CrossRiver**Rail**

21. Economic Assessment

Cross River Rail

CHAPTER 21
ECONOMIC ASSESSMENT

JULY 2011

Contents

21 Economic assessment

21.1 Introduction

This chapter addresses Part B, Section 5 of the Terms of Reference (ToR), which requires an assessment of the Project's potential impacts on local and regional economies.

The Project would provide a new north south rail link through the Brisbane CBD to improve rail operations and services in South East Queensland, particularly improving the capacity of the inner city rail system. The Project would provide for new rail stations in the inner city that would enhance accessibility and economic opportunities. A full description of the Project is provided in **Chapter 4 Project Description**.

21.1.1 Methodology

The Project would support the achievement of the transport and transit outcomes of the *South East Queensland Regional Plan 2009-2031* and draft *Connecting SEQ 2031: an Integrated Regional Transport Plan*. In so doing, the Project would support the ongoing role and function of the Brisbane CBD as the primary centre for commerce and employment in South East Queensland.

From a socio-economic perspective, the Project would strongly influence the shape, commercial diversification and accessibility of the city over the next 30 years and beyond. The Project provides opportunities for future integration of land use and public transport at nominated hubs including Woolloongabba, Boggo Road, Exhibition and Yeerongpilly.

The following methods have been adopted to identify and assess the economic values and impacts of the Project:

- identifying existing economic activities in the study corridor using data that is in the public domain
- observing at street level, the range of commercial and industrial activities to be impacted by resumptions and construction works in the vicinity at each proposed station site and portal
- reviewing public planning documents that impact on the Project
- assessing future economic activities that may result from the Project
- conducting the Cross River Rail Cost Benefit Analysis (CBA) Model to provide investment findings to assess the economic viability of the Project in terms of network travel time savings, network operating costs savings, transport safety, environmental and external benefits
- simulation of the Computable General Equilibrium (CGE) model to assess the broader regional and state economic impacts for both the construction and operations phases of the Project.

21.2 Description of the existing economic environment

The information presented in **Section 21.2.1** to **Section 21.2.3**, excluding the housing and land market data in **Section 21.2.3**, has been sourced from *Deloitte's Cross River Rail Economic Evaluation (April, 2011)* (refer to *Technical Report No. 10 – Economic Assessment)*.

21.2.1 Introduction

The primary economic objective of Cross River Rail is to enhance the economic efficiency of rail public transport by providing further physical capacity in Inner Brisbane. In turn, this would alleviate increasing constraints across the network as well as provide further rail access for commuters.

Additionally, benefits to other modes of transport in the form of freed capacity on highways for private vehicles and buses are anticipated. This Project would have a significant impact in the form of broader economic benefits to industries, communities and economic hubs closely linked to the study corridor.

Data sourced from the Australian Bureau of Statistics (ABS) provides the main grounds for description and analysis. Due to ABS data being limited between 2006 and 2008, more up-to-date reports were used to supplement the description of affected local economies where possible. Additionally, 2001 and 2006 ABS Census data was used for demographic and economic overviews to allow for comparisons to be made.

ABS statistical divisions were used and Statistical Local Areas (SLAs) affected by the Project corridor were selected. The key impacted suburbs that make up the "study area" consist of 14 SLAs, identified in **Table 21-1**.

Table 21-1 SLAs affected by the Project corridor

Brisbane CBD	Inner Brisbane	Inner South East	Outer South East
SLAs (2): City- Inner, City-remainder	SLAs (5): Bowen Hills, Woolloongabba, Dutton Park, Spring Hill, Kangaroo Point	SLAs (5): Fairfield, Annerley, Yeronga, Yeerongpilly, Moorooka	SLAs (2): Rocklea, Salisbury

Throughout this Chapter, analysis will be presented in the following forms:

- study area, comprising of all 14 SLAs defined in **Table 21-1**
- sub-components of the study area, consisting of Brisbane CBD, Inner Brisbane, Inner South East and Outer South East groupings, as defined in **Table 21-1**
- as individual SLA's.

21.2.2 Description of the economic environment for Brisbane

Gross Regional Product

The Brisbane economy is a critical contributor to Queensland's Gross State Product (GSP), accounting for 46.4% of GSP at a value of $104 billion in 2009.. Between 2001 and 2006 Brisbane accounted for 13.5% of total national economic growth which was more than the rest of Queensland combined (BCC, 2010).

Much of the increase in economic growth has resulted from rapid population growth and increased productivity in labour. The Brisbane economy is predominantly service-driven. Property and business services and finance and insurance services account for the most employment. As such, Brisbane is a key employment generator, providing 9.5% of the nation's total workforce, greater than its 9% share of the population (ABS, 2010a).

The following section describes key contributors to Brisbane's regional economy.

Australia Trade Coast

Australia Trade Coast (ATC) is located 10 km from the city centre and is one of the largest and fastest growing trade and industry regions in the country. It is located at the mouth of the Brisbane River and includes the Port of Brisbane and Brisbane Airport.

The ATC covers 8,000 hectares of land and contains approximately 2,500 businesses, making it the second largest employment zone in Queensland after Brisbane's CBD. The region has seen $1 billion in infrastructure development which has contributed to over 100 new industrial developments, resulting in a 50% take-up of industry in Brisbane. In 2006, the value of manufactured goods exported from the

ATC (excluding commodities) was $4.8 billion, representing an annual growth rate of 8.4% from the $1.2 billion in 1995 (Brisbane Marketing, 2007).

The Port of Brisbane is one of Australia's fastest growing capital city ports and is the closest container port to the country's largest export market – the Asia Pacific region. In 2006, more than 2,600 vessels contributed to a throughput of 28 million tonnes and an estimated $770 million to the Queensland economy (SKM – Connell Wagner JV, 2008b). Brisbane Airport would receive approximately $4 billion in investments over the next 10 years by the Brisbane Airport Corporation (BAC) and its tenants and partners. These investments would be used to commercially develop more than 1,000 hectares of the 2,700 hectare site.

More than 100 businesses, employing 16,000 persons operate directly at the airport precinct. Domestic passenger activity has averaged 5.7% annually and international passenger activity at 5.9% per annum over the past 10 years. More than 18.5 million passengers were handled by the airport in 2007 (Brisbane Airport Corporation, 2009).

Road is currently the dominant mode connecting passengers and employees to the airport, however the rail mode share is forecast to nearly double by 2029 from 5% to 10%. This growth will be directly supported by Cross River Rail as it will offer increases in capacity and service frequency to access the airport from the main population centres in South East Queensland.

Western Corridor

The Western Corridor covers an area from Wacol in the east to Ipswich and Amberley in the west, including Ebenezer, Swanbank, Ripley Valley and Springfield. This combined area comprises an extension of Brisbane's outer southwest (ABS, 2007).

The corridor has been identified as a major economic growth area with more than 16,000 businesses located across the region. More than 80% of businesses are classified as small to medium enterprises (SMEs) with turnovers of less than $500,000 per annum, 33 businesses have revenues between $50 million and $200 million in 2007. Property and business services, construction and retail sectors make up more than 50% of the industries in this area. Cross River Rail will directly support this growth through increasing rail access to the jobs market in this region as well as contributing to increased capacity and reliability of the freight network.

Knowledge Corridor Industries

Queensland's knowledge-intensive exports have grown by 82% between 1990 and 2006, relative to the national average of an estimated 50% according to the State Government. Knowledge activities concentrate around the precincts of Royal Brisbane and Women's Hospital, Boggo Road Ecosciences Precinct and Princess Alexandra Hospital, University of Queensland, Queensland University of Technology, Southbank TAFE Institute of Technology, Griffith Film School and Mater Hospital.

The resulting growth from these knowledge industries enables other key industries such as mining and agriculture, in driving more significant productivity growth. Cross River Rail will directly support these sectors, as many related activities are clustered in the study corridor and will be directly accessible by rail.

Population

The following section provides a demographic comparison of key impact areas of the study area relative to Brisbane (C) Local Government Area (LGA) and to Queensland. Further details of the demographics of the study corridor can be found in **Chapter 20 Social Impact Assessment.**

Table 21-2 Population overview

	Study area	Brisbane (C) LGA	Queensland
Geographic area	37.4 km^2	1,340.3 km^2	1,734,173 km^2
Population 2005/06	62,357	991,260	4,090,908
Population 2010/11	69,333	1,070,300	4,567,713
Change between 2005/06 - 2010/11	6,976	97,040	476,805
Average annual growth rate (2006 – 2031)	2.1%	0.8%	1.7%
Density 2010 (persons/km^2)	1,854	796.3	2.6

Source: ABS 2010b, *Regional Population Growth, Australia, 2009-10*, cat. No. 3218.0 and unpublished data.

Table 21-2 provides a comparison of the study area compared to Brisbane (C) LGA and Queensland. The combined study area population accounted for 6.3% of Brisbane's population in 2005/06, which increased to a projected 6.5% share by 2010/11. During the same period, Brisbane (C) LGA accounted for 24.2% and 23.4% of Queensland's population respectively. The study area's long term growth rate is more than twice that of Brisbane (C) LGA and approximately 20% higher than that of Queensland.

Both Brisbane (C) LGA and the study area are defined as urban areas which are inherently dense in nature. However, it should be noted that the study area is more than two times denser than Brisbane (C) LGA. In contrast, Queensland's large geographical area and relative small population size accounts for a much lower population density.

Queensland is one of the fastest growing states in Australia in terms of population, with the average population growth for Brisbane the highest amongst Australian capital cities. The population of Brisbane's CBD has contributed to 81% of this growth over five years from 7,351 to 13,299 persons, representing a population density of 6,045 persons/km^2 in 2006 (Queensland Treasury, 2009).

Age, income and household demographics

Table 21-3 Age, income and household overview

	Study area				Brisbane (C) LGA	Queensland
	Brisbane CBD	Inner Brisbane	Inner South East	Outer South East		
Median age of persons	29.5	33.2	34.2	36.0	34	36
Median individual income ($/weekly)	665	571	577	481	556	476
Median family income ($/weekly)	1,819	1,506	1,447	1,091	1,403	1,154
Median household income ($/weekly)	1,311	1,054	1,104	961	1,157	1,033
Median housing loan repayment ($/monthly)	2,000	1,598	1,400	1,191	1,450	1,300
Median rent ($/weekly)	395	238	211	210	240	200
Average household size	1.9	2.1	2.3	2.4	2.5	2.6

Source: ABS, Census of Population and Housing, 2006, Basic Community Profile - B02

As highlighted in **Table 21-3**, there is a wide disparity within the study area in terms of age, income and households. Generally, as you travel from the Outer South East (Rocklea and Salisbury) towards the CBD, residents tend to be younger, incomes are higher, housing loan repayments and rents are higher and household sizes are smaller.

Median individual incomes for residents within the Brisbane CBD were approximately 20% higher compared to the median for Brisbane (C) LGA. Median individual incomes were also higher for Inner Brisbane (2.7%) and Inner Southeast (3.8%), but lower for Outer South East (-13.5%) over Brisbane (C) LGA.

Average household size was smaller across all of the study area in comparison to Brisbane (C) LGA, becoming most pronounced for Brisbane CBD in which the average household size was 1.9 in comparison to that for Brisbane (C) LGA of 2.5.

However, taking into account the densities of demographics for comparison, average households in Brisbane and Queensland are likely to have much more land space relative to households within the study area, which can be considered to be consistent for an urban area.

Labour force statistics

Figure 21-1 illustrates employment distribution for the study area, based on ABS 2006 Census data. The main industries of employment are within services, including Health Care & Social Assistance (12.2%) and Professional Scientific & Technical Services (11.9%).

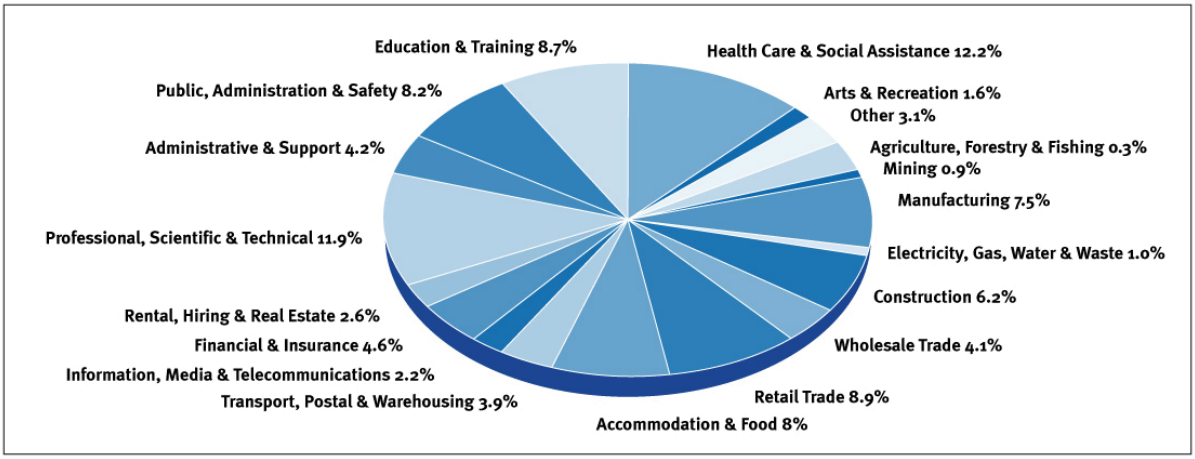


Figure 21-1 Breakdown of employment by industry in 2006 for the study area

Source: ABS, Census of Population and Housing, 2006, Basic Community Profile - B42

Labour force by occupation

The distribution of occupations across the study area totalled an estimated 31,686 workers, shown in **Figure 21-2**. The top three occupations were professionals (30.1%), clerical and administrative workers (15.4%) and managers (12.4%). The Inner South East had the largest labour force with a share of 48.0%, followed by Inner Brisbane with a share of 30.9%. Brisbane CBD and the Outer South East had shares of 11.3% and 9.8% respectively.

The study area accounted for approximately 6.5% of Brisbane (C) LGA's workforce (total of 488,613) and followed a similar occupation distribution. Salary and wage earners in Brisbane accounted for 26.8% of Queensland's estimated 1.83 million salary and wage earners in 2006.

The workforce distribution for both Queensland and Australia are slightly less skewed with significant occupation numbers as professionals, clerical, sales and service workers, tradespersons and related workers and labourers and related workers.

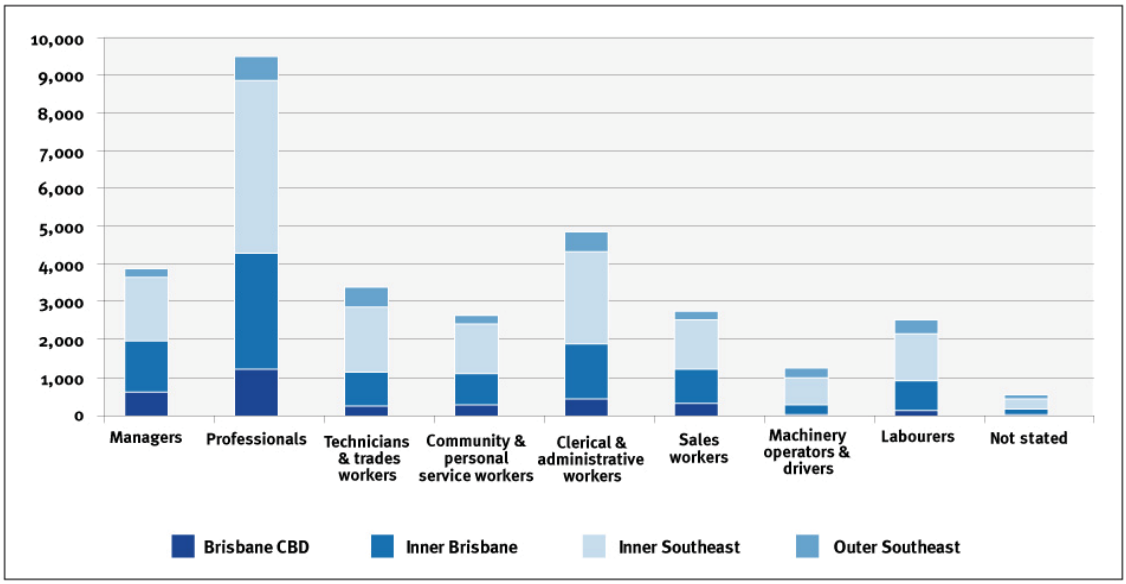


Figure 21-2 Estimated number of salary and wage earners by occupation in 2007 in key impact areas

Source: ABS, Census of Population and Housing, 2006, Basic Community Profile - B44

Unemployment

Figure 21-3 illustrates the historic trend of unemployment rates across various parts of the study area and also presents Queensland's unemployment rate. Generally, the unemployment rates within the study area follow the same trend as that for Queensland, but at a higher rate.

For the September quarter 2010, Queensland's unemployment rate was 5.6%. Within the study area, Inner Brisbane achieved the lowest unemployment rate at 6.2%, followed by Brisbane CBD at 6.4%, Inner Brisbane at 6.9 and Outer South East at 7.1%. As highlighted within **Figure 21-3**, the unemployment rate across all areas was substantially lower in mid to late 2008.

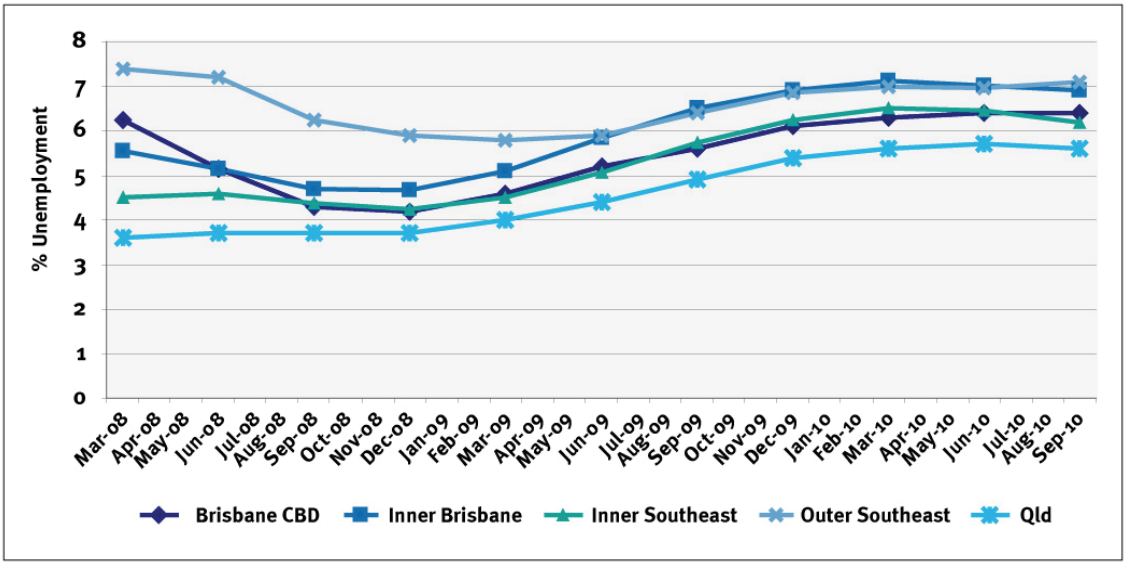


Figure 21-3 Comparison unemployment rate within the study area against Queensland's unemployment rate

Source: Department of Education, Employment and Workplace Relations, Small Area Labour Markets Australia, various editions. (QRSIS database maintained by the Office of Economic and Statistical Research (OESR)).

Economic indicators

Individual income

Figure 21-4 provides a comparison of mean taxable income earned by salary and wage earners between 1994/95 to 2007/08. As highlighted by **Figure 21-4**, all but the Outer South East groupings achieved higher mean taxable incomes over the mean taxable average for Queensland.

For 2007/08, the mean taxable income across Queensland was $50,593. In comparison, the mean taxable income within Brisbane CBD was $63,592 (25.7% higher). Inner Brisbane's mean taxable income in 2007/08 was $58,185 (15% higher than Queensland), Inner South East with $55,571 (9.8% higher than Queensland), while the Outer South East recorded $45,685 (9.7% lower than Queensland).

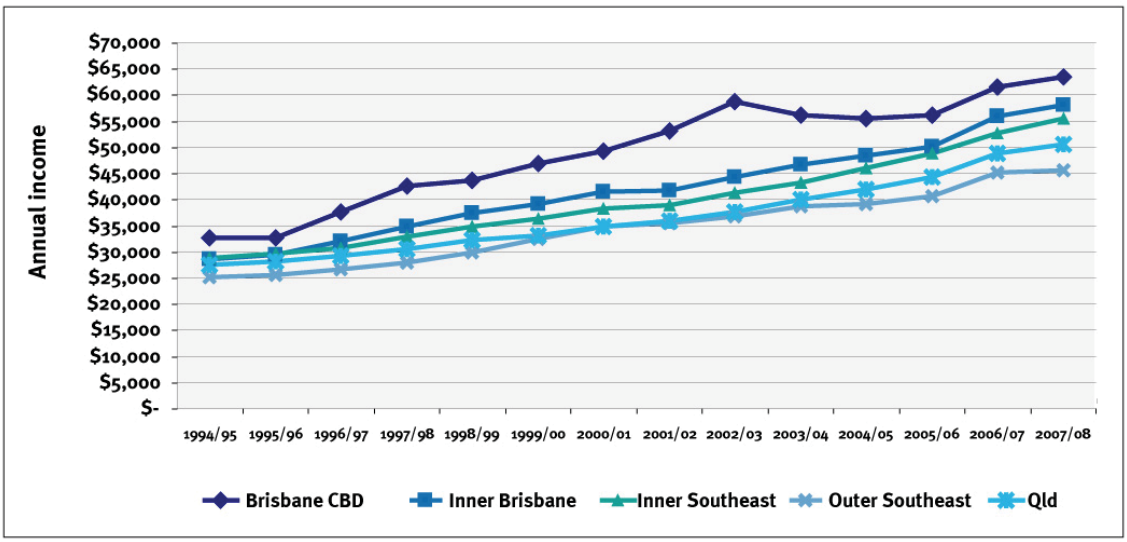


Figure 21-4 Mean taxable income in key impact areas and for Queensland

Source: Australian Taxation Office, Unpublished data. (QRSIS database maintained by the Office of Economic and Statistical Research (OESR))

Total area income

Figure 21-5 provides a comparison of total area income defined as the sum total of all income earned by salary and wage earners between 1999/00 to 2007/08. The comparison is an aggregated perspective and as such, the Inner Brisbane and the Inner South East groupings have three additional SLAs each which noticeably affects total incomes for the respective areas.

The SLA groupings within the Project's study area with the most income in 2007/08 were Inner South East with $962 million (16,431 persons taxable income) and Inner Brisbane with $808 million (12,638 persons taxable income). Brisbane CBD recorded $248 million in total personal income (3,669 persons with taxable income) in 2007/08, while Outer South East recorded $180 million for 3,770 persons with taxable income (QRIS Database).

Within the study area, Brisbane CBD has experienced the most rapid growth in income, averaging 36% per annum between 2000/01 and 2007/08. Inner Brisbane grew by an average of 22% per annum, Inner South East by 13% and Outer South East by 9% over the same period.

In comparison, total personal income increased by an average of 12.8% and 13.1% for Brisbane (C) LGA and Queensland respectively.

In total, the study area contributed 6.7% of Brisbane (C) LGA's total income of $32.6 billion and 2% of Queensland's total income of $106.6 billion in 2007/08.

The average taxable income of the combined study area was $42,954 in 2007, 7.9% lower than Brisbane's average and 16.2% higher than the Queensland average. For the same year the average taxable income in Australia was $42,476.

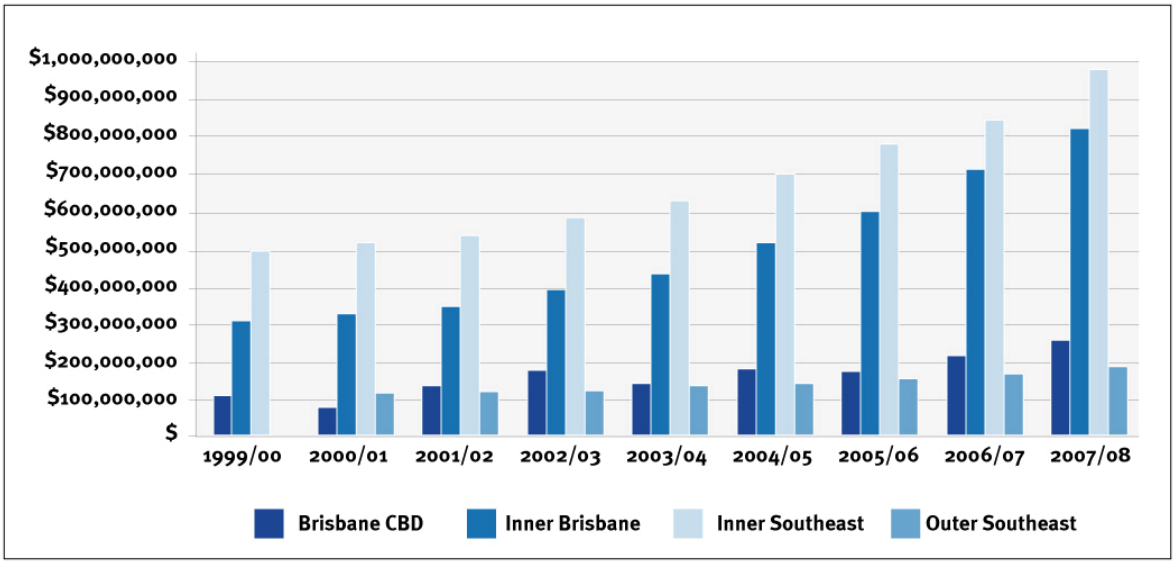


Figure 21-5 Estimated sum total of personal income by salary and wage earners (excluding Government pensions and allowances) in key impact areas[1]

Note: Information for total personal income for the Outer Southeast region in 1999/00 was not available.Source: Australian Taxation Office, Unpublished data. (QRSIS database maintained by the Office of Economic and Statistical Research (OESR)).

Summary of the study area

Brisbane CBD

The Brisbane CBD SLA grouping consists of the City-Inner and the City-Remainder SLAs. This area has a geographical area of 2.2 km^2 and contained an estimated resident population of 8,683 persons in 2010. The average household size was 1.9 persons per household which is lower than Brisbane (C) LGA which averaged 2.5 persons per household. The largest population increase for Queensland typically occurs in this area representing over 40% of all growth in Brisbane (Queensland Treasury, 2009).

Located on the northern bank of the Brisbane River, Brisbane CBD is a triangular shaped area bounded by the Brisbane River to the east, south and west. There are numerous precincts in the city occupied by organisations, businesses and all three levels of government. Areas around Adelaide Street are primarily retail-oriented while the legal and financial precincts can be found around George Street and Eagle Street respectively. Towards the southeast of the city, government buildings are situated near William Street and George Street.

There were 8,836 businesses spread across 20 industries in 2008/09. Dominant industries of employment in 2006 were professional, scientific and technical services (17.1%), accommodation and food services (11.0%) and retail trade (8.6%).

The average taxable income for 2007/08 was estimated to be $63,592 per annum.

[1] As defined in **Table 21-1**

Inner Brisbane

The areas of the Inner Brisbane SLA grouping within the study corridor consist of Bowen Hills, Spring Hill, Kangaroo Point, Woolloongabba and Dutton Park. A combined geographical area of 7.5 km^2 is within the immediate vicinity of the Project, with an estimated population of 20,906 persons in 2010 and an average household size of 2.1 which is 19% smaller than the average household size of Queensland.

The top industries of employment in 2006 were professional, scientific and technical services (13.7%), health care and social assistance (10.9%) and accommodation and food services (9.0%). The average taxable income in the Inner Brisbane area was $58,185 for 2007/08 and for the same year within Bowen Hills being significantly higher averaging $66,865 per annum.

The Inner Brisbane areas within the study corridor had a workforce of 9,779 in 2006 with the top professions consisting of professionals with a 31.8% share, clerical and administrative workers accounting for a 14.7% share and managers at 13.9%.

Inner South East

Suburbs within the Inner South East SLA grouping for the study corridor are Fairfield, Annerley, Yeronga, Yeerongpilly and Moorooka accounting for a combined geographical area of 13.9 km^2. The population in 2010 was estimated at 32,236, with an average household size of 2.3 persons per household. Household size in the Inner Southeast is lower than the average household size in Brisbane (C) LGA of 2.5.

In 2008/09 there were 2,718 registered businesses across 20 industries. Dominant industries in terms of employment (2006) were health care and social assistance (13.6%), professional, scientific and technical services (10.0%) and Education and Training (10%).

The average taxable income for this area was $55,571 in 2007/08, however Yeronga recorded $69,191.

Outer South East

Rocklea and Salisbury SLAs are also located within the study corridor within the Outer South East grouping. These combined areas account for a geographical area of 13.8 km^2, containing an estimated population of 7,508 residents in 2010. The average household size is higher relative to the other suburbs within the study corridor at 2.4 persons per household in 2006.

In 2008/09 there were 1,567 businesses registered within the area. The dominant employment sectors in 2006 were manufacturing (12.2%), health care and social assistance (11.3%) and education and training (9.1%).

The average taxable income of the area was $45,686 per annum in 2007/08, which was substantially lower then the Queensland average of $50,593.

Further details of the demographics of the study corridor can be found in **Chapter 20 Social Impact Assessment** as well as within *Technical Report No.10 – Economics Assessment*.

21.2.3 Overview of the regional markets relevant to the Project

Labour market

There is a significant construction labour force within Brisbane (C) LGA. As illustrated in **Figure 21-6**, 32,000 employees comprising 6.7% of Brisbane (C) LGA's total labour force were engaged within the construction sector as reported in the 2006 Census.

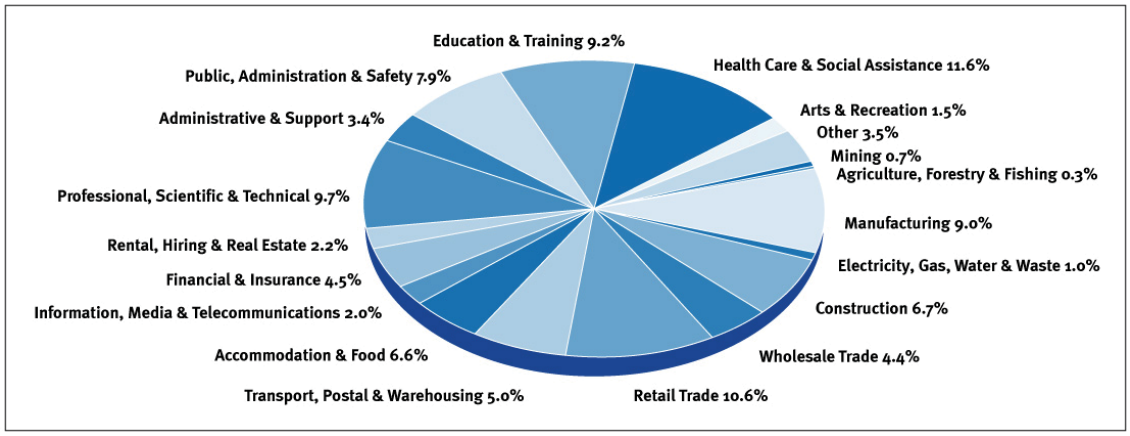


Figure 21-6 Breakdown of employment by industry within Brisbane (C) (LGA)

Source: ABS (2006)

Anecdotal evidence from existing major construction projects within Brisbane has indicated that staff travelled from as far as the Sunshine Coast and Gold Coast. As such, construction staff requirements for the Project are likely to reside:

- within the immediate community of Brisbane LGA and commute up to 30 minutes
- within immediate neighbouring communities of Moreton Bay LGA, Ipswich City LGA, Logan City LGA and Redland City LGA and commute 30 to 60 minutes each way
- within distant neighbouring communities of Somerset LGA, Scenic Rim LGA, Sunshine Coast LGA and Gold Coast City LGA and commute over 60 minutes each way.

The size of the construction labour market available to the Project is highlighted in **Table 21-4**. Within commuting distance of the Project, there were approximately 120,000 people engaged within the local construction industry in 2006. Although no localised statistics have been published since 2006 at LGA level, it is anticipated the number engaged within the construction sector would have grown considerably over the past five years, in line with substantial growth in public and private construction and flood recovery activity.

Table 21-4 Breakdown of available construction labour market for the Project (2005/06)

	Number of construction employees in 2006	% of total construction labour force
Immediate community Brisbane	32,068	26.5%
Immediate neighbouring communities		
Moreton Bay	14,791	12.2%
Ipswich	4,588	3.8%
Logan City	13,270	11.0%
Redland Bay	14,791	12.2%
Sub-total	47,440	
Distant neighbouring communities		
Gold Coast	24,350	20.1%
Sunshine Coast region	15,279	12.6%
Scenic Rim	1,449	1.2%
Somerset	583	0.5%
Sub-total	40,212	
Total regional construction workforce	119,720	100%

Source: ABS (2006)

As indicated in **Table 21-5**, the Office of Economic and Statistical Research (OESR) estimate that 104,400 persons were engaged within the construction sector within Brisbane (SD) in 2009-10, representing an increase of approximately 25,000 persons from ABS estimates for 2006.

OESR (2010) estimate that actual employment numbers in 2009 to 2010 were down by 4.5% from 2008 to 2009 as a result of decreases in both private dwelling and non-dwelling construction activity (partial offset by large increase in public infrastructure projects). However, Queensland Treasury (2010) project employment within the Brisbane construction sector to recover in 2010 to 2011 with an increase of 3.1%.

Table 21-5 Labour market forecast statistics for Brisbane (SD)

	2009-2010	2010-2011
Employment in construction ('000 persons)	104.4	107.7
Year on year growth	-4.5%	+3.1%

Source: OESR (2010)

Table 21-6 presents the latest projections for Brisbane SD sourced from Monash University. The Brisbane SD includes Brisbane City Council, Moreton Bay Regional Council, Ipswich City Council, Logan City Council and Redland City Council.

Although similar, a slight difference in labour job numbers between OESR and Monash University is identified. Differences in the two datasets relate to the use of different models and assumptions.

Table 21-6 Monash University labour market forecast for Brisbane (SD) [1] ('000 persons)

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Construction	103.7	101.1	115.6	115.1	118.0	126.6	133.7	129.7	127.2
All industries	1,058	1,060	1,085	1,121	1,162	1,207	1,250	1,287	1,327

Source: Monash University (2010)

Note:
1. Based on 19 industry classification

As indicated, the construction labour force within Brisbane (SD) is forecast to grow strongly in the short term, up until 2014-15. Although Monash University is predicting a slight contraction within the construction labour force after 2014-15, projected employment numbers in 2015-16 and 2016-17 are still over 11% higher than projected construction employment numbers in 2009-10.

Housing and land markets

Although Brisbane's housing and land market has experienced strong growth over the last decade, it still falls behind in value terms in comparison to most other major capital cities, shown in **Table 21-7**. Additionally, Brisbane experienced the weakest price growth compared to all major capitals for the 12 months ending June 2010.

Table 21-7 Composition adjusted median house prices

Region	June 2009	June 2010	% change
Sydney	$553,330	$625,488	13.0%
Melbourne	$452,187	$578,447	27.9%
Brisbane	$426,771	$457,787	7.3%
Adelaide	$407,023	$455,582	11.9%
Canberra	$487,861	$568,520	16.5%
Perth	$480,678	$525,574	9.3%
Hobart	$290,478	$308,434	6.2%
Darwin	$530,325	$581,290	9.6%
National	$483,210	$558,540	15.6%

Source: APM (2010)

The following analysis highlights key residential communities potentially impacted by the Project. An indication of the housing and land markets within that suburb is also outlined.

Bowen Hills

Table 21-8 provides an overview of land use and the unimproved land valuation for Bowen Hills region within the Project corridor. This indicates that while average property values for commercial and industrial properties are lower than Spring Hill, residential property values are significantly higher within Bowen Hills.

Table 21-8 Overview of unimproved land values and use within Bowen Hills[1]

	Residential[2]	Commercial[3]	Industrial[4]	Other[5]
Range in valuation	$235,000 to $12.5 M	$365,000 to $22 M	$335,000 to $39.0 M	$265,000 to $2.5 M
Median	$650,000	$1,250,000	$840,000	$720,000
Number of properties	162	51	136	22

Source: DERM State Valuation Database, unimproved land valuation, accessed November 2010

Notes:
1. *The analysis utilised DERM property database. Within this analysis, properties were only included if a valuation between February 2008 and June 2010 was undertaken. Properties with either an older DERM valuation, or no valuation recorded at all, were omitted from this analysis.*
2. *Residential properties includes properties containing single dwellings and multiple units.*
3. *Commercial properties include professional offices, motor dealer yards, service stations, motels, etc*
4. *Industrial properties include light industry, general industry, warehouse & bulk stores, etc*
5. *Other properties include vacant urban land, hospitals, clubs, education, etc.*

Spring Hill

Table 21-9 provides an overview of land use for Spring Hill within the Project corridor, along with the unimproved land valuation. The average property value is relatively high within Spring Hill, particularly for commercial and industrial properties.

Table 21-9 Overview of unimproved land values and use within Spring Hill[1]

	Residential[2]	Commercial[3]	Industrial[4]	Other[5]
Range in valuation	$190,000 to $8.8 M	$330,000 to $18.5 M	$755,000 to $5.0 M	$200,000 to $21.0 M
Median	$460,000	$1,900,000	$1,175,000	$1,550,000
Number of properties	596	122	14	42

Source: DERM State Valuation Database, unimproved land valuation, accessed November 2010
Note: Refer to notes for Table 21-8.

CBD

Table 21-10 provides an overview of land use and the unimproved land valuation for Brisbane City, within the Project corridor. Analysis only includes properties adjoining the proposed rail corridor from Roma Street through to Alice Street.

Table 21-10 indicates high land values for inner city land, whether for residential or commercial purposes.

Table 21-10 Overview of unimproved land values and use within CBD

	Residential[2]	Commercial[3]	Industrial[4]	Other[5]
Range in valuation	$7.0 to $69.0 M	$1.4 M to $87.5 million		$374,000 to $230 M
Median	$15.75 M	$13.75 M		$9.85 M
Number of properties	8	37	Nil	4

Source: DERM State Valuation Database, unimproved land valuation, accessed November 2010

Note: Refer to notes for Table 21-8.

Woolloongabba

Table 21-11 provides an overview of land use and the unimproved land valuation in Woolloongabba, within the Project corridor.

The average property value across all land uses is lower than that of Bowen Hills and Spring Hill. However, Woolloongabba has significantly more residential properties. Additionally, Woolloongabba also has a significant number of properties utilised for commercial and industrial uses, with relatively high values in comparison to the outer areas of Dutton Park and Fairfield.

Table 21-11 Overview of unimproved land values and use within Woolloongabba[1]

	Residential[2]	Commercial[3]	Industrial[4]	Other[5]
Range in valuation	$200,000 to $16.5 M	$190,000 to $22.0 M	$217,000 to $5.9 M	$95,000 to $60.0 M
Median	$370,000	$890,000	$560,000	$510,000
Number of properties	1,317	144	146	59

Source: DERM State Valuation Database, unimproved land valuation, accessed November 2010

Note: Refer to notes for Table 21-8.

Dutton Park

Table 21-12 provides an overview of land use and unimproved land values in Dutton Park, within the Project corridor. Unimproved land values are generally higher for commercial uses in Dutton Park, with residential land values comparable to neighbouring suburbs of Fairfield and Woolloongabba.

Table 21-12 Overview of unimproved land values and use within Dutton Park[1]

	Residential[2]	Commercial[3]	Industrial[4]	Other[5]
Range in valuation	$220,000 to $3.2 M	$260,000 to $3.5 M	$415,000	$925,000 to $11.5 M
Median	$350,000	$570,000	$415,000	$1,350,000
Number of properties	447	17	1	11

Source: DERM State Valuation Database, unimproved land valuation, accessed November 2010

Note: Refer to notes for Table 21-8.

Fairfield

Table 21-13 provides an overview of land use and unimproved land values in Fairfield, within the Project corridor. Residential land values within Fairfield are comparable to neighbouring suburb of Dutton Park. The value of industrial land is skewed as only three properties have been used as the basis for the assessment. Of these industrial properties, two are relatively large in land size and thereby highly valued.

Table 21-13 Overview of unimproved land values and use within Fairfield[1]

	Residential[2]	Commercial[3]	Industrial[4]	Other[5]
Range in valuation	$185,000 to $3.2 M	$295,000 to $15.0 M	$550,000 to $3.3 M	$200,000 to $1.8 M
Median	$380,000	$295,000	$2,800,000	$360,000
Number of properties	853	9	3	15

Source: DERM State Valuation Database, unimproved land valuation, accessed November 2010

Notes: Refer to notes for Table 21-8.

Annerley

Table 21-14 provides an overview of land use for Annerley within the Project corridor, along with the unimproved land valuation. The median residential property valuation within Annerley is lower than that of Yeerongpilly.

Table 21-14 Overview of unimproved land values and use within Annerley[1]

	Residential[2]	Commercial[3]	Industrial[4]	Other[5]
Range in valuation	$255,000 to $2.8 M	$290,000 to $400,000	-	$285,000
Median	$315,000	-	-	-
Number of properties	53	2	-	1

Source: DERM State Valuation Database, unimproved land valuation, accessed November 2010

Notes: Refer to notes for Table 21-8.

Yeronga

Table 21-15 provides an overview of land use for Yeronga within the Project corridor, along with the unimproved land valuation. The average property value is relatively high within Yeronga particularly for residential properties.

Table 21-15 Overview of unimproved land values and use within Yeronga[1]

	Residential[2]	Commercial[3]	Industrial[4]	Other[5]
Range in valuation	$242,000 to $9 M	$325,000	$550,000	$0 to $3.5 M
Median	$460,000	-	-	$325,000
Number of properties	32	1	1	13

Source: DERM State Valuation Database, unimproved land valuation, accessed November 2010

Notes: Refer to notes for Table 21-8.

Yeerongpilly

Table 21-16 provides an overview of land use and unimproved land valuation in Yeerongpilly, within the Project corridor. Residential land values (median) within Yeerongpilly are higher than that of the inner suburbs of Fairfield, Dutton Park and Woolloongabba.

Commercial land values within Yeerongpilly are also significantly higher than neighbouring areas, but the area only comprises a small number of six properties. Higher industrial land values are also identified within Yeerongpilly.

Table 21-16 Overview of unimproved land values and use within Yeerongpilly[1]

	Residential[2]	Commercial[3]	Industrial[4]	Other[5]
Range in valuation	$160,000 to $2.0 M	$270,000 to $3.1 M	$255,000 to $4.0 M	$108,000 to $2.3 M
Median	$430,000	$1,540,000	$790,000	$320,000
Number of properties	407	6	21	15

Source: DERM State Valuation Database, unimproved land valuation, accessed November 2010

Notes: Refer to notes for Table 21-8.

Moorooka

Table 21-17 provides an overview of land use and unimproved land valuation in Moorooka, within the Project corridor. In terms of land use and value, commercial land has the highest value in the area, followed by industrial. Residential land values within Moorooka are more than double that of neighbouring Rocklea.

Table 21-17 Overview of unimproved land values and use within Moorooka[1]

	Residential[2]	Commercial[3]	Industrial[4]	Other[5]
Range in valuation	$89,000 to $3.8 M	$155,000 to $7.4 M	$170,000 to $5.4 M	$127,000 to $4.2 M
Median	$310,000	$610,000	$395,000	$300,000
Number of Properties	3,193	84	83	46

Source: DERM State Valuation Database, unimproved land valuation, accessed November 2010

Notes: Refer to notes for Table 21-8.

Rocklea

Table 21-18 provides an overview of land use and unimproved land values within Rocklea (within the Project corridor). The median value of industrial properties within Rocklea is approximately two times the median value of industrial properties at Moorooka. Conversely, residential land values in Rocklea are half that of Moorooka. This highlights Rocklea's prominence as an industrial and commercial region rather than as a residential suburb.

Table 21-18 Overview of unimproved land values and use within Rocklea[1]

	Residential[2]	Commercial[3]	Industrial[4]	Other[5]
Range in valuation	$49,000 to $3.8 M	$180,000 to $6.7 M	$87,000 to $17.5 M	$98,000 to $7.8 M
Median	$144,000	$960,000	$790,000	$660,000
Number of properties	648	45	293	53

Source: DERM State Valuation Database, unimproved land valuation, accessed November 2010

Notes: Refer to notes for Table 21-8.

21.2.4 Construction services and building products markets

The Queensland construction sector (incorporating construction services and building products market) has experienced rapid growth in recent years. Total construction has grown from approximately $2 billion per quarter in 2005 to over $5 billion per quarter in September 2008.

Growth in the Queensland construction sector between March 2005 and March 2010 is illustrated in **Figure 21-7.**

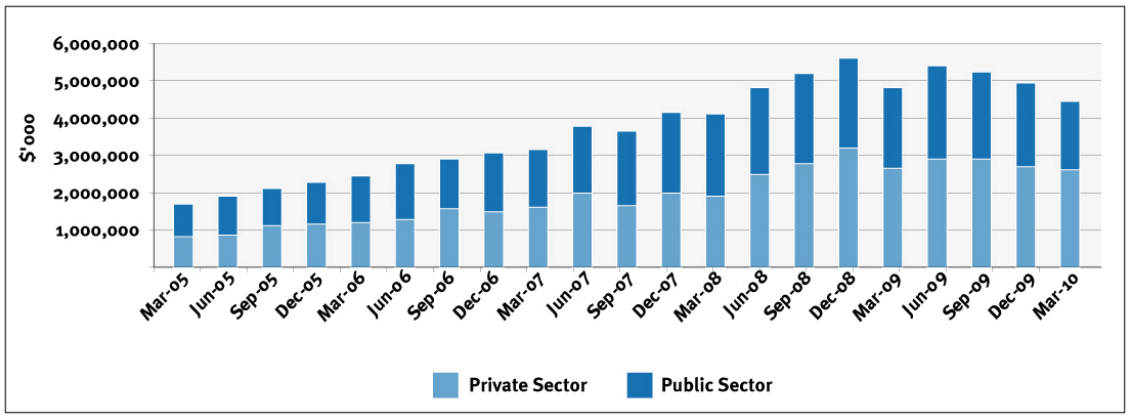


Figure 21-7 Value of construction work done, Queensland

Source: ABS 2010c, Engineering Construction Activity, Australia (Cat No 8762.0)

In 2005, there was an even split in value of construction undertaken by private and public sectors. Due to rapid growth within the private construction sector over recent years, coupled with relatively consistent public sector demand, private sector construction grew in significance to represent 55% of all construction work by 2009.

In 2010, it was projected that approximately 70% of the total state construction workforce were working within South East Queensland (OESR, 2010). Assuming the value of construction work undertaken is proportional to the size of the construction workforce and the mix between private and public construction at the state level is consistent with South East Queensland, the following applies:

- The value of construction undertaken in South East Queensland was $14.33 billion in 2009, of which $6.48 billion was for the public sector.
- The Project has a total construction activity value of approximately $4 billion, spread over a five a a half year construction period. This includes $1.0 billion for station civil and construction work, $0.9 billion for tunnelling, $0.6 billion signalling/rail systems and power and $0.6 billion for surface track works.
- At an annual construction value of $0.6 billion per annum, the Project would represent approximately 3.5% of construction activities undertaken (in value terms) in 2009 within South East Queensland or 8% of all public construction activities undertaken in 2009.

Current input costs for the construction sector

Construction costs within Brisbane are competitive when compared to prices in other capital cities in Australia. **Table 21-19** highlights detailed market prices for key construction items that are relevant to the Project.

Table 21-19 Selected construction material costs by capital city 2010

	UNIT	Brisbane	Adelaide	Melbourne	Perth	Sydney
Excavate for basement or similar, 3 to 6 m deep: In clay In hard rock	 cum cum	 19.10 121.50	 18.90 89.70	 23.20 148.50	 29.50 189.00	 29.10 102.00
Disposal – additional cost of carting each 5 km over 10 km.	cum	2.20	3.00	2.55	2.60	2.70
Concrete: Delivered to site, 32 Mpa Blinding layer, 50 mm thick (25 Mpa)	 cum cum	 142.00 216.00	 165.00 219.00	 151.00 265.00	 172.00 304.00	 179.00 314.00
Brickwork: Standard clay common brickwork	Per 1000	1685.00	1790.00	1990.00	1790.00	1575.00
Carpentry: Wall framing, 75 * 38 mm plate	m	7.00	7.05	8.45	7.60	8.00

Source: Rawlinsons (2010)

Indicated within **Table 21-19**, Brisbane's construction input costs for some key items are the most competitive in Australia (market prices for 2010). A number of factors influence these prices, including:

- availability of raw inputs such as timber, sand and aggregate and cement
- availability of construction labour
- marketplace demand for construction services from both public and private sectors.

Although it is relatively simple to assess Brisbane's competitiveness in terms of construction pricing in 2010, it is difficult to predict construction prices into the future and the competitiveness of the Brisbane marketplace against other key marketplaces.

21.3 Project impacts and mitigation

21.3.1 Economic development

The Project has a total rail specific civil and construction value of approximately $4 billion, spread over a five and a half year construction period. This includes enabling works, construction and fit-out of stations, tunnelling and track, signalling, surface works, rail systems and power.

Expenditure and construction employment would follow a bell shaped curve where initial inputs start low and build up rapidly, before tapering at the end. The following two sections present findings from CGE economic modelling, illustrating the Projected net economic impacts across the entire economy (refer to **Section 21.4** and **Section 21.5** for more information regarding Project economic impacts and CGE modelling).

Industry output

Table 21-20 identifies net additional GSP for key industry sectors in Queensland impacted by the Project. During the construction phase (2016), economic modelling indicates that the construction sector gains the most value-added at $211 million. Queensland' financial and business services sector also expands strongly with a projected additional value-add of $126 million.

In 2021 and beyond, the majority of the economic impact of the Project is in the form of productivity improvements in rail and road transport sectors as well as some economy wide labour productivity improvements. The increase in industry value added is projected to occur in sectors that are significant direct users of road and rail transport services, eg construction, mining, other manufacturing, or are industries that would benefit from economic growth generated by improved transport industry productivity, eg financial and business services, ownership of dwellings and trade.

By 2031, the financial and business services sector would benefit the most significantly from Cross River Rail with an additional $179 million contribution to GSP.

Table 21-20 Summary of projected net Gross State Product by sector for Queensland ($m)

	2016	2021	2031	2041
Financial, business services	126	51	179	199
Mining	11	40	130	143
Construction	211	26	106	117
Dwellings	45	24	82	90
Other manufacturing	41	16	57	63
Government services	10	18	58	65
Other sectors	208	86	326	369
Gross State Product	653	262	937	1,047

Employment

The Project would create a large number of jobs in both construction and operation phases. During construction, the Project would require a labour force equivalent of approximately 1,600 people to a peak of 2,240 people working on the Project over the 72 month duration of works (AECOM, Construction Issues, 2011). During operation, approximately 113 workers would be required to operate new train services and to staff new stations. In addition, maintenance workers would also be required to maintain project infrastructure. Further information on operational workforce is provided in **Chapter 4 Project Description.**

The majority of this workforce would be drawn from South East Queensland, as identified in **Section 21.2.3**. Some specialist technical services or consultants may reside elsewhere who would work on the Project as and when required.

Table 21-21 identifies the net additional employment opportunities generated by key industry sectors in Queensland, impacted by the Project. During the construction phase (2016), economic modelling indicates that the construction sector requires an additional 2,686 employees. An additional 928 positions would also be required for the financial, business services sector as well as an additional 767 positions within the trade sector.

Immediately post construction (2021), economic modelling suggests that employment prospects decline across most sectors. Employment prospects are anticipated to grow strongly again in 2031 and 2041 as a result of on-going economic growth.

The Project is expected to generate significant improvements in labour productivity in the road transport industry, resulting from reduced congestion and subsequent improved travel times. However, road transport sector employment is expected to be significantly lower (especially by 2031 and 2041) due to less jobs in the industry than there would have been without Cross River Rail.

Although negative employment in the road transport industry is anticipated, the projected value added is positive (against the “without Project” case), reflecting the improved productivity in the industry.

Table 21-21 Summary of Employment by sector for Queensland

	2016	2021	2031	2041
Financial, business services	928	349	1,219	1,349
Construction	2,686	286	1,167	1,290
Government services	83	239	758	836
Trade	767	142	700	792
Other manufacturing	524	175	648	730
Machinery & equipment	28	84	271	298
Road transport	100	-99	-953	-1,238
Other sectors	783	345	1,226	1,380
Total	5,901	1,522	5,036	5,439

21.3.2 Impact on the demand for extractive resources

The extractive resources sector within South East Queensland is a primary source of construction aggregates, vital for the region's continued development. Key products including sand, gravel, quarry rock, soil and loam are used for road bases, concrete, asphalt and a range of other products.

Figure 21-8 illustrates the size and diversity of construction products supplied by the local extractive resources sector (total production in 2009 totalling 28.6 million tonnes).

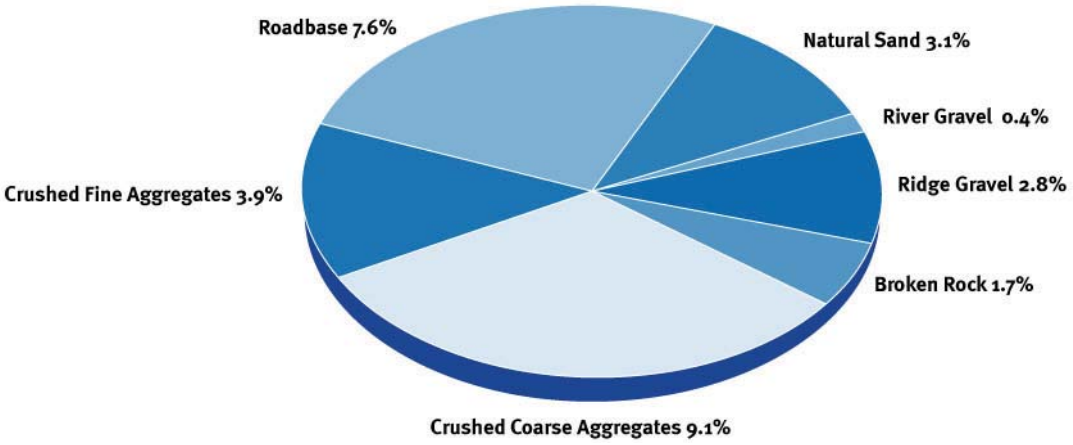


Figure 21-8 South East Queensland extractive industry product sold for year ending 30 June 2009 (million tonnes)

Source: Department of Employment, Economic Development and Innovation

Due to a range of factors (high capital investment for specialist machinery and equipment, restricted number of available licensed sites, stringent environmental and operating conditions), the extractive resource sector within South East Queensland is dominated by a small number of large operators. These operators have gradually grown construction material supply at an incremental and uniform rate, as shown in **Table 21-22**.

Table 21-22 South East Queensland extractive industry product sold for the years ending 30 June 2000-09 (tonnes million)

Year	Natural sand	Crushed coarse aggregates	Other[1]	Total product sold
2000	4.2	7.1	14.4	25.7
2001	3.8	5.1	10.7	19.6
2002	3.4	5.7	11.0	20.1
2003	3.5	6.3	11.2	21.0
2004	5.0	7.0	15.4	27.2
2005	4.4	7.0	14.4	25.8
2006	3.7	7.0	16.0	26.7
2007	3.7	7.7	18.5	29.9
2008	3.7	10.1	18.3	32.1
2009	3.1	9.1	16.5	28.7

Source: Department of Employment, Economic Development and Innovation

Note:
1. *Includes broken rock, crushed fine aggregates, road base, river gravel, & unprocessed construction materials including Ridge gravels.*

As indicated in **Table 21-22**, peak demand in South East Queensland for construction aggregate occurred in 2008, reflecting the peak in infrastructure projects in South East Queensland (2007-08 financial year). Anecdotal reports indicate that some project managers in South East Queensland encountered difficulties in sourcing construction aggregates.

A multitude of factors contributed to delays in 2007 to 2008, including:

- steep ramp-up demand associated with the rush of infrastructure projects
- shortage of trucks in Brisbane, production constraints (combination of limited installed capacity and approved hours of operation for quarries)
- high demand for fine crushed aggregate for bedding in major pipelines, resulting in reduced capacity to supply normal range of product mix.

The extractive resources sector (extraction sites) is heavily regulated by both State and Local Government instruments. These instruments seek to ensure the long term sustainable supply of extractive resources to local communities as well as regulate operations activities to limit noise and disruption to local residential areas. Industry stakeholders and corresponding regulating authorities need to ensure that construction demand for construction aggregates does not outstrip the local industry's capacity to supply, leading to potential disruptions and pricing spikes.

Preliminary planning estimates for the Project identify the need for 280,000 m^3 of concrete and 25,000 m^3 of road aggregate over the course of construction (five and a half years). This equates to approximately 550,000 tonnes of construction aggregate (sand, fine aggregate, coarse aggregate, road base). Over the course of the five and a half year construction period, this equates to approximately 110,000 tonnes per annum. Considering that 28.7 million tonnes of construction aggregate was produced within South East Queensland in 2009, the annual Project's requirement equates to 0.35% of the local industry capacity to supply. On its own, the Project would not disrupt the local extractive industry's capacity to meet marketplace demand.

21.3.3 Strategies for local participation

In a bid to stimulate local economies and job growth opportunities, the Queensland Government has implemented a number of policies relating to procurement, employment and training pertaining to major public construction projects. The specific policies include:

- 10% Training Policy
- 20% Indigenous Employment Opportunity policy (IEP 20%)
- Local Industry Policy.

The relevance of each of these policies to the Project, which is classified as a major public construction project, is discussed in the following section.

10% Training policy

As a prerequisite for all major public construction projects, the 10% Training Policy aims to improve the levels of workforce skills development within the construction sector and create additional employment opportunities for Indigenous workers, apprentices, trainees or cadets. The primary purpose of the policy is to ensure that 10% of all labour hours worked on an eligible project come from individuals engaged in structured training, culminating in an accredited qualification.

> *The policy requires that a minimum of 10 per cent of the total labour hours on any Queensland Government building or civil construction project (valued over $250,000 for building or $500,000 for civil construction) must be undertaken by Indigenous workers, apprentices, trainees or cadets or used for the upskilling of existing employees (to a maximum of 25 per cent of the deemed hours).'*

The State Government recently announced changes to the 10% Training policy:

- *allowing Indigenous workers to be employed and trained as part of the standard compliance arrangements for policy*
- *expanding the current definition for the upskilling of existing workers to include the professional workforce engaged in tertiary or technical qualifications'*

Other recent amendments include allocating Construction Skills Queensland (CSQ) responsibility for administering the 10% Training policy. CSQ works with all stakeholders within the construction sector to ensure the effective implementation of the 10% Training Policy. CSQ would assist with:

- development of training plans
- determining workforce skilling strategies
- allocating funds to help meet the requirements of the policy.

In addition to complying with the 10% Training Policy, all stakeholders who tender for government projects (including government agencies, contractors and sub-contractors) must also review and comply with the State Purchasing Policy and the Queensland Code of Practice for the Building and Construction Industry. These policies aim to maximise employment and economic growth within Queensland in a way that also abides with industry best practice principles.

20% Indigenous employment opportunity policy (IEP 20% Policy)

Through the IEP 20% policy initiative, the State Government is demonstrating its commitment to reconciliation and to closing the gap on Indigenous disadvantage.

> *The IEP 20% Policy promotes, encourages and creates skills development, employment and business opportunities for Aboriginal people and Torres Strait Islanders in relation to Queensland Government building and civil construction projects in specified Aboriginal and Torres Strait Island communities.'*

The IEP 20% Policy applies to specified Aboriginal and Torres Strait Islander communities (listed on the Department of Education and Training website).

There are no specified Aboriginal and Torres Strait Islander communities within commuting distance of Brisbane. The nearest identified community is that of Cherbourg (South Burnett region). Therefore, the Project (Brisbane) is not bound by the requirements stipulated by IEP 20%. However, for all areas outside the specified Aboriginal and Torres Strait Islander communities that contain a large Indigenous population, the State Government encourages government agencies and industry to apply the principles of IEP 20%.

Although not significant, a small proportion of the existing construction workforce on public projects within the Brisbane region would recognise themselves as belonging to Aboriginal and Torres Strait Island Communities. Stakeholders involved with the construction of Cross River Rail should be encouraged to provide training opportunities to these employees.

Within the study corridor, the southern suburbs of West End, Woolloongabba and Dutton Park have a significantly higher number of people identified as Indigenous, providing opportunities for the Project proponent to partially meet the principles of IEP 20%.

Local Industry Policy

The Local Industry Policy (LIP) is a State Government initiative aimed at creating local jobs and fostering private sector investment across a range of key industries that would lead local businesses to become internationally competitive.

Implementation of the LIP is based on two key platforms:

- demand: ensuring that construction project proponents engage local firms where possible for the provision of goods and services
- supply: encouraging local firms servicing the construction sector to adopt innovation (and skills training), flexibility and best practice to fully meet the needs of construction project proponents within a globally competitive marketplace.

For the purposes of Government projects, 'local industry' is defined as Queensland and Australian SMEs in manufacturing or service sectors and New Zealand suppliers of goods or services.

All government funded infrastructure and resource-based projects valued at more than $5 million ($2.5 million in regional and rural Queensland) must comply with the requirements stipulated under the LIP. A key requirement under the LIP for each stakeholder is the development and implementation of a Local Industry Participation Plan, outlining commitment to the Local Industry Policy and how local industry participation would be maximised during the life of the Project.

Preparation of the plan is required in advance of the commencement of the procurement process and must address the following issues:

- ensuring that local industry is provided with information in an equitable and timely manner
- appropriate design and procurement strategies to provide equitable access for local industry

- providing local industry with the opportunity to supply under the same terms, standards and conditions as existing supply chain partners
- awarding contracts on the basis of the most competitive proposal, which should include due consideration of direct and indirect cost factors such as reliability, maintainability, servicing and procurement administration costs
- including performance measurement, reporting and feedback mechanisms.

As a high profile multi-billion dollar construction proposal, the Project would have high expectations of supporting the Brisbane and Queensland economy through the utilisation and consumption of local products and services. The Local Industry Participation Plan for the Project would need to ensure that local participation is possible to the highest extent, therefore satisfying the overall aim of the LIP.

Strategies for ensuring cost effectiveness of sourcing inputs from regional suppliers

A number of strategies would be employed during the course of the Project to ensure the cost effectiveness of sourcing inputs and services from regional suppliers. Central to these strategies is:

- the use of benchmarking cost data to regularly monitor product and service charges for the construction industry (*industry rates*) and monitoring price differentials between Queensland and other states over time
- competitive bid process for procurement of all goods and services. For all major capital works including the Project, the Queensland Government requires that the competitive bid process for procurement of all goods and services is adhered to. In addition, the performance of Queensland government agencies responsible for the procurement of goods and services are regularly evaluated by a number of performance indicators including
  - impact: delivering timely, cost effective and quality procurement results for our internal clients
  - accountability: managing the risk in procurement for our internal clients
  - probity: managing integrity in the conduct of all procurement activities
  - sustainability: ensuring an adaptable, skilled and valued procurement capability
  - analytical competence: using information and knowledge management to make competent decisions.

21.3.4 Strategic property and business impacts

Background

This section examines the potential properties and businesses impacted from an economic prospective by the Project. In addition to those potentially impacted through property resumptions, neighbouring businesses and properties are also examined in terms of potential disruptions and impacts resulting from the Project. Impacts are defined as either major: long lasting generally more than three months, to minor: exposure to short term impacts over several weeks.

The Project involves numerous construction worksites impacting properties and businesses along the length of the proposed corridor, stretching from the north (Wooloowin) through to the south (Salisbury). Potential economic impacts to properties and businesses are examined at key sites and locations where potential impacts could be experienced were identified.

Northern section

Within the northern section, a number of construction activities and sites are planned, including the establishment of the northern portal, widening of the rail corridor to Mayne Rail Yard and construction of a new station at the RNA Showgrounds. Within the northern section, key impacts are expected to be experienced in Bowen Hills, where the proposed construction of a new station and roadworks along O'Connell Terrace are projected to impose economic costs to the local community.

There is a partial property resumption proposed for the Queensland Newspaper site on Campbell Street. A widening of the rail corridor on the western boundary of Queensland Newspaper site will remove one of the access lanes used by Queensland Newspapers to access the car park at the back of the premises. The partial resumption will also result in the loss of a number of parking bays. However, access to the car park will still be possible via an access lane off Mayne Road.

Bowen Hills

A summary of key economic impacts to properties and businesses within Bowen Hills, along with mitigation strategies is provided in **Table 21-23**.

Within the new station, 50 m² of floor space for commercial leasing would be offered. This is likely to attract retail vendors offering food/beverages or consumer goods and/or services such as a newsagent vendor. Retail floor space would only become available when the Project is in operation.

Spring Hill

Construction of the northern portal is proposed within the existing rail corridor adjoining Victoria Park. The footprint for the construction worksite also requires adjoining land to the rail corridor that is bound by the Inner City Bypass, the land bridge, St Josephs College Gregory Terrace tennis courts and the access road through the park and the Biomedical Technology Service facility, with a small area of non-critical space required within the land occupied by the Biomedical Technology Service facility.

A summary of key economic impacts to properties and businesses within Spring Hill, along with mitigation strategies is provided in **Table 21-24**.

Central section

Key Project worksites within the central section are Roma Street and Albert Street, where new Project stations are proposed. Two construction worksites are proposed for Roma Street, both located on public land adjoining parklands and rail yards. As such, the Project's economic footprint at Roma Street is minimal other than potential road congestion issues accessing the sites.

However, the proposed Lower Albert Street Station involves two major construction worksites along Albert Street and substantial road and footpath works along Albert Street between the intersections of Alice and Charlotte streets. Due to the number of businesses and properties adjoining construction worksites or road works, economic impacts range in scope and magnitude.

Two new stations proposed for Woolloongabba and Boggo Road involve substantial construction works. As both are located at existing government locations, economic impacts are assessed to be contained to a small number of properties and businesses.

Table 21-23 Mitigation strategies for neighbouring businesses and properties potentially exposed to the Project's construction activities at Bowen Hills

Construction activity	Impacts	Mitigation Strategies
O'Connell Terrace road works	Require the temporary closure and relocation of the existing livestock vehicle access lane from O'Connell Terrace into the RNA Showgrounds.	As part of the detailed design process, continued negotiations with RNA to investigate alternative access points to the RNA Showgrounds for livestock vehicles during the Ekka. In association with the RNA, investigate the feasibility in terms of construction works and cost of upgrading the access lane within the RNA Showgrounds to accommodate large livestock vehicles.
	Demolition of RNA livestock pavilions along the site boundary.	In conjunction with RNA, investigate implications of demolition of 47,000 m^2 of roofed floor space. Examine the opportunity of fast-tracking components of the O'Connell Terrace redevelopment. Examine the feasibility of constructing temporary commercial space.
	Road works over an extended period of time impacting through-fare vehicle traffic.	Staged construction methodology to maintain road access. Traffic management strategies to minimise impacts for vehicles. Communication strategy to inform affected local residents and businesses of key construction milestones in advance.
Construction of the new station	A major construction worksite to be located outside the current rail corridor, encroaching on current and future commercial space and income for the Ekka.	Staged construction methodology to minimise activities and footprint during the annual Ekka and other major events. Examine the feasibility of constructing new pavilions in advance of RNA timetable of construction. Use of pre-cast spanning elements incorporated into the proposed structural arrangements to speed construction.
	Modification of existing Exhibition Station facilities (currently separate entry and exit platforms).	Development of pedestrian traffic management strategies for each of the RNA events.
	Location of a construction worksite in close proximity to the station.	As part of the detailed design process, continued liaison and negotiation with ULDA, RNA and LendLease to investigate all possible sites within the RNA Showgrounds and adjoining sites. For sites identified within the RNA Showgrounds, investigate costs and implications of the location identified.

Table 21-24 Mitigation strategies for neighbouring businesses and properties potentially exposed to the Project's construction activities at Spring Hill

Construction activity	Impacts	Mitigation Strategies
Northern portal construction worksite (rail corridor adjoining Victoria Park)	Acquisition of land for the construction worksite and on-going noise and vibration during construction may reduce the leasing demand of the St Josephs College Gregory Terrace tennis courts outside school hours by external parties.	As part of the detailed design process, continued liaison and negotiation with St Josephs College Gregory Terrace to investigate the neighbouring construction worksite footprint and its impact on access and use of the tennis courts by all stakeholders. Construction worksite boundary to allow for a wide pedestrian space around the tennis court. Ensure signage for tennis pedestrian access is clear during construction. Direct communication strategy to inform St Josephs College Gregory Terrace of key construction milestones in advance.
	On-going construction noise and vibration impacting the Centenary Aquatic Centre.	Commitment to meet EMP air quality goals (dust, cover loads, street sweeping). Direct communication strategy to inform businesses and operators at Centenary Aquatic Centre of key construction milestones in advance.
	On-going construction noise and vibration and construction vehicle congestion impacting the Biomedical Technology Service facility.	Construction Traffic Management plan implemented to ensure that construction vehicles enter and exit the northern portal construction worksite with minimal disturbance to existing vehicles and pedestrians accessing the Biomedical Technology Service facility. Direct communication strategy to inform Biomedical Technology Service facility of key construction milestones in advance.
	On-going construction noise and vibration and construction vehicle congestion impacting residents along Gregory Terrace.	Construction Traffic Management plan implemented to ensure that construction vehicles enter and exit the northern portal construction worksite with minimal disturbance to existing vehicles and pedestrians accessing Gregory Terrace. Commitment to meet EMP air quality goals (dust, cover loads, street sweeping). Direct communication strategy to inform Residents along Gregory Terrace of key construction milestones in advance.

Roma Street

No property resumptions are required within the Roma Street precinct for the Project, nor are there any residential or commercial premises directly fronting or adjoining the proposed construction worksites. However, as a construction worksite requiring the removal of spoil, a significant number of haulage trucks are required which have the potential to affect road congestion along Roma Street and associated roads. On average, it is anticipated that approximately 40 trucks a day would access the Roma Street construction worksites, with a peak of approximately 100 trucks per day. A proposed traffic management plan for the location would minimise business impacts during peak traffic hours.

A number of coffee shops, eateries, mini super markets and hotels are located along George Street, between the intersection of Ann and Roma streets and within Roma Street Transit Centre. A number of these businesses have benefited from patronage of construction crews currently involved with development of the Law Courts at the corner of George and Roma streets. These same businesses would also benefit during the construction phase of the Project, as a significant number of construction employees would be located at the Roma Street construction worksite.

Although a buffer (construction worksite office) of approximately 50 m separates the construction worksite from the Holiday Inn (Roma Street Transit Centre), a portion of the apartments/units within the complex will have frontage to the construction worksite. It is suggested that a communication strategy is employed to inform hotel management of key construction milestones in advance.

Albert Street

Within the Albert Street precinct, a new 220 m long underground station is proposed beneath Albert Street, stretching between the intersections of Mary and Alice streets. To accommodate construction of the station, two major construction worksites are proposed:

- Royal on the Park hotel on the corner of Albert, Alice and Margaret streets (southern construction worksite). This is the main construction worksite for the proposed station and includes construction of a shaft and southern street entrance. A subway and entrance is also proposed under Alice Street.
- A block of commercial buildings located along Albert and Mary streets (northern construction worksite) would be the secondary construction worksite for Albert Street station, accommodating the construction of a shaft facilitating a northern station entrance and associated plant.

In addition to the construction of the new station, minor road works are proposed along Albert Street and adjoining intersections (to improve pedestrian safety and capacity).

As such, business and property impacts occur within a larger precinct, with impacts falling into the following three categories:

- resumptions (directly impacted) – limited to 10 property titles to be resumed and businesses currently located within these properties
- major – adjoining properties and businesses directly adjacent to either of the two construction worksites
- minor – all other businesses located within the construction footprint (majority facing new kerb works and widening of footpaths).

Resumptions

Property resumptions are required at both proposed construction worksites. The southern construction worksite would impact the Royal on the Park Hotel, including the Walnut restaurant, meeting rooms, the hotels ballroom and on-site car parking facilities. The northern construction worksite hosts a number of retail and service businesses located in several low rise buildings. **Table 21-25** identifies the number and types of businesses directly affected by property resumptions.

Table 21-25 Businesses impacted by property resumptions within the Albert Street area[1]

Property type	Small (1 – 4 fte)	Medium (5-10 fte)	Large (11 + fte)	Other	Total Businesses
Business – retail/products	4	1	-	-	5
Business – retail/food	4	1	-	-	5
Business – retail/services	5	2	-	-	7
Residential/hotel	-	-	1	-	1
Education/training	1	-	-	-	1
Empty premises	-	-	-	3	3
TOTAL	14	4	1	3	22

Note:
1. *Note that these businesses were identified via on-site observations and/or listings via the internet. These figures are preliminary and require extensive field surveying for validation.*
2. *fte: full time equivalent employment position*

A total of 22 businesses (of which three were vacant as at September 2010) would be directly impacted. The majority of these businesses are identified as small businesses employing one to four full time staff and are predominantly retail services (hair saloons/business services), retail food (coffee/food outlets) and retail products (clothing, sporting equipment).

It is estimated that of the 19 operating businesses, between 70 and 100 full time equivalent staff (fte) are currently employed (including the business owners). These positions are fairly evenly spread across the top four business groups of residential/hotel, retail/products, retail/food and retail/services. Assuming that the three premises currently un-tenanted would employ an additional 10 fte, the economic significance of all 10 properties to be resumed is estimated at 80 to 110 ftes.

The latest estimate by ABS (ABS 2010, Cat No 6302.0) projects full-time adult total weekly earnings for the private sector (May 2010) at $1,282.20. Based on these statistics, the current value of the 19 businesses in terms of employee income is estimated at between $5.3 million and $7.4 million per annum.

However, the actual economic cost post property resumption may be lower. Upon resumption, the 19 existing businesses are likely to either:

- relocate in close proximity to the existing site
- relocate further afield (outside the CBD)
- cease trading.

Factors that would influence business decisions include:

- cost of physically relocating
- availability of suitable alternative sites with similar exposure to existing clientele, both in close proximity and further afield
- leasing costs of alternative sites
- level of competition at alternative locations
- general level of business conditions at the time of relocating
- future intentions of the business owner and short to long term business retirement plans.

If the Project proceeds and land is resumed for the Project, then compensation is payable to affected landowners and interest holders in accordance with the compensation principles set out in the *Acquisition of Land Act 1967*. Compensation is payable with respect to both residential and commercial land that is wholly or partly resumed for the Project.

The resumption of 10 properties would potentially impact on the commercial leasing marketplace, particularly for Albert Street retail space in the short to medium term. Availability of street front retail sites along Albert Street is currently very limited. This is unlikely to change as there are no major developments proposed that offer significant new retail space.

An allocation of 100 m² of floor space would be offered for commercial leasing within the new station. This is likely to attract retail vendors offering food/beverages or consumer goods and/or services such as a newsagent vendor. As retail floor space would only become available when the Project is operational, it would not offer any relocation opportunities for businesses impacted by the property resumption process.

Other Impacts and mitigation

Other impacts to property and business (other then those resumed) have also been examined. Construction activities at both the southern and northern construction worksites are proposed for a period of approximately five and a half years. This would have significant implications for adjoining properties and businesses. **Table 21-26** and **Table 21-27** provide an overview of the businesses and properties potentially exposed to major impacts.

Table 21-26 Businesses and properties facing major impacts within the Albert Street area[1]

Property type	Small (1 – 4 fte)	Medium (5-10 fte)	Large (11 + fte)	Other	Total businesses
Business – retail/products	-	1	-	-	1
Business – retail/food	3	4	-	-	7
Business – retail/services	-	2	-	-	2
Residential/hotel	-	1	1	3	5
Commercial office	-	-	-	7	7
Empty premises	-	-	-	8	8
TOTAL	3	8	1	18	30

Notes:
1. *Note that these businesses were identified via on-site observations and/or listings via the internet. These figures are preliminary and require extensive field surveying for validation.*
2. *fte: full time equivalent employment position*

Table 21-27 Mitigation strategies for neighbouring businesses and properties potentially exposed to major impacts within the Albert Street area

Business/location	Impacts	Mitigation strategies
Residential complexes adjoining the southern construction worksite, The Gardens Apartment (204 Alice Street), Carrington Towers (16 Albert Street) and Camelot Court (30 Albert Street).	Directly front construction worksite. Most units would experience disturbance in the form of noise, dust, lighting at night, continuous heavy vehicle visiting the construction worksite. Potential disruptions for residents for vehicle access. Depending on the magnitude of the disturbance, it may adversely affect property or rental values.	Staged construction methodology to minimise adverse impacts to neighbouring residents during night shifts. Dust and noise mitigation strategies to be employed, such as acoustic sheds constructed at site. Traffic management strategies developed during the detailed design process for construction vehicles accessing the site, to minimise adverse impacts to residents accessing their residencies. Direct communication strategy to inform residents of key construction milestones in advance.
Retail shop outlets (products and food), service providers and commercial offices at 53, 79, 80, 96 and 108 Albert Street, retail food outlet at 212 Margaret Street and commercial offices at 99 Mary Street.	Directly front northern and southern construction worksites. Exposed to construction pollution (noise and dust) during the construction period. For some businesses, this may result in loss of patronage. For some of these businesses, loss of either park parking/loading zones at the shop front. Increased construction vehicle traffic affecting vehicle access to the premises, particularly commercial shop fronts at 99 Mary Street	Staged construction methodology to minimise adverse impacts to neighbouring residents during night shifts. Dust and noise mitigation strategies to be employed for road works, including acoustic sheds constructed at site. During detailed design phase, negotiations with affected businesses in relation to loss of car parking facilities and loading zones are undertaken and investigation of alternative sites. Traffic management strategies developed during detailed design phase for construction vehicles accessing the site, to minimise adverse impacts for vehicles accessing neighbouring commercial properties. Direct communication strategy to inform affected businesses of key construction milestones in advance.
Commercial hotels/holiday apartments including Sebel (95 Charlotte Street) and Oaks Hotels and Resorts (212 Margaret Street).	Directly front construction worksite. Many units would experience disturbance in the form of noise, dust, lighting at night, continuous heavy vehicle visiting the construction worksite 24 hours a day. Potential disruptions for clients accessing the premise via car. Depending upon the magnitude of the disturbance, it may adversely affect either occupancy rates or charge-out rates.	Staged construction methodology to minimise adverse impacts during night shifts. Dust and noise mitigation strategies to be employed for road works (acoustic sheds constructed at site). Traffic management strategies for construction vehicles accessing the site developed during detailed design phase, to minimise adverse impacts for clients accessing the hotels. Direct communication strategy to inform hotels of key construction milestones in advance.

For a small number of retail businesses, particularly those providing takeaway foods in close proximity to construction worksites, construction of the Project may provide additional patronage. For other businesses, on-going construction activities may deter patronage. For example, the two hotels adjoining the construction worksites may be negatively impacted during the construction period, fluctuating by the degree of activity at the construction worksites.

The three residential complexes adjoining the southern construction worksite would also be impacted during the course of construction.

A number of commercial offices (eight businesses) were identified as adjoining the construction worksites. Depending on perceived construction activity and impacts on vehicle and pedestrian traffic, concessional rentals may be offered by the landlords to attract and maintain tenants over this period.

The magnitude of the impacts to adjoining businesses and properties would be dependent upon a range of factors including:

- traffic management at the construction worksites and management of the Project construction vehicles on approach and departure from the construction worksites
- construction working hours
- Project scheduling and the intensity of heavy vehicle movement
- other concurrent developments in close proximity, creating cumulative impacts
- ongoing growth in vehicle traffic within Brisbane CBD and adjoining areas.

The construction plan details management strategies, addressing the first three points above and would take into consideration the other major proposed construction projects within close proximity.

Whilst impacts for the majority of businesses and properties identified within this segment are determined to be negative during the five and a half year construction period, positive benefits for business and property is anticipated post-construction. Properties and businesses are expected to experience substantial positive benefits through the Project delivering improved transportation options and significantly increasing the pedestrian traffic along Albert Street.

Property and businesses with potential exposure to minor, short term impacts have also been examined. Substantial widening of footpaths is proposed along Albert Street and at intersections of Margaret, Mary and Charlotte streets. In addition to these works affecting pedestrian traffic and access to premises, some businesses may also permanently lose access to parking and loading zones at the front of their properties.

Proposed road works and pathway widening activities are projected to take several weeks to complete at any one location. Due to the anticipated short construction period, it is unlikely that these works would impact property/land values of commercial rental values. Construction management plans for the Project propose to maintain pedestrian traffic and access at all times to these premises, ensuring business-as-normal conditions for the vast majority of these businesses and agencies.

Vehicle access may also impact these businesses and agencies during the construction period. Increased heavy vehicle traffic to the Project's construction worksites, particularly the corner of Albert and Margaret streets, may potentially impact on vehicle access to these businesses and premises, adding to travel times.

Post construction, these businesses and premises are likely to benefit from the Project through delivery of improved transport access for this part of the CBD. This would benefit employees from government agencies and commercial offices in the southern CBD. Retail and service businesses are also likely to benefit through facilitating substantially higher proportions of pedestrian traffic along Albert Street.

Woolloongabba

Within Woolloongabba, a new underground station is proposed at the Goprint site owned by the Department of Public Works. Redevelopment of the site is proposed by the Urban Land Development Authority (ULDA) which may incorporate a 30 to 40 storey building above the proposed Project station and busway structures above/alongside the new rail station.

The Goprint site is sufficient in size to allow construction of the underground station using a central cut and cover box construction methodology. The site is also large enough to launch and/or retrieve TBMs required for tunnel construction. There is also sufficient space for permanent realignment of the Pacific Motorway Vulture Street off-ramp and temporary realignment of the South East Busway (Woolloongabba spur) to enable staged construction, resulting in no interruptions to traffic. Neighbouring property resumptions are not required.

The Woolloongabba site would be a key construction worksite for the Project. Initial site preparation works include demolition of the Goprint building and earthworks to create a working platform. An acoustic shed is proposed over the tunnel construction area and hoardings around the entire worksite.

In terms of spoil removal, 437,000 m^3 of spoil would be hauled by truck from the site, requiring on average 86 haulage trucks a day to visit the site, peaking at up to 214 trucks a day during the excavation period. In addition to the haulage trucks removing spoil, it is projected that 23 trucks per day, peaking at 57 trucks per day, would be delivering construction materials to the site.

Whilst there are no commercial or residential businesses directly fronting or adjoining the proposed construction worksite, a significant number of commercial businesses have been identified across the site along Stanley Street (between Main Avenue and the southbound on-ramp to the Pacific Motorway). The majority of these premises are retail outlets, including several coffee shops and eateries that may benefit from the patronage of the Project's construction workforce. As the proposed traffic plan directs all construction vehicles either directly onto the Pacific Motorway or onto Main Street/Ipswich Road from the construction worksite, thereby avoiding Stanley Street, no flow-on impacts from construction vehicles is expected.

Woolloongabba Central Apartments, located on the corner of Main Avenue and Stanley Street, is a relatively new high rise residential complex. A number of units within the complex would overlook the Woolloongabba construction worksite for a protracted period (approximately five and a half years). Construction activities such as heavy vehicle movements and 24 hour per day construction activity may result in disturbance to a number of residential units at the complex due to a range of construction impacts, including noise, lighting at night and dust. In some cases, depending on the magnitude of the disturbance, this may adversely affect property value or rental rates in the short term. However, the potential magnitude of individual property impacts during construction is anticipated to be less significant than general trends in the business and property environments. Post construction, the values of units within Woolloongabba Central Apartments is expected to appreciate due to their close proximity to the new station.

Within the new station, an allocation of 50 m^2 of floor space would be offered for commercial leasing. This is likely to attract retail vendors offering food/beverages or consumer goods and/or services such as a newsagent vendor. This retail floor space would only become available when the Project is operational.

Boggo Road

A new underground station is proposed in Boggo Road between the existing Ecosciences Precinct and Boggo Road Gaol. The Boggo Road Station construction worksite would be minor from the surface, involving only piling works and a top-slab construction for the underground station.

There are no requirements for property resumptions, as the new station and construction footprint have been designed to sit underneath the pedestrian zone between the Ecosciences Precinct and Boggo Road Gaol.

Other than the Ecosciences Precinct, no commercial or residential properties directly front, adjoin or are in close proximity to the proposed construction worksite. Therefore, it is envisaged that no businesses would be directly impacted by the construction worksite. However, significant amounts of spoil would be removed from the site (155,000 m^3), with approximately 36 haulage trucks required per day, peaking at 89 trucks per day during the 32 week excavation period. In addition, 10 trucks per day on average are projected to deliver material supplies to the construction worksite, peaking at 24 trucks per day.

Although construction schedules and traffic management plans would seek to ensure that trucks avoid peak traffic hours, construction activities would lead to an increase in heavy vehicle traffic in the Boggo Road Urban Village Precinct and a minor increase in congestion at Boggo Road/Annerley Road intersection. Overall, impacts on businesses are anticipated to be minimal.

Southern section

The Project's southern section includes construction worksites at Fairfield (for the midpoint ventilation and emergency access building), Yeerongpilly (southern portal and station) and proposed surface works at Salisbury, Rocklea and Moorooka.

Fairfield

Works at Fairfield involve the construction of a midpoint tunnel ventilation and emergency access building to be located on Railway Road, between Bledisloe and Sunbeam Streets. Partial land resumption will also be required off the Energex depot and a realignment of Railway Road (between Bledisloe and Sunbeam Streets) is proposed.

A total of 11,500 m^3 of spoil is proposed to be excavated from the site over a 32 week period and involve on average 12 trucks per day to remove spoil, peaking at 29 trucks per day during the excavation period. In addition, 3 trucks per day on average are projected to deliver material supplies to the construction workforce, peaking at 8 trucks per day.

Table 21-28 provides an overview of the likely impacts residencies and businesses are likely to face and possible mitigation strategies.

Table 21-28 Potential economic impacts to neighbouring properties to the ventilation and emergency access building during the construction phase

Location	Impacts	Mitigation Strategies
Adjoining residential properties along Railway Road, Sunbeam Street and Bledisloe Street.	Increased congestion on Railway Road, Sunbeam Street and Bledisloe Street as a result of heavy vehicles removing spoil and delivering construction material and light vehicles associated with construction staff. Increased noise and dust pollution from the construction worksite, likely to impact market values and/or rental value of residencies during construction.	Construction methodology to consider off-site impacts to neighbouring residencies. Staged construction, use of pre-fabricated materials and traffic management for construction vehicles. Communication regularly updating impacted neighbouring residencies of key construction milestones and proposed future construction stages.
Yeronga Veterinary Surgery on the corner of Railway Road and Sunbeam Street.	Increased traffic congestion at construction worksite may impede customer access. Construction noise may also impact animals kept at the business premises.	Traffic management to ensure easy access around the construction worksite and avoidance of construction vehicles at peak hours. Communication regularly updating the Veterinary Surgery of key construction milestones and proposed future construction stages.

Post construction, the ventilation and emergency access building is not expected to affect the value of neighbouring properties, or impact vehicles using Railway Road, Sunbeam Street or Bledisloe Street.

Yeerongpilly to Salisbury

The Yeerongpilly to Salisbury section includes construction of:

- the southern portal (adjacent to and north of the existing Yeerongpilly Station)
- construction of a new station for Yeerongpilly (southeast of the existing station)
- widening and realignment of the rail corridor from Yeerongpilly to Salisbury
- closure or realignment of a number of roadways and vehicle/pedestal access points adjoining the rail corridor.

As a result of the proposed construction works and methods for the Project, impacts arising from residential and commercial premises were identified as either:

- captured within the property resumption process, or
- neighbouring properties exposed to impacts.

Property resumptions

The Project requires resumption of a number of residential and commercial properties. A proportion of the properties resumed may be returned to the marketplace post construction, although this option has not been examined as part of this analysis.

Proposed property acquisitions are illustrated in **Table 21-29**. A number of the identified units are government owned (either by the Queensland Department of Housing, or other Queensland State Government ownership) and provided to residents in financial hardship at a subsidised rental.

Table 21-29 Residential property resumptions within the Yeerongpilly and Moorooka precinct

Property type	House[1]	Units[2] (Private[3])	Units[2] (Government[4])	Total dwellings
Yeerongpilly				
Properties to be resumed	10	51	25	86
Average weekly rental value	$470	$380	$200	
Moorooka				
Properties to be resumed	18	-	-	18
Average weekly rental value	$380			
Total Properties	28	51	25	104
Projected annual rental value[5]	$601,730	$1,010,530	$260,715	$1,872,975

Notes:
1. *Single unit dwelling on a title.*
2. *Defined as multiple dwellings on a title including units, flats and townhouses.*
3. *Under private ownership*
4. *Under government ownership, provided to public at subsidized rental rate*
5. *Calculated rental value of all residential properties resumed*

As indicated within **Table 21-29**, approximately 105 dwellings would be resumed for the Project with the majority located at Yeerongpilly. The economic significance of these dwellings is measured through the value of these properties from a rental prospective at approximately $1.9 million per annum in today's marketplace.

Table 21-30 highlights the number of houses and units to be resumed for the Project, compared to the number of houses and units listed for sale or rent, calculated at the end of September 2010.

Table 21-30 Overview of residential property market at Yeerongpilly and Moorooka

Property type	House[1]	Units[2]
Yeerongpilly		
Properties to be resumed for Cross River Rail	10	76
Properties listed for sale[3]	8	3
Properties listed for rent[3]	1	7
Moorooka		
Properties to be resumed for Cross River Rail	18	-
Properties listed for sale[3]	65	-
Properties listed for rent[3]	17	-

Notes:
1 Single unit dwelling on a title.
2. Defined as multiple dwellings on a title including units, flats and townhouses.
3. As listed on www.realestate.com.au on 28th September 2010

Resumption of commercial/industrial/mixed use premises in the south of the corridor would be required for the Project. Although only 19 commercial property titles are proposed for resumption within this precinct, the majority of these titles house multiple tenants.

Two of the property titles proposed for resumption, Yeerongpilly Corporate Parks North and South (the largest individual property titles in terms of area), each have the capacity to house many businesses as indicated in **Table 21-31**.

Table 21-31 Key features of Yeerongpilly Corporate Parks North and South[1]

Yeerongpilly Corporate Park North	Yeerongpilly Corporate Park South
250 m to Yeerongpilly Station	300 m to Yeerongpilly Station
Over 21,000 m^2 of building on 5ha	Over 15,000 m^2 of Industrial space on 5ha
4,000 m^2 of Corporate Office Building	Over 10,000 m^2 of hardstand
17,000 m^2 of Industrial/Warehouse space	Over 35 separate tenancies from 100 m^2
Excellent truck access and parking	Good truck access and parking
Over 35 separate tenancies from 28 m^2	

Source: As listed on the website www.incoproperty.com.au on the 29th September 2010.

A preliminary review of the 19 commercial properties was undertaken involving desktop research and field survey.

Table 21-32 illustrates that a total of 86 businesses were identified in the preliminary review, with over half estimated as medium sized firms employing between 5 and 10 full time employees. A further 29 business/agencies were identified as being small, employing between 1 and 4 full time staff and 9 business/agencies were identified as being large employing over 10 full time staff. The economic significance of these businesses and services is significant in terms of employment. Preliminary estimates indicate that these firms collectively employ between 400 and 500 full time staff.

Table 21-32 Overview of businesses directly impacted by property resumptions within Yeerongpilly and Moorooka[1]

Property/business type	Small (1 to 4 fte)	Medium (5 to 10 fte)	Large (11+ fte)	Total businesses
Service provider	5	22	1	28
Light manufacturing	10	12	3	25
Retail	8	-	1	9
Workshop/mechanical repair	4	4	-	8
Office/commercial	-	5	-	5
Government & community services/groups	-	1	4	5
Wholesaling	1	3	-	4
Warehousing/storage	1	1	-	2
Other	-	1	-	1
TOTAL	29	48	9	86

Note:

1 *Note that these businesses were identified via on-site observations and/or listings via the internet. These figures are preliminary and require extensive field surveying for validation. In addition, a number of premises had signage indicating vacancies, indicating that additional businesses can be accommodated within this precinct.*

The latest estimate by ABS (ABS 2010, Cat No 6302.0) projects full-time adult total weekly earnings for the private sector (May 2010) at $1,282.20. Utilising these statistics, the current value of these 86 businesses in terms of employee income is estimated at $26.7 million to $33.4 million per annum. However, the actual economic cost (employee income) to the local economy may be lower. Upon resumption, the 86 existing businesses are likely to either:

- relocate within Yeerongpilly or Moorooka (limited to a handful of the smaller businesses)
- relocate further afield, including Rocklea and Salisbury (a more likely option)
- cease trading.

Some of the factors that may influence the decision of these businesses include:

- cost of physically relocating and compensation provided by the Project proponents
- availability of suitable alternative sites within Yeerongpilly and Moorooka, that provides similar exposure to existing clientele
- availability and cost of suitable alternative sites further afield at Rocklea and/or Salisbury
- leasing costs of alternative sites
- amenities available, including truck access and parking and access to public transport, including rail
- level of competition at alternative locations and the types and number of neighbouring businesses
- general level of business conditions at the time of relocating
- future intentions of the business owner and short to long term business retirement plans.

Re-alignment of Wilkie Street

The construction of the southern portal and new Yeerongpilly train station requires substantial construction works, including:

- realignment of Wilkie Street to the east
- realignment of the existing rail line through Yeerongpilly Station
- construction of new rail platforms and concourse/overbridge
- minor road works and pavement works for Crichton Street, Stamford Street, Green Street and Livingstone Street.

Table 21-33 provides an overview of key economic impacts for residents in this area during the proposed construction phase, along with recommended mitigation strategies to alleviate these impacts.

Table 21-33 Economic impacts to neighbouring properties along Wilkie Street

Location	Impacts	Mitigation strategies
Remaining residential properties on Crichton Street, Stamford Street, Green Street, Livingstone Street, Bow Street and Park Lane.	Rental value of residences are likely to be reduced during the construction phase. New "frontage" properties immediately adjacent the widened rail corridor, where previously buffered by other properties, would experience increased noise and decreased amenity/privacy	Construction methodology to consider off-site impacts to neighbouring residencies. Staged construction, use of pre-fabricated materials and traffic management for construction vehicles. Communicating regularly, updating impacted neighbouring residencies on key construction milestones and proposed future construction stages. Install permanent noise barriers/screens

Post construction, properties may appreciate in value as a result of being located in close proximity to a new station.

Lucy Street (properties located between Moolabin Creek and Ipswich Road)

The southern portal construction worksite, located on Station Street and Wilkie Street, would impact on existing businesses located on Lucy Street that are not going to be resumed as part of the worksite for the Project. Additionally, closure of the thoroughfare from Wilkie Street to Lucy Street during construction would result in Lucy Street becoming the key access road for construction vehicles entering and leaving the site.

Table 21-34 Economic impacts to neighbouring properties along Lucy Street

Business/location	Impacts	Mitigation Strategies
14 commercial businesses identified along Lucy Street including workshop/repair garages, commercial offices, light manufacturing, retail outlets and service and/or consulting providers.	Potential congestion on Lucy Street as a result of heavy vehicles accessing the southern portal construction worksite, resulting in impacts on businesses.	During the detailed design phase, traffic management strategies to minimise adverse impacts to traffic congestion on Lucy Street during business hours. Direct communication to inform businesses of key construction milestones in advance.

Construction works at Clapham Rail Yard

As part of the Project, an upgrade of Clapham Rail Yard is proposed. This would require the resumption of an industrial and warehousing facility currently used by Toll freight forwarding business. Part of the construction works would involve raising the level of the site and realignment of rail tracks.

Weston Milling adjoins the eastern boundary of the construction worksite. Currently haulage trucks delivering grain supplies to the mill use a site entry via Chale Street for ease of access to the silos which may be impacted by the proposed widening of the rail corridor. Discussions during the detailed design stage with Weston Milling regarding the proposed neighbouring property resumption and shared access points should precede the construction works to minimise any adverse business impacts on Weston Milling.

Table 21-35 provides an overview of key economic impacts for neighbouring businesses at Clapham Rail Yard, along with recommended mitigation strategies to alleviate these impacts.

Table 21-35 Economic impacts to neighbouring businesses at Clapham Rail Yard

Business/location	Impacts	Mitigation strategies
Weston Milling	Loss of heavy vehicle access for Weston Milling to part of its premise.	Engagement with Weston Milling during the detailed design phase regarding the maintenance of Gate One access and the general open spaces (parking) available on land adjoining Weston Milling that is not required for the Project.
Other businesses on Chale Street	Potential impacts of additional heavy haulage trucks using Chale Street to access Clapham Rail Yard.	Traffic management strategies for construction vehicles accessing the site to be developed during the detailed design phase to minimise adverse impacts to traffic congestion during peak hours.
Firms located on Fairfield Road adjacent to existing Toll Express operation	Potential impacts of additional heavy vehicles using Fairfield Road to access Clapham Rail Yard.	Traffic management strategies for construction vehicles accessing the site to be developed during the detailed design phase to minimise adverse impacts to traffic congestion during peak hours.

Ipswich Motorway realignment around Moorooka Station

A realignment of the existing rail track between Yeerongpilly and Salisbury requires a widening of the rail corridor eastward towards Ipswich Road at Moorooka. As a result, realignment of Ipswich Road between the intersections of Chaucer Street and Hamilton Road is required. Properties on the western side of Ipswich Road would be resumed. No resumptions are required on the eastern side of Ipswich Road.

In addition to road works, neighbouring businesses, particularly car yard businesses, along this stretch of Ipswich Road may be impacted during construction eg dust and noise impacts. **Table 21-36** outlines the potential impacts at this location and strategies for mitigation of identified impacts.

Table 21-36 Economic impacts to neighbouring businesses on Ipswich Road at Moorooka

Business/location	Impacts	Mitigation strategies
Car yards on Ipswich Road between Hamilton Road and Chaucer Street (Motorama Toyota and Mitsubishi)	Directly front onto the proposed road works on Ipswich Road, with loss of on-street car parking on Ipswich Road. Potential disruptions to customers accessing the business. Noise and dust from road works impacting car displays (additional cleaning costs). Noise and dust pollution from construction works within the expanded rail way corridor.	During the detailed design phase, discussions with Motorama regarding the road realignment works and loss of on-street car parking on Ipswich Road. Dust mitigation to be employed for road works. Dust mitigation practices to be employed on construction and demolition works Direct communication to inform businesses of key construction milestones in advance.
Commercial shop fronts on Ipswich Road between Chaucer Street and Gainsborough Street (several offices and retail outlets including newsagent and fast food outlet)	Directly adjacent to properties resumed on Unwin Street for demolition. Exposed to construction pollution (noise and dust) during the construction period. Loss of patronage from resumed businesses (food outlet and newsagent)	Staged construction methodology to minimise adverse impacts during office hours and undertaking major elements after hours. Direct communication to inform businesses of key construction milestones in advance.
Car yards on the intersection of Ipswich Road and Gainsborough Street (Just Nice Cars & Motorama Budget Priced) Vehicle yards on Ipswich Road between Kenway Road and Hamilton Road (Budget Priced Cars Moorooka, Lifestyle Rv's and Carl's Garage	Noise and dust pollution from construction works within the expanded rail corridor.	Dust mitigation to be employed on construction and demolition works. Direct communication strategy to inform businesses of key construction milestones in advance

Unwin Street and Evesham Street

Realignment of the existing rail track between Yeerongpilly and Salisbury requires the resumption of all the commercial properties on the southern side of Unwin Street and several commercial properties at the end of Evesham Street (southern side). Projected economic impacts arising from the Project to the neighbouring businesses along with recommended mitigation strategies are summarised in **Table 21-37**.

Table 21-37 Economic impacts to neighbouring businesses located on Unwin and Evesham streets

Business/location	Impacts	Mitigation strategies
Commercial businesses located on the northern side of Unwin Street (Units 21 to 27).	Adjacent to resumed properties on Unwin Street. May be exposed to significant pollution (eg noise and dust) during demolition of existing building across the road. Potential disruptions to customers accessing the business. Possible congestion on Unwin Street from heavy vehicles accessing the construction worksite. Potential loss of car parking on street front for customers.	Staged construction/demolition methodology to avoid business hours. Dust mitigation to be employed on construction and demolition works. Direct communication to inform businesses of key construction milestones in advance. Discussion with impacted businesses during the detailed design phase regarding the loss of on-street car parking.
Car yard on the corner of Unwin Street and Ipswich Road (Mike Brennan Wholesale)	Directly adjacent properties to be resumed on Unwin Street for demolition. Exposed to construction pollution (eg noise and dust) during the construction period.	Staged construction/demolition methodology to avoid business hours. Dust mitigation to be employed on construction and demolition works. Direct communication to inform the business of key construction milestones in advance.
Commercial businesses located on the northern side of Evesham Street (Units 19 to 53)	Directly adjacent properties resumed on Evesham Street for demolition. Exposed to construction pollution (eg noise and dust) during the construction period. Also impacted by the construction of a new cul-de-sac for Evesham Street (losing on-street car parking at front). Note that many of these businesses have frontage to Baldock Street as well.	Staged construction/demolition methodology to avoid business hours. Dust mitigation to be employed on construction, particularly the demolition works. Direct communication to inform the business of key construction milestones in advance. Discussions with individual businesses during the detailed design phase to evaluate the impacts of the cul-de-sac works on their businesses.
Commercial businesses located on the southern side of Evesham Street (Units 28 to 40) (Fulcrum)	Directly adjoining properties resumed on Evesham Street and Unwin Street for demolition. Exposed to construction pollution (eg noise and dust) during the construction period.	Staged construction/demolition methodology to avoid business hours. Dust mitigation to be employed on construction, particularly the demolition works. Direct communication to inform the business of key construction milestones in advance.

Road works on Fairfield Road and the Ipswich Motorway at Rocklea

As a result of the realignment of the existing rail corridor between Yeerongpilly and Salisbury, minor road realignment works are required for the Ipswich Motorway entry ramp as it passes underneath the overhead motorway bridge and widening of the rail bridge over Muriel Avenue. These works are likely to impact local businesses and road commuters during construction.

Potential impacts and mitigation measures are outlined in **Table 21-38**.

Table 21-38 Economic impacts to neighbouring businesses located on Fairfield Road at Rocklea

Business/location	Impacts	Mitigation Strategies
Realignment of the Ipswich Motorway Entry Ramp as it passes underneath the motorway bridge.	Rocklea International and Conference Centre may be exposed to pollution (eg noise and dust) during road realignment works.	Direct communication to inform of key construction milestones in advance.
Widening and/or reconstruction of the rail bridge over Muriel Avenue.	Temporary lane closures for Muriel Avenue during construction period, impacting traffic flow.	Traffic management strategies to minimise traffic congestion during peak hours. Communication to inform local residential and business community of key construction milestones in advance.

Rocklea to Salisbury

Between Rocklea and Salisbury, the Project would result in widening and realignment of the rail corridor. A number of commercial properties would require resumption and a number of roadways and vehicle/pedestrian access points adjoining the rail corridor would either be realigned or closed. This is likely to impact residents and businesses.

As a result of the proposed construction works and methodology for the Project, impacts arising to residential and commercial premises may fall into the following two categories:

- property resumptions
- neighbouring properties impacted by either construction worksites and/or road works supporting the Project.

The Project requires resumption of 20 commercial property titles to allow for the realigned rail corridor and associated road works. Some of these titles are not fully required and a partial resumption may occur in some cases if preferred by the property owner/business operator. Partial resumption is not examined within this analysis.

Of the 20 commercial properties proposed for resumption in Rocklea and Salisbury, 13 are medium sized businesses and seven are small sized businesses, outlined in **Table 21-39**.

Table 21-39 Businesses directly impacted by proposed property resumptions within Rocklea and Salisbury[1]

Property/business type	Small (1 to 4 fte)	Medium (5 to 10 fte)	Large (11+ fte)	Total businesses
Workshop/mechanical repair	4	2	-	6
Service provider	-	4	-	4
Light manufacturing	-	3	-	3
Wholesaling	1	2	-	3
Retail	1	1	-	2
Warehousing/storage	1	-	-	1
Government & community agencies/groups	-	1	-	1
TOTAL	7	13	-	20

Note:
1. *Note that these businesses were identified via on-site observations and/or listings via the internet. These figures are preliminary and require extensive field surveying for validation.*

It is estimated that these businesses employ between 80 and 100 full time positions. The latest estimate by ABS (ABS 2010, Cat No 6302.0) projects full-time adult total weekly earnings for the private sector (May 2010) at $1,282.20. Utilising these statistics, the current value of these 20 businesses in terms of employee income is estimated at $5.3 million to $6.6 million per annum. However, the actual economic cost (employee income) to the local community may be lower. Upon resumption, these 20 existing businesses are likely to either:

- relocate within Rocklea or Salisbury (more likely option)
- relocate further afield (a less likely option)
- cease trading.

Some of the factors that would influence the decision of these businesses include:

- cost of physically relocating and compensation provided by the Project proponents
- availability of suitable alternative sites within Rocklea and Salisbury area that provide similar exposure and access to existing clientele and staff
- availability of suitable alternative sites within neighbouring areas of Acacia Ridge and Archerfield
- leasing costs of alternative sites
- amenities available, including truck access and parking and access to public transport, eg rail
- level of competition at alternative locations
- general level of business conditions at the time of relocating
- future intentions of the business owner and short to long term business retirement plans.

Impacted neighbouring properties

Apart from the direct resumptions outlined above, activities at construction worksites between Rocklea and Salisbury may impact on a range of neighbouring properties including:

- Annie Street (Rocklea) resumptions
- Railway Parade (Rocklea) resumptions and road works on the intersections of Railway Terrace and Fairlie Terrace (Salisbury) works and closure of rail crossing by Beaudesert Road Service Road (Rocklea)
- resumptions and road works on Lillian Avenue and Dollis Street within Rocklea and realignment of Norbury Street (Coopers Plains) at the overpass of Riawena Road.

Annie Street, Rocklea

In addition to commercial buildings located between 34 and 62 Annie Street proposed for full resumption, partial resumptions are proposed for several commercial properties on Heaton Street and Leeds Street.

Table 21-40 provides an overview of properties impacted by partial or neighbouring resumptions and outlines recommended mitigation strategies.

Table 21-40 Economic impacts to neighbouring properties to the Annie Street developments

Business/location	Impacts	Mitigation Strategies
Residential properties adjoining resumed commercial properties (south side of Annie Street)	Exposure to construction activities during demolition of the commercial buildings. Houses would be directly exposed to the rail corridor. Rental value of residencies may decrease during demolition and track work.	Construction methodology to consider off-site impacts to neighbouring residencies. Traffic management for construction vehicles accessing the site, minimise congestion on Annie Street. Communication regularly updating impacted neighbouring residencies of key construction milestones and proposed future construction stages. Installation of solid barrier fence along boundary of rail corridor.
Remaining commercial premise ay 74 Annie St, corner of Leeds Street (Chemind Industries)	Exposure to construction pollution (eg dust and noise) during demolition of neighbouring commercial buildings. Potential vehicle access issues via Annie Street during demolition.	Staged construction/demolition methodology to avoid business hours. Dust mitigation to be employed on construction and demolition works Direct communication to inform businesses of key construction milestones in advance.
All businesses and residents within the Annie Street, Leeds Street, Heaton Street and Tramore Street.	Closure of the open level crossing of the rail line via Beaudesert Road Service Road. Travelling times for residents and deliveries for commercial businesses would be impacted by this open level crossing closure.	Community wide communication strategy to inform businesses and residents of the crossing closure and advertise alternative crossings. Installation of large road signs at the site indicating impending rail crossing closure.

Railway Parade, Rocklea

The proposed rail corridor realignment would require realignment of Railway Parade, the intersection with Railway Terrace and the intersection with Beaudesert Service Road. Property resumptions are required at both road intersections.

Table 21-41 provides an overview of impacted neighbouring properties and recommended mitigation impacts.

Table 21-41 Economic impacts to neighbouring properties impacted by works along Railway Parade

Business/location	Impacts	Mitigation Strategies
Remaining commercial properties along Railway Parade (properties 43 to 77 which include the Wattyl Factory at the end of Railway Parade).	Exposure to demolition activities at 39 Railway Parade which may impede vehicle access. Also impacted by substantial road realigning works of Railway Parade and intersection of Railway Parade with Railway Terrace, potentially impacting vehicle access to businesses.	Demolition and construction methodology to consider impacts to neighbouring commercial properties on Railway Parade. Key construction activities to be undertaken outside business hours. Traffic management on intersection of Railway Parade and Railway Terrace to enable access for commercial vehicles travelling Railway Parade. Communication regularly updating impacted businesses along Railway Parade of key construction milestones and proposed future construction stages.
Commercial premise on 11 Railway Terrace adjoins 23 Railway Parade and 39 Railway Parade which are proposed for resumption and demolition.	Exposure to construction pollution (eg dust and noise) during the demolition of the neighbouring commercial buildings. Exposed to proposed road works on Railway Parade and closure of the open level crossing on Beaudesert Road Service Road. Loss of on-street parking.	Staged construction/demolition methodology to avoid business hours. Dust mitigation to be employed. Direct communication to inform businesses of key construction milestones in advance.
Commercial businesses located on the corner of Fairlie Terrace and Beaudesert Road Service Road.	Directly exposed to road works out front, potentially impacting vehicle access to their business premise during construction. Exposed to closure of the open level crossing on Beaudesert Road Service Road.	Traffic management during road works to ensure vehicle access to all businesses. Direct communication to inform businesses of key construction milestones in advance.
All businesses and residents on the north side of the rail corridor within Salisbury that utilise the Beaudesert Road Service Road open level rail crossing.	Closure of the open level crossing via Beaudesert Road Service Road. Travelling times for residents and deliveries for commercial businesses would be impacted by this rail crossing closure.	Community-wide communication to inform businesses and residents of the crossing closure and advertise alternative crossings. Installation of large road signs at the site indicating impending rail crossing closure.

Roadworks and realignment of Lillian Avenue and Dollis Street in Rocklea and Norbury Street Coopers Plain

A number of commercial buildings on Lillian Avenue and Dollis Street are proposed for full resumptions. Additionally, major road works are proposed for Lillian Avenue, Dollis Street and Norbury Street affecting vehicle access to remaining businesses.

Table 21-42 provides an overview of impacted properties and recommended mitigation impacts.

Table 21-42 Economic impacts to neighbouring properties to the Lillian Avenue and Dollis Street developments

Business/location	Impacts	Mitigation Strategies
Commercial property at 7 Lillian Avenue and commercial properties at 11 to 21A on Dollis Street. These commercial premises adjoin the resumed properties on the corner of Lillian Avenue and Dollis Street.	Exposure to construction pollution (eg dust and noise) during the demolition of the neighbouring commercial buildings. Also impacted by substantial road realigning of Lillian Avenue, Dollis Street and Norbury Street potentially impacting vehicle access to businesses.	The development of demolition and construction methodology during the detailed design phase to consider impacts to neighbouring commercial properties. Key construction activities to be undertaken outside business hours. Traffic management during road works on Lillian Avenue, Dollis Street and Norbury Street to ensure uninterrupted vehicle access. Communication regularly updating impacted businesses along Railway Parade of key construction milestones and proposed future construction stages.
Industrial Estate/commercial properties located at 115 Dollis Street.	Exposure to substantial road works along Dollis Street, Norbury Street and Lillian Avenue affecting vehicle access to this industrial estate Minor exposure to construction pollution (eg dust and noise) during the demolition of the neighbouring commercial buildings.	Staged road works to minimise road impacts during business hours. Direct communication to inform businesses of key road realignment milestones in advance.

Volumetric titling

The construction and later operation of the Project would be predominately located in tunnel and would require sub surface land beneath an allotment. Volumetric acquisition and titling is addressed in **Chapter 4 Project Description**.

Volumetric acquisition for the proposed tunnel is achieved by taking a volumetric lot from the surface land directly above. Volumetric lots can be acquired under the *Acquisition of Land Act 1967* for transport infrastructure projects in the same way that full takes or part takes occur for surface allotments.

If the Project proceeds and sub surface land is resumed for the Project, then compensation is payable to affected landowners and interest holders in accordance with the compensation principles set out in the *Acquisition of Land Act 1967*. Compensation is payable with respect to both residential and commercial land that is wholly or partly resumed for the Project.

While the proposed Project alignment would necessitate the acquisition of sub surface volumetric lots, the tunnel structure has the significant advantage of requiring comparatively fewer properties than a surface option.

Impact of construction phase on residential property prices

Large-scale transport infrastructure projects together with prevailing market and economic conditions can combine to deliver multi-faceted property impacts. For example, a residential property not subject to compulsory acquisition may have its value adversely affected if it is close by and its amenity impacted by the construction activity.

Downward movements in economic activity and confidence, interest rates variability and the tightening of housing related credit by banks, also have an adverse impact on the housing market and consequently on property sale prices. Such economic characteristics were evident when the Global Financial Crisis (GFC) took hold in October 2008, which coincided with the commencement of the construction phase of the Airport Link and Northern Busway project.

Given the overlapping of the GFC with those projects' construction start-up, any attempt to segregate and quantify the impacts of general economic characteristics from the impacts that can directly be attributed to the construction of such projects is difficult.

Nevertheless, the major transport infrastructure projects that are currently under construction in Brisbane were examined for potential residential property impacts. Due to the small number of sold properties adjacent to construction corridors or around portals over the past five years, statistical analysis did not provide conclusive evidence that these projects have adversely impacted property values.

21.4 Benefit Cost Analysis (BCA)

The information contained in **Section 21.4** been sourced from the Cross River Rail Economic Evaluation.

21.4.1 Introduction

A Benefit-Cost Analysis (BCA) approach has been used to estimate the economic worth of the Project. The methodology has involved the following steps:

- defining the Project objectives and scope
- defining the Project options which form the basis of the economic evaluation
- defining the ''without Project'' case against which the Project options are compared
- identifying the costs and benefits that might be expected in moving from the ''without Project'' case to each of the options
- identifying and agreeing the core parameters of the evaluation (eg time scale, base year for prices to calculate present dollar values, discount rate)
- where possible, quantifying the costs and benefits over the expected lifecycle and discounting future values to express them in current equivalent values
- generating performance measures including the Net Present Value (NPV), Benefit Cost Ratio (BCR) and Internal Rate of Return (IRR) using discounted cash flow techniques over the evaluation period
- testing the sensitivity of these performance measures to changes in the underlying assumptions utilised
- ranking the options according to Net Present Value per unit of capital Invested (NPVI) to determine which option represents the best performing in value for money terms.

The Project seeks to achieve the following objectives:

- address the service challenge of the capacity of existing public transport networks across South East Queensland
- improve access to the inner city and provide more public transport choices
- promote a sustainable Queensland by reducing traffic congestion and pollution and supporting economic growth.

The economic evaluation of the Project therefore focuses on the following elements:

- transport system including changes in the cost of travel for public transport users and private vehicle users as a result of the Project
- freight market impacts including the effect of transferring more freight from road to rail as a result of increased rail freight capacity
- wider economic impacts, incorporating additional macro economic impacts as a result of changes in the labour and capital markets which cause changes in productivity.

21.4.2 BCA Project case

The reference design is described in **Chapter 4 Project Description**. In addition to the Cross River Rail case, an alternative alignment option has also been assessed. The alternative alignment option provided a lower cost option for providing additional rail capacity and is explored further in **Chapter 3 Project Development**.

Economic evaluation has included an assessment of Cross River Rail against a “without Project” scenario, enabling Project benefits to be estimated in net terms ie ”with Project” case minus ‘’without Project’’ case. The “without Project” case shows rail capacity for the affected sector is reached by 2016 after which growth is limited and additional demand has to be met by other modes.

21.4.3 BCA modelling assumptions

Costs inputs

The total infrastructure cost for the Project is estimated to be $5.2 billion in 2010 prices. An allowance for Project risk and escalation has been also been included which gives a total capital cost of $8.4 billion.

In addition to the direct Project costs, indirect costs of additional rolling stock purchase are included at an estimated cost (including escalation) of $1.9 billion. These costs would be incurred between 2018 and 2033 as the increase in patronage requires additional rail services.

Adjustments have been made to the Project costs to convert outturn estimates to economic costs for application in the economic evaluation including:

- adjustment of escalation estimates to remove the general increase in prices and reflect only real escalation increases over time
- inclusion of revenue resulting from the sale of surplus land at the end of the construction period
- removal of contractor profit, as this is considered a transfer payment between the government and the private sector and does not reflect a resource cost
- exclusion of nominal escalation for additional rolling stock
- inclusion of capital costs for North West Transit Corridor Rail Tunnel by 2031 as this Project was assumed to be in the rail network from 2031 in the demand modelling analysis and therefore contributes to Project benefits.

Based on the above adjustments, economic capital cost for the Project is estimated to be approximately $8.9 billion (undiscounted) and $4.9 billion (discounted).

Whole of life costs of Cross River Rail have been estimated for the 30 year evaluation period including operation and maintenance costs for infrastructure, station operation, rolling stock, periodic station and infrastructure asset replacement and fixed overheads.

Based on these estimates, the total undiscounted whole of life costs for the 30 year evaluation period is estimated to be $4.2 billion. The equivalent discounted present value is estimated to be $705 million.

Passenger modelling inputs

The passenger demand model developed by the SKM – Aurecon CRR Joint Venture has been used to forecast the relative change in public and private transport demand and trip cost with the Project.

This model has been used to identify changes to both public transport and private transport trip making, with and without Cross River Rail. These model outputs include daily estimates of the following (for the “with Project” case and the “without Project” case) measures:

- public transport trips
- public transport passenger hours, expressed in generalised cost weighted hours
- public transport passenger revenue
- private vehicle, both car and commercial vehicle trips per day
- private vehicle kilometres per day
- private vehicle driver and passenger hours per day.

The Project would deliver significant additional capacity on Brisbane’s rail network, allowing for allocation of additional freight rail paths, which are more likely to attract freight to rail.

Outputs for each of these components were generated for a number of model years including 2021 and 2031. Values between these model years were derived through interpolation and values post-2031, derived by an estimation of the future growth rate in transport demand subject to any potential capacity constraints.

The growth rate in benefits post-2031 is assumed to be 1.3% per annum which is the long run growth in population for South East Queensland. Perceived benefits are summarised in **Table 21-43.**

Table 21-43 Perceived user benefit calculations summary

	2021			2031		
	Work	**Non-work**	**Total**	**Work**	**Non-work**	**Total**
Perceived benefit (million minutes per day) – source: demand model						
Public transport user	0.002	3.693	3.695	0.004	6.934	6.938
Private car user	0.010	0.511	0.521	0.060	2.730	2.790
Freight vehicle	0.030	-	0.030	0.440	-	0.440
Perceived benefit ($ million per annum) – derived in economic evaluation						
Public transport user	1	249	250	1	543	544
Private car user	3	39	42	13	242	255
Freight vehicle	5	-	5	55	-	55
Vehicle operating cost benefit ($ million per day) – source: demand model						
Private car operating cost	0.002	0.084	0.086	0.011	0.490	0.501
Freight vehicle operating cost	0.006	-	0.006	0.084	-	0.084
Vehicle operating cost benefit ($ million per annum) – derived in economic evaluation						
Private car operating cost	-	28	28	3	161	164
Freight vehicle operating cost	2	-	2	27	-	27

Note: figures may not sum due to rounding.

BCA modelling inputs and assumptions

Table 21-44 provides a comprehensive list of items and assumptions used in the development of the Cross River Rail BCA model.

Table 21-44 Key economic evaluation assumptions

Item	Assumption
Discount rate	A 7% per annum real discount rate is applied in the evaluation to calculate present values. The evaluation also undertakes sensitivity tests at the discount rates of 4% and 10%. These values are in accordance with Infrastructure Australia (IA) guidelines.
Price Year	All costs and benefits in the evaluation are presented in 2010 constant prices.
Evaluation period	An evaluation period of 30 years from the end of the capital investment is adopted for this study, ie 2021 to 2050 as per the Queensland State Treasury and IA guidelines. Sensitivity analysis is also undertaken to assess the impact of a 50 year evaluation period as suggested in the Federal Government Nation Building guidelines.
Economic evaluation	The economic evaluation considers the Project from a community perspective and considers the costs and benefits which are both internal and external to the rail operator including government organisations, private sector enterprises, individuals and the environment. Some of these effects, such as time savings, noise and air quality effects, are not directly quantified in market based monetary terms. An economic evaluation differs from a financial evaluation because the latter focuses on revenue flows, capital and operating costs for key stakeholders and it does not include externalities or private benefits such as time savings.

21.4.4 BCA model results

Project benefits

The largest component of benefit identified for the Project is that of perceived benefits to public transport users from time savings and improved amenity from reduced train and bus crowding, which accounts for 39% of benefits. The next largest components are travel time and cost savings to private transport users who gain from the reduction in road congestion leading to higher vehicle speeds and reduced operating costs.

In addition to passenger related travel benefits, Cross River Rail also results in benefits to rail freight as a result of providing dedicated rail freight paths to the port as well as to Acacia Ridge. This allows more intermodal freight to be transported by rail rather than by road in the "with Project" case which results in operating cost, externality, crash cost and road decongestion benefits.

Table 21-45 Summary of Project benefits

ATC Benefit Categorisation	Benefit sub-components
Perceived consumer surplus benefits	Existing rail users
	Rail users who are diverted other public transport users
	Generated public transport users
	Rail users who are former car drivers and car passengers
	Remaining road users who benefit from reduced congestion and reduced vehicle operating costs
Producer surplus	Additional resource operating cost from running additional train services
Resource cost corrections	Incremental fare revenue from increased public transport usage.
	Resource cost correction of private vehicle operating costs.
	Resource cost correction of externality cost reductions (accidents, noise, air quality, GHG etc)
	Loss in toll road revenues

Table 221-46 highlights the key findings from the CBA modelling. Key findings for the Project are a projected Benefit Cost Ratio (BCR) of 1.42 (1.63 inclusive of the wider economic impacts) and a NPV of $2,345 million ($3.5 billion inclusive of the wider economic benefits). Under the assumptions adopted, the Project generates a strong economic return.

Table 21-46 Economic evaluation results for Cross River Rail reference design

Item	$m (2010 dollars)	Percentage
Project Costs (Present value)		
Infrastructure capital costs	4,463	79%
Rolling stock	450	8%
Whole of life costs	705	13%
Costs sub total	5,617	100%
Benefits (Present value)		
Perceived public transport benefits	3,094	34%
Perceived highway benefits	1,942	21%
Reliability benefits	688	8%
Perceived road freight benefits	363	4%
Incremental fare revenue	355	4%
Change in toll revenue	-10	0%
Vehicle operating resource cost correction	172	2%
Externality cost reductions	172	2%
Crash cost reductions	89	1%
Rail freight Benefits	962	11%
Residual value	135	1%
Wider economic impacts (WEI)	1,176	13%
Benefits sub total	9,138	100%
Net Present Value ($m)	3,521	
Net Present Value ($m) (exc WEI)	2,345	
Benefit Cost Ratio	1.63	
Benefit Cost Ratio (exc WEI)	1.42	

Safety benefits

As a result of the Project, there is potential for a mode shift from private transport to public transport. The resultant reduction in car usage ("with Project" case) would mean that there would be a reduction in accident costs compared to the "without Project" case. The unit road crash externality cost assumptions to be used in the analysis are based on Austroads guidance and recent work to assess the economic viability of the Integrated Regional Transport Plan for South East Queensland.

Crash rates and crash costs are summarised in **Table 21-47.**

Table 21-47 Crash rates and crash costs (road)

Accident Type	Crashes per million VKT	Crash cost ($ 2010 values)
Fatal	0.007166	2,352,371
Hospitalised	0.086946	565,005
Minor Injury	0.193080	24,296
Property damage only	0.212011	8,880

In addition, the potential reduction in road freight would reduce the number of vehicle kilometres travelled by trucks, with one consequence of this being a reduction in road crashes.

Externality cost savings

There would be a number of direct and indirect impacts on the built and natural environments that have implications for the BCA model, including air quality, greenhouse gas emissions, noise, water quality, nature and landscape, urban separation and upstream and downstream costs. As a result of the Project, there is projected to be a mode shift from private transport to public transport. The resultant reduction in car usage in the Project case would mean that there would be a reduction in externality costs compared to the "without Project" case, with externality cost savings demonstrated in **Table 21-48.**

Table 21-48 Externality parameter values (cents/vkt – 2010 values)

Passenger cars	
Accident	5.00
Air pollution	2.26
Noise	0.73
Greenhouse	2.21
Nature and landscape	0.15
Urban separation	0.52
Upstream/ downstream costs	3.79
Total	15.00

Table 21-49 provides details of the projected externality benefits for freight traffic, measured by the change in road and rail net-tonne kilometres. These values are based on the ATC National Guidelines.

Table 21-49 Unit externality parameter values –2031

Externality	**Road freight (c/net tonne-kilometre)**			**Rail freight (c/net tonne-kilometre)**		
	Urban	**Rural**	**Weighted average**	**Urban**	**Rural**	**Weighted average**
Air pollution	0.97	0.01	0.32	0.33	0.00	0.11
Greenhouse gas	0.07	0.07	0.07	0.03	0.03	0.03
Noise	0.26	0.026	0.10	0.14	0.01	0.06
Water	0.10	0.06	0.07	0.01	0.01	0.01
Nature and landscape	0.26	0.11	0.16	0.08	0.03	0.05
Urban separation	0.22	0.00	0.07	0.08	0.00	0.03
Total			0.79			0.28

Note: *all values expressed in June 2005 values.*

Wider economic benefits

Transport improvements have the potential to impact the economy through a number of different mechanisms, including changes in prices, economic output, labour supply, imports and exports.

Changes to the features of an urban economy such as Brisbane may result in wider economic impacts, with direct gains attributable to the Project magnified as they pass through the broader economy. These possible changes and impacts include:

- agglomeration effects may be the result of transport bringing activities and people closer together and effectively raising the density of economic activity. This can result in more efficient labour markets.
- imperfect competition effects, where companies that benefit from transport improvements would experience lower costs, which in turn can be converted to increased turnover. These effects tend to be more important for improvements that deliver significant time and cost savings to travellers in the course of work.
- additional labour supply, as the result of improved time and reduced cost in getting to a place of work, as an incentive to work. By reducing the cost of accessing jobs, improved accessibility can encourage non-participants, typical potential second-earners or family members with child care responsibilities, to take up employment.
- more productive jobs, with better access to city centres and growth in employment in highly productive locations.

Table 21-50 summarises the results of the wider economic impacts assessment of Cross River Rail, illustrating that the most important wider economic impact of Cross River Rail is agglomeration benefits. Agglomeration adds about $52 million to user benefits in 2021, rising to $209 million in 2031.

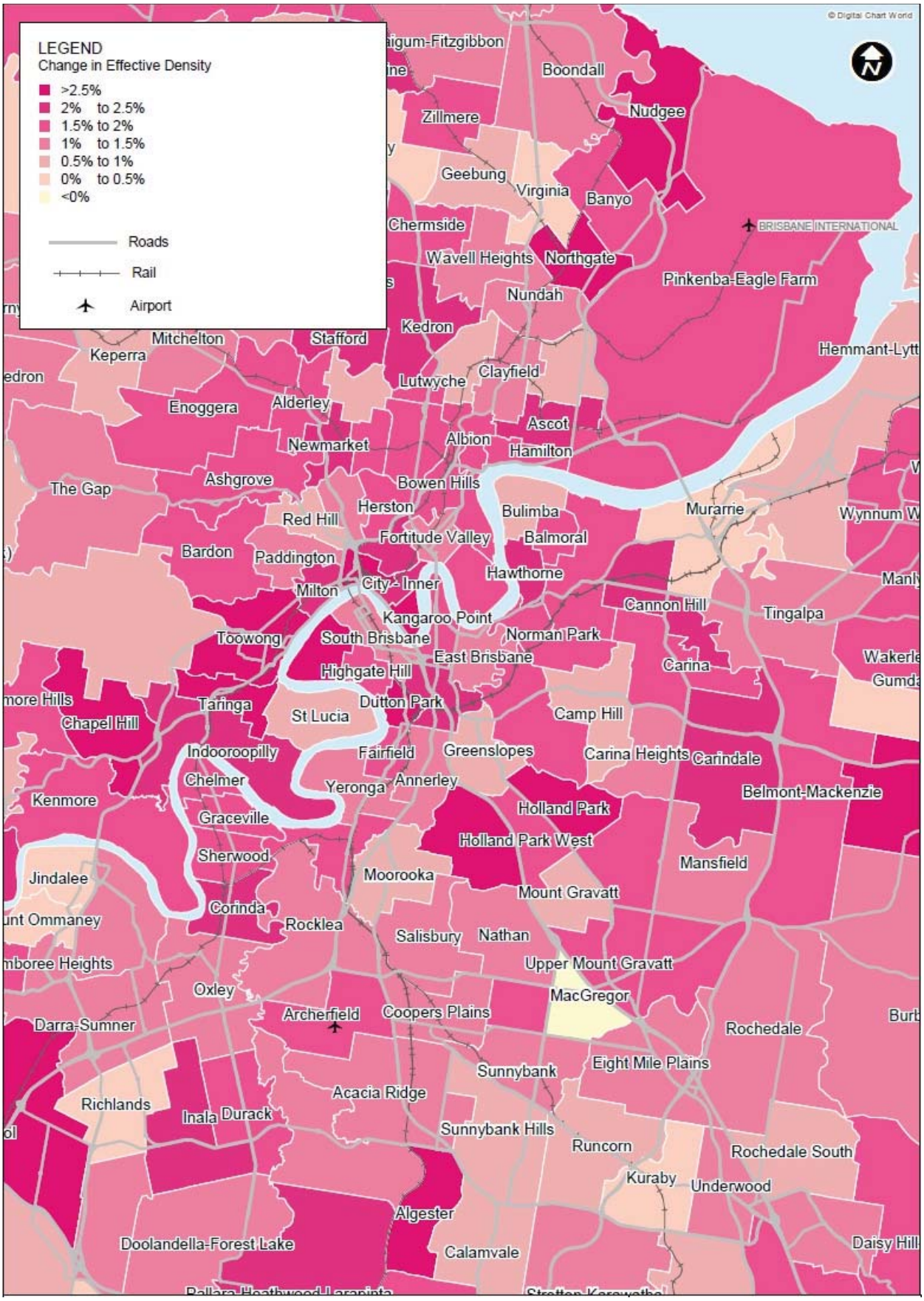
Table 21-50 User benefits and wider economic impacts summary (2010 dollars-million)

Year	User benefits	Agglomera-tion	Labour supply	Imperfect competition	Total WEI's	Uprate %
2021	362	52	17	0.4	69	19%
2031	1,197	209	53	2.3	265	22%

Labour supply benefits add almost 5% to the user benefits identified above, partly because travel to work is one of the main benefits from Cross River Rail. Overall, wider economic impacts add $265 million to the benefits of Cross River Rail by 2031, adding 22% to the perceived user benefits in that year.

The following figures illustrated the potential wider economic benefits as a result of Cross River Rail. **Figure 21-9** identifies the potential change in effective density of economic activity, or agglomeration effects, for the study corridor. The strongest improvements are shown in the city centre, with benefits also resulting from better connected public transport or indirectly through lower congestion on the road network.

Figure 21-10 and **Figure 21-11** demonstrate the distribution of time and cost savings to public transport and car users. **Figure 21-12** shows the magnitude of the reduction in average travel to work costs from Cross River Rail in proportion to average net earnings in 2031. **Figure 21-13** shows the projected increases in effective density, determining increases in productivity or agglomeration benefits.



CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

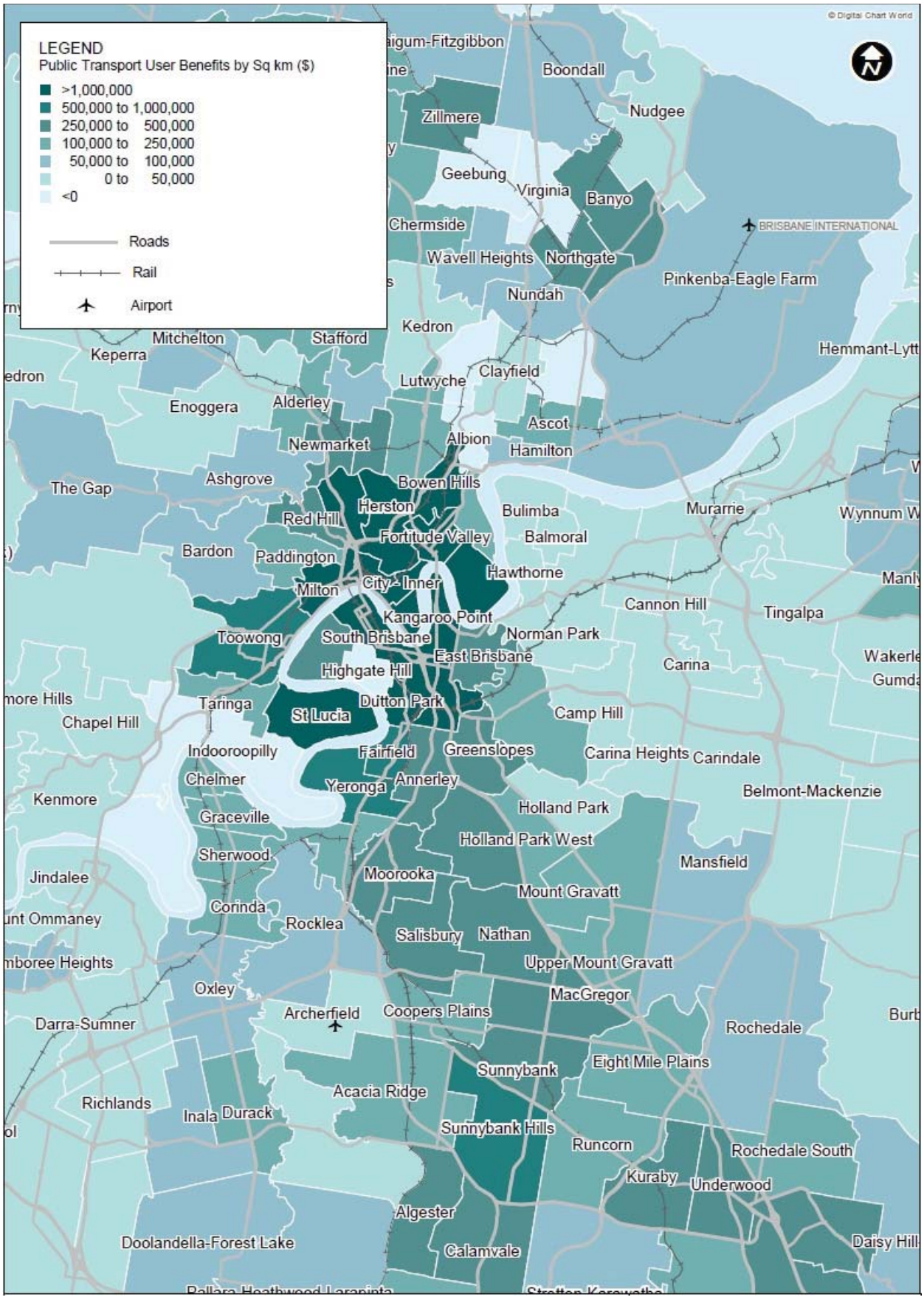
Figure 21-9

Change in Effective Density within Cross River Rail

Source: Deloitte. 2011

CrossRiverRail

SKM aurecon
CRR JOINT VENTURE



CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

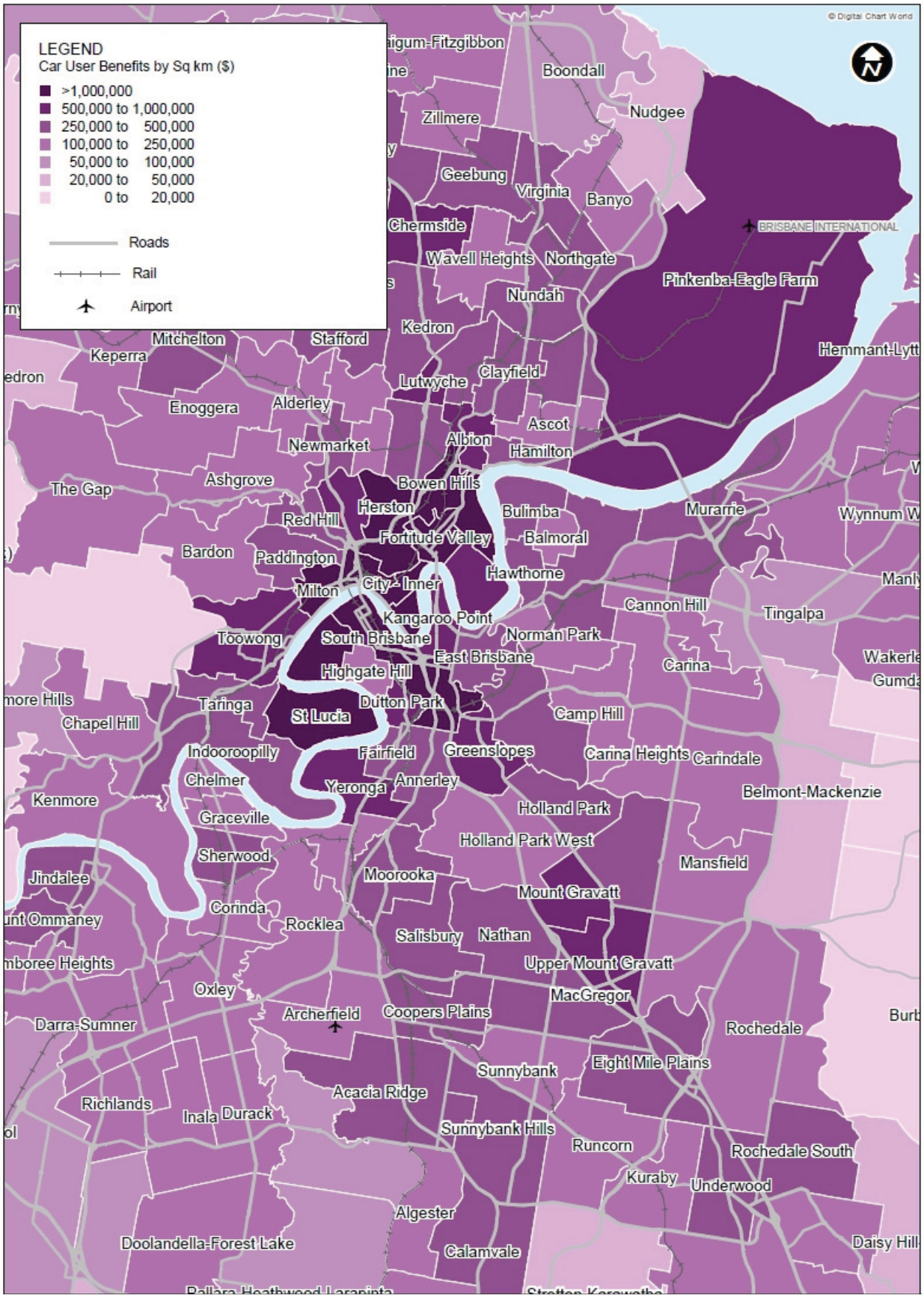
Figure 21-10

Public Transport User Benefits by sq km
2031

Source: Deloitte, 2011

CrossRiverRail

SKM aurecon
CRR JOINT VENTURE



CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 21-11

Car user benefits by sq km

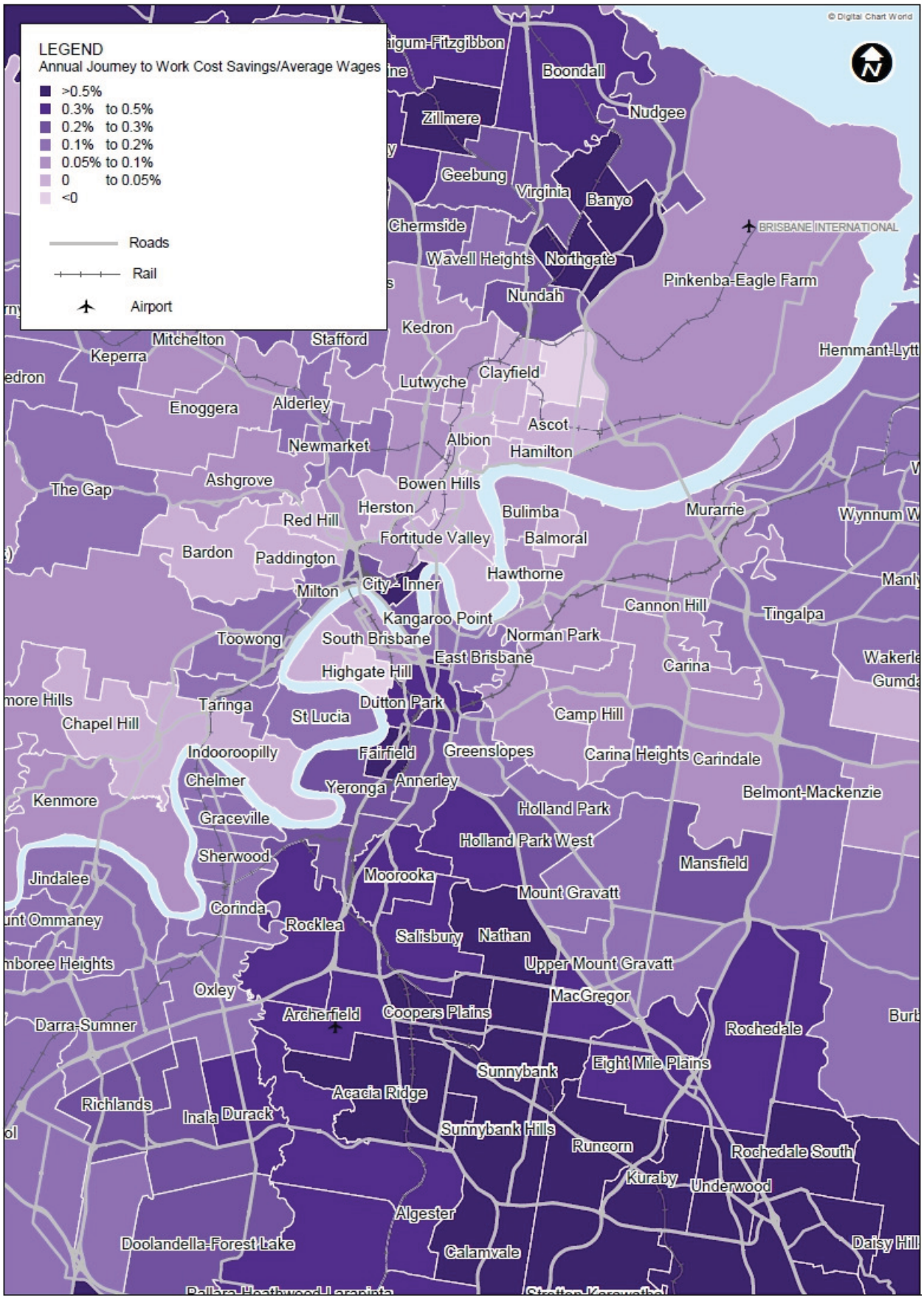
2031

Source: Deloitte, 2011

CrossRiverRail

SKM aurecon

CRR JOINT VENTURE



CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

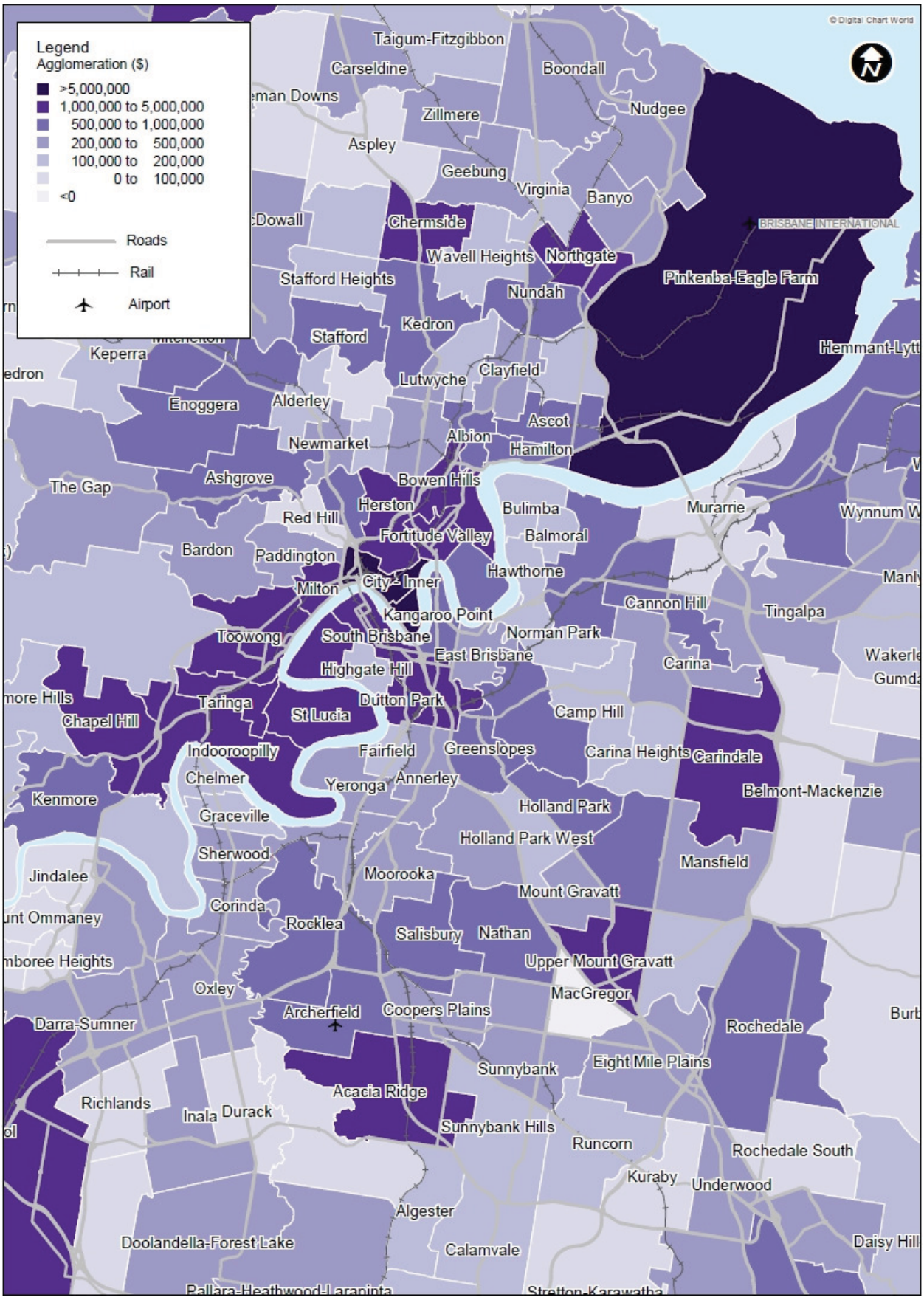
Figure 21-12

Average journey to work cost savings / average wages
2031

Source: Deloitte, 2011

CrossRiverRail

SKM aurecon
CRR JOINT VENTURE



CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 21-13

Agglomeration gains
2031

Source: Deloitte, 2011

CrossRiverRail

SKM aurecon
CRR JOINT VENTURE

21.4.5 Sensitivity analysis

Sensitivity testing has been undertaken on the economic evaluation results, including variations in the discount rate, construction and operating costs, Project benefits (including the exclusion of public transport crowding and rail freight benefits). In addition, the Project benefit growth beyond the last modelling year, 50 year evaluation period, benefit annualisation factors and treatment of contractor profit in Project costs have been the basis of sensitivity scenario testing. The results of the sensitivity analysis are show in **Table 21-51**.

Table 21-51 Sensitivity testing summary

Scenario	BCR
Core scenario	1.42
Core scenario plus wider economic impacts	1.63
4% discount rate	2.14
10% discount rate	0.96
Capital costs + 30%	1.17
Capital costs-30%	1.81
Benefits + 30%	1.86
Benefits-30%	1.02
Capital costs + 30%, benefits-30%	0.83
Capital costs-30%, benefits + 30%	2.38
No public transport crowding benefits	1.20
No rail freight benefits	1.25
No growth in benefits beyond 2031	1.34
50 year evaluation period	1.68
Operating costs +30%	1.37
Operating costs -30%	1.47
Lower public transport annualisation factor (250)	1.36
Lower highway annualisation factor (250)	1.31
Inclusion of contractor profit in project costs	1.36
Inclusion of ramp-up (75% benefit in opening year, 90% benefit in second year, 100% thereafter)	1.40
Lower generalised cost weighting[1]	1.38
Road decongestion (VKT approach)[2]	1.30
Excluding real parameter escalation	1.25

Note:

1. *In the core evaluation the generalised cost weighting assumptions (in-vehicle time equivalent were wait time = 2.0, access time = 1.7 and interchange = 10. In the sensitivity test described above, these assumptions were changed to wait time = 1.4, access time = 1.4 and interchange = 7. These sensitivity test assumptions are based on applying the lower range estimates from the Australian Transport Council Guidelines to Transport System Management in Australia.*
2. *Reduction in car VKT approach applied based on a standard decongestion benefit from NSW RailCorp methodology of $0.414 per reduction in VKT.*

21.4.6 Other benefits

In addition to the benefits outlined, there are likely to be a number of other benefits resulting from the Project that are unable to be monetised or quantified. These include:

- benefits to rail users from the refurbishment and upgrade or purchase of new rolling stock, in both amenity and comfort
- health benefits resulting from the promotion of walking and cycling, as people use public transport in preference to private car travel
- benefits for Brisbane's International prestige, as it competes internationally for investment across a range of economic areas, high net worth residents and tourist and conference activity
- contributing to the growth of Brisbane's Knowledge Corridor and Smart Community by contributing to accessibility and mobility between activity centres.

21.5 Computable General Equilibrium modelling

The information contained in **Section 21.5** been sourced from the Cross River Rail Economic Evaluation.

21.5.1 Introduction

The regional economic analysis for Cross River Rail has involved the identification and quantification of indirect impacts of the Project on the Queensland economy using an equilibrium modelling framework. A Computable General Equilibrium (CGE) model has been developed to examine the flow-on effects arising from Cross River Rail on the broader economy. Estimates of indirect impacts have been made for key economic indicators including GSP and employment. This should be considered independently of the main economic evaluation results (ie the conventional benefits plus wider economic benefits) as there is a risk of double counting otherwise.

21.5.2 The simulations

The types of economic stimulus assessed in the CGE modelling were obtained from the conventional economic evaluation and included Project construction and operating costs, productivity improvements in the form of travel time savings (for commercial vehicles), public transport fare revenue, reduced vehicle operating costs (private vehicles) and reduced crash costs (private vehicles).

Productivity improvements in the form of commercial time savings are assumed to reduce labour costs in the road transport sector and are measured as labour costs per unit of output. Increased net revenue for the rail system (compared to the "without Project" case) is modelled as total productivity improvement in the rail sector.

21.5.3 Overall results

The CGE model estimates that during a typical year of the construction phase (2016), additional real GSP for Queensland is estimated to be $653 million higher as a result of the Project. The Project is estimated to contribute significantly to employment generation in the Queensland economy with almost 5,900 additional jobs created during the construction phase.

In the operating phase, Queensland real GSP is projected to be almost $262 million higher by 2021, rising to $937 million by 2031 and $1,047 million by 2041 as a result of the Project. The employment impact during the operations phase is estimated to be approximately 5,000 additional jobs in Queensland by 2031, although some of these jobs would be displaced from elsewhere in Australia. Taking this displacement factor into account, the net increase in employment across Australia due to the Project is estimated to be approximately 650 jobs by 2031, compared to the "without Project" scenario.

Table 21-52 shows the benefit values sourced from the CBA and reclassified for the purposes of the CGE modelling.

Table 21-52 Conventional benefits used in CGE analysis ($ million)

Category	Incremental to without Project case			
	2016	2021	2031	2041
Fixed capital expenditure (Qld)	776	8	29	0
Operational expenditure	0	41	70	115
Public transport productivity	0	23	73	83
Road toll revenue	0	-1	-2	-2
Reduced crash costs	0	19	51	53
Vehicle operating cost savings	0	16	64	79
Rail freight productivity	0	49	133	133
Labour productivity road transport	0	7	61	79
Labour productivity economy wide	0	3	13	17
Total	776	167	492	555

Table 21-53 demonstrates the impact of these Project benefits on the state economy and the percentage change in each sector.

Table 21-53 Conventional Benefits Impact on Queensland Economy (% change)

Category	Incremental to the without Project case			
	2016	2021	2031	2041
Fixed capital expenditure	0.915%	0.011%	0.034%	0.000%
State govt. final consumption expenditure: transport	0.000%	3.902%	6.572%	10.784%
Rail transport productivity	0.000%	2.520%	7.257%	7.610%
Private final consumption expenditure – road transport	0.000%	-0.035%	-0.098%	-0.111%
Trade sector cost saving	0.000%	0.086%	0.238%	0.257%
Petroleum sector cost saving	0.000%	0.050%	0.196%	0.241%
Motor vehicle and parts sector cost saving	0.000%	0.020%	0.076%	0.094%
Financial and business sector cost saving	0.000%	0.003%	0.011%	0.013%
Capital cost saving – road transport	0.000%	0.379%	1.479%	1.816%
Labour productivity – road transport	0.000%	0.239%	2.068%	2.647%
Labour productivity – economy wide	0.000%	0.002%	0.010%	0.013%

Queensland and National results

Table 21-54 summarises the CGE modelling results for both Queensland and Australia, showing the results for a range of key economic indicators.

Table 21-54 Summary of CGE modelling results

	2016	2021	2031	2041
Queensland economic effects:				
Gross State Product ($m)	653	262	937	1,047
Gross State Product (%)	0.27%	0.11%	0.38%	0.43%
Real consumption ($m)	255	63	233	248
Real consumption (%)	0.21%	0.04%	0.18%	0.20%
Employment (no.)	5,901	1,522	5,036	5,439
Employment (%)	0.25%	0.07%	0.22%	0.23%
Australian economic effects:				
Gross Domestic Product ($m)	(1)	84	508	590
Gross Domestic Product (%)		0.007%	0.041%	0.047%
Real consumption ($m)		54	202	248
Real consumption (%)		0.008%	0.031%	0.200%
Employment (no.)		167	654	729
Employment (%)		0.001%	0.006%	0.006%

Note:
(1) Construction impacts assumed to fully occur in the Queensland economy

During the operation phase, Cross River Rail is projected to lead to an additional 1,522 jobs in Queensland by 2021, increasing to approximately 5,000 by 2031. It is likely that some of this increase would be partially offset by employment reductions in other states.

21.6 Summary

A significant increase in capacity of the public transport network would be required in the near future to cater for growing commuter transport demand and to maintain Brisbane's long term competitiveness as a leading place to live and work. Cross River Rail would greatly enhance transport capacity and connectivity to Brisbane city and inner city suburbs by establishing new rail stations at Bowen Hills to the north, Roma Street and Albert Street within the city and Woolloongabba and Boggo Road to the south (with complementary upgrades of existing stations at Yeerongpilly, Moorooka and Rocklea).

The CBA results provide an acceptable economic justification to proceed with Cross River Rail. At a discount rate of 7%, the economic evaluation results show a positive economic return with a NPV of $2.3 billion and a BCR of 1.42. The BCR further increases to 1.63 when the wider economic impacts for the Project are included. The main contributor to the wider economic impacts is agglomeration benefits.

The largest component of benefit is perceived benefits to public transport users (time savings and improved amenity from reduced train and bus crowding) which accounts for 39% of benefits. The next largest component is travel time and cost savings to private transport users who gain from the reduction in road congestion, leading to higher vehicle speeds and reduced operating costs.

In addition to passenger related travel benefits, Cross River Rail also results in benefits to rail freight as a result of providing dedicated rail freight paths. This allows more intermodal freight to be transported by rail rather than by road as under existing conditions which results in operating cost, externality and crash cost and road decongestion benefits.

CGE modelling results further highlight the economic effects of Cross River Rail on the Queensland economy. During a typical construction year, real GSP for Queensland is estimated to increase by almost $653 million, while employment across a range of sectors is projected to increase by nearly 5,900 positions. Post construction modelling indicates an additional $937 million to GSP and 5,000 jobs within the economy. The CGE modelling projects positive economic impacts and aggregates for the Queensland economy.

The provision of improved inner city public transport is expected to provide substantial broader economic benefits to industry and the wider community in Brisbane and South East Queensland.

Cross River Rail would require the resumption of numerous residential and commercial premises across several locations. In addition to direct financial costs associated with property resumptions, significant economic costs in terms of potential business and job loss during the course of displacement (and a loss in the availability of residential accommodation impacting real estate market). Key resumptions are located in the Albert Street area, where 19 businesses currently supporting approximately 70 to 100 employees would be displaced. The southern section from Yeerongpilly to Salisbury would also result in resumptions of 104 residential dwellings and over 100 businesses, supporting 480 to 600 employees which would be displaced. In addition, there will be a significant impact on the availability of industrial land in the south of the corridor.

Even with the application of mitigation, including compensation to affected landowners and interest holders, as well as the optimisation of future land outcomes for affected suburbs, the residual impact for these particular properties and businesses remains high. Early and ongoing consultation will also be required to ensure that affected landowners and interest holders, including businesses, are kept informed on the Project's potential construction impacts, particularly in the case of Albert Street.