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"The Northern Professionals"

16th June 2015
Ref. J2865

The Chairman
Infrastructure, Planning and Natural Resources Committee
Parliament House
George Street, BRISBANE QLD 4000

Re Sustainable Ports Development Bill 2015

The following submission is made by Cummings Economics on behalf of the *Friends of the Port of Cairns*, a community group dedicated to:

- Supporting the continuing development of the Port of Cairns.
- In relation to the Cairns Shipping Development Project proposal to deepen the channel into Cairns seaport, liaising with specialists in various fields to develop viable solutions for the onshore placement of dredge spoil and in particular:
  - Lower cost engineering solutions to onshore placement;
  - Development solutions that maximize the return from subsequent use and sale of resulting reclaimed land.

In this regard, attached please find submissions made to the Coordinator-General:

- On behalf of the *Friends of the Port of Cairns* that indicates that with better approaches, costs of onshore placement can be reduced in a major way on those portrayed in the EIS requiring a much smaller area for reclamation to that provided in the EIS;
- From *Urban Development Institute of Australia, Cairns*, that portrays how development of the East Trinity area can proceed over time in a way to produce high value use of the area and meet the cost of developing services to that area;
- By *Cummings Economics* that outlines the basic viability of the dredging project itself, and Cairns' long experience with onshore placement of dredge spoil with major economic benefits to the city.

Also attached is a submission illustrating the widespread community support for the continuing development of the Port of Cairns. Reference is made to the Facebook Page of the *Friends of the Port of Cairns* that is currently recording some 5,000 "likes" and growing steadily.

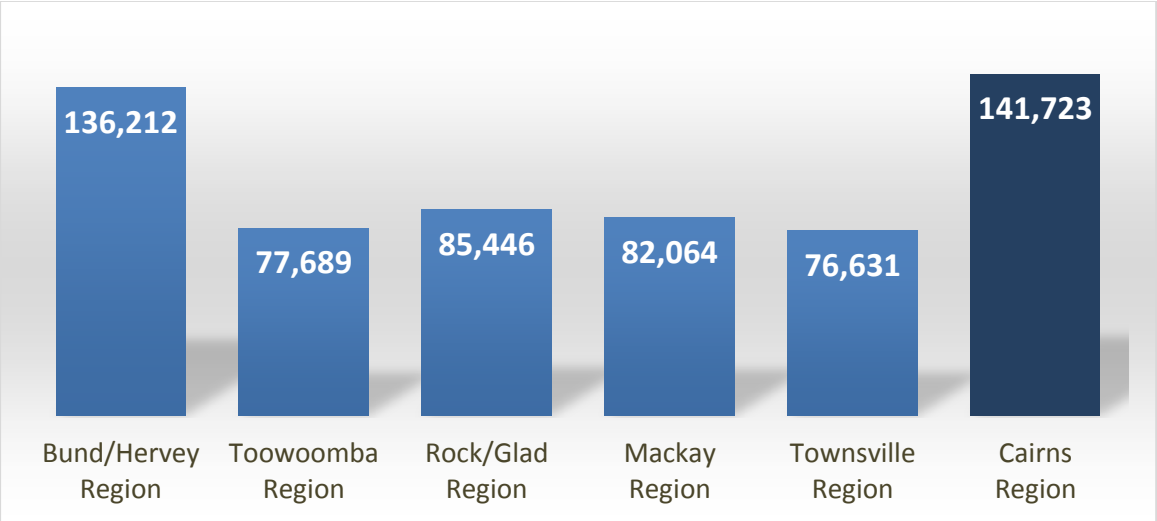
The following comments relate directly to the proposed legislation.

Priority Ports

To not include Cairns seaport as a priority port shows a lack of appreciation of the realities of the Queensland economy and the great economic value of the Port of Cairns to the State.

Cairns seaport is a key infrastructure element in the Cairns region that leads Queensland's long-term regional growth outside of the south-east corner.

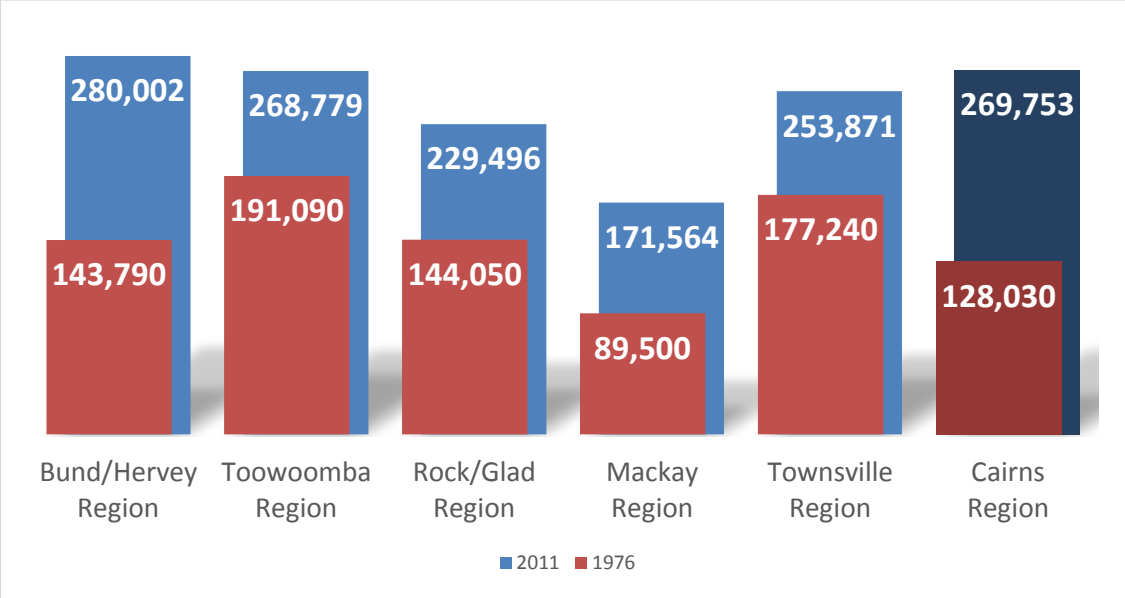
Table #1: Long-term 35-year Increase in Regional Residential Population, Commercial Servicing Regions of Queensland Regional Cities, 1976-2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

The Cairns region is now the largest in population in the North.

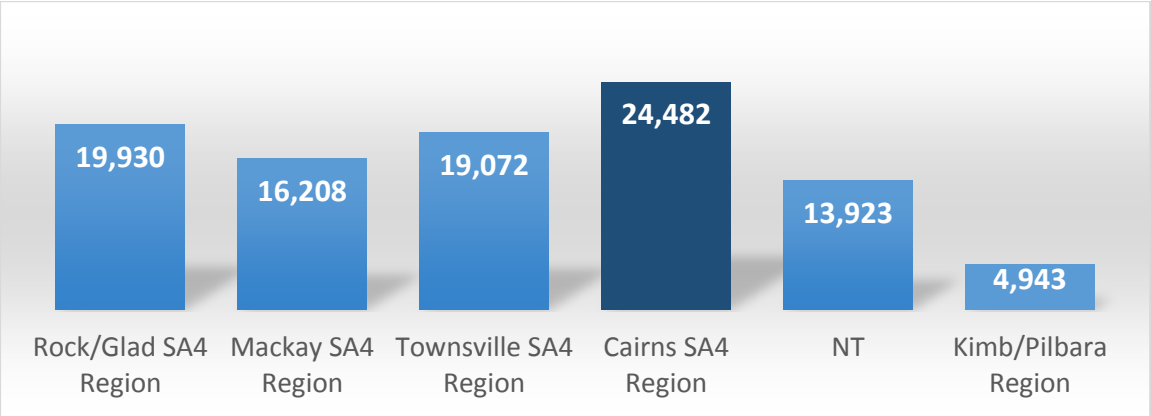
Table #2: Residential Population, Queensland Regions, 1976 and 2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

The Cairns region is highly business oriented. It leads in business numbers across northern Australia by a large margin.

Table #3: Number of Businesses, Northern Australian Regions, 2012



Source: Australian Bureau of Statistics Regional Data.

In terms of shipping movements, Cairns is close to Gladstone as Queensland's second busiest port after Brisbane.

Table #4: Vessel Arrivals (excluding internal movements)

		FY2014	FY2013	FY2012	FY2011	FY2010	FY2009
BULK TRADING VESSELS							
Petroleum	- *Cairns*	**43**	39	44	38	41	42
LPG	- *Cairns*	**14**	16	12	18	26	28
Sugar	- *Cairns*	**7**	8	6	10	12	9
	- *Mourilyan*	**16**	12	11	13	13	
Fertiliser	- *Cairns*	**8**	10	10	7	9	7
Molasses	- *Cairns*	**7**	6	5	5	5	5
	- *Mourilyan*	**11**	5	8	10	6	
Silica Sand	- *Cape Flattery*	**41**	31	30	39	34	
Livestock	- *Karumba*	**5**	14	6	10	12	
	- *Mourilyan*	**1**	-	-	2	5	
Timber	- *Mourilyan*	**4**	2	2			
Sub Total Bulk		**157**	143	134	152	163	91
OTHER TRADING VESSELS							
General Cargo	- *Cairns*	**642**	605	605	583	501	576
	- *Regional Ports*	**662**	665	551	739	657	
Sub Total Other Trading		**1,304**	1,270	1,156	1,322	1,158	576
OTHER VESSELS - CAIRNS & REGIONAL PORTS							
Cruise Vessels	- *International*	**27**	27	38	35	39	41
	- *Domestic*	**108**	94	81	94	97	105
		135	121	119	129	136	146
Navy		**17**	18	21	23	21	27
Sub Total Other		**152**	139	140	152	157	173
TOTAL		**1,613**	1,552	1,430	1,626	1,478	840

Note: Vessel arrivals shown above exclude internal movements as well as fishing vessels and tug movements.

This steadily increasing figure for arrivals at Cairns seaport of 1,613 compares with numbers for Gladstone of 1,803 and Townsville 635.

Cairns seaport plays a leading role in Queensland's marine activity as follows.

Leads in Queensland:

- Tourism/Reef fleet operations;
- Naval operations;
- Fishing industry operations;
- Coastal trading vessel operations.

Second to South-East Queensland:

- Cruise ship operations;
- Super Yacht and cruising yacht visitation;
- Slipways, ship and boat building and marine services operations.

Third in Queensland:

- Container movements.

Because of this wide range of leading roles, Cairns seaport and region has more port/marine related activities by a long way than any other region across the North. Even without the Navy Base and most of the Reef Fleet employment, the Cairns region outstrips other northern regions in direct maritime employment.

Table #5: Employment in Maritime Industries (by place of usual residence PURPO), Regional Areas Northern Australia, 2011

	Northern Territory	Cairns region	Townsville region	Mackay region	Fitzroy region
Fishing	168	234	62	75	75
Water transport	198	215	100	121	88
Ship and boat building & repair	106	342	99	112	71
Water transport support services (incl port and stevedoring	231	377	306	532	652
Total	**703**	**1168**	**567**	**840**	**886**

Source: Cummings Economics from ABS census data.

The full extent of the Cairns region's maritime sector is indicated by a 2008 study, the results of which are set out in Appendix 1. The study revealed direct output of $800m a year and employment of over 4,000.

In relation to bulk cargoes, it needs to be noted that because of the geography of the region where no area is more than about 300km from the sea, there are five export seaports (Mourilyan, Cairns, Cape Flattery, Weipa and Karumba), shipping tonnages more than the Townsville region, close to south-east Queensland, and more than the States of South Australia and Tasmania and the Northern Territory.

Table #6: Tonnage Loaded and Unloaded Seaports by Regions, 2012-13

	Million Tonnes
Mackay Region	**117**
Fitzroy Region	**86**
Brisbane/Bundaberg	**37**
Cairns/Far North	**34**
South Australia	**26**
Townsville/North	**18**
Northern Territory	**15**
Tasmania	**8**

Source: Cummings Economics from BITRE and Qld Transport.

It should be noted in relation to mining activity, the Cairns region (including the Gulf region that moves through the Cairns/Far North region's port of Karumba), records a very substantial level of output.

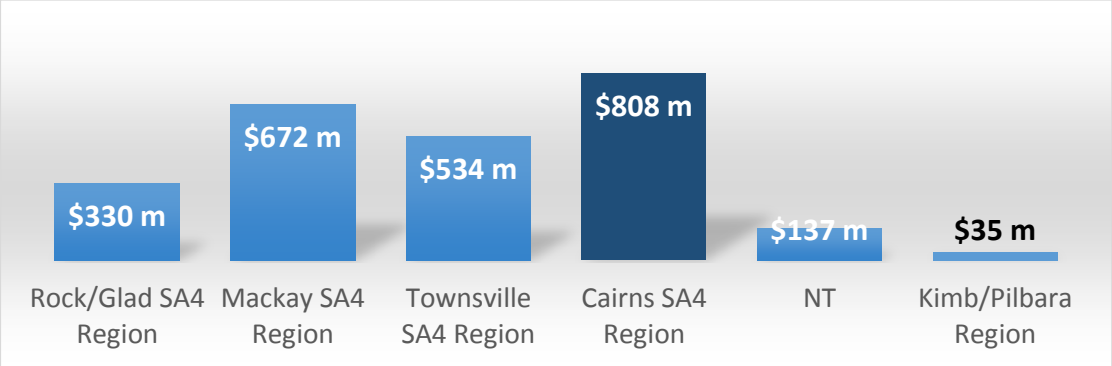
Table #7: Value of Mineral Sales, 2013-14

Region	$M
Mackay	**$12,872 m**
Fitzroy	**$6,729 m**
North-West (excluding Gulf)	**$4,335 m**
Far North (Cairns region including Gulf)	**$2,656 m**
Brisbane	**$593 m**
Northern (Townsville region)	**$445 m**
Wide Bay Burnett	**$299 m**
Darling Do9wns	**$276 m**
Other	**$9 m**
Total	**$28,214 m**

Source: Cummings Economics from Queensland Mines and Energy.

Mineral output is handled especially through the regional ports of Cape Falttery, Weipa and Karumba. Major bulk export commodity out of Cairns is sugar, a role it shares in the region with Mourilyan Harbour. The other major bulk commodities through the port of fertilisers and fuel play a critical role in the economy. In relation to fertilizer imports, it needs to be recognized that the Cairns region is Queensland's largest cropping region outside the south-east by a substantial margin.

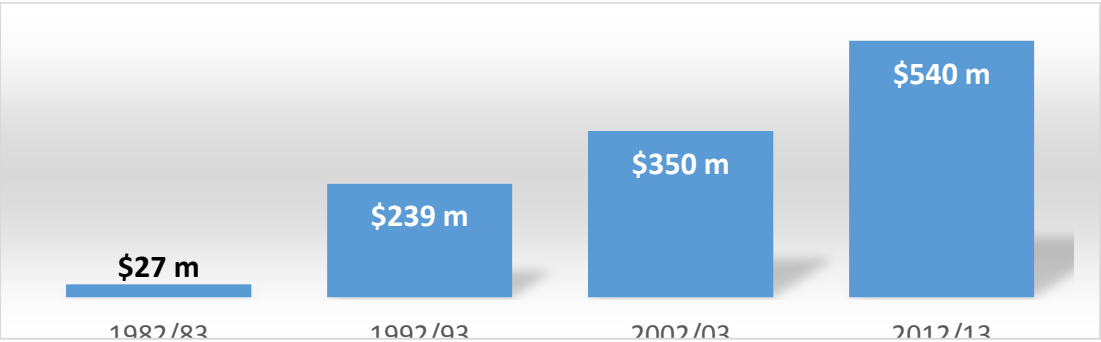
Table #8: Gross Value of Crops, Northern Australia Regions, 2012-13 $m



Source: Cummings Economics from ABS Cat No. 7503.0 et al.

Cropping has been expanding, especially of tropical fruits.

Table #9: Gross Value of Fruit Production, Cairns Region [(1)]



(1) Note: Cairns region defined as Far North Statistical Division 1982-83 to 2002-03 and Cairns SA Level 4 in 2012-13 $542m plus estimate of production Queensland Outback Far North $16m.

Source: Cummings Economics from ABS data.

Further major cropping expansion is occurring and being planned in the region:

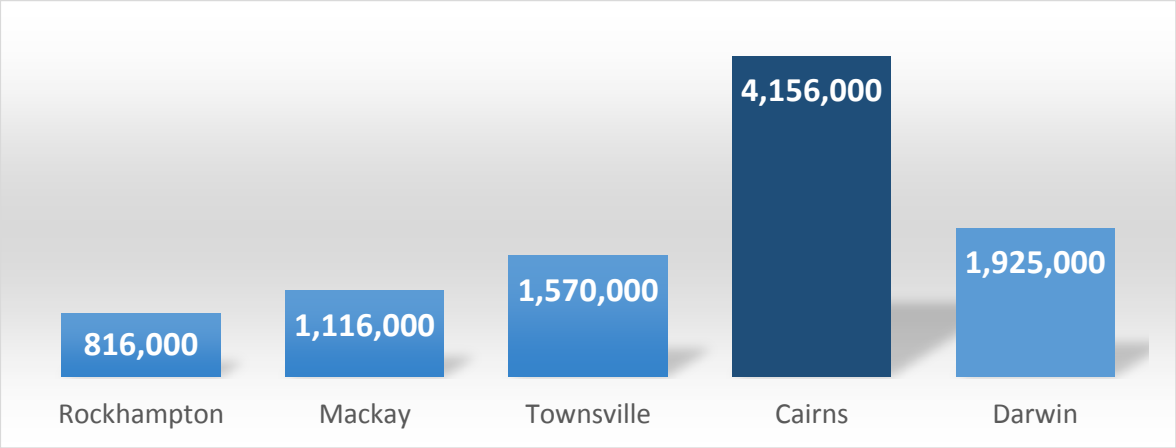
- Value of crops in the Cooktown district is now up to $40m per annum;
- Stations in the Laura basin are preparing land for large scale production of crops including sorghum;
- Strathmore Station in the Gilbert River catchment is currently in a program to expand cropping to 60,000 ha of sorghum with additional benefits for cattle production;
- The IFED group is proposing to invest towards $2bn on developing production of sugar and associated crops based especially on flood flows into offstream storages from the Einasleigh and Etheridge Rivers in the Gilbert Basin. This also has implications for cattle turnoff;
- A CSIRO study has identified instream storage on the Gilbert itself that would support 30,000 ha of irrigated cropping.

(It is notable that water runoff in the Gilbert River basin is equivalent to that of the Ord and over 50 percent that of the Burdekin and 80 percent that of the Fitzroy.)

Apart from fertilisers, fuel imports via Cairns seaport are a major factor in the viability of many other industries and activities in the region.

This includes Cairns International Airport and its large aviation sector and vital to the region's $3bn per annum tourism sector.

Table #10: Passenger Movements Airports – Tropical Australia, 2012-13



Source: Bureau of Industry Transport & Regional Economics.

As recorded earlier, the major maritime sector based in Cairns seaport includes Australia's north-east naval base, Queensland's largest tourism fleet, Queensland's largest fishing fleet, and Queensland's largest coastal shipping operations.

Not only does the fuel imported into Cairns serve communities by land transport across the region, but, because Cairns is the major coastal shipping port, fuel is supplied by ship to communities up Cape York and into the Torres Strait and via motherships operating out of Cairns to a large fishing fleet operating up the east coast and Torres Strait and into the Gulf.

Shipping commonly used for transport of sugar, fertilisers and fuel has been getting larger and currently the shipping for each of these commodities is unable to enter and leave the port with full loads, even on high tides. This results in costly inefficiencies. Sugar ships are only able to take on part loads and have to proceed to other ports to 'top up'. Conversely, fertilisers and fuel ships need to offload part of their cargoes at other ports before proceeding to Cairns. Larger international container ships are unable to use the port.

Cost Inefficiencies in Cairns seaport go right through the region's economic structure affecting competitiveness of many industries.

Cairns' position as the largest cruise shipping port in Queensland outside of Brisbane has been long established.

As cruise ships become larger, more and more are having to stand off the coast and undertake highly inefficient shore transfers.

In summary, use of the port by larger ships is illustrated by the following table showing port movements requiring pilot assistance.

Table #11: Piloted Movements, Queensland Major Ports, 2013

Brisbane	1,505
Gladstone	**941**
Hay Point	**512**
Townsville	**383**
Weipa	**248**
Mackay	**144**
Abbott Point	**136**
Cairns	**126**

Source: Connecting Queensland.

In fact, because about 20 cruise ships a year are having to stand off the coast and not enter the port, piloted movements potentially total 40 more and would exceed those of Abbott Point and Mackay. Thus, Cairns is one of Queensland's major strategic ports, not just for smaller shipping but for larger ships

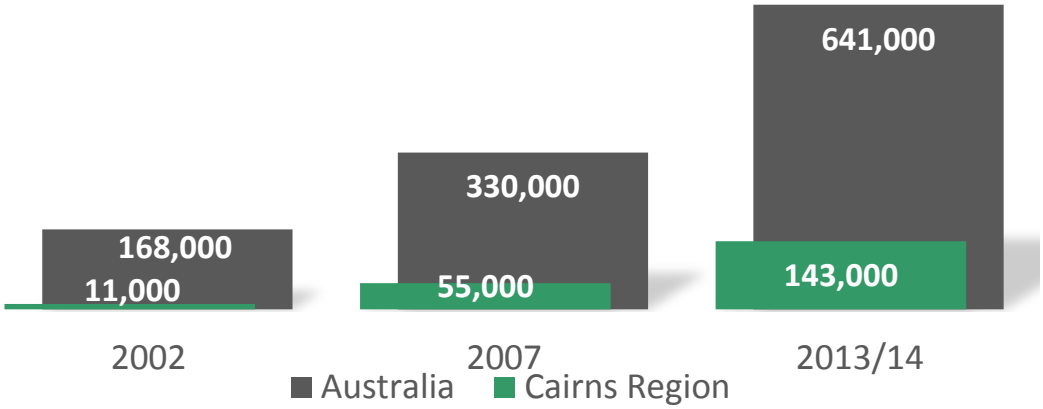
Cairns seaport's strategic position in the Queensland economy is set to continue expanding into the future.

In the Cummings Economics attachment is analysis of long-term population trends in regional Queensland and across northern Australia. A continuation of long-term growth trajectories will see the region growing to a population in the range of 550,000 to 620,000 by 2050 and Cairns itself to a range of 400,000 to 460,000.

The analysis sets out "Why" the Cairns region has had a leading role in population growth across the North and in regional Queensland. These are reasons that are often poorly understood in a remote bureaucracy in Brisbane. Since the Global Financial Crisis and under the influence of a very high dollar, Cairns' growth slowed below long-term trends in recent years. All the indications are that the economy is currently surging again.

In tourism, the region is playing a major role in the growth of Chinese tourism into Australia.

Table #12: Chinese Visitors to Australia and Cairns Region



Source: Cummings Economics from Tourism Research Australia.

The proposed $8bn Aquis Integrated Resort development over 10 years will play a major role in consolidating Australia's role in a growing Chinese tourism market with spinoff benefits to other Queensland and Australia's destinations.

Provided the channel can be deepened, Cairns will play a critical role in cruise shipping development in the Queensland/South-West Pacific area. Apart from having a high economic efficiency benefit cost ratio, deepening the channel is expected to stimulate spending in the Cairns' economy, over a 25-year period, of the order of an additional $5bn, with a net present value (7 percent discount rate) of $1.3bn.

The city's maritime servicing sector is ready to bring the $2bn Pacific Patrol Boats shipbuilding and servicing contract to Queensland against competition from southern Australian centres.

As previously portrayed, the Cairns region will almost certainly play a major role in the expansion of agriculture in northern Australia as foreshadowed in the Northern Australia White Paper.

Even in mining, the region has already turned around with downward movements in value of production bottoming in 2012-13 and on the way back up in 2013-14 under the influence of resurgence of production in the Cairns hinterland and growing bauxite exports out of Weipa.

Capital Dredging

The current proposed legislation leaves the port exposed to a ban on capital dredging for expansion of other port facilities like expansion of the marina, general cargo wharves, navy base. This is unacceptable. Potential economic cost to the region would be massive.

Onshore Placement

The "beneficial" provision appears to be very vague. It is suggested that there is a real duty for the State and Federal Governments having banned offshore placement, to assist develop technology and economic development perspectives that will enable onshore placement to occur at minimal initial cost and in a way that maximizes future economic returns.

We believe the Queensland Government through this legislation needs to provide for funding:

a) To ensure that Queensland businesses are able to access the most advanced technology for low cost dredging and onshore placement including any potential use other than for land fill;

b) To set in place the planning input from urban and industry development specialists to maximize economic returns from onshore placement;

c) To establish funding, including grant and long-term loan funding, such that the relevant port operators are not burdened with costs of onshore placement that would make further port development uneconomic.

It is incongruous that the legislation, while banning placement of all capital dredging spoil offshore on the grounds of protecting the reef from environmental damage, is silent on any impact of maintenance dredging.

It is suggested that an approach as set out above could provide solutions whereby material from 'maintenance' dredging could be placed onshore.

Visit to Cairns

It is suggested the Committee needs to visit Cairns for hearings and inspections so that it can fully appreciate the importance of Cairns seaport and the issues raised by a requirement for onshore placement of material from capital dredging.

Such a visit can also provide an opportunity for input to the Committee in relation to the other four substantial bulk export ports in the region of Mourilyan, Cape Flattery, Weipa and Karumba and the smaller ports of Port Douglas, Cooktown, Quintel Beach, Thursday Island, Red Island Point and Skardon River.

Appendix 1

PROFILE OF CAIRNS/FAR NORTH QUEENSLAND MARINE INDUSTRIES

Source: Far North Queensland Marine Industries Capability Profile, Cummings Economics for Queensland Department of Tourism, Regional Development and Industry, December 2008.

Local Vessel Operations

Local Vessel Operations Only			
	Est Turnover	Est Employment	Notes
Fishing Commercial & Recreational	$200 m	900	(1)
Trading & Other Work Vessels	$75 m	360	
Reef Fleet & Tourism	$150 m	750	(2)
Government & Pilot Vessels	$146 m	960	
Total	**$571 m**	**2,970**	

(1) Does not include employment in Torres Strait and Coral Sea Fishery. Much of this employment is on a part of year basis only.

(2) Estimate derived from est turnover of $150m divided by est of $200,000 per person employed.

Repair and Maintenance Operations

Summary of Repair & Maintenance Operations by Sub Groupings For Cairns and for Outside of Cairns			
	No. of Firms	Est Turnover	Est Equiv Full-time Employment
Engineering/Painting & Coating	22	$15 m	114
Marine Electrics, Electronics, Sonar, etc	23	$11 m	57
Shipwrights etc.	6	$3 m	23
Marine Engines	10	$10 m	48
Marine Refrigeration, Aircon, Hydraulics & Insulation	11	$9 m	40
Outside of Cairns	40	$6 m	60
Total	**112**	**$54 m**	**342**

Other Marine Industry Services

Other Marine Industry Services			
Cairns	**Notes**	**Est Turnover**	**Employment**
Shipping & Customs Agents & Stevedoring		$7.4 m	23
Marine Surveying & Naval Architecture		$1.7 m	17
Marine Retailing & Boat Sales	(1)	$11.0 m	39
Scuba Diving Related Sales & Services	(2)	$2.9 m	20
Cold Storage		$3.7 m	14
Providoring/Supplies	(3)	$10.0 m	40
Port Administration	(4)	$49.0 m	102
Other Government	(5)	$27 m	270
Fuel Supply	(6)	$1 m	10
Education	(7)	$1.6 m	16
Defence Contractors	(8)	$6.7 m	67
Total		**$122 m**	**618**

(1) This is the turnover of major outlets in this field. Much of it will be to recreational boat users and fishermen. About 10% is estimated to involve commercial operators.

(2) Figures for some of the operations in this group are included elsewhere with tourism diving operations and air compressors.

(3) This estimate is for some of the main providoring only. There is a great deal of minor supplying to the various marine operations including navy, cruise ships, superyachts, fishing vessels, visiting cargo vessels, and cruising yachts. This involves a myriad of minor items. It is not possible to completely track this through on the supply side.

(4) Includes Cairns Ports, Ports Corp Q'ld, and Marine Safety Q'ld.

(5) Other Government includes Customs, Immigration, AQIS, Water Police and Q'ld Dept of Primary Industries and Fisheries (marine related), GBRMPA, Q'ld National Parks & Wildlife Service (marine related).

(6) Includes estimate of fuel supplied to marine operators only and shipped northwards by coastal shipping and proportion of employment by the fuel distributors based in Cairns. Turnover figure is estimated value added by operators.

(7) Includes relevant Cairns TAFE, Crew Pacific and other private providers at $100,000 per employee.

(8) Includes core staff employment only but not sub contractors of GA Glanville, DMS, BAE Systems, Spotless and estimate of turnover at $100,000 per employee.

Summary

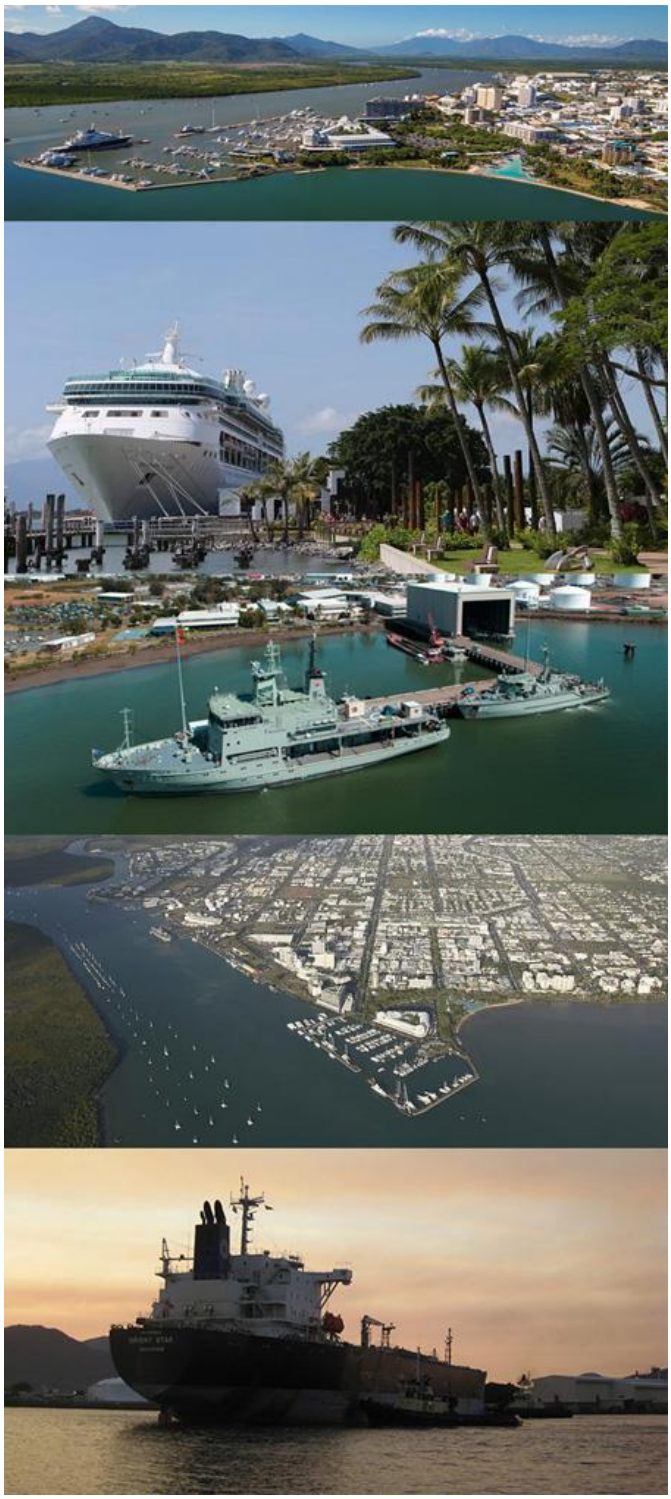
Estimated Turnover.....$798 m

Employment 4,290

Note: This profile does not include the Great Barrier Reef International Marine College factor that was established in 2011-12.

Re Sustainable Ports Development Bill 2015

Attachments

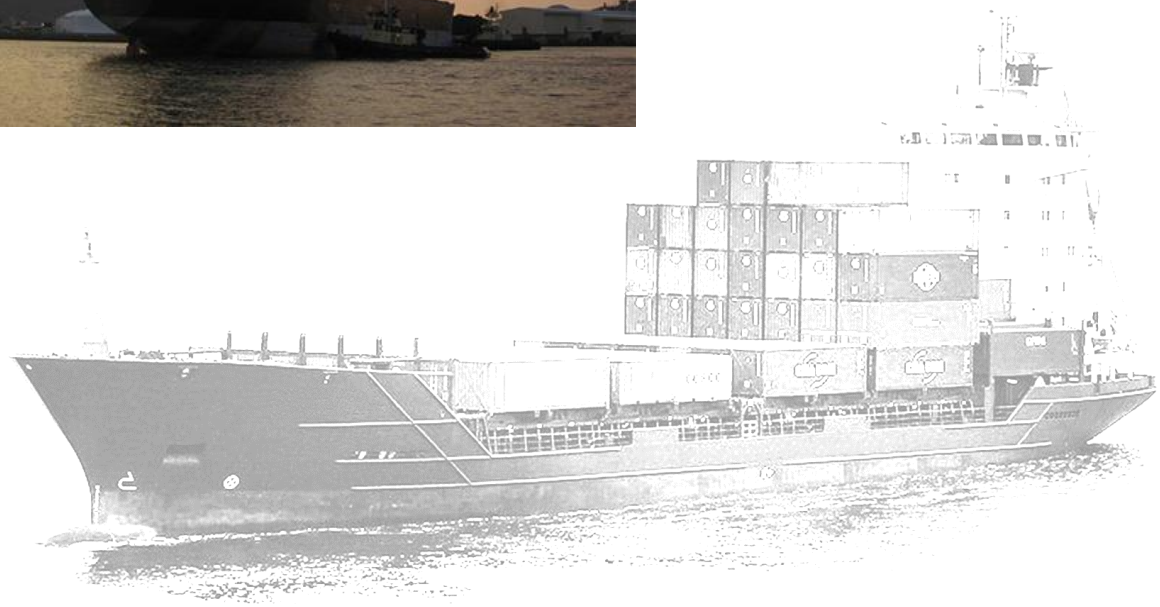


CAIRNS SHIPPING DEVELOPMENT PROJECT

Submission to the Coordinator General

On behalf of
Friends of the Port of Cairns

1st June 2015



Cairns Shipping Development Project

Submission to the Coordinator General

From: Norman Whitney & Peter Senior

On behalf of: Friends of the Port of Cairns

Contents

A. Summary

We strongly support the Cairns Shipping Development Project.

Further development of the Port of Cairns is critical to Cairns' future. Several Cairns' industries have declined or ceased in recent years; the remaining industries, in particular tourism, underpin jobs, business and investment for the FNQ region.

Many current cruise ships and most new cruise ships are too large to navigate the Trinity Inlet Channel and dock at Cairns cruise terminal. As well, the existing channel is inefficient for existing and potential future cargo vessels. Deepening the channel will also assist the future efficiency of Cairns' Naval Base.

The DRAFT Environmental Impact Assessment (EIS) for the Project presents scientific support for in-shore disposal of dredge spoil. But the Federal Minister of the Environment as well as the Queensland State Government have precluded this option.

The State Government decided against dredging without waiting for public submissions.

Ports North's draft EIS recommends placing all capital spoil off-shore, and presents options for spoil placement on-shore that are portrayed as uneconomical. However, the draft EIS does not include several different options that could be economical.

This submission proposes an alternative to the draft EIS report recommendation. This alternative presents a potential win-win-win for all stakeholders.

Our proposal presents a different approach to dredging and associated requirements:

- Placing a minimum amount of dredging spoil on one smaller Southern area of the State-owned 964 ha East Trinity property;
- Developing appropriate elevated land on this property starting as soon as possible to generate revenue. (The draft EIS proposes placing spoil over two areas totaling 518 ha, then waiting for the spoil to settle before developing only those two areas);
- Collaborating with local Aboriginal groups and environmentalists to develop eco-ventures in the mangroves near the Trinity Inlet shore;
- Benefit-cost estimates indicate such a project would have a significant positive value that could pay for most or all of the dredging and associated costs.

To deny Cairns the opportunity to dredge its channel will be a major setback for the city. The economic impact and demand studies in the EIS indicate that over the forecast period, the city will fore-go of the order of $1.35B in NPV earnings.

We request the Coordinator General recommend to the Government that a more comprehensive study be undertaken of placement options in consultation with the Cairns community with a view to developing a lower cost and environmentally acceptable solution to enable the project to proceed as soon as possible.

B. Issues

This section presents a range of issues that have been taken into consideration for this submission's proposal. The issues if primary concern in this submission are described in the draft EIS sections:

- Executive Summary;
- Chapter A2 Dredge Material Placement Options; and
- Appendix E.2 Ports North - Development Options for Land at East Trinity, RPS, 2014.

a. The State Government has announced a decision against proceeding with the project before its own process has been completed.

i. For reference: EIS Terms of Reference 3.6.3. Submissions. Inform the reader how and when properly made public submissions on the EIS will be addressed and taken into account in the decision-making process.

ii. Also, 3.6.2 Objectives of the EIS: …..The purpose of the EIS is to provide public information on the need for the project, alternatives to it, assess options and make informed decisions for its implementation.

b. We support the draft EIS recommendation for placement of the project capital dredging spoil in an appropriate location off-shore.

i. This view is based on the several authoritative scientific reports that have demonstrated such placement would not cause harm to the Great Barrier Reef or nearby environment.

ii. However, both the Federal and the Queensland State Governments have ruled against such off-shore disposal.

iii. As such, if the Cairns Shipping Development Project is to eventuate, dredging spoil must be placed on-shore.

c. Further development of the Port of Cairns is critical to Cairns' future.

i. Many Cairns industries have declined or ceased in recent years; the few remaining industries, in particular tourism, underpin jobs, business and investment for the FNQ region.

ii. Most new, and several current cruise ships such as the QE II, are too large to navigate the Trinity Inlet Channel and dock at Cairns cruise terminal. As well, future naval and commercial ships will require a deeper channel.

iii. To deny Cairns the opportunity to dredge its channel is to deliberately sign Cairn's slow-death warrant.

d. The draft EIS precludes several different options that could be economical.

i. The draft EIS responds to the EIS Terms of Reference (TOR) in a narrow manner.

ii. A broader interpretation of the TOR could result in a very different recommendation.

iii. Consider two requirements of the TOR:

1. 'Provide descriptions of all feasible alternative land-based spoil disposal.' And:

2. 'Sufficient baseline economic data to underpin a comprehensive assessment of the direct, indirect, cumulative, costs and impacts of the project.'

iv. The draft EIS assesses only the areas totalling 518 ha at East Trinity deemed necessary to place the spoil. This area is then assessed for development of residential housing.
v. The spoil placement area is part of a State-owned 944 ha property at East Trinity.
vi. The residual 416 ha of the State-owned property is at elevated levels, some with outstanding views over the inlet and CBD to the hills beyond Cairns, could potentially be developed for residential purposes.
vii. However, this residual 416 ha was not included in the draft EIS assessment.
viii. It could be argued that such development is outside the EIS TOR, and in any case, Ports North's business is port management, not property development.
ix. However, it is clear that if the residual 416 ha was included in a development option, the draft EIS assessment would have been significantly different.

e. *(App e2: Option 2 – Development for Urban Purposes…. We have also been advised that this would necessitate the import of an additional 5.26 million cubic metres of fill onto the site, additional to the fill sourced via dredging operations.)* **Assessing the development options for the 518 ha as noted above required increasing the amount of spoil to be dredged from the minimum 4.4M by an additional 5.26M cubic metres, with attendant costs.**
   i. This increase in spoil volume was required to raise the level of settled spoil to the minimum level required for development.
   ii. However, if this 518 ha was not developed, at least in the shorter term (5 – 10 years, or until there is market demand), then only the minimum volume would need to be accommodated.
   iii. This minimum volume could most likely be accommodated in a smaller area than the 518 ha.
   iv. As well, it is likely that only one of the two separate areas comprising the 518 ha would be required.
   v. Local residents who have been familiar with, and worked on, this property for several decades have described only minor pockets of the Northern area may require remediation – certainly not the large Northern area as proposed in the draft EIS.
   vi. Further, if only one placement area is required, then the 22 Km of raised or new bund wall would be significantly less.

f. The draft EIS proposes using a large Dutch dredge for all options, both off-shore and on-shore. The dredging time, 24 hours a day, is calculated as 30.1 weeks for East Trinity. A smaller dredge and dredging system, pumping spoil at a slower rate, could be more economical.
   i. The pumped spoil has about 60% water content.
   ii. Dredging over 30.1 weeks results does not allow time for <u>significant</u> de-watering (significant sediment settling out).
   iii. This results in the draft EIS calculation that about 12 million cubic metres of spoil must be accommodated on land.
   iv. If the spoil was dredged and pumped more slowly, the spoil would have more time to settle, and so require a smaller holding capacity.

v. Further, if the required capacity is smaller, and the holding area is not required (at least in the shorter term) for residential development, then the bund walls could be lower, requiring less material. As well, different designs for the bund wall may be more cost-effective.
vi. It is not clear in the draft EIS where the material for the 22 Km of bund walls comes from. However several adjacent properties are derelict and could provide this material at minimal cost. Alternatively much of the material for the retaining walls can be obtained on site from the previously cultivated and farmed areas. On-site material could also cover some of the potentially acid sulphate sub-soil as well as the dredged material (as proposed by CSIRO, ASS Soils in East Trinity Inlet presentation, May 1999).
vii. The draft EIS does not describe potential technical solutions to improve the cost-effectiveness of dredging.
    1. For instance, Dr Bowman, CSIRO, 1999, described a centrifuge approach to separating spoil from the water. In addition centrifuging is used in similar situations to remove harmful chemicals and materials.
    2. This process reduces the amount of spoil to be de-watered and settled over time and so reduces the holding capacity required. This centrifuge process is commonly used in dredging operations.
    3. Also, it may be appropriate to use new technologies that enable better uniform mixing to inject lime into the spoil as it is pumped.

g. The Cairns region used to have many industries including the list below.

i. Sugar
ii. Timber and plywood manufacturing
iii. Logging
iv. Railway workshops
v. Brewery (on the site of Harvey Norman, with the two grain silos)
vi. Ship building and maintenance including new navy vessels
vii. Cattle and other animal processing works
viii. Export various goods through Port of Cairn
ix. Queensland's largest fleet of fishing vessels
x. Regional mining of metals, copper and tin.

h. Most of these industries listed above have either closed or substantially diminished. Any further diminution will endanger Cairns' economy, and force even greater reliance on the tourism industry.

i. The cruise ship industry is a major part of Cairns tourism business. Most new cruise liners are too large to navigate the Trinity Inlet until the proposed dredging has been completed.
ii. The Cairns region sugar industry is marginal. Mills have been closed, and processing relies on maintaining current cane farm stock. If more valuable cane growing land is taken for residential development, this will further erode the future outlook for the region's sugar industry.
iii. All sugar from the remaining FNQ mills is trucked into the Cairns Bulk Sugar facility from where it is shipped for export from the adjacent wharf. Additionally, nearly all fertiliser used in FNQ is shipped into the bulk fertiliser depot at their own wharf. Should the harbor dredging not be

maintained and expanded for future larger vessels, these bulk handling export and import facilities will no longer be viable.

iv. The requirement for port expansion to allow continuation of supplies of petroleum fuels and LGP is a major concern. Increasing demands for aviation fuel, especially with the expansion of international flights through Cairns International Airport, must be catered for. Cairns bulk fuel storage is the base-distributing depot for the whole of Cape York Peninsula and west to the Gulf; as well, strategic fuel supplies are required for the Australian Navy base and the Army 51st Battalion. New international fuel tanker ships servicing Cairns Port are larger, with similar requirements to the new larger cruise ships.

i. The Northern area allocated for spoil placement includes mangroves potentially suitable for eco-ventures.

i. Mangroves on the North Western areas of the 944 ha site, and between the site and Trinity Inlet, comprise old mangroves and a small area of freshwater wetland with an old melaleuca forest.

ii. These Northern and shore-line areas would be well suited to developing into eco-tourism ventures.

iii. If the residual areas on the 944 ha site is developed, this could provide funding to enable eco-tourism; for instance to pay for boardwalks, information centre, ferry services across from the Pier marina. A ferry service would also be a major benefit for people with residences in East Trinity residential developments.

j. It is important to understand the background to the current issues surrounding the East Trinity site. The following summarises the main events and issues:

i. Alternative proposals for over 20 years have demanded that much of the East Trinity site, in particular the Southern area, be 'restored', or 'rehabilitated' to wetlands. However, photographic evidence, as well as descriptions from local elders, confirms this area never was wetland. The area originally comprised salt pans and grasslands, similar to Portsmith prior to reclamation using dredged spoil. After this area was used for grazing cattle, it was levelled and converted to cane farming.

ii. After cane farming became uneconomical, the area was planned for development of an international-standard Royal Reef Resort. Plans and schematics of the resort can be viewed at http://better-management.org/dredging/cairns-shipping-development-project/. The resort development included resolving all degradation issues on the property.

iii. After initial approval, pressure from anti-development 'greens' strong-armed the Labor government under Peter Beattie's premiership into withdrawing the approval, resulting in the developer going into receivership. National Westminster bank prepared legal action against the Beattie State Government, resulting in an out-of-court settlement, understood to have been $10m. The draft EIS A2.8.4 East Trinity presents a somewhat different version: *In the early 1990s a proposal to develop a*

satellite city on the site attracted community attention, but failed to gain approval. In 2000, the Queensland Government purchased the site with the intent of preserving the scenic rim of Cairns and for remediating the acid sulphate problems.

iv. Having prevented the solution to fix the severe degradation, as the new owners of the property the State has been spending some $500,000 each year attempting, unsuccessfully, to fix the pollution issues.

v. CSIRO assessed the pollution as severe and made recommendations to resolve the pollution (May 1999). These recommendations were not applied, as evidenced by the current state of degradation (see photo below) Such degradation would not be allowed if the property had private owners.

vi. This issue is important to consider in terms of development of the property, as well as ongoing maintenance costs until the issue is resolved.

C. Suggested solutions

This section describes an approach that is significantly different to the draft EIS, and includes several other aspects that are not included in the draft EIS. In particular, this proposal is focused on creating a win-win-win solution for all stakeholders.

a. Extend consideration of East Trinity to include the full 944 ha State-owned property.

i. This would take into account all significant costs and benefits for all potential stakeholders.

ii. It is proposed that this development would comprise:

1. Pump the minimum amount of spoil onto only one Southern area of the property.
2. Pump spoil at a slower rate, using the most cost-effective technologies to minimise the quantity of partly-dewatered spoil, and thus minimise the required holding volume.

3. Only develop the spoil-covered area when market demand has been established. At this stage, review any requirements to increase the land level, and include such costs in a new development program.
4. The draft EIS considers a four-lane road from the residential areas, and a bridge over Admiralty Island to join Aumuller Street into the CBD. Both these options would be ideal, but unlikely to be economic until a major residential area is being developed.
5. Support Aboriginal and environmental groups developing eco-tourism or similar ventures on mangrove and semi-wetland areas to the North West of the property and adjacent to the Trinity Inlet.
6. Develop appropriate parts of the residual of the property not required for eco-tourism or spoil placement in a manner that optimises both cash flow, complies with all relevant regulations and can fund most or all of the dredging and associated costs.
7. This proposal could accommodate maintenance dredging spoil if this is required in future (recent Federal laws prevent capital spoil being placed at sea, but allow maintenance spoil).
8. As well, this proposal could accommodate additional dredging spoil to deepen and widen the Trinity Channel and basin to enable larger cruise and other ships to navigate the channel. Note: the currently proposed 4.4M cubic metres is a minimum, but will not enable, for instance, the Queen Mary cruise ship to dock at the cruise terminal.
9. The appendix below forms part of this submission. This indicates that a project as described above is likely to have a positive benefit-cost.

b. Take into account the many benefits to Cairns that would be associated with this proposal.

i. The proposed development would provide considerable work for people from Yarrabah and other communities near the site. As development proceeds and road networks and related services are improved, this will assist the Yarrabah community and their Council to progress their own plans for sustainability and provide more employment opportunities.
ii. East Trinity has up to 5,000 ha potentially available for residential development – that is, 50 square kilometres. Much of this area could be available and provide a major proportion of the land required for future development as Cairns population grows. Cummings Economics submission notes: *'…on a continuation of long-term trends, we are looking at a regional population in the range of 550,000 to 600,000 by 2050 and for Cairns as the main regional city and hub servicing port, a population in the range of 400,000 to 460,000.'*
iii. Another benefit, as noted above, is that this residential development could enable eco-tourism ventures to progress by providing funding of areas well-separated from any residential areas.

c. Indicative estimates suggest this alternative proposal could be completed at far lower cost than the $365M presented in the draft EIS.

i. The primary reason for the much lower net cost of this alternative proposal is these estimates are based on a different set of assumptions to those presented in the draft EIS (see Appendix).

ii. The current degraded state of this State-owned property, together with the current annual maintenance cost of some $500,000.

iii. There are no plans for a development, which indicates the property currently may have a negative value.

iv. It may be in the State's interest, and in tax-payers interests, to pass ownership of this 944 ha property to private developers for a nominal amount, including conditions that require paying for, and completing, the minimum amount of dredging and all associated costs, and complying with all relevant regulations.

v. We propose it is feasible to dispose of the dredge spoil at the southern end of East Trinity. The 340 Ha of degraded land is shown in the Map below.

- The dredging spoil cost options are shown in the Appendix and based on the EIS design a conservative cost is $198M for 340 Ha of land. The experts have also recommended an alternative approach and the costs are $145M.

- The experts have reported that the $96M (and $88M in the recommended cost schedule) for the dredging includes provision of the best dredging technology available to de-water and treat the spoil enabling all 4.5M cubic metres of dredge material to be contained in the 340Ha.

- A total estimated net alternative project cost is $33M (see Appendix). However, it is important to note this figure is indicative only, based on a different set of assumption from the draft EIS, and provided to support our recommendation that the Cairns Shipping Development Project should be re-assessed.

D. Recommendations

1. We suggest the Coordinator General recommend to the State Government that a more comprehensive study be undertaken of dredging spoil placement options in consultation with the Cairns community, with a view to developing lower cost and environmentally acceptable solutions to enable the Cairns Shipping Development project to proceed as soon as possible.

2. In particular, we recommend the draft EIS report be extended to include the alternative proposal, or similar, as outlined in this submission.

3. We recommend consideration be given to commissioning a different group of specialists to develop a full project plan for this alternative proposal, including benefit-cost analyses and implementation time-line. This recommendation is based on the difficulties invariably experienced when consultants are asked to change their previous assumptions, assessments and conclusions.

4. We recommend consideration be given to several development options including those noted below. However, it is recommended that a private project operating in a commercial environment, rather than a public or even private/public, would be more likely to achieve success.

    a. One or a group of developers
    b. Private/public partnership
    c. Public development

5. We request that normal procedures for all Queensland State Environmental Impact Statement reports should be followed, including all submissions made regarding this draft EIS, as well as the Coordinator General's advice to the State, made public at the earliest time.

6. Please note: Our submission is presented in conjunction with ***Friends of the Port of Cairns*** (Facebook https://www.facebook.com/PortofCairns).

7. Please note: Our submission is also fully supportive of, and complementary to the Cummings Economics submission

8. Taken together these three submissions present an exciting way forward for Cairns:

    a. Gain the major benefits that will accrue when the Trinity Inlet and basin dredging is completed, as demonstrated in the economic assessment of these benefits; and
    b. Take a first step towards a visionary approach for Cairns' future – a city divided by water such as Brisbane and Sydney.

.

E. Signatories

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Signature:

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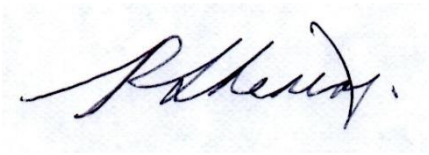

Appendix

Alternative development revenue and dredging cost projections

This appendix provides:

1. The assumptions underpinning the development revenue and cost projections for our alternative proposal;
2. The calculations for the potential revenues; and
3. The calculations for the potential costs.
   Note: None the several benefits have been assessed.

A final indicative net project cost is shown below both sets of calculations.

The following estimates are provided to demonstrate the potential revenues and costs to:

- Develop some of the elevated area of State-owned 944 ha property at East Trinity; and
- Place 4.4M cubic metres of dredged spoil on one Southern area of the property.

Assumptions

The estimates below are based on the following assumptions:

1. The lower 518 ha area at East Trinity will be not be developed until market conditions are suited to such development (the draft EIS proposes developing only the 518 ha).

2. No dredging spoil in addition to the proposed 4.4M cubic metres will be required pro tem (ie not the additional 5.26 million cubic metres of fill noted in the draft EIS).

3. A proportion of the elevated area of the State-owned 944 ha East Trinity property will be developed as soon possible (this area is not considered for development in the draft EIS).

4. Upgrading of the existing road network to Cairns will be minor (major upgrades will be required when future development occurs, eg the four-lane highway and bridge over Admiralty Island, as proposed in the draft EIS Development Options).

5. The State-owned land at East Trinity's designation will be changed to enable developments on appropriate parts. (Note: neither this site, nor neighbouring properties, are suited to agriculture, as has been proven over many decades).

6. Safety hazards such as storm surge, sea-level rises and flooding do not apply to the elevated areas of the 944 ha property.

7. The Draft EIS appendix e2 section 2.2 assumption will be applied: *'a theoretical yield of 10 residential lots per site hectare has been adopted.'*

8. Also from e2, these assumptions will be applied with adjustments for a smaller area:
    a. *'Applying these figures to the total site area of 518 hectares reveals a total yield of 5,180 allotments. Average recorded detached housing occupancy rates for the Cairns region of 2.8 persons per dwelling (as per 2011 ABS Census data) indicates a likely total population yield under this scenario of 14,504 persons.'*
    b. *Selling price per allotment: $200,000*
    c. *Selling period, 50 lots per month (considered generous)*

9. An infrastructure cost of $70,000 per lot is assumed. This is an average figure over a range of recent developments in Queensland.

10. Selling commences in two years, ie 2017, following preparation and approvals. At that time, the market for real estate in Cairns is assumed suitable to accommodate this 5-year proposed project. (Note: this assumption is supported by several recent real estate market projections.)

The following list compares the above assumptions with the assumptions listed in the draft EIS, Appendix e2:

- Site total area is 518 hectares based on Arup dredge spoil extent.
    - Only elevated areas will be developed initially.

- Assume all lots < 900 m2 for purposes of water and sewer EP calculations.
    - Same assumption.

- The 100 year ARI flood level adopted is RL 2.8 m AHD.
    - This assumption does not apply for the elevated site areas.

- The cost estimates are for trunk infrastructure to the East Trinity site boundary.
    - Major upgrades and associated costs will not apply initially for the smaller elevated area for development.
    - Currently, Warner Road caters adequately for Yarrabah residents (population 2,409 in 2011 Census, and estimated 200 population in Glen Boughton area).

- The cost per lot for internal roads, drainage, water, power and sewerage is not included.
    - This will be taken into account in overall costing for the upper area development.

- Filling costs to include fill from RL 1.65 m to RL 2.8 m AHD plus surcharge and grading allowances.
    - This will not apply until the lower areas are developed some time in the future.

Development revenue projections

1. Land area to be developed: Assume 250 ha (most of this land is elevated, well above floodable areas, some of which has grand views over the inlet and CBD to the hills beyond. More than this 250 ha could be available for development).

2. 10 residential lots per ha x 250 ha = 2,500 residential lots

3. Sales price is a conservative 75% of the $200,000 used in the draft EIS Option 2, ie $150,000.

4. Infrastructure costs are $70,000 per lot.

5. Roading costs between this development and State Highway will not be significant (until further major developments commence).

6. Net revenue per lot is $150,000 - $70,000 = $80,000

7. Selling commences in two year, ie 2017, following preparation and approvals.

8. Selling period is a conservative 40 lots per month, ie 480 per year (draft EIS indicated 50 lots per month).

9. Total period of sales 2,500 lots / 480 lots pa = 5.2 years

10. Both dredging and associated costs, as well as land development costs and revenues, will be time-dependant. A full project cost will involve discounted cash flows and finance costs. However, this proposal and the information available are only indicative at this stage, so neither discounted cash flow nor a net present value a calculations are appropriate.

11. Total net revenue is 2,500 lots x $80,000 revenue per lot = $200m

Dredging spoil cost projections

Total costs for dredging and associated costs, including $20M contingency: $233M
(See following table)

Indicative net project cost

Total estimated costs for dredging and associated costs, including $20M contingency: $233M
Less
Total estimated net revenue: 2,500 lots x $80,000 revenue per lot = $200M

Total estimated net project cost: $233M - $200M = $33M

Dredging spoil cost projections

Conservative costings based on the design in the draft EIS:

Submission Schedule
Dredging Rates

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Item	Description	Unit	Quantity	Unit Rate	Amount (AUD)
	Port of Cairns Dredging				
	Design of Bund				
	Detailed survey of existing land	item	1.000	1,199,860.00	1,199,860
	Design of bund wall	item	1.000	599,930.00	599,930
	Design of all concrete structures required for dredging pumps	item	1.000	599,930.00	599,930
	Construction of Bund Wall 1 (9klm)				
	Preliminaries including (Construction Plans, Insurences, other)		1.000	35,995,793.00	35,995,793
	Construction Survey		1.000	299,965.00	299,965
	Clear and Grub	m2	270,000.000	8.64	2,332,800
	Excavate and place high plastic fill	m3	32,400.000	106.63	3,454,812
	Supply and place general fill to construct bund	m3	243,000.000	60.77	14,767,110
	Trim Batters	m2	162,000.000	10.17	1,647,540
	Construction of Bund Wall 2 internal				
	Construction Survey		1.000	299,965.00	299,965
	Clear and Grub	m2	270,000.000	8.64	2,332,800
	Excavate and place high plastic fill	m3	32,400.000	106.63	3,454,812
	Supply and place general fill to construct bund	m3	243,000.000	60.77	14,767,110
	Trim Batters	m2	162,000.000	10.17	1,647,540
	Construction of disscharge ponds 200m X 200m X 2m deep				
	Clear and grub areas	m2	360,000.000	2.40	864,000
	Excavation of material to form ponds and disscharge points	each	4.000	354,437.00	1,417,748
	Rock protection works at outlets	each	4.000	1,439,832.00	5,759,328
	Concrete spillway	each	4.000	1,199,860.00	4,799,440
	Dredging of Port				
	Dredging of the port and pumping onto land	item		96,000,000.00	Rate Only
	Dozers if required to push material	item	1.000	5,442,564.00	5,442,564
	Treatment of ASS/PASS material	item	1.000	13,768,391.00	13,768,391

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Dredging Rates

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Item	Description	Unit	Quantity	Unit Rate	Amount (AUD)
	Clear of total area and placement of Capping Material				
	Clear and Grubing	m2	6,000,000.000	1.95	11,700,000
	Capping of Dredged material with suitable fill material allow 300mm	m3	1,800,000.000	28.39	51,102,000
	Unforeseen				
	FUF	PSUM	1.000		20,000,000
	Total for project				***198,253,438***

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1. **Experts recommended costings based on a different process and approach.**

Submission Schedule
Dredging Rates

Printed : June 1, 2015 15:33:17

Item	Description	Unit	Quantity	Unit Rate	Amount (AUD)
	Port of Cairns Dredging				
	Total Usable land 340ha				
	Design of Bund				
	Detailed survey of existing land	item	1.000	1,100,291.00	1,100,291
	Design of bund wall	item	1.000	550,145.00	550,145
	Design of all concrete structures required for dredging pumps	item	1.000	550,145.00	550,145
	Construction of Bund Wall 1 (9klm)				
	Preliminaries including (Construction Plans, Insurences, other)		1.000	33,008,726.00	33,008,726
	Construction Survey		1.000	275,073.00	275,073
	Clear and Grub	m2	270,000.000	7.92	2,138,400
	Excavate and place high plastic fill	m3	32,400.000	97.78	3,168,072
	Supply and place general fill to construct bund	m3	243,000.000	30.97	7,525,710
	Trim Batters	m2	162,000.000	3.73	604,260
	Construction of Bund Wall 2 internal				
	Construction Survey		1.000	275,073.00	275,073
	Clear and Grub	m2	270,000.000	7.92	2,138,400
	Excavate and place high plastic fill	m3	32,400.000	97.78	3,168,072
	Supply and place general fill to construct bund	m3	243,000.000	30.98	7,528,140
	Trim Batters	m2	162,000.000	9.32	1,509,840
	Construction of disscharge ponds 200m X 200m X 2m deep				
	Clear and grub areas	m2	360,000.000	2.20	792,000
	Excavation of material to form ponds and disscharge points	each	4.000	325,024.00	1,300,096
	Rock protection works at outlets	each	4.000	550,145.00	2,200,580
	Concrete spillway	each	4.000	550,145.00	2,200,580
	Dredging of Port				
	Dredging of the port and pumping onto land	item		88,000,000.00	Rate Only
	Dozers if required to push material	item	1.000	4,990,919.00	4,990,919
	Treatment of ASS/PASS material	item	1.000	12,625,837.00	12,625,837

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Dredging Rates

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Item	Description	Unit	Quantity	Unit Rate	Amount (AUD)
	Clear of total area and placement of Capping Material				
	Clear and Grubing	m2	6,000,000.000	1.78	10,680,000
	Capping of Dredged material with suitable fill material allow 300mm	m3	1,800,000.000	26.03	46,854,000
	Total for project				***145,184,359***

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KENFROST (1987) PTY LTD

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1 June 2015

EIS Project Manager - Cairns Shipping Development Project
Coordinated Project Delivery Division
Office of the Coordinator – General
PO Box 15517
City East QLD 4002

Dear Sir/Madam,

EXECUTIVE SUMMARY

Cairns Shipping Development Project is essential infrastructure to support both Cairns and the Queensland tourism industries and economies.

On shore disposal of dredge materials has the potential to deliver a range of positive outcomes, the least of which is the protection of the reef.

The project could be delivered cost neutral for the Queensland Government given time and willingness by the state to effectively plan for the future.

At $400million, the potential raw land value in 2015 dollars for East Trinity would be around $50,000 per raw urban lot – given the opportunity to introduce a premium waterside urban development, this figure would be viable today.

Urban Development of East Trinity would deliver property worth in excess of $4billion.

The on shore disposal and subsequent development of East Trinity will provide social and economic equity and opportunity to the residents of East Trinity and Yarrabah.

Thank you for the opportunity to provide our comments. Please feel free to contact me should you have any queries.

Yours faithfully,

J. S Richardson

John S Richardson

Director

Introduction:

Kenfrost (1987) Pty Ltd (Kenfrost) is Cairns largest residential builder and land development company. Kenfrost is also one of Cairns largest civil contractors, delivering over 300 lots per annum for its own program and for other developers such as Satterley Property Group and Brookfield. With over 1500 families living in a Kenfrost home, you will have the confidence of choosing a strong, reliable and longstanding building company which it is proud to support its local community.

Kenfrost shares the States desire to see building and development industries thrive. In Far North Queensland, tourism is the economic driver of the economy and one of Queensland's most important industries in both the income generated and the number of persons employed. Without a strong tourism industry, our building and development industries will struggle. Similarly Cairns port and Naval services have the potential to contribute at even greater levels if the Cairns Shipping Development Project can be delivered.

Kenfrost acknowledges the enormous body of work contained within the Cairns Shipping Development Project EIS. Kenfrost also acknowledges that the changing political position with regards to placement of dredge spoil in the Great Barrier Reef Marine Park (GBRMP) despite the EIS finding that this is the most environmentally sound method for disposal of the dredge spoil.

Kenfrost would like to take this opportunity to provide feedback to the EIS. The project will create significant opportunities as is widely acknowledged throughout the EIS. Kenfrost specifically supports the land based disposal of dredge spoil in East Trinity as it will not only support the delivery of the project but will also deliver opportunities for the building and development industries in the future, not to mention future generations of Cairns and existing residents of East Trinity.

Cairns - planning in context

Within the EIS, discussion in Chapter A3 (pp3) identifies Cairns has '2,200ha of residential land supply', and 'that there will be significant growth through infill and redevelopment.' While this may be the case, Cairns is a very lineal and constrained city. The long term future growth can only extend south. Mt Peter is some distance from the CBD and while East Trinity is currently a significant distance by road, discussions around building a bridge between Portsmith, Admiralty Island and East Trinity have continued for decades. Such a bridge would significantly ease pressure for the Bruce Highway and give direct access to Portsmith industrial area for road freight. With a more innovative approach to the development of East Trinity, residents would be less than 10 minutes by ferry from the CBD – and ferries operate successfully in Brisbane, Sydney and Perth, and should not be discounted in any future planning framework.

When development of Mt Peter is complete – around 2030, Cairns has little choice for expansion than further south from Gordonvale, 45kms from the CBD. East Trinity would be more than a viable option in lieu of further fringe development and the infrastructure, traffic and transport costs associated with continuing lineal development.

Land Based disposal – East Trinity

The EIS (Executive Summary, pp 19on, A2 pp45 on, A3) discuss the range of obstacles that face land based disposal at East Trinity. These reports cite the significant work (and time and cost) that has gone into rehabilitating the site.

The site is far from rehabilitated. The site is still subject to an annual lime program to help contain the existing acid sulphate problem, paid for and managed by successive state governments.

From speaking to neighbours of the property, owners who have watched the events unfold over years, the site was originally low grass, sand dune and tidal flats before being leased to CSR for cane production. As the site was earthworked and drained and a bund wall constructed to keep the tidal movements out of the productive areas, the soils dried, sunk, cracked and exposed acid sulphate materials below. The site became unproductive and abandoned. Melaleuca's and other plants started to establish over the site before the bund walls deteriorated, and were then breached to allow the tidal process to resume. This process killed the Melaleuca and other coastal plants in the area and contributed to exacerbate the acid sulphate problems. This is reflected in Chapter D (D.4)

The site will never be able to be restored. The problem for the state government will not stop until the site is 'capped'. Despite the comments in the EIS, the site is mostly weed infested and a continuing liability to the state.

While bringing the capital dredge to shore certainly has inherent risks, there are processes in which that risk can be minimised. Ultimately, the dredge material will cap the site and prevent further Acid Sulphate/heavy metal runoff. This will be protecting the reef both though land based dredge material disposal and permanently rehabilitating the site. The state is in the position that it can use its powers to plan for the long term future, make decisions relating to the site on the best economic, environmental and social reasons. There is no question there are hurdles to overcome, but this is a project for generations and that long term view is the role of government. In the long term, planning for future urban expansion south of Trinity Inlet will help keep Cairns a more compact city and reducing its urban footprint, adding weight to the environmental protection of the reef.

RPS advises that an additional 5 million cubic metres of fill is required to support urban development over the dredge material. The EIS reports (A2 pp6) that 350,000m^3 of material is removed annually through maintenance dredging.

If the land based disposal of dredge material was able to be undertaken at East Trinity, the annual maintenance dredging could continue to be deposited onshore for many years further enhancing Queensland's reputation for protecting the reef. The smaller annual deposits would be easier to manage using infrastructure such as tail water and settlement ponds that would be constructed for the initial capital dredge material.

Variously throughout the reports is discussion about the unsuitability of the dredged material for construction fill. Vast areas of Cairns has been built upon dredged material, including the bulk of the CBD and Portsmith Industrial area. While obviously less desirable than clean engineered fill, with the time available for treatment, settlement and preloading, combined with the time available for importation of higher quality materials in a piecemeal fashion, development of the site should be possible with the right engineering solutions for future

buildings. Vast areas of Cairns including most coastal suburbs are situated above ASS or PASS material, this site would be no different.

Finally, if the state and federal governments have determined that no dredge spoil will be dumped within the GBRMP, then a land based solution will be required urgently to deal with annual maintenance dredging.

Infrastructure

Within the EIS one of the constraints for consideration of East Trinity for urban uses is the lack of infrastructure. As with any large scale project (in this case, with the potential for in excess of 7,700 residential allotments (E2 section 2, 2.3)), it is unlikely that any existing services will be sufficient to facilitate development. That argument is moot.

Even today, Mt Peter Masterplanned area lacks sewer, water, power, sufficient road infrastructure, much less services such as schools and shops. It has not prevented this area becoming the preferred development footprint within the Draft Cairns Regional Plan and the Region Plan 2031. Two decades ago, the same discussions raised within the EIS for East Trinity would have equally applied to Mt Peter.

Traditional development.

HTW provided advice based traditional development patterns and based on existing development sites in Cairns. In lieu of any better information, their assumptions were quite valid. But what if the project was tackled in a different manner?

The RPS report (E.2) considers development of the site in a traditional development pattern, based on existing development sites in Cairns. RPS raises valid concerns over the local and state planning framework that affects the site. However, this is a long term project that far exceeds the current planning horizons, the Region Plan 2031 and the Draft Cairns Region plan. That is not reason enough to stop exploring future options.

The RPS and HTW research struggles to get land values up to make the project viable. Why would anyone want to be 'that far from the city?' It's a perfectly valid set of assumptions – unless tackled differently.

If the appetite was there to make this project a success and to minimise the cost of the dredging, land holdings, rehabilitation etc. to the state, then the approach to tackling the development of the site would change. If the density could be increased in a logical context, the viability of the project may change. If an extra 10-20% yield was achieved the viability changes. Time will also play a factor in this land becoming viable in the future. As land becomes scarce and values increase, East Trinity will become a viable site for development. The state is the right entity to hold the land and manage the planning framework. The state holds land now for future generations – road and rail corridors, hospital and school sites, port and strategic infrastructure sites; this is no different, it is state owned, degraded land with a contingent liability that would be prepared and preserved for future urban uses.

Development of a premium address.

If development of the southern foreshore of Trinity Harbour could be the starting point, would buyers pay a premium to live there? Is there similar examples that could be identified?

Jones Bay and the Sydney Finger Wharf at Woolloomooloo are great examples of where waterfront living has resulted in higher density, mixed uses, vibrant and desirable places to live, work and recreate.

Figure 1 - Sydney's famous finger wharfs could be duplicated here in Cairns creating enormous opportunities

Development such as this needs road access as a secondary transport need. It would need a frequent and permanent ferry service, but our greatest cities all do; Brisbane, Sydney and Perth.

If development could commence from the waterfront and radiate out from there back towards Pine Creek Road, the benefits would be that all future development would have an uplift in value attributed to their connection and proximity to the premium harbour front properties and activities. Again, if the yield and the values can be grown, then the viability of the project can also.

At a land placement cost of circa $400m, (A2 Table A2.9.14.4a) excluding the cost of the land and rehabilitation works to date, and based on a residential yield of 7,700 lots, this equates to $51,948 per raw lot. While that figure is a little on the high side for urban zoned land in Cairns in 2015, if the premium development sites on the wharf and other higher yielding land were factored in, this would be a viable raw land value even in todays' dollars and market.

Figure 2 creating waterfront lifestyle that would be the catalyst for a new community

Intangible benefits that were not discussed in the RPS/HTW reports include the need to deliver services such as shopping, health and education, which in turn, will enhance the opportunities for existing residents in East Trinity.

The Mt Peter Masterplan (Economic Development and Employment Report, 2009 pp 8), provided for an estimated 16,000 local jobs for a population almost twice as large, but far removed from the CBD.

With direct ferry access to the CBD, the initial residents are highly likely to be high income earning professionals with some service and tourism based employment associated with the waterside businesses. As the area develops and expands more opportunities will arise in health, education, retail and construction. Based on the work undertaken for Mt Peter, it wouldn't be unrealistic to see 8,000 jobs developed over the life of the project.

At some point, a bridge connection would become essential, but it's not essential to commence the project if approached from the waterfront. A bridge also has the benefit of bringing the residents of East Trinity closer to the city and its services and will make public transport and other opportunities more viable. Further, the addition of a bridge between Cairns and East Trinity will facilitate the long term duplication of access to the CBD and Portsmith industrial area, taking pressure off of the Bruce Highway.

With 8,000 jobs needing around 100,000 sqm of floor space, in excess of 7,700 residential homes, wharf and premium harborside development, urban development of East Trinity would result in a $4 billion dollar project.

Constraints and opportunities.

Environmentally, there would be a need to sacrifice 500-700m of mangroves to develop a waterfront interface between Cairns CBD and East Trinity. Mangroves are not 'of concern'

communities and the loss would be made up by the rehabilitation/continued rehabilitation of Hill, Magazine and Firewood Creeks.

The capping of the site will resolve past and ongoing maintenance and liability. The other environmental matters are ones that the state is in the best position to deal with, on behalf of the entire QLD community. Native title issues surrounding part of the site will need to be dealt with, as all native title claims are.

Our understanding is that the Mandingalbay Yidinji people want and need to create economic opportunities for their community. Some of the initial eco-tourism plans by the Mandingalbay Yidinji people would complement and enhance the waterside development, but would obviously require to work with the community to deliver a great outcome. East Trinity's development has that potential to create significant economic and employment opportunities for their people. As development occurs the community would have access to all manner of services taken for granted by the wider Cairns community, which they are isolated from. The East Trinity project could deliver a high level of social and economic equity for the existing residents of East Trinity and Yarrabah.

Throughout the EIS, particularly in chapters A3 and D, is discussion about the difficulty with the material and the ability to dry it quickly. East Trinity will be a project, years in the making. Dredging the harbour over one or 2 seasons might assist with the size of the bund walls required, the drying process, the ability to dry and treat material before the next wet season, to manage tail water and settlement ponds. Creating a land fill opportunity in East Trinity might assist in securing additional soils that will assist in the rehabilitation of the site. Invariably, development of old cane farm land creates a surplus of topsoil. Perhaps the covering of dredge material with topsoil will assist with changing the materials properties, drying it, encouraging grass growth to assist with preventing problems with water runoff, dust and nuisance. Cairns lacks sites for earth disposal and those on the Barron Delta will eventually become exhausted and material is already taken to Aloomba, which is probably further away that East Trinity for much of the development in Cairns.

Summary

While the Cairns community recognises the need to protect the reef as paramount, the Cairns Shipping Development Project is essential for the development and expansion of the region's economy. This short term project will continue to deliver benefits to the local and Queensland economies for many years to come. Kenfrost would urge the government to reconsider ceasing this project and take a fresh look at how it might be facilitated in light of the changes in policy positions that have occurred during the development of the EIS.

It is not unreasonable to expect that through the future sale of land, the Cairns Shipping Development Project could be delivered 'cost neutral'. With the future maintenance dredging coming on-shore, rehabilitation of the East Trinity site, compact development in future urban expansion, the social and economic community equity delivered; the intangible benefits of the project to the Cairns and Queensland cannot and must not be discounted.

CAIRNS SHIPPING DEVELOPMENT PROJECT

Environmental Impact Statement

Submission to the
Queensland Coordinator General
by
Cummings Economics
Economic Perspectives

Ref: J2865
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Appendices and Attached Papers

SUMMARY OF MAIN POINTS

1) The project based on offshore placement is highly viable with strong efficiency savings to cruise operators and passengers that lead to very strong benefit cost ratios over the project period.

2) This leads to projected major increases in cruise traffic and strong beneficial economic impacts.

3) Government decisions, in spite of scientific evidence that offshore placement does not pose an environmental threat, means that governments should either:

    - Compensate the community for loss of economic opportunity,
    - Meet additional costs of onshore placement, or
    - Work with the community to find ways to make onshore placement viable and contribute to the city's long-term growth and employment opportunities.

4) The approaches taken and costs portrayed in the EIS need to be reviewed in the interests of finding solutions to viable onshore placement.

5) Cairns and its region have a long track record of strong long-term growth that is likely to continue into the future.

6) Onshore placement can be used:

    - To facilitate long-term development of
        - Industrial land
        - Cairns seaport
    - To open up a major new area for urban growth after Mt Peter
    - To provide more efficient multipurpose road transport routes into the city
    - To enable the Cairns Shipping Development Project to proceed along with future other important capital dredging needs relating to the port and possible continuing onshore placement from maintenance dredging.

7) The Coordinator General should recommend to the Government that it work with the Cairns community to comprehensively re-examine onshore placement with a view to finding positive, innovative and viable solutions that will enhance the city's long-term progress.

1. INTRODUCTION

The following is to provide a response to the Coordinator General in relation to:

- The Ports North Draft Environmental Impact Statement for the Cairns Shipping Development Project;
- The Government's response and comments in relation to the project;
- Some reports and comments by others in relation to the project.

Cummings Economics are knowledgeable about the project:

- The firm has carried out over many years, analysis of issues and trends in relation to the Cairns' regional economy including for most of the key regional organisations including Cairns Regional Council, Advance Cairns, the Cairns Chamber of Commerce, Tropical Tourism North Queensland (TTNQ), Cairns Airport and Ports North.
- In relation to the project, the firm as sub consultants, carried out Economic Analysis for the EIS.
- The firm's market research arm, Compass Research, carried out surveys of community reactions to the proposed project.
- The firm has carried out work in relation to possible tourism ventures in the East Trinity and adjacent areas.

2. PROJECT ECONOMIC IMPACT AND VIABILITY

There seems to be substantial confusion as a result of various statements including those of the Government about the economic and financial mathematics of the project. The following is to help elucidate the situation based on the EIS (refer especially to Appendices D6 Demand and D9 Economic Analysis).

There are two points that need to be made in the first place.

1) There are two major options for capital costs that need to be recognized:

   (i) Placement at sea in a depression in the ocean floor outside the end of the channel;

   (ii) Onshore placement.

   The EIS was initially mainly carried out in relation to Option (i). Analysis of onshore placement was subsequently added.

2) While Ports North is a government owned corporation, this is a commercial investment that has the potential to earn substantial amounts in additional revenue for Ports North and has the potential to generate substantial amounts of additional economic activity and employment in the community.

Funding for this project needs to be seen in the context of it being an investment in an income earning asset and in a different category to spending on social infrastructure (eg. hospitals, schools, etc.).

3. OFFSHORE PLACEMENT OPTION

3.1 Capital and Other Costs

The initial announcement about the costs indicated a sum of $40m to carry out the dredging. The EIS indicates an estimated cost of dredging operations with sea placement would be $60m.

About an extra $30-$40m has been added-in accompanying related wharf improvements of about $12m, start-up costs including the extensive EIS process of about $13m, making a total of about $85m.

It is also expected that a further $18m would need to be spent on follow-up scientific / environmental monitoring.

The larger channel will mean channel maintenance costs will be higher but only by about $400,000 per annum. Capitalised over 25 years at a 7 percent discount rate, this has a present value of about $7m.

If the dredging costs of approximately $60m are added to by all the other costs, including capitalised extra maintenance costs, total costs come through at about $108m in 2014 values.

There is a real question about how much of the above costs should be regarded as accruing to the project to be met by user pays fees.

Clearly the $60m and NPV additional maintenance costs should be regarded as costs which Ports North as a user pays organization, should be expected to recover over time from charges and the additional business the project will generate. The additional $12m for wharf improvements probably needs to be regarded as essential to the project in view of the larger vessels involved.

However it is questionable about how much of the $13m in start-up costs and $18m in monitoring is a legitimate expense for Ports North or for the Government, eg. as part of reef protection costs.

3.2 Cruise Ship Demand

Demand studies were carried out by cruise ship specialists for BMT WBM, into the additional cruise ship activity that the upgrading of the port to take mega-class cruise ships (defined as carrying over 2,000 passengers), was likely to stimulate over and above what could be expected if there was a continuing need for mega ships to lay offshore and transfer passengers to shore at Yorkey's Knob.

Given the sharp increases taking place in the number of cruise ships being built of mega size, and general growth in demand for cruising in the Asia / Pacific region, strong growth was projected.

The important take-out figure is that the project was estimated to result in six million additional passenger port-days (medium projection) over a 25-year project life. The projections indicate almost a doubling in numbers over current in the early phases to about five times the number towards the end of the 25-year period if there was no project,

Apart from cruise ship visits, home-porting is likely to develop. The extent and timing is difficult to project but modelling is based on a conservative assumption of one mega ship from 2021 and two from 2031.

3.3 Efficiency Savings and Project Viability

Research with the cruise industry indicated large efficiency savings for ship operations and passengers of being able to come into port compared with high cost inefficient shore transfers via Yorkey's Knob.

The total cost efficiencies identified came up to a figure approaching $70 per passenger net of berthing costs.

The current constraints on the port also result in inefficiencies for other larger ships including those carrying fuel and fertilisers in and sugar out. Research in the shipping industry indicates that the tidal constraints and inability to have fully-laden ships entering and leaving the port are currently costing operators of the order of $2.7m per annum in additional operating costs.

Upgrading the channel would be necessary for 'home-porting' of mega vessels in the future. Based on conservative assumptions of one mega vessel home-porting from 2021 and two from 2031, operational savings for cruising to Indo / Pacific Island areas to the immediate north compared with home-porting out of Brisbane would be of the order of $1.4m per voyage.

Total efficiency savings are estimated with a Net Present Value (at a discount rate of 7 percent, 4 percent real) as follows:

Visiting cruise ships	$250 m
Large bulk cargo vessels	$60 m
Cruise vessels home-porting (as modelled)	$242 m
Total	**$552 m**

On a straight efficiency benefit / cost analysis, the project romps home with an estimated benefit / cost ratio (at a 7 percent discount rate) without home-porting of 2.7 times the cost and with home-porting of 4.8 times. Only part of these savings would need to be tapped in port charges to make the project commercially feasible. Unfortunately, the EIS does not appear to canvas the capacity of the project to sustain investment on a commercial basis.

Information available from cruise shipping companies indicates that costs of bringing a 2,000-passenger ship into the port is about $35,000, ie. about $17.50 per passenger. Part of this are charges for tugs and other expenses not accruing to Ports North.

The efficiency savings involved and the attractiveness of Cairns as a cruise port points to little difficulty in raising charges to a level that would cover a capital cost of the order of $100 million and not be out of scale with other typical transport facilities such as Cairns airport.

In the early 1980s, Cairns faced a similar need for investment in airport upgrading. The transition of the airport to user pays under local ownership arrangements was a great success in terms of airport viability and economic growth unleashed in the region.

3.4 Economic Impact

Apart from being a potentially viable project for Ports North and providing substantial additional cost savings to ship operations and passengers, the project could be expected to generate substantial additional economic activity in the Cairns region. Cairns is a key port in attracting cruise vessels to Queensland and the SW Pacific. The project will have positive impacts more widely on cruise shipping activity throughout Queensland, across the North and into PNG / Pacific area.

Although there would be some losses of activity through reduction of inefficient activity in transferring visitors ashore at Yorkey's Knob, there will be strong cumulative positive benefits of additional spending from construction activity and spending by additional visitors, crew and ships. Estimates are set out in the following table.

Table #1: Estimated Additional Economic Impact - Direct Additional Expenditure Generated over Project Period – Net Present Value at 7 Percent Discount Rate

	Net Present Value in 2014 prices
Additional Cruise Ship Visits	$743 m
Construction Activity	$102 m
Additional from Home-Porting (as modelled)	$363 m
Additional Impacts on Qld Economy (as modelled)	$133 m
Total	**$1,341 m**
Navy unknown	Unknown
Larger non-cruise shipping trade stimulated	Unknown

Source: Cummings Economics from EIS Appendix D9.

Thus, not proceeding with the project is likely to be giving up additional direct spending in the Queensland economy over the project life of the order of $1.3bn in 2014 prices with future benefits discounted at a 7 percent discount rate.

In terms of actual money at time of expenditure (ie. with inflation and not discounted), the amount foregone could be expected to be of the order of $5bn.

Appendix 1 gives comments on the report prepared by James Cook University for the Australian Marine Conservation Society entitled "Economic Opportunities and Risks of Cruise Tourism for Cairns". This report sought to portray that the economic benefits of the project would be minimal.

3.5 Environmental Aspects

The EIS very clearly demonstrates that offshore placement does not represent an environmental threat to the Great Barrier Reef or the onshore environment.

Decisions by the Federal and State Governments to rule out 'offshore' placement means that, for the project to proceed, onshore placement must occur.

4. ONSHORE PLACEMENT

4.1 General

From the foregoing, it can be taken that the additional revenue that would be generated makes the project with sea placement highly viable with very substantial additional benefits to the cruising industry and to the Cairns economy. The onshore placement only comes into consideration if governments decide to not accept offshore placement.

The EIS analysis concludes that onshore placement places a further major layer of costs on the project that cannot be fully offset by the creation of land with a marketable value. The EIS looks at the costs of onshore placement at a number of locations – East Trinity, Admiralty Island, cane-land at the head of Trinity Inlet, foreshore reclamation and an area at the airport. However it only examines likely value of land created in relation to Trinity East.

Against a background where Governments have ruled against the viable and scientifically supported offshore placement, Governments have three alternatives:

1) Compensate the community for the economic loss. The foregoing analysis indicates that this is likely to have a present value of the order of $1.3 billion.
2) Meet the cost of onshore placement at East Trinity as proposed in the EIS. (Indications are that this will cost of the order of an additional $250 million over and above $100 million for offshore placement.)
3) Develop innovative solutions to get the cost of onshore placement down through reducing costs and creation of land with an economic value that will in total, or mainly, offset the additional costs of onshore placement over a period of time.

While the total identified efficiency benefits of $552 million would still yield a positive benefit cost ratio against a capital cost of $300 million, it is obvious that the interests of the community and the Government will be served by exploring option 3 above, with a view to finding solutions.

The following sets out the view that the analysis of onshore placement options in the EIS is limited and deficient.

It is submitted that much better solutions can be developed if:

1) The project of onshore placement is looked at first and foremost from an economic analysis/commercial perspective.
2) The project's onshore placement technology and costings are reexamined.

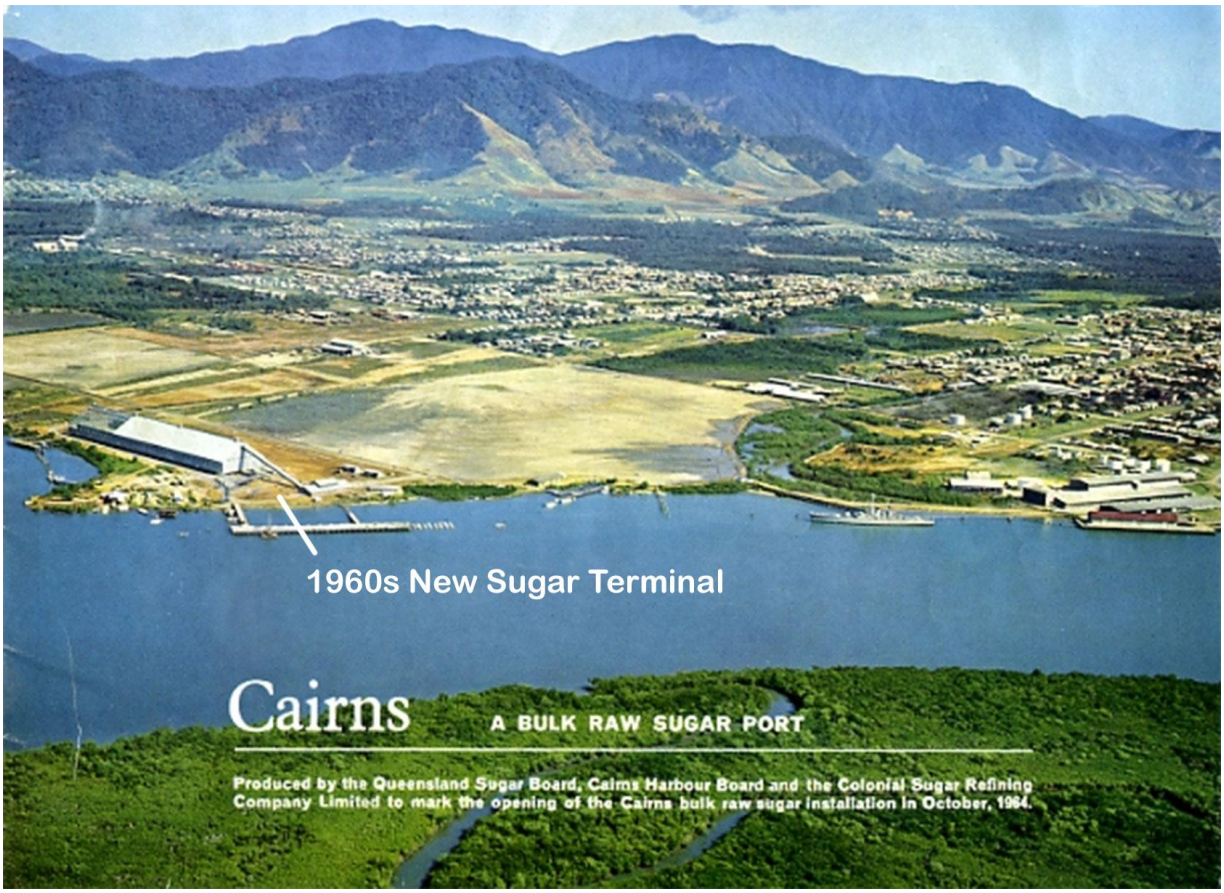
4.2 Previous Experience with Onshore Placement

The central part of Cairns has been built on a series of sand ridges and swamps facing Trinity Bay. Very large parts of the city are built on land reclaimed from swamp and saltpan areas including using dredge spoil.

For many years, Cairns Harbour Board had its own dredge vessel, the "Trinity Bay", and substantial areas of land were reclaimed in the Portsmith industrial area using dredge spoil. This included most of the Portsmith Crown Industrial Estate, created by the Queensland Government in the 1960s to support manufacturing and industrial development.

Photo 1 shows the relevant area being reclaimed in the 1960s. Map 2 shows the area today.

Photo 1 shows the Portsmith area in the 1960s and the area being reclaimed with dredge spoil to form the Queensland Government Crown Industrial Estate.



Google Map 2 shows the area today.

As a preliminary estimate, something of the order of 150-200 hectares of industrial land appears to have been created. Unimproved value of the land as represented by blocks along Redden Street appears to average about $150 per sq metre in 2013. As a preliminary calculation, current unimproved value of the land created is probably of the order of $270-$300m.

The land supports a large part of Cairns' industrial buildings and industrial activity including much involved with Cairns' leading position in northern Australia in maritime servicing, supporting the city's naval base, large reef fleet, coastal trading and fishing fleets.

Located on reclaimed land today is the HMAS Cairns Navy Base with a turnover of about $120m and employing about 900, and the NQEA shipbuilding facility in which has been built the 14 Fremantle patrol boats, the Navy's hydrographic survey vessels (Melville and Leeuwin), and the CSIRO research vessel, Franklin, and various other vessels..

Estimates by Cummings Economics of the value of the region's maritime sector in 2008 put value of direct output of the order of $800 million and direct employment of over 4,000.

Through 'flow-on' effects, the sector supports thousands of extra jobs in the city and could be expected with flow-on effects to support of the order of 12 – 16,000 of the city's population.

Land reclaimed with dredged material takes time to settle and building foundations are not ideal. However much of Cairns, including high rise hotels, sits on similar types of foundations.

4.3 Catering for the Future Growth of Cairns

In relation to the onshore placement issue, there is a need to recognize what future longer-term growth of the city needs to be catered for.

Attached papers "Long-Term Regional Population Growth in Queensland Regions" and "Long-Term Regional Population Growth in Northern Australia" looks back at population growth trends over a 35, 20 and 10-year period. They very clearly identify the leading role of the Cairns region and Cairns city in population growth in regional Queensland and northern Australia. The paper also identifies why this is so and what regional population and city population sizes might be by 2050 if the growth trajectories of the past, extend into the future without any acceleration.

They indicate that on a continuation of long-term trends, we are looking at a regional population in the range of 550,000 to 600,000 by 2050 and for Cairns as the main regional city and hub servicing port, a population in the range of 400,000 to 460,000.

This has major implications for need of land for:

- Port industrial purposes;
- Residential purposes.

The potential role of onshore placement in meeting these needs is discussed further in the following assessment of potential reclamation sites.

4.4 Mathematics of a Long-Term View of Onshore Placement

Past experience indicates that land reclaimed with dredge spoil from the channel can play a major role in supporting long-term development of the city. However land reclaimed with dredge spoil requires a number of years to settle before it can be built on. Trying to make it immediately available to be built on can add a great deal to costs.

The mathematics of cost of settling time is as follows.

Land held onto can be expected to appreciate in value with inflation and with the growth of the city. If appreciation in value of land is three percent per annum for inflation and one percent per annum for growth of the city, the real financial cost of holding on to land costing $100 is the following over a period of time at a 7 percent interest rate:

5 years ..... $16 ..... Ratio 1.16
10 years ..... $34 ..... Ratio 1.34
15 years ..... $56 ..... Ratio 1.56

So if a piece of reclaimed land had a value of $70 per sq metre as is (without further development costs), it would stand a cost of placement of $60.00 per sq metre if it was used in five-years-time, $52 per sq metre in ten-years-time and $45 per sq metre in fifteen-years-time.

A cost of $200m to place 4.3 million tonnes would be $46.50 per cubic metre and at average fill depth of one metre, $46.50 per sq metre.

4.5 Extent of Onshore Placement Needed

It should be kept in mind that banning of offshore placement means that apart from deepening the channel as proposed in the Cairns Shipping Development Study (something not likely to be needed again for a substantial amount of time), there will be a need to find onshore placement locations for capital dredging for the following to proceed over time:

- Expansion of the Marlin marina;
- Extension of the main cargo wharves;
- Extension of the Navy Base;
- The proposed barge ramp project to handle larger barges;
- Wharf expansions at Mourilyan Harbour

Potential costs to the region in opportunities foregone would be very large if these projects were not allowed to proceed.

If offshore placement of maintenance dredging was effectively not allowed to be continued, the whole role of Cairns, as a cruise port, for export of sugar, inward movement of fertilisers and fuel and as a naval base, would gradually go unless onshore placement areas were found.

If the Government is not going to allow offshore placement, there will be no alternative but for them to help organize and pay the cost of onshore placement.

The following looks at potential areas in the light of how they may contribute to the city's future development over a period of time through the creation of reclaimed land with value.

4.6 Economic Assessment of Potential Reclamation Site

The EIS canvasses five potential areas.

Further reclamation of foreshore land to widen the Esplanade Park would need to be at public expense. The Esplanade was widened about a decade ago and there is no evident public demand for a further widening.

The airport fill area is small and probably more economical to fill from other sources. The remote caneland site at the end of the inlet is quite distant from the dredging. The EIS does not examine in detail, the possibility of using a number of reclamation sites rather than just one.

In terms of immediate demand for and value of land, the two optimum sites would appear to be:

- Extension of the Portsmith Industrial area. An area of about 50ha seems suitable and would be worth detailed evaluation.
- Development of additional strategic port land along the northern end of Admiralty Island. Part of this land is sand ridge country. The southern end of Admiralty Island is deep mangroves and environmental and potential economic use factors make it less desirable.
- East Trinity offers an excellent site with large areas of already degraded land. However economic value is dependent on developing a new major urban expansion area on that side of the inlet.

Map 3 illustrates.

The following looks at each of these areas.

Portsmith Industrial Area

This area is about 50ha and is currently being encroached on by waste disposal.

Its reclamation using dredge spoil would create additional industrial land close to the port and the city.

Fifty hectares would be involved. On current land values in the area, potential value when settled would be (in current prices of $150 per sq meter), $75 million in current values.

As a preliminary estimate, if not used for ten years, it would stand a cost of $112 per sq meter to reclaim and develop at an interest rate of 7 percent (inflation rate 3 percent).

Northern End of Admiralty Island

Over the years, the need for wharves with access to deep water has expanded. The northern end of Admiralty Island is the obvious area for expansion of Cairns seaport.

Examination of the degree to which port land usage has expanded over the past 50 years, indicates there can be little doubt that there will be a need for the port to expand into this area in the future.

Over time, apart from enabling expansion of wharves and other port activities such as shipping and naval base operations, it opens up an opportunity to locate activities like the fuel farm and possible future LNG terminals well away from the CBD. The land they are sitting on has high value for other uses.

Although the overall area shaded is of the order of 100 – 150ha, what is not well known is that substantial parts of the northern end of the island is composed of sand ridges and areas for reclamation would be less.

To open out this area, a bridge would need to be built across Smith's Creek to access the island. However Smith's Creek is not wide and this would not be very expensive.

The bridge and opening up the northern end of Admiralty Island would be the first step in a long-term plan put forward by Queensland Main Roads a number of years ago to provide a second direct access into Cairns from the Gordonvale area. This route would take much long distance and heavy transport traffic off the mainly suburban traffic route through Edmonton. (This is raised further in the next section on East Trinity.)

There will need to be an acceptance that reclaimed land will replace some mangroves as already has occurred with previous port expansion.

East Trinity

East Trinity represents an opportunity to place dredged material in an area that has already been affected by development.

A plan to reclaim the area for cane production in the 1960s and 1970s resulted in a bund wall being built to exclude saltwater intrusion, with gates allowing outflow of freshwater runoff during flooding. However cultivation of the land resulted in exposure of acid sulphate soils to the air creating acid runoff problems. The use of the land for farming was not proceeded with. Capping the acid sulphate soils with other fill would get rid of the problem.

The Royal Reef group purchased the land and developed a proposal to open out the area as a major new satellite residential area.

The State Government did not approve the project and is reported to have purchased it for $10m. Instead of capping the acid sulphate, it let the saltwater intrusions back in and treated the area with lime.

In the intervening period, while saltwater was excluded, a small forest of young Melaleuca trees grew up in one area. The reintroduction of saltwater intrusion killed them and there is now an unsightly small forest of dead trees in the area.

It is believed the maintenance of the area including bund walls, gates and large grassed areas is costing the State Government approximately $500,000 a year. A solution that avoided this cost over 30 years would have a net present value of approximately $8.5m at a 7 percent discount rate.

The submission by the "Friends of the Port of Cairns" looks at the whole subject of East Trinity in some detail including the cost estimates made in the EIS and its potential for future urban development and the potential returns from urban development over other areas of the 900 ha reserve.

A UDIA submission further addresses the question of the potential of East Trinity to meet the Cairns' future urban expansion needs.

Traditional owners Mandingalbay are wishing to use sections of the East Trinity reserve and the landing at the mouth of Hills Creek and some of the wetland areas over which they hold native title (especially those areas on the northern side of the reserve), as a base for an eco/indigenous tourism presentation that would extend into Grey Peak National Park.

It is significant that this could proceed alongside the use of the southern section of East Trinity reserve.

An increase in cruise ships through the port as a result of the dredging would create a prime potential market for this project that would be unlikely to eventuate from mega vessels continuing to transfer onshore to Yorkey's Knob. Development of ferry services across the inlet would assist develop the project's customer base.

There are other potential excellent areas for eco/indigenous tourism enterprise development further back in the Murray Prior Range area, and it is possible that the eco/indigenous tourism development is not inconsistent with the long-term development of the whole East Trinity reserve for urban purposes including parks and recreation areas.

The major issues with East Trinity area will be:

1) The initial true cost and how much can be placed in the southern section. There is evidence that the EIS over estimated the cost by a substantial margin, especially if innovative engineering solutions can be developed (see 'Friends of Cairns Seaport' submission), and that improved approaches would result in almost all the dredged material being able to be placed in the southern section of the reserve.

2) How the whole area might be developed over time to maximize the potential value of the land, especially the foreshore areas looking across to the city and a short ferry ride away.

   In the EIS, the potential land usage appears to have been evaluated without input of experienced urban development specialists. Their perspectives and input are potentially of great value in finding solutions (see submission by Urban Development Institute of Australia)..

3) The timing of a need for the area to be opened up for urban development purposes. Obviously Mt Peter area will satisfy needs in the immediate future. Incurring extra cost of trying to bring it on stream in the short run is unlikely to be viable.

   However as the next major expansion area after the Mt Peter area, the East Trinity area has very attractive features.

   First there is a large area, not just the East Trinity reserve, but a great deal of other land in the area including land with views and waterside land. It is land that can be developed without taking out land from cane production.

   The area is potentially close to the city by ferry and, over time, by a bridge over the inlet.

4) In relation to a bridge over the inlet, it should be noted that it is not appropriate to place the cost of such a bridge as an offset against urban development of the reclaimed land of East Trinity reserve alone. The bridging development would:

   - Complement and facilitate port expansion on the northern end of Admiralty Island;
   - Facilitate the development of a great deal of other land in the East Trinity area for urban purposes;
   - As proposed by Main Roads Department, open up a highly efficient second access road into Cairns from the Gordonvale area:
     - That was shorter and more efficient for through traffic to and from the south;
     - That would take long distance and heavy traffic off the mainly suburban traffic route via Edmonton.

APPENDIX 1

Review of Paper Prepared by Joseph Thomas, James Cook University, for the Australian Marine Conservation Society – February 2015

"Economic Opportunities and Risks of Cruise Tourism in Cairns"

It should be noted that the JCU paper was prepared prior to the release of the Cairns Shipping Development Project EIS.

The JCU report's analysis is relevant to the EIS Demand Study and the Economic Analysis provided in the EIS.

The following provides comments on the JCU paper.

General

- It is largely an academic paper by people with very little detailed knowledge or understanding of the cruise industry.

Out of Date

- Most of the research papers cited are old, certainly 1996, 2004 and 2006 are far too old to be considered relevant to the cruise industry of today.
- The paper appears to take a very short-term and "current" view of the growth potential of the Australian market when any infrastructure investment requires a medium to long term view. The paper continuously quotes references relating to 2006 and earlier at which time the industry operated very differently.

Chinese Market

- The paper suggests that the Chinese market will not be a major source of cruise visitors in 10 years. Given the amount of ships, resources and focus that the cruise industry is investing in the Asian region, the cruise industry seriously questions this conclusion.

Attractiveness of the Australian Market

- The paper appears to question the attractiveness of Australia as a future deployment destination. This ignores the geographic proximity of the Australasia region to Asia and the natural hedge of the Asian northern hemisphere deployments with the Australasian southern hemisphere deployments. The paper's assertion that "the local market serves principally to absorb excess capacity created by the introduction of mega ships into the larger and more established markets" is incorrect.

Position of PNG

- PNG is becoming one of the fastest growing South Pacific destinations out of Australia. The following analysis illustrates this in terms of cruise ship calls to PNG destinations:

  2012 = 65

  2015 = 130

  2016 = 158

  Cairns is located between the major cruise home ports of Sydney/Brisbane and PNG.

Large Mega Ships

- The paper talks about mega class ships and the "barrier" of the Panama Canal. RCL have deployed their largest and newest cruise ship in the Chinese market and have just announced that its sister ship (Ovation of the Seas) will be launched in Sydney in late 2016.

Growth

- The growth of calls to Australia continues unabated. Based on some recent analysis, calls into Sydney (the jewel destination of Australia) are trending as follows:

  2014/15 = 303 calls

  2015/16 = 325 calls

  2016/17 = 446 calls

- There appears to be no attempt to analyse future ship calls to Cairns even though most of the major cruise lines have published itineraries well into 2017. Therefore, figures for the 2014/15, 2015/16 and 2016/17 should be available on which to make some 2-3 year estimates and then some future trend projections.

Cruise Visitor Numbers

- The report quotes a lot of details re ships, capacity pax numbers etc. but overall, any material differences between the CLIA figures and other sources are immaterial. It should be noted that the Ports North data is a calendar year and CLIA's data is a fiscal year.
- It's interesting they did not access the Cruise Down Under Report by Access Economics which has been published every year since 2006 and probably has the most consistent economic data on the cruise industry in Australia. Similarly the reports done for Carnival weren't referred to, these have data reports by external bodies.
- Page 13-the conclusions re deployment locally are out of date

Negative Orientation

- In accordance with the policy position of the Australian Marine Conservation Society, a negative view is promoted. Some of the references are of authors who have been opposed to the cruise industry for many years and seem to bolster their academic income by talking/preaching to opposition groups in various destinations where cruise facilities have been proposed.

Other Matters

- Section 3.2-the comments on the Pacific Dawn and sister P&O ships ignores the fact that these ships are old, very un-manoeuvrable and almost certainly will be replaced by larger ships from the Carnival group before too long
- Section 4.3 omits to mention that cruise liners plan their itineraries 2-3 years in advance and having been caught by cruise facilities not being completed by the advertised time they seldom commit to use the new facilities until at least 2 years after their completion and even then probably only on a trial basis using a single ship.

LONG-TERM POPULATION GROWTH IN REGIONAL QUEENSLAND

March 2015

1.0 INTRODUCTION

Over a period of time, major changes have been taking place in the distribution of population in regional Queensland outside of the south-east corner of the State.

This paper sets out:

- This changing pattern and the leading role of Cairns and the Cairns region in this changing pattern;
- Why this consistent pattern of change has been happening over a period of time; and
- On a continuation of these long-term trends, what regional population in Queensland would look like by 2050.

This paper has been prepared by Cummings Economics for the Cairns Regional Council.

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2.0 THE QUEENSLAND REGIONS

Queensland outside of the south-east corner of the State covers a large area. Realities of distances lead to the area being served by a series of regional capitals with distinct commercial servicing regions.

Map 1 shows these regional capitals and the commercial regions they serve.

In the case of Cairns, Townsville, Mackay and Toowoomba, the regional capitals and their commercial servicing areas are fairly clear.

Although Rockhampton is the regional capital of the Fitzroy and Central West region, unlike Cairns, Townsville and Mackay, the region's port is not located at the city, but 100km away at Gladstone. Regional city growth in this region can only be understood by combining the two.

Wide Bay Burnett region is effectively two regions based on the two regional urban areas Bundaberg (Burnett) and Hervey Bay/Maryborough (Wide Bay). In this analysis, Bundaberg, Hervey Bay / Maryborough are treated as the equivalent of one city.

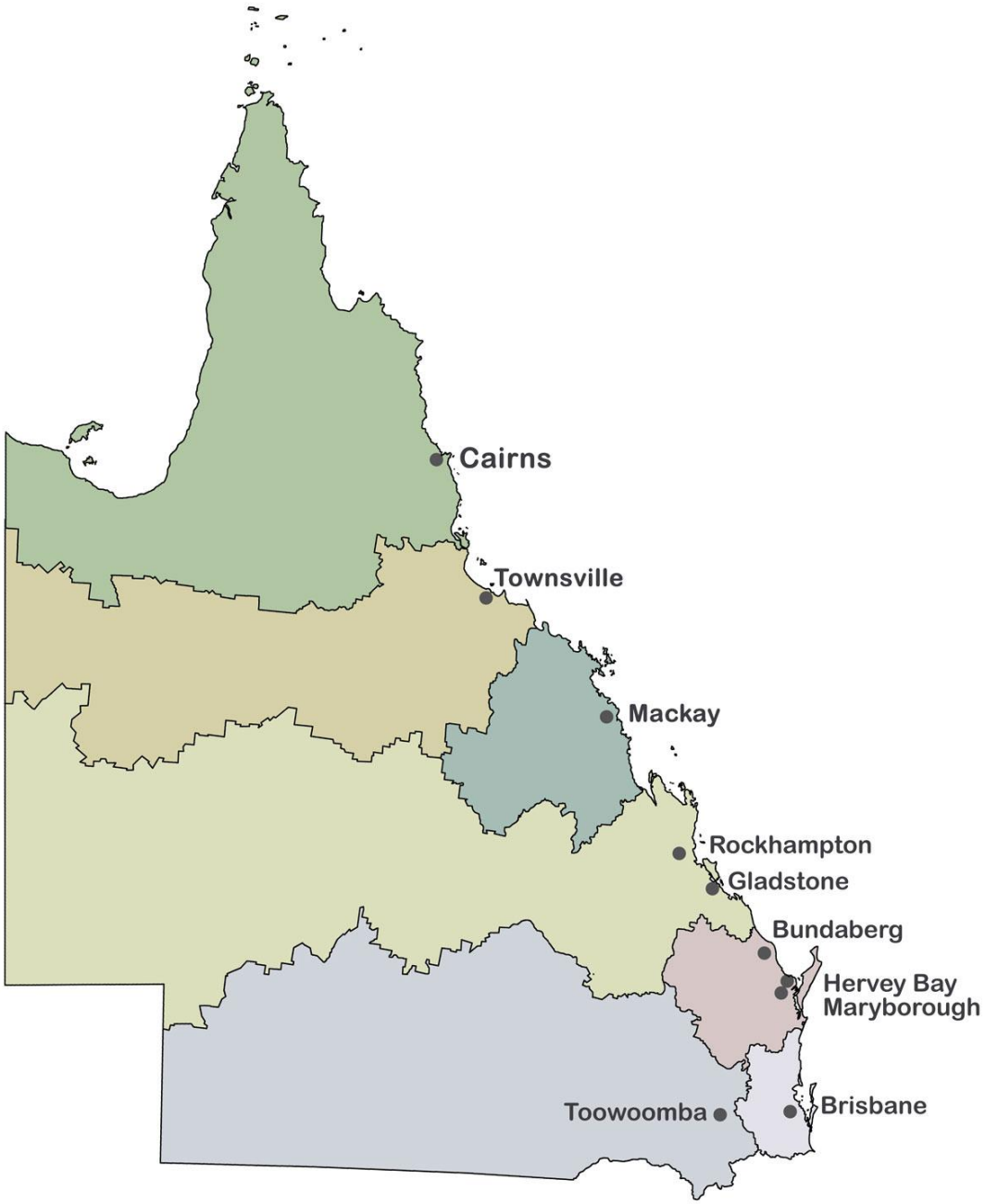
City population boundaries can be complicated to define. Up until 2011, fairly clear city Statistical Districts were being defined by Australian Bureau of Statistics that were reasonably comparable. For this paper, these Statistical District boundaries are used. While the boundaries used can be argued at the fringe, the relatively small figures involved are not likely to change the overall picture presented in the following analysis.

Similarly, there can be argument about fringe regional areas where commercial spheres of influence can overlap to some degree. Again the relatively small figures involved are not likely to change greatly the overall picture.

For this paper, analysis of long-term trends commences in 1976 when the Australian Bureau of Statistics commenced publishing Estimated Residential Populations. Before then, only census count figures were available, that included visitors and did not include residents away.

Appendix 1 sets out statistical notes on the boundaries used.

Map 1 – Queensland Regional Cities and Commercial Servicing Regions



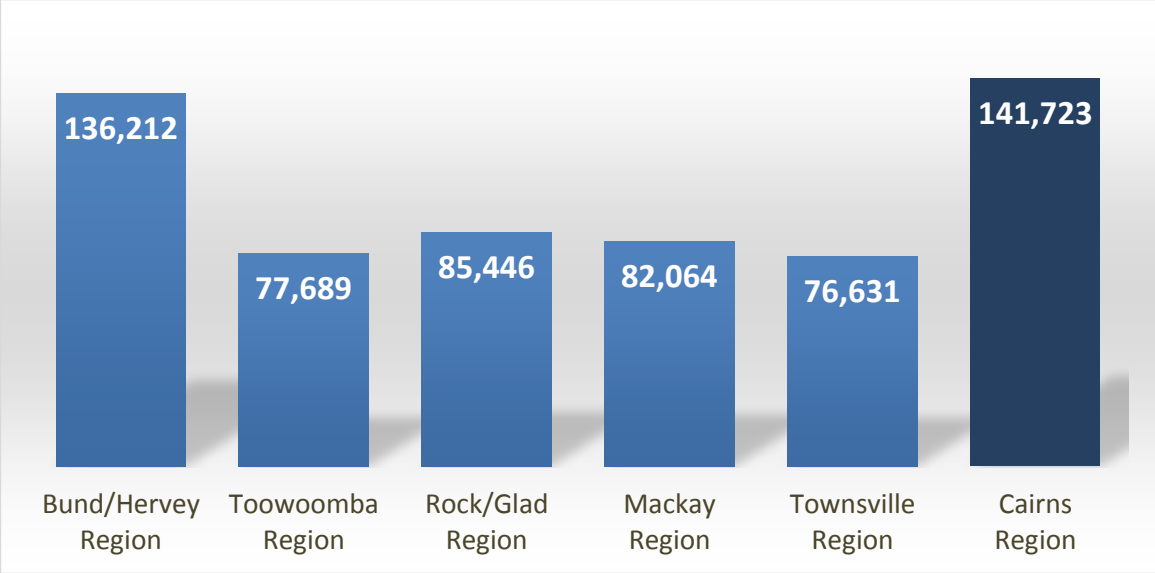
Source: See Statistical Notes Appendix 1 for boundary definitions.

3.0 LONG-TERM POPULATION GROWTH PATTERNS

3.1 Regional population growth patterns

Since estimated residential population statistics began being published by the Australian Bureau of Statistics in 1976, the Cairns' commercial servicing region has led regional Queensland's population growth along with the Bundaberg/Hervey (Wide Bay Burnett) region by a substantial margin.

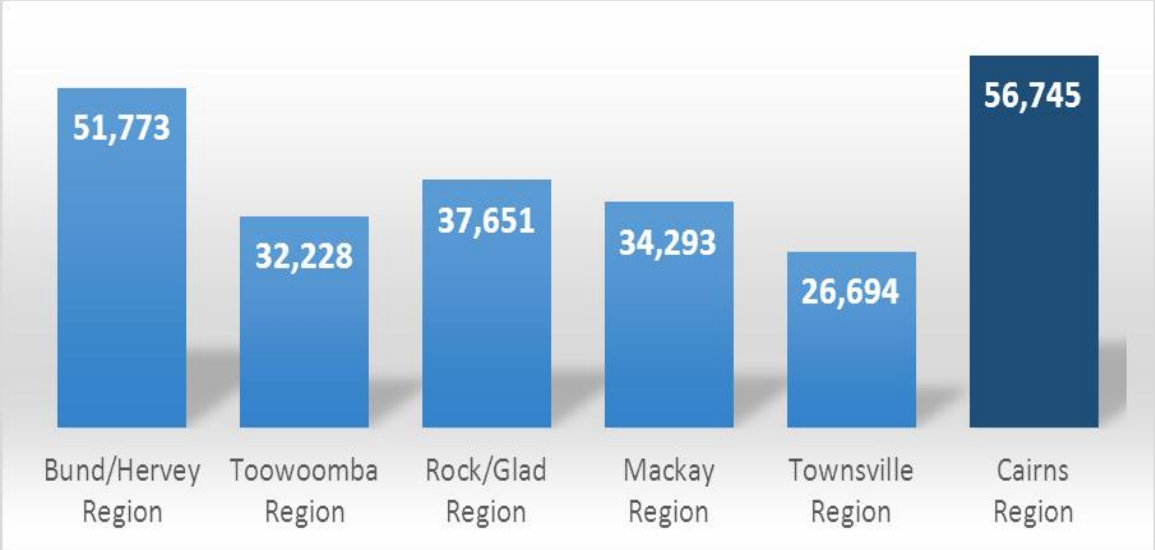
Chart #1: Long-term 35-year Increase in Regional Residential Population, Commercial Servicing Regions of Queensland Regional Cities, 1976-2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

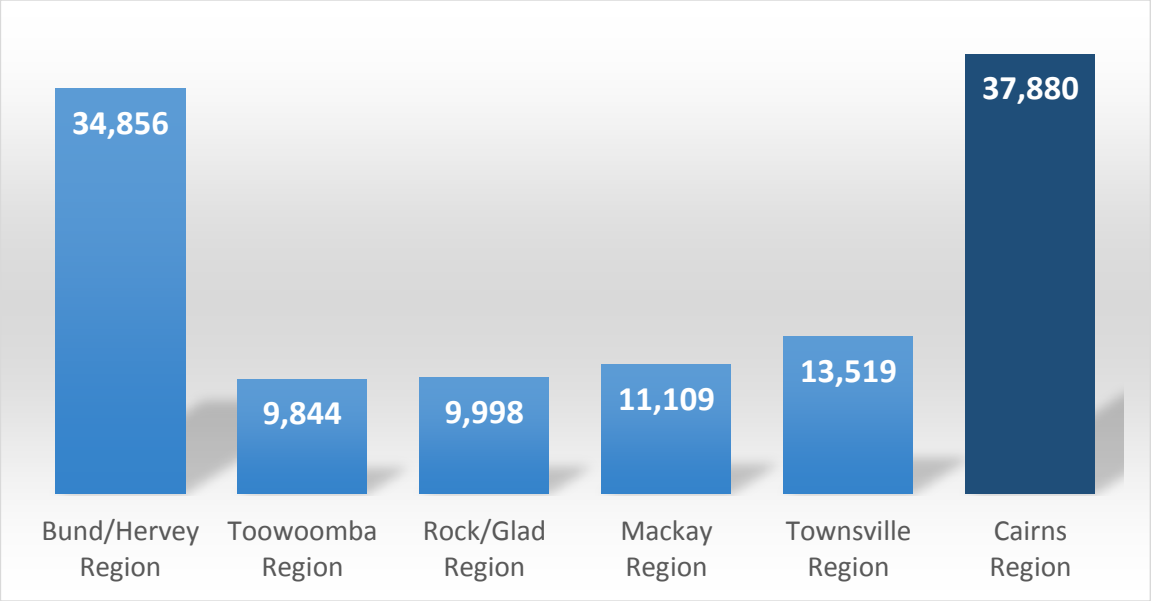
There can be short-term fluctuations. However examination of the figures by shorter periods indicates the basic pattern of the Cairns and Wide Bay Burnett regions leading growth continuing over time.

Chart #2: Long-term 15-year Increase in Residential Population, Queensland Regions, 1976-1991



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

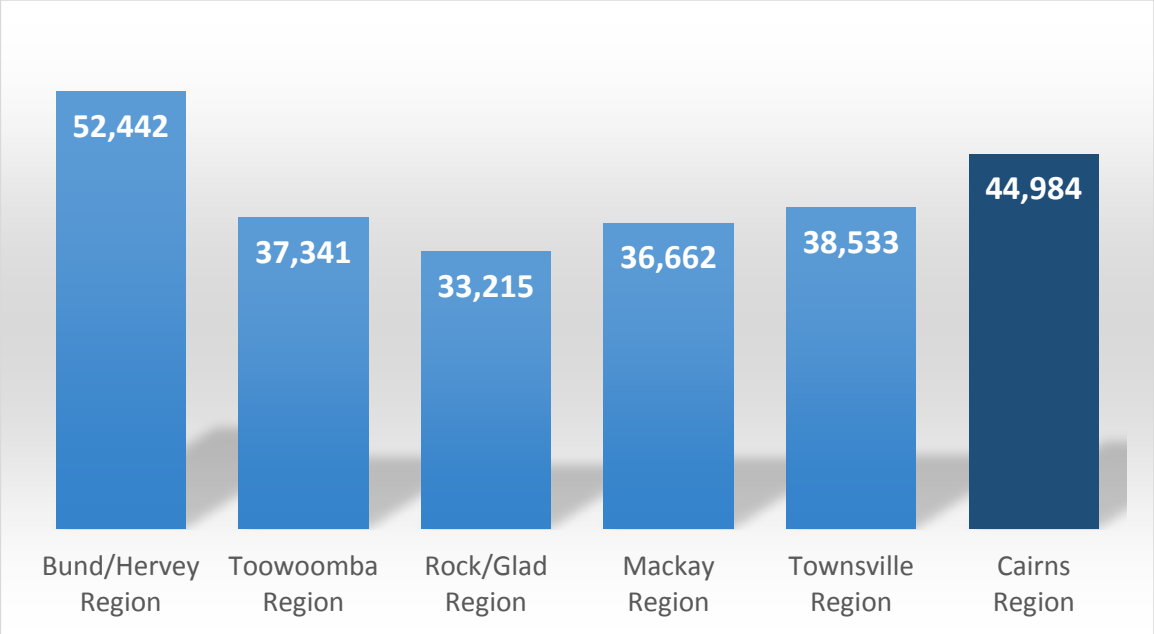
Chart #3: Long-term 10-year Increase in Residential Population, Queensland Regions, 1991-2001



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

Mainly under the influence of accelerated mining activity in the 2001 to 2011 period, growth in the Rockhampton, Gladstone Mackay and Townsville regions advanced but still remained behind the Cairns and Wide Bay Burnett regions.

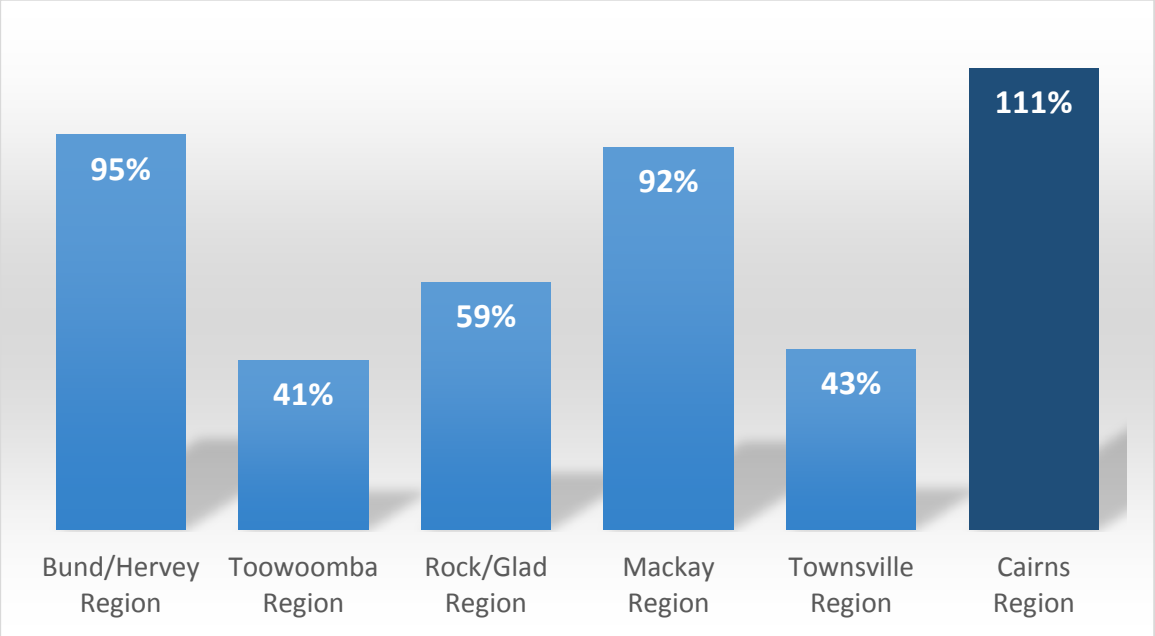
Chart #4: Long-term 10-year Increase in Residential Population, Queensland Regions, 2001-2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

In percentage growth rate terms, the increases translate into the following pattern, with the Cairns commercial servicing region leading by a substantial margin, Wide Bay Burnett and the Mackay regions next, and the Toowoomba and Townsville commercial regions lowest.

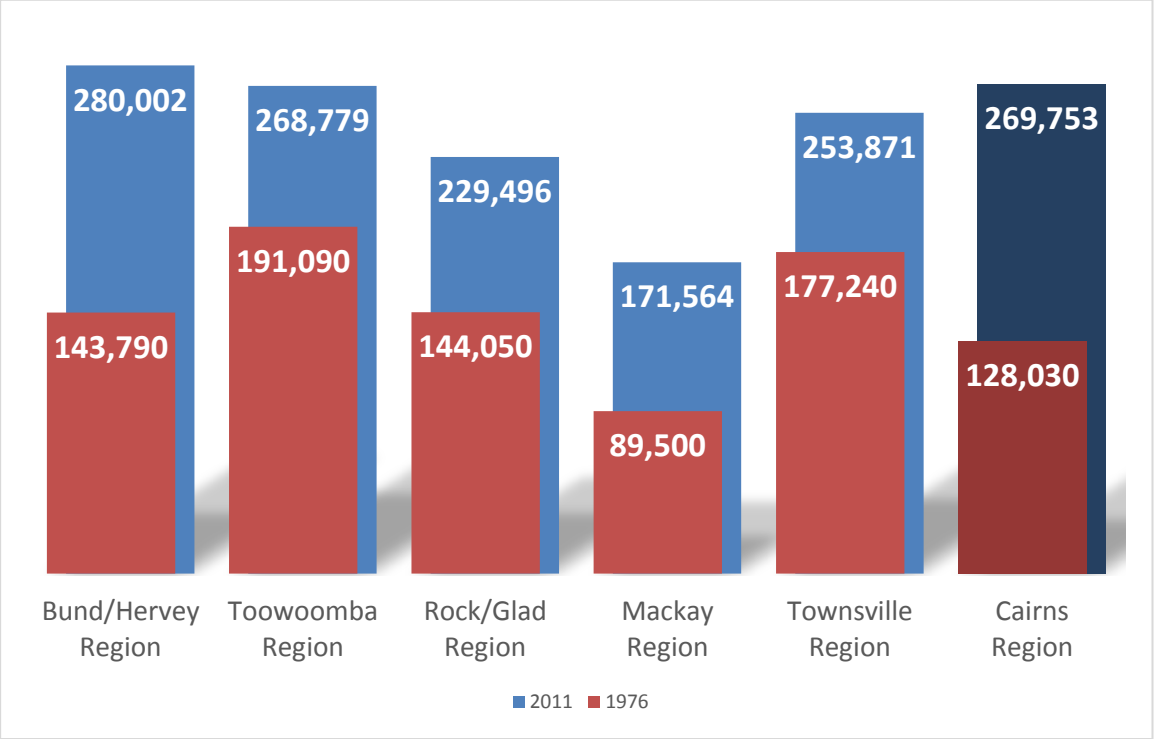
Chart #5: Percent Growth - Residential Population, Queensland Regions, 1976-2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

This has meant that the Cairns region, the second smallest in population in 1976, is now close to the Wide Bay Burnett region and up with the formerly larger Toowoomba region and ahead of the formerly larger Rockhampton/Gladstone and Townsville regions.

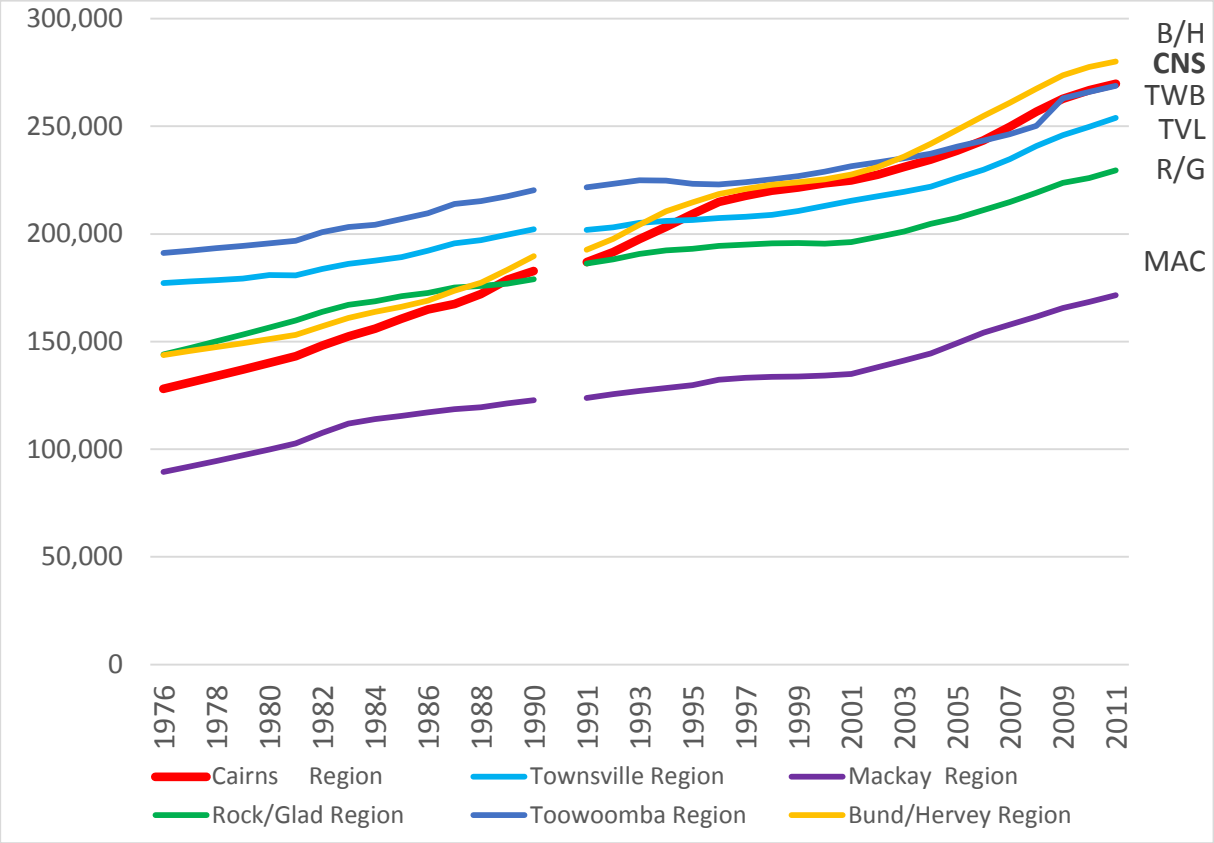
Chart #6: Residential Population, Queensland Regions, 1976 and 2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

Chart #7 illustrates how the Cairns region and the Bundaberg / Hervey regions have been tracking up to now lead in total residential population.

Chart #7: Residential Population, Queensland Commercial Servicing Regions of Queensland Cities, 1976-2011



Note: The break 1990-1991 indicates a break in series, in some cases involving minor changes in definitions of areas (see Statistical Notes, Appendix 1).

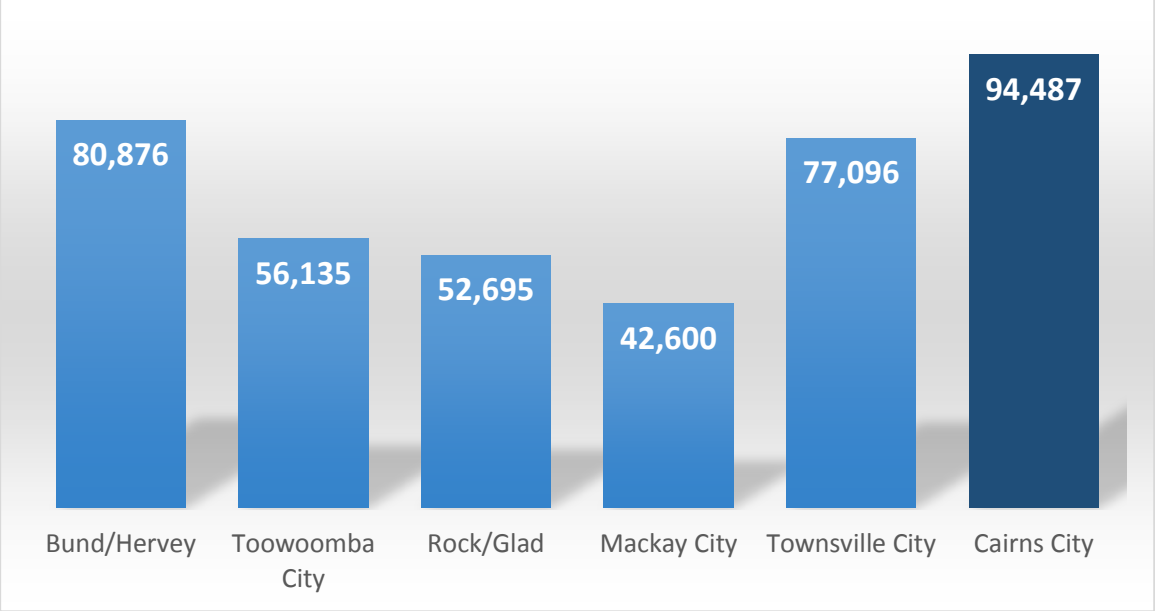
Source: Cummings Economics from ABS Cat No. 3218.0 et al.

While the later estimates for 2012 and 2013 put the Rockhampton, Gladstone, Mackay and Townsville regions' population growth marginally ahead of the Cairns and Wide Bay Burnett regions, this has been under the influence of the mining boom, major construction of LNG plants at Gladstone and the stationing of an extra army battalion and other units in Townsville. With the collapse in mineral and energy prices that has occurred recently, the recent stronger growth in these regions is now receding. Current indications are that a new accelerated rate of growth is underway in the Cairns region, especially under the influence of a lower Australian dollar.

3.2 Regional city population growth

Against the foregoing background, it is not surprising that Cairns as a regional servicing city has recorded the largest growth in population followed by Bundaberg/Hervey Bay and Townsville next.

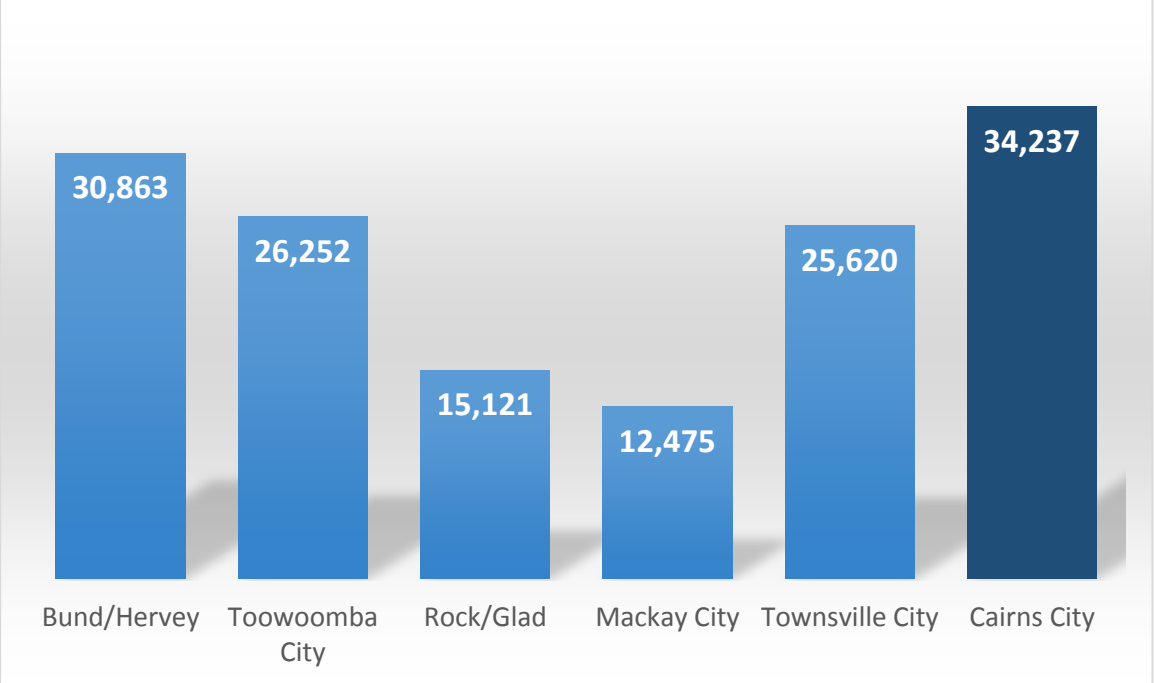
Chart #8: Long-term 35-year Increase in Residential Population, Queensland Regional Cities, 1976-2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

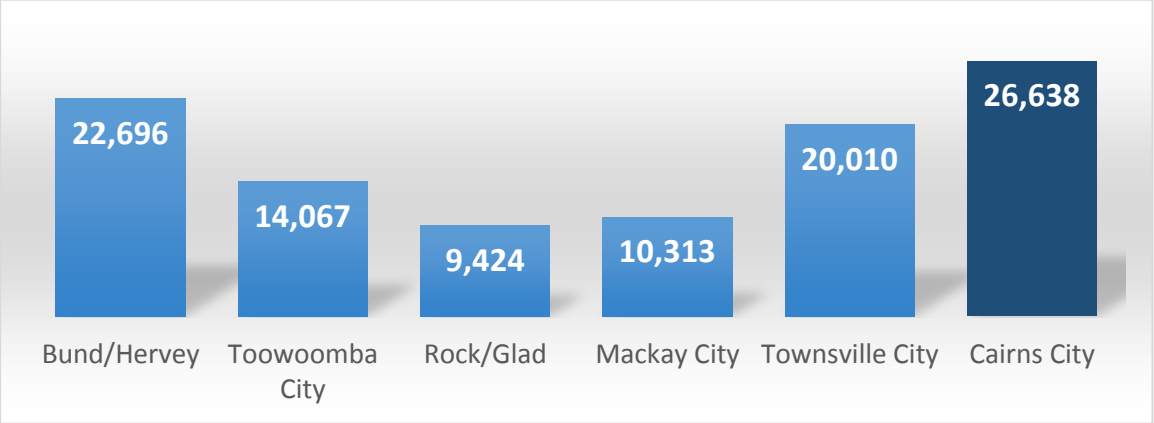
This pattern has been fairly consistent over time.

Chart #9: Long-term 15-year Increase in Residential Population, Qld Regional Cities, 1976-1991



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

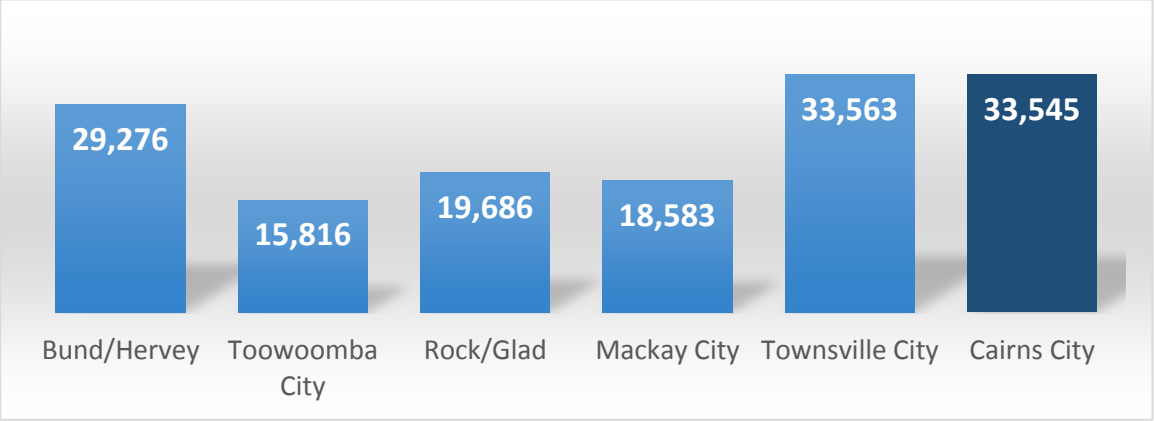
Chart #10: Increase in Residential Population, Qld Regional Cities, 1991-2001



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

However over the period 2001-2011, Townsville came up to equal Cairns when Cairns' growth was heavily affected by the Global Financial Crisis and high dollar, and Townsville was benefiting heavily by increased defence personnel being stationed in the city and high mineral prices. This pattern continued in 2012 and 2013, but there is evidence it is currently reversing as mineral prices recede while Cains reaccelerates.

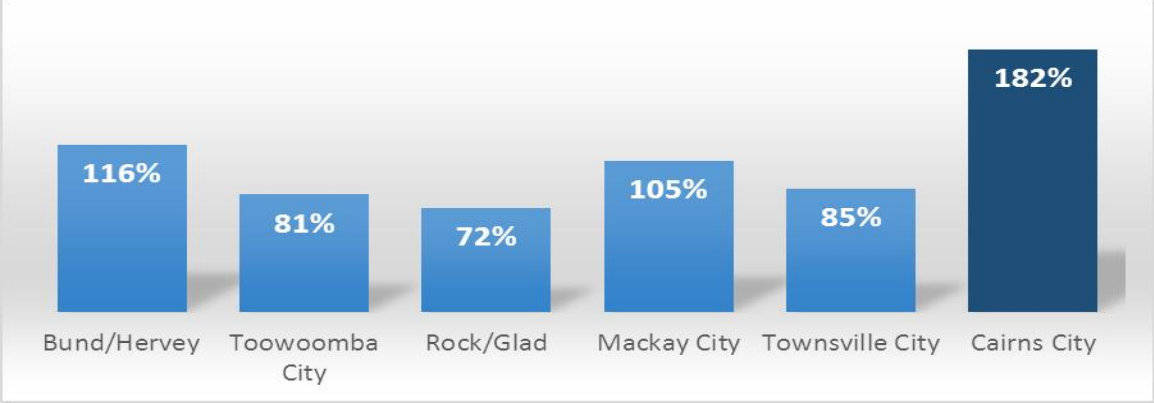
Chart #11: Increase in Residential Population, Qld Regional Cities, 2001-2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

In percentage terms, city growth has been led by Cairns by a large margin, followed by Bundaberg/Hervey Bay and Mackay.

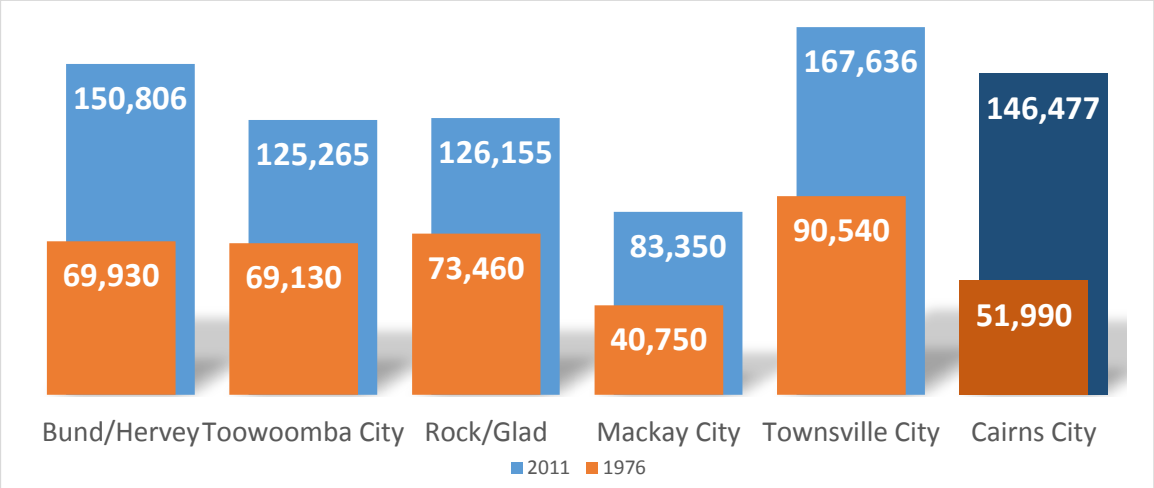
Chart #12: Percent Growth – Residential Population, Queensland Regional Cities, 1976-2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

This has led to substantial changes in the ranking of regional city sizes with Cairns moving from being about half the size of Townsville and second smallest in 1976 to overtaking Toowoomba and Rockhampton/Gladstone to being up with combined Bundaberg/Hervey Bay and close to Townsville in size in 2011.

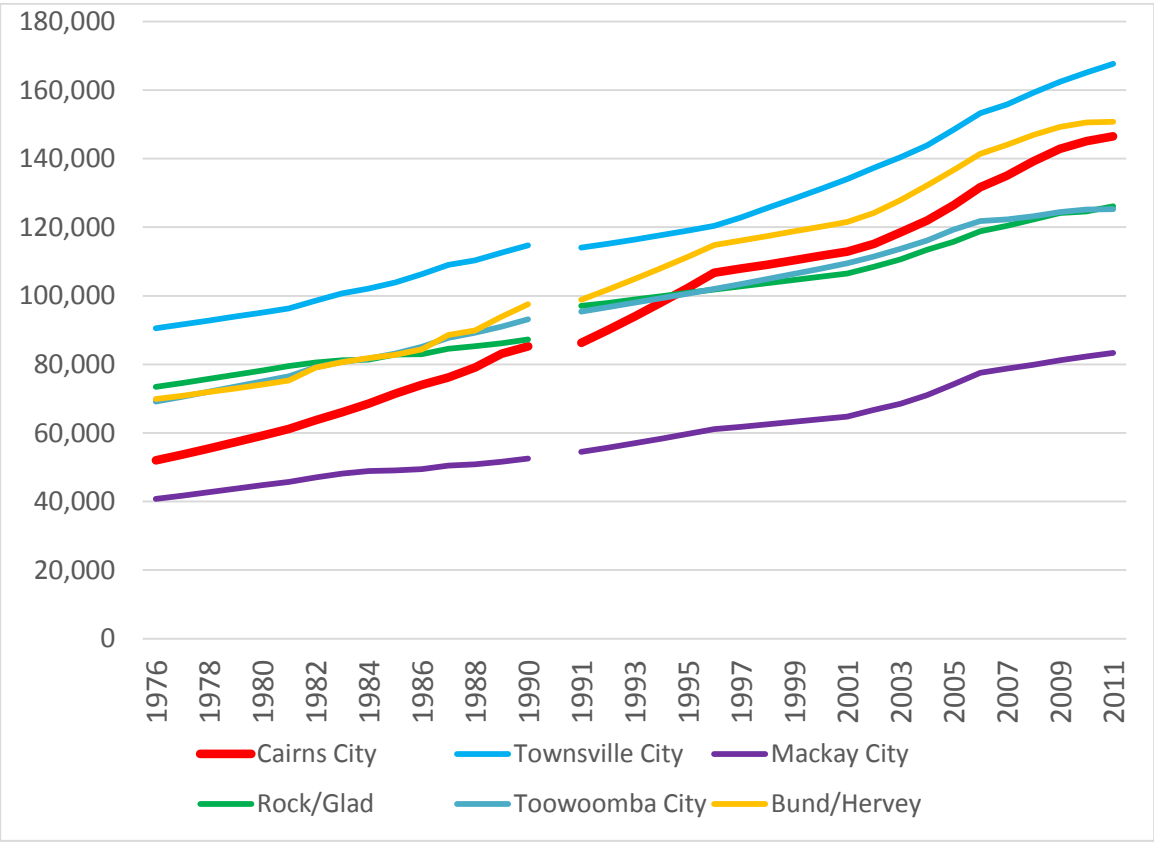
Chart #13: Residential Population Sizes, Queensland Regional Cities, 1976 and 2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

Chart #14 illustrates the movements by years, again illustrating the strong growth trajectory of Cairns and Bundaberg/Hervey Bay.

Chart #14: Residential Population, Queensland Regional Cities, 1976-2011



Note: The break 1990-1991 indicates a break in series, in some cases involving minor changes in definitions of areas (see Statistical Notes, Appendix 1).

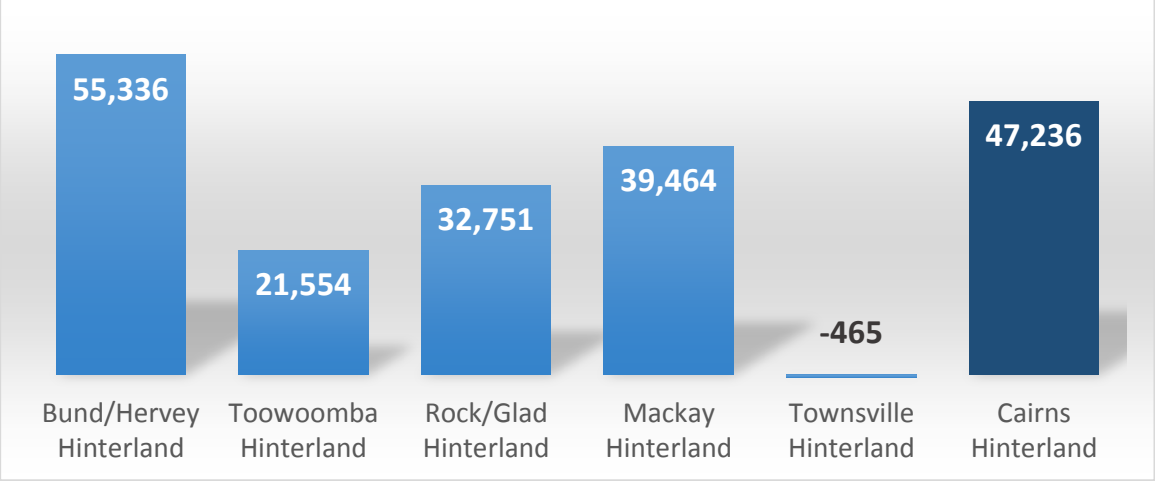
Source: Cummings Economics from ABS Cat No. 3218.0 et al.

3.3 Hinterland growth patterns

Standing behind the city and regional growth patterns are differences in growth in hinterland population serviced by the regional cities. Strongest growth has been in the Wide Bay Burnett and Cairns regions followed by Mackay which includes the Whitsundays area.

Toowoomba, Rockhampton/Gladstone and Townsville hinterlands have been particularly affected by declining populations in the south-west, central-west and north-west areas. The Townsville hinterland population recorded a small overall decline.

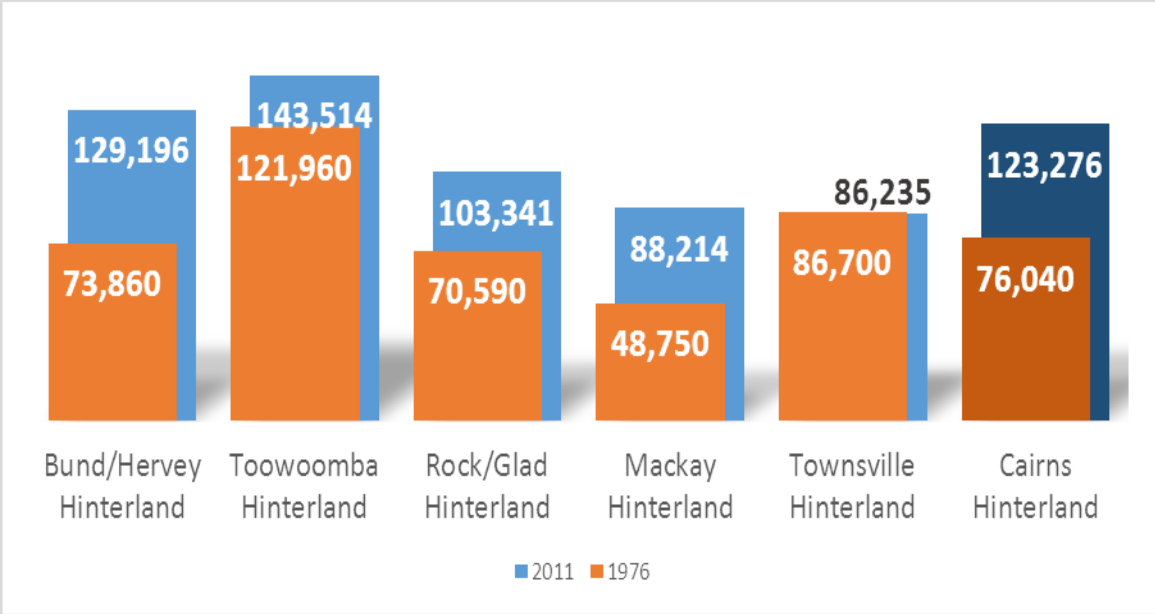
Table #15: Long-term 35-year Increase in Hinterland Residential Population, Queensland Regional Cities, 1976-2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

Chart #16 illustrates how Cairns has passed the Townsville and Rockhampton / Gladstone hinterlands and is close to Bundaberg / Hervey and Toowoomba hinterlands.

Chart #16: Hinterland Residential Population, Queensland Regional Cities, 1976 and 2011

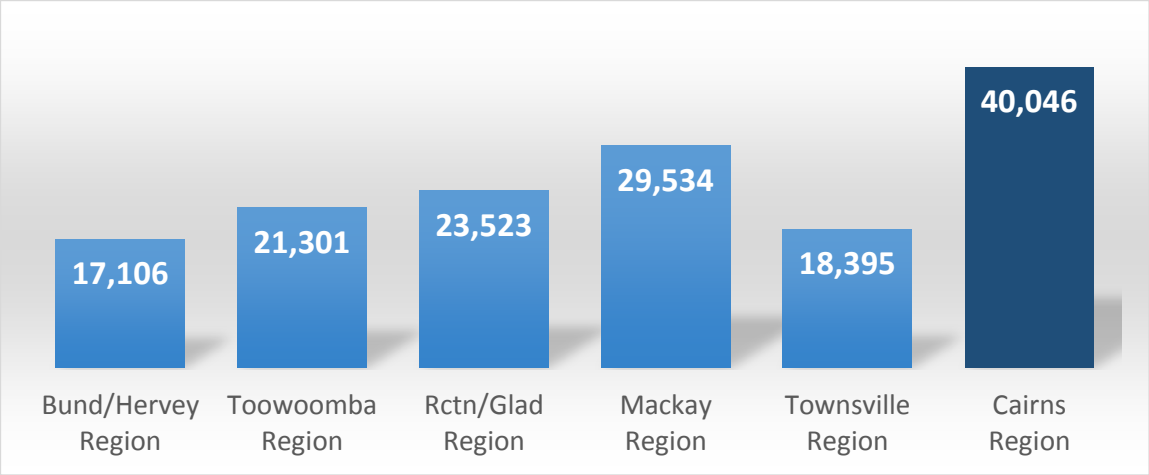


Source: Cummings Economics from ABS Cat No. 3218.0 et al.

3.4 Visitor populations

Apart from its strong position in residential population, the Cairns region also leads with largest on-the-ground visitor populations with the Mackay Whitsunday region next.

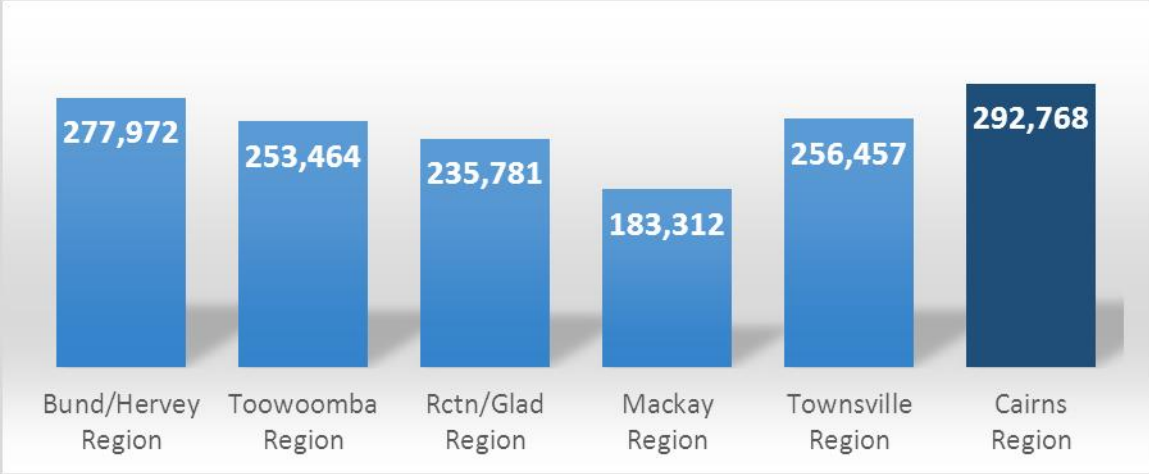
Chart #17: Visitor Numbers, Intrastate, Interstate and International, 2011 Census



Source: Cummings Economics from ABS Census 2011.

In census count population that includes visitors and excludes residents away, the Cairns region now leads Queensland's regions.

Chart #18: Census Count – Population Place of Enumeration, Census 2011



Source: Cummings Economics from ABS Census 2011.

4.0 WHY?

4.1 General

It is easy to explain the strong growth of the Bundaberg / Hervey (Wide Bay Burnett) region as population in South East Queensland spreads northward along the coast.

The following explores why there has been a long-term trend for the Cairns region to be a leader in regional growth.

The following identifies five major underlying factors:

1) The large area covered by the Cairns region;

2) The region's tropical location and historical lag in development;

3) The strength of the region's natural resources;

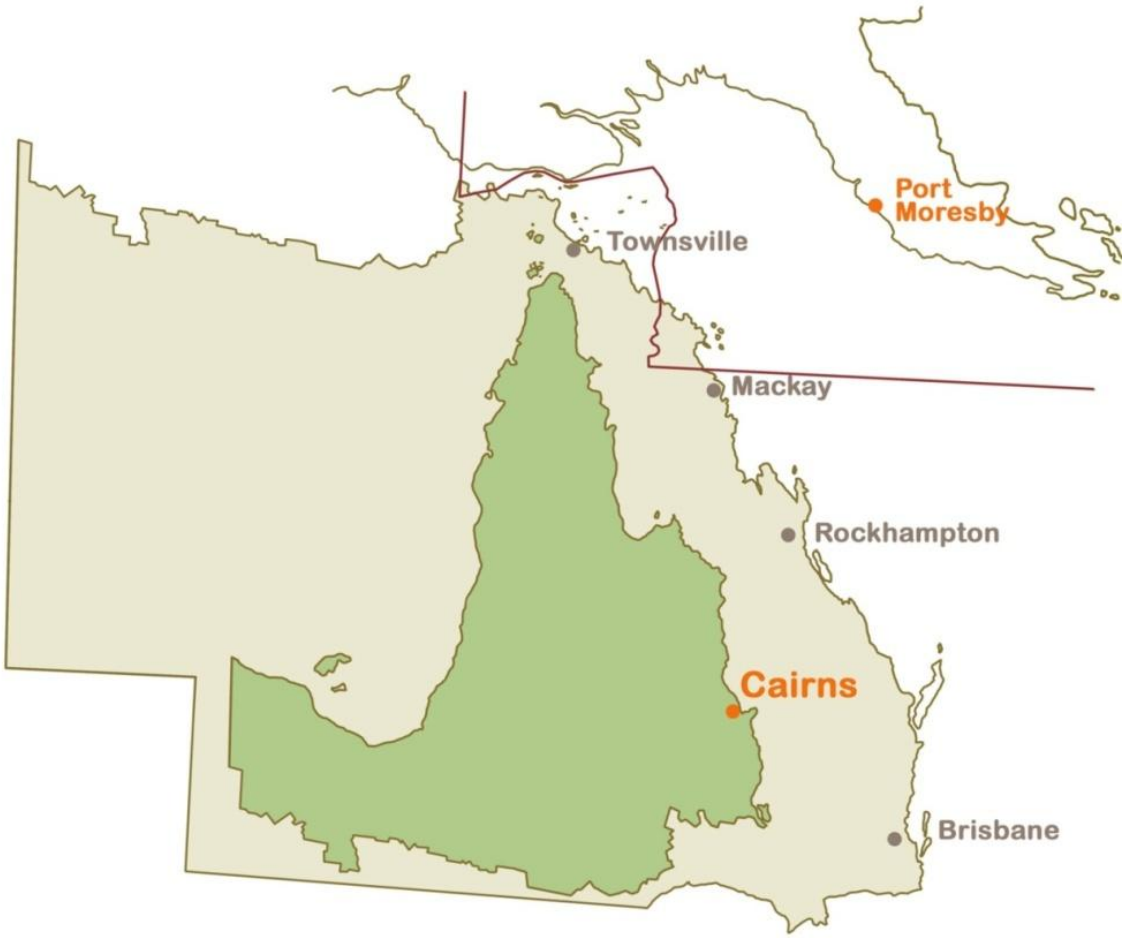
4) The region's strategic location;

5) The region's diversified industry composition.

4.2 Queensland's largest region

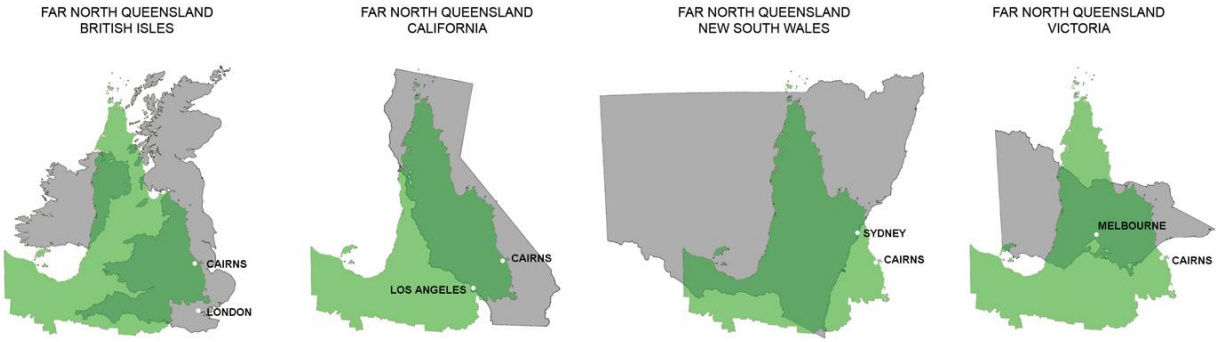
Queensland is a large state. Within Queensland, the Cairns region covers the largest area. It covers half Queensland's latitudes and is as deep from north to south as New South Wales. In area, it is 1½ times the size of Victoria and covers an area equivalent to the British Isles.

Map 2 – Area and distances compared with rest of Queensland



Cairns Region..... 9° south to 19° south
Rest of Queensland .....19° south to 29° south

Map 3 – Comparative areas and distances



4.3 Overcoming the tropical lag

Queensland stretches deep into the tropics and historically, presented a much greater challenge to an Australian society with technology and most of its population derived from north western Europe – the further north the greater the challenge. Historically the Cairns region being the furthest north, was late being settled and initial progress was slow and hard won.

But Queensland's tropical regions are not poor in underlying resources and long-term underlying factors have been underpinning accelerated growth from a small base.

- Technology suited to tropical areas has been developed across a broad spectrum affecting industries and everyday living.
- A growing global economy has been reaching out for previously underdeveloped mining, agricultural, marine product and tourism resources.
- Transport and communication developments have been breaking down old cost barriers of remoteness from national and world markets.
- Success breeds success factors have been kicking in.

Queensland's transition from being the "Cinderella State" of the 1960s to being a "Front Runner" has in large part been due to the progress made in its tropical areas.

Being the furthest north and previously least developed in relation to its potential, the Cairns region has benefited most from these underlying trends.

4.4 The strength of the region's natural resources

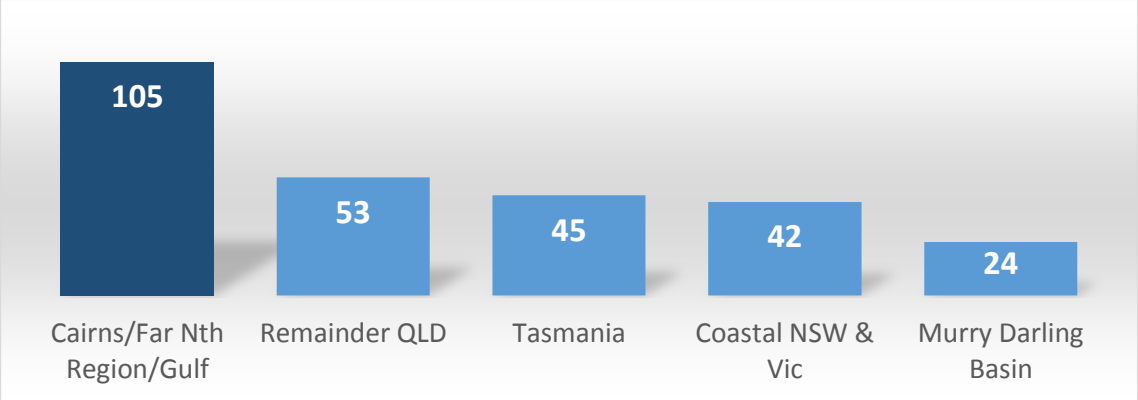
While a great deal of attention has been paid in recent decades to the mineral resources of central and northern Queensland, what is often not recognised is how the Cairns region leads the state in natural (biological) resources. This natural resource base has underpinned:

- Expanding primary industries;
- Expanding tourism;
- Superior lifestyle opportunities.

Leading in natural biological resources

The Cairns region accounts for over 60 percent of Queensland's water runoff and some 26 percent of the national total.

Chart #19: Mean Annual Water Runoff - Australian Regions Compared, million mega litres



Source: Australian Land and Water Resources Atlas.

Satellite technology and CSIRO modelling is now giving a picture of how this translates into underlying plant growth potential – the rate at which carbon is absorbed from the atmosphere. (Maps, Appendix 2, illustrate.)

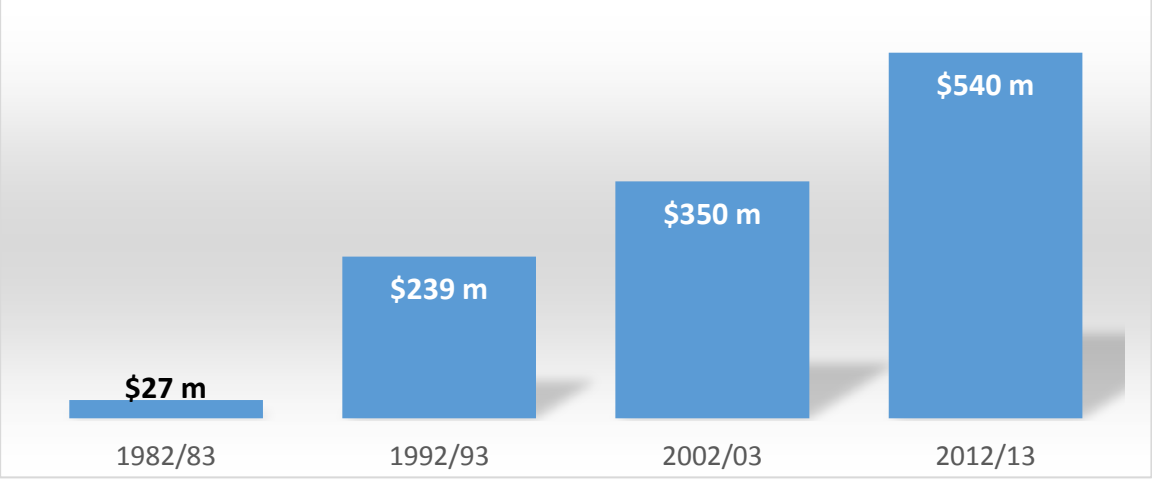
Modelling CSIRO data indicates that average plant growth per square metre in the Cairns region, as measured by absorption of carbon from the atmosphere, is almost double the remainder of the State.

Primary industries, a growth sector

Agriculture is regarded as a stagnant sector in most parts of Australia. In the Cairns region, it has been a growth sector over recent decades. Major breakthroughs have included:

- Mechanisation of sugar harvesting and bulk transport. A major new growing area and new mill have been established in the Mareeba district.
- The introduction of tropical adapted Brahman breeds into cattle herds and development of live cattle exports to Asia has resulted in increases in cattle herds and turnoff.
- Sealing of roads linking the Cairns region to southern markets and more efficient road transport vehicles has seen a major new sector added to the Cairns regional economy in the production of tropical fruits, offseason produce and ornamentals.

Chart #20: Gross Value of Fruit Production, Cairns Region [(1)]

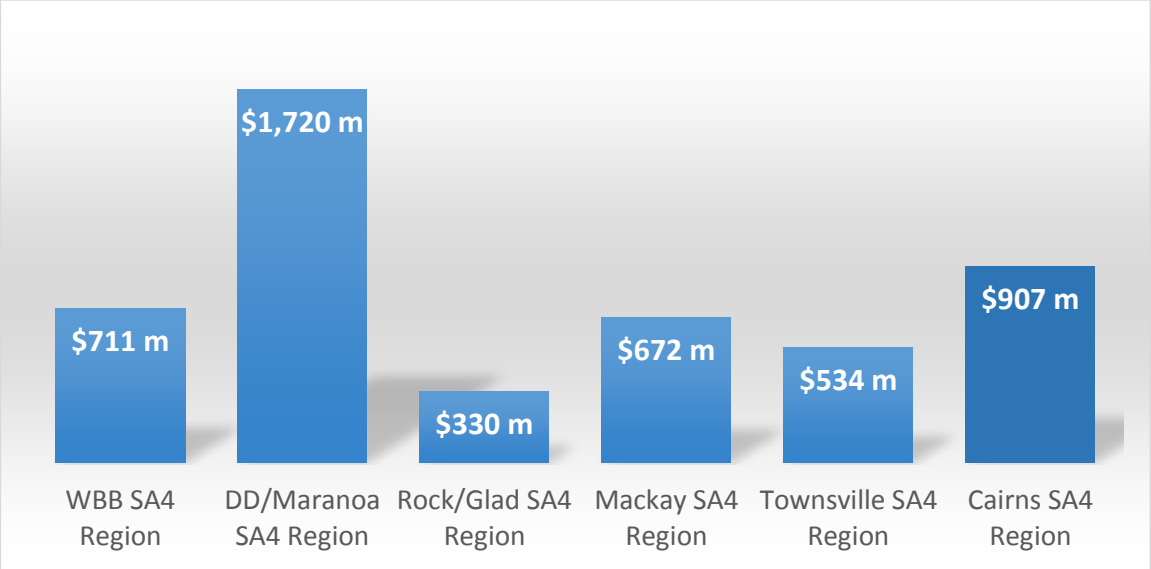


(1) Note: Cairns region defined as Far North Statistical Division 1982-83 to 2002-03 and Cairns SA Level 4 in 2012-13 $542m plus estimate of production Queensland Outback Far North $16m.

Source: Cummings Economics from ABS data.

The Cairns region now leads in crop production outside the Darling Downs / Maranoa region. However it is still underdeveloped compared with resource potential and new agricultural districts are currently opening up in the Gulf and Cooktown areas.

Chart #21: Gross Value of Crops, Queensland Regional Areas, 2012-13 $m



Source: Cummings Economics from ABS Cat No. 7503.0 et al.

Marine resources

The Cairns region with the northern half of the Great Barrier Reef, the Torres Strait and Gulf, dominates Queensland's marine biological resources.

The Cairns region accounts for over 60 percent of Queensland's coastline and leads in fisheries production. Cairns has developed as one of the largest commercial fishing industry ports in Australia.

Diversified mining resources

While value of mining production in the Cairns region is lower than the Townsville, Mackay and Rockhampton / Gladstone hinterland regions, it is diversified and being further north has no 'fly-in' from Brisbane. Value of production is moving back up again, with the South of Embley bauxite project likely to proceed in the near future and the Aurukun bauxite to follow.

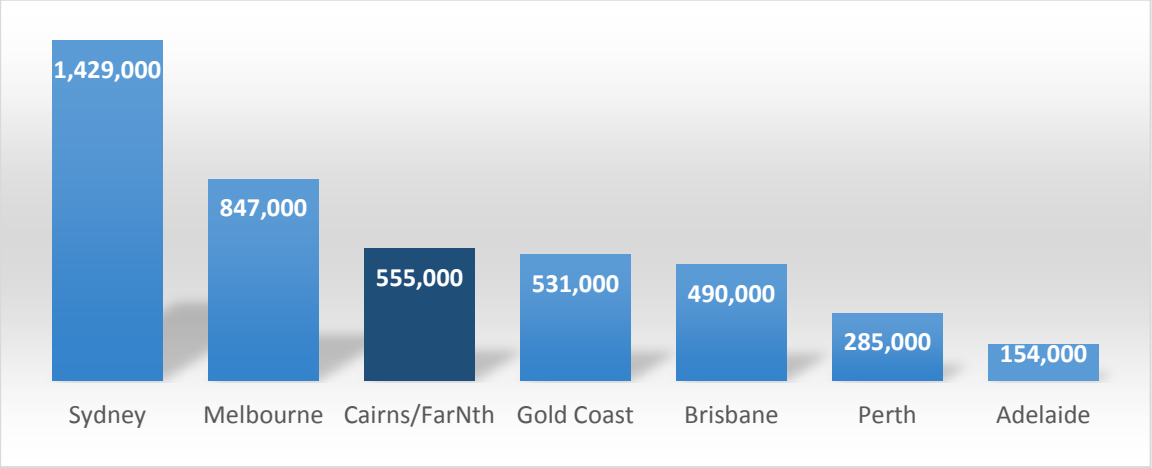
A foundation for leading tourism growth

The Cairns region's outstanding natural (biological) resources have also provided a foundation for rapid tourism development.

The Great Barrier Reef (close offshore and easily accessible), coastal beach scenery, mountains, the Tablelands and World Heritage rainforests, provide a world class quality and combination of tourism resources that attracts domestic visitors and plays a major role in attracting international visitors to Australia.

The region's tourism resources are so powerful that in tourism visitation, the Cairns region leads regional Queensland. In international holiday visitors, it leads the State and sits next to Sydney and Melbourne.

Chart #22: International Holiday Visitors to Australia – Leading Regions, 2012-13

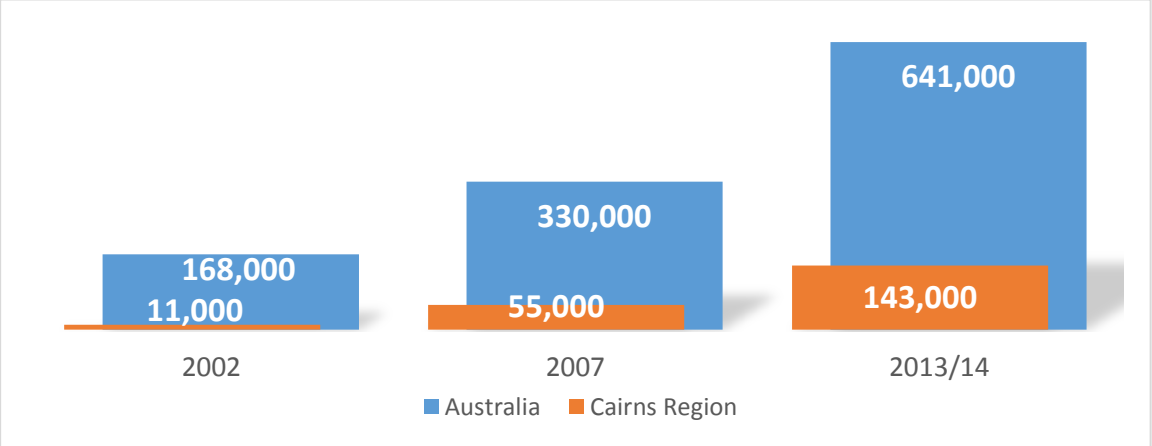


Source: Tourism Research Australia.

Cairns is currently playing a leading role in tapping into the new wave of tourism coming out of China. Growth 2002 to 2013-14 of Chinese visitors represents a 13-fold increase compared with Australia overall of four times.

The multi-billion dollar Aquis Integrated Resort project aims to tap into and further expand the burgeoning Chinese and other international markets.

Chart #23: Chinese Visitors to Australia and Cairns Region



Source: Tourism Research Australia.

The basis for an outstanding lifestyle

The Cairns region's natural beauty provides the basis for an outstanding, new, first world tropical lifestyle. Technological improvements have been overcoming old negatives including widespread introduction of air-conditioning and advances in health services and housing. Build-up of population is resulting in improved education and cultural facilities. Tourism brings with it superior recreation, shopping and dining.

Cairns, the Tropical Coast and Tablelands have become a desired place in which to live making it easier to attract and hold population.

4.5 A strategic location

The world does not stop at Queensland's northern border or its western border. Cairns is Queensland's closest city to the massive growing economies of the Asia / Pacific region.

Cairns along with Darwin interact with the Asia / Pacific region much more than other Australian regional cities.

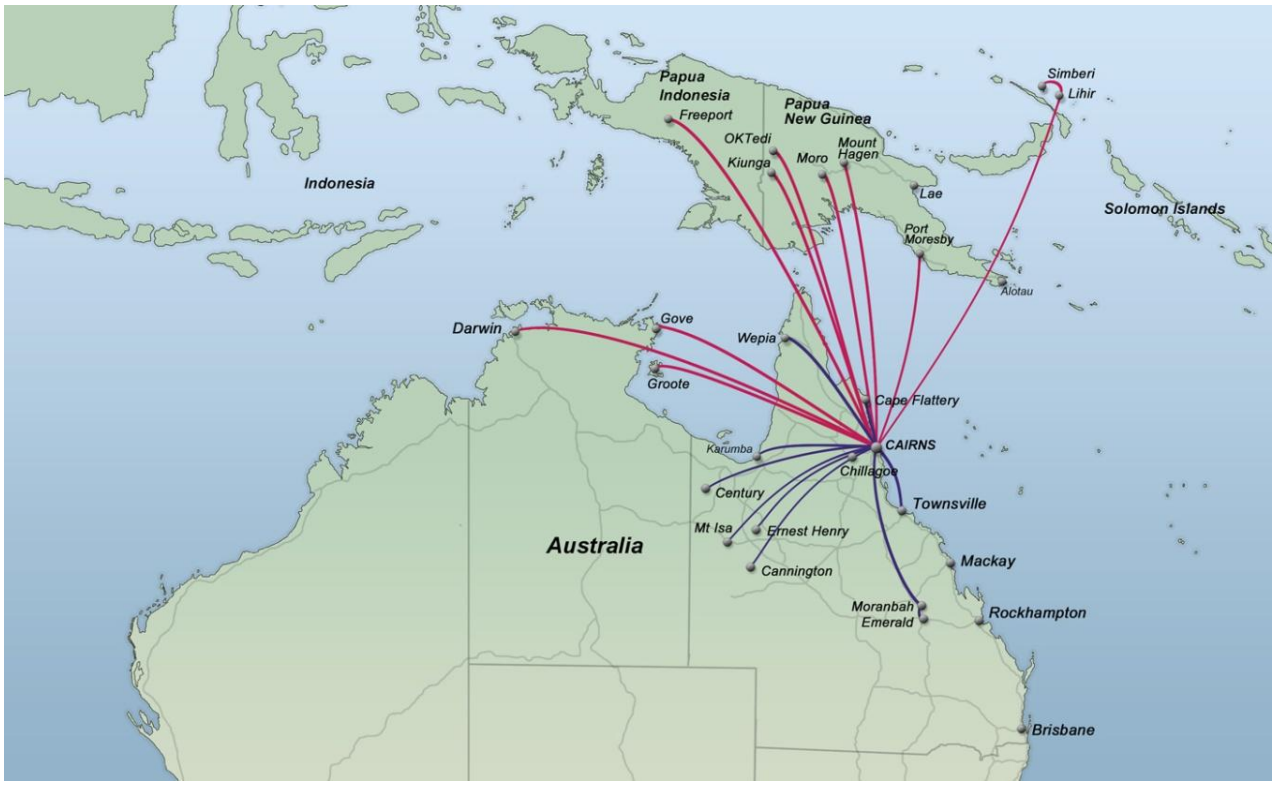
Cairns has substantial flying distance/time advantages over the major metropolitan centres of southern Australia. This not only helps its tourism development but also trade and business links and in fields like seafood exports and international education.

Cairns is the northern terminus of Australia's relatively efficient east coast road, rail and air network and a natural supply point for shipping and air services further north.

It has strong trade, business and social links with Papua New Guinea and its six million population. Cairns is the Australian buying base for the giant Freeport-McMoRan mine in Papua Indonesia with direct shipping and air services with a value of the order of $200m a year.

Indeed, Cairns' interaction with mining extends well beyond its regional borders, in a way that is not equalled by Queensland's other regional cities. Because of its population, lifestyle advantages and strategic position, Cairns has air links to supply workforce and other services into mining operations over a large area including Central and North West Queensland, Northern Territory, Papua Indonesia and Papua New Guinea.

Map 3 – Northern Australia Fly-in/Fly-out / Mining Services Hub



4.6 Diversified industry composition

Queensland's regional economies are heavily dependent on those industries earning income from outside their regions, especially agricultural and pastoral industries, marine industries, mining and tourism.

Historically the pattern of Queensland's regional development was heavily affected by pastoral development, especially sheep in the South and Central West, leading to the early development of Toowoomba, Rockhampton and Townsville. More recent development has been dominated by expansion of cropping, fisheries, tourism and mining.

Cairns' economy has relatively high earnings from the agricultural, marine and tourism sectors as opposed to mining. This has been an advantage.

For every dollar of value of production, mining generally has a much lower impact on regional employment and population than the agricultural, fishing and tourism sectors. Mining projects will often involve large initial investment in construction with lower on-going operational employment. Out of the large values of output recorded, a very high proportion goes outside the region to head offices and shareholders. There are often large inputs imported from outside the region and more recently large 'fly-in' workforce especially into the Rockhampton / Gladstone, Mackay and Townsville regions from Brisbane.

By contrast, the strong development of agricultural, marine and tourism resources in the Cairns region has resulted in strong, more self-contained local development with greater flow-on to local jobs and population.

While these sectors have fluctuations in markets, they are generally not as strong as world mineral price fluctuations.

While tourism is an important sector in the region, it is wrong to believe that the Cains region is over dependent on tourism. In fact the Cairns region's markets are highly diversified. Its tourism markets are highly diversified with substantial overseas components along with a large domestic sector.

Its agriculture is highly diversified, again with a substantial domestic market for its horticultural products.

Minerals and fisheries are diversified.

While not nearly as high as Townville in government spending, the Cairns region, because of the navy base and northern surveillance activity, is not low in government spending compared with the Queensland regions other than Townsville.

Thus while tourism and construction experienced sharp slow-downs over the period 2008 to 2011, the region's population continued to grow, albeit at a slower pace.

Being the furthest city from Brisbane, the development of business services and local manufacturing is less supressed than the southern regional cities by competition from Brisbane based services and factories.

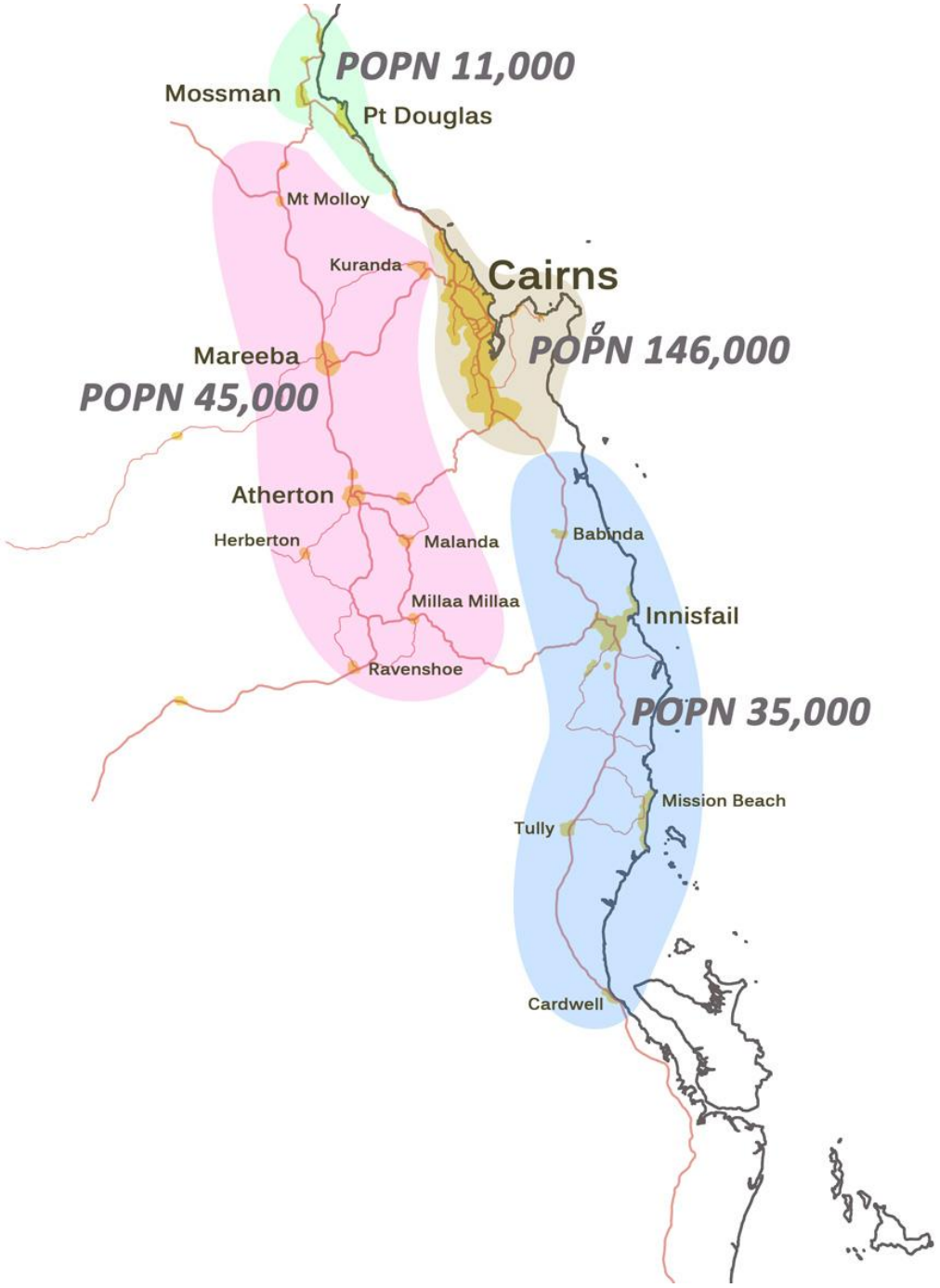
4.7 A core regional population and business concentration in the north

Immediate regional population

As a result of the foregoing influences, the Cains region has been developing as the core business region in the north of Queensland.

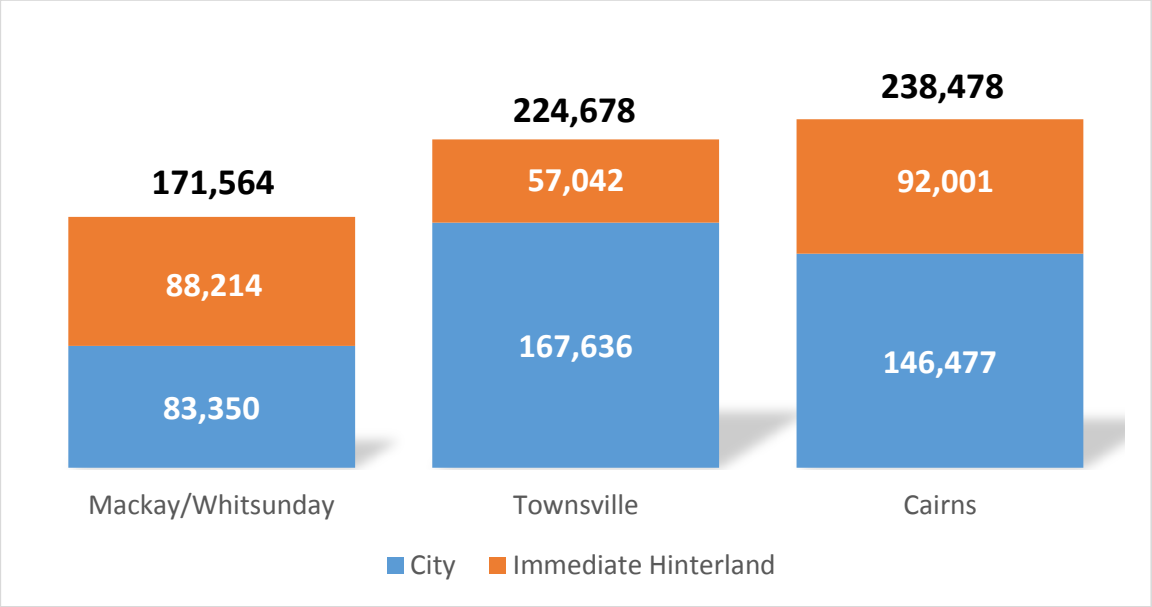
As **Map 4** illustrates, surrounding Cairns is a network of towns within a short drive (based especially on agricultural, marine industries and tourism), resulting in a concentration of population not found to the same extent around the other northern cities.

Map 4 – Cairns and Immediate Hinterland Townships and Districts and Estimated Residential Populations, 2011



Thus, Cairns and its immediate hinterland area leads the northern cities and near hinterland areas in population.

Chart #24: City and Immediate Regional Populations, 2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

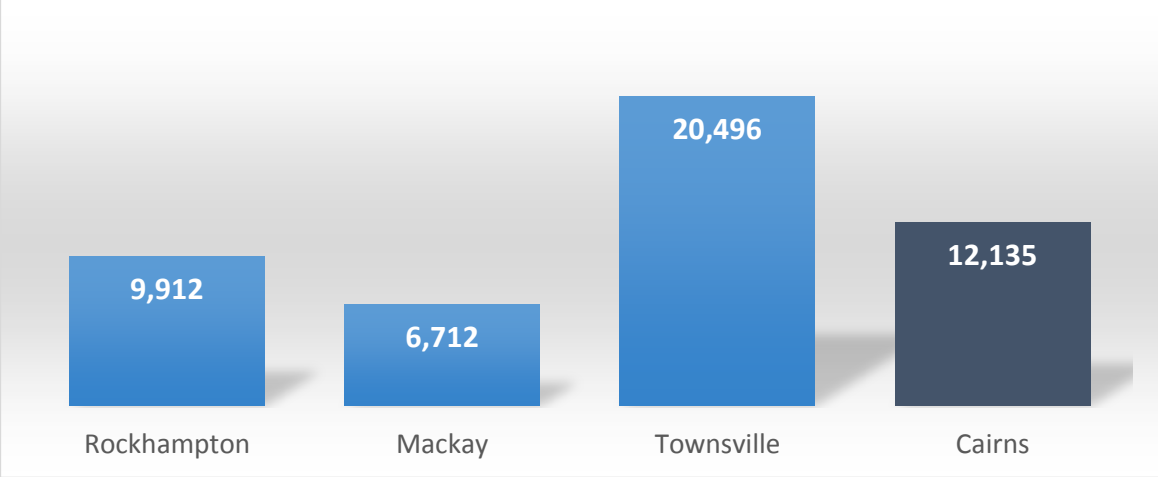
This large immediate hinterland population and the activity it generates can increase the market for Cairns based businesses and services.

The substantial hinterland centres can also provide suitable locations for regional facilities outside of Cairns itself that are not available to the same extent around the other northern regional cities. For instance, in the Cairns region, the major corrective services centre, Lotus Glen and the major DAFF office are on the Tablelands. The region's foundry is at Innisfail.

Influence of government employment

Townsville's city population in relation to the other regional cities is especially boosted by government employment.

Chart #25: Government Employment, Queensland Northern Cities, 2011

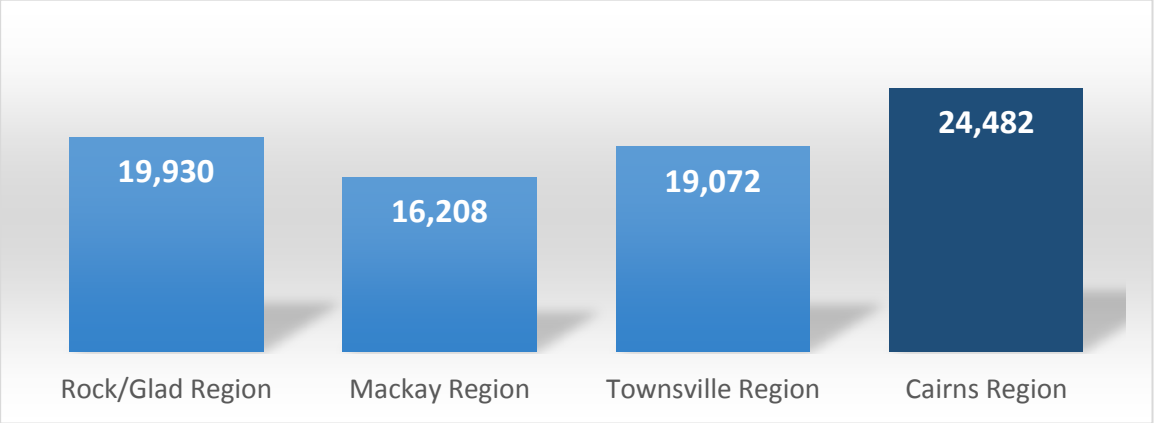


Source: Cummings Economics from ABS Census 2011.

Leadership in business

The leading role of Cairns as a core / leading business region in the north is reflected in business activity. Above all, the Cairns region is private enterprise driven and leads the northern regions by a long way in number of businesses.

Chart #26: Number of Businesses – Queensland Northern Regions, 2012



Source: Cummings Economics from ABS Regional Data.

As might be expected, the Cairns region leads in a whole range of business activity.

The following information on fields like manufacturing, aviation, marine activities, education, health and arts and entertainment gives an indication of the strength and depth of the Cairns region's leading business and services role in Queensland's northern regions.

Manufacturing

The Cairns region's core business role in the north is reflected in the fact that it leads the northern regions in number of manufacturing establishments and latest statistics available indicate that it is close up behind Rockhampton/Fitzroy and Townsville regions with their larger mineral and primary processing units, in employment and turnover.

Table #27: Manufacturing in Northern Australia, 2006/07[(1)]

Regions [(2)]	Number of locations	Employment	Sales of goods & services
Cairns/Far North	**962**	6382	$3286 m
Townsville/North	653	7137	**$4260 m**
Mackay	585	4836	$1648 m
Rockhampton/Fitzroy	586	**8110**	$3600 m
Total	**3489**	**30824**	**$17294 m**
			(plus NT, Kimberley & Pilbara)

☐ *Denotes highest recorded.*
(1) Note: Latest available. *(2) Note: Statistical Division boundaries.*
Source: Cummings Economics from Australian Bureau of Statistics Cat. 82210DO010.

Table #28: Number of Businesses by Industry - Manufacturing, 30th June 2012

	Manufacturing
Cairns Region (SA4)	841
Townsville Region (SA4)	606
Mackay Region (SA4)	519
Fitzroy Region (SA4)	563

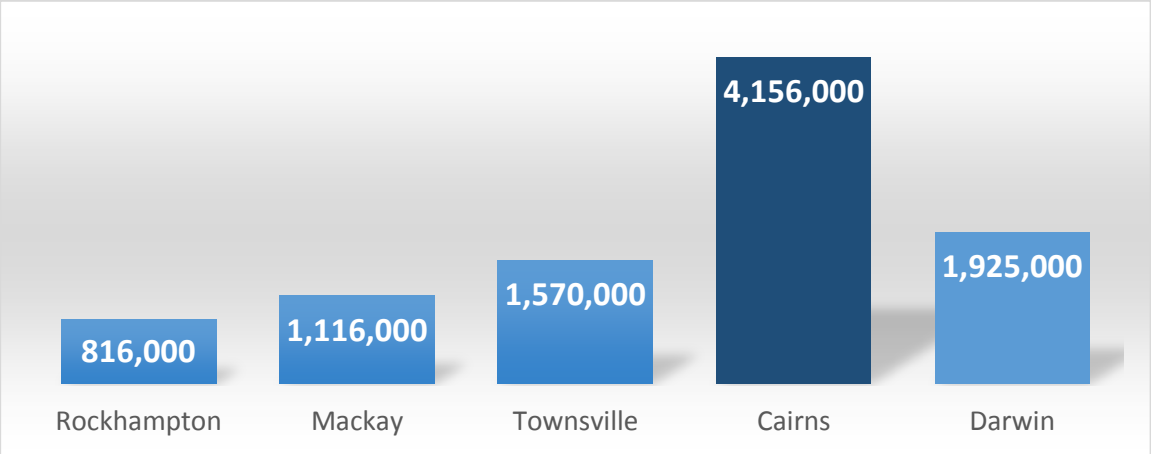
Source: Cummings Economics from Australian Bureau of Statistics Regional Statistics.

The Cairns region's leading position in number of manufacturing businesses reflects not only its population. It reflects the degree to which the city has developed 'skills' based manufacturing and services, especially in the marine and aviation sectors that find markets outside the region including in the wider Papua New Guinea / Asia / Pacific area.

Aviation development

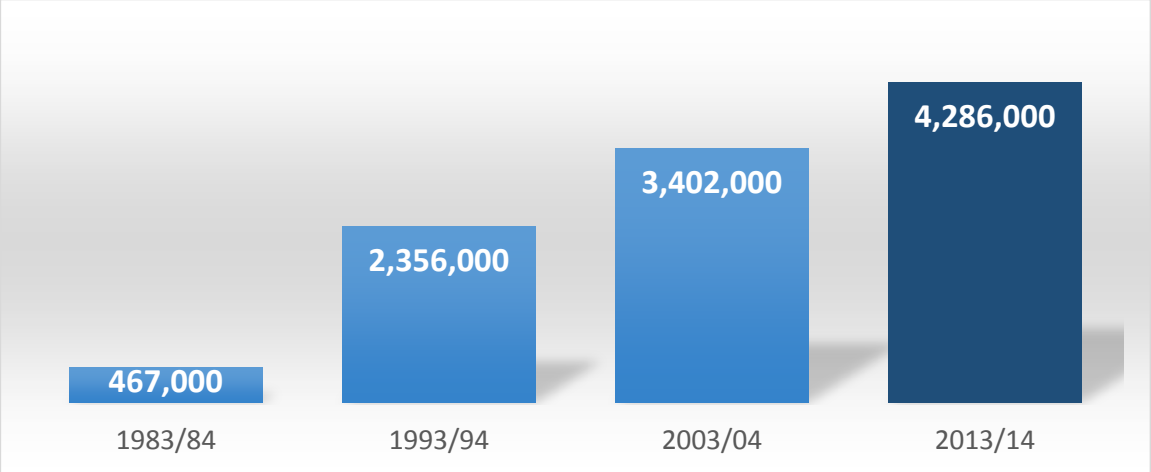
Population, tourism and strategic location, leads Cairns to being the major airport hub in the north with direct international links to 11 cities in the Asia / Pacific region.

Chart #29: Passenger Movements Airports – Tropical Australia, 2012-13



Source: Bureau of Industry Transport and Regional Economics.

Chart #30: Growth in Passenger Movements – Cairns International Airport



Source: Cummings Economics / North Queensland Airports.

Especially backing up this role, is the region's large fleet of small aircraft and proximity to Papua New Guinea. Cairns has developed as Queensland's major aircraft servicing centre outside South East Queensland, drawing business also from the wider Asia Pacific region and including the leading aviation training centre outside South East Queensland.

Table #31: Estimated Value of Airport Operations – Cairns Airport, 2010-11

Output Value	**$630 m**
Direct Employment	**2,400**

Source: Cairns Airport Pty Ltd / Cummings Economics.

Marine activity

The Cairns region's five export ports of Mourilyan, Cairns, Cape Flattery, Weipa and Karumba, handle tonnages greater than the Townsville region, Northern Territory, Tasmania and the state of South Australia.

Table #32: Tonnage Loaded and Unloaded - Seaports by Regions, 2012-13

	Million Tonnes
Mackay Region	**117**
Fitzroy Region	**86**
Brisbane/Bundaberg	**37**
Cairns/Far North	**34**
South Australia	**26**
Townsville/North	**18**
Northern Territory	**15**
Tasmania	**8**

Source: Cummings Economics from Bureau of Industry Transport & Regional Economics and Qld Transport.

Cairns seaport is also home to important coastal shipping operations to the near north as well as Australia's largest tourism fleet, one of Australia's largest fishing fleets and Australia's north eastern naval base. This large fleet in national terms is backed up by three slipway operations and the largest marine servicing activity sector in Queensland outside the south-east corner. It also draws business from the nearby Asia Pacific region and includes the major marine training centre outside the south-east corner.

Table #33: Estimated Value of Port Related Operations – Cairns Seaport, 2013-14

Output Value	**$830 m**
Direct Employment	**3,800**

Source: Ports North / Cummings Economics.

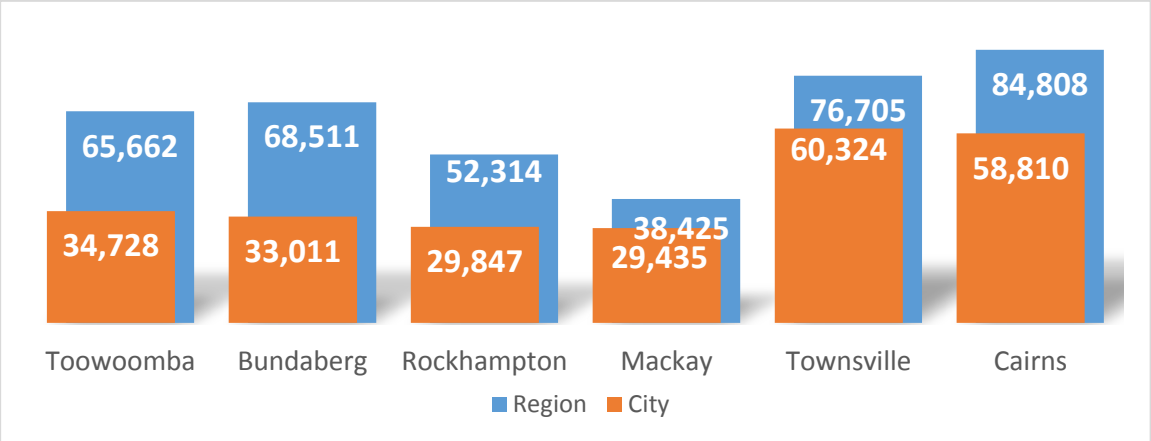
Education

With its overseas air service networks and lifestyle advantages, Cairns is the leading location in Queensland outside the south-east corner for international education establishments. Its previously under-developed university sector is now one of the fastest growing in Queensland with a second university campus now under development.

Health

The Cairns region is the largest outside the south-east corner for hospital admissions.

Chart #34: Admitted Episodes of Care – Queensland Main Regional Hospitals and Regions, 2013-14

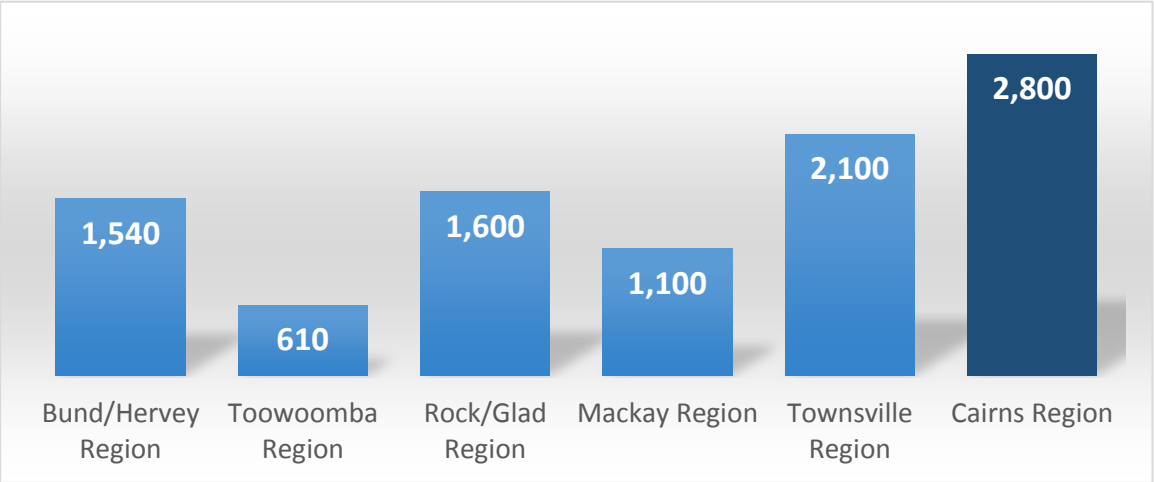


Source: Queensland Health.

Creative industries

Size of population, the Cairns region's growing attractiveness as a place to live, tourism, and a stimulating social and natural environment, are reflected in the Cairns region's growing role in cultural and creative activity outside Queensland's south-east corner. The Cairns region leads in employment in the arts, entertainment and creative industry classifications.

Chart #35: Employment in Cultural and Creative Industries, 2011



Source: Cummings Economics from Australian Bureau of Statistics, 2011 Census data.

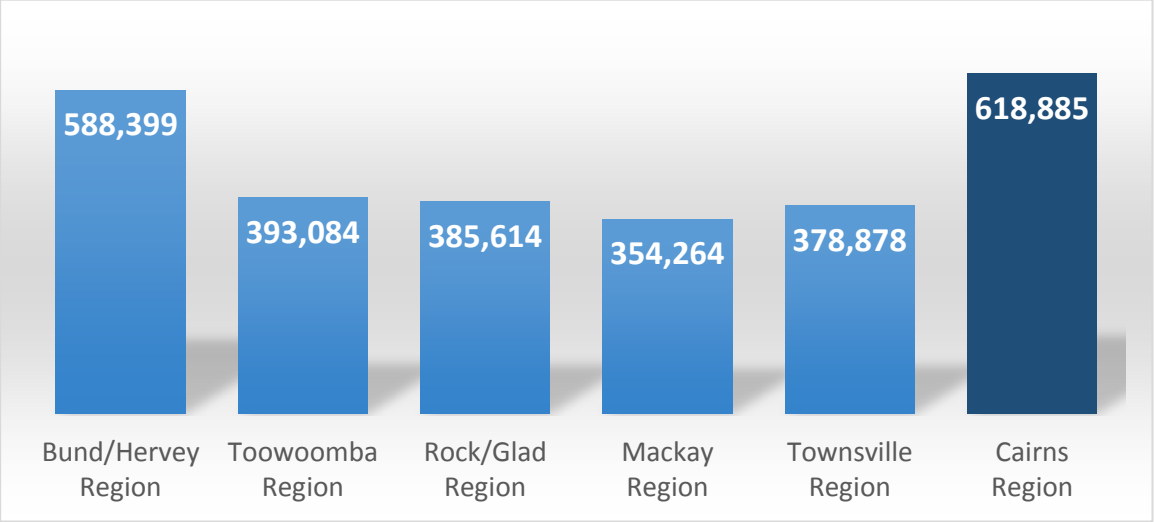
5.0 PROJECTING FORWARD

It can be expected that the type of underlying influences that have driven long-term regional growth in the past are likely to continue into the future.

Regional populations

On the long-term growth trajectory of the 35 years 1976 to 2011, it can be expected that the Cairns and Wide Bay Burnett regions would pull away and by 2050 be the largest by a substantial margin, each with a population larger than Tasmania's current population.

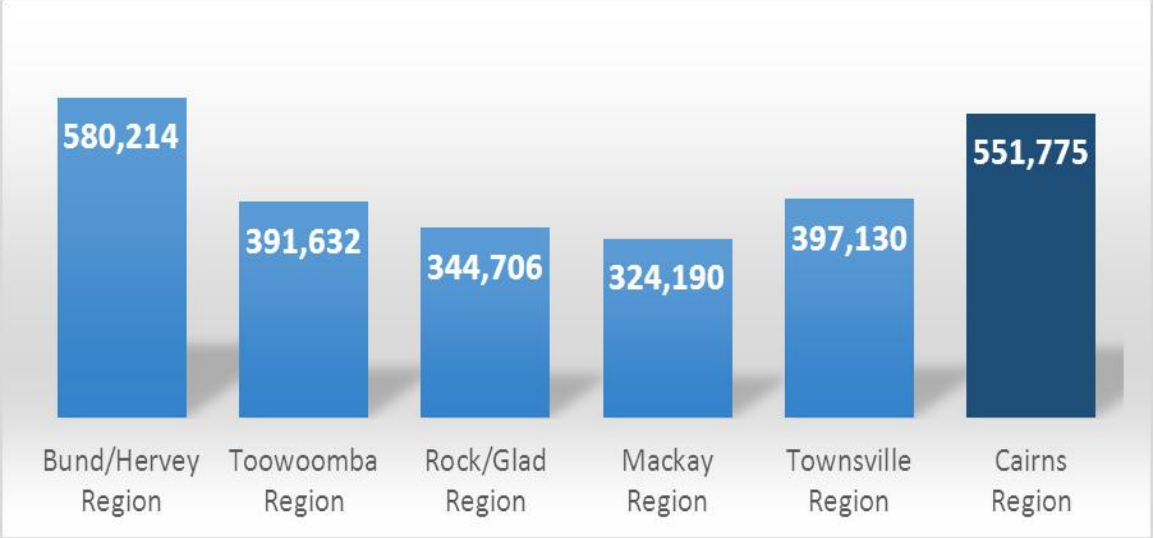
Chart #36: Projected Residential Population - 2050, Qld Regions (based on growth rate 1976-2011)



Source: Cummings Economics from ABS data.

On the growth trajectory of the 20 years, 1991-2011, a similar picture emerges.

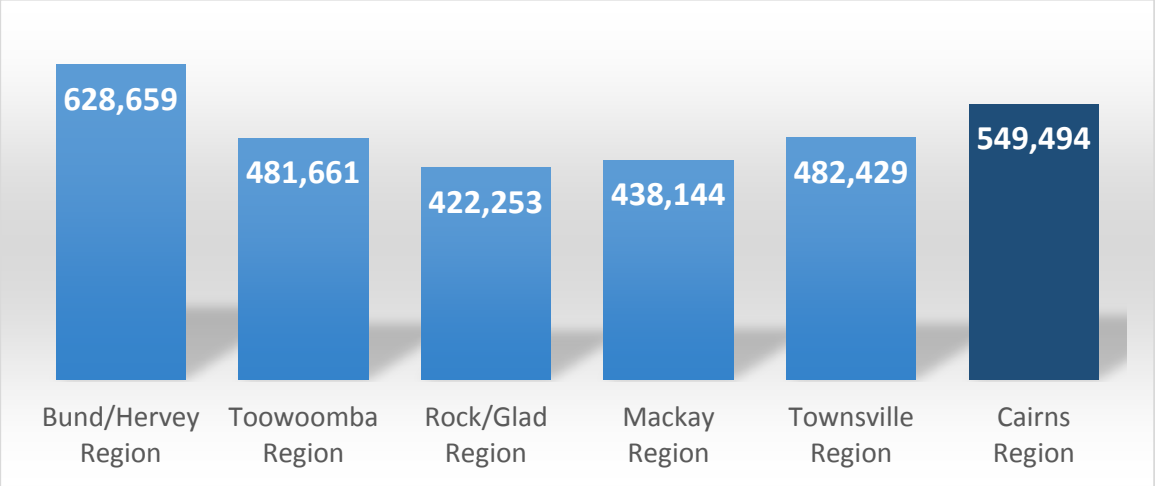
Chart #36: Projected Residential Population - 2050, Qld Regions (based on growth rate 1991-2011)



Source: Cummings Economics from ABS data.

On the growth trajectory of the 10 years, 2001-2011, Cairns region and Wide Bay Burnett would be the largest but the other regions closer up towards them.

Chart #37: Projected Residential Population - 2050, Qld Regions (based on growth rate 2001-2011)



Source: Cummings Economics from ABS data.

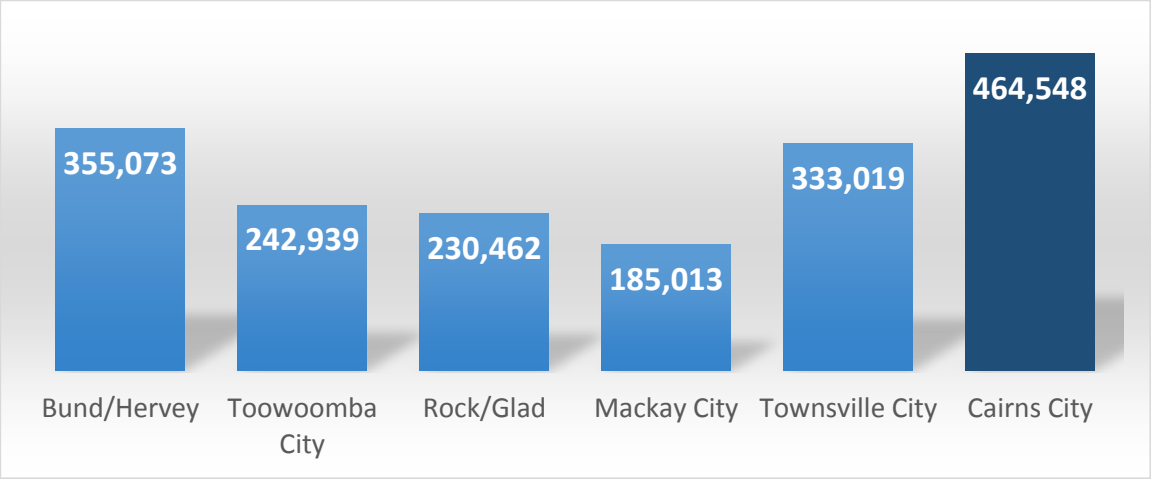
The projections indicate that on past growth trajectories, by 2050, the regions could be expected to have the following range of populations.

Bundaberg / Hervey Region	580 – 630,000
Cairns Region	550 – 620,000
Toowoomba Region	390 – 480,000
Townsville Region	380 – 480,000
Mackay Region	320 – 440,000
Rockhampton Gladstone Region	320 – 420,000

City populations

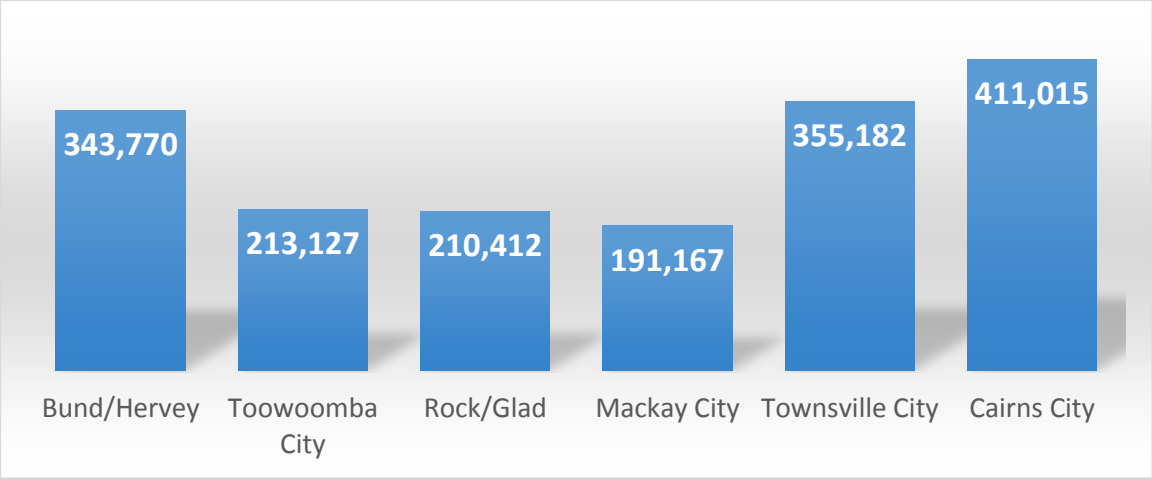
The following charts show projected city populations by 2050 based on past 35 years', 20 years' and 10 years' growth rates.

Chart #38: Projected Residential Population - 2050, Qld Regional Cities (based on growth rate 1976-2011)



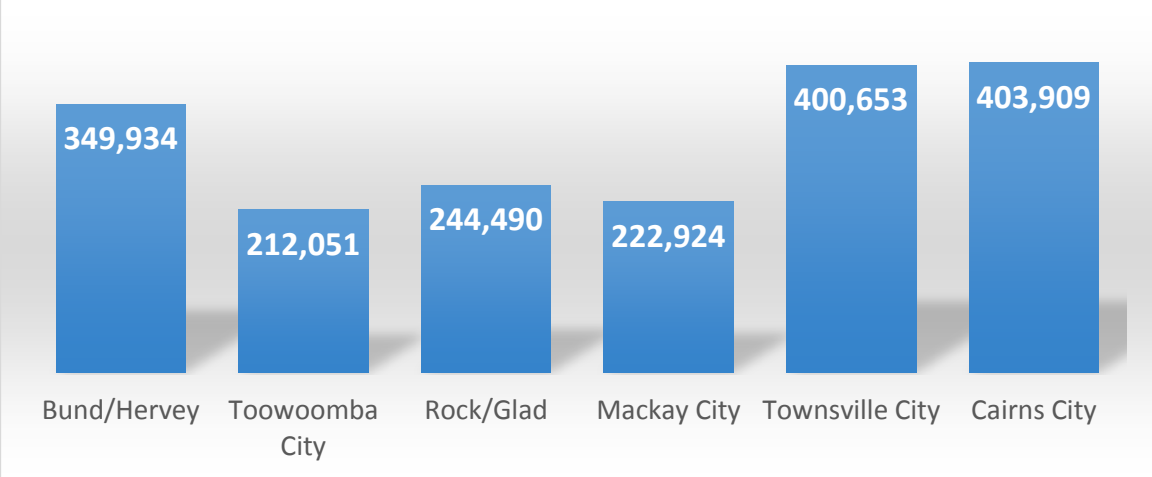
Source: Cummings Economics from ABS data.

Chart #39: Projected Residential Population - 2050, Qld Regional Cities (based on growth rate 1991-2011)



Source: Cummings Economics from ABS data.

Chart #40: Projected Residential Population - 2050, Qld Regional Cities (based on growth rate 2001-2011)



Source: Cummings Economics from ABS data.

The charts indicate that on past growth trajectories, by 2050, the Queensland regional cities would be in the following ranges:

Cairns	400 – 460,000
Townsville	330 – 400,000
Bundaberg / Hervey	330 – 350,000
Toowoomba	210 – 240,000
Rockhampton / Gladstone	210 – 240,000
Mackay	180 – 220,000

The figures indicate that on a continuation of past trends, Cairns as a city will pass Townsville in size but Townsville remain ahead of the combined Bundaberg / Hervey Bay / Maryborough populations.

APPENDIX 1

Statistical Notes

Commercial servicing regions - equate with the following AGSC areas as defined by Australian Bureau of Statistics up to 2011:

Cairns region – Far North Statistical Division plus Gulf shires of Carpentaria, Burke, Mornington and Doomadgee.

Townsville Region – North and North West Statistical Divisions less Shires of Carpentaria, Burke, Mornington and Doomadgee.

Mackay Region – Mackay Statistical Division including Bowen Shire.

Rockhampton Region – Fitzroy and Central West Statistical Division.

Bundaberg Region – Wide Bay Burnett Statistical Division.

Toowoomba Region – Darling Downs and South West Statistical Division.

Cities - City populations are defined as follows:

Cairns – Cairns Statistical District. Because of a boundary change 1976 to 1991, it is taken as Cairns Statistical District as defined in 1976 plus an estimated additional population to take account of a boundary change ranging from 2,500 in 1976 to 3,844 in 1991.

Townsville – Townsville Statistical District.

Mackay – Mackay Statistical District.

Rockhampton / Gladstone – 1976 – 1990 – Rockhampton Statistical District plus Gladstone City. 1991 – 2011 – Rockhampton and Gladstone Statistical Districts.

Toowoomba –.1976 to 1991 Toowoomba City plus a sliding factor to bring up to Toowoomba Statistical District population in 1991. 1991 to 2011 Toowoomba Statistical District.

Bundaberg, Hervey Bay, Maryborough – 1976 to 1990 Bundaberg, Hervey Bay and Maryborough SLAs. 1991 to 2011 Bundaberg, Hervey Bay and Maryborough SA Level 3s.

Immediate regions - are defined as Australian Bureau of Statistics at 2011 as:

Cairns – Cairns SA4 plus Queensland Outback – Tablelands SA3

Townsville – Townsville SA4 (equivalent pre 2011 North SD)

Mackay – Mackay SA4 (equivalent pre 2011 Mackay SD)

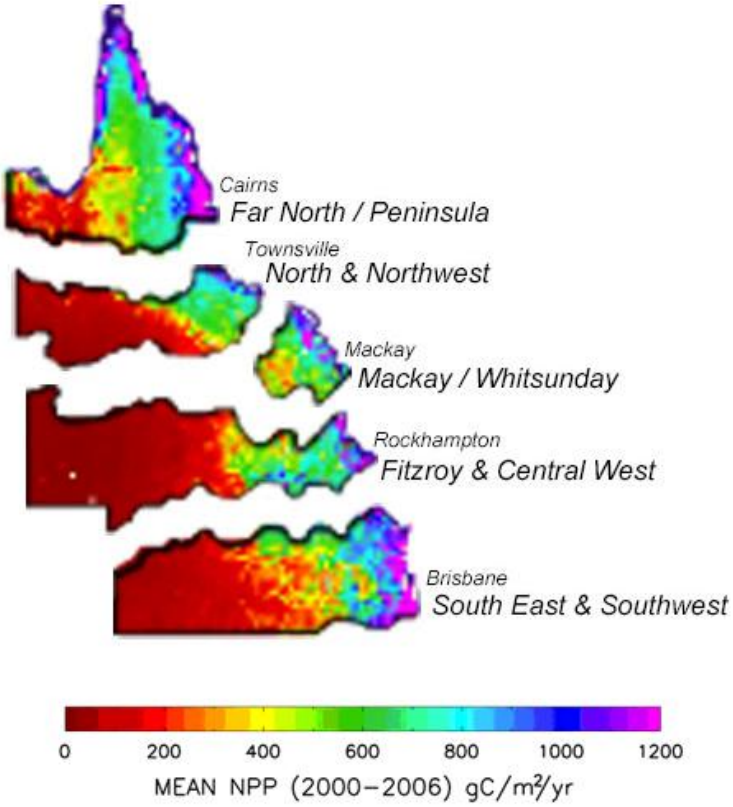
Rockhampton – Fitzroy SA4 (equivalent pre 2011 Fitzroy SD)

Bundaberg – Wide Bay Burnett SA4 (equivalent pre 2011 Wide Bay Burnett SD)

Toowoomba – Darling Downs SD

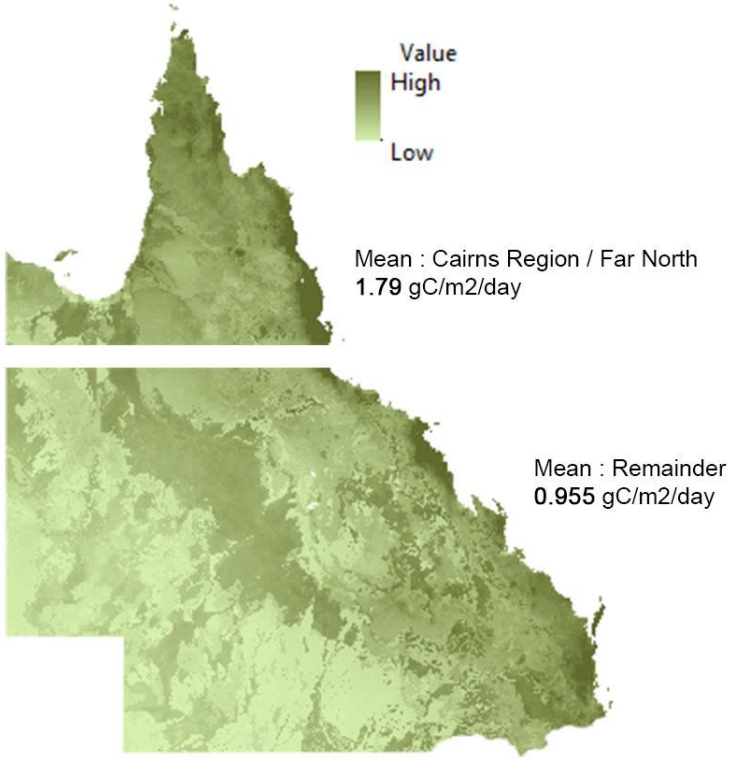
APPENDIX 2

Queensland Regions – Indicator of Plant Growth
Net Primary Productivity – Rate of Carbon Absorption by Plant Growth)



Source: University of Montana, Numerical Terradynamic Simulation Group from Modis Satellite Data.

Queensland - Estimates of NPP–Net Primary Productivity
(Absorption of Carbon by Plant Growth)



Source: CSIRO.

LONG-TERM POPULATION GROWTH IN NORTHERN AUSTRALIA

March 2015

1.0 INTRODUCTION

Although populations are small compared with southern Australia, northern Australia is composed of six distinct regional areas.

As the area grows, the pattern of population distribution is changing.

This paper sets out:

- This changing pattern and the leading role of the far northern Cairns and Darwin regions in this changing pattern;
- Why this consistent pattern of change has been happening over a period of time; and
- On a continuation of these long-term trends, what regional population in Northern Australia would look like by 2050.

This paper has been prepared by Cummings Economics for the Cairns Regional Council.

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2.0 THE REGIONS OF NORTHERN AUSTRALIA

Northern Australia covers a large area. Realities of areas and distances leads to a series of six distinct regions, with five of them served by a series of larger regional capitals with distinct commercial servicing regions.

Map 1 shows the six regions and the five regional capitals and the commercial regions they serve.

In the case of Darwin, Cairns, Townsville and Mackay, the regional capitals and their commercial servicing areas are fairly clear.

Although Rockhampton is the regional capital of the Fitzroy and Central West region, unlike Darwin, Cairns, Townsville and Mackay, the region's port is not located at the city, but 100km away at Gladstone. Regional city growth in this region can only be understood by combining the two.

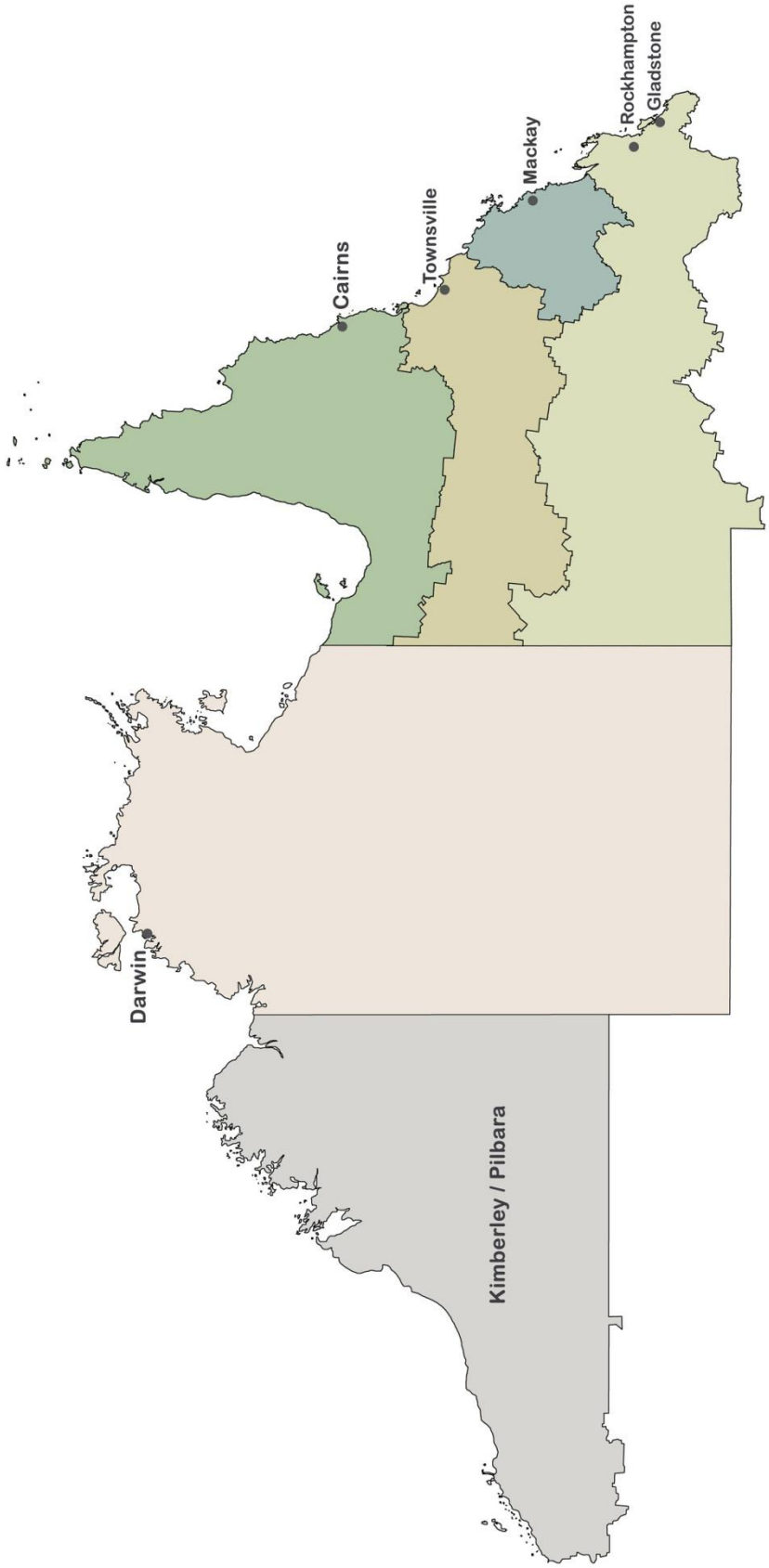
City population boundaries can be complicated to define. Up until 2011, fairly clear city Statistical Districts were being defined by Australian Bureau of Statistics that were reasonably comparable. For this paper, these Statistical District boundaries are used. While the boundaries used can be argued at the fringe, the relatively small figures involved are not likely to change the overall picture presented in the following analysis.

Similarly, there can be argument about fringe regional areas where commercial spheres of influence can overlap to some degree. Again the relatively small figures involved are not likely to change greatly the overall picture.

For this paper, analysis of long-term trends commences in 1976 when the Australian Bureau of Statistics commenced publishing estimated residential populations. Before then, only census count figures were available, that included visitors and did not include residents away.

Appendix 1 sets out statistical notes on the boundaries used.

Map 1 – Northern Australia Regions

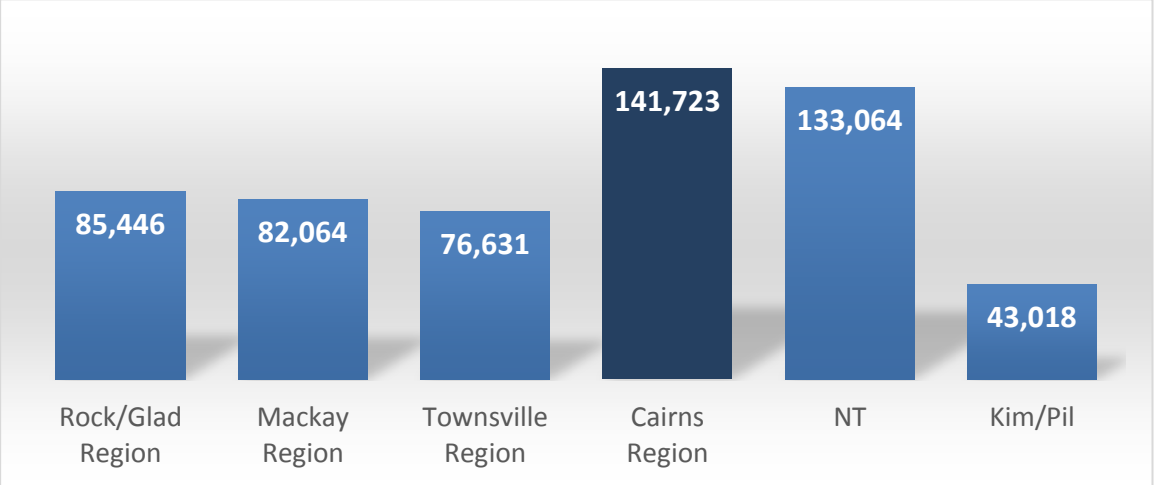


3.0 LONG-TERM POPULATION GROWTH PATTERNS

3.1 Regional population growth patterns

Over the 35 years since estimated residential population statistics began being published by the Australian Bureau of Statistics in 1976, Cairns' commercial servicing region and the Darwin (Northern Territory) region have led regional population growth in northern Australia by a large margin.

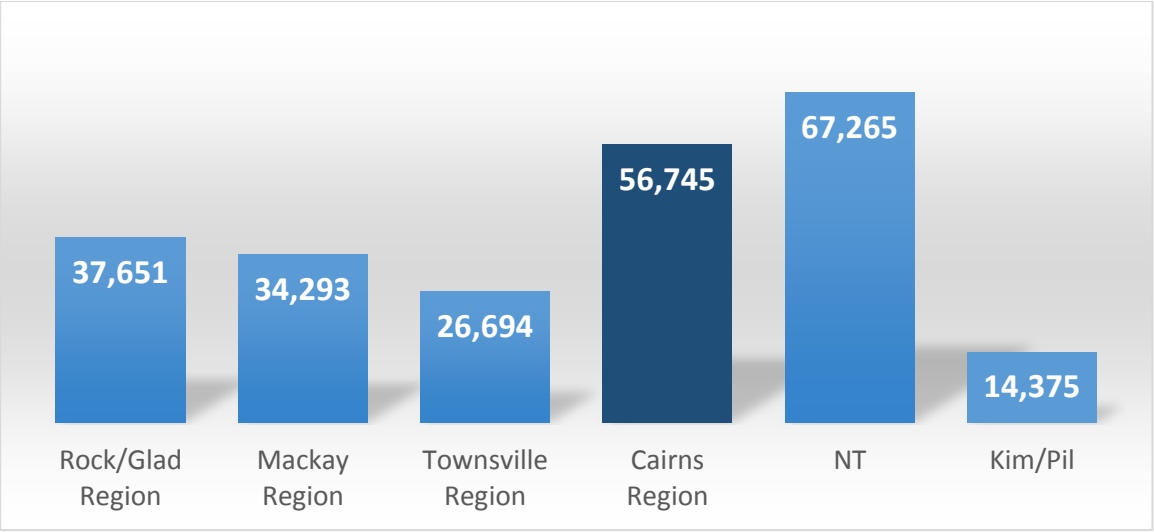
Chart #1: Long-term 35-year Increase in Regional Residential Population, Northern Australia Regions, 1976-2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

Examination of the figures by shorter periods indicates that over the 15 years 1976 to 1991, the Northern Territory growth exceeded the Cairns region. In 1976, Darwin population was abnormally low following Cyclone Tracy in 1974 which led to major evacuations. There was a strong return of population over the years following 1976.

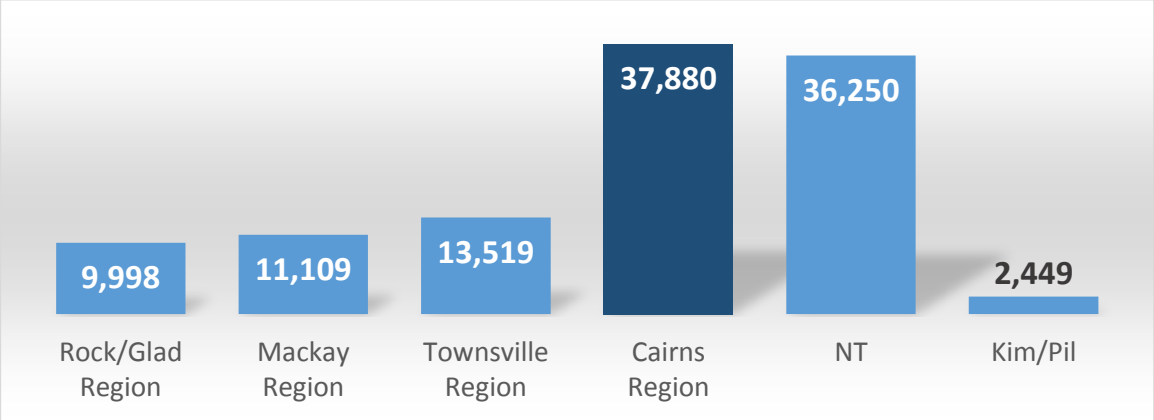
Chart #2: Long-term 15-year Increase in Residential Population Northern Australia Regions, 1976-1991



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

Over the 10 years 1991-2001, the Cairns region led followed by the Northern Territory.

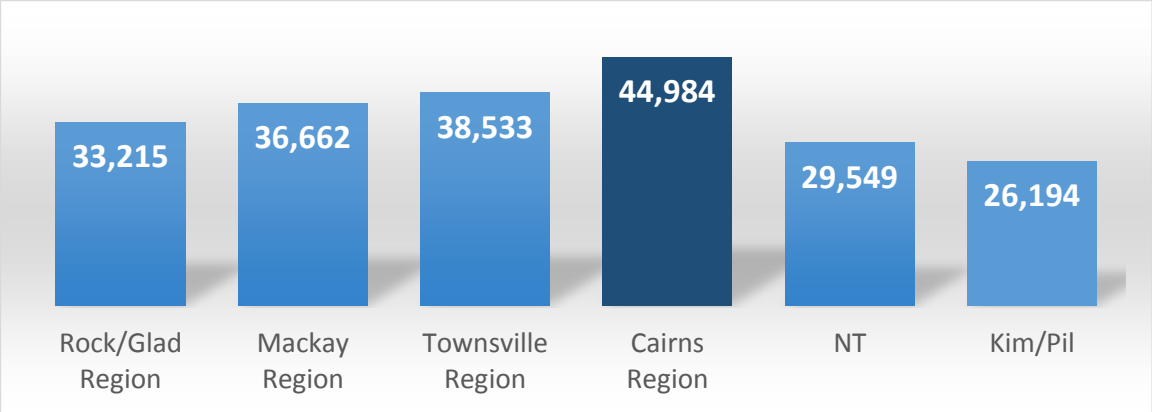
Chart #3: Long-term 10-year Increase in Residential Population, Northern Australia Regions, 1991-2001



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

In the period 2001 to 2011, the Cairns region continued to lead but mainly under the influence of accelerated mining activity increase in the Rockhampton, Gladstone Mackay and Townsville regions advanced to exceed the Northern Territory.

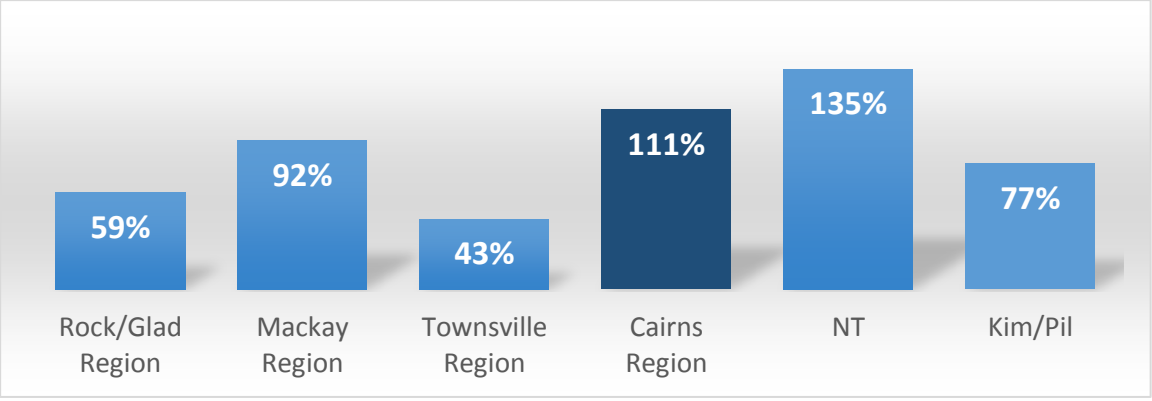
Chart #4: Long-term 10-year Increase in Residential Population, Northern Australia Regions, 2001-2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

In growth rate terms, the increases translate into the following pattern with the far northern regions (the Northern Territory and Cairns region), leading and the Mackay region next.

Chart #5: Percent Growth, Regional Residential Populations, Northern Australia, 1976-2011

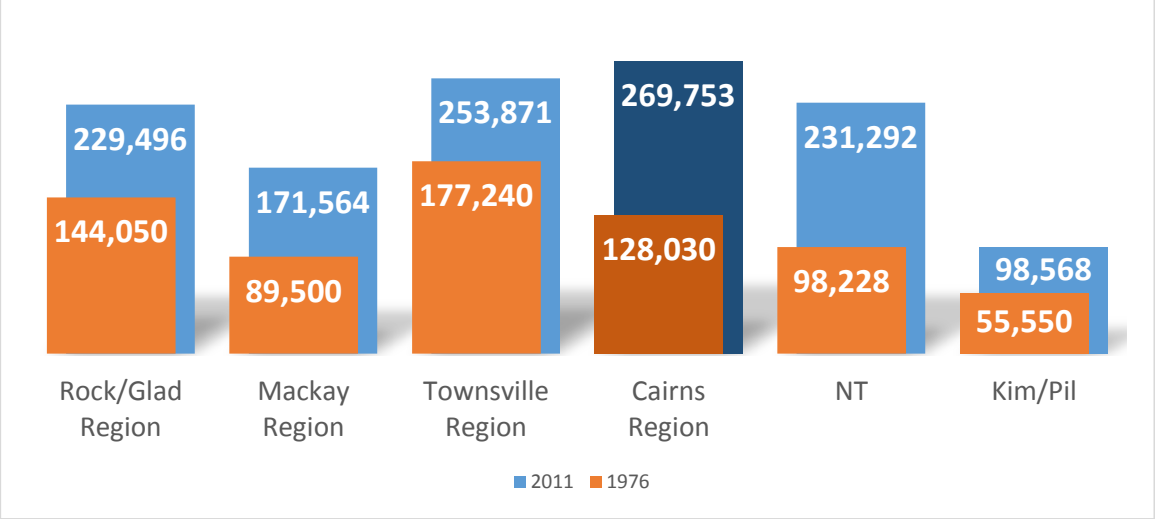


Source: Cummings Economics from ABS Cat No. 3218.0 et al.

The growth pattern has led to the Cairns region moving from being the third largest to being the largest and the Northern Territory coming through to exceed the Rockhampton / Gladstone region as third largest after the Townsville region.

The Pilbara / Kimberley region has grown in residential population to equal that of the Northern Territory in 1976.

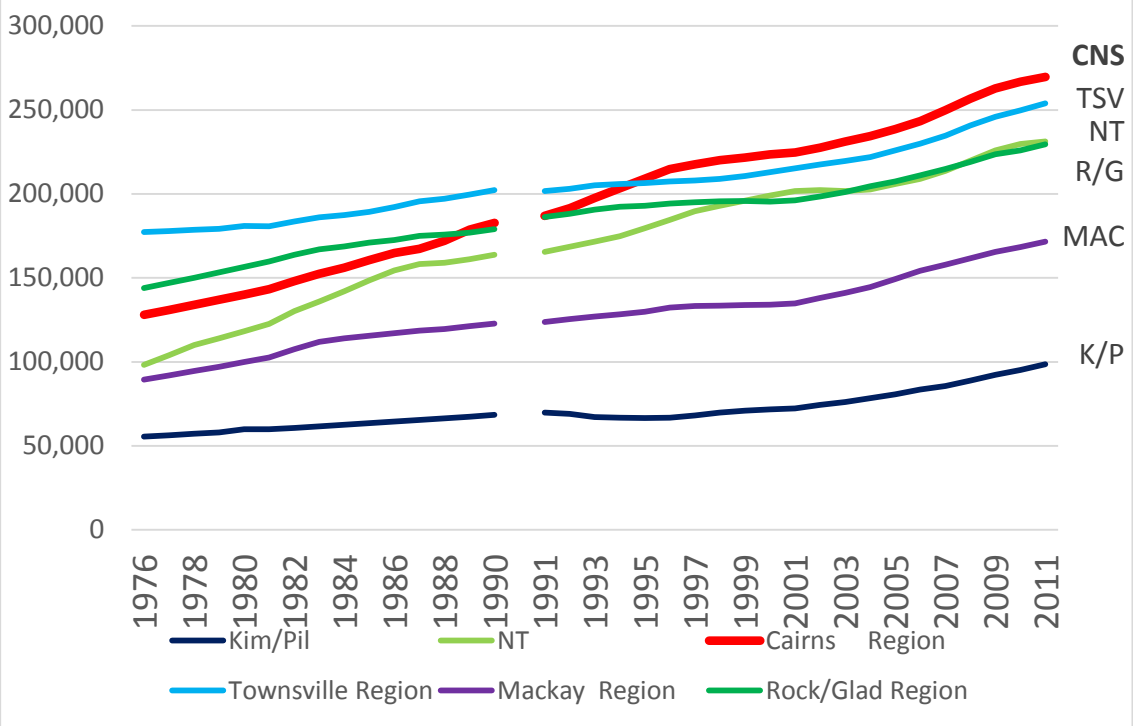
Chart #6: Residential Population, Northern Australia Regions, 1976 and 2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

Chart #7 illustrates how the two far northern regions and the Northern Territory have recorded the strongest growth..

Chart #7: Residential Population, Northern Australia Regions, 1976 to 2011

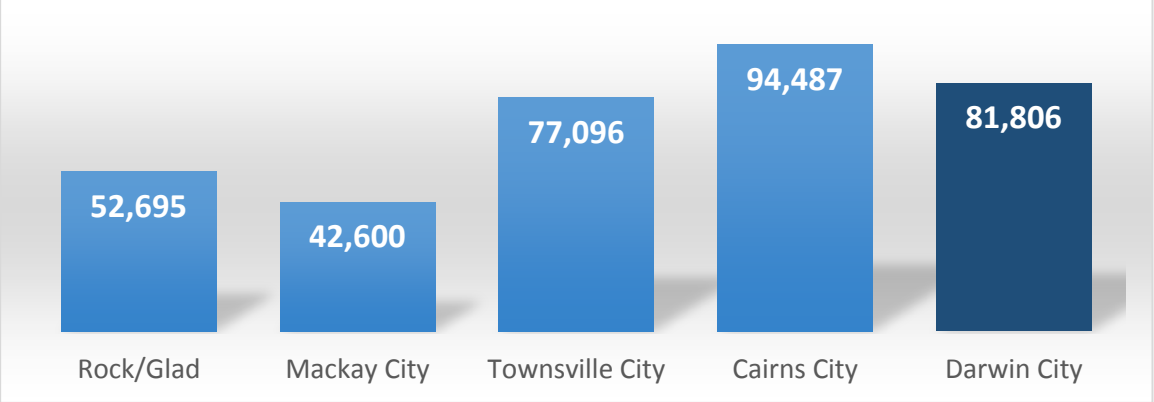


Note: The break 1990-1991 indicates a break in series in some cases involving minor changes in definition of area (see Statistical Notes, Appendix 1).
Source: Cummings Economics from ABS Cat No. 3218.0 et al.

3.2 Regional city population growth

Against this regional background, it is not surprising that Cairns as a regional servicing city has recorded the largest growth in population followed by Darwin and then Townsville.

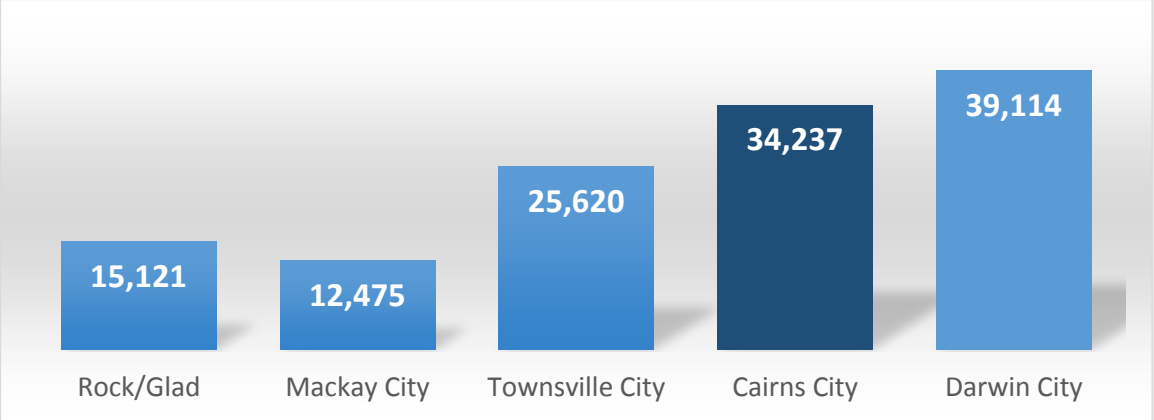
Chart #8: Long-term 35-year Increase in Residential Population, Northern Australia Cities, 1976-2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

Looking at the pattern of increases of the northern cities over shorter periods, indicates that in the 15 years 1976 to 1991, Darwin led with recovery from Cyclone Tracy in 1974 a major factor, but with Cairns second.

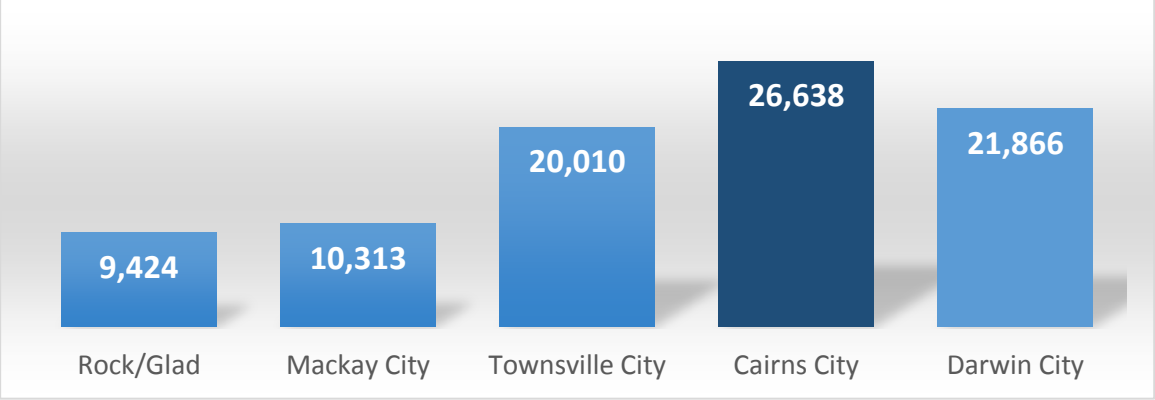
Chart #9: Long-term 15-year Increase in Residential Population, Northern Australia Cities, 1976-1991



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

In 1991-2001, Cairns led with Darwin second.

Chart #10: Long-term 10-year Increase in Residential Population, Northern Australia Cities, 1991-2001

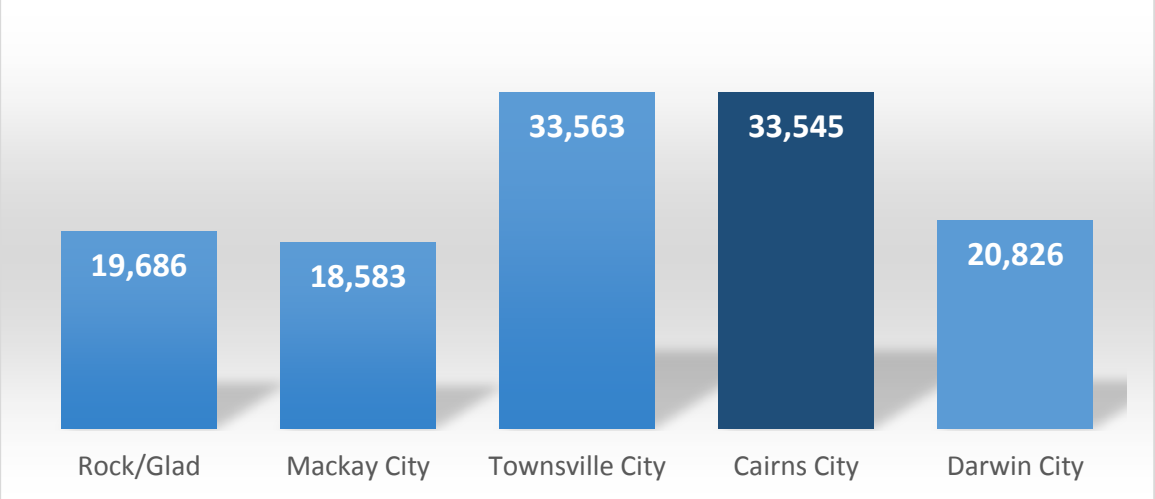


Source: Cummings Economics from ABS Cat No. 3218.0 et al.

Over the period 2001-2011, mainly under the influence of high mineral prices, Townsville, Mackay and Rockhampton rose with Townsville coming up to equal Cairns.

Over the period 2001-2011, Cairns' growth was heavily affected by the Global Financial Crisis and high dollar, while Townsville was benefiting heavily by increased defence personnel being stationed in the city and high mineral prices. This pattern continued in 2013 and 2014 but there is evidence it is currently reversing.

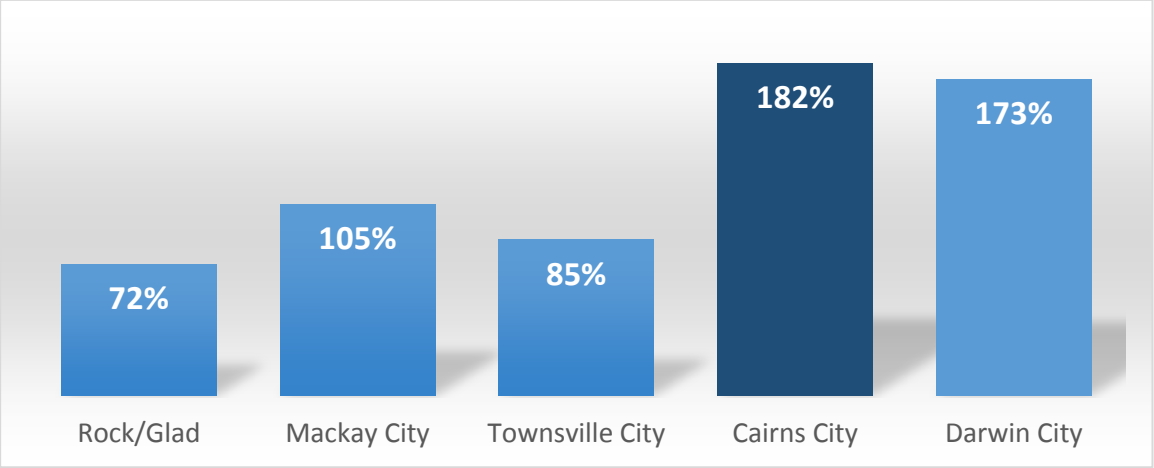
Chart #11: Long-term 10-year Increase in Residential Population, Northern Australia Cities, 2001-2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

However in city growth in percentage terms, the two far northern cities of Cairns and Darwin have led with Mackay next.

Chart #12: Population Growth in Percentage Terms, Northern Australia Cities, 1976-2011

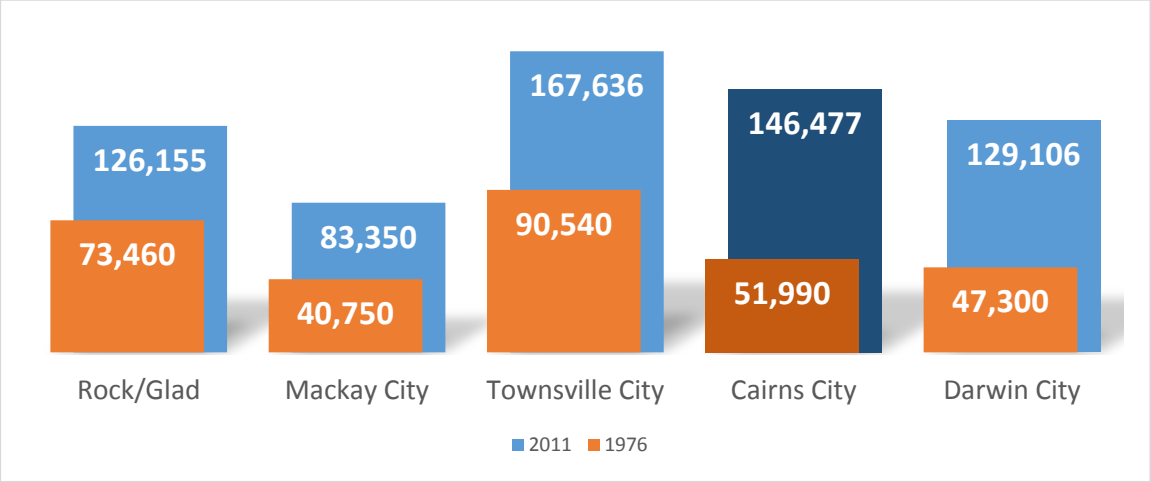


Source: Cummings Economics from ABS Cat No. 3218.0 et al.

This has led to substantial changes in the ranking of regional city sizes.

While Townsville still leads, Cairns has moved from being just over half Townsville's size in 1976 to being 87 percent the size of Townsville in 2011. Cairns and Darwin have passed Rockhampton / Gladstone in size.

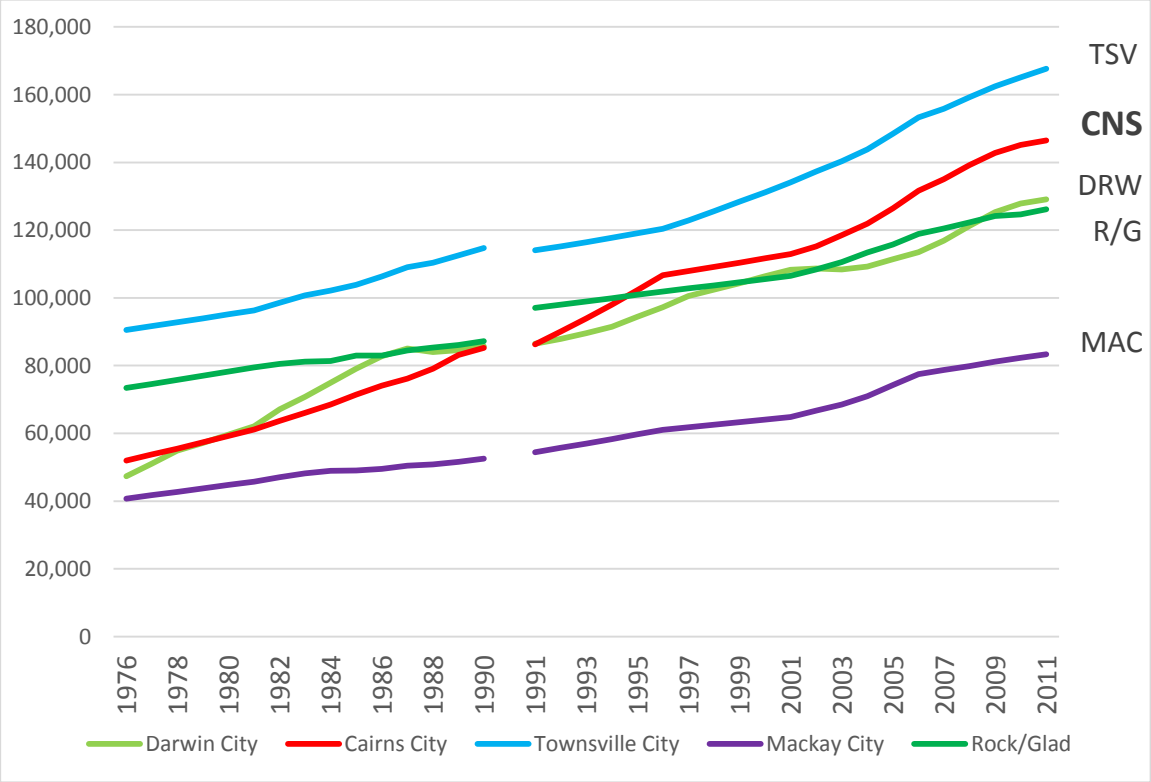
Chart #13: Residential Population Sizes, Northern Australia Cities, 1976 and 2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

Chart #14 illustrates the movements by years illustrating the strong growth trajectory of Cairns and Darwin.

Chart #14: Residential Population, Northern Australia Cities, 1976-2011

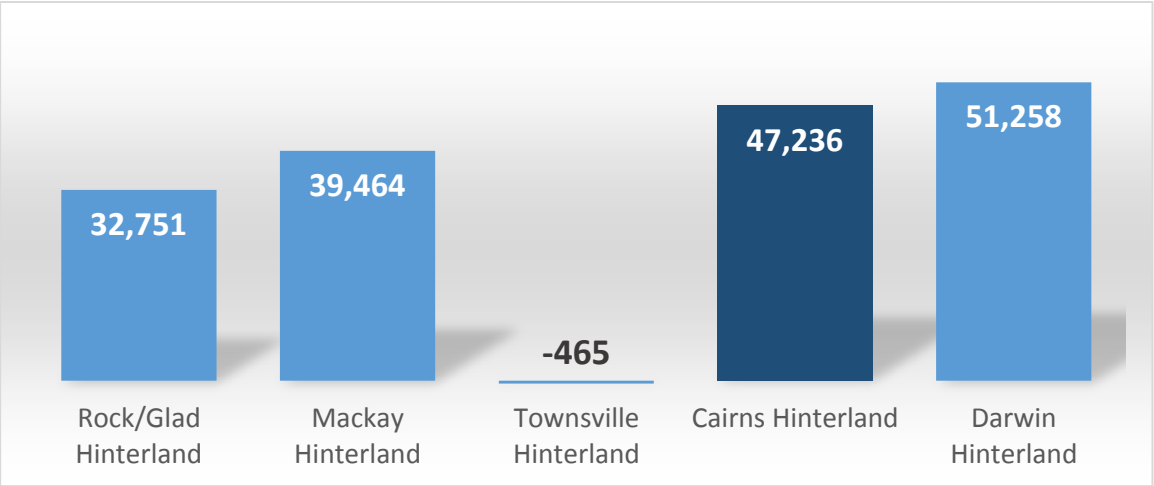


Source: Cummings Economics from ABS Cat No. 3218.0 et al.

3.3 Hinterland growth patterns

Standing behind the growth patterns are differences in growth in hinterland populations serviced by the northern cities. Again, strongest growth has been in the two far northern regions, Northern Territory and Cairns region, followed by the Mackay region which includes the Whitsundays area. There has been no growth in the Townsville hinterland.

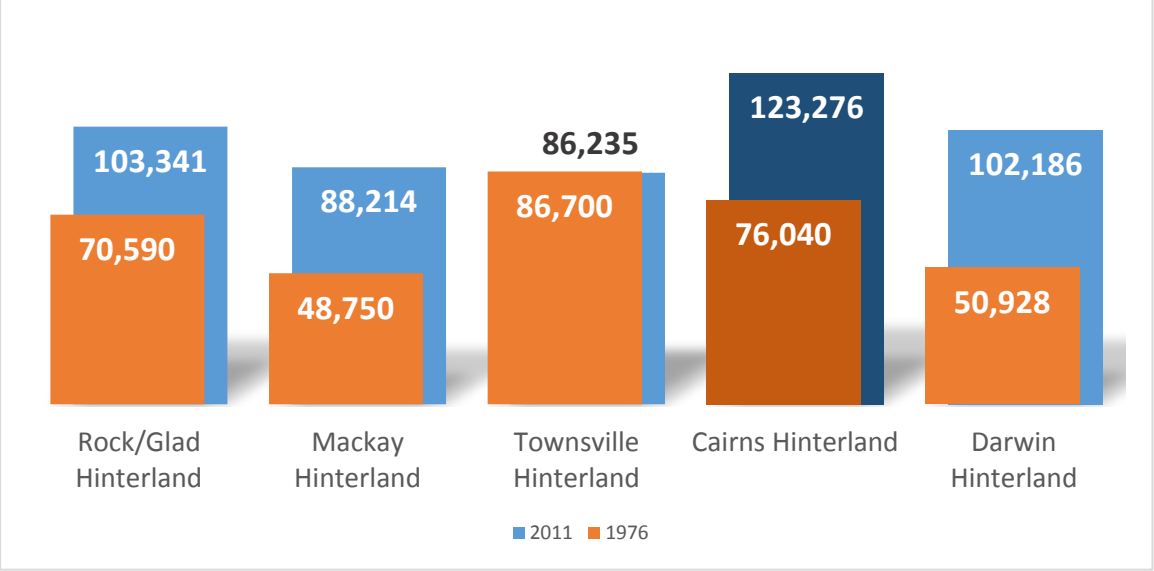
Table #15: Long-term 35-year Increase in Hinterland Populations of Northern Australia Cities, 1976-2011



Source: Cummings Economics from ABS Cat No. 3218.0 et al.

Chart #16 illustrates how Cairns now leads the northern regions in hinterland population by a substantial margin.

Chart #16: Residential Populations, Northern Australia City Hinterlands, 1976-2011

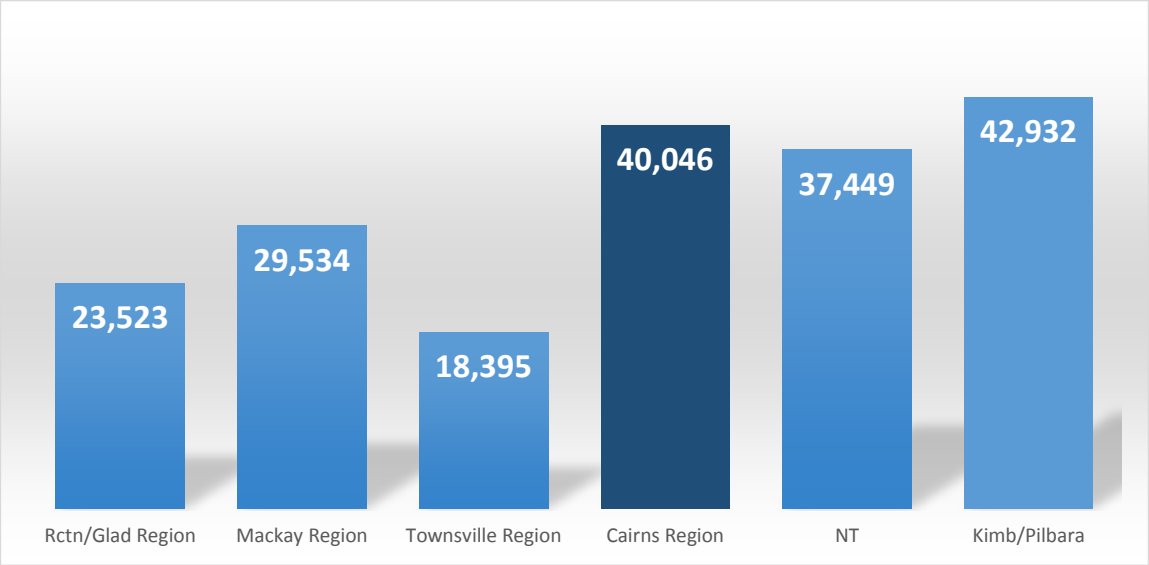


Source: Cummings Economics from ABS Cat No. 3218.0 et al.

3.4 Visitor populations

The following chart shows visitor populations as at 2011 Census. Visitor populations include two major elements of leisure visitors and fly-in/fly-out (FIFO) workers. The large number of FIFO workers in the Pilbara / Kimberley area results in it leading followed by Cairns (mainly leisure visitors), Northern Territory and Mackay region.

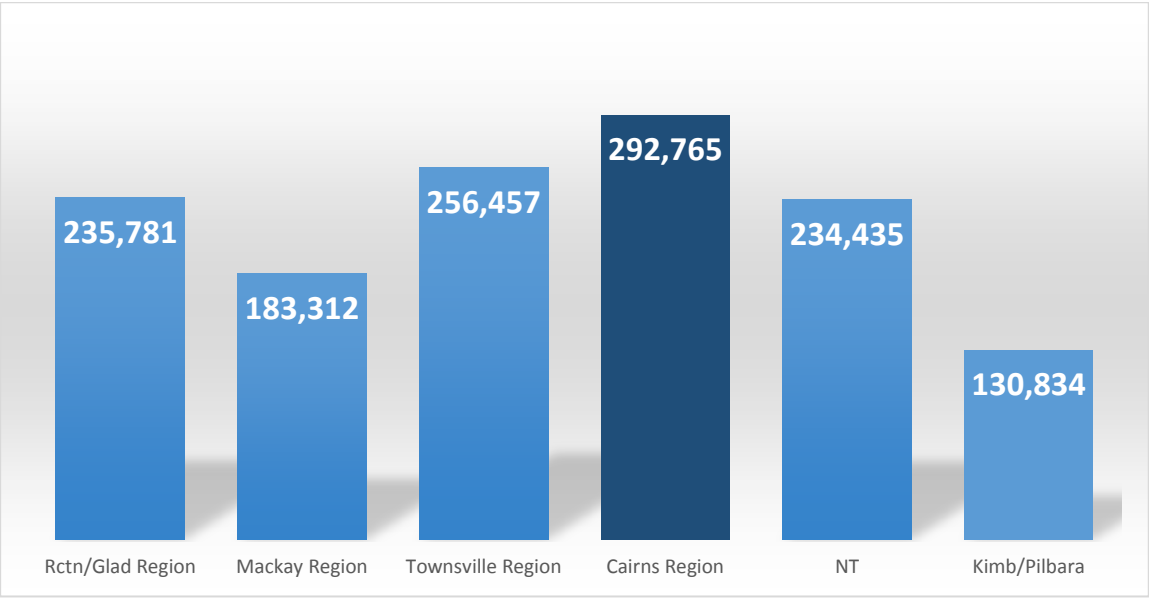
Chart #17: Visitor Numbers[(1)], Regions of Northern Australia, 2011 Census



(1) Note: These are visitors from outside the small local area in which they are counted and can include substantial numbers of visitors from within the region. This especially inflates the numbers for the Northern Territory by about 9,000.
Source: Cummings Economics from ABS Census 2011.

In total census count population including visitors but excluding residents away, the Cairns region leads by a substantial margin.

Chart #18: Census Count Population (place of enumeration), Regions of Northern Australia, Census 2011



Source: Cummings Economics from ABS Census 2011.

4.0 WHY?

4.1 General

The following explores why there has been a long-term trend for the Far North's Cairns region and Northern Territory to be leaders in regional growth in northern Australia under the headings:

- Overcoming the tropical Lag
- The location of natural resources
- Strategic location
- Industry composition
- Population composition
- Comparative regional areas.

4.2 Overcoming the tropical lag

Northern Australia stretches deep into the tropics and historically, presented a much greater challenge to an Australian society with technology and most of its population derived from north-western Europe – the further north the greater the challenge. Historically the Cairns and Darwin "Top End" regions being the furthest north, were late being settled and initial progress was slow and hard won.

But the North's tropical regions are not poor in underlying resources and long-term underlying factors have been underpinning accelerated growth from a small base.

- Technology suited to tropical areas has been developed across a broad spectrum affecting industries and everyday living.
- A growing global economy has been reaching out for previously underdeveloped mining, agricultural, marine and tourism resources.
- Transport and communication developments have been breaking down old cost barriers of remoteness from national and world markets.
- Success breeds success factors have been kicking in.

Being the furthest north and previously least developed in relation to potential, the Cairns and the Darwin "Top End" regions have benefited most from these underlying trends.

4.3 The location of natural resources

While a great deal of attention has been paid in recent decades to the mineral resources of the North's regions, what is often not recognised is the disposition of the North's natural (biological) resources. These underlying biological resources tend to be strongest across the far northern regions and especially in the Cairns region. This natural resource base has underpinned:

- Expanding primary industries;
- Expanding tourism;
- Superior lifestyle opportunities.

Pattern of natural biological resources

Northern Australia with 40 percent of Australia's land area accounts for 60 percent of water runoff.

Map, Appendix 1, shows water runoff by river basins highlighting the strong role of the far northern Cairns region and Darwin "Top End" region in this pattern.

Within Queensland, the Cairns region accounts for 60 percent of the State's water runoff and 26 percent of the nation's total.

Satellite technology and CSIRO modelling is now giving a picture of how this translates into measures of underlying plant growth potential – the rate at which carbon is absorbed from the atmosphere. (Maps, Appendix 2, illustrate.)

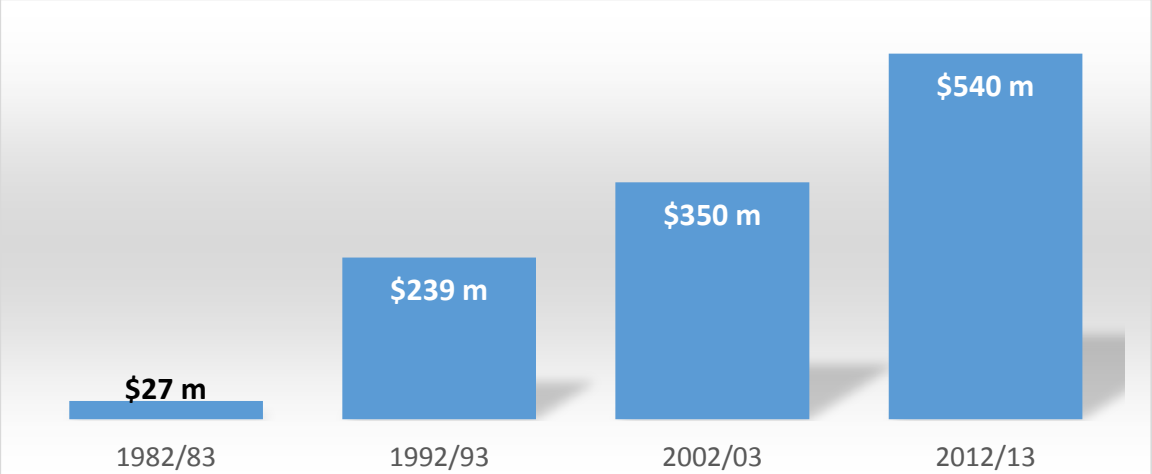
Modelling CSIRO data indicates that average plant growth per square metre is higher in tropical Australia, as measured by absorption of carbon from the atmosphere, than southern Australia. In the Cairns region, it is almost double the remainder of Queensland and of tropical Australia in general.

Primary industries, a growth sector

Agriculture is regarded as a stagnant sector in most parts of Australia. However especially in the Cairns region, it has been a growth sector over recent decades. Major breakthroughs have included:

- Mechanisation of sugar harvesting and bulk transport. A major new growing area and new mill have been established in the Mareeba district.
- The introduction of tropical adapted Brahman breeds into cattle herds and development of live cattle exports to Asia has resulted in increases in cattle herds and turnoff across the North.
- Sealing of roads linking the Cairns region to southern markets and more efficient road transport vehicles has seen a major new sector added to the Cairns regional economy in the production of tropical fruits, offseason produce and ornamentals.

Chart #19: Gross Value of Fruit Production, Cairns Region [(1)]

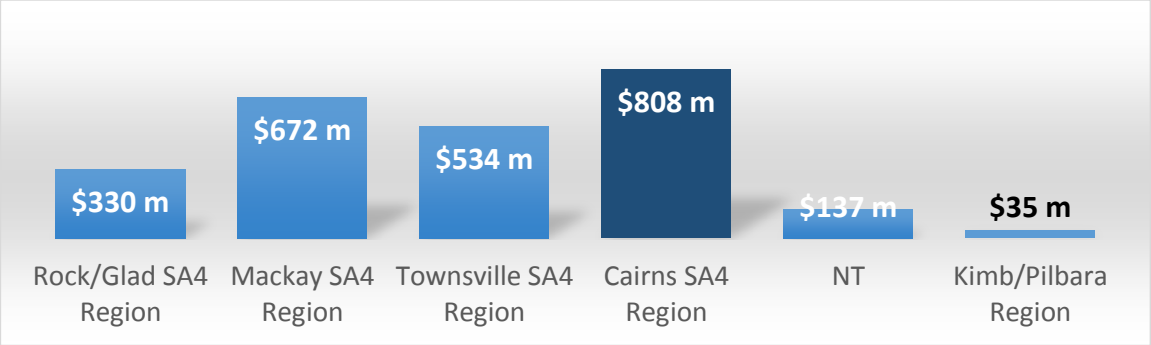


(1) Note: Cairns region defined as Far North Statistical Division 1982-83 to 2002-03 and Cairns SA Level 4 in 2012-13 $542m plus estimate of production Queensland Outback Far North $16m.

Source: Cummings Economics from ABS data.

Cattle turnoff is spread across the North. In crop production, the Cairns region leads. However potential across the Far North is still underdeveloped compared with resource potential. In the Cairns region, and new agricultural districts are currently opening up in the Gulf and Cooktown areas.

Chart #20: Gross Value of Crops, Northern Australia Regions, 2012-13 $m



Source: Cummings Economics from ABS Cat No. 7503.0 et al.

Marine resources

Marine resource development across the North in recent decades has been led by the two far northern regions, especially by the ports of Cairns, Darwin and Karumba.

Cairns is now one of the largest fishing industry ports in Australia.

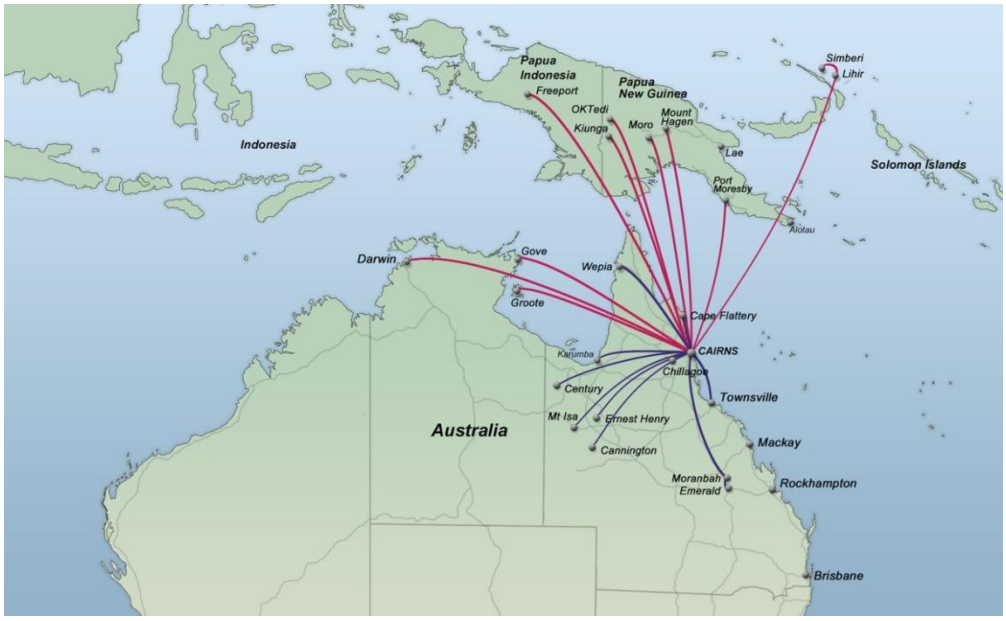
Diversified mining resources

While value of mining production in the Cairns region is lower than the Townsville, Mackay, Rockhampton / Gladstone and Pilbara regions, it is diversified and being further north has no 'fly-in' from Brisbane. Value of production is moving back up again, with the South of Embley bauxite project likely to proceed in the near future and the Aurukun bauxite to follow.

Darwin's growth has been boosted by the development of offshore gas.

However Cairns' interaction with mining extends well beyond its regional borders, in a way that is not equalled by Queensland's other regional cities. Because of its population, lifestyle advantages and strategic position, Cairns has air links to supply workforce and other services into mining operations over a large area including Central and North West Queensland, Northern Territory, Papua Indonesia and Papua New Guinea.

Map 2 – Northern Australia Fly-in / Fly-out / Mining Services Hub



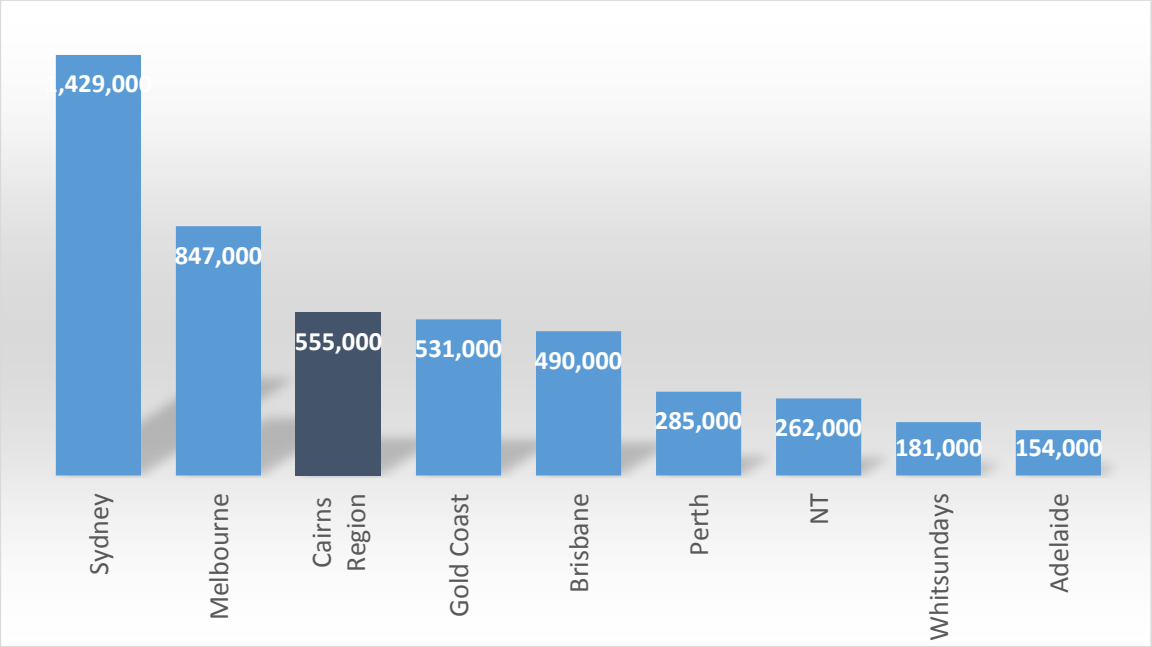
A foundation for leading tourism growth

The Cairns region's outstanding natural (biological) resources have also provided a foundation for rapid tourism development in recent decades.

The Great Barrier Reef (close offshore and easily accessible), coastal beach scenery, mountains, the Tablelands and World Heritage rainforests, provide a world class quality and combination of tourism resources that attracts domestic visitors and plays a major role in attracting international visitors to Australia.

The region's tourism resources are so powerful that in tourism visitation, the Cairns region leads regional Queensland and across the North. In international holiday visitors, it leads the Queensland regions and sits next to Sydney and Melbourne.

Chart #21: International Holiday Visitors to Australia – Leading Regions, 2012-13



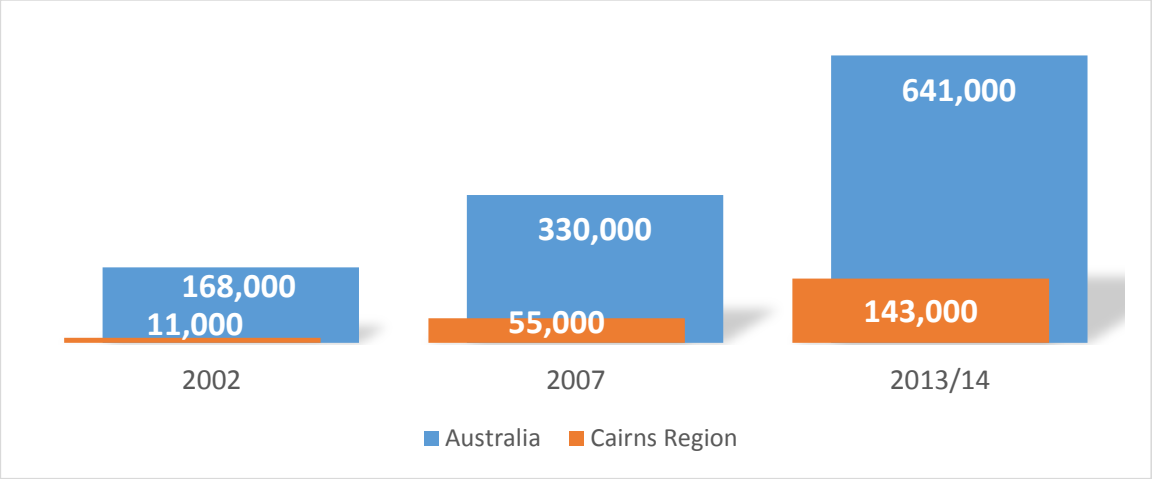
Source: Tourism Research Australia, International Visitor Survey.

Other northern regions especially benefitting from tourism growth, have been the Northern Territory (the Red Centre and "Top End"), the Whitsundays area and to a lesser extent, the Kimberley region in Western Australia.

Cairns is currently playing a leading role in tapping into the new wave of tourism coming out of China. Growth 2002 to 2013-14 of Chinese visitors represents a 13-fold increase compared with Australia overall of four times.

The multi-billion dollar Aquis Integrated Resort project aims to tap into and further expand the burgeoning Chinese and other international markets.

Chart #22: Chinese Visitors to Australia and Cairns Region



Source: Tourism Research Australia, International Visitor Survey.

The basis for an outstanding lifestyle

The Cairns region's natural beauty provides the basis for an outstanding, new, first world tropical lifestyle. Technological improvements have been overcoming old negatives including widespread introduction of air-conditioning and advances in health services and housing. Build-up of population is resulting in improved education and cultural facilities. Tourism brings with it superior recreation, shopping and dining.

Cairns, the Tropical Coast and Tablelands have become a desired place in which to live making it easier to attract and hold population.

Similar lifestyle factors have also particularly advantaged growth of population in the Mackay / Whitsundays region.

4.4 A strategic location

The world does not stop at Australia's northern border. Cairns and Darwin are Australia's closest cities to the massive growing economies of the Asia / Pacific region.

Cairns along with Darwin interact with the Asia / Pacific region much more than other Australian regional cities (See **Map 3**).

Cairns and Darwin have substantial flying distance/time advantages over the major metropolitan centres of southern Australia. This not only helps its tourism development but also trade and business links and in fields like seafood exports and international education.

Cairns is the northern terminus of Australia's relatively efficient east coast road, rail and air network and a natural supply point for shipping and air services further north into Papua New Guinea, the Pacific and eastern Indonesia. It has strong trade, business and social links with Papua New Guinea and its six million population. Cairns is the Australian buying base for the giant Freeport-McMoRan mine in Papua Indonesia with direct shipping and air services with a value of the order of $200m a year.

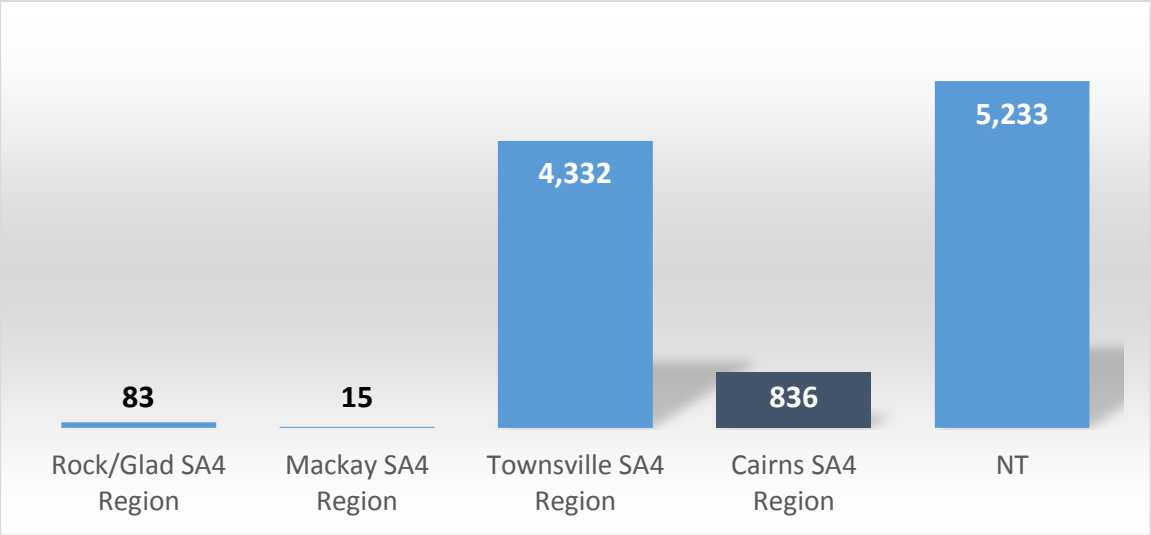
Map 3 – Regular International Air Services

Darwin has air and shipping services into Indonesia and East Timor. Townsville has shipping links with Papua New Guinea ports.

Darwin, Townsville and to a lesser extent Cairns, benefit especially from defence bases - Darwin army, navy and air; Townsville army and air; Cairns navy.

Cairns and Darwin especially benefit from border protection including immigration, customs and air surveillance operations.

Chart #23: Defence Employment – Main Northern Regions, Census 2011



Source: Cummings Economics from ABS Census 2011.

4.5 Industry composition

The North's regional economies are heavily dependent on those industries earning income from outside their regions, especially agricultural and pastoral industries, marine industries, mining and tourism.

Historically the pattern of the North's regional development was heavily affected by pastoral development, especially sheep in the Central and North West, leading to the early development of Rockhampton and Townsville with railway lines deep into the interior. More recent development has been dominated by expansion of cropping, fisheries, tourism and mining.

Cairns' economy has relatively high earnings from the agricultural, marine and tourism sectors as opposed to mining. This has been an advantage.

For every dollar of value of production, mining generally has a much lower impact on regional employment and population than the agricultural, fishing and tourism sectors. Mining projects will often involve large initial investment in construction with lower on-going operational employment. Out of the large values of output recorded, a very high proportion goes outside the region to head offices and shareholders in the south. There are often large inputs imported from outside the region and more recently large 'fly-in' workforce especially into the Rockhampton / Gladstone, Mackay and Townsville regions from Brisbane.

By contrast, the strong development of agricultural, marine and tourism resources in the Cairns region has resulted in strong, more self-contained local development with greater flow-on to local jobs and population.

While these sectors also have fluctuations in markets, they are generally not as strong as world mineral price fluctuations.

While tourism is an important sector in the Cairns region, it is wrong to believe that the Cains region is over dependent on tourism. In fact the markets of Cairns region's industries are highly diversified. Its tourism markets are highly diversified with substantial overseas components along with a large domestic sector.

The Cairns region's agriculture is highly diversified, again with a substantial domestic market for its horticultural products. Minerals and fisheries' markets are diversified.

While not nearly as high as Darwin and Townville in government spending, the Cairns region, because of the navy base and northern surveillance activity, is not low in government spending compared with the northern regions other than Darwin and Townsville.

Thus while tourism and construction experienced sharp slow-downs over the period 2008 to 2011, the Cairns region's population continued to grow, albeit at a slower pace.

Being the furthest Queensland city from Brisbane, the development of business services and local manufacturing is less supressed than the southern regional cities by competition from Brisbane based services and factories.

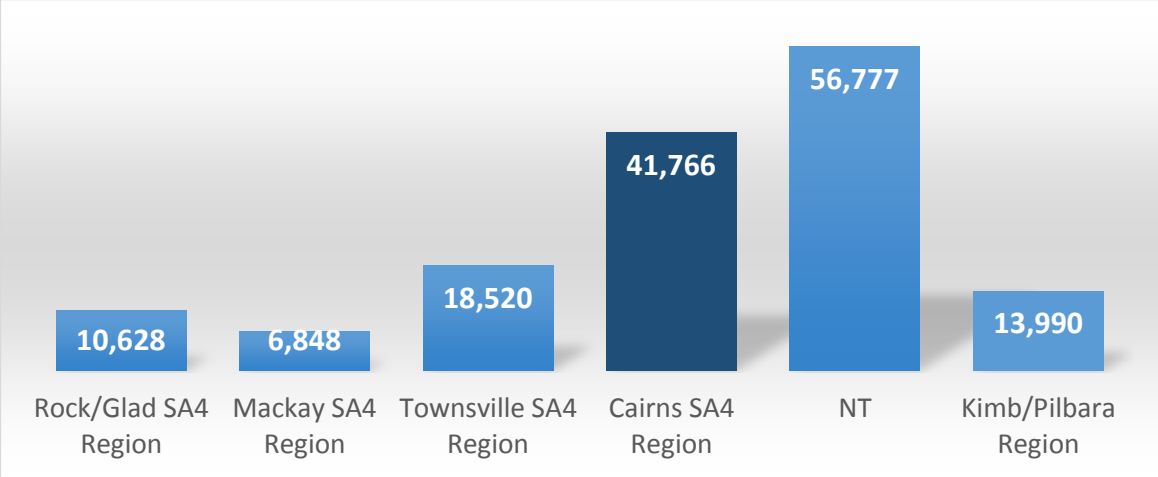
Similar to the Cairns region, relatively large agricultural and tourism sectors have strengthened employment and population growth in the Mackay / Whitsunday region.

A substantial tourism sector has been important to the growth of the Northern Territory and Darwin. Darwin also benefits from its distance from the southern metropolitan centres.

Population composition

Denser pre-European indigenous populations in the regions along the far northern coasts and lower historical levels of development have resulted in the majority of population being indigenous in the Peninsula/Torres/Gulf region, most of the Northern Territory and the Kimberley region.

Chart #24: Indigenous Population, Northern Australian Regions, Census 2011



Source: Cummings Economics from ABS Census 2011.

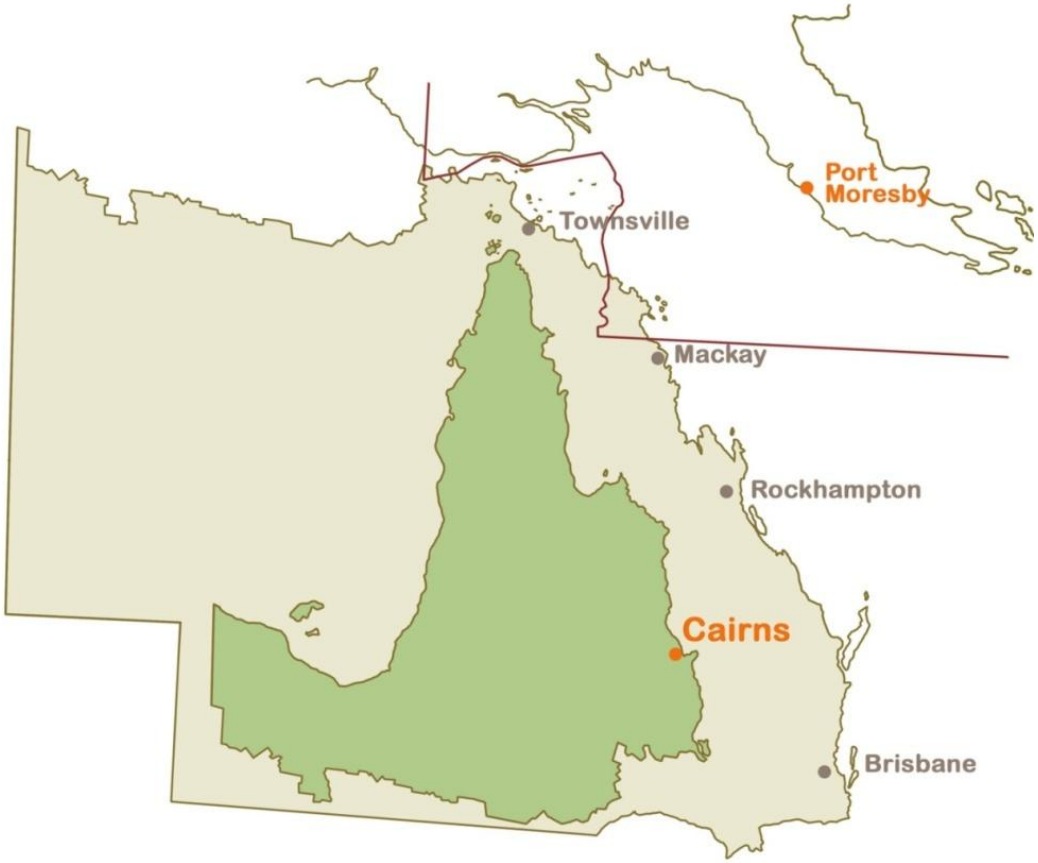
Indigenous population is experiencing relatively high birth rates and increasing life expectancies resulting in population growth faster than national averages. This trend is favourable to population growth in the far northern regions based on Cairns and Darwin.

4.6 Comparative regional areas

Reference to **Map 1** of the regions indicates the larger areas covered by the Northern Territory and Kimberley / Pilbara regions. It also indicates the relatively large area covered by the Cairns region among the Queensland regions.

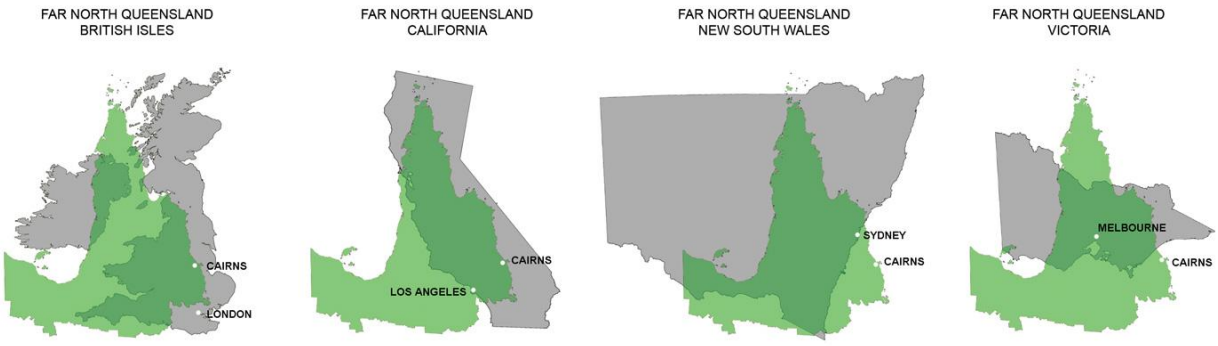
The Cairns region covers half Queensland's latitudes and is as deep from north to south as New South Wales. In area, it is 1½ times the size of Victoria and covers an area equivalent to the British Isles.

Map 4 – Comparative area and distances with rest of Queensland



Cairns Region..... 9° south to 19° south
Rest of Queensland .....19° south to 29° south

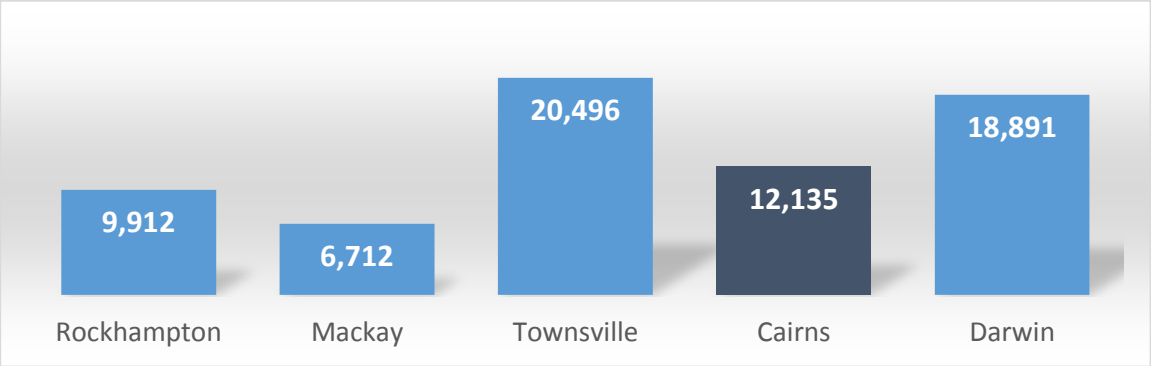
Map 5 – Comparative areas and distances



4.7 Core regional population and business concentrations in the north

Government employment plays a major role in increasing the population of Darwin and also of Townsville despite its stagnant hinterland population.

Chart #25: Government Employment, Northern Australian Cities, 2011



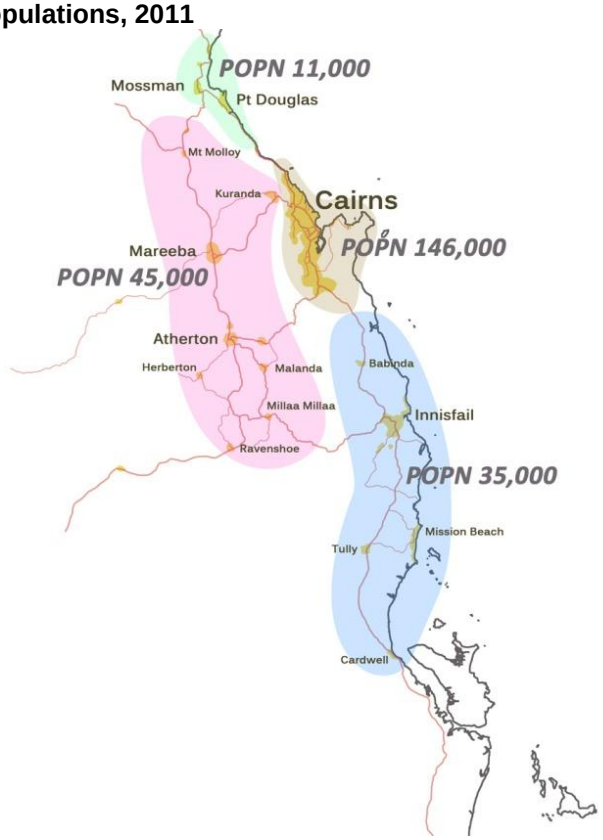
Source: Cummings Economics from ABS Census 2011.

Taking these large government employment impacts into account, emphasises the degree to which the Cairns region has been developing as a core business services region in northern Australia.

Immediate regional population

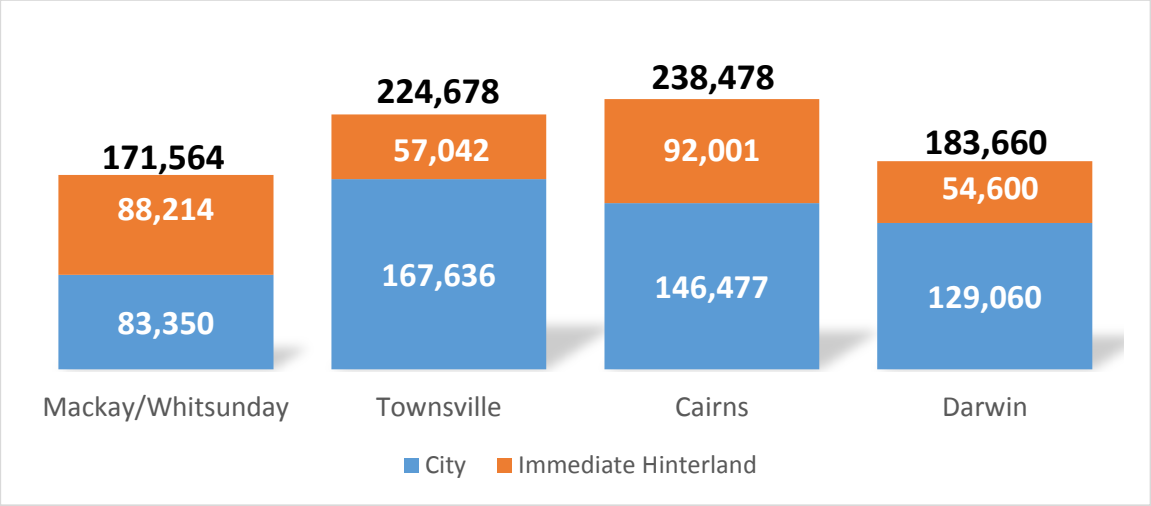
As **Map 6** illustrates, surrounding Cairns is a network of towns within a short drive (based especially on agricultural, marine industries and tourism), resulting in a concentration of population not found to the same extent around the other northern cities.

Map 6 – Cairns and Immediate Hinterland Townships and Districts and Estimated Residential Populations, 2011



Thus, Cairns and its immediate hinterland area leads the northern cities and near hinterland areas in population.

Chart #26: City and Immediate Regional Populations, 2011



Note: Darwin's immediate hinterland is taken to include Katherine, East and West Arnhem and Tiwi Islands.
Source: Cummings Economics from ABS Cat No. 3218.0 et al.

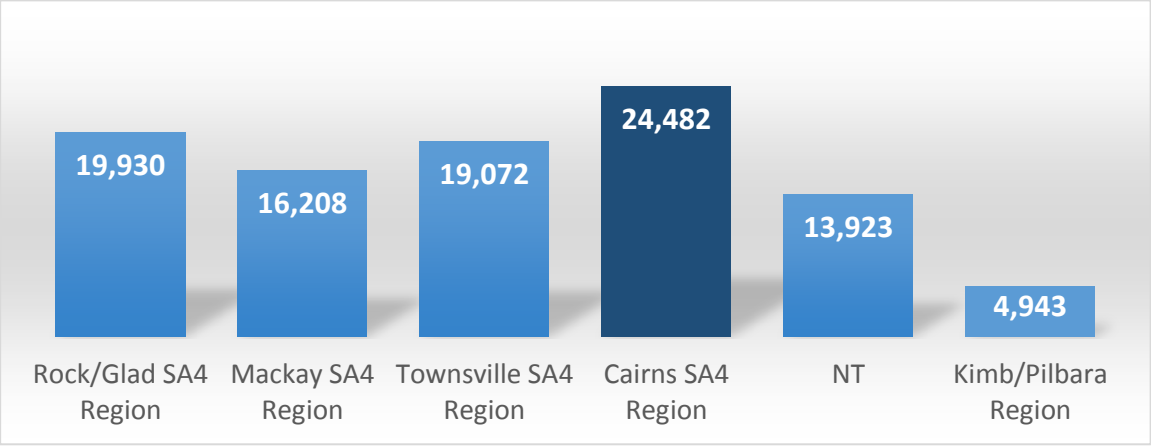
This large immediate hinterland population and the activity it generates can increase the market for Cairns based businesses and services.

The substantial hinterland centres can also provide suitable locations for regional facilities outside of Cairns itself that are not available to the same extent around the other northern regional cities. For instance, in the Cairns region, the major corrective services centre, Lotus Glen and the major Primary Industries office are on the Tablelands. The region's foundry is at Innisfail.

Leadership in business

The role of Cairns as a core / leading business region in the North is reflected in business activity. Above all, the Cairns region is private enterprise driven and leads the northern regions by a long way in number of businesses.

Chart #27: Number of Businesses, Northern Australian Regions, 2012



Source: Australian Bureau of Statistics Regional Data.

As might be expected, the Cairns region leads in a whole range of business activity.

The following information on fields like manufacturing, aviation, marine activities, and arts and entertainment gives an indication of the strength and depth of Cairns' leading business and services role in the northern regions.

Manufacturing

The Cairns region's core business role in the North is reflected in the fact that it leads the northern regions in number of manufacturing establishments. Latest statistics available indicate that in employment and turnover, it is close up behind Rockhampton/Fitzroy and Townsville regions with their larger mineral and primary processing units.

Table #28: Manufacturing in Northern Australia, 2006/07

	Number of locations	Employment	Sales of goods & services
Kimberley/Pilbara	197	851	na
Northern Territory	506	3508	na
Cairns/Far North	**962**	6382	$3286 m
Townsville/North	653	7137	**$4260 m**
Mackay	585	4836	$1648 m
Rockhampton/Fitzroy	586	**8110**	$3600 m
Total	**3489**	**30824**	**$17294 m**
			(plus NT, Kimberley & Pilbara)

☐ *Denotes highest recorded.*
Source: Cummings Economics from Australian Bureau of Statistics Cat. 82210DO010.

Table #29: Number of Businesses by Industry - Manufacturing, 30th June 2012

	Manufacturing
Cairns Region (SA4)	841
Townsville Region (SA4)	606
Fitzroy Region (SA4)	563
Northern Territory	493

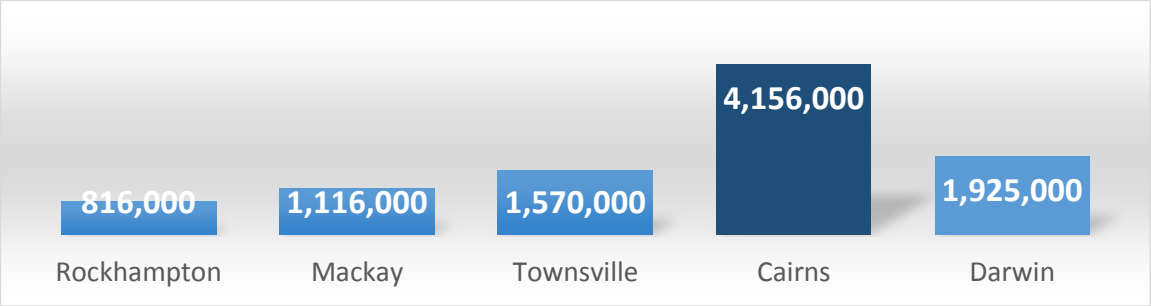
Source: Cummings Economics from Australian Bureau of Statistics Regional Statistics.

The Cairns region's leading position in number of manufacturing businesses reflects not only its population. It reflects the degree to which the city has developed 'skills' based manufacturing and services, especially in the marine and aviation sectors that find markets outside the region including in the wider Papua New Guinea / Asia / Pacific area.

Aviation development

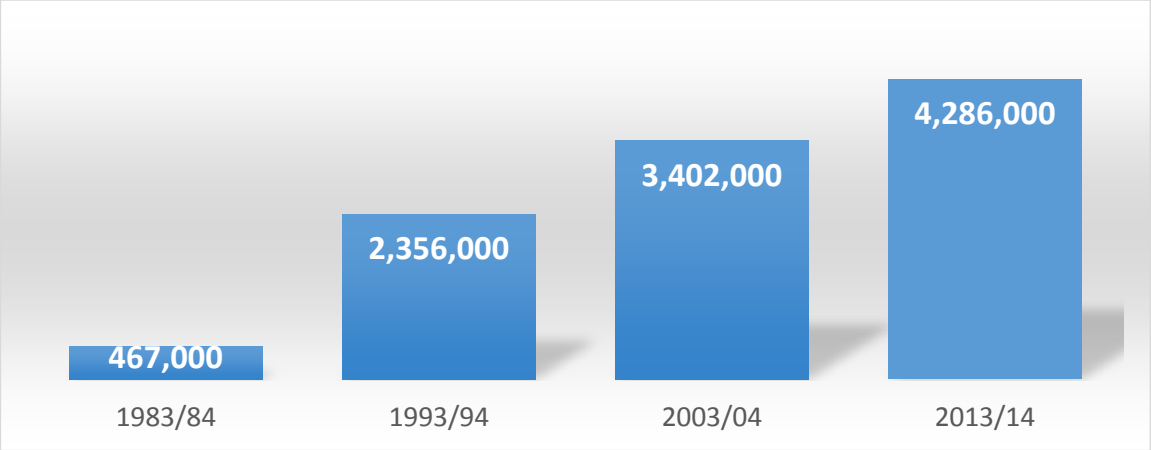
Population, tourism and strategic location leads Cairns to being the major airport hub in the North with Darwin next. Cairns has direct international links to 11 cities in the Asia Pacific region.

Chart #30: Passenger Movements Airports – Tropical Australia, 2012-13



Source: Bureau of Industry Transport & Regional Economics.

Chart #31: Passenger Movements – Cairns International Airport



Source: North Queensland Airports.

Especially backing up this role, is the region's large fleet of small aircraft and proximity to Papua New Guinea. Cairns has developed as the leading aircraft servicing centre in the North followed by Darwin, drawing business also from the wider Asia Pacific region and including the leading aviation training centre in the North.

Table #32: Estimated Value of Airport Operations – Cairns Airport, 2010-11

Output Value	**$630 m**
Direct Employment	**2,400**

Source: Cairns Airports Pty Ltd / Cummings Economics.

Marine activity

Five export ports of Mourilyan, Cairns, Cape Flattery, Weipa and Karumba handle tonnages greater than the Townsville region, Northern Territory, Tasmania and the State of South Australia.

Table #33: Tonnage Loaded and Unloaded Seaports by Regions, 2012-13

	Million Tonnes
Mackay Region	**117**
Fitzroy Region	**86**
Brisbane/Bundaberg	**37**
Cairns/Far North	**34**
Townsville/North	**18**
cf South Australia	**26**
Northern Territory	**15**
Tasmania	**8**

Source: Cummings Economics from Bureau of Industry Transport & Regional Economics and Qld Transport.

Cairns is home to important coastal shipping operations as well as Australia's largest tourism fleet, fishing fleet and Australia's north-eastern naval base. This fleet is backed up by three slipway operations and the largest marine servicing activity sector in regional Queensland and the North.

Table #34: Estimated Value of Port Related Operations – Cairns Seaport, 2013-14

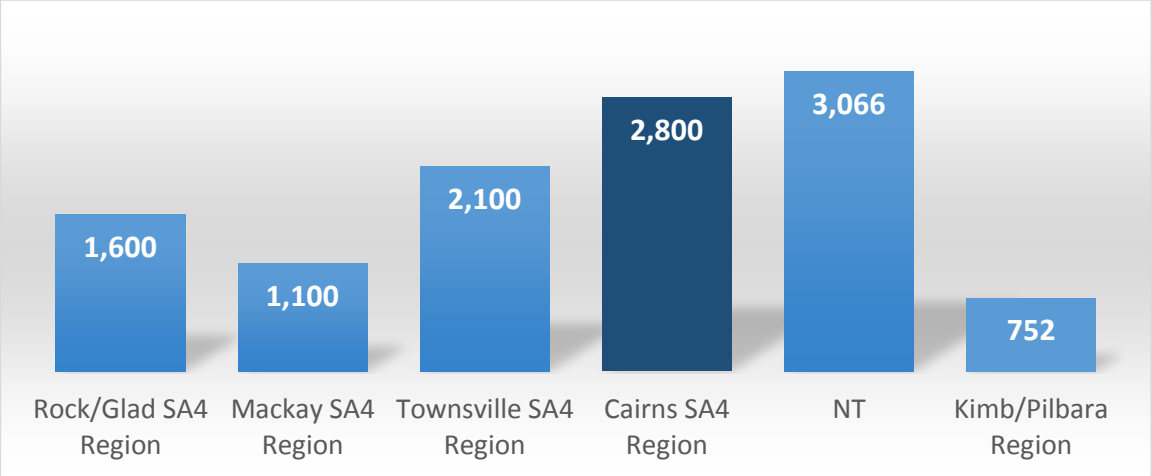
Output Value	**$83 m**
Direct Employment	**3,800**

Source: Ports North / Cummings Economics.

Creative industries

Size of population, the Cairns region's growing attractiveness as a place to live, tourism, and a stimulating social and natural environment, are reflected in the Cairns region's growing role in cultural and creative activity outside Queensland's south-east corner. The Cairns region leads in employment in the arts, entertainment and creative industry classifications in Queensland. However especially because of the high employment generated in the indigenous art in the Red Centre and government sectors, the Northern Territory ranks highest.

Chart #35: Employment in Cultural and Creative Industries, 2011



Source: Cummings Economics from Australian Bureau of Statistics, 2011 Census data.

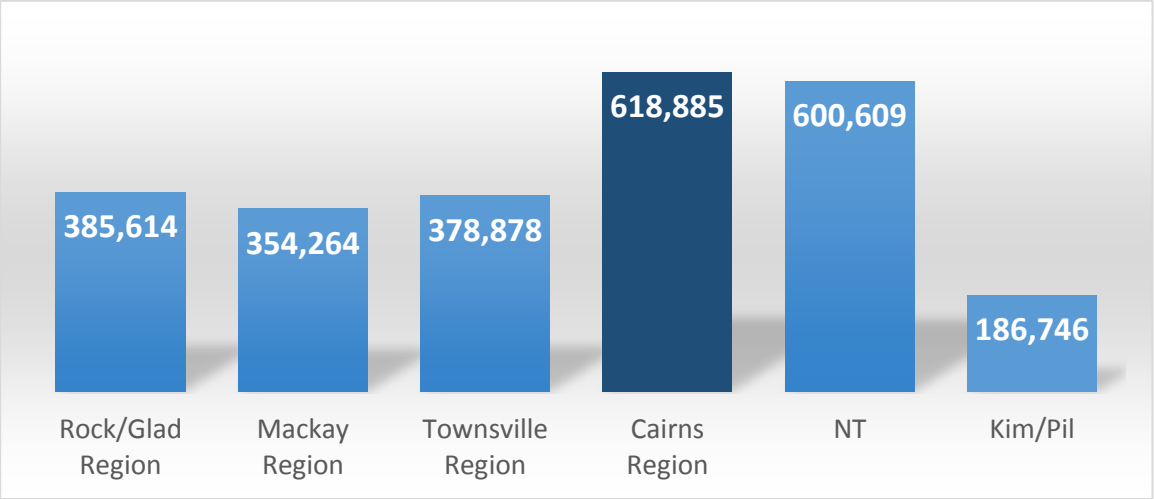
5.0 PROJECTING FORWARD

It can be expected that the type of underlying factors that have driven long-term regional growth in the past will continue into the future.

Regional population

On the long-term growth trajectory of the 35 years 1976 to 2011, it can be expected that the Cairns region and Northern Territory will pull away as the largest in population in northern Australia and by 2050 lead by a substantial margin, with a population larger than Tasmania's current population.

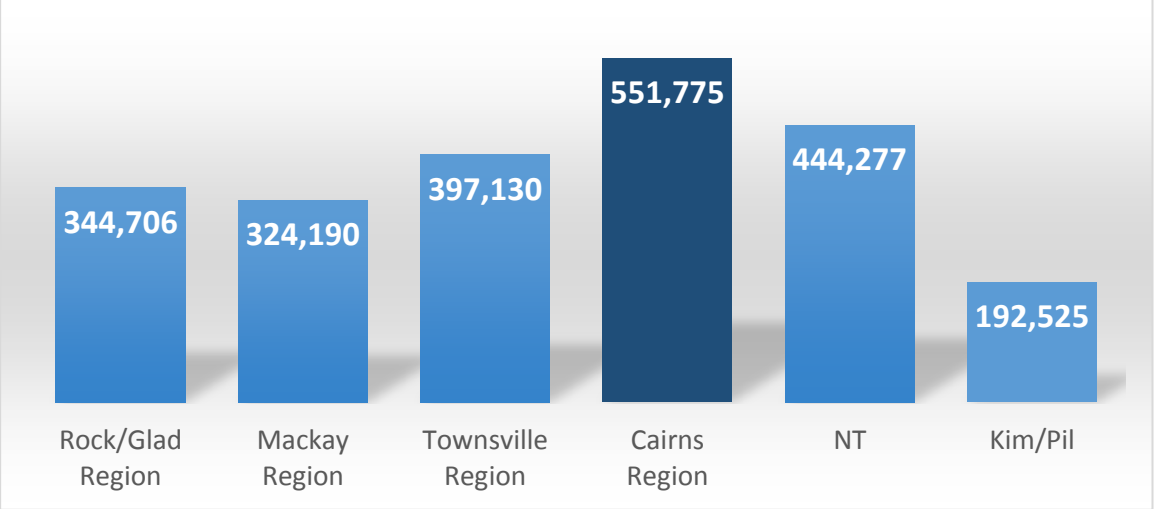
Chart #36: Projected Residential Population - 2050, Northern Australia (based on growth rate 1976-2011)



Source: Cummings Economics from ABS data.

On the growth trajectory of the 20 years, 1991-2011, a similar picture emerges.

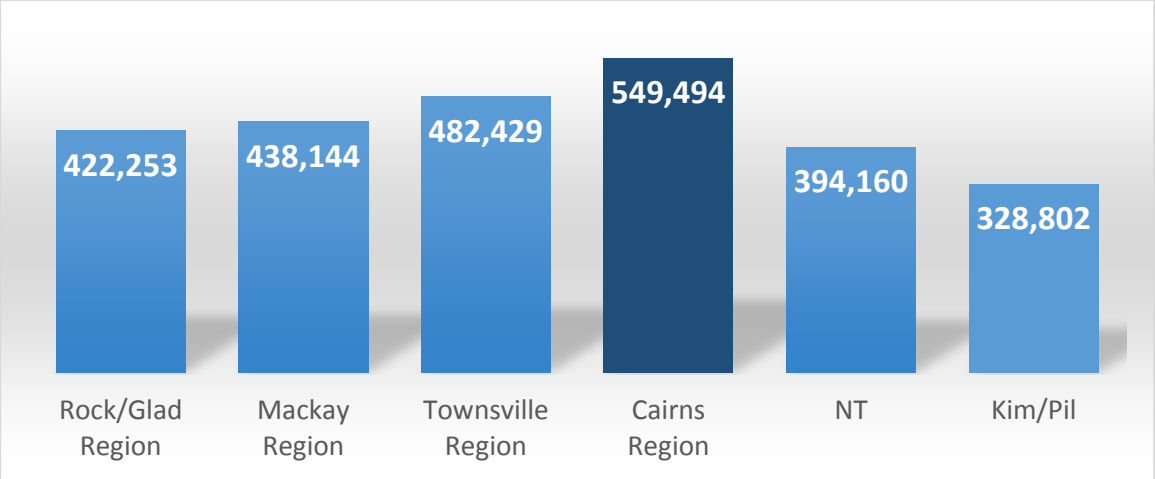
Chart #37: Projected Residential Population - 2050, Northern Australia (based on growth rate 1991-2011)



Source: Cummings Economics from ABS data.

On the growth trajectory of the 10 years, 2001-2011, the Cairns region will again be the largest but the other Queensland regions closer up towards the Cairns region and ahead of the Northern Territory.

Chart #38: Projected Residential Population - 2050, Northern Australia (based on growth rate 2001-2011)



Source: Cummings Economics from ABS data.

Based on forward projection of longer trend rates, it could b expected that the northern Australia regions would be in the following ranges by 2050:

Cairns Region..... 550 – 620,000

Northern Territory ..... 400 – 600,000

Townsville Region ..... 380 – 480,000

Rockhampton / Gladstone Region .... 340 – 420,000

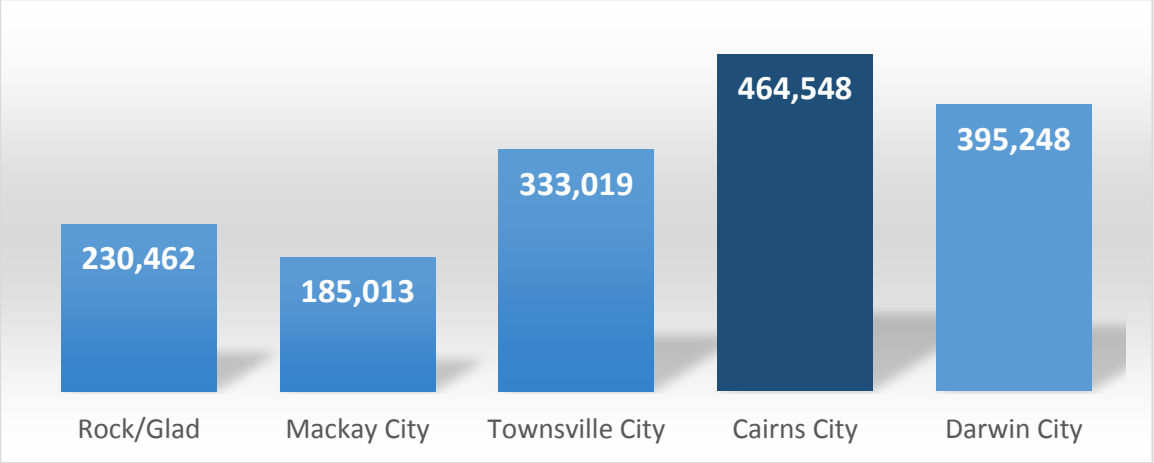
Mackay Region..... 320 – 440,000

Kimberley / Pilbara ..... 190 – 330,000

City populations

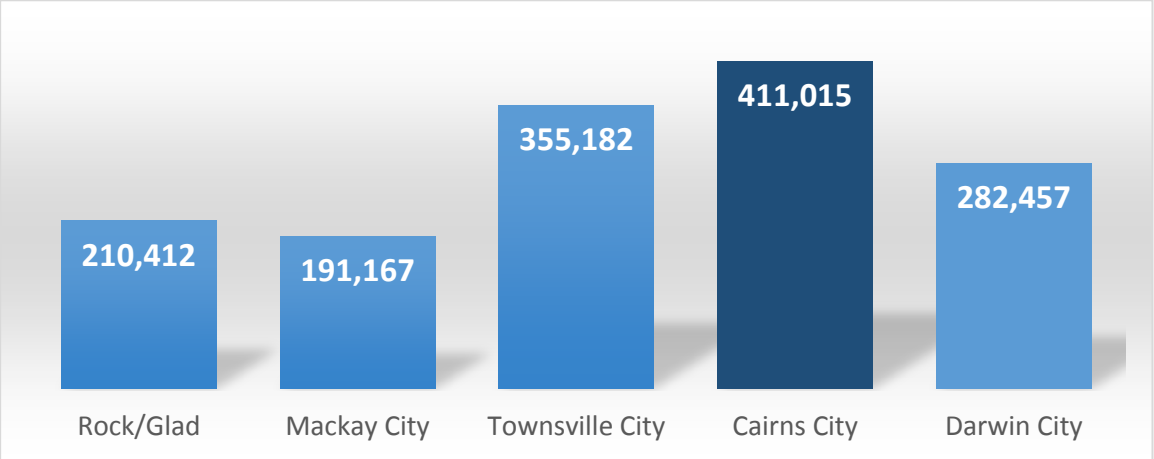
The following charts show projected city populations by 2050 based on past 35 years', 20 years' and 10 years' growth rates.

Chart #39: Projected Residential Population - 2050, Northern Australia Cities (based on growth rate 1976-2011)



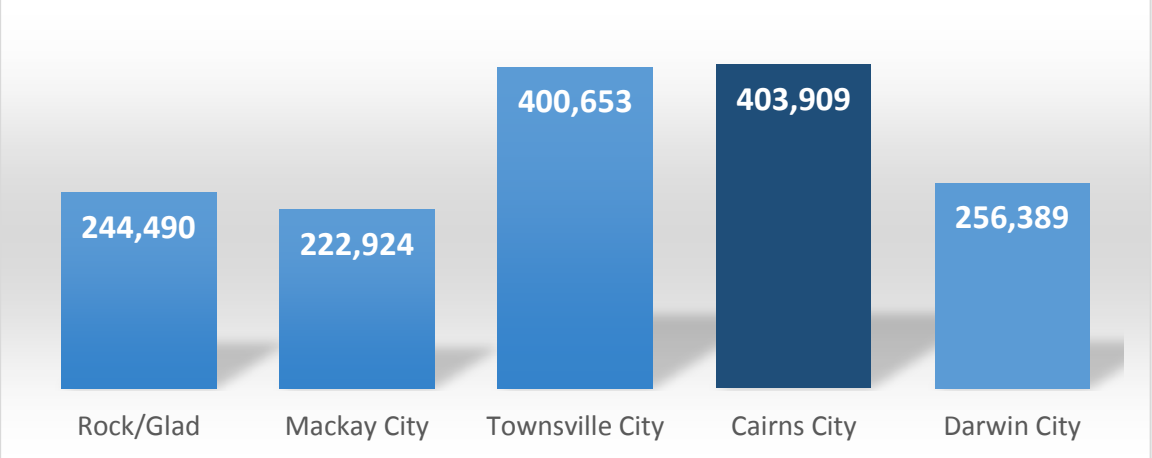
Source: Cummings Economics from ABS data.

Chart #40: Projected Residential Population - 2050, Northern Australia Cities (based on growth rate 1991-2011)



Source: Cummings Economics from ABS data.

Chart #41: Projected Residential Population - 2050, Northern Australia Cities (based on growth rate 2001-2011)



Source: Cummings Economics from ABS data.

The charts indicate that on past growth trajectories, by 2050, the northern regional cities would be in the following ranges:

Cairns ..... 400 – 460,000

Townsville ..... 330 – 400,000

Darwin ..... 260 – 400,000

Rockhampton / Gladstone ..... 210 – 240,000

Mackay ..... 180 – 220,000

The figures indicate that on a continuation of past trends, Cairns as a city will pass Townsville in size but Townsville probably remain ahead of Darwin.

APPENDIX 1

Statistical Notes

Commercial servicing regions - equate with the following AGSC areas as defined by Australian Bureau of Statistics up to 2011:

Cairns region – Far North Statistical Division plus Gulf shires of Carpentaria, Burke, Mornington and Doomadgee.

Townsville Region – North and North West Statistical Divisions less Shires of Carpentaria, Burke, Mornington and Doomadgee.

Mackay Region – Mackay Statistical Division including Bowen Shire.

Rockhampton Region – Fitzroy and Central West Statistical Division.

Northern Territory – State Territory.

Kimberley / Pilbara – Kimberley and Pilbara Statistical Division.

Cities - City populations are defined as follows:

Cairns – Cairns Statistical District. Because of a boundary change 1976 to 1991, it is taken as Cairns Statistical District as defined in 1976 plus an estimated additional population to take account of a boundary change ranging from 2,500 in 1976 to 3,844 in 1991.

Townsville – Townsville Statistical District.

Mackay – Mackay Statistical District.

Rockhampton / Gladstone – 1976 – 1990 – Rockhampton Statistical District plus Gladstone City. 1991 – 2011 – Rockhampton and Gladstone Statistical Districts.

Toowoomba –.1976 to 1991 Toowoomba City plus a sliding factor to bring up to Toowoomba Statistical District population in 1991. 1991 to 2011 Toowoomba Statistical District.

Darwin – Darwin Statistical Division.

Kimberley / Pilbara – not applicable.

Immediate regions - are defined as Australian Bureau of Statistics at 2011 as:

Cairns – Cairns SA4 plus Queensland Outback – Tablelands SA3

Townsville – Townsville SA4 (equivalent pre 2011 North SD)

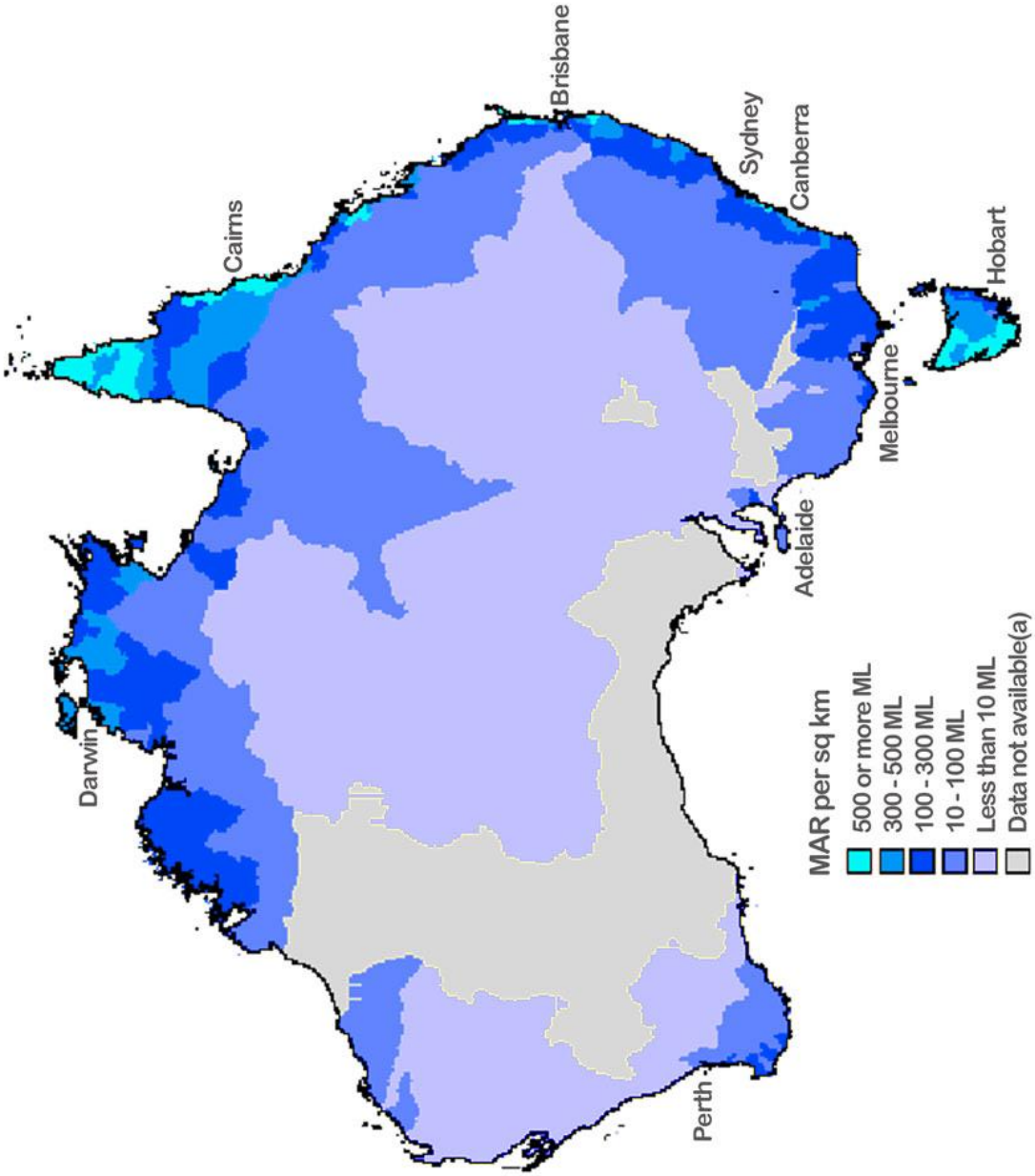
Mackay – Mackay SA4 (equivalent pre 2011 Mackay SD)

Rockhampton – Fitzroy SA4 (equivalent pre 2011 Fitzroy SD)

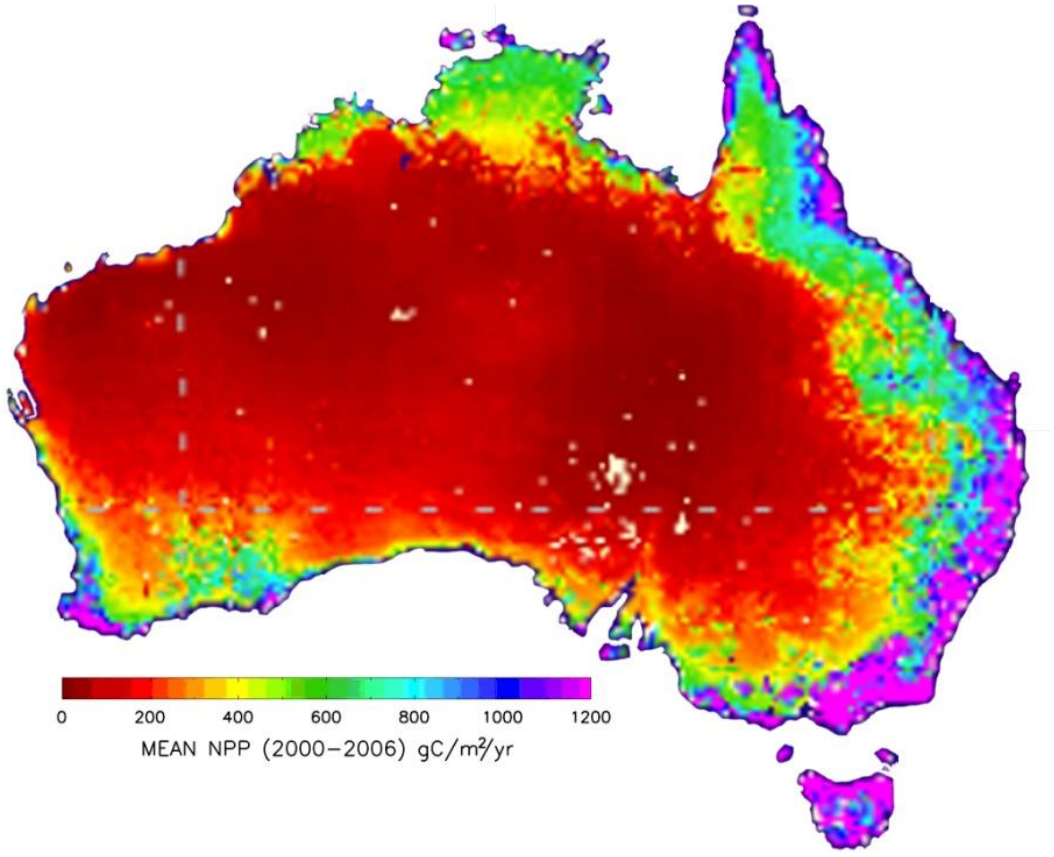
Darwin – Darwin SA4 plus Northern Territory Outback – Katherine, East Arnhem and West Arnhem (including Tiwi Islands) SA2s.

APPENDIX 2

Map – Water Runoff by River Basins



Map - NPP (Net Primary Productivity), Australia – Satellite Derived



Source: University of Montana from Modis Satellite Data, 2000 - 2006

Map - NPP Australia Wide, CSIRO Data