Great Keppel Island

REVITALISATION PLAN

5. ECONOMIES & MANAGEMENT OF IMPACTS

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5. ECONOMIES AND MANAGEMENT OF IMPACTS

The Proponent engaged Foresight Partners to prepare the economic assessment report for the EIS (refer **Appendix AC - Forecast Economic Impacts Report**).

5.1 Economy

5.1.1 Description of Affected Local and Regional Economies

The Island is located within Rockhampton Regional Council (comprising of former Rockhampton City and the former Livingstone, Fitzroy and Mount Morgan Shires).

Economic impacts from the Project are expected to extend beyond the boundaries of the local region (i.e., Yeppoon or Rockhampton Regional Council).

The Island is also located within the broader Fitzroy Statistical Division (SD) Region, which comprises Gladstone Regional Council, Central Highlands Regional Council and the Shires of Banana, Woorabinda and Rockhampton Regional Council.

It is expected that the Fitzroy SD Region will encompass the regions and economies to be mainly impacted by the Project. Therefore, analysis in this section mainly refers to the broader Fitzroy SD Region.

5.1.1.1 Gross Regional Product

The Office of Economic and Statistical Research (OESR) published a report detailing estimates of Gross Regional Product (GRP) for Queensland's regions in 2005-2006. This publication represents the most recent estimate of GRP figures that are publicly available for Queensland regions.

Table 5.1 and **Figure 5.1** summarise GRP for Fitzroy SD and Queensland in 2005-2006, and its distribution by industry.

TABLE 5.1 COMPOSITION OF REAL GROSS REGIONAL PRODUCT, FITZROY SD AND QUEENSLAND, 2005-2006

	QLD (%)		Fitzroy SD (%)	
Sector	2000–01	2005–06	2000–01	2005–06
Mining	6.1	10.6	21.3	39.3
Manufacturing	11.2	9.8	13.0	10.2
Construction	6.4	7.9	5.3	6.8
Electricity, gas and water	2.2	2.1	9.6	5.9
Transport and storage	5.9	6.0	5.6	4.8
Property and business services	10.6	10.0	5.1	4.3
Retail trade	8.0	7.5	5.4	4.2
Ownership of dwellings	8.6	8.3	5.0	3.9
Agriculture, forestry and fishing	4.4	3.4	7.4	3.6
Education	5.2	4.7	4.2	3.2
Health and community services	6.3	6.3	3.9	3.1
Wholesale trade	5.5	4.9	4.1	2.7
Finance and insurance	5.0	5.2	2.2	2.0
Government administration and defence	4.6	4.7	2.2	1.9
Accommodation, cafes and restaurants	3.5	2.9	2.3	1.7
Personal and other services	2.4	2.3	1.6	1.2
Communication services	3.1	2.3	1.5	0.9
Cultural and recreational services	1.2	1.3	0.5	0.4
Total ($ millions)	**145,629**	**183,983**	**12,041**	**14,126**

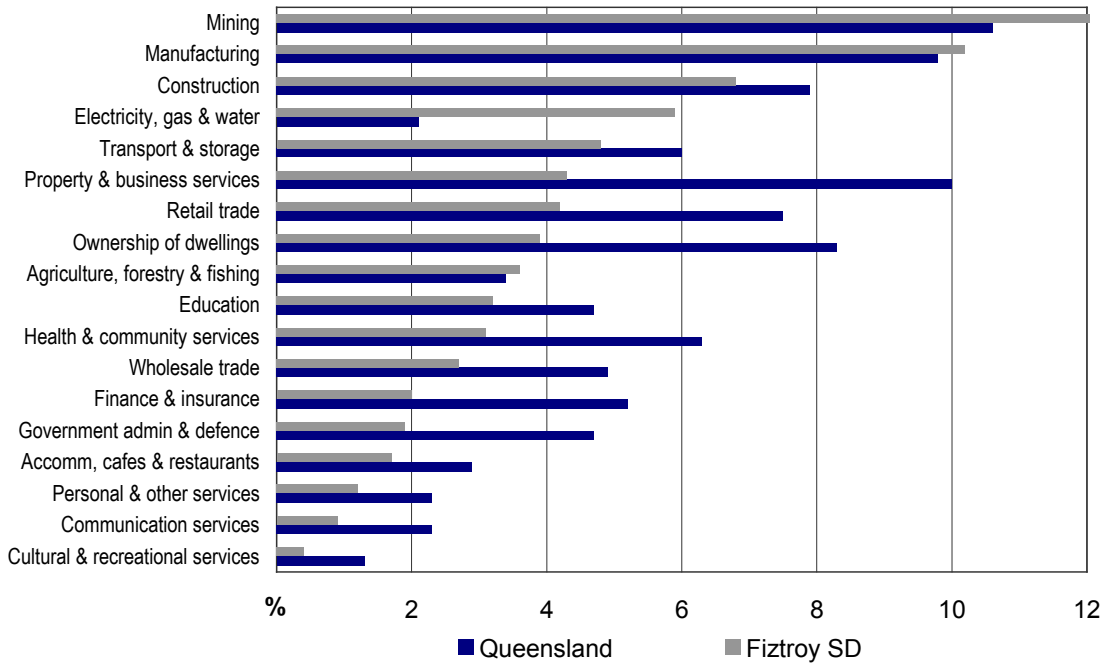
Source: OESR, 'Experimental Estimates of Gross Regional Product 2005-2006'.

Fitzroy SD's real GRP was estimated at around $14,100 million in 2005-2006, while Queensland's Gross State Product (GSP) was estimated at approximately $184,000 million. As such, Fitzroy SD contributed approximately 7.7 percent to Queensland's Gross State Product in 2005-06.

The figures show that two sectors - mining and manufacturing - dominate the local economy, contributing to over half of Fitzroy SD's GRP in 2005-2006. Mining alone contributed nearly 40 percent of the Region's GRP in 2005-2006. Construction is the third largest sector in the local economy, contributing 6.8 percent of Fitzroy SD's GRP over the period.

Mining and manufacturing are also key industries in Queensland's economy, representing the first and third largest sectors respectively in terms of contribution to GSP. However, mining only accounts for approximately 11 percent of Queensland's GSP, which is significantly less than the relative contribution of mining to Fitzroy SD's GRP.

Figure 5.1 COMPOSITION OF REAL GROSS REGIONAL PRODUCT, FITZROY SD AND QUEENSLAND, 2005-2006 (%)



Source: OESR, 'Experimental Estimates of Gross Regional Product 2005-2006'.

5.1.1.2 Population

(a) Recent Population Growth

Fitzroy SD's population increased from approximately 186,500 people in 2001 to approximately 220,700 people in 2009. This represents an increase of approximately 34,200 people over the period, or a growth of 2.1 percent per annum (**Table 5.2**).

TABLE 5.2 POPULATION GROWTH 2001-2009, FITZROY SD

Local Government Area	2001	2006	2009
Banana (S)	15,838	15,572	15,597
Central Highlands (R)	25,061	28,256	30,403
Gladstone (R)	46,369	53,941	59,644
Rockhampton (R)	98,225	107,517	114,105
Woorabinda (S)	1,034	918	965
Total Fitzroy SD	**186,527**	**206,204**	**220,714**

Annual growth	2001-2006	2006-2009
	2.0%	**2.3%**

Source: ABS Regional Population Growth Cat. No. 3218.0.

(b) Population Forecasts

The Queensland Office of Economic and Statistical Research's Planning and Forecasting Information Unit 2008 medium series projections (by Statistical Division) have been utilised to forecast population growth in Fitzroy SD (**Table 5.3**).

It is forecast that the population of Fitzroy SD will increase from approximately 206,000 people in 2006 to approximately 316,000 people in 2031. This represents an increase of 110,000 people over the period, or an average of 1.7 percent growth per annum.

TABLE 5.3 POPULATION FORECASTS, 2006-2031, FITZROY SD

Fitzroy SD	2006	2011	2016	2021	2026	2031
	206,266	231,656	251,426	271,702	293,706	316,393
Annual growth		**2006-2011**	**2011-2016**	**2016-2021**	**2021-2026**	**2026-2031**
		2.3%	1.7%	1.6%	1.6%	1.5%

Source: OESR, 2008 medium series projections by Statistical Division.

5.1.1.3 Labour Force

(a) Labour Force and Unemployment

The Department of Employment and Workplace Relations (DEWR) publishes labour force statistics and unemployment data for each Statistical Local Area on a quarterly basis.

As at September 2010, there were an estimated 108,000 people in the labour force in Fitzroy SD, 6,000 of whom were unemployed (**Table 5.4**). The unemployment rate in Fitzroy SD was therefore estimated at approximately 5.6 percent at September 2010, which is comparable to that of Queensland for the same period. However, the unemployment rate varies within the Fitzroy SD Region, with mining rich areas in the western part of the Fitzroy Region having significantly lower unemployment rates compared to most of the Region's coastal areas. For example, the Bauhinia Statistical Local Area has an unemployment rate of 1.9 percent and Emerald a 2.6 percent unemployment rate, while Rockhampton has a 6.9 percent unemployment rate (September 2010).

TABLE 5.4 LABOUR FORCE AND UNEMPLOYMENT BY STATISTICAL LOCAL AREA, FITZROY SD

Statistical Local Area	Labour Force	Unemployment	Unemployment Rate (%)
Bauhinia	1,621	30	1.9
Calliope Pt A	8,612	440	5.1
Calliope Pt B	1,644	105	6.4
Duaringa	4,618	136	2.9
Emerald	9,788	250	2.6
Fitzroy Pt A	3,599	132	3.7
Fitzroy Pt B	2,639	102	3.9
Gladstone	18,694	956	5.1
Livingston Pt A	2,314	57	2.5
Livingstone Pt B	13,798	863	6.3
Miriam Vale	2,684	199	7.4
Mount Morgan	1,108	219	19.8
Peak Downs	2,093	34	1.6
Rockhampton	34,546	2,395	6.9
Woorabinda	332	182	54.8
Total Fitzroy SD	**108,090**	**6,100**	**5.6**
Queensland	**2,423,500**	**135,400**	**5.6**

Source: Department of Employment and Workplace Relations, September 2010, Small area labour market data.

(b) Employment by Industry

The largest industries by employment in Fitzroy SD at the 2006 Census were manufacturing (employing 10.8 percent of Fitzroy SD residents), followed by retail trade (10.6 percent) and construction (9.3 percent). These three industries alone employ nearly one in every three residents in Fitzroy SD (**Table 5.5**).

In general, the employment profile of Fitzroy SD residents is comparable to that of Queensland residents. However, Fitzroy SD has a significantly higher proportion of people employed in mining (6.8 percent) than the Queensland average (1.7 percent). Compared to the Queensland average, the Fitzroy SD has higher proportions of people employed in agriculture, forestry and fishing, and lower proportions employed in professional, scientific and technical services.

The employment figures demonstrate that tourism is a key employer of residents in the Fitzroy Region. Industries that rely significantly on tourism, such as retail trade (9,300 employees) and accommodation and food services (5,900 employees) are among the largest employers of Fitzroy SD residents.

Research undertaken by the Sustainable Tourism Cooperative Research Centre (STCRC) estimates that in 2007-2008 tourism in Fitzroy SD directly accounted for approximately 4,100 jobs. The largest share of tourism employment was in retail trade (28.3 percent), followed by accommodation (18 percent) and cafes and restaurants (12.9 percent). This figure is estimated to be higher when including indirect jobs generated by tourism.

TABLE 5.5 FITZROY SD RESIDENTS' EMPLOYMENT BY INDUSTRY, 2006 CENSUS

Industry	Fitzroy SD		Queensland	
	Total	Percentage	Total	Percentage
Manufacturing	9,428	10.8	180,211	9.9
Retail trade	9,276	10.6	212,423	11.6
Construction	8,133	9.3	164,937	9.0
Health care and social assistance	7,567	8.6	186,332	10.2
Education and training	7,348	8.4	139,092	7.6
Mining	5,924	6.8	30,724	1.7
Accommodation and food services	5,898	6.7	127,631	7.0
Transport, postal and warehousing	5,080	5.8	92,614	5.1
Public administration and safety	4,854	5.5	122,418	6.7
Agriculture, forestry and fishing	4,726	5.4	61,733	3.4

TABLE 5.5 FITZROY SD RESIDENTS' EMPLOYMENT BY INDUSTRY, 2006 CENSUS (CONTINUED)

Industry	Fitzroy SD		Queensland	
	Total	Percentage	Total	Percentage
Other services	3,264	3.7	68,362	3.7
Professional, scientific and technical services	3,114	3.6	102,418	5.6
Wholesale trade	2,649	3.0	72,074	3.9
Administrative and support services	2,068	2.4	55,704	3.1
Electricity, gas, water and waste services	2,066	2.4	18,538	1.0
Financial and insurance services	1,450	1.7	52,039	2.9
Rental, hiring and real estate services	1,444	1.6	37,976	2.1
Information media and telecommunications	702	0.8	26,346	1.4
Arts and recreation services	531	0.6	24,629	1.3
Inadequately described/Not stated	2,107	2.4	48,800	2.7
Total	**87,629**	**100.0**	**1,825,001**	**100.0**

Source: ABS 2006 Census.

(c) Employment by Occupation

Table 5.6 summarises Fitzroy SD residents' employment by occupation at the 2006 Census. Out of the approximately 87,600 residents that are employed in the Region:

- 43.8 percent (around 38,400 people) are employed in blue collar positions;
- 29.4 percent (around 25,700 people) are employed in clerical/sales/services positions; and
- 25.0 percent (around 21,900 people) are employed in white collar positions.

In comparison, Queensland has a higher proportion of its workforce employed in white collar positions (29.5 percent), and a lower percentage employed in blue collar occupations (34.5 percent).

TABLE 5.6 FITZROY SD RESIDENTS' EMPLOYMENT BY OCCUPATION, 2006 CENSUS

Industry	Fitzroy SD		Queensland	
	Total	Percentage	Total	Percentage
White Collar				
Managers	10,437	11.9	225,695	12.4
Professionals	11,499	13.1	312,865	17.1
Total	21,936	25.0	538,560	29.5
Blue Collar				
Technicians and trades workers	16,235	18.5	280,343	15.4
Machinery operators and drivers	10,388	11.9	132,114	7.2
Labourers	11,739	13.4	217,251	11.9
Total	38,362	43.8	629,708	34.5
Sales/Clerical/Services				
Community and personal service workers	6,952	7.9	166,400	9.1
Clerical and administrative workers	11,142	12.7	269,199	14.8
Sales workers	7,642	8.7	189,041	10.4
Total	25,736	29.4	624,640	34.2
Inadequately described/Not stated	1,595	1.8	32,093	1.8
Total	87,629	100.0	1,825,001	100.0

Source: ABS 2006 Census.

5.1.1.4 Housing Market

(a) Residential Sales Market

This section analyses the housing market of Central Queensland (which corresponds to the Fitzroy SD Region). Data has been sourced from the OESR 'Residential Land and Dwelling Activity' profiles.

The median price of houses and units / townhouses increased significantly in the Fitzroy SD Region from 2002 to 2010. The median price of houses and units / townhouses more than doubled over the period to reach $340,000 and $300,000 respectively in 2010. However, median prices generally peaked in 2008, before the global financial crisis.

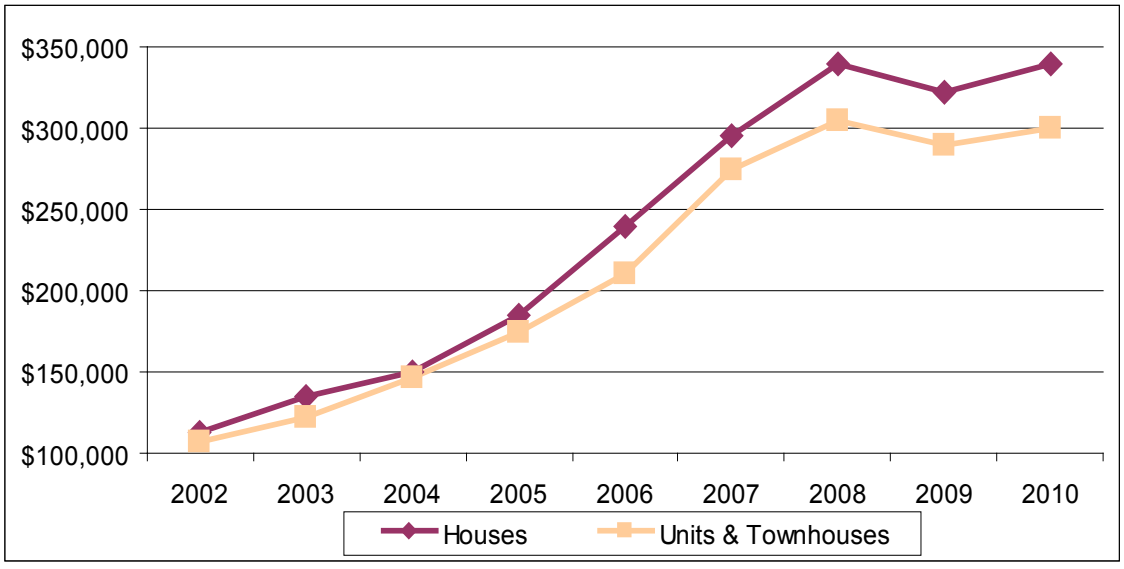
Table 5.7 and **Figure 5.2** summarise the median price of houses and units and townhouses for the Fitzroy SD Region over the 2002 to 2010 period.

TABLE 5.7 MEDIAN HOUSE AND UNIT / TOWNHOUSE PRICES, CENTRAL QUEENSLAND*

Year	Houses	Units / Townhouses
2002	$113,000	$107,250
2003	$135,000	$122,500
2004	$150,000	$146,000
2005	$185,000	$175,000
2006	$239,000	$210,000
2007	$295,000	$275,000
2008	$339,000	$305,000
2009	$322,500	$290,000
2010	$340,000	$300,000

Source: OESR,' Residential land and dwelling activity profile'.
**The Central Queensland Region corresponds to the Fitzroy SD Region.*

Figure 5.2 MEDIAN HOUSE AND UNIT AND TOWNHOUSE PRICES, CENTRAL QUEENSLAND*



Source: OESR,' Residential land and dwelling activity profile'.
**The Central Queensland Region corresponds to the Fitzroy SD Region.*

(b) Vacant Land Market

Table 5.8 and **Figure 5.3** show the median sale price of vacant residential lots in Central Queensland (which corresponds to the Fitzroy SD Region) and other Queensland regions. Data has been sourced from the OESR 'Residential Land and Dwelling Activity' profiles.

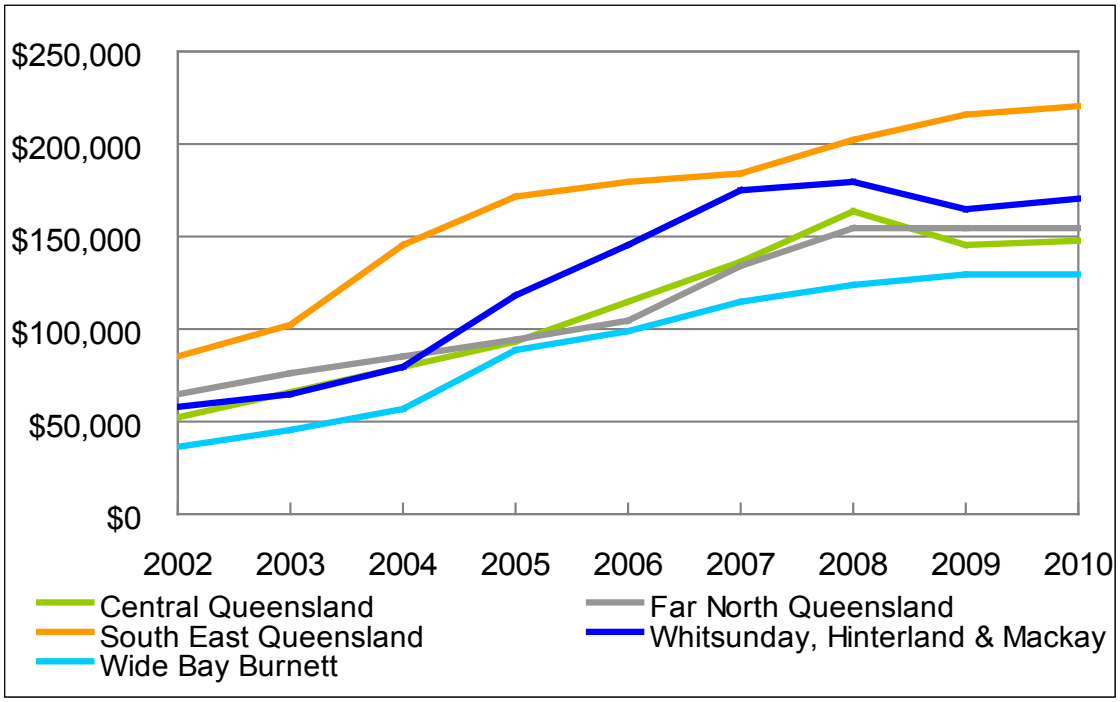
The figures show that vacant land values have nearly tripled over the 2002 to 2010 period, increasing from $52,000 to $148,000. Similar substantial increases in residential land values were also recorded in other regions in Queensland.

TABLE 5.8 MEDIAN SALE PRICE OF VACANT RESIDENTIAL LOTS

Year	Central Queensland*	Far North Queensland	South East Queensland	Whitsunday, Hinterland & Mackay	Wide Bay Burnett
2002	$52,000	$65,000	$85,000	$57,500	$36,000
2003	$66,000	$76,000	$102,000	$65,000	$45,000
2004	$79,900	$85,000	$145,000	$79,000	$57,000
2005	$93,500	$94,000	$172,000	$118,000	$89,000
2006	$115,000	$104,750	$180,000	$145,190	$99,000
2007	$136,500	$134,100	$184,500	$175,000	$114,500
2008	$164,000	$154,950	$202,500	$180,000	$124,000
2009	$145,000	$155,000	$215,500	$165,000	$129,000
2010	$148,000	$154,500	$220,000	$170,000	$130,000
% increase 2002 to 2010	**184.6%**	**137.7%**	**158.8%**	**195.7%**	**261.1%**
Average annual increase	**14.0%**	**11.4%**	**12.6%**	**14.5%**	**17.4%**

Source: PIFU Residential land and dwelling activity profiles.
**Central Queensland corresponds to the Fitzroy SD Region.*

Figure 5.3 MEDIAN SALE PRICE OF VACANT RESIDENTIAL LOTS



Source: PIFU Residential land and dwelling activity profiles.
**Central Queensland corresponds to the Fitzroy SD Region.*

(c) Rental Market

The Real Estate Institute of Queensland, through its 'Queensland Market Monitor' publication, publishes quarterly figures on the average weekly rent for a three bedroom house and a two bedroom unit for most Local Government Areas in Queensland.

Table 5.9 summarises the average weekly rent of a three bedroom house and a two bedroom unit within Rockhampton Regional Council over the 2004 to 2010 period, with data prior to 2008 referring only to rentals in the former Rockhampton City Shire area.

Average weekly rental prices for houses and units have increased considerably over the last six years, in line with the large increase in dwelling prices within the Rockhampton Region. The REIQ estimates that the average weekly rent for a three bedroom house has increased from $170 in 2004 to $295 in 2010, while that of units has increased from $125 to $225 over the same period.

TABLE 5.9 AVERAGE WEEKLY RENT, 3 BEDROOM HOUSE AND 2 BEDROOM UNIT, ROCKHAMPTON REGIONAL COUNCIL*

Year	3 bedroom house	2 bedroom unit
2004	$170	$125
2005	$190	$140
2006	$245	$160
2007	$270	$185
2008*	$280	$210
2009*	$290	$220
2010*	$295	$225

Source: Real Estate Institute of Queensland, Queensland Market Monitor.
**data prior to 2008 refers to the weekly rent in the former Rockhampton City Shire alone.*

5.1.2 Potential Impacts and Mitigation Measures

5.1.2.1 Economic Impacts

Foresight Partners previously prepared a forecast of the broad economic impacts resulting from the proposed GKI Revitalisation Plan based on development costs. Information in this section has been sourced in part from that document.

(a) Construction Impacts

In view of its scale, the Project will have a significant positive impact on Gross Regional Product (GRP), both directly and indirectly through multiplier effects.

The Project's overall impact on GRP during its construction phase is based on its construction cost, which is a projected $592.5 million over the estimated construction timeframe of 12 years.

To estimate the Project's benefits to the economy, multipliers have been utilised which have been derived from Input-Output analysis.

Value added multiplier tables are published by the OESR. Tables for the Fitzroy SD Region from 1996-1997 have been utilised which are the latest available; with adjustments made for inflation.

Construction expenditure for the Project has projected direct benefits of $243.5 million to the Fitzroy Region GRP. This would lead to additional GRP creation through a second round of impacts (indirect benefits) contributing an additional $100 million to GRP. A subsequent round of impacts (induced benefits) would add another $114.5 million to GRP.

Therefore, the forecast total economic impacts from construction over the 12 year period on the Fitzroy Region GRP are $458.0 million.

(b) Operating Impacts

The Project is expected to generate significant economic and employment benefits to the local economy (Rockhampton Regional Council), in addition to the regional economy (Central Queensland), and Queensland's economy.

Once operational, a significant number of people will be employed by the Project in a broad range of industry sectors. The Resort will also encourage more tourists to visit and stay in the Central Queensland Region, generating significant increased local expenditure, therefore benefitting local retailers, food and accommodation providers, service providers and other businesses based in the Central Queensland Region. The range of facilities proposed - including a golf course, marina, upgraded airstrip and research centre – will increase the variety of tourists attracted, and the marina will additionally improve disability access to the Island.

It is forecast that when fully operational, the Project will result in expenditure of over $83 million each year on the Island,[1] as shown in Table C.1 in **Appendix AC**.

The GKI Revitalisation Plan is forecast to generate direct impacts to GRP of $41.7 million each year and additional indirect impacts of $16.6 million per year. A subsequent round of impacts (induced benefits) will add another $16.9 million to GRP.

Therefore, after completion, the total estimated economic impact of the Project on the Fitzroy Region GRP is estimated at $75.2 million each year (**Table 5.10**).

1. More detailed information about sources and methodology to derive these figures is set out in 'Great Keppel Island Resort Forecast Economic Impacts'.

TABLE 5.10 ESTIMATED ECONOMIC IMPACT ON GROSS REGIONAL PRODUCT, FITZROY SD

	Direct Impact	Indirect Impact	Induced Impact	Total
Construction Phase				
Accommodation Construction	$171.1	$85.6	$85.6	$342.2
Other Construction	$72.4	$14.5	$29.0	$115.8
Total	**$243.5**	**$100.0**	**$114.5**	**$458.0**
Operational Phase (annual impacts)				
Hotel rooms	$12.7	$5.1	$5.1	$22.9
Villas and apartments	$24.1	$9.6	$9.6	$43.3
Marina berths	$1.4	$0.6	$0.6	$2.5
Day visitors	$1.3	$0.5	$0.8	$2.6
Staff in on-site accommodation	$1.9	$0.8	$0.8	$3.4
Staff commuting	$0.3	$0.0	$0.1	$0.4
Total	**$41.7**	**$16.6**	**$16.9**	**$75.2**

*Source: Office of Economical and Statistical Research, 'Queensland Regional Input-Output tables 1996-1997' and Foresight Partners calculations (Refer to **Appendix AC**)."*

(c) Impacts on GKI Businesses

The Island currently hosts a small number of businesses including accommodation facilities, a restaurant, dive shop and sports equipment rental. Their potential is significantly limited by the Island's visitation levels, which have dropped significantly with the decline in the former resort's patronage. The GKI Revitalisation Plan will greatly increase Island visitation, providing opportunities for existing businesses to grow and to be joined by new businesses, each of which will generate additional employment and economic activity.

5.1.2.2 Employment Impacts

The GKI Revitalisation Plan is projected to generate 427 Full Time Equivalent (FTE) jobs on average each year during the 12 year construction period. Of these, some 263 FTE construction jobs would be generated directly, while the remaining 163 FTE jobs would be generated indirectly through initial and consumption induced multiplier effects.

Therefore, during the construction phase, it is estimated that 3,160 person years of direct employment and a further 1,965 person years of indirect employment will be created.

At the end of the construction phase, a residual number of construction workers are expected to remain in the Region as a result of increased building activity generated by additional residents and visitors to the locality.

Once fully operational, the Resort, leisure and retail facilities on the Island will support an estimated 485 FTE jobs directly, with a further 260 FTE jobs generated offsite by the Resort through multiplier effects. Therefore, the operational phase is forecast to generate total direct and indirect employment of 745 full–time equivalent jobs (refer **Table 5.11**).

TABLE 5.11 SUMMARY OF FORECAST FULL TIME EQUIVALENT JOBS CREATED – GKI REVITALISATION PLAN

Phase of Project	Est. no. of direct FTE jobs created	Est. no. of FTE jobs created through initial multiplier effect	Est. no. of FTE jobs created through additional consumption – induced expenditure	Total no. of FTE jobs created from each phase
Construction *	263	84	79	427
Operational #	485	140	120	745

Source: Foresight Partners, 'Great Keppel Island Resort Forecast Economic Impacts'.
** Average number of full–time equivalent jobs required each year over a 12 year period.*
 # Full time equivalent jobs created on completion.

Annual construction employment is forecast to reach 416 in the first year of construction, peak at 500 in year two, and gradually decline in succeeding years to a low of 157 in the last year of construction.

A particular benefit of the Project's proposed timing is that it creates much-needed infrastructure investment at a time of relatively low economic activity and construction employment in the Fitzroy Region. Moreover, it generates most of the Project's construction expenditure and employment in the first years of the 12 year development program, which will help to offset the adverse impacts of current economic downturn, and bring forward the ongoing economic benefits of the Resort.

5.1.2.3 Residential Market Impacts

(a) Existing Demand and Supply for Residential Dwellings and Land

The main link between the Island and the mainland will continue to be by ferry to the Rosslyn Bay Marina near Yeppoon. Accordingly, Yeppoon is expected to be the primary location of economic, employment and residential market impacts resulting from the Project.

The capacity of the Yeppoon residential market to accommodate dwelling demand from the Project's construction workforce will be influenced by the demand and supply of dwellings.

As shown in **Table 5.12**, from 2002 to 2010, net demand for new dwellings in Yeppoon has ranged from 130 to 284 a year, averaging 196 dwellings a year over this period.

TABLE 5.12 YEPPOON POPULATION GROWTH AND ESTIMATED DWELLING DEMAND, 2002-2010

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Yeppoon population	12,340	12,855	13,297	13,613	14,087	14,781	15,277	15,846	16,254
Population growth	403	515	442	316	474	694	496	569	408
Dwelling demand*	165	211	181	130	194	284	203	233	167

**Dwelling demand is calculated by population growth divided by average household size of 2.44.*
Source: ABS Regional Population Growth, OESR, Foresight Partners calculations.

Yeppoon has a considerable existing supply of both residential dwellings and land approved for residential development. A survey by realestate.com.au indicates that as of July, 2011, there were around 1,500 residential properties advertised for sale in Yeppoon. This is equivalent to a supply of five to nine years at typical absorption rates, excluding any impacts related to the GKI Revitalisation Plan. There is estimated to be more than 500 additional lots currently approved or designated for residential development in Yeppoon, representing several years of additional supply. Accordingly, Yeppoon has significant current and long-term capacity to absorb an increase in residential demand.

(b) Construction Impacts on the Residential Market

The impacts of the construction workforce on the Yeppoon residential market will depend on the size of the workforce and the share requiring residential accommodation in Yeppoon.

It is expected that much of the construction employment will be drawn from the existing Yeppoon and Rockhampton workforce. These areas had over 3,100 residents employed in the construction industry as at the last census in 2006. The Proponent advises that some of the construction workforce will be housed in existing accommodation on the Island, while others will use temporary accommodation and shared facilities which are more suitable for short-term employment. Accordingly, it is estimated that a maximum of 50 percent of the construction workforce will seek residential dwellings in Yeppoon.

Table 5.13 shows the forecast maximum annual dwelling demand in Yeppoon generated by the Project's construction.

TABLE 5.13 FORECAST MAXIMUM ADDITIONAL DWELLING DEMAND IN YEPPOON FROM GKI CONSTRUCTION, 2012-2023

	2012	2013	2014	2015	2016	2017-2018	2019-21	2022	2023
Est. Avg. FTE construction employment	416	500	341	330	277	197	192	170	157
Share moving to local area	50%	50%	50%	50%	50%	50%	50%	50%	50%
Dwelling demand in local area	208	250	171	165	139	99	96	85	79
Additional net demand	208	42	-79	-6	-27	-40	-3	-11	-7
Additional demand as % of total dwellings	3.0%	0.6%	-1.2%	-0.1%	-0.4%	-0.6%	0.0%	-0.2%	-0.1%

Source: Foresight Partners, derived from GKI development budget, July 2011

Construction of the Project is forecast to generate a maximum demand for around 250 dwellings in Yeppoon in the second year of construction, equivalent to approximately 17 percent of the existing supply of available residential properties, and less than four percent of the total dwelling supply in Yeppoon.

Yeppoon has significant residential vacancies and vacant residential land available. Therefore, to the extent that the Project increases residential demand, it is forecast to contribute to increased residential development and a reduction in vacancies rather than an increase in property prices.

Whilst the Project will support the local economy, it will also stimulate the local housing market, which is currently experiencing a subdued level of market activity.

Consequently, whilst generating many benefits, it is considered unlikely that the Project will generate any significant negative impacts on disadvantaged groups or other groups within the local or broader economy.

(c) Operational Impacts on the Residential Market

Throughout the construction period of the proposed GKI Resort Revitalisation, it is anticipated that an average of 350 (per annum) construction workers would be employed to work on the Island. GKI Resort Pty Ltd is at present proposing that construction workers will be ferried to and from the Island where possible and practical, and that some construction workers will be accommodated on the Island.

Once the Resort is operational, most of those that are directly employed by the Resort are expected to be sourced primarily from the local area (Yeppoon in particular, and to a lesser extent Rockhampton). Most of these workers are expected to commute on a daily basis to the Island. Therefore, impacts on property values are likely to be minimal as many workers will already be residing in the area. Impacts will also be minimised because up to 200 staff accommodation beds will be provided on the Island (or around 40 percent of the Resort's direct employment). This level of staff accommodation on the Island is comparable to the former resort, which comprised 190 staff accommodation beds.

To accommodate the Resort workforce that will be resident on-site, new and upgraded staff accommodation is planned, which will be built to modern standards and thereby provide enhanced environmental benefits.

(c) (i) *Mitigation of Impacts*

It is forecast that the GKI Revitalisation Plan will not have significant adverse impacts on local residential supply or values because the forecast demand will represent a relatively small portion of the residential housing and land available for sale or rent in Yeppoon. Moreover, Yeppoon has a considerable stock of approved and designated residential land to meet long term demand.

However, as the construction workforce is likely to fluctuate over short periods, it may create short-term spikes in demand, particularly for rental accommodation. Potential related impacts will be mitigated by the following:

- availability of short term accommodation on the Island, which can be made available as required; and
- potential for the workforce to use off season visitor accommodation on the mainland.

This may also provide an economic incentive for the Project to schedule peak period construction workforce numbers during periods of low visitor demand.

Another potential impact is an escalation of residential demand and dwelling values in proximity to the Rosslyn Bay Marina, which is the departure point for commuters to the Island. This could occur during the construction period, and remain after the Resort opens because of convenience of homes near the marina to resort staff commuting from the mainland. However, the extent of house price escalation is forecast to be moderated by the substantial supply of alternative residential accommodation within a few kilometres of the marina, and the availability of accommodation on the Island during both the construction and operational phases.

5.1.2.4 Summary of Impacts

(a) Economic Impacts

In summary the economic impacts expected from the Project include:

- an estimated final development cost of $592.5 million;
- an average of around 2,274 visitors, staff and residents on the Island each day. This is comparable to the peak daily visitation of the Island in the early 1990's, however since that time the expectations and standards regarding facilities offered by resorts have changed;
- forecast annual expenditure of $83 million per annum on the Island by visitors and employees;
- a substantial increase in total visitor days in the Capricorn Region;
- provision of a significant number of local business opportunities in the Capricorn Region;
- diversification of the Capricorn Regional economy through promotion of the regional tourism industry, making the Capricorn Region less reliant on the commodity price–driven mining and agricultural industries;
- privately–funded infrastructure development provided at no cost to Government;
- significant increases in local and state government revenue through rates, headworks charges, property transaction duties, land tax and payroll tax; and
- forecast economic impact on the Gross Regional Product of the Fitzroy Region of $458 million from construction, and around $75 million per year when fully operational.

(b) Employment Impacts

- creation of an average of 263 construction–related jobs each year during the 12 year construction period, with total full time equivalent jobs generated representing 3,160 person years of employment;
- through flow–on or multiplier effects, the creation of around 164 additional full–time equivalent construction jobs on the mainland, predominantly in Rockhampton and Yeppoon;
- around 1,055 full time, part time and casual jobs generated in the Capricorn Region once the Resort is fully operational; and
- once fully operational, an estimated base of 685 persons employed on the Island in full time, part time and casual jobs, equivalent to 485 full-time employees. There will be an additional workforce in periods of high demand.

(c) Residential Market Impacts

- construction-related demand for up to 250 dwellings in Yeppoon in the first two years of construction, with demand declining in subsequent years. Peak demand is forecast to be equivalent to approximately 17 percent of the existing supply of available residential properties, and less than four percent of total dwelling stock in Yeppoon; and
- operational impacts on the local residential market are forecast to be minimal because much of the Island's workforce is expected to be already residing in the area, and around 40 percent of the Resort's direct employment will be accommodated on the Island.

5.2 Sustainable Development

The principles of Ecologically Sustainable Development (ESD) have been embodied in the development of the GKI Revitalisation Plan. ESD principles underpin the technical studies and Project design which incorporate technologies and innovations that will not only meet minimum legislative requirements, but will exceed international best practice for sustainable tourism.

The GKI Revitalisation Plan aims to deliver Australia's most sustainable island resort and ensure that:

- improved research facilities are made available in the Southern GBR;
- the World Heritage Values of the GBR are actively protected and enhanced;
- the community of Central Queensland have improved access to the Island;
- the Resort once fully operational will produce more electricity than it consumes; and
- any adverse environmental impacts are either mitigated (through careful design and implementation of strict environmental controls) or offset through a verifiable commitment to environmental sustainability, including an environmental protection precinct to rehabilitate and protect the ecological values of this area in perpetuity.

5.2.1 National Strategy for Ecologically Sustainable Development

There are three core objectives of ESD as outlined in the National *Strategy for Ecologically Sustainable Development* (1992), being:

- *Economic development that safeguards the welfare of future generations* – namely, that decision making processes should effectively integrate both short and long-term economic, environmental and social equity considerations and resources in decision making. This includes the consideration of ecosystems, people, communities, natural and physical resources, the qualities and characteristics of locations, places and areas, and the social, economic and cultural aspects of these in the present and future;
- *Inter and intra-generational equity* – the principle that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations; and
- *Protection of biological diversity, essential to ecological processes and life support systems* –where biodiversity is considered to be the number, relative abundance, and genetic diversity of organisms from all habitats, including terrestrial, marine and other aquatic systems. This includes diversity within and between species, as well as diversity of ecosystems.

In addition to meeting the principles of ESD, the Proponent demonstrates its commitment to Corporate Social Responsibility (CSR) by a commitment to adopting EarthCheck design and operational frameworks. EarthCheck provides a framework for managing and certifying the design of new buildings and precincts in accordance with international best practice standards for sustainable tourism development. (refer **Section 5.2.2** for more information on EarthCheck)

5.2.1.1 Economic Development that Safeguards the Welfare of Future Generations

The Project represents a long-term economic development revitalisation strategy for the Island that will have a significant impact on the local economy. As discussed in **Section 5.1** economic impact modelling forecasts a $458 million contribution to the Fitzroy Region's Gross Regional Product in construction, and around $75 million per year when fully operational. In addition, approximately 1,055 new operational jobs and 427 constructions jobs per annum will be generated for the local community and an increase in visitors to the Capricorn Region, which will have a positive impact on the local tourism industry, with flow on benefits to local businesses.

From an inter-generational perspective the GKI Revitalisation Plan will therefore provide the Island with a new, diversified and sustainable economic base that will:

- contribute to the long-term economic resilience of the Fitzroy Region through economic diversification of the GRP;
- provide medium to long-term economic development opportunities for existing and future Island residents;
- provide a significant sustainable tourism asset to Queensland; and
- enhance the ecological values of a significant proportion of the Island and protect this area in perpetuity, as part of the long-term tourism strategy of the Resort.

The GKI Revitalisation Plan also includes a program of scientific and educational initiatives that will contribute to the economic resilience and sustainability of the Resort. The programs and initiatives are as follows:

- based on an identified demand for improved monitoring within the southern GBR, the **GKI Research and Heritage Centre** will be used to conduct research programs and conservation activities on the Island and within the marine park. It will be available for scientists and government departments as well as students from local schools and universities to advance learning through practical understanding;
- the **GKI Research and Heritage Centre and Biodiversity Conservation Fund** (BCF) will be managed through a research partnership with key local environmental associations and the Reef and Rainforest Research Centre, the BCF will include a proportion of revenue generated from the Resort being spent on research and conservations works on the Island and throughout the Keppels;
- sustainability interpretation material will be located throughout the Resort and in accommodation;
- signage and education materials will be employed to educate visitors about the GBR, World Heritage values; and
- tours of the site and showcasing of visible green technology will be made available through use of the Research Centre.

5.2.1.2 Inter and Intra Generational Equity

The Project embraces best practice ESD and best practice guidelines for tourism development under the auspices of inter- and intra-generational equity.

In addition to ecological protection tenets that underpin the GKI Revitalisation Plan, the Project incorporates the following ESD drivers to ensure that the Project contributes to the health of the local and global environment for the enjoyment of current and future generations:

(a) Carbon Positive Renewable Energy Production

The GKI Revitalisation Plan aims to produce more clean renewable energy than it consumes each year in its contribution to reduce carbon emissions.

Chapter 2 of the EIS identifies that the GKI Revitalisation Plan can achieve its target of being Australia's first carbon positive island through the installation of over 24,320 solar panels on the rooftops of the hotel, Eco Resort Villas and Eco Resort Apartments. In total, the solar panels will generate over 12,444 megawatt hours of clean, renewable energy each year. Excess renewable energy will be available for use by the local community as well as residents on the mainland via a submarine cable.

Complementing this unique innovation are a number of other energy conservation initiatives, which will reduce the Island's carbon footprint and energy demands. These include:

- all buildings will be designed to the equivalent of a 5 star NABERS energy rating;
- use of the latest technology in solar hot water systems; and
- installation of motion sensors and energy efficient lighting.

(b) Total Water Cycle Management

The Water Cycle Management Strategy prepared for the GKI Revitalisation Plan (refer **Section 2.4.5**) details the projected water and infrastructure requirements of the proposed development as well as strategies to minimise potable water requirements and maximise rainwater harvesting and water recycling initiatives.

The Water Cycle Management Strategy has been designed to:

- protect existing natural features and ecological processes;
- maintain the natural hydrologic behaviour of catchments;
- protect water quality of surface and ground waters;
- minimise demand on the reticulated water supply system;
- minimise sewage discharges to the natural environment; and
- integrate water into the landscape to enhance visual, social, cultural and ecological values.

Rainwater tanks are considered to be an integral component of the proposed water supply strategy for the GKI Revitalisation Plan. Although not capable of supplying the total water demands of the Resort, rainwater tanks comprise a relatively low energy, low cost, easy to maintain and sustainable method of supplying water to significantly reduce overall mains water supply requirements.

(c) Total Waste Management

A strategy for managing wastes generated during all phases of the proposed GKI Revitalisation Plan has been developed in accordance with the principles of the waste management hierarchy specified in the *Environmental Protection (Waste Management) Policy 2000*. This strategy focuses on avoiding waste generation during construction and operation wherever possible, through implementation of procurement policies, planning and scheduling, training and awareness, and specific work practices. Reducing the total volume of waste generated, and in particular the volume of waste requiring disposal, is an essential component of this Project. General waste management is discussed in **Section 3.10.**

A range of wastes will be reused on the Island including, but not limited to, salvaging of demolition materials for reuse in construction, salvaging of other construction wastes, and composting of food and other organic wastes. Operational purchasing policies will be implemented that prioritise materials that are recycled, have recycled content and minimal packaging. A state-of-the-art sewerage treatment system will also be installed to enable recycling and reuse of waste water for irrigation of the golf course, landscaped areas and potentially for toilet flushing. It is estimated that these procedures will reduce the volume of waste requiring disposal during operation of the Resort to approximately eight to 25 percent of total waste generated. Waste generation and disposal will be monitored and benchmarked annually to assisting the operation to improve waste management practices over time.

5.2.1.3 Protection of Biological Diversity, Essential Ecological Processes and Life Support Systems

The GKI Revitalisation Plan has been prepared through a constraints-based approach by a team of qualified and experienced environmental scientists, engineers, world heritage specialists and planners. The GKI Revitalisation Plan proposes to set aside and invest 575 hectares of the Island for the purpose of ecological enhancement and protection (refer **Section 2.2.3.1**).

The Resort will be primarily located on areas significantly disturbed by past grazing and development activities. Tourism accommodation will be located in a manner that is sensitive to the natural topography and the Island and within clusters to allow appropriate buffers to sensitive environmental areas.

Section 3.3 details the impacts and mitigation measures in ensuring that relative abundance and genetic diversity of the Island and surrounding marine ecosystems are maintained and protected.

5.2.2 EarthCheck Precinct Planning and Design

The EarthCheck Precinct Planning and Design Standard (PPDS) process is based on Agenda 21 principles and ensures the application of applicable "building only" green star design criteria (such as LEED, NABERS, BREEAM, etc), in addition to establishing environmental and sustainability benchmarking and verification assessment standards for the precinct and the Project delivery. EarthCheck provides an independent assessment and auditing process as well as certification for development and operations that achieve above international baseline and best practice standards in all categories of sustainable performance. There are 10 Key Area Indicators for the EarthCheck PPDS that have been assessed for the Project:

1. Location and Siting;
2. Energy Efficiency;
3. Water Management;
4. Waste Management;
5. Resource Conservation;
6. Chemical Use;
7. Wastewater Management;
8. Stormwater Management;
9. Social Commitment; and
10. Economic Commitment.

The following tables describe the strategy and objectives of each of the key area indicators and how these have been considered in the GKI Revitalisation Plan.

TABLE 5.14 EARTHCHECK PLANNING AND DESIGN KEY INDICATORS

Key Area Indicators 1: Location and Siting

STRATEGY

The location and siting of the Resort elements will aim to reduce disturbance to the Island through minimisation of adverse impacts and/or enhancement of the natural environment.

Objectives	Discussion
1 To ensure that the site selection process includes environmental assessment by appropriately qualified professionals. 2 To ensure that a site survey is undertaken to record all natural features and identify environmental values to be protected. 3 Ensure that environmental characteristics are incorporated in the site planning of compatible land uses.	An ecological constraints based approach was undertaken in determination of the Resort footprint to ensure the avoidance of sensitive environmental areas. Detailed site surveys have been undertaken to record natural features and identify environmental values of international, national, state and local significance.
4 To ensure that public open space is located and sized to adequately reflect the environmental and social requirements of the Project.	Passive and active recreation facilities will be provided throughout the Resort, including a golf course.
5 To reduce area occupied by buildings and reduce clearing of vegetation within the site.	Further to the ecological constraints based exercise used in determination of the Resort footprint, the Resort comprises development up to three storeys in height to reduce the development footprint and reduce need for vegetation clearing and the more intensive areas of Resort development will primarily be located on previously disturbed land.
6 Ensure local flora and fauna communities are protected and significant habitats are enhanced through appropriate landscape design. 7 To ensure that natural features are incorporated into design of site landscaping. 8 To ensure that existing habitats are maintained or enhanced for provision of wildlife corridors.	An ecological precinct comprising 575 ha of the Island will be managed for nature conservation purposes. Where possible, vegetation native to the Island and region will be utilised in Resort landscaping, in particular, the golf course within the Clam Bay Precinct will comprise large areas of native vegetation, as a natural backdrop to fairways and greens. Refer **Section 2.2.3.1** and **Section 3.3** for further discussion.
9 Ensure minimal disturbance of natural topography and drainage patterns by the reduction of cut and fill and vegetation clearing within the site.	Resort development will follow existing terrain and contours to minimise soil disturbance where possible. The relocation and upgrade of the Island airstrip will however necessitate significant earthworks. Notwithstanding, the earthworks for this infrastructure can be balanced under the preferred airstrip upgrade Option 7B.

TABLE 5.14 EARTHCHECK PLANNING AND DESIGN KEY INDICATORS (CONTINUED)

Key Area Indicator 2: Energy Efficiency	
STRATEGY	
The Project will be designed and managed to reduce energy consumption and greenhouse gas emissions and to conserve non-renewable natural resources.	
Objectives	**Discussion**
1 To encourage the use of alternative renewable energy sources.	The primary source of electricity for the Resort is solar power. Over 24,320 solar panels will be installed, generating over 12,444 megawatt hours of clean renewable energy each year during operation of the fully developed Resort.
2 To set energy targets generated by renewable energy.	The Project seeks to produce more energy than it consumes per annum.
3 To encourage energy efficient urban form design to reduce energy use.	Annual carbon dioxide generation from buildings and infrastructure will be minimised, while the use of solar energy will be maximised.
4 To encourage and facilitate the use of passive solar design.	The buildings will be designed in accordance with the philosophies of Green Stars and NABERs 5 star ratings with regard to energy efficient design principles. Façade design, building design and building orientation will be maximised to reduce the need for air conditioning and lighting.
5 To commit to installation of energy efficient plant and equipment.	The plant and equipment installed within the buildings will include reliable, high performance, cost effective and energy efficient appliances/building services (mechanical, electrical and hydraulic) and Building Management Systems (where applicable) will be designed to reduce the energy consumption of each building.

TABLE 5.14 EARTHCHECK PLANNING AND DESIGN KEY INDICATORS (CONTINUED)

Key Area and Measures 3: Water Management

STRATEGY

The water requirements of the Project will be managed to reduce demand on high quality municipal potable water supplies and to encourage the use of sustainable water supplies such as rainwater, stormwater and treated wastewater.

Objectives		Discussion
1	To manage water as a limited resource.	A total Water Cycle Management Plan has been prepared in accordance with water sensitive urban design principles and aims to: • Minimise demand on limited water resources, particularly potable water supplies, by maximising water use efficiency and the use of alternative water supplies for non-potable purposes; • Maximise the beneficial reuse of wastewater and reduce the volume of wastewater requiring disposal; • Ensure wastewater is adequately treated to a standard 'fit for purpose' prior to reuse or disposal; • Ensure the collection, storage and reuse or disposal wastewater during construction and operation does not adversely impact on the natural environment or communities on and off the Island; • Ensure stormwater is adequately treated to reduce the risk of potential impacts on the environmental values of receiving waters, and it is managed to maintain existing hydrologic behaviour; • Ensure water cycle management infrastructure is designed and located to integrate into the landscape to enhance visual, social, cultural and ecological values; and • Continually improve the process for managing water supply, wastewater and stormwater. Refer **Section 2.4.5** for further discussion.
2 3	To facilitate rainwater harvesting as a primary source of potable water and stormwater/treated wastewater for non-potable uses. To ensure water distribution and irrigation systems are efficient and well-maintained.	The detailed water balance outlined in the Water Cycle Management Plan demonstrates that 23 percent to 50 percent of total water demand will be derived from rainwater, treated effluent and harvested stormwater: • Rainwater reuse will account for between three percent and nine percent of total water demand; • Treated effluent reuse will account for between 16 percent and 28 percent of total water demand; and • Harvested stormwater will account for between four percent and 13 percent of total water demand. The viability of increased rainwater reuse for apartments and villas will be investigated during the design stage. Refer **Section 2.4.5** and **Section 2.4.6** for further discussion.
4	To ensure groundwater use does not result in aquifer drawdown.	During Stage 1 of construction, water supply will be sourced from the existing groundwater bores installed within the Long Beach Aquifer. Peak usage will not exceed the maximum long term yield of the aquifer during this construction stage. Once mainland water supply connection is operational, no further extraction of groundwater resources is proposed for construction or operation of the Resort. Refer **Section 2.4.5** for further discussion.
5	To reduce potable water demand by adoption of best practice water management principles.	A core objective of the Water Cycle Management Plan is to minimise demand on limited water resources, particularly potable water supplies, by maximising water use efficiency and the use of alternative water supplies for non-potable purposes. Refer **Section 2.4.5** for further discussion.

TABLE 5.14 EARTHCHECK PLANNING AND DESIGN KEY INDICATORS (CONTINUED)

Key Area and Measures 4: Waste Management

STRATEGY

Waste minimisation and management principles will be adopted through implementation of a 'Waste Management Plan' to reduce generation of waste and limit waste disposal to landfill.

Objectives	Discussion
1 To ensure the Master Plan incorporates a commitment to waste management principles. 2 To increase use of recyclable materials in architectural design and material supply. 3 To reduce purchase of materials with excessive packaging. 4 To purchase products which consider life-cycle waste generation 5 To ensure waste generation and disposal is recorded and facilitate waste separation. 6 To ensure green waste recycling.	A waste management strategy focuses on avoiding waste generation during construction and operation, through implementation of procurement policies, planning and scheduling, training and awareness, and specific work practices. A range of wastes will be reused on the Island including salvaging of demolition materials for reuse in construction, salvaging of other construction wastes, and compositing of food and other organic wastes, including biosolids for reuse as soil conditioner on the Island during operation. Operational purchasing policies will be implemented that prioritise recycled materials and material that have recycled content and minimal packaging. A state-of-the-art sewage treatment system will also be installed to enable recycling and reuse of waste water for irrigation of the golf course, landscaped areas and potentially for toilet flushing. It is estimated that these procedures will reduce the volume of waste requiring disposal during operation of the Resort to approximately eight to 25 percent of total waste generated (depending on waste procedures adopted).

TABLE 5.14 EARTHCHECK PLANNING AND DESIGN KEY INDICATORS (CONTINUED)

Key Area Indicator and Measures 5: Resource Conservation

STRATEGY

The construction and operation of the Project will reduce the quantities of new materials used and will incorporate the use of reclaimed, recycled and green materials used in buildings and infrastructure.

Objectives		Discussion
1	To ensure specification of materials from local producers to reduce transport distances.	The GKI Revitalisation Plan will include the use of local suppliers and producers for materials to be used in the Resort's buildings and infrastructure.
2	To ensure specification of material that is locally recycled or reclaimed.	Materials to be used on the Resort will be obtained from local recycled/reclaimed sources wherever possible.
3	To ensure specification of materials from environmentally sensitive sources.	All selected materials will be obtained from environmentally sensitive sources and will have a Summary Rating and Recyclability Rating of BRE Level 'B' or better.
4	To reduce quantities of raw materials from non-renewable resources and encourage materials salvage/re-use.	The GKI Revitalisation Plan will include procedures to ensure the maximum use of materials from environmentally sensitive sources.
5	To ensure specification of materials that requires minimal maintenance such as painting, treatment or waterproofing.	
6	To follow a policy of green materials procurement.	A 'Green Materials Procurement Policy' will be developed to ensure the purchase and use of environmentally sensitive products.

TABLE 5.14 EARTHCHECK PLANNING AND DESIGN KEY INDICATORS (CONTINUED)

Key Area Indicator and Measures 6: Chemical Use

STRATEGY

The Project will utilise, wherever possible, biodegradable alternatives to chemicals used in cleaning, pest control and weed control to reduce environmental impacts on receiving waterways and habitats.

Objectives	Discussion
1 To decrease overall chemical use in order to minimise the risk of impacts on people and ecosystems. 2 To increase the proportion of biodegradable chemical use.	A 'Chemical Use Strategy' will be prepared and adopted to identify biodegradable alternatives which may be used within the precinct.

TABLE 5.14 EARTHCHECK PLANNING AND DESIGN KEY INDICATORS (CONTINUED)

Key Area Indicator 7: Wastewater Management

STRATEGY

The Project will apply best practice management measures to treatment of wastewater to reduce storage, energy and chemical requirements to provide a sustainable supply of non-potable water for reuse within the precinct.

Objectives	Discussion
1 To manage wastewater to allow reuse for non-potable purposes. 2 To ensure adoption of best practice collection and treatment procedures.	Wastewater is to be treated to A+ tertiary standards and re-used as irrigation for the golf course and possibly other landscaped areas around the Resort (refer **Section 2.4.7**). The Project also includes establishing a public sewage pump-out facility for use by the public, as a direct response to an identified need to reduce sewage pollution by boats within Keppel Bay waters.
3 To manage wastewater to maintain the quality and quantity of local water resources	An island-based wastewater treatment plant designed to treat wastewater to a standard suitable for sustainable reuse By maximising beneficial reuse of wastewater generated by the GKI Revitalisation Plan and ensuring such reuse is undertaken in a manner to prevent adverse impacts on the environment or human health, the GKI Revitalisation Plan will establish a benchmark in sustainable tourism development within the Great Barrier Reef Marine Park (refer **Section 2.4.7**).

TABLE 5.14 EARTHCHECK PLANNING AND DESIGN KEY INDICATORS (CONTINUED)

Key Area Indicator 8: Stormwater Management

STRATEGY

The Project will provide collection and treatment of stormwater to provide a sustainable supply of water for non-potable uses.

	Objectives	Project Compliance
1	To ensure adequate collection, and treatment of stormwater from impervious surfaces for reuse.	A Water Cycle Management Plan includes management procedures which will maximise stormwater harvesting and reuse (refer **Section 2.4.6** and **Section 3.6**).
2	To minimise chemical, energy and labour inputs in treatment of stormwater.	The Water Cycle Management Plan provides a range of strategies to achieve water quality objectives through minimal intervention through the use of bio-retention systems and avoidance of the use of hard infrastructure such as underground pipes (refer **Section 2.4.6.2**).
3	To prevent deterioration of local water resources.	The design will ensure the protection of ecosystem health and water quality within freshwater surface, marine and groundwater resources (refer **Section 2.4.6** and **Section 3.6**).
4	To prevent flooding as a result of stormwater runoff.	The Water Cycle Management Plan proposes a stormwater quantity strategy that will reduce the likelihood of flooding (refer **Section 2.4.6.1**). Further, the proportion of permeable surfaces within the Project site will be maximised.
5	To prevent accidental public ingress to stormwater treatment devices.	Safety measures will be installed on-site to prevent public access to stormwater infrastructure where necessary.

TABLE 5.14 EARTHCHECK PLANNING AND DESIGN KEY INDICATORS (CONTINUED)

Key Area Indicator 9: Social Commitment

STRATEGY

The Project will provide improved quality of life and will address key 'community' issues and will encourage and facilitate participation of communities and community organisations in the precinct development.

	Objectives	Discussion
1	To determine the needs of existing and future communities to ensure a sustainable future.	A community consultation program and social impact assessment has been undertaken to ensure the GKI Revitalisation Plan contributes to the broader region and that the development aligns with the vision of the community. Further, a range of social impact mitigation measures are identified in **Chapter 4 Community Reference Group**.
2	To ensure improvement or maintenance of the quality of life and to identify a shared vision for the future of the whole community.	The GKI Revitalisation Plan provides improved access to the Island and therefore improved access to mainland community service providers. It will provide a network of walking paths that will allow full public access to the Island, improved access to and throughout the Island, as well as deliver a higher standard of infrastructure than previously provided on the Island. This includes improved electricity and water supply, access to unload goods, increased regularity of ferry services, access to emergency services and improved shopping facilities.

TABLE 5.14 EARTHCHECK PLANNING AND DESIGN KEY INDICATORS (CONTINUED)

Key Area Indicator 10: Economic Commitment

STRATEGY

The Project will adopt an integrated approach to sustainable economic development with consideration of environmental and social performance to achieve economic growth and stability.

Objectives		Discussion
1	To encourage economic growth and create business opportunities for the community.	The GKI Revitalisation Plan will provide an increased opportunity for business investment and increase the viability of existing businesses. A detailed economic impact assessment has been undertaken to demonstrate significant economic benefits for the local region, including: • $458 million contribution to GRP during construction and around $75 million per year when fully operational; • An average of 2,274 visitors, staff and residents on the Island each day, and a substantial increase in total visitor days in the Capricorn Region; • Diversification of the Capricorn regional economy through promotion of the regional tourism industry, making the Region less reliant on the commodity price-driven mining and agricultural industries; • Privately-funded infrastructure development provided at no cost to Government; • Significant increases in local and state government revenue through rates, headworks charges, property transaction duties, land tax and payroll tax.
2	To create employment and training opportunities for the community.	The Project will include the establishment of a number of permanent and part-time employment opportunities, and training and long-term career opportunities. It is expected that 1,055 (direct and indirect) full time, part time and casual jobs will be generated once the Resort is fully operational, which will have a positive impact on the local tourism industry, with flow on benefits to local businesses.

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