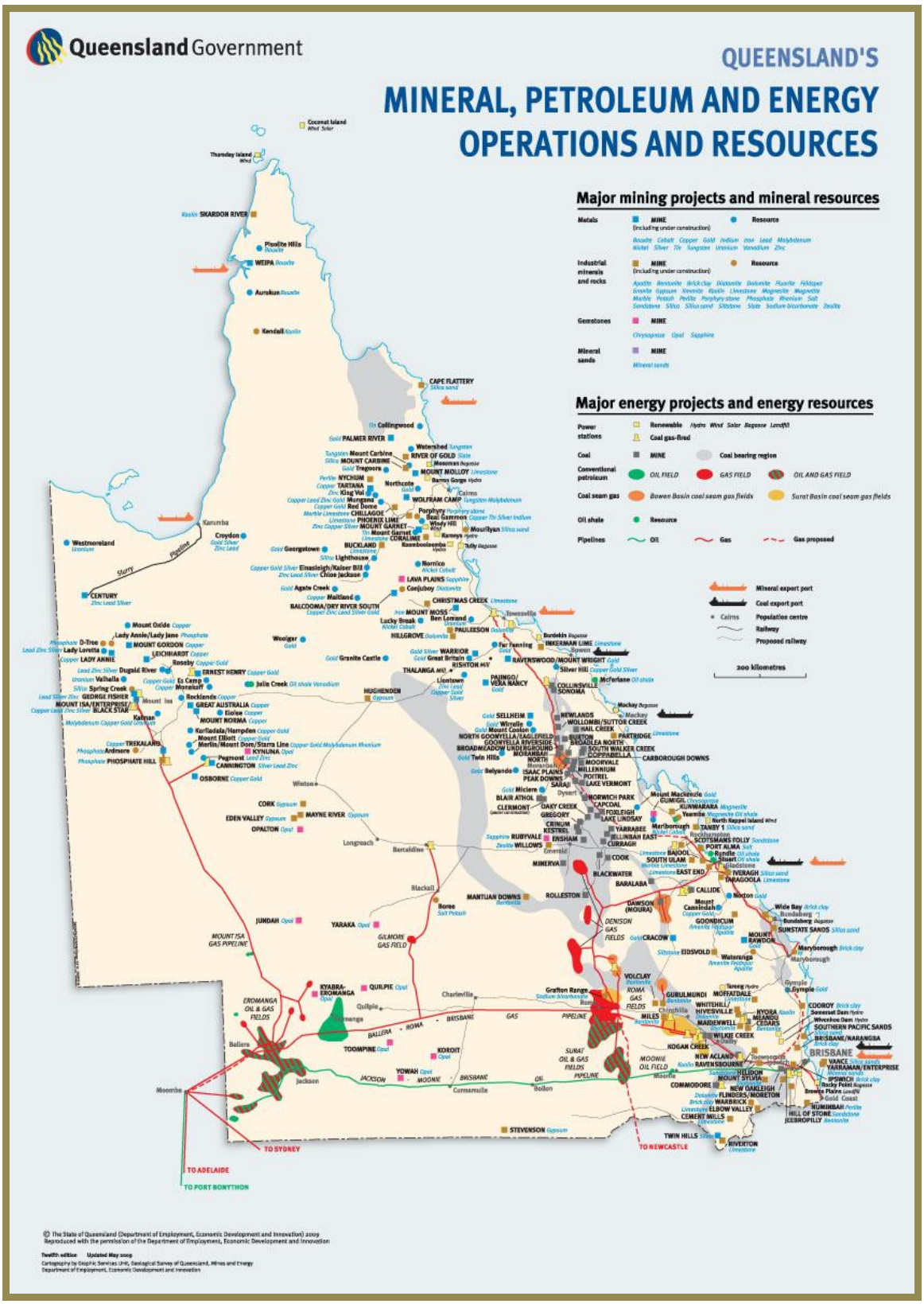


Source: NTGC University of Montana from Modis Satellite Data.

Although the region's mineral resources are not as strong as the coal and gas in Central Queensland and the base metals of the Mt Isa region, as **Map 3** illustrates, it is third in the State in mineral potential in base metals and various other in the area west of the Tablelands and extensive sedimentary deposits of bauxite, kaolin, silica sand and beach sand minerals in the Upper Peninsula and coal in the Laura Basin.

The concentration of world class tourism resources in the region is well identified.

Map 3 : Mineral Occurrences in Queensland



Four major underlying factors have been leading to the development of the region's underlying plant growth, mineral, marine and tourism resource potential.

- Expanding world markets reaching out for previously marginal resources.
- Developments in transport technology and communications that has been breaking down barriers of remoteness from major markets.
- Technology more suited to the tropics.
- Success breeds success factors.

Two other factors have been emerging:

1) A concern for the 'environment'.
2) A concern to see indigenous communities in the region achieve economic equality.

A further major factor has now become important, measures to reduce emissions from fossil fuels.

Clearly in relation to the first, the emergence of industrialisation in China and India on a scale not seen since the rapid industrialisation of Europe and North America in the late 1800's and early 1900's is likely to be a major driving force in the demand for the region's resources.

If the experience with Japan is a guide, this is likely to come in three phases:

1) A massive demand for minerals and energy and basic agricultural commodities.
2) As incomes rise, a heightened demand for food and fibre, especially proteins.
3) As incomes rise to higher levels, a demand for tourism.

What is clear at present, is that we are in the first phase and major investment is taking place in mining, and in energy projects in Central Queensland (coal and coal seam gas), north west of Western Australia and Papua New Guinea.

Growing demand for basic agricultural commodities and bio industrial products is evidenced by the recent investment by Chinese interests in Tully sugar mill.

While demand for tourism is increasing out of China and India and the eventual potential is immense, average income levels in China and India are still low compared with other major source countries. Major break throughs seem to still be some way away.

In the meantime, the high Australian dollar driven by high commodity prices and Reserve Bank use of interest rates much higher than the rest of the world to dampen the economy, is acting as a strong deterrent to tourism growth.

This basic situation seems likely to remain over most of the next decade, especially over the next 5 years.

Factors that could change the situation to lead to a moderation of the exchange rate could be:

- Internal instability in China and India.
- A further dip in the global financial situation brought on by defaults in major industrial countries.
- A change in interest rate policy by the Reserve Bank.
- If mineral and energy supply side growth is so strong that a catch up occurs and commodity prices fall.

Against this background, a basic scenario is used for forward projections 2011 to 2016 and 2016 to 2021.:

	Mining & Primary Industries	*Tourism*
Next 5 years		
High commodity prices and Australian dollar	• Excellent prospects	• Poor prospects
5 – 10-years period		
Reduced commodity prices and Australian dollar	• Good but reduced prospects	• Improved prospects

The above implies slower growth over the next five years, 2011 to 2016, accelerating 2016 to 2021.

10. LIKELY OVERALL POPULATION & WORKFORCE LEVELS

10.1 Population Projections

The Queensland Government Population Information & Forecasting Unit (PIFU) has produced population projections for the Cairns Regional Council area with a medium growth rate over the period 2011 to 2021 of 1.9% per annum and 0.7% per annum 2021 to 2031.

It should be noted that there has been a long history of Queensland Government projections for Cairns proving to be under-estimates.

The projection of 1.9% pa 2011 - 2021 and 0.7% pa over 2021 - 2031 compares with growth rates of CRC area (Cairns plus Douglas) over previous decades of 1991 - 2001 2.9% pa, 2001 – 2011 2.9% pa. The Queensland Government projections imply a major sustained collapse of the CRC's population growth rate by about 35% 2011 to 2021 and by 76% 2021 to 2031..

Previous Queensland Government projections for the Cairns Regional Council area are not readily available. However, they are available for the Cairns SSD (Gordonvale to Palm Cove) and the Far North Queensland Statistical Division (SD). Appendix 13 gives a note on the subject that illustrates how wrong the Queensland Government projections have been in the past. It shows that medium projections prepared in 1985 would have put the Cairns SSD rising from 68,000 to 106,000 by 2006 (actual proved to be 132,000) and the 1991 projections put the growth of the city 2006 to 2011 at 11% over the 5 years, taking total by 2011 to 112,000. Actual will be about 153,000. Actual average annual growth rate over the 1985 to 2011 period for Cairns SSD has been 3.3% pa compared with the two compounded projections of 2.0% pa. Cairns SSD now has 41,000 more people than Queensland Government long term projections were suggesting.

It is suggested that any planning for residential population and workforce should be at two levels - a low of the State Government medium projections and a higher scenario of a continuation of a long term 'trend' average annual residential projection growth rate of about 3% per annum for Cairns SSD.

On past experience, annual population growth will fluctuate from lows around 1% to highs of 4 to 5%.

The following table gives forward projections of Cairns Regional Council area estimated residential population on the basis of Queensland Government medium projections and continuation of long term 'trend' 2011 to 2016 and 2016 to 2021.

Table #18 : Forward Resident Population Projections, Cairns Regional Council Area

	2011 Actual	2016	2021
At PIFU medium 1.9% pa	170,270	187,072	205,532
At long term actual 'trend' growth rate 3.0% pa	170,270	197,390	228,829

Source: Cummings Economics from ABS data.

If Cairns continues its average long term 'trend' growth rate over the next 10 years, actual population will be about 20,000 more than the PIFU medium projections.

10.2 Likely Level of Workforce Growth

There are two demographic patterns likely to affect the rate of growth of workforce relative to population.

1) Passing of the baby boomer bulge into retirement age tending to increase the proportion not in the workforce.

2) Changes in the proportion of the population under 15.

PIFU data for the period 2006 to 2031 predicts the following pattern.

Overall average annual growth in estimated residential population.....2.0% pa

Estimated average annual growth in population 1 – 19 years .....1.1% pa

Estimated average annual growth population 65+ years .....4.9% pa

This would see percent of population in the main working age groups 20 to 64 fall from 63% to 59%.

Previous analysis in the "Looking Back" working paper and of the period 2006 to 2011 indicates however, that the proportion of the population in the workforce in the region has been rising, presumably under the influence of females entering the workforce and falling proportions of population under 15.

With proportion of females in the workforce approaching 50%, scope for an increase from this direction is diminishing.

It seems likely that a higher proportion of 65+ will stay on in the workforce than previously. The indications are that on balance, proportion in the workforce will not increase further but will remain about the same or decline slightly.

Thus, on the basis of the above population growth projections, the increase in workforce seems likely to be marginally lower than population growth figures at say 1.8% pa under PIFU population scenario and 2.8% pa under the long term 'trend' scenario.

11. MODEL OF LIKELY WORKFORCE NEEDS

11.1 Workforce Projections by Industry, Cairns SSD

Total Workforce

The following table projects forward likely total workforce based on the two scenarios of average annual population growth 1.9% and 3.0% translating into workforce growth of 1.8% pa and 2.8% pa respectively.

Start point is taken as 2011 figures for workforce from **Table #5**, Section 3.1.

Table #19 : Estimated Total Workforce, Council SSD (constant growth)

	2011	2016	2021
PIFU based trend (1.8% pa)	81,400	89,000	97,300
Long term average trend (2.8% pa)	81,400	93,500	107,800

Source: Cummings Economics.

The following tables of compositions by industry are based on the scenario:

a) Commodity prices remain high, 2011 – 2016, with positive consequences for mining and agriculture and negative for tourism due to a high dollar.

b) Commodity prices and the dollar moderate 2016 – 2021 improving tourism prospects and moderating growth in mining and agriculture.

This suggests that for Cairns, growth 2011 to 2016 will be below trend, but over the 2016 to 2021 period above trend. This would affect total workforce projections as follows.

Table #20: Estimated Total Workforce, Council SSD (slower 2011 – 2016, faster 2016 - 2021)

	2011	Growth 2011-2016	2016	Growth 2016-2021	2021	Growth 2011-2021
PIFU based	81,400	(1.4% pa) (+5,800)	87,200	(2.2% pa) (+10,100)	97,300	(+15,900)
Long term average based	81,400	(2.4% pa) (+10,300)	91,700	(3.2% pa) (+16,100)	107,800	(+26,400)

Source: Cummings Economics.

Forward Projections of Workforce, Industry Composition Factors

Thus, the following tables model industry composition of employed workforce from the base of 2011.

Based: (a) PIFU projections
(b) Long term Trend projections

Allowing for: (a) Slower growth 2011 – 2016
(b) Accelerated growth 2016 – 2021

The following comments on the estimated growth factors used in modelling the estimates.

Balance of Region

Much of the initial impact of accelerated growth in mining and agriculture will occur in the region outside of Cairns that can be expected to accelerate 2011 – 2016 with some moderation 2016 – 2021.

However, this will rub off on Cairns, especially through impacts on transport, postal and warehousing, business and professional services, health services, public administration, manufacturing, wholesale and retail trade.

The mining rub off is likely to take the form of increased fly-out services of personnel to mines and increased trade and shipping services to Peninsula, Gulf, Indonesia and Papua New Guinea and the Pacific, especially affecting not just mining but also manufacturing, construction and transport services.

Tourism

As discussed above, the model allows for a continuation of low growth 2011 – 2016 and an acceleration 2016 – 2021 in accommodation and food services.

Table #21 : Accommodation & Food Services – 5-Year Growth

	%	PIFU based	Long term TREND based
1996 – 2001	+1.8%		
2001 – 2006	+2.4%		
2006 – 2011	+3.0%		
2011 - 2016		+2%	+4%
2016 - 2021		+5%	+8%

Primary Industries

Direct on-farm employment in agriculture, forestry and fisheries within the Cairns SSD is low and was declining, largely due to environmental constraints put on fisheries. The following assumes a no growth scenario 2011 – 2016 and 2016 – 2021.

Table #22 : Agriculture, Forestry & Fishery - 5-Year Growth

	%	PIFU based	Long term TREND based
1996 – 2001	-16%		
2001 – 2006	-27%		
2006 – 2011	-3%		
2011 - 2016		(0%)	(0%)
2016 - 2021		(0%)	(0%)

Mining

The major impact of additional mining fly-in/fly-out is projected to continue but moderating from the high growth from a small base in the last decade.

Table #23 : Mining – 5-Year Growth

	%	PIFU based	Long term TREND based
1996 – 2001	-24%		
2001 – 2006	+74%		
2006 – 2011	+150%		
2011 - 2016		+40%	+80%
2016 - 2021		+40%	+80%

Construction

It is expected that the current down period will last for one or two years before recovering with moderate growth 2011 – 2016 but accelerated growth 2016 – 2021. (Note: This sector is subject to cycles and the following figures are based on expected growth in averages.)

Table #24 : Construction – 5-Year Growth			
	%	**PIFU based**	**Long term TREND based**
1996 – 2001	-15%		
2001 – 2006	+72%		
2006 – 2011	+6%		
2011 - 2016		+8%	+14%
2016 - 2021		+10%	+18%

Table #25 : Financial & Insurance Services – 5-Year Growth			
	%	**PIFU based**	**Long term TREND based**
1996 – 2001	-14%		
2001 – 2006	+13%		
2006 – 2011	+10%		
2011 - 2016		+4%	+8%
2016 - 2021		+7%	+12%

Table #26 : Rental, Hiring & Real Estate – 5-Year Growth			
	%	**PIFU based**	**Long term TREND based**
1996 – 2001	-7%		
2001 – 2006	+27%		
2006 – 2011	+10%		
2011 - 2016		+4%	+8%
2016 - 2021		+7%	+12%

Government Services

These services are expected to continue expanding strongly as Cairns' position as the capital of the most populous region in the north impacts on provision of higher order services.

Table #27 : Public Administration & Safety – 5-Year Growth			
	%	**PIFU based**	**Long term TREND based**
1996 – 2001	+9%		
2001 – 2006	+38%		
2006 – 2011	+30%		
2011 - 2016		+7%	+15%
2016 - 2021		+15%	+18%

Table #28 : Education & Training – 5-Year Growth			
	%	**PIFU based**	**Long term TREND based**
1996 – 2001	+20%		
2001 – 2006	+12%		
2006 – 2011	+25%		
2011 - 2016		+7%	+15%
2016 - 2021		+15%	+18%

Table #29 : Health Care & Social Services – 5-Year Growth			
	%	**PIFU based**	**Long term TREND based**
1996 – 2001	+45%		
2001 – 2006	+27%		
2006 – 2011	+25%		
2011 - 2016		+15%	+20%
2016 - 2021		+15%	+18%

Public administration and safety could grow further if naval base expansion takes place.

Wholesale & Retail Trade

Wholesale trade can be expected to grow again under the influence of mining and agricultural growth and shipping trade growth.

Table #30 : Wholesale – 5-Year Growth			
	%	**PIFU based**	**Long term TREND based**
1996 – 2001	-6%		
2001 – 2006	-8%		
2006 – 2011	+5%		
2011 - 2016		+3%	+5%
2016 - 2021		+3%	+6%

Retail trade can be expected to continue to grow. Slow tourism growth affects growth level 2011-2016.

Table #31 : Retail Trade – 5-Year Growth			
	%	**PIFU based**	**Long term TREND based**
1996 – 2001	+15%		
2001 – 2006	+11%		
2006 – 2011	+16%		
2011 - 2016		+6%	+10%
2016 - 2021		+11%	+17%

Transport, Postal & Warehousing

Expansion of agriculture, mining and trade can be expected to result in continuing strong growth with tourism growth coming in more strongly in the second period.

Table #32 : Transport, Postal & Warehousing – 5-Year Growth			
	%	**PIFU based**	**Long term TREND based**
1996 – 2001	+3%		
2001 – 2006	+15%		
2006 – 2011	+20%		
2011 - 2016		+6%	+11%
2016 - 2021		+14%	+20%

Manufacturing

A continuation of the regrowth in manufacturing after the loss of slipway and shipbuilding is provided for with continuation depending in part on expanded agricultural, mining and shipping services.

Table #33 : Manufacturing – 5-Year Growth			
	%	**PIFU based**	**Long term TREND based**
1996 – 2001	+5%		
2001 – 2006	+0%		
2006 – 2011	+12%		
2011 - 2016		+8%	+15%
2016 - 2021		+8%	+16%

Electricity, Gas & Water

Growth in this sector is expected to moderate after the very high levels 1996 – 2001 and 2001 – 2006.

Table #34 : Electricity, Gas & Water – 5-Year Growth

	%	PIFU based	Long term TREND based
1996 – 2001	+53%		
2001 – 2006	+22%		
2006 – 2011	+16%		
2011 - 2016		+5%	+10%
2016 - 2021		+5%	+10%

Information, Media, & Telecommunication Services

Continuing growth of computer and upgraded networks is expected to continue to restimulate growth

Table #35 : Information & Media & Telecommunication – 5-Year Growth

	%	PIFU based	Long term TREND based
1996 – 2001	(-12%)		
2001 – 2006	(-4%)		
2006 – 2011	+6%		
2011 - 2016		+3%	+6%
2016 - 2021		+8%	-15%

Professional, Scientific & Technical Services

Growth in this field is expected to be roughly the same, a bit lower over the next 10 years with perhaps some acceleration in the second period.

Table #36 : Professional, Scientific & Technical Services – 5-Year Growth

	%	PIFU based	Long term TREND based
1996 – 2001	+1%		
2001 – 2006	+22%		
2006 – 2011	+20%		
2011 - 2016		+8%	+15%
2016 - 2021		+10%	+18%

Administration & Support Services

Modest growth is expected to continue but below average growth.

Table #37 : Administration & Support Services – 5-Year Growth

	%	PIFU based	Long term TREND based
1996 – 2001	+4%		
2001 – 2006	+4%		
2006 – 2011	+8%		
2011 - 2016		+3%	+8%
2016 - 2021		+4%	+8%

Other Services

Continuing growth about average, a bit faster in the second period.

Table #38 : Other Services – 5-Year Growth

	%	PIFU based	Long term TREND based
1996 – 2001	(-12.8%)		
2001 – 2006	+12.4%		
2006 – 2011	+16.0%		
2011 - 2016		+6%	+10%
2016 - 2021		+10%	+16%

Forward Projections of Workforce

Table #39 over shows the modelled projections by industry and the projected increase in workforce needed.

Under the PIFU scenario, a total increase in workforce needed by 2016 and 2021 would be 5,971 and 15,681 respectively and under the continuing 'trend' would be 10,493 and 26,407.

The following **Table #40** ranks projected increase 2011 to 2021 by size.

Table #40 : Estimated Growth in Workforce, Rankings by Industry Sectors, 2011 to 2021

	PIFU	TREND
Health care, etc.	2781	3588
Mining	1331	3106
Retail trade	1883	3061
Construction (1)	1418	2604
Public administration & safety	1595	2470
Education & training	1417	2195
Transport, postal & warehousing	1288	2051
Manufacturing	734	1474
Professional scientific & technical services	741	1407
Accommodation & food services	552	957
Other services	529	879
Administrative & support	221	517
Rental, hiring & real estate (1)	211	391
Financial & insurance (1)	178	332
Wholesale trade	148	275
Information, media & telecommunication	102	198
Electricity, gas, etc.	82	169
Arts & recreation services	93	161
Total	**15,681**	**26,407**

Note (1) : It should be noted that construction and related services are likely to fluctuate and possibly be substantially above or below these figures depending on the timing of short term movements.

Table #39

Estimated Workforce Increase by Industry Category

	Est. 2011 Persons	PIFU Est. 2016 Persons	PIFU Increase 2011-2016	TREND Est. 2016 Persons	TREND Increase 2011-2016	PIFU Est. 2021 Persons	PIFU Increase 2016-2021	TREND Est. 2021 Persons	TREND Increase 2016-2021	Total PIFU Increase 2011-21	Total TREND Increase 2011-21
Agriculture, forestry & fishing	647	647	0	647	0	647	0	647	0	0	0
Mining	1,387	1,941	555	2,496	1,109	2,718	777	4,493	1,997	1,331	3,106
Manufacturing	4,412	4,765	353	5,074	662	5,147	381	5,886	812	734	1,474
Electricity, gas, water & waste services	804	844	40	885	80	887	42	973	88	82	169
Construction	7,543	8,146	603	8,599	1,056	8,961	815	10,147	1,548	1,418	2,604
Wholesale trade	2,431	2,504	73	2,553	122	2,579	75	2,706	153	148	275
Retail trade	10,665	11,305	640	11,731	1,066	12,548	1,243	13,725	1,994	1,883	3,061
Accommodation & food services	7,769	7,924	155	8,080	311	8,320	396	8,726	646	552	957
Transport, postal & warehousing	6,179	6,550	371	6,859	680	7,467	917	8,230	1,372	1,288	2,051
Information media & telecommunications	904	931	27	958	54	1,006	74	1,102	144	102	198
Financial & insurance services	1,582	1,645	63	1,708	127	1,760	115	1,913	205	178	332
Rental, hiring & real estate services	1,866	1,941	75	2,016	149	2,077	136	2,257	242	211	391
Professional, scientific & technical services	3,940	4,256	315	4,531	591	4,681	426	5,347	816	741	1,407
Administrative & support services	3,107	3,200	93	3,356	249	3,328	128	3,624	268	221	517
Public administration & safety	6,918	7,402	484	7,956	1,038	8,513	1,110	9,388	1,432	1,595	2,470
Education & training	6,150	6,580	430	7,072	922	7,567	987	8,345	1,273	1,417	2,195
Health care & social assistance	8,624	9,918	1,294	10,349	1,725	11,405	1,488	12,212	1,863	2,781	3,588
Arts & recreation services	1,303	1,329	26	1,355	52	1,396	66	1,464	108	93	161
Other services	3,186	3,377	191	3,504	319	3,715	338	4,065	561	529	879
Inadequately described/Not stated	2,267	2,448	181	2,448	181	2,644	196	2,840	392	377	573
Total	**81,683**	**87,654**	**5,971**	**92,176**	**10,493**	**97,364**	**9,710**	**108,090**	**15,914**	**15,681**	**26,407**

Analysis of Changes in Composition by Industry

Table #41 shows percentage composition by industry for trend projections for 2006, 2011, 2016 and 2021 compared with 2006 composition for Townsville and Brisbane.

The table indicates:

- Cairns' relatively high percentage of agriculture, fishing and of forestry falling back towards the Townsville and Brisbane levels.
- Mining increasing its percentage in Cairns to above current Townsville and Brisbane which by then, no doubt, will have increased their percentage.
- Cairns' manufacturing currently low percentage of manufacturing remaining.
- Electricity, gas, water and waste remaining at about 1%, similar to Brisbane.
- Construction remaining relatively high relative to Brisbane.
- Wholesale trade declining as a percentage and continuing lower than Brisbane.
- Retail percentage remaining above Brisbane and Townsville.
- Accommodation and food services down as a percentage but remaining much higher than Brisbane's 2006 level.
- Transport, postal and warehousing remaining higher than Brisbane and Townsville.
- Information, media and telecommunications remaining relatively low.
- Finance and insurance remaining lower than Brisbane.
- Rental, hiring and real estate coming down a bit but staying above Townsville and Brisbane.
- Professional, scientific and technical services growing but remaining well below Brisbane's 2006 level.
- Administrative and support services as a percentage coming down but to about Brisbane's 2006 level.
- Public administration and safety increasing in percentage to above Brisbane's 2006 percentage but remaining well below Townsville.
- Health care and social assistance rising to about same level as Townsville's 2006 and a bit above Brisbane's 2006 level.
- Arts and recreation services coming down to about the same levels as Townsville and Brisbane 2006.
- Other services remaining about the same as Brisbane 2006, but above Townsville 2006.

Table #41

Composition of Employed Workforce by Industry

	2006 Census Persons		Est. 2011 Persons		TREND Est. 2016 Persons		TREND Est. 2021 Persons		*CF Townsville 2006*	*CF Brisbane 2006*
Agriculture, forestry & fishing	612	0.9%	647	0.8%	647	0.7%	647	0.6%	**0.5%**	**0.6%**
Mining	509	0.8%	1387	1.7%	2496	2.7%	4493	4.2%	**2.6%**	**0.6%**
Manufacturing	3618	5.6%	4412	5.4%	5074	5.5%	5886	5.4%	**8.0%**	**11.0%**
Electricity, gas, water & waste services	637	1.0%	804	1.0%	885	1.0%	973	0.9%	**1.4%**	**1.0%**
Construction	6534	10.1%	7543	9.2%	8599	9.3%	10147	9.4%	**9.6%**	**8.1%**
Wholesale trade	2126	3.3%	2431	3.0%	2553	2.8%	2706	2.5%	**3.1%**	**4.6%**
Retail trade	8442	13.1%	10665	13.1%	11731	12.7%	13725	12.7%	**11.1%**	**11.2%**
Accommodation & food services	6926	10.7%	7769	9.5%	8080	8.8%	8726	8.1%	**7.0%**	**5.9%**
Transport, postal & warehousing	4728	7.3%	6179	7.6%	6859	7.4%	8230	7.6%	**5.0%**	**5.5%**
Information media & telecommunications	783	1.2%	904	1.1%	958	1.0%	1102	1.0%	**1.7%**	**1.7%**
Financial & insurance services	1320	2.0%	1582	1.9%	1708	1.9%	1913	1.8%	**1.8%**	**3.7%**
Rental, hiring & real estate services	1558	2.4%	1866	2.3%	2016	2.2%	2257	2.1%	**1.8%**	**2.0%**
Professional, scientific & technical services	3015	4.7%	3940	4.8%	4531	4.9%	5347	4.9%	**4.3%**	**7.4%**
Administrative & support services	2642	4.1%	3107	3.8%	3356	3.6%	3624	3.4%	**2.8%**	**3.3%**
Public administration & safety	4887	7.6%	6918	8.5%	7956	8.6%	9388	8.7%	**13.0%**	**7.2%**
Education & training	4518	7.0%	6150	7.5%	7072	7.7%	8345	7.7%	**8.1%**	**7.9%**
Health care & social assistance	6335	9.8%	8624	10.6%	10349	11.2%	12212	11.3%	**11.1%**	**10.8%**
Arts & recreation services	1140	1.8%	1303	1.6%	1355	1.5%	1464	1.4%	**1.3%**	**1.3%**
Other services	2522	3.9%	3186	3.9%	3504	3.8%	4065	3.8%	**3.5%**	**3.8%**
Inadequately described/Not stated	1794	2.8%	2267	2.8%	2448	2.7%	2840	2.6%	**2.3%**	**2.5%**
Total	**64,647**	**100.0%**	**81683**	**100.0%**	**92176**	**100.0%**	**108090**	**100.0%**	**100.0%**	**100.0%**

11.2 Workforce Projections by Occupation, Cairns SSD

The following **Tables #42 - #46** estimates workforce by occupation composition based on 2006 ratios of occupation types to industry categories for each of the growth scenarios.

Table #47 summarises total changes in percentage composition by occupation.

Table #47 : Total Changes in Percentage Composition by Occupation

	2011	2016 PIFU	2016 TREND	2021 PIFU	2021 TREND
Managers	11.2	11.1	11.0	11.0	10.9
Professionals	16.8	17.1	17.5	17.3	17.5
Technicians & trades workers	16.3	16.4	16.4	16.5	16.8
Community & personal service workers	11.3	11.4	11.4	11.3	11.1
Clerical & administrative workers	14.6	14.6	14.6	14.6	14.5
Sales workers	11.4	11.3	11.1	11.1	11.0
Machinery operators & drivers	6.1	6.2	6.3	6.3	6.6
Labourers	10.5	10.3	10.1	10.2	10.0

Changes are not very large, but indicate percent professional up, percent machinery operators etc. up (mining), and percent technical and trade up (mining).

The following **Table #48** shows projected increases in numbers by occupation.

Table #49 summarises projected additional numbers by occupation by 2021.

Table #49 : Estimated Workforce Increases by Occupation, 2011 – 2021

	PIFU	TREND
Professionals	3241	5129
Technicians & trades workers	2618	4852
Clerical & administrative workers	2295	3793
Community & personal service workers	1862	2757
Managers	1548	2685
Sales workers	1477	2489
Labourers	1269	2199
Machinery operators & drivers	1134	2126

Table #42

Workforce x Occupation x Industry 2011

	Est. 2011 Persons	Managers	Professionals	Technicians & trades workers	Community & personal service workers	Clerical & administrative workers	Sales workers	Machinery operators & drivers	Labourers	Inadequately described/ Not stated
Agriculture, forestry & fishing	**647**	269	59	44	7	50	10	55	147	6
Mining	**1,387**	160	221	462	9	105	38	343	49	0
Manufacturing	**4,412**	576	198	1,771	42	456	319	524	465	60
Electricity, gas, water & waste services	**804**	71	81	317	9	168	4	98	39	16
Construction	**7,543**	720	154	3,905	6	787	79	546	1,279	67
Wholesale trade	**2,431**	430	88	258	4	389	557	448	225	32
Retail trade	**10,665**	1,885	272	699	116	757	5,589	354	910	82
Accommodation & food services	**7,769**	1,329	127	1,055	1,826	691	677	112	1,887	65
Transport, postal & warehousing	**6,179**	589	843	370	794	942	444	1,830	308	60
Information media & telecommunications	**904**	126	237	204	0	115	153	22	38	7
Financial & insurance services	**1,582**	194	416	9	4	821	94	0	4	41
Rental, hiring & real estate services	**1,866**	260	112	69	41	320	838	60	137	28
Professional, scientific & technical services	**3,940**	240	1,891	422	11	1,185	53	22	85	29
Administrative & support services	**3,107**	260	309	282	527	382	105	92	1,119	33
Public administration & safety	**6,918**	642	1,177	912	1,349	2,067	58	194	398	121
Education & training	**6,150**	403	3,616	167	1,062	589	25	17	260	9
Health care & social assistance	**8,624**	411	3,305	365	2,543	1,344	57	77	440	83
Arts & recreation services	**1,303**	190	224	137	421	109	82	12	103	26
Other services	**3,186**	214	218	1,564	296	372	47	66	381	28
Inadequately described/Not stated	**2,267**	173	204	330	174	261	122	124	281	597
Total	**81,683**	**9,141**	**13,751**	**13,343**	**9,241**	**11,911**	**9,350**	**4,998**	**8,557**	**1,391**
		11.2%	***16.8%***	***16.3%***	***11.3%***	***14.6%***	***11.4%***	***6.1%***	***10.5%***	***1.7%***

Table #43

PIFU Workforce x Occupation x Industry 2016

	Est. 2016 Persons	Managers	Professionals	Technicians & trades workers	Community & personal service workers	Clerical & administrative workers	Sales workers	Machinery operators & drivers	Labourers	Inadequately described/ Not stated
Agriculture, forestry & fishing	**647**	269	59	44	7	50	10	55	147	6
Mining	**1,941**	224	309	647	12	147	53	480	69	0
Manufacturing	**4,765**	622	214	1,913	45	493	345	566	503	65
Electricity, gas, water & waste services	**844**	75	85	332	10	177	4	103	41	17
Construction	**8,146**	778	167	4,217	7	850	85	590	1,382	72
Wholesale trade	**2,504**	443	91	266	4	401	574	461	232	33
Retail trade	**11,305**	1,998	288	741	123	803	5,924	376	965	87
Accommodation & food services	**7,924**	1,355	130	1,076	1,862	705	691	114	1,925	66
Transport, postal & warehousing	**6,550**	625	893	392	841	999	470	1,939	326	64
Information media & telecommunications	**931**	130	245	210	0	118	158	23	39	8
Financial & insurance services	**1,645**	201	432	9	4	854	97	0	4	43
Rental, hiring & real estate services	**1,941**	271	116	72	43	333	872	63	143	29
Professional, scientific & technical services	**4,256**	260	2,042	456	12	1,280	57	24	92	32
Administrative & support services	**3,200**	267	318	291	542	393	108	95	1,152	34
Public administration & safety	**7,402**	687	1,259	976	1,444	2,212	62	207	426	130
Education & training	**6,580**	431	3,869	179	1,137	631	26	19	279	9
Health care & social assistance	**9,918**	472	3,800	420	2,925	1,545	65	89	506	95
Arts & recreation services	**1,329**	193	228	140	429	111	84	12	105	26
Other services	**3,377**	226	231	1,658	314	394	50	70	404	30
Inadequately described/Not stated	**2,448**	187	220	356	188	282	131	134	304	645
Total	**87,654**	**9,714**	**14,997**	**14,396**	**9,949**	**12,776**	**9,867**	**5,421**	**9,043**	**1,491**
		11.1%	***17.1%***	***16.4%***	***11.4%***	***14.6%***	***11.3%***	***6.2%***	***10.3%***	***1.7%***

Table #44

TREND Workforce x Occupation x Industry 2016

	Est. 2016 Persons	Managers	Professionals	Technicians & trades workers	Community & personal service workers	Clerical & administrative workers	Sales workers	Machinery operators & drivers	Labourers	Inadequately described/ Not stated
Agriculture, forestry & fishing	**647**	269	59	44	7	50	10	55	147	6
Mining	**2,496**	288	398	832	16	188	68	617	89	0
Manufacturing	**5,074**	663	228	2,037	48	525	367	603	535	69
Electricity, gas, water & waste services	**885**	79	89	348	10	185	4	108	43	18
Construction	**8,599**	821	176	4,452	7	897	90	622	1,459	76
Wholesale trade	**2,553**	451	93	271	4	409	585	470	236	33
Retail trade	**11,731**	2,073	299	769	128	833	6,147	390	1,001	91
Accommodation & food services	**8,080**	1,382	132	1,097	1,899	719	704	116	1,962	67
Transport, postal & warehousing	**6,859**	654	935	410	881	1,046	493	2,031	342	67
Information media & telecommunications	**958**	134	252	216	0	122	163	24	41	8
Financial & insurance services	**1,708**	209	449	10	4	887	101	0	4	44
Rental, hiring & real estate services	**2,016**	281	120	75	44	346	905	65	148	30
Professional, scientific & technical services	**4,531**	276	2,175	485	13	1,363	61	26	98	34
Administrative & support services	**3,356**	280	333	305	569	412	113	99	1,208	35
Public administration & safety	**7,956**	738	1,353	1,048	1,552	2,377	66	223	458	139
Education & training	**7,072**	464	4,158	192	1,222	678	28	20	300	10
Health care & social assistance	**10,349**	493	3,966	438	3,052	1,612	68	93	528	100
Arts & recreation services	**1,355**	197	233	143	438	113	85	13	107	27
Other services	**3,504**	235	239	1,720	326	409	52	73	419	31
Inadequately described/Not stated	**2,448**	187	220	356	188	282	131	134	304	645
Total	**92,176**	**10,174**	**15,908**	**15,250**	**10,407**	**13,453**	**10,243**	**5,782**	**9,429**	**1,531**
		11.04%	***17.26%***	***16.54%***	***11.29%***	***14.59%***	***11.11%***	***6.27%***	***10.23%***	***1.66%***

Table #45

PIFU Workforce x Occupation x Industry 2021

	Est. 2021 Persons	Managers	Professionals	Technicians & trades workers	Community & personal service workers	Clerical & administrative workers	Sales workers	Machinery operators & drivers	Labourers	Inadequately described/ Not stated
Agriculture, forestry & fishing	**647**	269	59	44	7	50	10	55	147	6
Mining	**2,718**	313	433	906	17	205	74	672	97	0
Manufacturing	**5,147**	672	231	2,066	49	532	373	611	543	70
Electricity, gas, water & waste services	**887**	79	89	349	10	186	4	108	43	18
Construction	**8,961**	855	183	4,639	7	935	94	648	1,520	79
Wholesale trade	**2,579**	456	94	274	4	413	591	475	239	34
Retail trade	**12,548**	2,218	320	823	137	891	6,576	417	1,071	97
Accommodation & food services	**8,320**	1,423	136	1,130	1,955	741	725	120	2,021	69
Transport, postal & warehousing	**7,467**	712	1,018	447	959	1,138	536	2,211	372	73
Information media & telecommunications	**1,006**	140	264	227	0	128	171	25	43	8
Financial & insurance services	**1,760**	216	463	10	4	914	104	0	4	46
Rental, hiring & real estate services	**2,077**	290	124	77	46	357	933	67	153	31
Professional, scientific & technical services	**4,681**	286	2,247	501	13	1,408	63	27	101	35
Administrative & support services	**3,328**	278	331	302	564	409	112	99	1,199	35
Public administration & safety	**8,513**	790	1,448	1,122	1,660	2,544	71	239	490	149
Education & training	**7,567**	496	4,450	206	1,307	725	30	21	321	11
Health care & social assistance	**11,405**	543	4,370	483	3,363	1,777	75	102	581	110
Arts & recreation services	**1,396**	203	240	147	451	117	88	13	110	28
Other services	**3,715**	249	254	1,823	345	433	55	77	444	33
Inadequately described/Not stated	**2,644**	202	238	385	203	304	142	145	328	697
Total	**97,364**	**10,689**	**16,991**	**15,961**	**11,103**	**14,206**	**10,827**	**6,133**	**9,826**	**1,628**
		11.0%	***17.5%***	***16.4%***	***11.4%***	***14.6%***	***11.1%***	***6.3%***	***10.1%***	***1.7%***

Table #46

TREND Workforce x Occupation x Industry 2021

	Est. 2021 Persons	Managers	Professionals	Technicians & trades workers	Community & personal service workers	Clerical & administrative workers	Sales workers	Machinery operators & drivers	Labourers	Inadequately described/ Not stated
Agriculture, forestry & fishing	**647**	269	59	44	7	50	10	55	147	6
Mining	**4,493**	518	716	1,498	28	339	122	1,111	160	0
Manufacturing	**5,886**	769	264	2,363	56	609	426	699	621	80
Electricity, gas, water & waste services	**973**	86	98	383	11	204	5	119	47	20
Construction	**10,147**	969	208	5,253	8	1,058	106	734	1,721	90
Wholesale trade	**2,706**	478	98	287	4	433	620	499	251	35
Retail trade	**13,725**	2,426	350	900	150	975	7,192	456	1,171	106
Accommodation & food services	**8,726**	1,493	143	1,185	2,051	777	760	125	2,119	73
Transport, postal & warehousing	**8,230**	785	1,122	492	1,057	1,255	591	2,437	410	80
Information media & telecommunications	**1,102**	154	289	249	0	140	187	27	47	9
Financial & insurance services	**1,913**	234	503	11	5	993	113	0	5	50
Rental, hiring & real estate services	**2,257**	315	135	84	50	388	1,014	73	166	34
Professional, scientific & technical services	**5,347**	326	2,566	573	15	1,608	72	30	116	40
Administrative & support services	**3,624**	303	360	329	614	445	122	107	1,305	38
Public administration & safety	**9,388**	871	1,597	1,237	1,831	2,805	78	263	540	164
Education & training	**8,345**	547	4,907	227	1,441	800	34	24	353	12
Health care & social assistance	**12,212**	581	4,679	517	3,601	1,903	80	109	623	118
Arts & recreation services	**1,464**	213	251	154	473	122	92	14	115	29
Other services	**4,065**	273	278	1,996	378	474	60	85	486	36
Inadequately described/Not stated	**2,840**	217	256	413	218	327	152	156	352	748
Total	**108,090**	**11,826**	**18,879**	**18,195**	**11,999**	**15,704**	**11,839**	**7,124**	**10,756**	**1,768**
		10.9%	***17.5%***	***16.8%***	***11.1%***	***14.5%***	***11.0%***	***6.6%***	***10.0%***	***1.6%***

Table #48

Estimated Workforce Increases by Occupation

	Est. 2011 Persons	PIFU Est. 2016 Persons	PIFU Increase 2011-16	TREND Est. 2016 Persons	TREND Increase 2011-16	PIFU Est. 2021 Persons	PIFU Increase 2016-21	TREND Est. 2021 Persons	TREND Increase 2011-21	Total PIFU Increase 2011-21	Total TREND Increase 2011-21
Managers	9141	9714	573	10174	1033	10689	975	11826	1652	1548	2685
Professionals	13751	14997	1246	15908	2157	16991	1994	18879	2972	3241	5129
Technicians & trades workers	13343	14396	1053	15250	1907	15961	1566	18195	2945	2618	4852
Community & personal service workers	9241	9949	708	10407	1165	11103	1154	11999	1592	1862	2757
Clerical & administrative workers	11911	12776	865	13453	1542	14206	1429	15704	2252	2295	3793
Sales workers	9350	9867	517	10243	894	10827	960	11839	1595	1477	2489
Machinery operators & drivers	4998	5421	423	5782	784	6133	712	7124	1342	1134	2126
Labourers	8557	9043	486	9429	871	9826	783	10756	1328	1269	2199
Inadequately described/ Not stated	1391	1491	100	1531	140	1628	137	1768	237	237	377
Total	**81683**	**87654**	**5971**	**92176**	**10493**	**97364**	**9710**	**108090**	**15914**	**15681**	**26407**

11.3 Workforce Projections by Gender, Cairns SSD

The following **Table #50** estimates workforce by gender based on 2006 ratios of gender by industry.

The table indicates that based on the 2006 ratios of males/females for industries, composition changes will have only a slight impact on male/female balance with the percentage of males increasing from 52% to 53%.

However, it is likely that a tendency for females to enter the workforce in the different industry categories will, in practice, counter-balance this.

11.4 Workforce Projections by Age, Cairns SSD

The following **Table #51** gives estimates of forward projections by age group based on occupation by age group in 2006.

Table #52 indicates the following changes in proportion by age group from 2011 to trend estimates 2021.

Table #52 : Changes in Composition by Age Group

Age	Change	Diff percentage points
15 – 19	6.92 down to 6.79	- 0.13
20 – 24	9.36 down to 9.34	- 0.02
25 – 34	22.43 up to 22.48	+ 0.05
35 – 44	25.36 up to 25.41	+ 0.05
45 – 54	22.48 up to 22.52	+ 0.04
55 - 64	11.63 up to 11.65	+ 0.02
65 plus	1.82 stays at 1.82	-

The indications are that the projected industry composition changes will not result in big changes by age group. It indicates a marginally lesser need in the younger age groups.

11.5 Workforce Projections by Level of Education, Cairns SSD

The following **Table #53** estimates workforce by level of education based on 2006 ratios of level of education by occupation groups. The indications are that the proportion with non-school qualifications will remain the same at 53%. Other influences could increase the percentage.

Table #50

Workforce Projections by Industry by Male / Female

	Est. 2011			PIFU Est. 2016			TREND Est. 2016			PIFU Est. 2021			TREND Est. 2021				
	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female	Ratio M	Ratio F
Agriculture, forestry & fishing	**538**	385	152	**495**	355	140	**516**	370	146	**455**	326	129	**516**	370	146	0.72	0.28
Mining	**1,438**	1,296	142	**2,516**	2,267	248	**2,875**	2,591	284	**3,270**	2,947	323	**4,313**	3,887	426	0.90	0.10
Manufacturing	**3,990**	3,126	864	**4,229**	3,313	916	**4,628**	3,626	1,002	**4,398**	3,446	952	**4,998**	3,916	1,082	0.78	0.22
Electricity, gas, water & waste services	**696**	572	124	**731**	601	130	**766**	629	136	**768**	631	137	**842**	692	150	0.82	0.18
Construction	**6,046**	5,230	816	**6,651**	5,753	897	**6,651**	5,753	897	**7,648**	6,616	1,032	**7,981**	6,904	1,077	0.87	0.13
Wholesale trade	**2,047**	1,464	583	**2,108**	1,508	600	**2,169**	1,551	618	**2,129**	1,523	606	**2,234**	1,598	636	0.72	0.28
Retail trade	**8,837**	3,649	5,188	**9,279**	3,831	5,447	**9,720**	4,014	5,707	**10,207**	4,215	5,992	**11,179**	4,616	6,563	0.41	0.59
Accommodation & food services	**6,667**	2,934	3,733	**6,734**	2,964	3,770	**6,867**	3,023	3,845	**6,869**	3,023	3,845	**7,279**	3,204	4,075	0.44	0.56
Transport, postal & warehousing	**5,391**	3,806	1,585	**5,930**	4,187	1,743	**6,469**	4,568	1,902	**6,523**	4,606	1,918	**7,440**	5,253	2,187	0.71	0.29
Information media & telecommunications	**834**	462	373	**885**	489	395	**935**	517	418	**938**	519	419	**1,028**	569	459	0.55	0.45
Financial & insurance services	**1,345**	504	841	**1,385**	519	867	**1,439**	539	900	**1,482**	555	927	**1,583**	593	990	0.37	0.63
Rental, hiring & real estate services	**1,543**	679	864	**1,590**	700	890	**1,651**	727	924	**1,701**	749	952	**1,817**	800	1,017	0.44	0.56
Professional, scientific & technical services	**3,551**	1,651	1,900	**3,906**	1,816	2,090	**4,083**	1,898	2,185	**4,296**	1,997	2,299	**4,696**	2,183	2,513	0.46	0.54
Administrative & support services	**2,691**	1,321	1,370	**2,745**	1,348	1,398	**2,853**	1,400	1,452	**2,855**	1,401	1,453	**3,081**	1,512	1,569	0.49	0.51
Public administration & safety	**5,480**	3,175	2,305	**6,028**	3,493	2,536	**6,576**	3,810	2,766	**6,631**	3,842	2,789	**7,563**	4,382	3,181	0.58	0.42
Education & training	**5,573**	1,540	4,033	**6,130**	1,694	4,436	**6,688**	1,849	4,839	**6,743**	1,864	4,879	**7,691**	2,126	5,565	0.28	0.72
Health care & social assistance	**7,816**	1,684	6,131	**9,379**	2,021	7,358	**9,770**	2,105	7,664	**10,317**	2,223	8,093	**11,724**	2,526	9,197	0.22	0.78
Arts & recreation services	**1,193**	612	581	**1,252**	642	610	**1,312**	673	639	**1,315**	674	641	**1,417**	726	691	0.51	0.49
Other services	**2,522**	1,394	1,128	**2,572**	1,422	1,150	**2,648**	1,464	1,184	**2,830**	1,564	1,265	**3,045**	1,684	1,362	0.55	0.45
Inadequately described/Not stated	**1,979**	1,171	808	**2,137**	1,264	873	**2,137**	1,264	873	**2,308**	1,365	943	**2,308**	1,365	943	0.59	0.41
Total	**70,176**	**36,655**	**33,521**	**76,682**	**40,187**	**36,495**	**80,754**	**42,372**	**38,383**	**83,683**	**44,087**	**39,596**	**92,734**	**48,905**	**43,829**	**0.53**	**0.47**
		52%	*48%*		*52%*	*48%*		*52%*	*48%*		*53%*	*47%*		*53%*	*47%*		

Table #51

Workforce Projections by Occupation & Age

	Managers	Professionals	Technicians & trades workers	Community & personal service workers	Clerical & administrative workers	Sales workers	Machinery operators & drivers	Labourers		
				2011					**Total**	
15 - 19	110	110	1107	684	441	2113	115	881	**5561**	**6.92%**
20 – 24	457	811	1641	1229	1072	1038	330	941	**7520**	**9.36%**
25 – 34	1792	3383	3523	2412	2656	1758	905	1592	**18019**	**22.43%**
35 – 44	2578	3905	3149	2375	3323	1786	1325	1934	**20374**	**25.36%**
45 – 54	2550	3658	2549	1673	2882	1571	1260	1917	**18059**	**22.48%**
55 – 64	1380	1636	1214	749	1358	972	900	1138	**9347**	**11.63%**
65+	265	261	173	104	179	112	160	205	**1459**	**1.82%**
	9132	**13764**	**13356**	**9225**	**11911**	**9350**	**4993**	**8609**	**80340**	**100.00%**
				PIFU 2016					**Total**	
15 - 19	117	120	1195	736	473	2230	125	931	**5926**	**6.87%**
20 – 24	486	885	1771	1323	1150	1095	358	995	**8062**	**9.35%**
25 – 34	1904	3689	3800	2597	2849	1855	981	1682	**19358**	**22.45%**
35 – 44	2739	4259	3397	2557	3565	1885	1437	2044	**21882**	**25.38%**
45 – 54	2710	3989	2750	1801	3092	1658	1366	2026	**19391**	**22.49%**
55 – 64	1467	1785	1310	806	1457	1026	976	1203	**10029**	**11.63%**
65+	282	285	187	111	192	118	173	217	**1566**	**1.82%**
	9705	**15012**	**14410**	**9931**	**12776**	**9867**	**5415**	**9097**	**86214**	**100.00%**

				TREND 2016					Total	
15 - 19	122	127	1266	770	498	2315	133	971	**6202**	**6.84%**
20 – 24	509	939	1876	1384	1211	1137	382	1037	**8474**	**9.34%**
25 – 34	1994	3913	4026	2716	3000	1926	1047	1754	**20376**	**22.47%**
35 – 44	2869	4518	3599	2674	3753	1956	1532	2131	**23033**	**25.40%**
45 – 54	2838	4231	2913	1884	3256	1721	1457	2112	**20412**	**22.51%**
55 – 64	1536	1893	1388	843	1534	1065	1041	1254	**10554**	**11.64%**
65+	295	302	198	117	202	123	185	226	**1648**	**1.82%**
	10164	**15924**	**15265**	**10388**	**13453**	**10243**	**5776**	**9485**	**90698**	**100.00%**

				PIFU 2021					Total	
15 - 19	128	136	1325	822	526	2447	141	1012	**6536**	**6.82%**
20 – 24	534	1002	1963	1477	1279	1202	405	1081	**8943**	**9.34%**
25 – 34	2095	4180	4214	2898	3168	2035	1110	1828	**21528**	**22.47%**
35 – 44	3014	4825	3767	2854	3963	2068	1625	2221	**24337**	**25.41%**
45 – 54	2982	4520	3049	2010	3438	1819	1545	2201	**21563**	**22.51%**
55 – 64	1614	2022	1452	899	1619	1126	1104	1307	**11144**	**11.63%**
65+	310	323	207	124	213	130	196	236	**1740**	**1.82%**
	10679	**17008**	**15977**	**11083**	**14206**	**10827**	**6127**	**9885**	**95791**	**100.00%**

				TREND 2021					Total	
15 - 19	142	151	1510	888	581	2676	164	1108	**7219**	**6.79%**
20 – 24	591	1114	2238	1596	1413	1314	470	1183	**9920**	**9.32%**
25 – 34	2318	4644	4803	3132	3502	2226	1289	2001	**23915**	**22.48%**
35 – 44	3335	5362	4294	3084	4382	2261	1888	2431	**27036**	**25.41%**
45 – 54	3299	5022	3475	2172	3800	1989	1795	2409	**23962**	**22.52%**
55 – 64	1786	2247	1656	972	1790	1231	1282	1431	**12394**	**11.65%**
65+	343	359	237	134	236	142	228	258	**1936**	**1.82%**
	11814	**18898**	**18213**	**11977**	**15704**	**11839**	**7117**	**10821**	**106383**	**100.00%**

Table #53

Projected Workforce by Occupation - Proportion with non-school qualifications

		Managers	*Professionals*	*Technicians & trades workers*	*Community & personal service workers*	*Clerical & administrative workers*	*Sales workers*	*Machinery operators & drivers*	*Labourers*	*Total*	*Total WF*	*Proportion*
2011		4936	11138	9340	5175	4883	2898	1849	2738	**42959**	**80982**	**0.530**
2016	**PIFU**	5246	12148	10077	5572	5238	3059	2006	2894	**46238**	**87231**	**0.530**
2016	**TREND**	5494	12885	10675	5828	5516	3175	2139	3017	**48730**	**91965**	**0.530**
2021	**PIFU**	5772	13763	11173	6218	5824	3356	2269	3144	**51520**	**97267**	**0.530**
2021	**TREND**	6386	15292	12736	6719	6439	3670	2636	3442	**57321**	**108255**	**0.529**

11.6 Workforce Projections by Fields of Study, Cairns SSD

The following **Tables #54 - #58** estimate workforce with non school qualifications by fields of study based on 2006 ratios of fields of study by occupation groups.

Table #57 : Changes in Composition by Fields of Study, 2011 to Trend 2021

	2011	2021 TREND	CHANGE
Natural & physical sciences	2.47	2.48	+ 0.01
Information technology	1.29	1.29	-
Engineering & related technologies	21.87	22.05	+ 0.18
Architecture & building	8.52	8.58	+ 0.06
Agriculture, environmental & related studies	2.14	2.12	- 0.02
Health	9.91	10.02	+ 0.11
Education	8.88	8.98	+ 0.10
Management & commerce	16.85	16.63	- 0.22
Society & culture	9.72	9.64	- 0.08
Creative arts	2.64	2.64	-
Food, hospitality & personal services	8.45	8.37	- 0.08
Other/not adequately described	7.26	7.19	- 0.07

Fields of study with increased proportion were engineering & related, health, education and architecture & building. Biggest drop in proportion was management & commerce.

Table #54

Projected Workforce by Occupation by Field of Study of Workforce with Non-School Qualifications
2011

	Managers	*Professionals*	*Technicians & trades workers*	*Community & personal service workers*	*Clerical & administrative workers*	*Sales workers*	*Machinery operators & drivers*	*Labourers*	*Total*	*%*
Natural & physical sciences	114	468	168	114	98	38	26	33	**1057**	**2.47%**
Information technology	64	178	121	5	83	41	17	44	**553**	**1.29%**
Engineering & related technologies	1096	1392	4184	430	391	354	803	731	**9380**	**21.87%**
Architecture & building	533	223	2111	93	107	70	200	318	**3654**	**8.52%**
Agriculture, environmental & related studies	109	145	224	72	78	67	63	159	**917**	**2.14%**
Health	183	2695	149	647	332	122	33	90	**4252**	**9.91%**
Education	331	2539	75	419	244	104	41	55	**3808**	**8.88%**
Management & commerce	1254	1492	205	730	2134	951	146	312	**7224**	**16.85%**
Society & culture	434	1192	140	1382	537	261	70	153	**4170**	**9.72%**
Creative arts	99	423	112	160	127	125	31	55	**1132**	**2.64%**
Food, hospitality & personal services	400	100	1242	637	361	412	159	312	**3623**	**8.45%**
Other/not adequately described	311	301	598	430	400	351	259	466	**3115**	**7.26%**
									42885	**100.00%**

Table #55

Projected Workforce by Occupation by Field of Study of Workforce with Non-School Qualifications
PIFU 2016

	Managers	*Professionals*	*Technicians & trades workers*	*Community & personal service workers*	*Clerical & administrative workers*	*Sales workers*	*Machinery operators & drivers*	*Labourers*	*Total*	*%*
Natural & physical sciences	121	510	181	123	105	40	28	35	**1142**	**2.47%**
Information technology	68	194	131	6	89	43	18	46	**595**	**1.29%**
Engineering & related technologies	1165	1518	4514	462	419	373	870	773	**10095**	**21.87%**
Architecture & building	567	243	2277	100	115	73	217	336	**3928**	**8.51%**
Agriculture, environmental & related studies	115	158	242	78	84	70	68	168	**983**	**2.13%**
Health	194	2940	161	696	356	128	36	95	**4608**	**9.98%**
Education	351	2770	81	451	262	110	44	58	**4127**	**8.94%**
Management & commerce	1332	1628	222	786	2289	1003	158	330	**7748**	**16.79%**
Society & culture	462	1300	151	1488	576	275	76	162	**4490**	**9.73%**
Creative arts	105	462	121	173	136	132	34	58	**1220**	**2.64%**
Food, hospitality & personal services	425	109	1340	685	388	434	172	330	**3884**	**8.41%**
Other/not adequately described	330	328	645	462	430	370	281	492	**3338**	**7.23%**
									46159	**100.00%**

Table #56

Projected Workforce by Occupation by Field of Study of Workforce with Non-School Qualifications
TREND 2016

	Managers	*Professionals*	*Technicians & trades workers*	*Community & personal service workers*	*Clerical & administrative workers*	*Sales workers*	*Machinery operators & drivers*	*Labourers*	*Total*	%
Natural & physical sciences	126	541	192	128	110	41	30	36	**1206**	**2.48%**
Information technology	71	206	139	6	94	44	19	48	**628**	**1.29%**
Engineering & related technologies	1220	1611	4782	484	441	387	929	806	**10659**	**21.91%**
Architecture & building	593	258	2413	105	121	76	231	350	**4147**	**8.52%**
Agriculture, environmental & related studies	121	168	256	82	88	73	73	175	**1035**	**2.13%**
Health	203	3118	171	728	375	133	39	100	**4867**	**10.01%**
Education	368	2938	85	472	276	114	47	60	**4361**	**8.96%**
Management & commerce	1395	1727	235	822	2410	1042	169	344	**8143**	**16.74%**
Society & culture	483	1379	160	1556	607	286	81	169	**4721**	**9.70%**
Creative arts	110	490	128	181	143	137	36	60	**1285**	**2.64%**
Food, hospitality & personal services	445	116	1420	717	408	451	184	344	**4085**	**8.40%**
Other/not adequately described	346	348	683	484	452	384	300	513	**3510**	**7.21%**
										100.00
									48647	**%**

Table #57

Projected Workforce by Occupation by Field of Study of Workforce with Non-School Qualifications
PIFU 2021

	Managers	*Professionals*	*Technicians & trades workers*	*Community & personal service workers*	*Clerical & administrative workers*	*Sales workers*	*Machinery operators & drivers*	*Labourers*	*Total*	*%*
Natural & physical sciences	133	578	201	137	116	44	32	38	**1278**	**2.49%**
Information technology	75	220	145	6	99	47	20	50	**663**	**1.29%**
Engineering & related technologies	1281	1720	5005	516	466	409	985	840	**11223**	**21.82%**
Architecture & building	623	275	2525	112	128	81	245	365	**4354**	**8.47%**
Agriculture, environmental & related studies	127	179	268	87	93	77	77	182	**1091**	**2.12%**
Health	214	3331	179	777	396	141	41	104	**5182**	**10.07%**
Education	387	3138	89	504	291	121	50	63	**4643**	**9.03%**
Management & commerce	1466	1844	246	877	2545	1101	179	358	**8617**	**16.75%**
Society & culture	508	1473	168	1660	641	302	86	176	**5013**	**9.75%**
Creative arts	115	523	134	193	151	144	39	63	**1362**	**2.65%**
Food, hospitality & personal services	468	124	1486	765	431	477	195	358	**4303**	**8.37%**
Other/not adequately described	364	372	715	516	478	406	318	535	**3702**	**7.20%**
									51433	**100.00%**

Table #58

Projected Workforce by Occupation by Field of Study of Workforce with Non-School Qualifications
TREND 2021

	Managers	*Professionals*	*Technicians & trades workers*	*Community & personal service workers*	*Clerical & administrative workers*	*Sales workers*	*Machinery operators & drivers*	*Labourers*	*Total*	*%*
Natural & physical sciences	147	642	229	148	129	48	37	41	**1421**	**2.48%**
Information technology	83	245	166	7	109	51	24	55	**740**	**1.29%**
Engineering & related technologies	1418	1912	5706	558	515	448	1144	919	**12619**	**22.05%**
Architecture & building	690	306	2878	121	142	88	285	399	**4909**	**8.58%**
Agriculture, environmental & related studies	140	199	306	94	103	84	90	200	**1216**	**2.12%**
Health	236	3701	204	840	438	154	47	114	**5734**	**10.02%**
Education	428	3487	102	544	322	132	58	69	**5142**	**8.98%**
Management & commerce	1622	2049	280	947	2814	1204	208	392	**9517**	**16.63%**
Society & culture	562	1636	191	1794	708	330	100	193	**5515**	**9.64%**
Creative arts	128	581	153	208	167	158	45	69	**1509**	**2.64%**
Food, hospitality & personal services	517	138	1694	826	476	521	227	392	**4792**	**8.37%**
Other/not adequately described	402	413	815	558	528	444	369	585	**4114**	**7.19%**
									57226	**100.00%**

11.7 Forward Projections of Workforce 2016 & 2021, Babinda & Douglas Areas

The following sets out information for population and workforce trends in Babinda area (Cairns Part-B) and Douglas area of Cairns Regional Council.

Table #59 : Estimated Residential Population

		1996	2001	2006	2010
Cairns Part-B	No.	na	4697	4996	5378
	Growth no.			299	382
	Average annual % growth			+1.2% pa	+1.9% pa
Douglas	No.	9698	10466	10906	11953
	Growth no.		768	440	1047
	Average annual % growth		1.5% pa	+0.8% pa	+2.3% pa

Table #60 : Employed Workforce (Census)

		1996	2001	2006	
Cairns Part-B	No.	na (1)	na (1)	2292	
	Growth no.				
	Average annual % growth				
Douglas	No.	na (1)	5178	5355	
	Growth no.			177	
	Average annual % growth			+0.7% pa	

Note (1) : Census data available for 1996 and 2001 is only based on place of enumeration and not place of residence and would be distorted by inclusion of visitors in the statistics.

The indications are that Cairns Part-B and Douglas recorded slow growth in 2001 – 2006, presumably under the influence of very poor conditions in the sugar industry but bounced back in 2006 – 2010.

The indications are that 2011 – 2016 will see the Babinda area suffer from the closure of the mill but urban spread influences from Cairns will progressively provide a growth factor that will lead to a return of growth in population in 2016 – 2021.

Douglas growth is likely to remain modest in 2011 – 2016 under the influence of slow tourism growth but pick up 2016 to 2021.

The following **Tables #61 & #62** give workforce composition in the two areas highlighting the importance of agriculture and manufacturing in the Babinda area and accommodation and food services in Douglas area.

The indications are that manufacturing employment in Babinda area will fall sharply in 2011 – 2016 but exhibit a general growth across service sectors 2016 – 2021.

It is likely that efficiencies will lead to some fall in Douglas in the accommodation and food services in 2011 – 2016 but recover in 2016 – 2021.

Table #61 : Babinda Area Workforce by Industry & Occupation, Census 2006

AUSTRALIAN BUREAU OF STATISTICS 2006 Census of Population and Housing
Cairns (C) - Pt B (SLA 350102078) 1202.4 sq. Kms

B43 INDUSTRY OF EMPLOYMENT(a) BY OCCUPATION(b)
Count of employed persons aged 15 years and over
Based on place of usual residence

	Managers	*Professionals*	*Technicians & trades workers*	*Community & personal service workers*	*Clerical & administrative workers*	*Sales workers*	*Machinery operators & drivers*	*Labourers*	*Inadequately described/ Not stated*	*Total*
Agriculture, forestry & fishing	276	3	6	0	16	0	35	65	3	404
Mining	0	0	20	0	0	0	10	0	0	30
Manufacturing	24	14	100	0	17	7	54	57	3	276
Electricity, gas, water & waste services	0	0	11	0	0	0	0	4	3	18
Construction	25	0	114	3	18	0	42	38	0	240
Wholesale trade	8	0	9	0	8	15	9	14	0	63
Retail trade	33	8	16	3	22	96	3	22	0	203
Accommodation & food services	26	0	17	31	10	9	0	23	0	116
Transport, postal & warehousing	10	9	0	3	11	7	34	7	0	81
Information media & telecommunications	0	5	10	0	0	3	0	0	0	18
Financial & insurance services	4	6	0	0	14	0	0	0	0	24
Rental, hiring & real estate services	4	0	4	0	7	10	0	4	0	29
Professional, scientific & technical services	6	32	13	0	19	5	3	0	0	78
Administrative & support services	4	4	4	0	7	3	0	20	0	42
Public administration & safety	9	18	8	21	34	0	9	27	3	129
Education & training	10	103	7	45	11	0	0	11	0	187
Health care & social assistance	6	57	14	68	27	0	0	12	0	184
Arts & recreation services	3	4	3	7	3	0	0	4	0	24
Other services	4	3	39	3	5	3	3	8	0	68
Inadequately described/Not stated	9	3	10	5	9	3	5	14	20	78
Total	**461**	**269**	**405**	**189**	**238**	**161**	**207**	**330**	**32**	**2,292**

(a) Industry of employment was coded to the 2006 Australian and New Zealand Standard Industrial Classification (ANZSIC) edition. This has replaced the 1993 ANZSIC edition.
(b) Occupation was coded to the 2006 Australian and New Zealand Standard Classification of Occupations (ANZSCO). This has replaced the 1996 Australian Standard Classification of Occupations (ASCO) Second Edition.

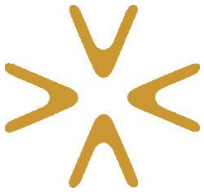
Table #62 : Douglas Area Workforce by Industry & Occupation, Census 2006

AUSTRALIAN BUREAU OF STATISTICS 2006 Census of Population and Housing
Douglas (S) (SLA 350102800) 2436.7 sq. Kms

B43 INDUSTRY OF EMPLOYMENT(a) BY OCCUPATION(b)
Count of employed persons aged 15 years and over
Based on place of usual residence

	Managers	*Professionals*	*Technicians & trades workers*	*Community & personal service workers*	*Clerical & administrative workers*	*Sales workers*	*Machinery operators & drivers*	*Labourers*	*Inadequately described/ Not stated*	*Total*
Agriculture, forestry & fishing	143	6	13	0	14	0	32	36	3	247
Mining	4	5	14	0	0	0	6	0	0	29
Manufacturing	27	14	90	0	14	10	27	41	4	227
Electricity, gas, water & waste services	6	0	16	0	3	0	4	6	0	35
Construction	44	3	265	0	31	8	28	93	3	475
Wholesale trade	14	0	6	0	7	21	11	20	0	79
Retail trade	122	14	38	9	22	290	11	66	4	576
Accommodation & food services	281	17	216	324	137	60	11	288	14	1,348
Transport, postal & warehousing	41	75	23	84	51	29	102	27	0	432
Information media & telecommunications	9	14	8	0	5	0	0	0	0	36
Financial & insurance services	13	19	9	11	33	5	0	23	0	113
Rental, hiring & real estate services	30	3	4	0	32	74	7	5	6	161
Professional, scientific & technical services	10	73	19	0	47	5	0	0	0	154
Administrative & support services	29	9	20	53	23	15	11	103	4	267
Public administration & safety	16	23	21	36	39	0	9	40	0	184
Education & training	18	129	4	63	14	5	0	14	0	247
Health care & social assistance	10	86	15	129	26	6	3	16	3	294
Arts & recreation services	9	22	28	23	3	6	3	5	0	99
Other services	15	4	80	15	22	0	0	20	5	161
Inadequately described/Not stated	15	15	25	20	13	10	10	38	45	191
Total	**856**	**531**	**914**	**767**	**536**	**544**	**275**	**841**	**91**	**5,355**

(a) Industry of employment was coded to the 2006 Australian and New Zealand Standard Industrial Classification (ANZSIC) edition. This has replaced the 1993 ANZSIC edition.
(b) Occupation was coded to the 2006 Australian and New Zealand Standard Classification of Occupations (ANZSCO). This has replaced the 1996 Australian Standard Classification of Occupations (ASCO) Second Edition.



PART D
ANALYSIS OF FUTURE NEEDS & ISSUES

12. THE HISTORICAL SETTING

In Australian historical terms, Cairns was late being founded.

The city is deep into the tropics, faced many initial challenges and was initially slow to develop.

Since the 1970's, it has been on a long term growth trajectory achieving a consistent growth in population of about 3% per annum during each decade.

Underpinning this growth has been a major expansion of outside earnings by the region it services based on expanded agriculture, fisheries, mining, tourism and the development of services earning outside income in the marine and aviation sectors, education and supply of goods and services to the developing equatorial areas to the near north, in Papua New Guinea and Papua Indonesia.

Although Cairns is now the capital of the most populous region in northern Australia and has passed in size some seven other Australian regional cities since 1976, the region's population is still only 300,000 in an area 1½ times the size of Victoria and larger than the British Isles.

Examination of workforce trends over the past 20 years however, indicates some salient points about the region's economy and workforce development that are commented upon more extensively in previous Part B.

- Strong average growth in population and workforce over the past 20 years above national averages, ie. the city and region has recorded a high average job creation rate.
- Substantial volatility in workforce, employment and unemployment levels with three periods of downturn and higher unemployment in the last 20 years.
- Average unemployment rates since 1989 has been 7%, ie. well above national averages with indigenous recorded unemployment contributing only about 1% to the recorded level. Thus the region has run a high job creation rate alongside relatively high unemployment rates indicating a tendency to attract population and workforce and hold on to them in downturn periods.
- The region's downturns have produced two periods of very high unemployment levels well over 10% - those in 1989 to 1991 and 2009 to present. These were both characterised by the region being in 'full flight' with very high population growth and construction rates when cut off almost overnight - in 1989 by the pilots' dispute followed by the national recession, and in late 2008, by the global financial crisis. By comparison, the downturn in the late 90's associated with the Asian financial crisis did not produce such extreme rises in unemployment. The economy had already been slowing when the Asian crisis hit.

- The study indicates that the high unemployment rates in the early 90's and recently were strongly contributed to by population and workforce growth continuing after employment growth was checked. A lag of up to 2 years has been evident before population and workforce growth fully responded to the economic slow-down. The same lag tended to be there when acceleration took place.

- There has been a range of responses to growth and changes in economic conditions by industry sectors.

  Construction workforce and associated suppliers in business services (eg. real estate, hiring, finance) has been very volatile showing very strong movements upwards in good times and falling strongly when growth slows.

  The base industries earning outside income (eg. agriculture, fishing, mining, tourism) react to short term conditions. However, they compete on wider and global markets and seem to be exhibiting the results of strong pressure to contain costs and increase productivity, often by outsourcing to and creating jobs in other sectors.

  Government services, especially health and education, are showing strong growth regardless of shorter term economic conditions.

- Comparisons with the group of 15 main cities in Australia (Cairns is 14th) indicate many of the industry employment trend movements in Cairns have been similar to movements at a national level.

- Past trends in employment / unemployment by age and gender indicate a higher unemployment levels in younger age groups and a long term rise in the proportion of the workforce females.

- Relationships of employment patterns by occupation, level of education and fields of study to industry structure were established from the 2006 Census that have provided a basis for forward modeling of likely future workforce needs in these fields.

Given the region's basic situation and long term growth trajectory, the chances are that the region and the city will again exhibit strong growth and a strong job creation rate over the next ten years, but that despite this, there will be substantial volatility in the rate of growth and the average unemployment rate will be above state and national averages.

13. THE SCALE OF THE TASK

13.1 Overall

There will always be room for dispute about how fast the city's economy, population and workforce needs will grow over the next decade.

The projections in this paper are modelled forward on two assumptions.

a) That overall growth in the economy and workforce as reflected in population growth will be at the median projected level by the State Government's Population Information and Forecasting Unit (PIFU), 1.9% per annum.

b) That the growth will be at long term 'trend' rates, 3.0% per annum.

It is important to appreciate that the PIFU projections imply a major reduction in growth rates on actual long term trend rates and have a long history (that is set out in Appendix 13) of under projecting the growth of the city. For instance, despite the evidence of previous decades, forward projections made in 1985 and 1991 anticipated Cairns 2011 population (Gordonvale to Ellis Beach) to be 122,000 by 2011. The actual is about 153,000, an additional 31,000 or 25%.

Workforce is projected to increase at a rate slower than population (due in large part to population ageing) - at PIFU 1.8% per annum; TREND 2.8% per annum.

It is assumed that the current economic conditions of high commodity prices and a high Australian dollar will last over the next five years and will supress tourism growth but be favourable for mining and basic agricultural products with a net result of slower growth. It is assumed that the situation become more favourable over the 2006 – 2011 period due to moderation of commodity prices and exchange rates. By then, incomes are likely to have risen in China and India to levels more favourable for growth in tourism visitation to the region.

Based on these assumptions, resulting additional projected workforce needs are as follows.

Table #63 : Projected Additional Workforce Needs

		Workforce	Increase Needed over 2011
Current		81,400	na
2016	PIFU	87,200	+5,800
	TREND	91,700	+15,900
2021	PIFU	91,700	+10,300
	TREND	107,800	+26,400

Thus, projected need over the next ten years is:

	Number	% Increase
PIFU ASSUMPTIONS	15,900	+20%
TREND ASSUMPTIONS	26,400	+32%

(While increases of 20% and 32% might seem high, growth over the last three decades has been of the order of 30% per decade.)

We are thus looking at a net 16,000 to 26,000 additional workforce to train or attract over the next decade.

13.2 Workforce Needs by Industry Sector

Until the census data becomes available, latest reliable data available is for 2006.

Estimates prepared by the Commonwealth Department of Employment & Workforce Relations are based on a sample survey that is unreliable. For instance, it projects that the employed construction workforce in 2010 (at the height of the GFC impact period), was double that of 2006 and that workforce in education had halved 2006 to 2010. The report recommends that this data be removed from the Council website as potentially misleading.

The industry composition for 2011 has been estimated based on analysis of earlier movements over the previous 10 years for Cairns and other Australian cities.

This analysis along with the assumptions about impacts of the global economic situation on the region's growth patterns has provided a basis for estimates to model workforce needs by industry category from 2011 to 2021 with the following results.

Ref: Table #40 : Estimated Growth in Workforce, Rankings by Industry Sectors, 2011 to 2021

	PIFU	Trend
Health care, etc.	2781	3588
Mining	1331	3106
Retail trade	1883	3061
Construction (1)	1418	2604
Public administration & safety	1595	2470
Education & training	1417	2195
Transport, postal & warehousing	1288	2051
Manufacturing	734	1474
Professional scientific & technical services	741	1407
Accommodation & food services	552	957
Other services	529	879
Administrative & support	221	517
Rental, hiring & real estate (1)	211	391
Financial & insurance (1)	178	332
Wholesale trade	148	275
Information, media & telecommunication	102	198
Electricity, gas, etc.	82	169
Arts & recreation services	93	161
Total	**15,681**	**26,407**

13.3 Workforce Needs by Occupation

Based on 2006 ratios of occupation by industry, the foregoing converts into workforce needs by occupation. In practice, changes in ratios of different occupations involved within industry sectors may change this.

Table #49 : Estimated Workforce Increases by Occupation, 2011 – 2021

	PIFU	TREND
Professionals	3241	5129
Technicians & trades workers	2618	4852
Clerical & administrative workers	2295	3793
Community & personal service workers	1862	2757
Managers	1548	2685
Sales workers	1477	2489
Labourers	1269	2199
Machinery operators & drivers	1134	2126

13.4 Workforce Needs by Gender & Age

The projected industry composition is projected to have little impact on balance by male/female and only small impact on need by age but with a slight decline in the proportion of 15 – 19 and 20 – 24 required.

13.5 Workforce Needs by Level of Education & Field of Study

Again based on 2006 ratios, the projected industry and occupation composition is projected to affect the proportion of the workforce with post school education hardly at all. Other aspects likely to change requirements in this field are discussed later.

The following table indicates that the projected industry and occupation composition would change the composition of post school fields of study only marginally.

Ref: Table #57 : Changes in Composition by Fields of Study, 2011 to Trend 2021

	2011	2021 Trend	Change percentage points
Natural & physical sciences	2.47%	2.48%	+ 0.01%
Information technology	1.29%	1.29%	-
Engineering & related technologies	21.87%	22.05%	+ 0.18%
Architecture & building	8.52%	8.58%	+ 0.06%
Agriculture, environmental & related studies	2.14%	2.12	- 0.02%
Health	9.91%	10.02%	+ 0.11%
Education	8.88%	8.98%	+ 0.10%
Management & commerce	16.85%	16.63%	- 0.22%
Society & culture	9.72%	9.64%	- 0.08%
Creative arts	2.64%	2.64%	-
Food, hospitality & personal services	8.45%	8.37%	- 0.08%
Other/not adequately described	7.26%	7.19%	- 0.07%
Total	**100.00%**	**100.00%**	

It indicates a slight increase in proportion in engineering and related technologies, health and education and slight falls in management and commerce, society and culture, food hospitality and personal services.

13.6 Babinda & Port Douglas

The main analysis is of Cairns Statistical Sub Division (Gordonvale to Ellis Beach). More limited data is available to analyse the Babinda and Douglas areas.

Both had slow growth 2001 – 2006 presumably largely because of the conditions in the sugar industry. The growth rate in both bounced back in 2006 – 2010.

In line with the assumptions about global economic conditions, Douglas, with a heavily tourism based economy, is expected to record relatively slow growth 2011 – 2016 accelerating in 2016 – 2021.

Babinda district workforce will experience a fall away in manufacturing employment following mill closure during the 2011 – 2016 period, but Cairns' urban expansion influences will progressively lift its growth of population and services with the proportion of the workforce in employment located in Cairns rising. The growth in population is likely to result in workforce growth, mainly in services.

14. IDENTIFICATION OF BOTTLENECKS & OVERSUPPLIES

14.1 Demand Volatility & Construction

The worst bottlenecks and oversupply tend to occur in the construction and related business services, elements of manufacturing and transport.

This is likely to continue into the future with timing and strength of upswings and downturns difficult to predict.

14.2 International Trends & the Base Industries

While short term demand volatility can influence the base industries like tourism, agriculture and mining, they are more subject to longer term international trends but also the efficiency pressures brought about by completing on international markets. Both are more predictable.

International trends are seeing a major upsurge in mining and shortage of workforce with a tendency to fly-in offering a major opportunity for Cairns, but with side issues of:

- Shortages in training capability.
- Attraction of workforce issues.
- Competition for workforce putting pressure on workforce wages rates and availability in other directions.

Thanks to previous work in this field through the Chamber of Commerce and DEEDI up to five years ago, Cairns has positioned itself well, but as other centres 'wake up' to the trends is facing increasing competition.

The workforce competition effects on other sectors is especially impacting on the skilled trades based industry sectors of:

- Slipways and maritime sectors with special need for countervailing attention to training and workforce attraction.
- Construction with beneficial effects given the recent downturn. However, this could change as an upturn in construction activity likely to occur in the future.

Agriculture, forestry and fishing workforce in the city is low. In the region, agriculture has been experiencing a long term outsourcing trend and declining on-farm employment trend. However, the tropical fruit industries have a need for low cost labour force that has been able to be met in large part by 'backpackers' (banana industry 60%), with a side benefit to the city. They make their money in the region but come into Cairns to spend it.

The Pacific Island Workers Scheme is of potential relevance.

Tourism, especially the accommodation and food sector, impacts strongly on Cairns city.

Questions about future bottlenecks and oversupply are:

= A tendency for some jobs to be outsourced from Cairns to head offices, especially by the hotel 'chains' in fields like marketing and administration.

= Loss of jobs through efficiencies brought about by new technology.

= Outsourcing of functions/services (eg. accounting, laundry, maintenance).

The city has geared up its training institutions well to meet needs in this field and with the recent and prospective slower growth, major shortages do not seem likely. The city seems well placed to seek to expand markets for education and training in tourism to markets outside the region.

The sector has been fairly prominent in accessing special regional skilled migration programs to meet special needs (eg. chefs, tour guides with language skills). A looming need over the next decade will be to train/access staff with cultural and language skills for emerging markets like China, India, Eastern Europe.

14.3 Long Term Areas of Chronic Undersupply

Four major areas stand out that are likely to have sustained shortages and to need to attract skilled and high level workforce over the next decade:

- Education, especially higher education.
- Health services including allied health services and aged care.
- High level professional, managerial and technical staff.
- A special need to meet undersupply of engineering and certain skilled trades. Despite the current level of unemployment, there are definite deficiencies in some fields, eg. legal secretaries.

Issues of training /attraction are addressed in the next section.

14.4 Long Term Chronic Oversupply

The research indicated a long term chronic over representation of youths in the unemployed. The issue is addressed in the next section.

15. ISSUES

15.1 Meeting the Needs of a Larger, Multidimensional City

It is implicit in the projections that Cairns will become substantially larger over the next decade and its economy become more multidimensional:

- as scope for outside earnings changes
- as a major 'catch up' takes place in the scale and range of services delivered reflecting the region's leading size in population in the north and the city's role as the servicing capital of that region.

15.2 Recognising the Importance to Cairns of Regional 'Outside Earnings'

One of the most important aspects of the Cairns economy to recognise is:

a) That the prime role of Cairns is as a regional servicing city.

b) That its growth over recent decades has been due to expanding outside earnings, most of which are based on natural plant growth potential, marine, mineral and tourism resources and are derived from the surrounding region.

Even in tourism, while most visitors stay in Cairns itself, it's not Cairns they come to see. It is the outstanding package based on the reef and the rainforests.

In pursuing growth of the economy and employment, there are two primary avenues:

a) Growth in the region's outside earnings based on its natural attributes in fields like agriculture, mining, fisheries and tourism.

b) Growth of Cairns as a servicing city through replacing imports of goods and services and extending market areas.

While there are opportunities for (b), the competition is extremely strong.

Not only does Cairns face competition from the major metropolitan centres but it faces competition from an historically larger Townsville. In other near regional markets, it needs to provide services across the barriers of State (Northern Territory) and international boundaries (PNG, Indonesia, Pacific).

The consequences of the cessation of growth in outside earnings of the 'base' industries is all too evident in the city's economy at this time. While there has been some growth in agricultural and mining incomes over the last five years, it has not been enough to offset the decline in tourism incomes. The situation has been made worse by a perception among investors, that Cairns is wholly reliant on tourism.

It is recommended that in seeking to influence job creation prospects, a more holistic approach is taken – one that continues to recognise the full range of regional 'base' industries underpinning the Cairns' economy and not just tourism.

15.3 Coping with Volatility

The study indicates that strong volatility in workforce needs is largely in the construction sector as might be expected. However, two other industry sectors showed sympathetic large changes – financial and insurance services and rental, hiring, real estate services and other services. Effects however of volatility in investment/construction activity run through to other sectors such as elements of manufacturing associated with construction, through transport and other services.

Predicting the timing of construction upsurges and downturns is difficult and it should be noted that the forward modelling of workforce requirements in this field projects forward at average rates only.

The region is currently in a strong down phase but on past experience, it needs to expect to cope with at least one strong upturn over the next decade, a further down phase in construction activity, and possibly a further up period. While Federal and State Governments can take actions to try to offset and moderate worst effects, the reality is that ups and downs will almost certainly occur in the Cairns' economy.

It is recommended that the region's businesses and institutions factor this situation into their plans and policies and be cautious of going 'too close to the edge' in their financial gearing during upturn periods.

One of the worst failures for Cairns in the immediate post GFC period was that the special action in the 2009 Commonwealth budget to introduce a national program of capital works to help offset the effects of the GFC almost completely missed the Cairns region.

No doubt, most of the projects adopted by the Commonwealth were on the recommendations of the State Government. It is recommended that for its part, the Council needs to ensure that the State and Commonwealth Governments have identified major projects ready for start up should a major downturn occur.

A further point was raised during Workshop discussions. The city and region's relatively small workforce compared with metropolitan centres with a wider diversity of industries and types of workforce, makes it relatively vulnerable to it being able to cope with sudden surges and shocks in key industries. There will be benefits in growing the size and diversity of the workforce to make it less vulnerable.

15.4 Recognising the Impacts of Falling Transport & Communication Costs

One of the major underlying factors affecting the level and pattern of growth of the Cairns regional economy and of workforce demand ha been improvements in transport and communication technology.

Over the decades, advent of bulk ore carriers, improved road transport, advent of wide bodied jets, computers and satellite technology have had major effects on the size and structure of the economy and workforce needs.

On the positive side, breaking down the barriers of remoteness has been underpinning much of the growth that has occurred in the region in outside earnings from mining, agriculture and tourism.

However, the dark side has been the effect of lowering the cost of delivery of goods and services from larger lower cost metropolitan centres (eg. in recent decades, Cairns lost its brewery and clay brick works).

Two developments are likely to be specially important over the next decade - continuing improvements in aircraft and the National Broadband Network.

Obviously Cairns has well developed aviation services and a strategic hub position that helps it benefit from aviation developments. A good example of the dynamics of improved air transport relates to construction

It is vital to its competitive position that it participates in the roll out of the NBN as quickly as possible. However it needs to be recognised, that apart from positives, the roll out will result in negatives. These are not well researched and understood.

One of the major findings of the McKinsey report, "*An Economy that Works: Job Creation and America's Future*" that looks at the job creation task over the next decade in the USA (see a summary of some main findings, Appendix 12), is that increased home ownership has decreased strongly the mobility of the labour force. It also points to an increase in the degree to which communication and information technology is leading to:

- Disaggregation of jobs into specialised tasks.
- Increased ability to perform jobs remotely.

It is recommended that Council seek to have special research carried out that more closely identifies the potential negative as well as positive impacts of improving communication and information technology on the business and other tertiary services sector.

With hinterland areas likely to feature in growth through mining and agriculture, there is a need for the city to recognise its vulnerability due to relatively poor development of its regional road structure for heavy transport and its ports for cargo handling. Cairns is in real danger of losing business in hinterland areas if hinterland road access is not upgraded to take freight efficient vehicles. It is recommended that the Council address the need for improved regional freight transport infrastructure in the current global economic trends.

The decision by Cairns Post to print its Weekend edition in Townsville is due to a combination of importation of newsprint from New Zealand through Townsville seaport and improvements in road transport and the Bruce Highway.

The worst bottlenecks and oversupply seems to take place in those sectors most subject to the wide fluctuations in investment/construction activity over a short period of time.

This is not peculiar to the Cairns region, although the city's strong growth and high private enterprise component of the economy makes it more vulnerable. For this reason, construction workforce Australia wide, tends to be relatively mobile, especially that engaged in big construction projects. 'Tradies' will tend to move in and out and not purchase homes locally. This is not a satisfactory situation for many with families.

Within the region, it is evident that this instability of work leads to a disproportionate proportion of the workforce being located in Cairns, with tradesmen based in Cairns moving in and out of regional and remote construction sites as needed. Improved roads and air transport encourages workers moving in and out. Part of the fly-in workforce to mines relates to construction.

However, the same underlying transport factors mean that the city can suffer from being target of fly-in activity from other larger centres. (The extent to which professionals and others are being flown in to meet the upsurge in work in some fields related to the aftermath of Cyclone Yasi is a case in point.)

The question is one of the degree to which Cairns can develop its role as a workforce/service centre in competition with metropolitan and other centres.

Because of lifestyle factors and air services brought by tourism, Cairns is in a position not just to develop as a centre for mining fly-in, but in the provision of other workforce and services to a wider area not just within its traditional Far North Queensland regional servicing boundaries, but for the wider area of northern Australia, Papua New Guinea, the Pacific and Papua Indonesia.

Expanding regional servicing boundaries for goods and services will help offset the instability of business and employment within the region. If a full examination is made of trends in some of the successful service businesses in the region, this is already taking place to some extent. In response to reduced local work, some businesses have increased their servicing of markets further afield.

To help provide stability to workforce in various fields, it is recommended Cairns adopt a conscious policy of building up a servicing role beyond its immediate regional boundaries.

This means that a whole range of institutions need to change their conception of their market/service boundaries including media, education and training, institutions and employment agencies.

As part of this, there is a need to recognise Cairns' very strong international interface for a regional city, an interface not just brought about through its strong role in international tourism, but its special relationship with Papua New Guinea, the Pacific Islands and Papua Indonesia, a relationship that has elements of business, social, government and defence aspects.

While Cairns has an advantage in services delivered by air to this wider area, it is weaker in the transport services for the delivery of goods by land, rail and sea transport.

Often this second aspect is important and it is recommended Cairns as part of a wider regional market approach is going to have to pay special attention to its wider transport links in association with the recommendation above to address the need for improved freight transport infrastructure within the region.

15.5 Better Information on Employment

One of the obvious shortcomings in information available during the recent GFC impact has been lack of easy access to reliable information on which occupations and industries unemployment was occurring in and where changes in employment by industry and occupation were taking place.

The sample survey data available through DEWR is unreliable. The simple recording of information about the industries and skills of people going on unemployment benefits and receiving other forms of government assistance and making it publicly available just does not seem to be taking place.

It is rudimentary that such information needs to become available.

15.6 To Train or Attract

One of the fundamental issues is one of whether to train or attract to meet workforce needs.

Obviously, there are good reasons to train. However, it should be noted that both the PIFU and TREND projected rates of growth are substantially faster than natural growth and expansion of the local residential workforce.

There will be a need, as in the past, to attract substantial inflow of workforce. The need will vary also as between different levels of skills and the institutional ability in the region to train in those skills.

Both pathways – training and attracting raise special issues that need to be addressed.

15.7 Training

A fundamental issue raised in the Workshops related to who pays for the training.

Free universal state education can be accessed up to secondary school level. For university level, there is a HEC's scheme to assist. For trades, there is an apprenticeship system. Some institutions (eg. defence force) look after their training needs internally.

However, for a great many jobs, there is no training support. Employers, especially in tight and uncertain times, find it difficult to fund training. On job training is expensive in employer time.

The days when large stable employers made a heavy investment in training seem to have passed. NQEA at one time could claim that most of the tradesmen in their field around town had been trained initially as NQEA apprentices. Most electricians had been trained by the Cairns Regional Electricity Board and electrical engineers been through CREB cadetships.

While this is not a problem confined to Cairns, national solutions do not seem to be coming forward and it is a question the Cairns business community needs to address.

The Skills360 type of approach to apprenticeship seems to have worked very well in Cairns. Can this approach be extended?

Is there a need for more assistance to employers to help them minimise their internal costs of taking on trainees?

Clearly, the education and training institutions can use this report to help identify the levels of additional workforce, occupations and post school fields of study likely to be needed.

15.8 Attracting Workforce

Substantial discussion took place in the Workshops about the question of attracting workforce.

It would appear that one of the areas of greatest concern related to professional and skilled technicians/personnel.

Negative factors for Cairns cited have included:

a) Wages and salaries offered not being high enough.

b) Being away from career path opportunities available in metropolitan centres.

c) Social problems of distance from family.

d) Social problems of adaptation of employees and family members to a different climate and perceptions of that climate.

e) Inferior availability compared to metropolitan centres of health, education, sporting and entertainment facilities.

By and large, compared with other northern cities, Cairns has tended to hold its long term population well. Appendix 14 gives some statistics that indicate Cairns is not the city of transients that it is at times claimed to be compared to other Australian cities. However, because of its very strong growth, it has absorbed a large inflow of population.

Some State and National institutions solve the problem of staffing in remoter areas through transfer systems, where staff will be required to accept posting for less desired locations for short periods.

In a social analysis of one outback town, this group was dubbed the 'spiralists' who passed through the town on their 'way up' to employment in a large town (eg. the hospital, school, police and bank manager). Cairns' private enterprise structure and growing size has meant that this group has been of diminishing importance.

The following gives suggestions for overcoming some of the problems:

a) The city needs to keep up with social infrastructure that can be justified for its size. It can be argued that at present, it is well below what it should be in higher education, health, some sporting and entertainment facilities. The first two are the responsibility of the State Government.

b) The city needs to be able to present a good image of itself to prospective workforce. The employment agencies are often in the front line of this and it is recommended that the Council engage with the employment agencies to review what is available in this field with a view to helping to correct any deficiencies.

c) Well adapted local skilled potential employees can be available and are missed by some institutions that fail to advertise locally.

d) At times, lack of availability of suitably skilled staff within Australia can be overcome by recruiting from overseas. The system set up by the Commonwealth with the Chamber of Commerce acting as a recommending agency on the question of local availability of skills appears to have worked well and should be supported.

15.9 Outside Decision Making

It was noted during the Workshop discussions that in many cases, decision making about employment in the region is made outside the region "down south" and that transfers are made within existing staff as opposed to seeking locals to fill the jobs.

During the Workshops, it was also observed that people from outside the region often did not fit into jobs well, that high levels of stress were occurring in some institutions with employees leaving.

It is recommended that employers be encouraged to advertise and recruit locally wherever possible.

15.10 Youth Unemployment

The research indicated an underlying problem of relatively high youth unemployment and that the likely future industry mix if anything, was mildly negative to jobs for younger age groups.

There was a high reliance on the retail trade for employment of youth.

The Workshop discussion indicated that the problem was not lack of jobs that could be filled by younger people but problems of:

- Coming out of school without a work ethic and not job ready.
- Lack of basic skills, (eg. communication and writing among some graduates).
- Lack of experience and skills compared with costs of employment and costs to employers of on job training.

15.11 Workforce Participation Rates

While over 45% of workforce are now female, many are in part time jobs and there is still scope for increased female participation.

There is a substantial section of those not in the workforce who are on welfare. Proposed tightening of welfare conditions could see proportion in the workforce grow.

More of the population are living longer, and there will be a trend for older to stay in workforce longer.

15.12 Appreciating the Employer's Perspective

At the end of the day, it is the employer who makes a decision to employ and in Cairns, this is dominantly by private businesses and small to medium sized businesses.

A policy to encourage employment needs to take into account the employer perspective.

The outlook of employers is heavily influenced by their view of likely business conditions into the future.

Most do not like putting people off and this often means they are reluctant to employ if there is a likelihood of this occurring.

In a city like Cairns, where there can be confidence that long term growth will occur and that down periods will prove transitory, it is important that unrealistic pessimism not be allowed to set in, especially among recently established businesses or among outside investors or managers of businesses in the city with little long term experience or knowledge of the city's economy.

It is recommended that the analysis included in this report of the city's strong long term growth and job creation and the transitory nature of slow downs be widely disseminated in the business community to help restore confidence after the great deal of recent negative publicity and views of the city's prospects.

CAIRNS REGIONAL COUNCIL

WORKFORCE NEEDS ANALYSIS

APPENDICES

APPENDIX 1

References

1. "Changes in Australia's Industry Structure: Main Cities 2001 – 2006", Australian Government, Department of Infrastructure, Transport, Regional Development and Local Government, Information paper 32.

2. "An Economy That Works : Job Creation & America's Future", McKinsey Global Institute, June 2011.

APPENDIX 2

ABS WORKFORCE DATA GROUPED BY QUARTERS & YEARS, 1988 TO 2010- FNQ STATISTICAL DIVISION

	Employed			Unemployed			Workforce			Unemployment Rate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
MQ	43.27	25.91	69.18	6.60	3.98	10.58	49.87	29.89	79.76	13.23	13.34	13.26
JQ	46.53	29.30	75.83	5.11	3.52	8.64	51.64	32.82	84.46	9.91	10.83	10.26
SQ	48.15	31.67	79.82	3.76	2.99	6.75	51.91	34.66	86.57	7.24	8.63	7.80
DQ	49.29	30.22	79.51	3.15	2.31	5.46	52.45	32.52	84.97	6.02	7.03	6.42
1ST	44.90	27.60	72.50	5.85	3.75	9.61	50.76	31.35	82.11	11.57	12.08	11.76
2ND	48.72	30.94	79.66	3.46	2.65	6.11	52.18	33.59	85.77	6.63	7.83	7.11
1988	**46.81**	**29.27**	**76.08**	**4.66**	**3.20**	**7.86**	**51.47**	**32.47**	**83.94**	**9.10**	**9.96**	**9.44**
MQ	45.99	28.53	74.53	3.84	3.05	6.89	49.83	31.58	81.41	7.70	9.56	8.42
	1.06	1.10	1.08	0.58	0.77	0.65	1.00	1.06	1.02	0.58	0.72	0.63
JQ	44.29	31.13	75.43	3.84	2.50	6.34	48.13	33.64	81.77	7.90	7.42	7.73
	0.95	1.06	0.99	0.75	0.71	0.73	0.93	1.02	0.97	0.80	0.69	0.75
SQ	45.33	30.43	75.76	2.60	2.00	4.60	47.93	32.43	80.36	5.42	6.18	5.73
	0.94	0.96	0.95	0.69	0.67	0.68	0.92	0.94	0.93	0.75	0.72	0.73
DQ	45.21	28.88	74.10	3.41	2.72	6.12	48.62	31.60	80.22	7.01	8.65	7.65
	0.92	0.96	0.93	1.08	1.18	1.12	0.93	0.97	0.94	1.16	1.23	1.19
1ST	45.14	29.83	74.98	3.84	2.78	6.62	48.98	32.61	81.59	7.80	8.49	8.07
	1.01	1.08	1.03	0.66	0.74	0.69	0.97	1.04	0.99	0.67	0.70	0.69
2ND	45.27	29.66	74.93	3.00	2.36	5.36	48.27	32.02	80.29	6.22	7.42	6.69
	0.93	0.96	0.94	0.87	0.89	0.88	0.93	0.95	0.94	0.94	0.95	0.94
1989	**45.21**	**29.74**	**74.95**	**3.42**	**2.57**	**5.99**	**48.63**	**32.31**	**80.94**	**7.01**	**7.95**	**7.38**
1989.1	**0.97**	**1.02**	**0.99**	**0.73**	**0.80**	**0.76**	**0.94**	**1.00**	**0.96**	**0.77**	**0.80**	**0.80**
MQ	47.56	27.89	75.45	4.22	3.22	7.44	51.78	31.11	82.89	8.16	10.22	8.96
	1.03	0.98	1.01	1.10	1.05	1.08	1.04	0.99	1.02	1.06	1.07	1.06
JQ	45.18	29.86	75.04	3.82	2.31	6.13	49.00	32.17	81.17	7.80	7.18	7.55
	1.02	0.96	0.99	0.99	0.92	0.97	1.02	0.96	0.99	0.99	0.97	0.98
SQ	46.14	28.12	74.26	3.29	1.98	5.27	49.43	30.10	79.53	6.64	6.61	6.63
	1.02	0.92	0.98	1.27	0.99	1.15	1.03	0.93	0.99	1.22	1.07	1.16
DQ	43.99	27.15	71.15	4.63	3.37	8.00	48.62	30.53	79.15	9.53	11.01	10.11
	0.97	0.94	0.96	1.36	1.24	1.31	1.00	0.97	0.99	1.36	1.27	1.32
1ST	46.37	28.88	75.24	4.02	2.76	6.79	50.39	31.64	82.03	7.98	8.70	8.26
	1.03	0.97	1.00	1.05	1.00	1.03	1.03	0.97	1.01	1.02	1.02	1.02
2ND	45.07	27.64	72.70	3.96	2.68	6.64	49.03	30.31	79.34	8.09	8.81	8.37
	1.00	0.93	0.97	1.32	1.13	1.24	1.02	0.95	0.99	1.30	1.19	1.25
1990	**45.72**	**28.26**	**73.97**	**3.99**	**2.72**	**6.71**	**49.71**	**30.98**	**80.69**	**8.03**	**8.76**	**8.32**
1990.1	**1.01**	**0.95**	**0.99**	**1.17**	**1.06**	**1.12**	**1.02**	**0.96**	**1.00**	**1.15**	**1.10**	**1.13**
MQ	42.22	27.03	69.25	7.17	2.64	9.81	49.39	29.67	79.06	14.48	8.85	12.37
	0.89	0.97	0.92	1.70	0.82	1.32	0.95	0.95	0.95	1.78	0.87	1.38
JQ	44.20	27.84	72.04	6.65	4.37	11.02	50.85	32.21	83.06	13.10	13.58	13.28
	0.98	0.93	0.96	1.74	1.89	1.80	1.04	1.00	1.02	1.68	1.89	1.76
SQ	44.73	31.02	75.75	6.09	2.89	8.99	50.82	33.91	84.73	12.04	8.57	10.66
	0.97	1.10	1.02	1.85	1.46	1.70	1.03	1.13	1.07	1.81	1.30	1.61
DQ	49.66	36.45	86.12	6.18	3.44	9.63	55.85	39.90	95.74	11.10	8.64	10.07
	1.13	1.34	1.21	1.34	1.02	1.20	1.15	1.31	1.21	1.16	0.78	1.00
1ST	43.21	27.43	70.64	6.91	3.50	10.42	50.12	30.94	81.06	13.79	11.22	12.82
	0.93	0.95	0.94	1.72	1.27	1.53	0.99	0.98	0.99	1.73	1.29	1.55
2ND	47.20	33.73	80.93	6.14	3.17	9.31	53.34	36.90	90.24	11.57	8.61	10.36
	1.05	1.22	1.11	1.55	1.18	1.40	1.09	1.22	1.14	1.43	0.98	1.24
1991	**45.20**	**30.58**	**75.79**	**6.53**	**3.34**	**9.86**	**51.73**	**33.92**	**85.65**	**12.68**	**9.91**	**11.59**
1991.1	**0.99**	**1.08**	**1.02**	**1.64**	**1.23**	**1.47**	**1.04**	**1.09**	**1.06**	**1.58**	**1.13**	**1.39**
MQ	51.10	38.77	89.87	6.90	3.47	10.38	58.00	42.24	100.24	11.91	8.21	10.36

	1.21	1.43	1.30	0.96	1.32	1.06	1.17	1.42	1.27	0.82	0.93	0.84
JQ	53.84	39.15	92.99	7.90	4.47	12.37	61.74	43.62	105.36	12.81	10.25	11.75
	1.22	1.41	1.29	1.19	1.02	1.12	1.21	1.35	1.27	0.98	0.76	0.89
SQ	54.48	40.81	95.29	7.07	3.24	10.31	61.55	44.05	105.60	11.48	7.35	9.76
	1.22	1.32	1.26	1.16	1.12	1.15	1.21	1.30	1.25	0.95	0.86	0.92
DQ	51.15	37.01	88.16	6.09	3.85	9.94	57.24	40.86	98.10	10.65	9.52	10.18
	1.03	1.02	1.02	0.98	1.12	1.03	1.02	1.02	1.02	0.96	1.10	1.01
1ST	52.47	38.96	91.43	7.40	3.97	11.37	59.87	42.93	102.80	12.36	9.23	11.06
	1.21	1.42	1.29	1.07	1.13	1.09	1.19	1.39	1.27	0.90	0.82	0.86
2ND	52.81	38.91	91.72	6.58	3.55	10.12	59.39	42.45	101.85	11.06	8.43	9.97
	1.12	1.15	1.13	1.07	1.12	1.09	1.11	1.15	1.13	0.96	0.98	0.96
1992	**52.64**	**38.93**	**91.58**	**6.99**	**3.76**	**10.75**	**59.63**	**42.69**	**102.32**	**11.71**	**8.83**	**10.51**
1992.1	**1.16**	**1.27**	**1.21**	**1.07**	**1.13**	**1.09**	**1.15**	**1.26**	**1.19**	**0.92**	**0.89**	**0.91**
MQ	53.53	38.05	91.58	6.75	4.15	10.90	60.28	42.20	102.48	11.21	9.82	10.64
	1.05	0.98	1.02	0.98	1.19	1.05	1.04	1.00	1.02	0.94	1.20	1.03
JQ	55.43	41.57	97.01	7.79	4.30	12.09	63.23	45.87	109.09	12.33	9.36	11.08
	1.03	1.06	1.04	0.99	0.96	0.98	1.02	1.05	1.04	0.96	0.91	0.94
SQ	60.64	43.60	104.23	7.72	3.44	11.17	68.36	47.04	115.40	11.29	7.28	9.66
	1.11	1.07	1.09	1.09	1.06	1.08	1.11	1.07	1.09	0.98	0.99	0.99
DQ	60.60	42.52	103.12	6.27	3.37	9.64	66.87	45.89	112.76	9.37	7.33	8.55
	1.18	1.15	1.17	1.03	0.87	0.97	1.17	1.12	1.15	0.88	0.77	0.84
1ST	54.48	39.81	94.29	7.27	4.22	11.49	61.75	44.03	105.79	11.77	9.59	10.86
	1.04	1.02	1.03	0.98	1.06	1.01	1.03	1.03	1.03	0.95	1.04	0.98
2ND	60.62	43.06	103.68	7.00	3.41	10.40	67.62	46.47	114.08	10.33	7.30	9.10
	1.15	1.11	1.13	1.06	0.96	1.03	1.14	1.09	1.12	0.93	0.87	0.91
1993	**57.55**	**41.44**	**98.99**	**7.13**	**3.81**	**10.95**	**64.69**	**45.25**	**109.94**	**11.05**	**8.45**	**9.98**
1993.1	**1.09**	**1.06**	**1.08**	**1.02**	**1.01**	**1.02**	**1.08**	**1.06**	**1.07**	**0.94**	**0.96**	**0.95**
MQ	59.01	41.02	100.02	6.21	4.12	10.34	65.22	45.14	110.36	9.53	9.12	9.36
	1.10	1.08	1.09	0.92	0.99	0.95	1.08	1.07	1.08	0.85	0.93	0.88
JQ	63.82	41.61	105.42	6.55	4.70	11.25	70.37	46.31	116.67	9.29	10.15	9.63
	1.15	1.00	1.09	0.84	1.09	0.93	1.11	1.01	1.07	0.75	1.08	0.87
SQ	66.23	44.50	110.73	4.51	4.24	8.75	70.74	48.74	119.48	6.35	8.73	7.33
	1.09	1.02	1.06	0.58	1.23	0.78	1.03	1.04	1.04	0.56	1.20	0.76
DQ	65.63	46.72	112.34	3.51	4.08	7.60	69.14	50.80	119.94	5.08	8.06	6.36
	1.08	1.10	1.09	0.56	1.21	0.79	1.03	1.11	1.06	0.54	1.10	0.74
1ST	61.41	41.31	102.72	6.38	4.41	10.79	67.79	45.72	113.52	9.41	9.64	9.50
	1.13	1.04	1.09	0.88	1.04	0.94	1.10	1.04	1.07	0.80	1.00	0.87
2ND	65.93	45.61	111.54	4.01	4.16	8.17	69.94	49.77	119.71	5.72	8.40	6.84
	1.09	1.06	1.08	0.57	1.22	0.79	1.03	1.07	1.05	0.55	1.15	0.75
1994	**63.67**	**43.46**	**107.13**	**5.20**	**4.29**	**9.48**	**68.87**	**47.75**	**116.61**	**7.56**	**9.02**	**8.17**
1994.1	**1.11**	**1.05**	**1.08**	**0.73**	**1.12**	**0.87**	**1.06**	**1.06**	**1.06**	**0.68**	**1.07**	**0.82**
MQ	66.36	46.74	113.10	5.97	3.11	9.08	72.33	49.85	122.18	8.26	6.13	7.43
	1.12	1.14	1.13	0.96	0.75	0.88	1.11	1.10	1.11	0.87	0.67	0.79
JQ	66.25	48.68	114.94	3.55	2.81	6.36	69.80	51.50	121.30	5.09	5.46	5.25
	1.04	1.17	1.09	0.54	0.60	0.57	0.99	1.11	1.04	0.55	0.54	0.54
SQ	64.34	48.03	112.37	4.35	2.78	7.13	68.69	50.81	119.49	6.33	5.48	5.96
	0.97	1.08	1.01	0.96	0.66	0.81	0.97	1.04	1.00	1.00	0.63	0.81
DQ	60.87	50.37	111.23	3.68	3.35	7.03	64.55	53.71	118.26	5.70	6.25	5.96
	0.93	1.08	0.99	1.05	0.82	0.92	0.93	1.06	0.99	1.12	0.77	0.94
1ST	66.31	47.71	114.02	4.76	2.96	7.72	71.07	50.67	121.74	6.68	5.79	6.34
	1.08	1.15	1.11	0.75	0.67	0.72	1.05	1.11	1.07	0.71	0.60	0.67
2ND	62.60	49.20	111.80	4.01	3.06	7.08	66.62	52.26	118.88	6.01	5.86	5.96
	0.95	1.08	1.00	1.00	0.74	0.87	0.95	1.05	0.99	1.05	0.70	0.87
1995	**64.46**	**48.45**	**112.91**	**4.39**	**3.01**	**7.40**	**68.84**	**51.47**	**120.31**	**6.35**	**5.83**	**6.15**
1995.1	**1.01**	**1.11**	**1.05**	**0.84**	**0.70**	**0.78**	**1.00**	**1.08**	**1.03**	**0.84**	**0.65**	**0.75**
MQ	57.52	46.60	104.12	4.68	4.15	8.84	62.20	50.75	112.96	7.52	8.23	7.84
	0.87	1.00	0.92	0.78	1.34	0.97	0.86	1.02	0.92	0.91	1.34	1.06

JQ	62.28	44.34	106.63	3.84	3.21	7.05	66.12	47.56	113.68	5.81	6.72	6.19
	0.94	0.91	0.93	1.08	1.14	1.11	0.95	0.92	0.94	1.14	1.23	1.18
SQ	62.22	46.65	108.87	5.48	2.78	8.25	67.70	49.43	117.13	8.09	5.64	7.05
	0.97	0.97	0.97	1.26	1.00	1.16	0.99	0.97	0.98	1.28	1.03	1.18
DQ	62.78	47.38	110.17	3.68	2.68	6.35	66.46	50.06	116.52	5.58	5.20	5.43
	1.03	0.94	0.99	1.00	0.80	0.90	1.03	0.93	0.99	0.98	0.83	0.91
1ST	59.90	45.47	105.37	4.26	3.68	7.94	64.16	49.15	113.32	6.66	7.48	7.02
	0.90	0.95	0.92	0.89	1.24	1.03	0.90	0.97	0.93	1.00	1.29	1.11
2ND	62.50	47.02	109.52	4.58	2.73	7.30	67.08	49.74	116.82	6.84	5.42	6.24
	1.00	0.96	0.98	1.14	0.89	1.03	1.01	0.95	0.98	1.14	0.92	1.05
1996	**61.20**	**46.24**	**107.45**	**4.42**	**3.20**	**7.62**	**65.62**	**49.45**	**115.07**	**6.75**	**6.45**	**6.63**
1996.1	**0.95**	**0.95**	**0.95**	**1.01**	**1.06**	**1.03**	**0.95**	**0.96**	**0.96**	**1.06**	**1.11**	**1.08**
MQ	56.89	40.99	97.89	6.36	4.40	10.76	63.25	45.39	108.65	10.03	9.67	9.88
	0.99	0.88	0.94	1.36	1.06	1.22	1.02	0.89	0.96	1.33	1.17	1.26
JQ	65.57	45.04	110.61	5.71	4.54	10.25	71.28	49.58	120.86	8.06	9.17	8.52
	1.05	1.02	1.04	1.49	1.41	1.45	1.08	1.04	1.06	1.39	1.36	1.37
SQ	63.03	48.01	111.03	5.26	3.42	8.68	68.29	51.43	119.71	7.70	6.65	7.25
	1.01	1.03	1.02	0.96	1.23	1.05	1.01	1.04	1.02	0.95	1.18	1.03
DQ	48.25	38.41	86.66	3.05	3.11	6.16	51.30	41.52	92.82	5.93	7.42	6.60
	0.77	0.81	0.79	0.83	1.16	0.97	0.77	0.83	0.80	1.06	1.43	1.22
1ST	61.23	43.02	104.25	6.04	4.47	10.50	67.27	47.48	114.75	9.04	9.42	9.20
	1.02	0.95	0.99	1.42	1.21	1.32	1.05	0.97	1.01	1.36	1.26	1.31
2ND	55.64	43.21	98.85	4.16	3.26	7.42	59.79	46.47	106.27	6.82	7.03	6.93
	0.89	0.92	0.90	0.91	1.20	1.02	0.89	0.93	0.91	1.00	1.30	1.11
1997	**58.43**	**43.11**	**101.55**	**5.10**	**3.86**	**8.96**	**63.53**	**46.98**	**110.51**	**7.93**	**8.23**	**8.06**
1997.1	**0.95**	**0.93**	**0.95**	**1.15**	**1.21**	**1.18**	**0.97**	**0.95**	**0.96**	**1.18**	**1.28**	**1.22**
MQ	48.77	36.44	85.21	4.43	3.18	7.61	53.21	39.61	92.82	8.32	7.93	8.17
	0.86	0.89	0.87	0.70	0.72	0.71	0.84	0.87	0.85	0.83	0.82	0.83
JQ	52.01	38.37	90.38	4.24	2.64	6.88	56.25	41.01	97.27	7.50	6.42	7.06
	0.79	0.85	0.82	0.74	0.58	0.67	0.79	0.83	0.80	0.93	0.70	0.83
SQ	53.20	40.84	94.03	3.61	1.80	5.41	56.80	42.64	99.44	6.34	4.22	5.43
	0.84	0.85	0.85	0.69	0.53	0.62	0.83	0.83	0.83	0.82	0.63	0.75
DQ	54.68	44.55	99.23	4.79	3.01	7.81	59.47	47.56	107.03	8.04	6.34	7.28
	1.13	1.16	1.15	1.57	0.97	1.27	1.16	1.15	1.15	1.36	0.85	1.10
1ST	50.39	37.41	87.80	4.34	2.91	7.25	54.73	40.31	95.04	7.91	7.18	7.61
	0.82	0.87	0.84	0.72	0.65	0.69	0.81	0.85	0.83	0.87	0.76	0.83
2ND	53.94	42.69	96.63	4.20	2.41	6.61	58.14	45.10	103.24	7.19	5.28	6.36
	0.97	0.99	0.98	1.01	0.74	0.89	0.97	0.97	0.97	1.05	0.75	0.92
1998	**52.16**	**40.05**	**92.21**	**4.27**	**2.66**	**6.93**	**56.43**	**42.71**	**99.14**	**7.55**	**6.23**	**6.99**
1998.1	**0.89**	**0.93**	**0.91**	**0.84**	**0.69**	**0.77**	**0.89**	**0.91**	**0.90**	**0.95**	**0.76**	**0.87**
MQ	59.35	46.77	106.12	4.53	1.88	6.42	63.88	48.66	112.54	7.11	3.87	5.71
	1.22	1.28	1.25	1.02	0.59	0.84	1.20	1.23	1.21	0.86	0.49	0.70
JQ	57.69	44.50	102.19	4.38	3.87	8.25	62.07	48.37	110.44	7.05	7.99	7.48
	1.11	1.16	1.13	1.03	1.47	1.20	1.10	1.18	1.14	0.94	1.24	1.06
SQ	57.36	43.45	100.80	4.47	2.79	7.25	61.82	46.23	108.06	7.22	6.03	6.72
	1.08	1.06	1.07	1.24	1.55	1.34	1.09	1.08	1.09	1.14	1.43	1.24
DQ	58.49	41.59	100.08	3.83	3.55	7.39	62.32	45.15	107.47	6.15	7.88	6.87
	1.07	0.93	1.01	0.80	1.18	0.95	1.05	0.95	1.00	0.76	1.24	0.94
1ST	58.52	45.64	104.16	4.45	2.88	7.33	62.97	48.51	111.49	7.08	5.93	6.59
	1.16	1.22	1.19	1.03	0.99	1.01	1.15	1.20	1.17	0.90	0.83	0.87
2ND	57.92	42.52	100.44	4.15	3.17	7.32	62.07	45.69	107.76	6.69	6.96	6.79
	1.07	1.00	1.04	0.99	1.32	1.11	1.07	1.01	1.04	0.93	1.32	1.07
1999	**58.22**	**44.08**	**102.30**	**4.30**	**3.02**	**7.33**	**62.52**	**47.10**	**109.63**	**6.88**	**6.44**	**6.69**
1999.1	**1.12**	**1.10**	**1.11**	**1.01**	**1.14**	**1.06**	**1.11**	**1.10**	**1.11**	**0.91**	**1.03**	**0.96**
MQ	58.32	41.55	99.87	5.61	3.64	9.25	63.92	45.20	109.12	8.76	8.01	8.48
	0.98	0.89	0.94	1.24	1.94	1.44	1.00	0.93	0.97	1.23	2.07	1.48
JQ	60.97	44.83	105.80	5.46	3.24	8.70	66.43	48.07	114.50	8.21	6.75	7.59

	1.06	1.01	1.04	1.25	0.84	1.06	1.07	0.99	1.04	1.16	0.84	1.02
SQ	62.57	48.15	110.73	3.96	2.12	6.09	66.54	50.28	116.81	5.94	4.23	5.21
	1.09	1.11	1.10	0.89	0.76	0.84	1.08	1.09	1.08	0.82	0.70	0.78
DQ	60.41	48.37	108.78	3.58	3.03	6.61	63.99	51.40	115.39	5.57	5.88	5.71
	1.03	1.16	1.09	0.93	0.85	0.89	1.03	1.14	1.07	0.91	0.75	0.83
1ST	59.64	43.19	102.83	5.53	3.44	8.98	65.18	46.63	111.81	8.48	7.38	8.03
	1.02	0.95	0.99	1.24	1.20	1.22	1.03	0.96	1.00	1.20	1.24	1.22
2ND	61.49	48.26	109.75	3.77	2.58	6.35	65.26	50.84	116.10	5.76	5.06	5.46
	1.06	1.14	1.09	0.91	0.81	0.87	1.05	1.11	1.08	0.86	0.73	0.80
2000	**60.57**	**45.73**	**106.29**	**4.65**	**3.01**	**7.66**	**65.22**	**48.74**	**113.96**	**7.12**	**6.22**	**6.75**
2000.1	**1.04**	**1.04**	**1.04**	**1.08**	**1.00**	**1.05**	**1.04**	**1.03**	**1.04**	**1.03**	**0.97**	**1.01**
MQ	57.76	48.59	106.35	5.56	4.20	9.76	63.32	52.79	116.11	8.77	7.95	8.39
	0.99	1.17	1.06	0.99	1.15	1.05	0.99	1.17	1.06	1.00	0.99	0.99
JQ	59.88	49.23	109.11	5.64	3.46	9.10	65.52	52.70	118.22	8.63	6.57	7.70
	0.98	1.10	1.03	1.03	1.07	1.05	0.99	1.10	1.03	1.05	0.97	1.01
SQ	62.27	51.30	113.57	4.29	3.12	7.41	66.55	54.42	120.98	6.44	5.73	6.12
	1.00	1.07	1.03	1.08	1.47	1.22	1.00	1.08	1.04	1.08	1.36	1.18
DQ	61.41	50.39	111.80	4.54	2.74	7.28	65.95	53.13	119.07	6.88	5.15	6.11
	1.02	1.04	1.03	1.27	0.90	1.10	1.03	1.03	1.03	1.23	0.87	1.07
1ST	58.82	48.91	107.73	5.60	3.83	9.43	64.42	52.75	117.16	8.70	7.26	8.05
	0.99	1.13	1.05	1.01	1.11	1.05	0.99	1.13	1.05	1.03	0.98	1.00
2ND	61.84	50.84	112.68	4.41	2.93	7.34	66.25	53.77	120.02	6.66	5.44	6.12
	1.01	1.05	1.03	1.17	1.14	1.16	1.02	1.06	1.03	1.16	1.08	1.12
2001	**60.33**	**49.88**	**110.21**	**5.01**	**3.38**	**8.39**	**65.33**	**53.26**	**118.59**	**7.68**	**6.35**	**7.08**
2001.1	**1.00**	**1.09**	**1.04**	**1.08**	**1.12**	**1.09**	**1.00**	**1.09**	**1.04**	**1.08**	**1.02**	**1.05**
MQ	61.68	48.29	109.97	5.61	3.25	8.86	67.29	51.54	118.82	8.31	6.26	7.42
	1.07	0.99	1.03	1.01	0.77	0.91	1.06	0.98	1.02	0.95	0.79	0.88
JQ	56.68	49.07	105.74	5.45	3.50	8.95	62.12	52.57	114.69	8.75	6.67	7.80
	0.95	1.00	0.97	0.97	1.01	0.98	0.95	1.00	0.97	1.01	1.02	1.01
SQ	57.14	50.03	107.17	4.89	3.48	8.38	62.03	53.51	115.55	7.88	6.50	7.23
	0.92	0.98	0.94	1.14	1.12	1.13	0.93	0.98	0.96	1.22	1.13	1.18
DQ	56.89	51.10	107.99	4.06	2.35	6.41	60.96	53.45	114.41	6.66	4.41	5.61
	0.93	1.01	0.97	0.90	0.86	0.88	0.92	1.01	0.96	0.97	0.86	0.92
1ST	59.18	48.68	107.86	5.53	3.37	8.90	64.71	52.05	116.76	8.53	6.47	7.61
	1.01	1.00	1.00	0.99	0.88	0.94	1.00	0.99	1.00	0.98	0.89	0.95
2ND	57.02	50.56	107.58	4.48	2.92	7.40	61.49	53.48	114.98	7.27	5.45	6.42
	0.92	0.99	0.95	1.01	1.00	1.01	0.93	0.99	0.96	1.09	1.00	1.05
2002	**58.10**	**49.62**	**107.72**	**5.00**	**3.15**	**8.15**	**63.10**	**52.77**	**115.87**	**7.90**	**5.96**	**7.02**
2002.1	**0.96**	**0.99**	**0.98**	**1.00**	**0.93**	**0.97**	**0.97**	**0.99**	**0.98**	**1.03**	**0.94**	**0.99**
MQ	59.09	48.83	107.92	5.46	3.90	9.35	64.55	52.73	117.27	8.44	7.37	7.97
	0.96	1.01	0.98	0.97	1.20	1.06	0.96	1.02	0.99	1.02	1.18	1.07
JQ	63.26	49.96	113.22	3.70	3.06	6.76	66.95	53.03	119.98	5.52	5.79	5.64
	1.12	1.02	1.07	0.68	0.87	0.76	1.08	1.01	1.05	0.63	0.87	0.72
SQ	64.48	49.98	114.46	4.16	3.08	7.24	68.64	53.06	121.70	6.07	5.80	5.95
	1.13	1.00	1.07	0.85	0.88	0.86	1.11	0.99	1.05	0.77	0.89	0.82
DQ	64.77	48.79	113.56	2.95	2.40	5.35	67.72	51.19	118.91	4.35	4.69	4.50
	1.14	0.95	1.05	0.73	1.02	0.83	1.11	0.96	1.04	0.65	1.06	0.80
1ST	61.17	49.40	110.57	4.58	3.48	8.06	65.75	52.88	118.63	6.98	6.58	6.81
	1.03	1.01	1.03	0.83	1.03	0.91	1.02	1.02	1.02	0.82	1.02	0.89
2ND	64.62	49.39	114.01	3.55	2.74	6.30	68.18	52.13	120.30	5.21	5.24	5.22
	1.13	0.98	1.06	0.79	0.94	0.85	1.11	0.97	1.05	0.72	0.96	0.81
2003	**62.90**	**49.39**	**112.29**	**4.07**	**3.11**	**7.18**	**66.96**	**52.50**	**119.47**	**6.10**	**5.91**	**6.02**
2003.1	**1.08**	**1.00**	**1.04**	**0.81**	**0.99**	**0.88**	**1.06**	**0.99**	**1.03**	**0.77**	**0.99**	**0.86**
MQ	64.50	48.89	113.39	3.35	2.49	5.83	67.85	51.38	119.22	4.94	4.81	4.90
	1.09	1.00	1.05	0.61	0.64	0.62	1.05	0.97	1.02	0.59	0.65	0.61
JQ	67.05	52.23	119.28	3.77	2.32	6.09	70.82	54.55	125.37	5.33	4.24	4.86
	1.06	1.05	1.05	1.02	0.76	0.90	1.06	1.03	1.04	0.97	0.73	0.86

SQ	66.79	53.32	120.11	3.67	1.49	5.17	70.46	54.81	125.27	5.22	2.72	4.13
	1.04	1.07	1.05	0.88	0.48	0.71	1.03	1.03	1.03	0.86	0.47	0.69
DQ	65.81	55.86	121.67	2.93	1.29	4.23	68.74	57.15	125.89	4.28	2.26	3.36
	1.02	1.14	1.07	0.99	0.54	0.79	1.02	1.12	1.06	0.98	0.48	0.75
1ST	65.77	50.56	116.33	3.56	2.40	5.96	69.33	52.96	122.30	5.13	4.53	4.88
	1.08	1.02	1.05	0.78	0.69	0.74	1.05	1.00	1.03	0.74	0.69	0.72
2ND	66.30	54.59	120.89	3.30	1.39	4.70	69.60	55.98	125.58	4.75	2.49	3.74
	1.03	1.11	1.06	0.93	0.51	0.75	1.02	1.07	1.04	0.91	0.48	0.72
2004	**66.04**	**52.58**	**118.61**	**3.43**	**1.90**	**5.33**	**69.47**	**54.47**	**123.94**	**4.94**	**3.51**	**4.31**
2004.1	**1.05**	**1.06**	**1.06**	**0.84**	**0.61**	**0.74**	**1.04**	**1.04**	**1.04**	**0.81**	**0.59**	**0.72**
MQ	62.94	55.43	118.36	4.74	3.00	7.74	67.68	58.42	126.10	7.01	5.13	6.14
	0.98	1.13	1.04	1.42	1.21	1.33	1.00	1.14	1.06	1.42	1.07	1.25
JQ	63.27	53.97	117.24	4.36	3.56	7.92	67.63	57.53	125.16	6.39	6.15	6.28
	0.94	1.03	0.98	1.16	1.53	1.30	0.95	1.05	1.00	1.20	1.45	1.29
SQ	63.41	54.95	118.36	3.77	3.64	7.41	67.18	58.59	125.77	5.59	6.21	5.88
	0.95	1.03	0.99	1.03	2.44	1.43	0.95	1.07	1.00	1.07	2.28	1.42
DQ	63.44	52.42	115.86	4.13	4.13	8.26	67.56	56.55	124.12	6.11	7.31	6.65
	0.96	0.94	0.95	1.41	3.20	1.95	0.98	0.99	0.99	1.43	3.23	1.98
1ST	63.10	54.70	117.80	4.55	3.28	7.83	67.65	57.98	125.63	6.70	5.64	6.21
	0.96	1.08	1.01	1.28	1.36	1.31	0.98	1.09	1.03	1.30	1.25	1.27
2ND	63.42	53.68	117.11	3.95	3.89	7.84	67.37	57.57	124.94	5.85	6.76	6.27
	0.96	0.98	0.97	1.20	2.79	1.67	0.97	1.03	0.99	1.23	2.71	1.67
2005	**63.26**	**54.19**	**117.45**	**4.25**	**3.58**	**7.83**	**67.51**	**57.77**	**125.29**	**6.27**	**6.20**	**6.24**
2005.1	**0.96**	**1.03**	**0.99**	**1.24**	**1.89**	**1.47**	**0.97**	**1.06**	**1.01**	**1.27**	**1.77**	**1.45**
MQ	62.30	50.91	113.20	4.26	5.47	9.73	66.56	56.38	122.94	6.40	9.70	7.91
	0.99	0.92	0.96	0.90	1.83	1.26	0.98	0.97	0.97	0.91	1.89	1.29
JQ	63.39	53.34	116.73	3.76	4.41	8.17	67.15	57.75	124.90	5.61	7.67	6.56
	1.00	0.99	1.00	0.86	1.24	1.03	0.99	1.00	1.00	0.88	1.25	1.04
SQ	66.32	56.61	122.93	3.50	2.43	5.93	69.83	59.04	128.86	5.01	4.09	4.60
	1.05	1.03	1.04	0.93	0.67	0.80	1.04	1.01	1.02	0.90	0.66	0.78
DQ	68.36	57.40	125.76	4.06	2.06	6.12	72.42	59.46	131.88	5.61	3.46	4.64
	1.08	1.10	1.09	0.98	0.50	0.74	1.07	1.05	1.06	0.92	0.47	0.70
1ST	62.84	52.12	114.97	4.01	4.94	8.95	66.85	57.07	123.92	6.01	8.68	7.24
	1.00	0.95	0.98	0.88	1.51	1.14	0.99	0.98	0.99	0.90	1.54	1.17
2ND	67.34	57.00	124.35	3.78	2.24	6.02	71.12	59.25	130.37	5.31	3.77	4.62
	1.06	1.06	1.06	0.96	0.58	0.77	1.06	1.03	1.04	0.91	0.56	0.74
2006	**65.09**	**54.56**	**119.66**	**3.90**	**3.59**	**7.49**	**68.99**	**58.16**	**127.15**	**5.66**	**6.23**	**5.93**
2006.1	**1.03**	**1.01**	**1.02**	**0.92**	**1.00**	**0.96**	**1.02**	**1.01**	**1.01**	**0.90**	**1.01**	**0.95**
MQ	69.29	55.72	125.01	3.85	2.16	6.01	73.14	57.88	131.02	5.27	3.70	4.59
	1.11	1.09	1.10	0.90	0.39	0.62	1.10	1.03	1.07	0.82	0.38	0.58
JQ	70.13	57.40	127.53	3.40	0.98	4.38	73.53	58.37	131.91	4.62	1.67	3.32
	1.11	1.08	1.09	0.90	0.22	0.54	1.10	1.01	1.06	0.82	0.22	0.51
SQ	71.68	58.64	130.31	3.64	2.39	6.03	75.32	61.03	136.35	4.81	3.87	4.39
	1.08	1.04	1.06	1.04	0.98	1.02	1.08	1.03	1.06	0.96	0.95	0.95
DQ	71.38	59.49	130.86	3.38	2.57	5.95	74.76	62.06	136.81	4.50	4.14	4.34
	1.04	1.04	1.04	0.83	1.25	0.97	1.03	1.04	1.04	0.80	1.20	0.94
1ST	69.71	56.56	126.27	3.62	1.57	5.19	73.34	58.13	131.46	4.94	2.68	3.95
	1.11	1.09	1.10	0.90	0.32	0.58	1.10	1.02	1.06	0.82	0.31	0.55
2ND	71.53	59.06	130.59	3.51	2.48	5.99	75.04	61.54	136.58	4.66	4.00	4.37
	1.06	1.04	1.05	0.93	1.11	0.99	1.06	1.04	1.05	0.88	1.06	0.94
2007	**70.62**	**57.81**	**128.43**	**3.57**	**2.02**	**5.59**	**74.19**	**59.83**	**134.02**	**4.80**	**3.34**	**4.16**
2007.1	**1.08**	**1.06**	**1.07**	**0.92**	**0.56**	**0.75**	**1.08**	**1.03**	**1.05**	**0.85**	**0.54**	**0.70**
MQ	70.56	55.94	126.49	3.27	4.42	7.69	73.82	60.36	134.18	4.43	7.32	5.73
	1.02	1.00	1.01	0.85	2.05	1.28	1.01	1.04	1.02	0.84	1.98	1.25
JQ	73.77	61.22	134.99	4.82	3.41	8.23	78.59	64.63	143.22	6.13	5.28	5.74
	1.05	1.07	1.06	1.42	3.49	1.88	1.07	1.11	1.09	1.33	3.17	1.73
SQ	75.55	61.56	137.11	3.54	3.65	7.19	79.09	65.21	144.30	4.39	5.58	4.98

	1.05	1.05	1.05	0.97	1.53	1.19	1.05	1.07	1.06	0.91	1.44	1.13
DQ	75.63	62.06	137.70	5.21	3.68	8.88	80.84	65.74	146.58	6.47	5.62	6.08
	1.06	1.04	1.05	1.54	1.43	1.49	1.08	1.06	1.07	1.44	1.36	1.40
1ST	72.16	58.58	130.74	4.04	3.92	7.96	76.21	62.50	138.70	5.28	6.30	5.74
	1.04	1.04	1.04	1.12	2.50	1.53	1.04	1.08	1.06	1.07	2.35	1.45
2ND	75.59	61.81	137.40	4.37	3.66	8.04	79.97	65.47	145.44	5.43	5.60	5.53
	1.06	1.05	1.05	1.25	1.48	1.34	1.07	1.06	1.06	1.17	1.40	1.27
2008	**73.88**	**60.19**	**134.07**	**4.21**	**3.79**	**8.00**	**78.09**	**63.99**	**142.07**	**5.35**	**5.95**	**5.63**
2008.1	**1.05**	**1.04**	**1.04**	**1.18**	**1.87**	**1.43**	**1.05**	**1.07**	**1.06**	**1.12**	**1.78**	**1.35**
MQ	69.70	59.68	129.37	10.24	5.24	15.48	79.94	64.91	144.85	12.83	8.05	10.70
	0.99	1.07	1.02	3.14	1.18	2.01	1.08	1.08	1.08	2.90	1.10	1.87
JQ	70.75	60.50	131.25	8.85	4.80	13.65	79.60	65.30	144.89	11.12	7.33	9.42
	0.96	0.99	0.97	1.84	1.41	1.66	1.01	1.01	1.01	1.82	1.39	1.64
SQ	69.00	61.67	130.68	11.32	6.99	18.31	80.32	68.67	148.99	14.06	10.19	12.28
	0.91	1.00	0.95	3.20	1.92	2.55	1.02	1.05	1.03	3.20	1.82	2.47
DQ	70.01	63.58	133.59	8.06	6.25	14.32	78.08	69.83	147.91	10.32	8.95	9.67
	0.93	1.02	0.97	1.55	1.70	1.61	0.97	1.06	1.01	1.59	1.59	1.59
1ST	70.22	60.09	130.31	9.54	5.02	14.56	79.77	65.11	144.87	11.98	7.69	10.06
	0.97	1.03	1.00	2.36	1.28	1.83	1.05	1.04	1.04	2.27	1.22	1.75
2ND	69.51	62.62	132.13	9.69	6.62	16.31	79.20	69.25	148.45	12.19	9.57	10.97
	0.92	1.01	0.96	2.22	1.81	2.03	0.99	1.06	1.02	2.24	1.71	1.99
2009	**69.87**	**61.36**	**131.22**	**9.62**	**5.82**	**15.44**	**79.48**	**67.18**	**146.66**	**12.08**	**8.63**	**10.52**
2009.1	**0.95**	**1.02**	**0.98**	**2.29**	**1.54**	**1.93**	**1.02**	**1.05**	**1.03**	**2.26**	**1.45**	**1.87**
MQ	70.67	59.50	130.17	10.33	8.03	18.36	81.00	67.53	148.53	12.76	11.89	12.36
	1.01	1.00	1.01	1.01	1.53	1.19	1.01	1.04	1.03	0.99	1.48	1.16
JQ	74.50	62.37	136.87	7.79	6.97	14.76	82.29	69.34	151.63	9.47	10.05	9.74
	1.05	1.03	1.04	0.88	1.45	1.08	1.03	1.06	1.05	0.85	1.37	1.03
SQ	73.89	61.93	135.82	6.43	6.42	12.85	80.32	68.35	148.67	8.00	9.37	8.63
	1.07	1.00	1.04	0.57	0.92	0.70	1.00	1.00	1.00	0.57	0.92	0.70
DQ	74.15	64.67	138.81	6.48	3.83	10.31	80.63	68.49	149.12	8.03	5.55	6.91
	1.06	1.02	1.04	0.80	0.61	0.72	1.03	0.98	1.01	0.78	0.62	0.71
1ST	72.58	60.94	133.52	9.06	7.50	16.56	81.64	68.44	150.08	11.12	10.97	11.05
	1.03	1.01	1.02	0.95	1.49	1.14	1.02	1.05	1.04	0.93	1.43	1.10
2ND	74.02	63.30	137.32	6.45	5.12	11.58	80.48	68.42	148.90	8.01	7.46	7.77
	1.06	1.01	1.04	0.67	0.77	0.71	1.02	0.99	1.00	0.66	0.78	0.71
2010	**73.30**	**62.12**	**135.42**	**7.76**	**6.31**	**14.07**	**81.06**	**68.43**	**149.49**	**9.57**	**9.22**	**9.41**
2010.1	1.05	1.01	1.03	0.81	1.08	0.91	**1.02**	**1.02**	**1.02**	0.79	1.07	0.89

APPENDIX 3
CENSUS EMPLOYMENT BY INDUSTRY, 1996, 2001, 2006

AUSTRALIAN BUREAU OF STATISTICS

Cat. No. 2068.0 - 2006 Census Tables, 2006 Census of Population and Housing

Cairns City Part A (Statistical Subdivision) - Qld

INDUSTRY OF EMPLOYMENT(a) BY SEX FOR TIME SERIES

Count of employed persons aged 15 years and over, based on place of usual residence

	1996 Census			2001 Census			2006 Census		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
Agriculture, forestry & fishing	675	257	932	552	232	784	410	162	572
Mining	308	51	359	235	38	273	429	47	476
Manufacturing	2,434	780	3,214	2,587	793	3,380	2,649	732	3,381
Electricity, gas, water & waste services	277	42	319	399	90	489	489	106	595
Construction	3,622	540	4,162	3,025	527	3,552	5,283	824	6,107
Wholesale trade	1,676	637	2,313	1,499	672	2,171	1,421	566	1,987
Retail trade	2,430	3,742	6,172	2,998	4,114	7,112	3,258	4,632	7,890
Accommodation & food services	2,914	3,602	6,516	3,068	3,567	6,635	2,849	3,624	6,473
Transport, postal & warehousing	2,697	1,009	3,706	2,788	1,044	3,832	3,120	1,299	4,419
Information media & telecommunications	500	367	867	437	325	762	405	327	732
Financial & insurance services	444	827	1,271	407	689	1,096	462	772	1,234
Rental, hiring & real estate services	642	594	1,236	554	601	1,155	641	815	1,456
Professional, scientific & technical services	1,232	1,071	2,303	1,153	1,163	2,316	1,310	1,508	2,818
Administrative & support services	1,196	1,093	2,289	1,180	1,202	2,382	1,212	1,257	2,469
Public administration & safety	2,002	1,018	3,020	2,004	1,294	3,298	2,646	1,921	4,567
Education & training	1,063	2,093	3,156	1,159	2,613	3,772	1,167	3,055	4,222
Health care & social assistance	773	3,290	4,063	1,009	3,669	4,678	1,276	4,645	5,921
Arts & recreation services	582	526	1,108	593	447	1,040	546	519	1,065
Other services	1,387	1,017	2,404	1,227	869	2,096	1,303	1,054	2,357
Inadequately described/Not stated	931	751	1,682	565	539	1,104	992	685	1,677
Total	**27,785**	**23,307**	**51,092**	**27,439**	**24,488**	**51,927**	**31,868**	**28,550**	**60,418**

(a) Industry of Employment was coded to the 2006 Australian and New Zealand Standard Industrial Classification (ANZSIC) edition. This replaced the 1993 ANZSIC edition. Data for 1996 and 2001 have been concorded.

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APPENDIX 4

AUSTRALIAN BUREAU OF STATISTICS

Cat. No. 2068.0 - 2006 Census Tables, 2006 Census of Population and Housing

Cairns City Part A (Statistical Subdivision) - Qld

OCCUPATION(a) BY SEX FOR TIME SERIES

Count of employed persons aged 15 years and over, based on place of usual residence

	1996 Census			2001 Census			2006 Census		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
Managers	3,881	2,166	6,047	3,757	2,206	5,963	4,343	2,559	6,902
Professionals	3,547	3,560	7,107	3,729	4,247	7,976	4,333	5,339	9,672
Technicians and trades workers(b)	7,632	1,151	8,783	7,147	1,100	8,247	8,682	1,378	10,060
Community and personal service workers	1,894	3,351	5,245	2,042	3,613	5,655	2,364	4,386	6,750
Clerical and administrative workers	1,589	6,066	7,655	1,591	6,168	7,759	1,679	7,024	8,703
Sales workers	2,151	3,923	6,074	2,330	4,233	6,563	2,490	4,572	7,062
Machinery operators and drivers	3,179	535	3,714	3,063	478	3,541	3,307	303	3,610
Labourers	3,237	2,075	5,312	3,264	2,035	5,299	4,087	2,538	6,625
Inadequately described/Not stated	675	480	1,155	516	408	924	585	453	1,038
Total	**27,785**	**23,307**	**51,092**	**27,439**	**24,488**	**51,927**	**31,870**	**28,552**	**60,422**

(a) 'Occupation' was coded to the 2006 Australian and New Zealand Standard Classification of Occupations (ANZSCO). This has replaced the 1996 Australian Standard Classification of Occupations (ASCO) Second Edition Data for 1996 and 2001 have been concorded

(b) In 1996 and 2001 'Technicians and trades workers' includes Engineering, Information and Communications Technology and Science Technicians and Tradespersons.

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AUSTRALIAN BUREAU OF STATISTICS 2006 Census of Population and Housing
Cairns City Part A (SSD 35005) 489.0 sq. Kms

B43 INDUSTRY OF EMPLOYMENT(a) BY OCCUPATION(b)

Count of employed persons aged 15 years and over
Based on place of usual residence

	Managers	*Professionals*	*Technicians & trades workers*	*Community & personal service workers*	*Clerical & administrative workers*	*Sales workers*	*Machinery operators & drivers*	*Labourers*	*Inadequately described/ Not stated*	*Total*
Agriculture, forestry & fishing	238	52	39	6	44	9	49	130	5	572
Mining	55	76	159	3	36	13	118	17	0	477
Manufacturing	442	152	1,359	32	350	245	402	357	46	3,385
Electricity, gas, water & waste services	53	60	235	7	125	3	73	29	12	597
Construction	583	125	3,162	5	637	64	442	1,036	54	6,108
Wholesale trade	351	72	211	3	318	455	366	184	26	1,986
Retail trade	1,394	201	517	86	560	4,133	262	673	61	7,887
Accommodation & food services	1,107	106	879	1,521	576	564	93	1,572	54	6,472
Transport, postal & warehousing	421	602	264	567	673	317	1,307	220	43	4,414
Information media & telecommunications	102	192	165	0	93	124	18	31	6	731
Financial & insurance services	151	324	7	3	640	73	0	3	32	1,233
Rental, hiring & real estate services	203	87	54	32	250	654	47	107	22	1,456
Professional, scientific & technical services	172	1,353	302	8	848	38	16	61	21	2,819
Administrative & support services	206	245	224	418	303	83	73	888	26	2,466
Public administration & safety	424	777	602	891	1,365	38	128	263	80	4,568
Education & training	277	2,485	115	730	405	17	12	179	6	4,226
Health care & social assistance	282	2,270	251	1,747	923	39	53	302	57	5,924
Arts & recreation services	155	183	112	344	89	67	10	84	21	1,065
Other services	158	161	1,157	219	275	35	49	282	21	2,357
Inadequately described/Not stated	128	151	244	129	193	90	92	208	442	1,677
Total	**6,902**	**9,674**	**10,058**	**6,751**	**8,703**	**7,061**	**3,610**	**6,626**	**1,035**	**60,420**

(a) Industry of employment was coded to the 2006 Australian and New Zealand Standard Industrial Classification (ANZSIC) edition. This has replaced the 1993 ANZSIC edition
(b) Occupation was coded to the 2006 Australian and New Zealand Standard Classification of Occupations (ANZSCO). This has replaced the 1996 Australian Standard Classification of Occupations (ASCO) Second Edition.

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AUSTRALIAN BUREAU OF STATISTICS 2006 Census of Population and Housing
Cairns City Part A (SSD 35005) 489.0 sq. Kms

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B44 OCCUPATION(a) BY AGE BY SEX
Count of employed persons aged 15 years and over, based on place of usual residence

	Managers	*Professionals*	*Technicians & trades workers*	*Community & personal service workers*	*Clerical & administrative workers*	*Sales workers*	*Machinery operators & drivers*	*Labourers*	*Inadequately described/ Not stated*	*Total*
					MALES					
15-19 years	37	38	721	117	38	507	70	523	51	2,102
20-24 years	147	204	1,073	276	110	271	215	493	63	2,852
25-34 years	772	940	2,262	687	364	510	606	868	110	7,119
35-44 years	1,240	1,207	2,044	664	432	462	878	836	128	7,891
45-54 years	1,253	1,188	1,659	394	434	399	829	758	126	7,040
55-64 years	747	644	808	198	250	292	600	501	75	4,115
65-74 years	115	89	103	25	44	47	102	89	24	638
75-84 years	33	20	11	3	0	3	3	13	8	94
85 years and over	0	3	0	0	6	0	4	6	0	19
Total	**4,344**	**4,333**	**8,681**	**2,364**	**1,678**	**2,491**	**3,307**	**4,087**	**585**	**31,870**
					FEMALES					
15-19 years	46	36	112	385	284	1,091	13	163	42	2,172
20-24 years	196	363	165	625	670	516	24	181	41	2,781
25-34 years	581	1,437	389	1,074	1,576	820	48	369	88	6,382
35-44 years	710	1,544	334	1,074	1,999	887	80	662	95	7,385
45-54 years	676	1,383	258	830	1,674	785	80	731	87	6,504
55-64 years	296	502	104	351	739	442	50	381	64	2,929
65-74 years	44	64	15	40	73	29	8	45	19	337
75-84 years	5	7	0	7	7	3	0	5	12	46
85 years and over	5	3	0	0	3	0	0	0	5	16
Total	**2,559**	**5,339**	**1,377**	**4,386**	**7,025**	**4,573**	**303**	**2,537**	**453**	**28,552**

APPENDIX 6 *Cont'd*

	Managers	*Professionals*	*Technicians & trades workers*	*Community & personal service workers*	*Clerical & administrative workers*	*Sales workers*	*Machinery operators & drivers*	*Labourers*	*Inadequately described/ Not stated*	*Total*
					PERSONS					
15-19 years	83	74	833	502	322	1,598	83	686	93	4,274
20-24 years	343	567	1,238	901	780	787	239	674	104	5,633
25-34 years	1,353	2,377	2,651	1,761	1,940	1,330	654	1,237	198	13,501
35-44 years	1,950	2,751	2,378	1,738	2,431	1,349	958	1,498	223	15,276
45-54 years	1,929	2,571	1,917	1,224	2,108	1,184	909	1,489	213	13,544
55-64 years	1,043	1,146	912	549	989	734	650	882	139	7,044
65-74 years	159	153	118	65	117	76	110	134	43	975
75-84 years	38	27	11	10	7	6	3	18	20	140
85 years and over	5	6	0	0	9	0	4	6	5	35
Total	**6,903**	**9,672**	**10,058**	**6,750**	**8,703**	**7,064**	**3,610**	**6,624**	**1,038**	**60,422**

(a) Occupation was coded to the 2006 Australian and New Zealand Standard Classification of Occupations (ANZSCO). This has replaced the 1996 Australian Standard Classification of Occupations (ASCO) Second Edition.

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AUSTRALIAN BUREAU OF STATISTICS 2006 Census of Population and Housing
Cairns City Part A (SSD 35005) 489.0 sq. Kms

X35 NON-SCHOOL QUALIFICATION: FIELD OF STUDY BY OCCUPATION(a) BY SEX (2 of 2)

Count of employed persons aged 15 years and over with a qualification(b)
Based on place of usual residence

	Occupation									
	Managers	*Professionals*	*Technicians & trades workers*	*Community & personal service workers*	*Clerical & administrative workers*	*Sales workers*	*Machinery operators & drivers*	*Labourers*	*Inadequately described/ Not stated*	*Total*
					PERSONS					
Natural & Physical Sciences	97	360	126	85	74	30	19	25	6	822
Information Technology	51	136	93	34	63	32	12	35	8	464
Engineering & Related Technologies	908	1,056	3,203	322	304	280	596	576	107	7,352
Architecture & Building	442	170	1,618	69	82	56	148	250	30	2,865
Agriculture, Environmental & Related Studies	90	107	173	52	60	52	47	124	9	714
Health	150	2,052	114	479	257	97	25	71	25	3,270
Education	274	1,934	57	313	190	82	30	43	25	2,948
Management & Commerce	1,034	1,133	160	541	1,653	752	109	245	53	5,680
Society & Culture	360	905	110	1,035	417	205	52	120	39	3,243
Creative Arts	81	320	89	121	100	98	24	43	7	883
Food, Hospitality & Personal Services	332	78	950	474	279	324	118	245	18	2,818
Mixed Field Programmes	6	3	3	3	3	3	3	6	0	30
Field of study inadequately described	60	83	59	80	52	26	22	33	11	426
Field of study not stated	192	141	401	238	252	250	167	335	203	2,179
Total	**4,077**	**8,478**	**7,156**	**3,846**	**3,786**	**2,287**	**1,372**	**2,151**	**541**	**33,694**

(a) Occupation was coded to the 2006 Australian and New Zealand Standard Classification of Occupations (ANZSCO).
This has replaced the 1996 Australian Standard Classification of Occupations (ASCO) Second Edition.
(b) Excludes persons with a qualification outside of the scope of the Australian Standard Classification of Education (ASCED).

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AUSTRALIAN BUREAU OF STATISTICS 2006 Census of Population and Housing
Cairns City Part A (SSD 35005) 489.0 sq. Kms

X36 NON-SCHOOL QUALIFICATION: LEVEL OF EDUCATION(a) BY OCCUPATION(b) BY SEX (3 of 3)
Count of employed persons aged 15 years and over with a qualification(c), based on place of usual residence

	Occupation									
	Managers	*Professionals*	*Technicians & trades workers*	*Community & personal Service workers*	*Clerical & administrative workers*	*Sales workers*	*Machinery operators & drivers*	*Labourers*	*Inadequately described/ Not stated*	*Total*
	PERSONS									
Postgraduate Degree:										
Postgraduate Degree, nfd	6	29	0	0	0	0	0	0	0	35
Doctoral Degree	19	218	3	3	11	0	4	0	0	258
Master Degree	177	515	24	39	53	12	10	13	6	849
Graduate Diploma & Graduate Certificate:										
Graduate Diploma	115	453	15	58	60	16	6	6	0	729
Graduate Certificate	29	97	8	17	9	3	3	0	0	166
Bachelor Degree:										
Bachelor Degree	913	4,417	304	628	629	302	64	164	72	7,493
Advanced Diploma & Diploma:										
Advanced Diploma & Diploma, nfd	6	11	3	15	10	8	3	3	3	62
Advanced Diploma & Associate Degree	380	928	165	372	335	165	63	104	31	2,543
Diploma	389	497	289	557	507	223	54	120	28	2,664
Certificate:										
Certificate, nfd	123	95	88	220	255	148	45	88	19	1,081
Certificate III & IV(d)	1,493	692	5,774	1,323	1,250	812	842	1,057	168	13,411
Certificate I & II(e)	82	72	75	136	209	169	40	88	4	875
Level of education inadequately described	118	215	99	180	145	115	70	124	19	1,085
Level of education not stated	226	241	310	298	312	314	169	385	191	2,446
Total	**4,076**	**8,480**	**7,157**	**3,846**	**3,785**	**2,287**	**1,373**	**2,152**	**541**	**33,697**

(a) Excludes schooling up to Year 12.
(b) Occupation was coded to the 2006 Australian and New Zealand Standard Classification of Occupations (ANZSCO). This has replaced the 1996 Australian Standard Classification of Occupations (ASCO) Second Edition
(c) Excludes persons with a qualification outside of the scope of the Australian Standard Classification of Education (ASCED).
(d) Includes 'Certificate III & IV nfd'.
(e) Includes 'Certificate I & II nfd'.

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AUSTRALIAN BUREAU OF STATISTICS 2006 Census of Population and Housing
Cairns City Part A (SSD 35005) 489.0 sq. Kms

X37 NON-SCHOOL QUALIFICATION: LEVEL OF EDUCATION(a) BY INDUSTRY OF EMPLOYMENT(b) BY SEX (3 of 3)

Count of employed persons aged 15 years and over with a qualification(c)
Based on place of usual residence

	Postgraduate Degree	*Graduate Diploma & Graduate Certificate*	*Bachelor Degree*	*Advanced Diploma & Diploma*	*Certificate*	*Inadequately described/ Not stated*	*Total*
				PERSONS			
Agriculture, forestry & fishing	12	0	41	28	110	54	245
Mining	10	5	50	33	207	26	331
Manufacturing	10	12	113	180	1,400	179	1,894
Electricity, gas, water & waste services	12	10	52	46	289	13	422
Construction	13	9	187	206	2,929	304	3,648
Wholesale trade	5	9	62	117	573	103	869
Retail trade	20	31	393	368	1,446	418	2,676
Accommodation & food services	11	17	416	462	1,392	429	2,727
Transport, postal & warehousing	38	23	336	517	1,124	274	2,312
Information media & telecommunications	11	8	97	70	184	41	411
Financial & insurance services	15	21	158	191	170	66	621
Rental, hiring & real estate services	15	12	149	131	351	119	777
Professional, scientific & technical services	132	70	969	335	351	122	1,979
Administrative & support services	23	20	222	238	538	192	1,233
Public administration & safety	126	124	787	638	1,065	188	2,928
Education & training	363	285	1,558	515	566	144	3,431
Health care & social assistance	268	217	1,538	826	994	423	4,266
Arts & recreation services	13	11	121	86	233	55	519
Other services	24	9	123	185	1,070	103	1,514
Inadequately described/Not stated	24	5	122	90	374	279	894
Total	**1,145**	**898**	**7,494**	**5,262**	**15,366**	**3,532**	**33,697**

(a) Excludes schooling up to Year 12.
(b) Industry of employment was coded to the 2006 Australian and New Zealand Standard Industrial Classification (ANZSIC) edition. This has replaced the 1993 ANZSIC edition.
(c) Excludes persons with a qualification outside the scope of the Australian Standard Classification of Education (ASCED).

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AUSTRALIAN BUREAU OF STATISTICS 2006 Census of Population and Housing
Cairns City Part A (SSD 35005) 489.0 sq. Kms

X38 INDUSTRY OF EMPLOYMENT(a) BY HOURS WORKED BY SEX (3 of 3)
Count of employed persons aged 15 years and over
Based on place of usual residence

	Number of hours worked									
	None(b)	*1-15 hours*	*16-24 hours*	*25-34 hours*	*35-39 hours*	*40 hours*	*41-48 hours*	*49 and over*	*Not stated*	*Total*
	PERSONS									
Agriculture, forestry & fishing	26	51	35	49	44	89	41	218	20	573
Mining	60	11	10	10	14	27	41	299	5	477
Manufacturing	88	147	138	173	554	745	541	930	65	3,381
Electricity, gas, water & waste services	27	8	15	14	135	170	98	122	7	596
Construction	149	225	234	401	675	1,431	1,011	1,809	172	6,107
Wholesale trade	45	98	87	124	325	431	364	483	30	1,987
Retail trade	240	1,430	816	1,066	1,316	1,002	765	1,096	157	7,888
Accommodation & food services	164	860	616	952	1,014	917	654	1,133	162	6,472
Transport, postal & warehousing	258	169	259	442	667	706	605	1,223	89	4,418
Information media & telecommunications	28	44	34	66	196	139	86	129	11	733
Financial & insurance services	56	72	105	128	250	256	146	206	16	1,235
Rental, hiring & real estate services	33	96	85	112	204	294	178	431	23	1,456
Professional, scientific & technical services	75	236	167	240	483	577	331	672	37	2,818
Administrative & support services	108	261	223	285	408	430	247	449	58	2,469
Public administration & safety	293	136	149	252	1,451	960	548	709	71	4,569
Education & training	158	449	465	746	701	651	403	583	65	4,221
Health care & social assistance	288	459	685	950	1,455	960	447	571	106	5,921
Arts & recreation services	47	149	80	94	230	141	125	178	22	1,066
Other services	64	190	160	232	461	466	301	444	38	2,356
Inadequately described/Not stated	104	132	109	105	165	238	92	262	469	1,676
Total	**2,311**	**5,223**	**4,472**	**6,441**	**10,748**	**10,630**	**7,024**	**11,947**	**1,623**	**60,419**

(a) Industry of employment was coded to the 2006 Australian and New Zealand Standard Industrial Classification (ANZSIC) edition. This has replaced the 1993 ANZSIC edition.
(b) Comprises employed persons who did not work any hours during the week prior to Census Night.

APPENDIX 11

List of tables
Concepts and Definitions
Census Dictionary
Census Data Quality Statement
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AUSTRALIAN BUREAU OF STATISTICS 2006 Census of Population and Housing
Cairns City Part A (SSD 35005) 489.0 sq. Kms

X39 OCCUPATION(a) BY HOURS WORKED BY SEX
Count of employed persons aged 15 years and over
Based on place of usual residence

	Number of hours worked									
	None(b)	*1-15 hours*	*16-24 hours*	*25-34 hours*	*35-39 hours*	*40 hours*	*41-48 hours*	*49 and over*	*Not stated*	*Total*
					MALES					
Managers	128	68	78	121	308	699	597	2,252	93	4,344
Professionals	212	166	155	301	641	945	589	1,264	60	4,333
Technicians & trades workers	258	228	200	386	1,458	2,132	1,523	2,253	244	8,682
Community & personal service workers	112	164	127	260	403	421	319	484	75	2,365
Clerical & administrative workers	64	67	65	96	453	331	229	351	22	1,678
Sales workers	56	375	158	193	348	434	367	498	61	2,490
Machinery operators & drivers	117	98	109	185	490	567	513	1,129	98	3,306
Labourers	154	448	271	417	701	802	435	708	150	4,086
Inadequately described/Not stated	48	32	17	25	64	80	42	105	173	586
Total	**1,149**	**1,646**	**1,180**	**1,984**	**4,866**	**6,411**	**4,614**	**9,044**	**976**	**31,870**
					FEMALES					
Managers	88	122	110	181	367	511	376	776	27	2,558
Professionals	272	407	607	822	928	1,002	559	668	74	5,339
Technicians & trades workers	55	115	112	172	326	240	158	169	30	1,377
Community & personal service workers	182	631	612	908	858	452	282	352	109	4,386
Clerical & administrative workers	253	634	745	948	2,064	1,258	618	420	85	7,025
Sales workers	160	1,059	641	828	766	447	260	302	108	4,571
Machinery operators & drivers	13	37	35	43	68	33	30	37	8	304
Labourers	98	533	400	526	438	231	110	136	66	2,538
Inadequately described/Not stated	44	40	29	31	62	45	21	38	143	453
Total	**1,165**	**3,578**	**3,291**	**4,459**	**5,877**	**4,219**	**2,414**	**2,898**	**650**	**28,551**

APPENDIX 11 *Cont'd*

	Number of hours worked									
	None(b)	*1-15 hours*	*16-24 hours*	*25-34 hours*	*35-39 hours*	*40 hours*	*41-48 hours*	*49 and over*	*Not stated*	*Total*
						PERSONS				
Managers	216	190	188	302	675	1,210	973	3,028	120	6,902
Professionals	484	573	762	1,123	1,569	1,947	1,148	1,932	134	9,672
Technicians & trades workers	313	343	312	558	1,784	2,372	1,681	2,422	274	10,059
Community & personal service workers	294	795	739	1,168	1,261	873	601	836	184	6,751
Clerical & administrative workers	317	701	810	1,044	2,517	1,589	847	771	107	8,703
Sales workers	216	1,434	799	1,021	1,114	881	627	800	169	7,061
Machinery operators & drivers	130	135	144	228	558	600	543	1,166	106	3,610
Labourers	252	981	671	943	1,139	1,033	545	844	216	6,624
Inadequately described/Not stated	92	72	46	56	126	125	63	143	316	1,039
Total	**2,314**	**5,224**	**4,471**	**6,443**	**10,743**	**10,630**	**7,028**	**11,942**	**1,626**	**60,421**

(a) Occupation was coded to the 2006 Australian and New Zealand Standard Classification of Occupations (ANZSCO).
This has replaced the 1996 Australian Standard Classification of Occupations (ASCO) Second Edition.
(b) Comprises employed persons who did not work any hours during the week prior to Census Night.

APPENDIX 12

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September 2011
Ref J2382

AN ECONOMY THAT WORKS - MCKINLEY & COMPANY USA

- Job mobility – Number of Americans who move annually down from 1 in 5 to 1 in 10. A major reason given – increase in home ownership.
- Proportion of companies planning to hire that have had openings for 6 months – 40%.
- Potential for job growth in this decade
    - **Health care**
    - **Business services**
    - **Leisure & hospitality**
    - **Construction**
    - **Manufacturing**
    - **Retail**

  66% current share 85% of new jobs
- Not enough to fill skills profiles
    - **Short bachelor degrees**
    - **High school diplomas without a job**
    - **Shortfalls mentioned nutritionists, welders, nurses' aides, computer specialists, engineers**
- Digital communications and advanced info
    - **Disaggregate jobs into specialised tasks**
    - **Able to perform remotely**
    - **Rapid growth of part time and contingent employment (bring back service jobs from abroad)**
- Progress in four dimensions
    - **'Workforce skills for jobs in demand**
    - **Ways to win "shares" in global economy**
    - **Encouraging innovation, new business creation and scaling up industries**
    - **Removing unnecessary impediments that slow business investment and job creation**

APPENDIX 13

CUMMINGS ECONOMICS

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July 2011
Ref: J2429

A NOTE ON POPULATION PROJECTIONS FOR CAIRNS & FAR NORTH QUEENSLAND

1. GENERAL

The purpose of this note is to draw attention to a need for caution in using recently released Queensland Government population projections for the region.

It sets out a long history of the State Government writing down the projected growth of the region in relation to other parts of Queensland with actual growth subsequently exceeding the projections by a substantial margin.

This has led to a long history of under investment in facilities and a tendency for investment only taking place as a crisis response.

2. DIFFERENT TYPES OF POPULATION FIGURES

Up until 1976, population statistics were based on simple census count type data.

The growing influence of tourism and travel on residents being away at any given time and visitors being present led the Australian Bureau of Statistics (ABS) to produce from 1976 onwards, 'estimated residential population' figures.

It should be noted that the projections of population being predicted by the Queensland Government are of 'estimated residential population'.

It should be noted that in some non-tourism areas, the actual 'on the ground' population will normally be lower than the residential population, whereas in tourism areas, the reverse occurs.

The following table estimates this effect on the population of Cairns and Far North Queensland at the time of the last census count in 2006.

	Cairns Statistical Sub Division (1)	Far North Q'ld Statistical Division
Total census count population	143,436	264,676
Residents counted at home	117,262	220,230
Visitors	26,174	44,446
Less estimated residents away	14,302	27,357
Estimated net visitor population	11,872	17,087
Estimated residential population	131,564	247,589

(1) Note: Urban population Gordonvale to Palm Cove.
Source: Cummings Economics from ABS data.

The visitor and net visitor population will fluctuate during the year. The census is held at a higher but not the highest time of the year for visitors.

The census data indicates that at census time, the visitor populations were adding 20% to the residential population of Cairns and 18% to the region and net visitor populations adding 9% to Cairns and 7% to the region.

The relevant figures to use – 'estimated residential' or 'census count' will depend on the service or facility being looked at but it needs to be kept in mind as a factor in using the projections.

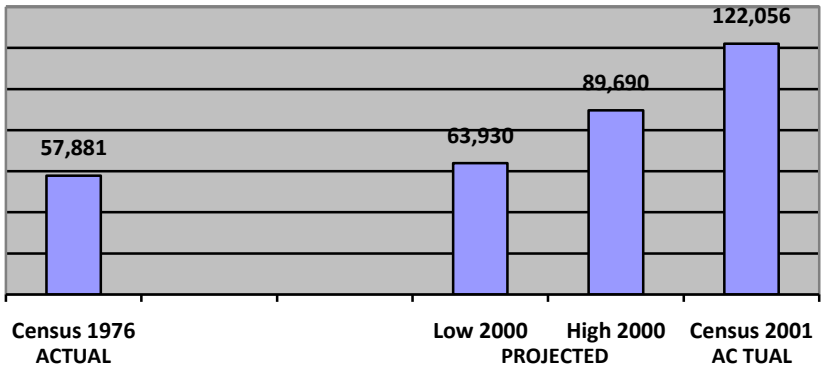
3. HISTORY OF ACTUAL GROWTH & PROJECTIONS

1976 Projections – Cairns & Mulgrave

Consultants, WD Scott & Co, produced projections for the Coordinator Generals Department for Cairns City and Mulgrave Shire (including Yarrabah) for 1985 and 2000. These were census count type projections.

The following shows the projections against what actually happened.

Projected	1985	Low	54,420
		High	63,930
Actual	**1986**	**Census**	**83,968**
Projected	2000	Low	63,930
		High	89,690
Actual	**2001**	**Census**	**122,057**



Number	%
+58,126	+91%
Actual	**Over high**
+32,366	+36%

1981 Projections – Far North Statistical Division

The Coordinator General prepared estimated residential population projections in the early 1980's of the 2006 population based on 1981 figures for the Queensland Statistical Divisions.

The following table gives details.

1981 Population Projections of 2006 Population Compared with Actual Outcomes			
	Projected	**Actual**	**Over/Under Estimate**
North West	52,417	33,213	+19,204
Far North	243,633	247,295	(-3,662)
North	229,321	223,037 (1)	+6,284
Mackay	173,615	146,665 (2)	+26,950
Fitzroy	230,652	206,204	+24,448
Central West	19,586	12,535	+7,051
Darling Downs	231,441	225,807	+5,634

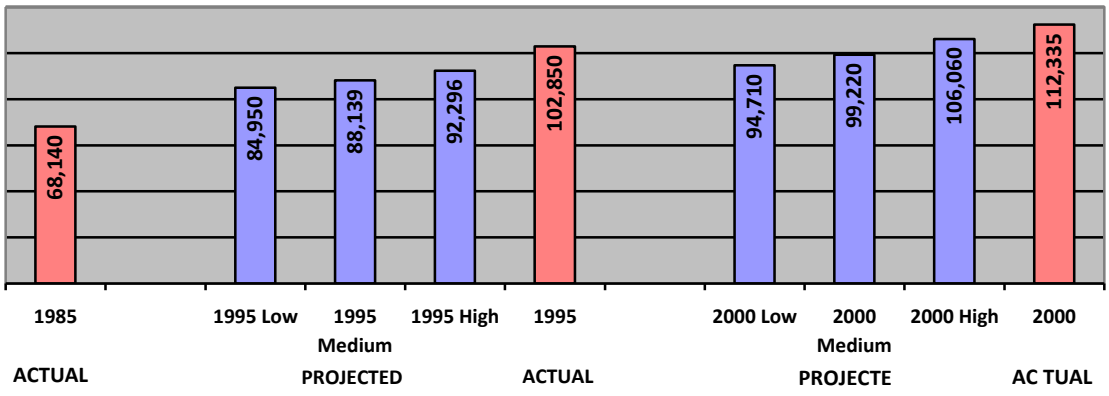
Note: (1) Including Bowen. (2) Excluding Bowen.
Source: Cummings Economics from ABS data. & Population Projections for Qld 1981 – 2006, Queensland Premiers Department.

By and large, these projections were over optimistic for most regions, especially the North West, Mackay and Fitzroy Divisions. The only division that was under projected was the Far North with the projection turning out to be relatively accurate.

1985 Projection – Cairns Area Development Strategy

In 1985, the Coordinator General's Department prepared forward projections of estimated residential population for the Cairns Statistical Sub Division, ie. defined urban area Gordonvale to Ellis Beach for 1995 and 2000, ie. over a relatively short 10 and 15-year time frame.

The following table compares the projections with what actually occurred.



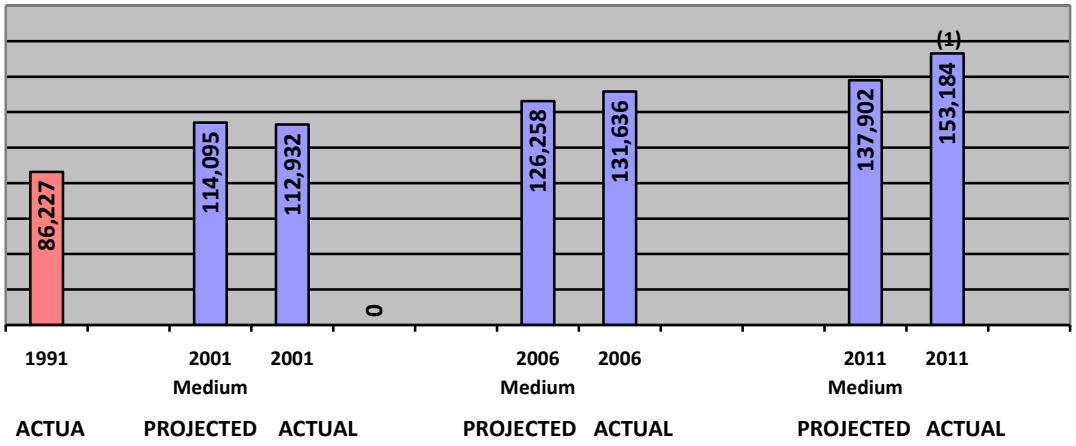
The chart indicates the following under estimation of growth that actually occurred.

Under projection – difference actual over projection			
Under projection		**Number**	**Percent**
1995	Actual over Medium	+14,711	+17%
2000	Actual over Medium	+13,115	+13%

The relatively slow growth 1995 to 2000 meant that the forward projections 1995 to 2000 were about right and did not add to the under projection 1985 to 1995.

1991 Projections – Cairns Statistical Sub Division

The Department of Housing and Local Government produced projections of estimated residential population in the early 1990's based on 1991 actual figures for 2001, 2006 and 2011, ie. for a 10, 15 and 20-year time frame. The following gives the medium and high series projections.



(1) Note: 2011 estimated – 2010 150,920 plus estimate of 1.5% = 153,184.

The following shows the under estimation in terms of difference actual over projected.

Under projection – difference actual over projection

Under projection		Number	Percent
2001	Actual over medium projection	(-1,163)	(-1.0%)
2006	Actual over medium projection	+5,378	+4.3%
2011	Est Actual over medium projection	+15,282	+11.1%

The slower actual growth period 1996 to 2001 led to a small over estimate in 2001.

By 2006, the actual was over by 5,378 or 4.3% and by 2011, over by some 15,282, ie. 11.1%.

Compounding Under Estimation

Of course, the under estimation tends to be progressively corrected over time as new projections are based on the new higher figures and this disguises the impacts of the consistent under estimation.

Thus, the 1985 based median projection put population 2000 at 99,220. The 1991 projection put median growth 2000 to 2011 at a further 1.9% pa. Combining the two would put the population 2011 at 122,000 when actual will be about 153,000, an additional 31,000 or 25%.

APPENDIX 14

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Ref: J2276
October 2009

Note on Comparative Transient Population Levels Australian Cities

There is a widespread myth that Cairns has a highly transient population.

Certainly, Cairns has a high level of visitor population, some of whom will seek work during their visit, especially backpackers. However, when population excluding visitors is looked at, a very different picture emerges.

Table 1 gives information from the 2006 Census on the proportion of the population 'usually resident' in a range of Australian cities that lived at the same address (or in the same statistical local area), one year ago and five years ago. The table shows the proportion resident five years ago were relatively low in the Queensland cities and Darwin (with the exception of Rockhampton), but with Cairns having a higher proportion than the Gold Coast, Townsville and Darwin.

However, this measure heavily is affected by population growth as opposed to transitory movements.

Column (c) of Table 1 gives 2001 to 2006 population growth for the cities listed. The highest percent growth over the five years was for Gold Coast, Cairns and Townsville.

When this percentage is added to the percent not resident five years ago, it gives a measure of net non-transient population.

Table 1: Percent Same Address or Same Statistical Local Area Census 2006, Population by Place of Usual Residence

	1 Year Ago	5 Years Ago	% Resident Population Growth (2001-2006)	Net Non-Transient Proportion
	(a)	(b)	(c)	(d)
Greater Hobart	91%	75%	4%	79%
Sydney	90%	71%	4%	75%
Melbourne	90%	69%	8%	77%
Rockhampton	89%	72%	9%	81%
Adelaide	88%	69%	3%	72%
Perth	87%	66%	9%	75%
Brisbane	84%	57%	12%	69%
Cairns	82%	56%	16%	72%
Gold Coast	81%	50%	20%	70%
Townsville	79%	50%	15%	65%
Darwin	77%	49%	7%	56%

Source: Cummings Economics from ABS 2006 Census data.

Based on this, Table 2 sets out the percent of net transient population for the cities, highest to lowest.

Table 2: Percent Net Transient Population Measure	
Darwin	44%
Townsville	35%
Brisbane	31%
Gold Coast	30%
Cairns	28%
Adelaide	28%
Perth	25%
Sydney	25%
Melbourne	23%
Greater Hobart	21%
Rockhampton	19%

Source: Cummings Economics from Table 1.

It can be seen that Cairns, far from being exceptionally high in this measure of transient population, is lower than most of its growing Queensland and northern counterparts including Brisbane and the Gold Coast. It is on a par with Adelaide and just above Perth and Sydney. The lowest levels are associated with the slow growing non-metropolitan centres of Hobart and Rockhampton.

The reason for the high levels of transient population levels in Darwin and Townsville can probably be found in the very high levels of defence and other government workforce in those cities, subject to periodic transfer.