RIVERCITY MOTORWAY

ASX Release

27 January 2010

TRAVEL DEMAND INDICTORS REPORT

RiverCity Motorway Group today released a report prepared by AECOM Australia Pty Ltd that compiles recent travel trends on Brisbane's road network.

Traffic count data has been compiled using the following sources:

- RiverCity Motorway Group count site data since 2005;
- Queensland Department of Transport and Main Roads (TMR) permanent count data since 1999; and
- Other relevant traffic data collected by AECOM on previous projects.

In addition, travel time survey data has been used on four inner city routes that cross the city via the Story Bridge or via the Captain Cook Bridge.

Economic data included in the report has been compiled from publicly available sources, including the Australian Bureau of Statistics.

The report provides a reference data base prior to the expected opening of the Clem 7 tunnel before the end of April 2010. The report essentially confirms previous assessments that:

- although inner city roads have experienced modest increases in daily traffic volumes, the AM peak period traffic flows on most roads have remained flat or have even declined, although there is some evidence of a shift in travel to an earlier peak,
- despite limited increases in traffic volumes, there has been deterioration in travel times across the city and, significantly, an increase in travel time variability,
- traffic in the central area has been adversely affected by disruption due to road construction. Furthermore, peak period traffic growth is constrained by network capacity,
- elsewhere in Brisbane there has been reasonable growth in traffic levels. Analysis of the TMR data shows an average increase in daily traffic of approximately 1.5% per annum for all sites. Growth has been strongest in the outer regions and on the higher capacity roads,
- although the central area bridges have experienced only modest growth, Gateway Bridge and Centenary Bridge have been growing at about 2% per annum in recent years.

In relation to economic and population trends, the report identified that:

- the Global Financial Crisis had lead to a slowing down in economic activity in Queensland during late 2008 and early 2009. Since mid 2009, there have been signs that the economy is beginning to grow once more,
- population in Brisbane has continued its strong growth in recent years, with higher growth experienced in outer areas.

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The 6.8 kilometre CLEM7 will connect Bowen Hills in the north with Kangaroo Point and Woolloongabba in the south, bypassing up to 24 sets of traffic lights. It will connect with Lutwyche Road, Inner City Bypass, Shafston Avenue, the Pacific Motorway and Ipswich Road.

Travel Demand Indicators

Travel Demand Indicators

Prepared for

RiverCity Motorway

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Executive Summary

RiverCity Motorway (RCM) has a concession to build and operate the Clem Jones M7 Tunnel (Clem7) which is scheduled to open in early 2010. This report compiles recent travel trends, based on traffic count and travel time surveys in addition to publically available demographic and economic data.

Data Included in this Review

Traffic count data has been compiled using the following sources:

- Transport and Main Roads (TMR) permanent count data since 1999;
- RiverCity Motorway count site data since 2005;
- Other relevant traffic data collected by AECOM on previous projects.

Additionally, travel time survey data has been used on four inner city routes which cross the city, via the Story Bridge or via Captain Cook Bridge, which was collected on behalf of RiverCity Motorway between 2005 and 2009.

Economic data included in this review has been compiled from published sources, including ABS.

Traffic Trends

Analysis of the traffic data has shown that growth on the central area roads has been limited in recent years.

Although inner city roads have experienced modest increases in daily traffic volumes, the AM peak period traffic flows on most roads have remained flat or have even declined, although there is some evidence of a shift in travel to an earlier peak.

The table below summarises the change in traffic flows between 2005 and 2009 on key feeder and competing roads to the Clem7 motorway.

Key Feeder or Competing Routes	Change in traffic levels p.a. (2005 – 2009)	
	AM	AWT
Story Bridge	-0.8%	0.0%
Captain Cook Bridge	-1.0%	0.3%
Ipswich Road	-4.3%	-2.1%
Wynnum Road	-1.0%	0.0%
Lutwyche Road	0.3%	0.7%
Abbotsford Road	-1.5%	1.1%

Analysis of the travel time data has shown that despite limited increases in traffic volumes there has been deterioration in travel times across the City and, significantly, an increase in travel time variability.

Traffic patterns in the central area have been adversely affected by disruption due to road construction. Furthermore, peak period traffic growth is constrained by network capacity.

Elsewhere in Brisbane there has been reasonable growth in traffic levels. Analysis of the TMR data shows an average increase in daily traffic of approximately 1.5% pa for all sites. Growth has been strongest in the outer regions and on the higher capacity roads.

Although the central area bridges have experienced only modest growth, Gateway Bridge and Centenary Bridge have been growing at about 2% p.a in recent years.

There is some evidence to suggest there has been recent growth in public transport patronage. However the data is too general to enable cross analysis with the traffic data. Accordingly, increases in public transport usage cannot necessarily be used as an explanation for reduced traffic growth in the central area.

Economic Trends

The Queensland economy has experienced a boom in the last decade with State Final Demand growing at 5-8%p.a.and unemployment at record lows.

In recent times the economic climate has been dominated by the impact of the fallout from the Global Financial Crisis. The GFC led to a slowing down in economic activity, household consumption and a decrease in construction activity resulting in a recession during late 2008 and early 2009. Since mid 2009, there have been signs that the economy is beginning to grow once more.

Population in Brisbane has continued its strong growth in recent years, with higher growth experienced in outer areas.

1.0 Introduction

RiverCity Motorway (RCM) has a concession to build and operate the Clem Jones M7 Tunnel (Clem7) which is scheduled to open in 2010.

Since the initial tender process in 2005, RCM has commissioned annual traffic counts and journey time surveys to monitor local traffic conditions along competing and feeder routes. The latest surveys were conducted in September and October 2009.

As well as the surveys undertaken by RCM, the analysis also considers a number of other data sets which provide additional traffic count and travel time data for the Clem7 corridor. Further, publically available economic data has been assessed to provide further insight on likely traffic trends in the corridor.

This report summarises the main conclusions that can be drawn from the collected data and analysis. It has been broken into two chapters as follows:

- Traffic Count and Journey Time Analysis (Chapter 2.0)
- Economic Factors (Chapter 3.0)

2.0 Traffic Count and Journey Time Analysis

This chapter presents a summary of count data from:

- Transport and Main Roads (TMR) permanent count data since 1999;
- RiverCity Motorway count site data since 2005;
- Other relevant traffic data collected by AECOM on previous relevant projects.

The TMR counts shown on **Figure 2-1** provide ten years of continuous data with reasonable coverage across the Brisbane network. There are gaps in the network coverage, particularly in the inner metropolitan area. Notwithstanding these gaps, the TMR data provides a useful source of trend data.

RiverCity Motorway counts, shown in **Figure 2-2** provide data on the immediate feeder and competing roads. Five of the twenty-five sites have been surveyed each year between 2005 and 2009; Lutwyche Rd and Abbotsford Rd at the northern portal, Ipswich Rd and Wynnum Rd at the southern portal, plus Story Bridge. Traffic volumes in the vicinity of the portals have been affected by construction traffic and changed road conditions.

As needed, data sources have been combined and traffic trends presented for the following different sections of the network:

- City Bridges – Captain Cook Bridge and Story Bridge (Section 2.1.1)
- South Portal and southern approach roads (Section 2.1.2)
- North Portal and Kedron Brook screenline (Section 2.1.3)
- Brisbane River Screenline (Section 2.1.5)
- Pacific Motorway (Section 2.1.6)

Figure 2-1: TMR Permanent Count Sites

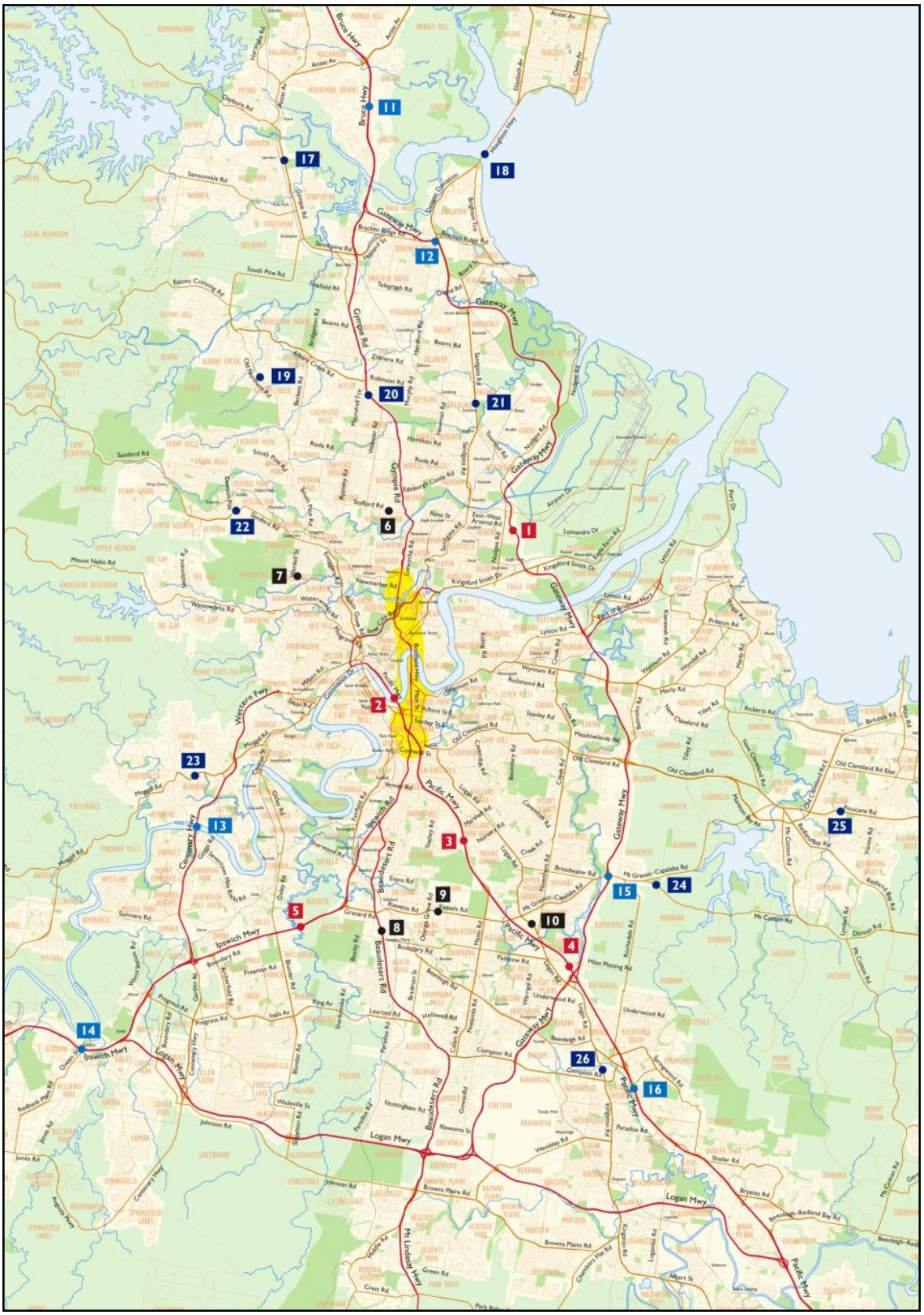


Figure 2-2: RiverCity Motorway Count Sites

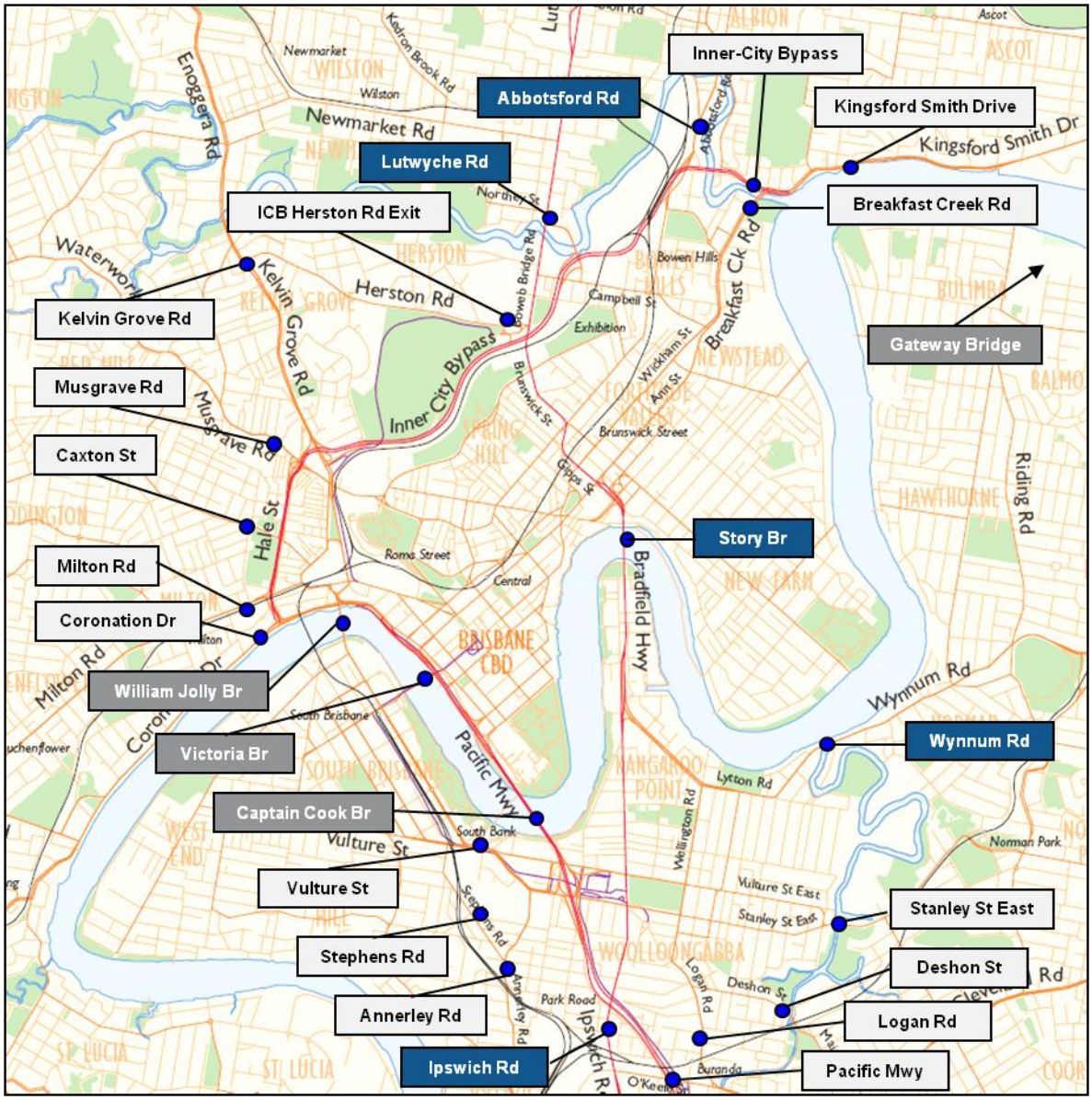
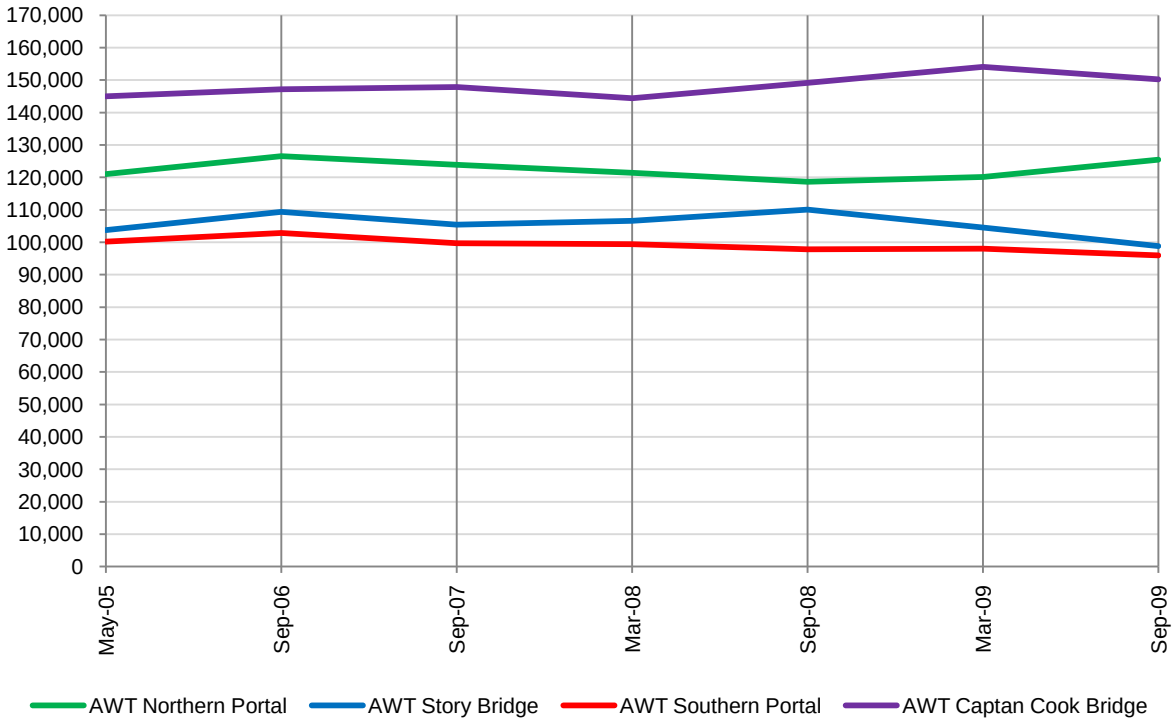


Figure 2-3 summarises the trends in weekday traffic levels on Captain Cook Bridge, Story Bridge, the North Portal Screenline and the South Portal Screenline. The figure shows:

- Captain Cook Bridge has grown around 0.8%p.a. since 2005, whilst Story Bridge has contracted by 1.1%p.a. over the same timeframe
- The Southern Portal has declined on average since May 2005 by 1.0%p.a. (AWT)
- The Northern Portal has grown on average since May 2005 by 0.8%p.a. (AWT), but has experienced some minor variance.

The following section considers each of the City Bridges as well as the Southern and Northern Portal screenlines in more detail.

Figure 2-3: City Bridges. North and South Portal. Weekday Traffic



Source: RCM and TMR Surveys

2.1.1 City Bridges

The two principal competing river crossings to the RiverCity Motorway are Story Bridge and Captain Cook Bridge. **Figure 2-4** through **Figure 2-7** show the AM average peak hour (7-9am) and average weekday traffic (AWT) by year and direction for both Story Bridge and Captain Cook Bridge.

When it opens, approximately two-thirds to three-quarters of daily traffic on the RiverCity Motorway is expected to divert from these two bridges. The figures show that with the exception of Captain Cook Bridge in the inbound direction, traffic volumes have not grown on either bridge. Ongoing road works associated with the construction of the Clem7 as well as other road construction including Hale Street Bridge, eastern and northern busways, Ipswich Motorway and Airport Link projects may have affected traffic volumes.

On the Story Bridge, both AM peak period and daily inbound traffic volumes reached a peak in September 2006 and have then declined. In the outbound direction, the traffic growth profile is similar. Inbound, on the Captain Cook Bridge, the AM peak period (0700-0900) shows a similar growth profile, however the daily volumes have continued to grow, as the peak period extends into the period before 0700. This growth in the hours before 0700 can be seen on **Figure 2-9** and **Figure 2-10**

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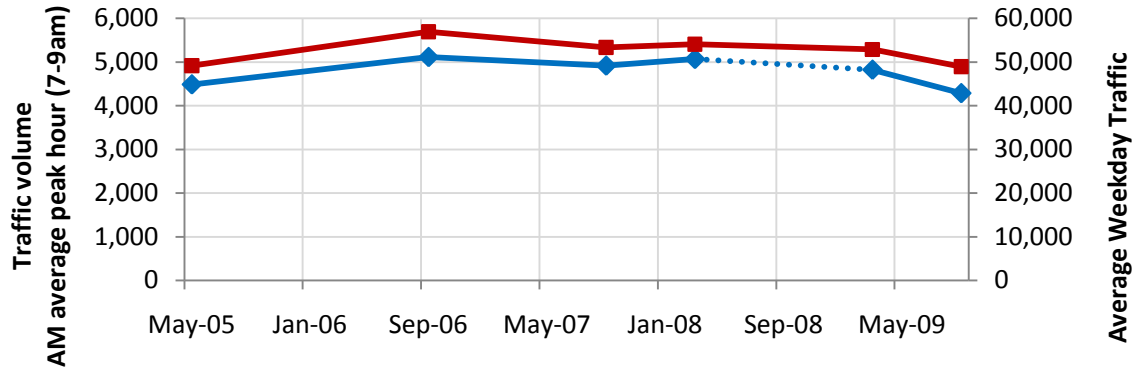
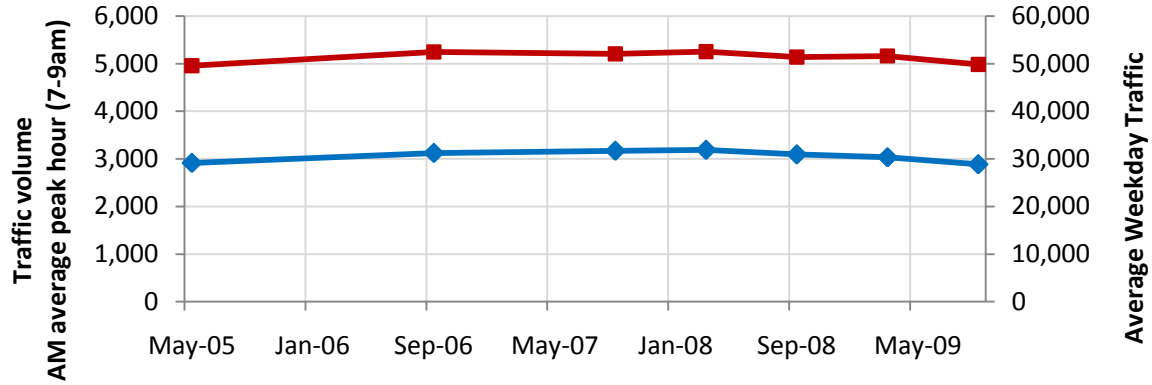
Figure 2-4: Story Bridge Inbound



	May-05	Sep-06	Sep-07	Mar-08	Sep-08	Mar-09	Sep-09
AM	4,486	5,114	4,916	5,069		4,823	4,285
AWT	49,177	56,940	53,347	54,074		52,867	48,931

Source: RCM Surveys. Suspect Sep 2008 indicated as dashed

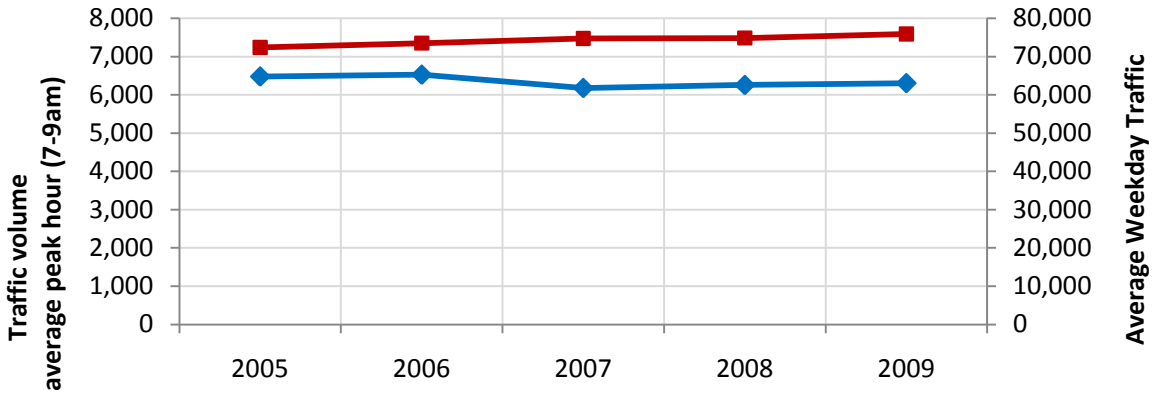
Figure 2-5: Story Bridge Outbound



	May-05	Sep-06	Sep-07	Mar-08	Sep-08	Mar-09	Sep-09
AM	2,915	3,125	3,171	3,190	3,095	3,033	2,886
AWT	49,583	52,472	52,089	52,521	51,411	51,633	49,872

Source: RCM Surveys

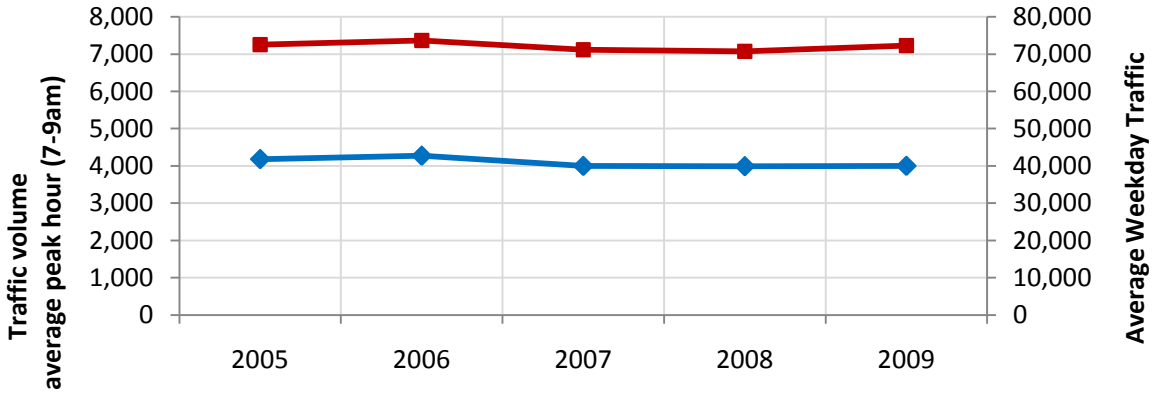
Figure 2-6: Captain Cook Bridge Inbound



	2005	2006	2007	2008	2009
AM	6,479	6,527	6,179	6,257	6,306
AWT	72,421	73,520	74,720	74,853	75,904

Source: TMR counts
Note: 2009 data is from Jan-09 to Sep-09 only.

Figure 2-7: Captain Cook Bridge Outbound

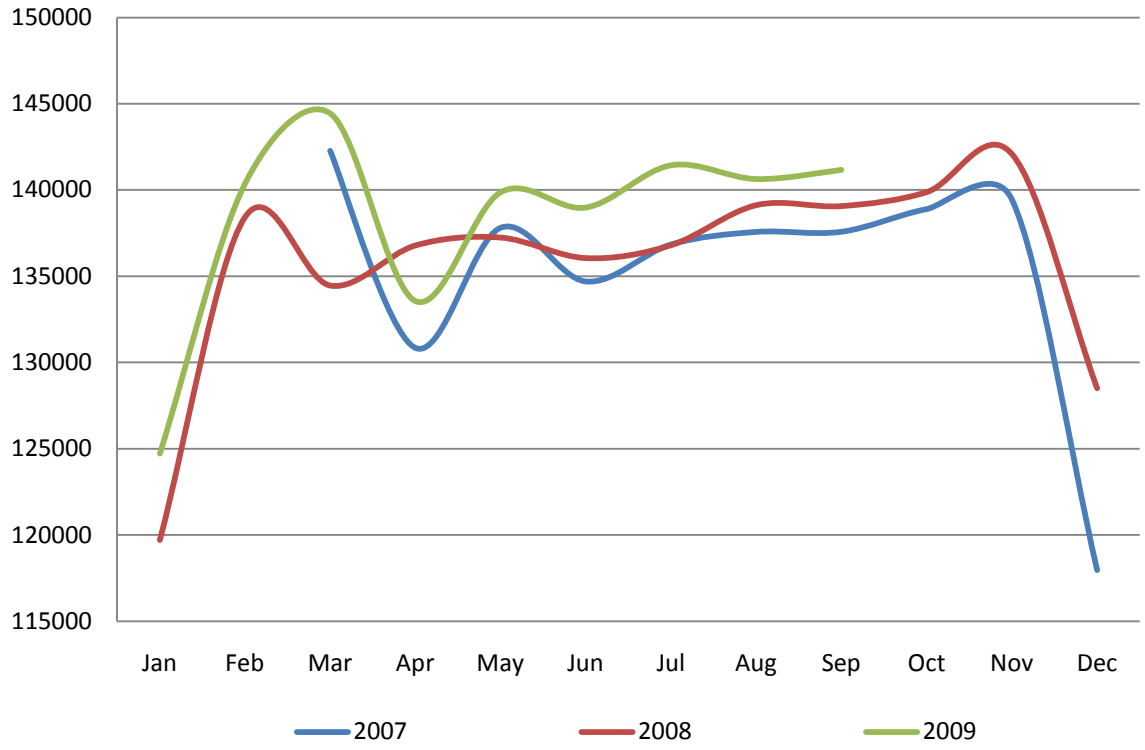


	2005	2006	2007	2008	2009
AM	4,183	4,274	3,999	3,992	4,001
AWT	72,560	73,627	71,163	70,748	72,258

Source: TMR counts
Note: 2009 data is from Jan-09 to Sep-09 only.

Figure 2-8 shows Total Captain Cook Bridge average daily traffic by month from March 2007 to September 2008. In 2008, Easter occurred during the month of March, whilst in 2007 and 2009 Easter occurred in April. With this in mind, the graph shows that year on year growth is observable for nearly all months.

Figure 2-8: Captain Cook Bridge Average Daily Traffic by month



Source: TMR counts

Figure 2-9 and **Figure 2-10** show changes in the inbound morning peak period hourly profile on the Story Bridge and on the Captain Cook Bridge between 0400 and 1000. There is a small amount of growth in the hour beginning 0500 on the Story Bridge, however on Captain Cook Bridge the hours beginning 0500 and 0600 have increased significantly between 2005 and 2009. Differences in the growth profiles between the two bridges are consistent with stronger growth in the outer areas, observed particularly in the early peak period, on the Pacific Motorway/Captain Cook Bridge.

Figure 2-9: Story Bridge Inbound. Morning Peak Period Growth Profile

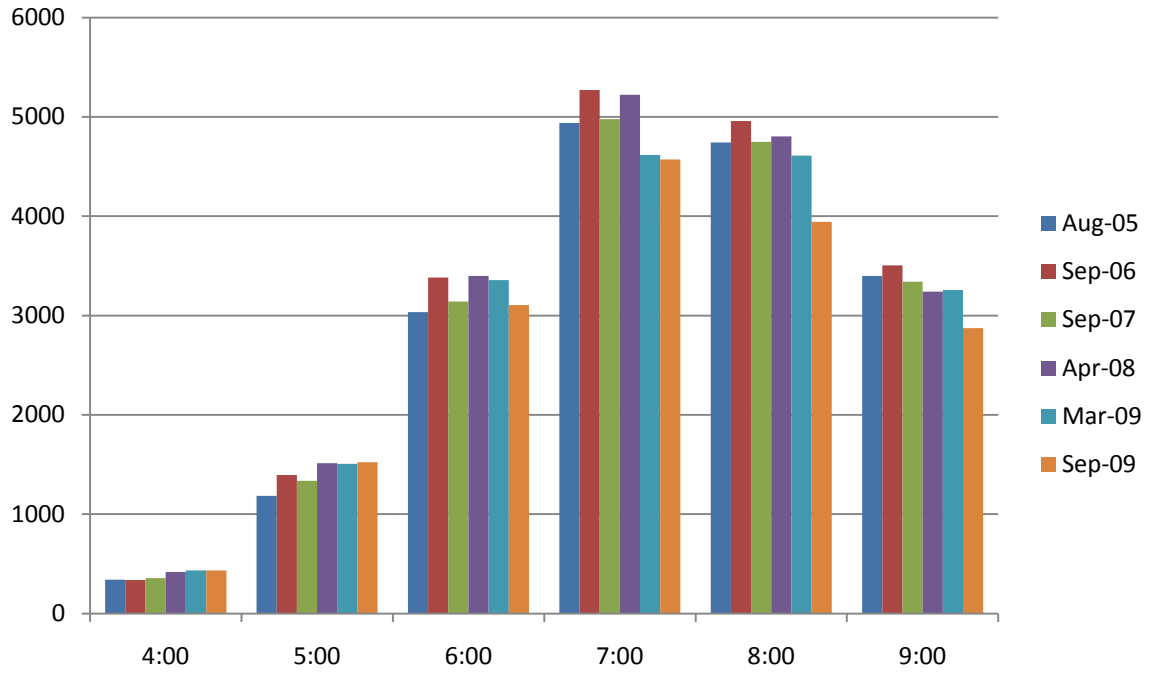
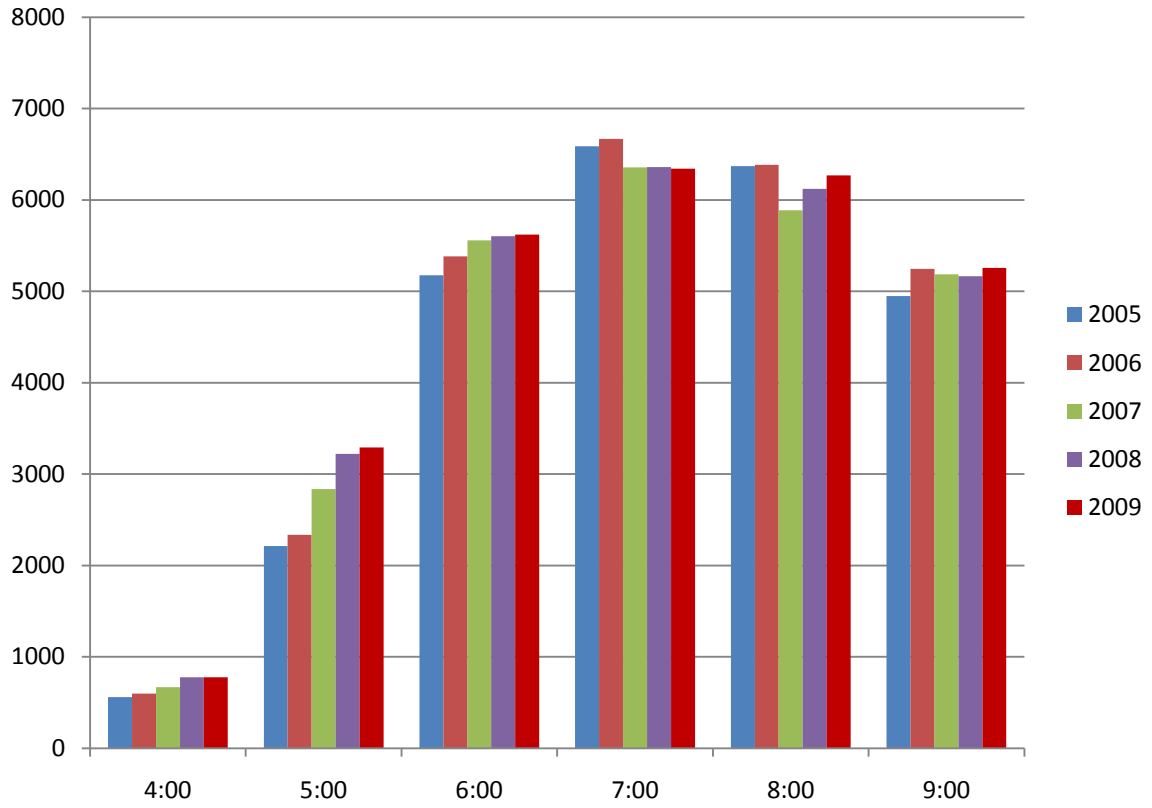


Figure 2-10: Captain Cook Inbound. Morning Peak Period Growth Profile



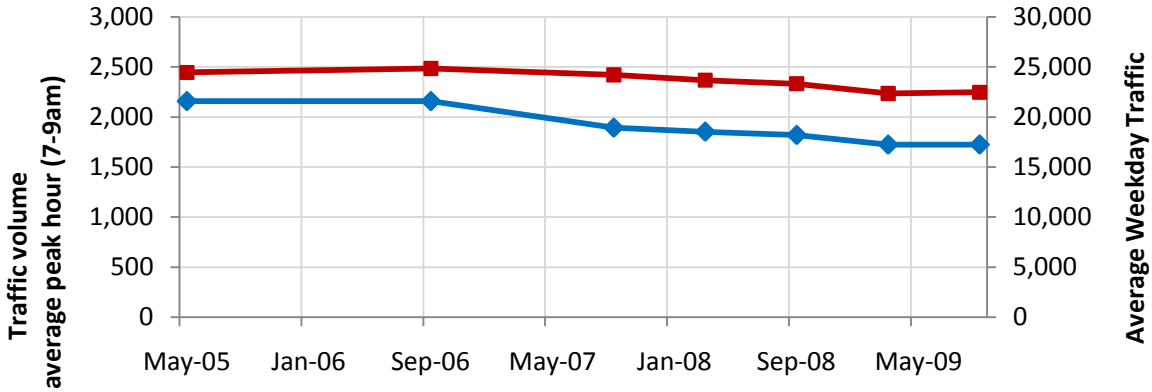
2.1.2 South Portal and Southern Approach Roads

Ipswich Road and Wynnum Road will both have direct connections to the Clem7. These roads are the approach roads to the Story Bridge. **Figure 2-11** through **Figure 2-14** show the AM average peak hour (7-9am) and Average Weekday Traffic (AWT) by year and direction for both Ipswich Road and Wynnum Road.

The figures show that with the exception of Wynnum Road in the outbound direction, at both the morning peak and weekday level, traffic volumes have not grown on these feeder routes. Ipswich Road AWT traffic volumes have declined 2%p.a. since 2005, and the average am peak hour has declined 4%p.a since 2005. Wynnum Road AWT traffic volumes have marginally declined in the inbound direction, and the average AM peak hour has declined by 1%p.a.

The South Portal figures provide no evidence of strong growth in traffic volumes in the RCM corridor.

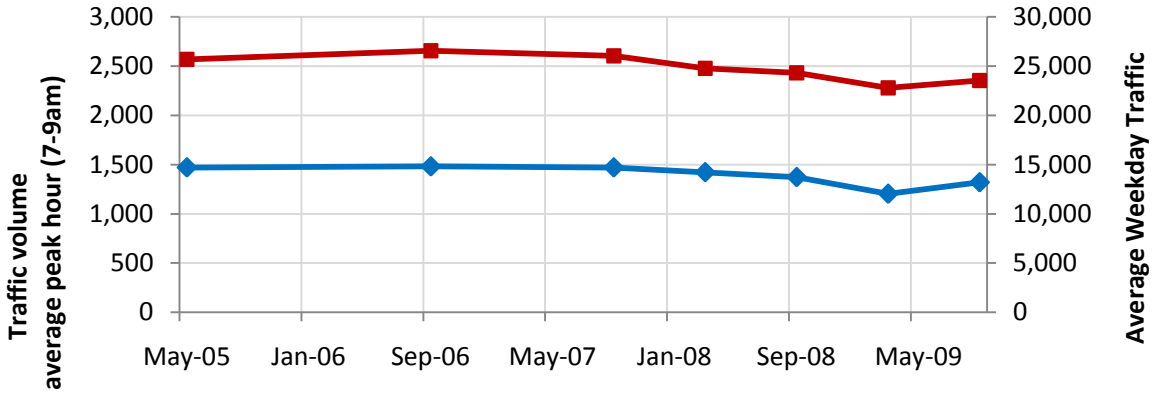
Figure 2-11: Ipswich Road Inbound



	May-05	Sep-06	Sep-07	Mar-08	Sep-08	Mar-09	Sep-09
AM	2,160	2,160	1,894	1,854	1,820	1,724	1,725
AWT	24,457	24,849	24,215	23,683	23,332	22,355	22,475

Source: RCM Surveys

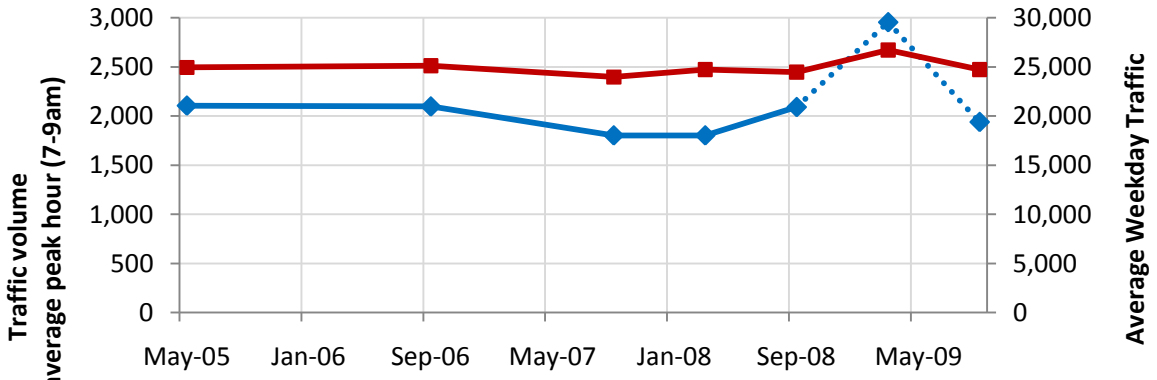
Figure 2-12: Ipswich Road Outbound



	May-05	Sep-06	Sep-07	Mar-08	Sep-08	Mar-09	Sep-09
AM	1,471	1,481	1,471	1,423	1,373	1,204	1,320
AWT	25,686	26,549	26,028	24,776	24,316	22,798	23,545

Source: RCM Surveys

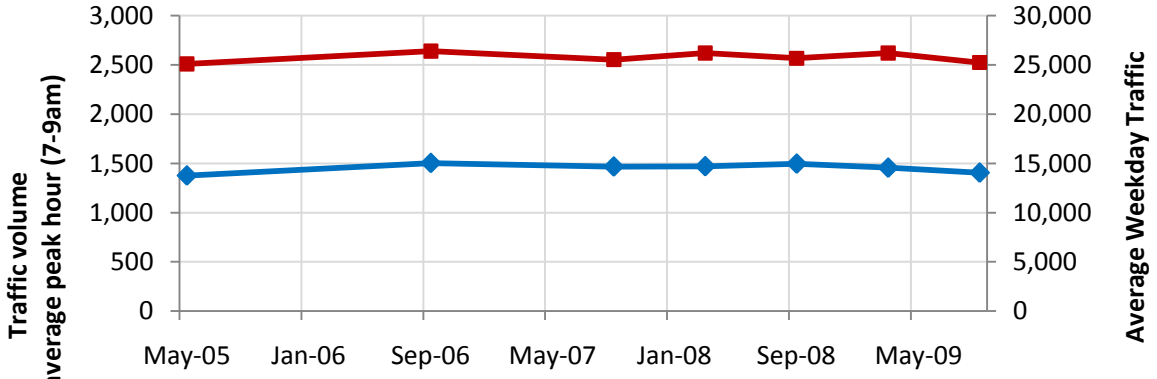
Figure 2-13: Wynnum Road Inbound



	May-05	Sep-06	Sep-07	Mar-08	Sep-08	Mar-09	Sep-09
AM	2,106	2,097	1,803	1,803	2,091	2,955	1,940
AWT	24,944	25,109	23,967	24,718	24,473	26,712	24,723

Source: RCM Surveys. Suspect Mar 09 data indicated as dashed

Figure 2-14: Wynnum Road Outbound



	May-05	Sep-06	Sep-07	Mar-08	Sep-08	Mar-09	Sep-09
AM	1,377	1,503	1,467	1,470	1,497	1,456	1,406
AWT	25,092	26,391	25,532	26,193	25,670	26,191	25,237

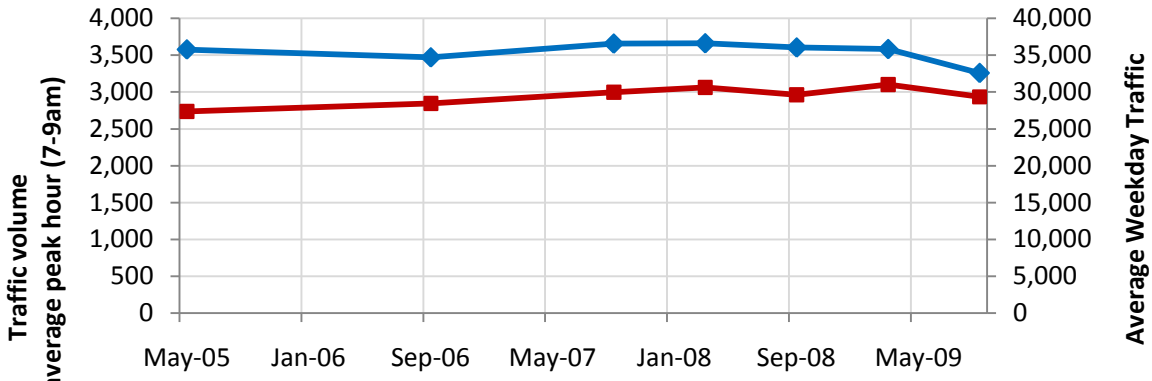
Source: RCM Surveys

2.1.3 North Portal and Northern Approach Roads

Lutwyche Road is a major arterial road and will have a direct connection to the Clem7. Abbotsford Road serves as a major feeder route towards the city from the north-east. **Figure 2-15** through **Figure 2-18** show the AM average peak hour (7-9am) and Average Weekday Traffic (AWT) by year and direction for both Abbotsford Road and Lutwyche Road.

The figures show that Abbotsford Road AWT traffic volumes have increased by 1%p.a. since 2005, but declined 1.5% in the AM peak period. Whilst Lutwyche Road has grown in the outbound direction (2% AWT) whilst experiencing a decline in the inbound direction (-1% AWT).

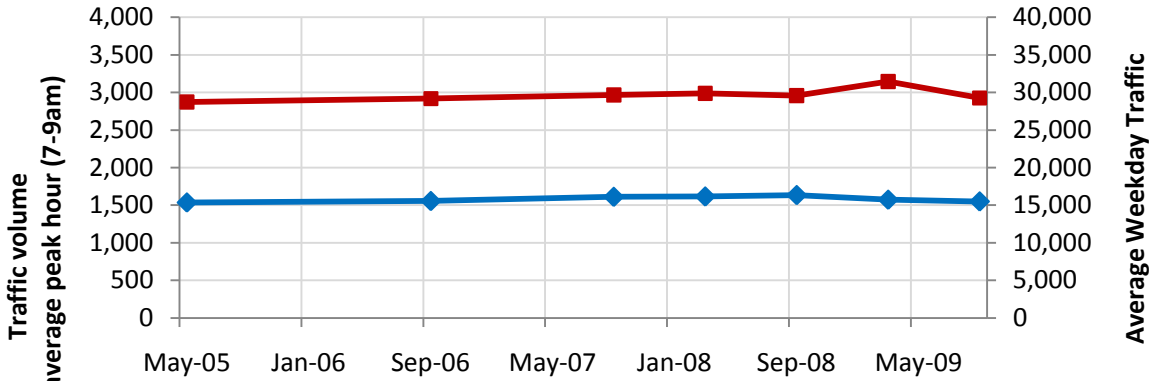
Figure 2-15: Abbotsford Road Inbound



	May-05	Sep-06	Sep-07	Mar-08	Sep-08	Mar-09	Sep-09
AM	3,577	3,469	3,656	3,661	3,603	3,582	3,258
AWT	27,358	28,467	29,990	30,623	29,640	31,011	29,352

Source: RCM Surveys

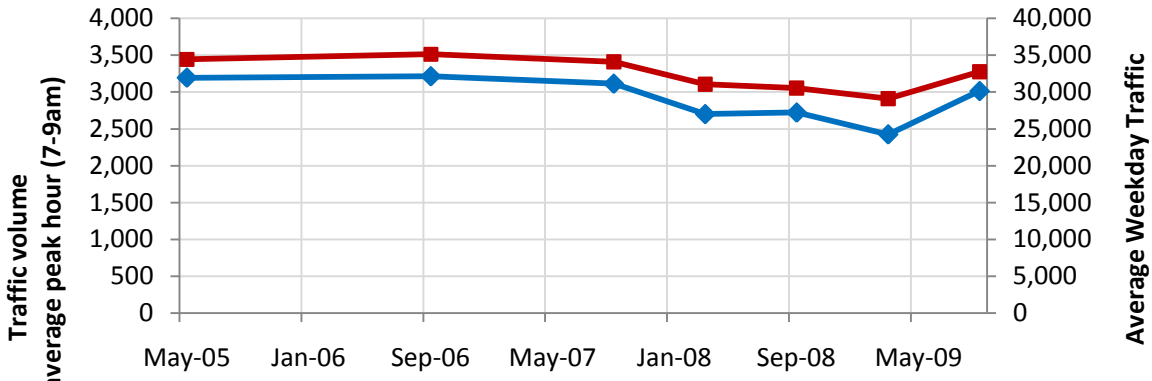
Figure 2-16: Abbotsford Road Outbound



	May-05	Sep-06	Sep-07	Mar-08	Sep-08	Mar-09	Sep-09
AM	1,536	1,556	1,612	1,616	1,635	1,573	1,550
AWT	28,739	29,175	29,662	29,877	29,579	31,438	29,259

Source: RCM Surveys

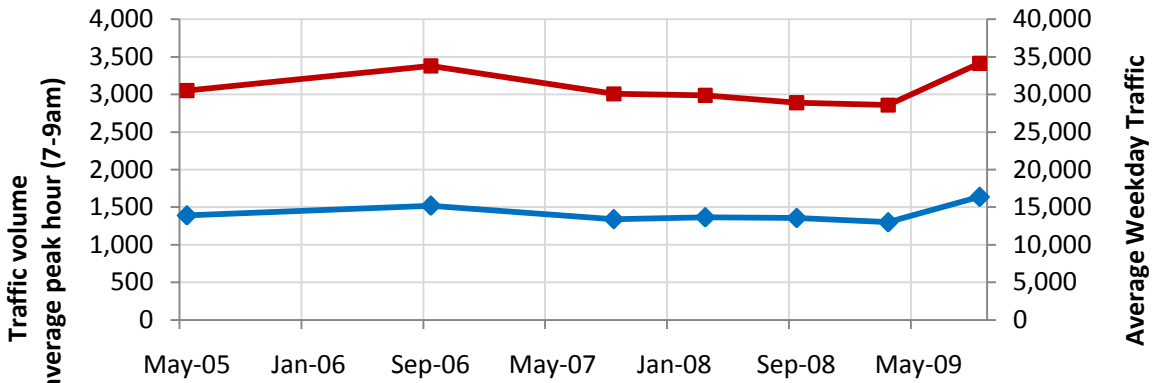
Figure 2-17: Lutwyche Road Inbound



	May-05	Sep-06	Sep-07	Mar-08	Sep-08	Mar-09	Sep-09
AM	3,195	3,214	3,113	2,701	2,722	2,426	3,013
AWT	34,431	35,124	34,111	31,049	30,533	29,111	32,741

Source: RCM Surveys

Figure 2-18: Lutwyche Road Outbound



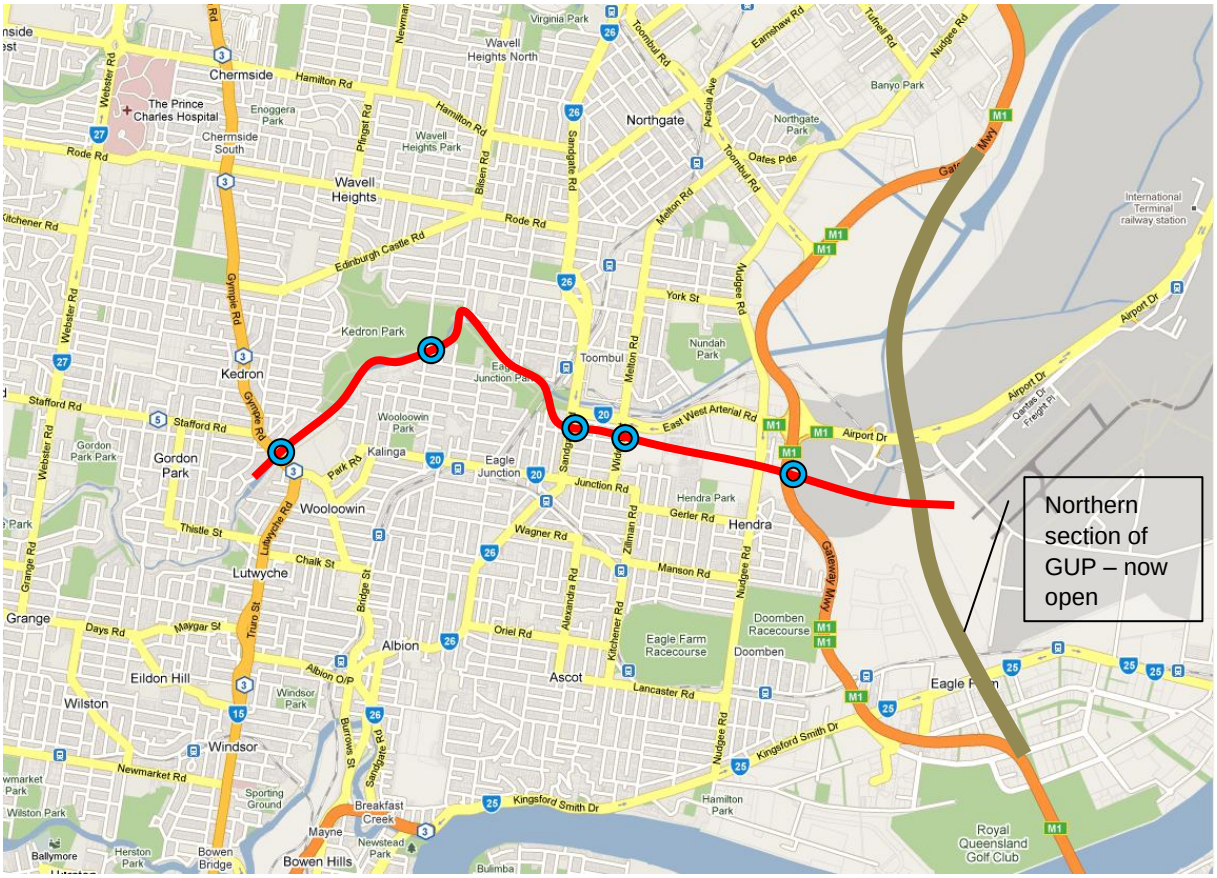
	May-05	Sep-06	Sep-07	Mar-08	Sep-08	Mar-09	Sep-09
AM	1,392	1,521	1,342	1,367	1,357	1,300	1,637
AWT	30,520	33,787	30,069	29,877	28,887	28,583	34,136

Source: RCM Surveys

2.1.4 Kedron Brook Screenline Growth

Figure 2-19 shows the Kedron Brook Screenline, which straddles the main approaches from Brisbane's north towards Brisbane River. In July 2009 the northern section of the Gateway Upgrade Project (GUP) was opened to traffic, providing additional capacity on the northern approach to Gateway Bridge. Unfortunately it has not been possible to source traffic data for the Gateway Arterial since the upgrade.

Figure 2-19: Kedron Brook Screenline



Source: GoogleMaps

Table 2-1 shows the AM peak period growth along the Kedron Brook Screenline between 2006 and 2009.

Table 2-1: Kedron Brook AM Peak Period Growth

Location	NB		SB		2way		NB growth p.a.	SB growth p.a.	2Way growth p.a.
	2006	2009	2006	2009	2006	2009			
Gateway Arterial+	3,853		3,904		7,757				
Nudgee Road	411	402	489	449	900	851	-0.7%	-2.8%	-1.8%
Sandgate Road	1,336	1,445	2,206	2,340	3,542	3,785	2.6%	2.0%	2.2%
Shaw Road	416	474	1,233	1,319	1,649	1,793	4.4%	2.3%	2.8%
Gympie Road	1,734	1,848	3,708	3,827	5,442	5,675	2.1%	1.1%	1.4%
AM Total									

Source: TMR and RCM data

Table 2-2 shows the AWT growth along the Kedron Brook Screenline between 2006 and 2009.

Table 2-2: Kedron Brook AWT Growth

Location	NB		SB		2way		NB Growth	SB Growth	Two Way Growth
	2006	2009	2006	2009	2006	2009			
Gateway Arterial	55,239		54,522		109,761				
Nudgee Road	6,258	7,287	5,731	6,242	11,989	13,529	5.2%	2.9%	4.1%
Sandgate Road	25,353	25,983	25,464	28,122	50,817	54,105	0.8%	3.4%	2.1%
Shaw Road	8,434	9,156	7,967	8,943	16,401	18,099	2.8%	3.9%	3.3%
Gympie Road	38,686	37,012	38,950	40,342	77,636	77,354	-1.5%	1.2%	-0.1%
AWT Total	**133,970**		**132,634**		**266,604**				

Source: TMR and RCM data

The analysis of the Kedron Brook screenline growth provides evidence that traffic volumes along the northern approaches to the RiverCity Motorway corridor have grown in recent years.

2.1.5 Brisbane River Screenline

As a new river crossing, the RiverCity Motorway will compete directly with the existing river crossings. **Table 2-3** through **Table 2-6** show AM peak period and AWT traffic volumes by year and direction. Long term growth in the tables has been computed based on the earliest and latest available data point.

The tables show that:

- Centenary Bridge, Victoria Bridge and Gateway Bridge show growth in traffic volumes in the AM peak period in the inbound direction. However, traffic growth on the main competing routes of Captain Cook Bridge and Story Bridge has declined
- In the outbound direction, all river crossing traffic volumes have grown, at both the AM peak period and AWT level.
- At an AWT level in the both directions, both Centenary Bridge and Captain Cook Bridge show long term growth (2% and 0.5% respectively).

Table 2-3: River Screenline Average AM Average Peak Hour (7am to 9am) Inbound

Location	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Long Term growth p.a.
Centenary Bridge	2,937	2,993	3,000	3,101	3,194	3,241	3,056	2,928	3,239	3,248	3,232	**1.0%**
William Jolly Bridge					1,453				1,587	1,376	1,453	**0.0%**
Victoria Bridge					395					596	567	**6.2%**
Captain Cook Bridge	6,692	6,679	6,715	6,888	6,620	6,634	6,479	6,527	6,179	6,257	6,306	**-0.6%**
Story Bridge							4,920	5,114	4,916	5,069	4,823	**-0.5%**
Gateway Bridge					4,171		4,576	4,552	4,547	4,421		

Source: Various

Table 2-4: River Screenline AWT Inbound

Location	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Long Term growth p.a.
Centenary Bridge	32,769	33,080	33,426	34,688	36,097	37,195	37,828	38,516	39,426	39,710	39,926	**2.0%**
William Jolly Bridge									21,429	20,900	20,598	**-2.0%**
Victoria Bridge										7,363	7,848	**6.6%**
Captain Cook Bridge	72,181	70,762	71,296	73,342	74,052	73,635	72,421	73,520	74,720	74,853	75,904	**0.5%**
Story Bridge							53,076	56,940	53,347	54,074	52,867	**-0.1%**
Gateway Bridge								58,849	60,153			**2.2%**

Source: Various

Table 2-5: River Screenline Average AM Average Peak Hour (7am to 9am) Outbound

Location	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Long Term growth p.a.
Centenary Bridge	2,394	2,458	2,519	2,788	3,044	3,117	3,197	3,221	2,722	2,594	2,708	**1.2%**
William Jolly Bridge					2,795				2,222	2,065	2,967	**1.0%**
Victoria Bridge					356					549	565	**8.0%**
Captain Cook Bridge	3,868	3,866	3,846	4,113	4,212	4,296	4,183	4,274	3,999	3,992	4,001	**0.3%**
Story Bridge							3,026	3,125	3,171	3,190	3,033	**0.1%**
Gateway Bridge					3,048		3,300	3,297	3,293	3,287		**1.5%**

Source: Various

Table 2-6: River Screenline AWT Outbound

Location	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Long Term growth p.a.
Centenary Bridge	33,714	34,090	34,425	35,589	36,793	38,102	37,791	38,407	39,583	39,672	40,248	**1.8%**
William Jolly Bridge									22,332	21,943	23,065	**1.6%**
Victoria Bridge										7,940	8,441	**6.3%**
Captain Cook Bridge	70,423	69,231	69,560	71,933	73,579	73,590	72,560	73,627	71,163	70,748	72,258	**0.3%**
Story Bridge							50,643	52,472	52,089	52,521	51,633	**0.5%**
Gateway Bridge								42,615	43,559			**2.2%**

Source: Various

2.1.6 Pacific Motorway Growth

The Pacific Motorway (M3) feeds the southern approach to the tunnel. Permanent TMR count sites here provide an opportunity to look at comparative traffic trends in the inner, middle and outer suburbs. Holland Park is approximately 7km from the CBD, whilst Eight Mile Plains is approximately 15km from the CBD.

Average weekday daily traffic inbound from TMR permanent count sites at Holland Park north Gaza Road), Eight Mile Plains (north Gateway Motorway) and the Captain Cook Bridge is shown on **Figure 2-20.** The figure shows traffic volumes for the weekday and the AM period. Analysis of the underlying data has shown that the peak two hour period was between 0600-0800 for the outer sites (Eight Mile Plains and Holland Park) and 0700-0900 for the Captain Cook Bridge.

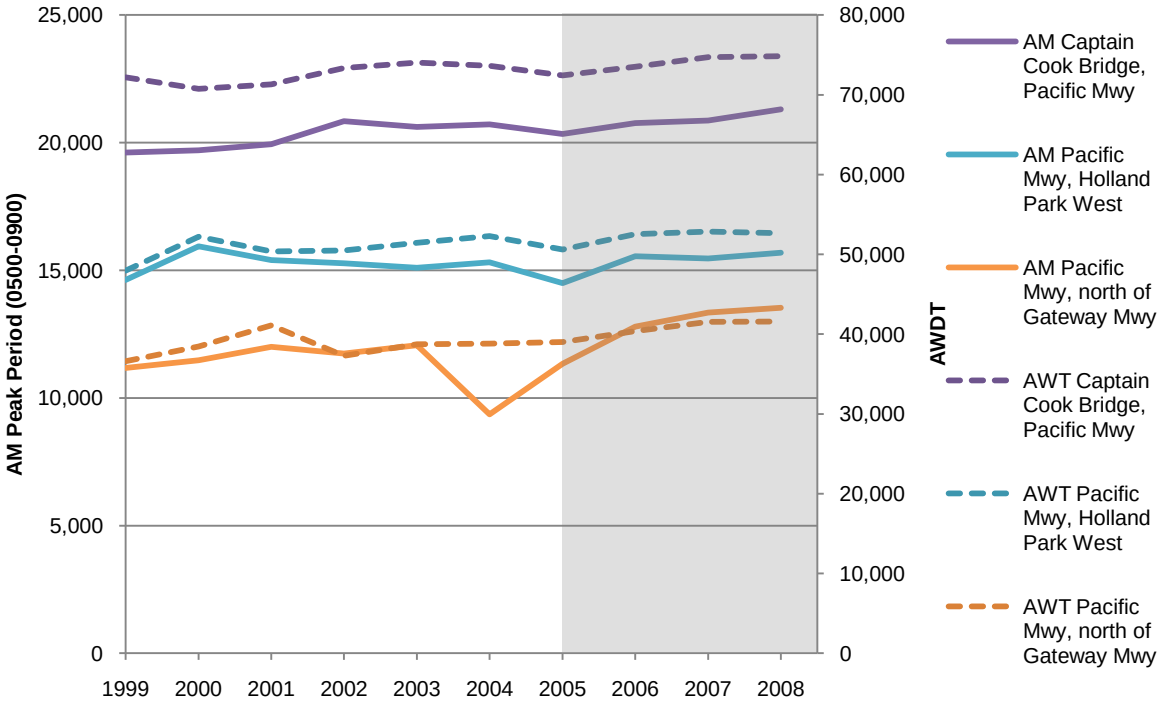
Inbound traffic volumes on the Pacific Motorway have grown in the period 1999-2008. Growth is slowest in the inner city, on Captain Cook Bridge, and faster in the outer suburb of Eight Mile Plains.

Table 2-7: Pacific Motorway, Growth in AWT (Inbound)

Location, Inbound Direction	Annual Growth 1999-2004	Annual Growth 2004-2008	Annual Growth 1999-2008
Captain Cook Bridge	0.33%	0.41%	0.40%
Pacific Mwy, Holland Park West, north Gaza Road	1.45%	0.16%	1.04%
Pacific Mwy, Eight Mile Plains, north of Gateway Mwy	0.99%	1.75%	1.43%

Source: TMR data

Figure 2-20: Pacific Motorway. Inbound



Source: TMR data

2.2 Expansion Factors

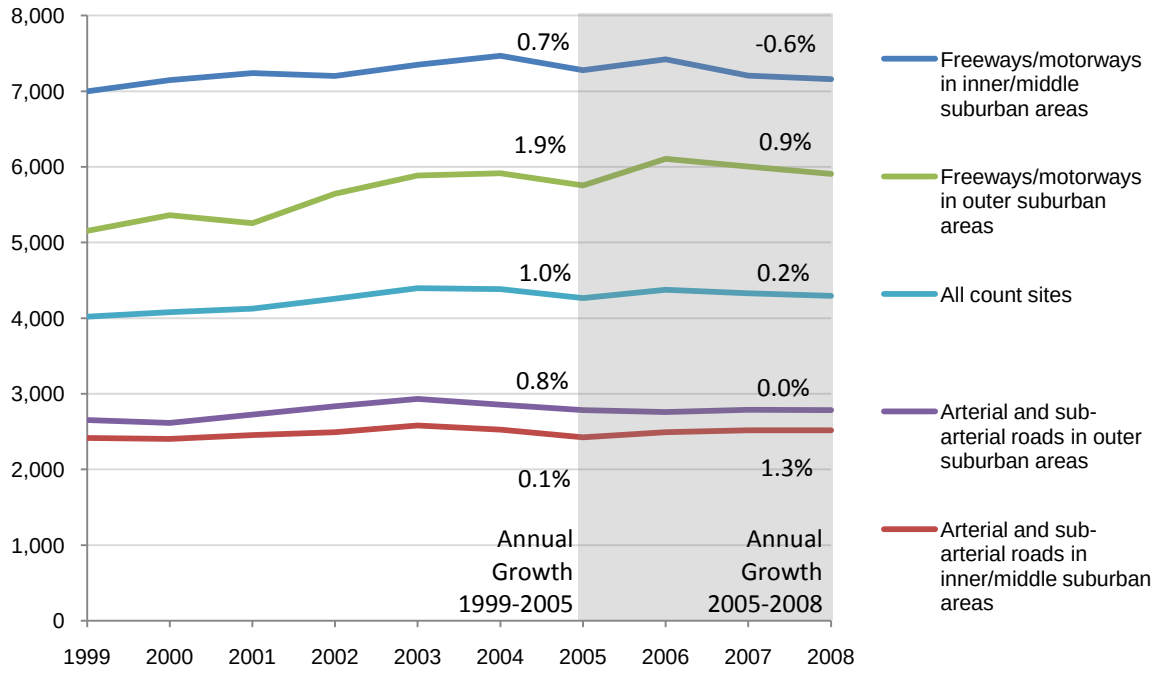
2.2.1 Transport and Main Roads Sites

Traffic data for the TMR sites shown on **Figure 2-1** have been summarised on **Figure 2-21** below (up to 2008 only, as only limited 2009 data is available). The data shows:

- a trend of increasing traffic in middle and outer ring locations
- stronger growth in weekday traffic on freeways/motorways than on arterials and sub-arterials.
- growth in AM peak period traffic volumes up to 2005 is considerably higher than growth since 2005 for all roads except the arterial and sub-arterial roads in inner/middle suburbans areas

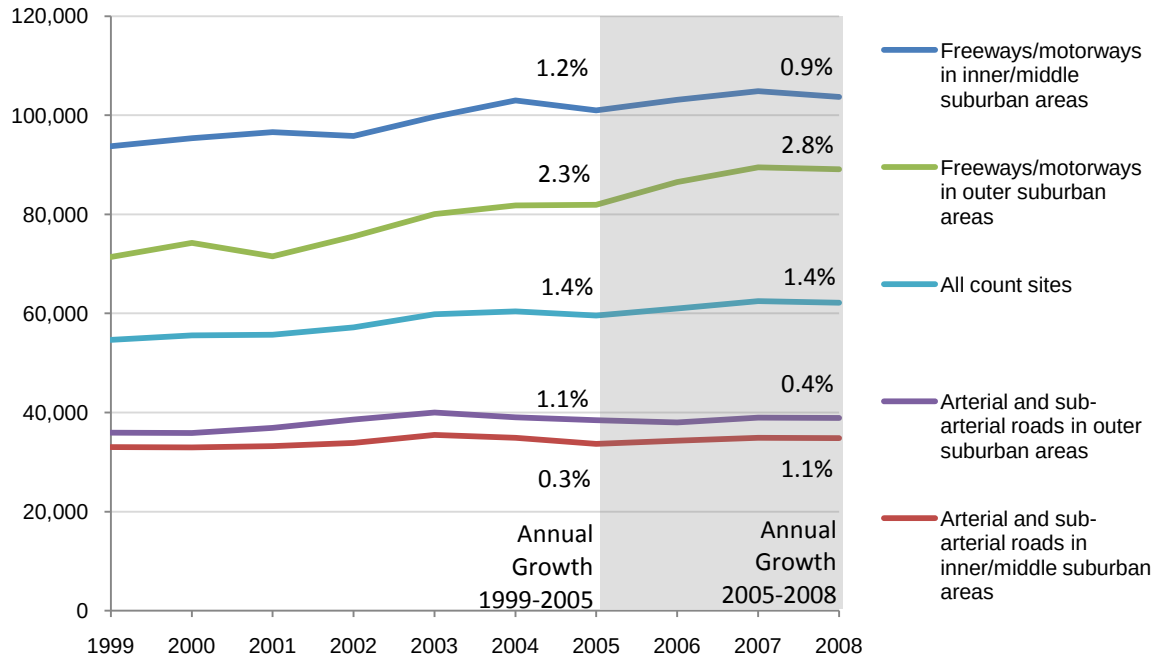
- growth in weekday traffic volumes is more consistent pre and post 2005, leading to growth in expansion factors.
- growth in average daily traffic (1.5%) has been higher than weekday traffic (1.4%). This trend has accelerated since 2005, with ADT growing at 1.6% to AWT growth of 1.4% reflecting stronger growth at weekends. Annualisation (weekend) factors have thus continued to grow since 1999.

Figure 2-21: AM Peak Period Traffic Volumes (1999 to 2008)



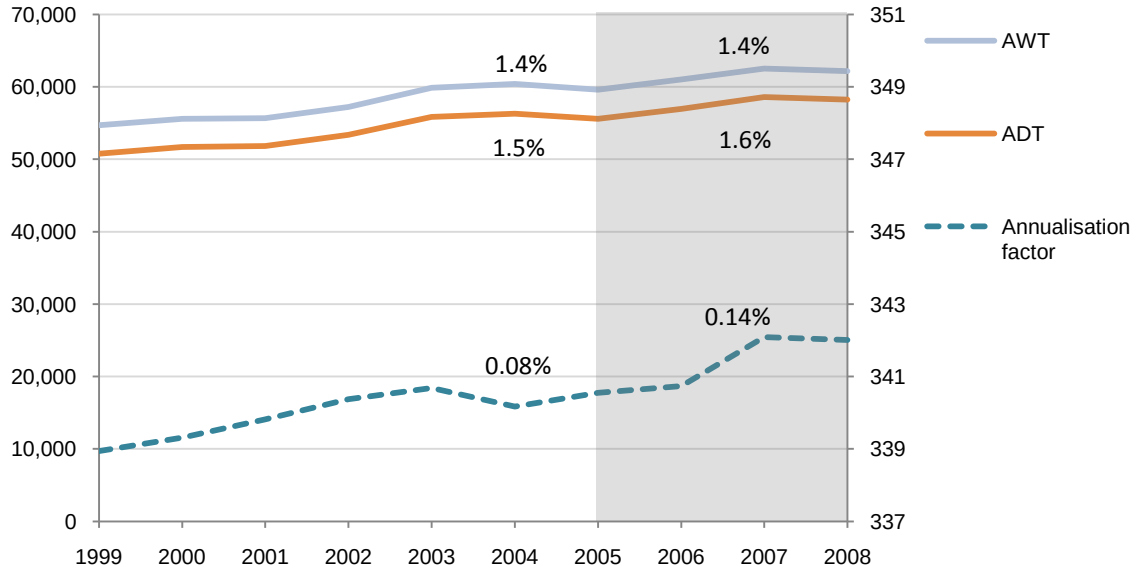
Source: TMR data

Figure 2-22: AWT Volumes (1999 to 2008)



Source: TMR data

Figure 2-23: TMR Counts: Annualisation Factors



Source: TMR data

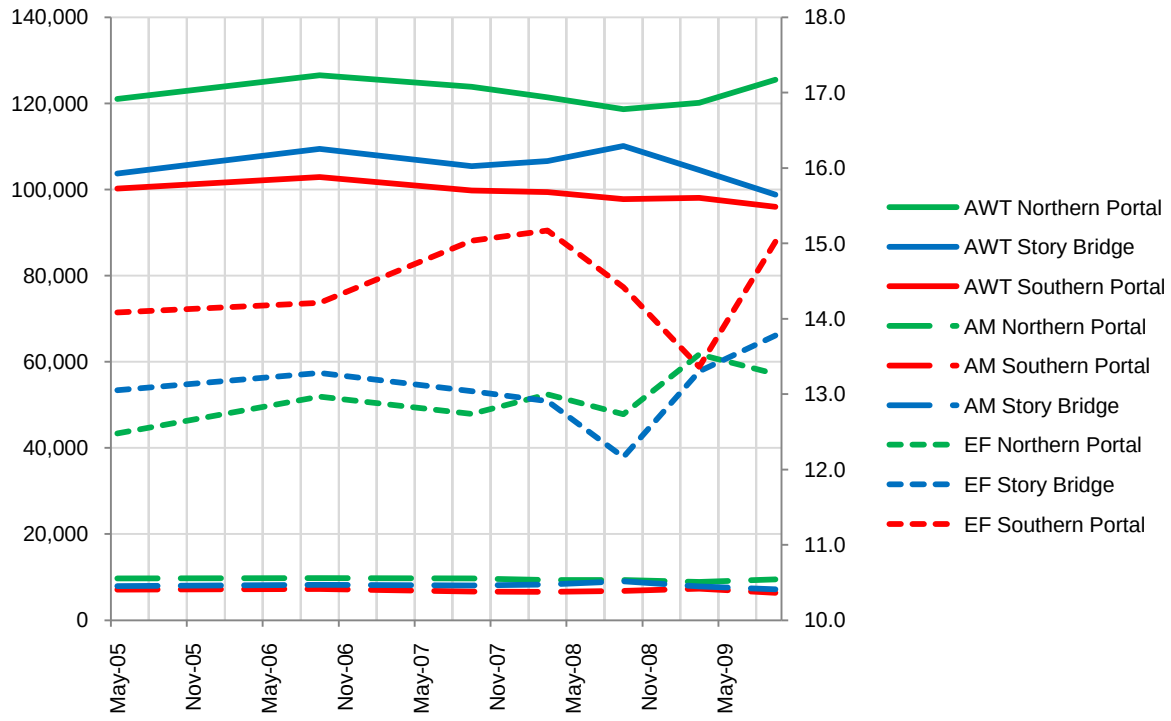
2.2.2 River City Motorway Sites

Figure 2-24 compares AWT and AM peak period traffic volumes by year, as well as resulting expansion factors. Expansion factors are observed to grow during this period, although variation is apparent year to year. Growth in expansion factors imply that daily traffic volumes are growing faster than those in the AM peak period. In fact:

- AWT for the Northern Portal has grown on average by 0.8%p.a., however the AM peak has contracted by 0.6%p.a.
- However, AWT for the Southern Portal has declined on average by 1.0%p.a., however the AM peak has declined at 2.4%p.a.
- Similarly to the Southern Portal, Story Bridge AWT has declined by on average 1.1%p.a., with the AM peak period declining at 2.3%p.a.

The growth in expansion factors is thus due to declining AM peak period volumes and less with increases in AWT. The contraction of the AM peak period volumes can likely be attributed to reduced capacity during the peak periods as a result of ongoing construction work for the Clem7 and other projects.

Figure 2-24: RiverCity Counts: Expansion Factors



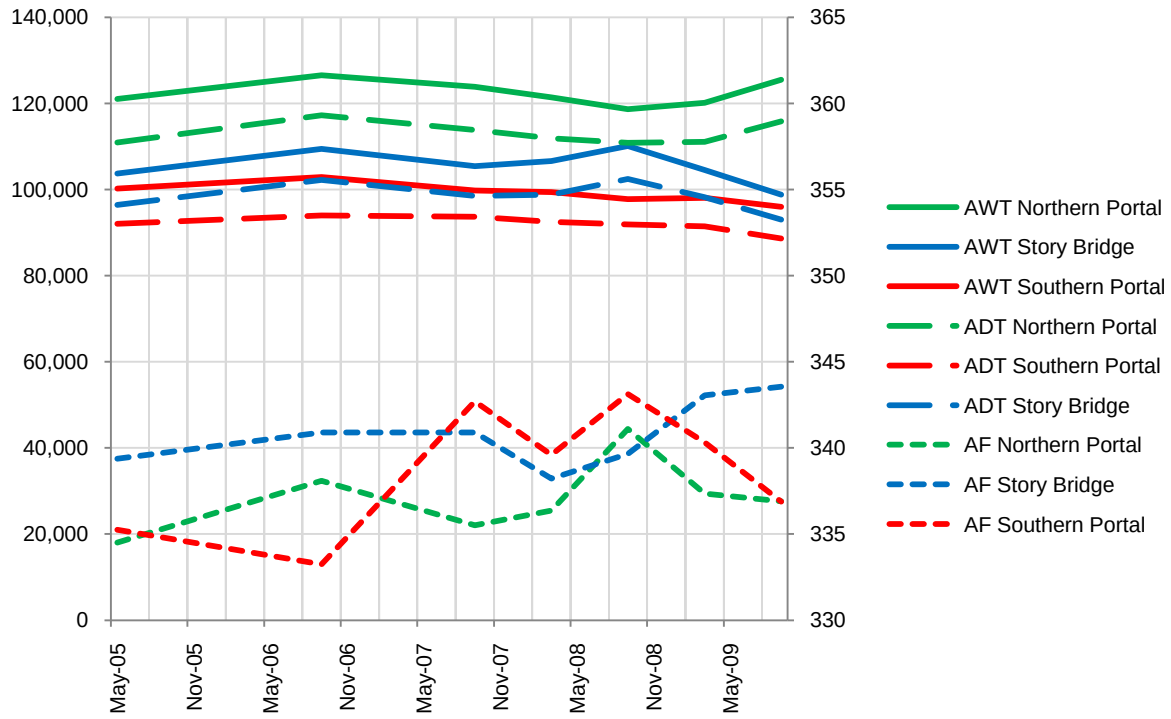
Source: RCM data

Figure 2-25 compares AWT and ADT traffic volumes by year, as well as annualisation factors. Like the expansion factors, annualisation factors are observed to grow, although variation is apparent year to year. Growth in annualisation factors imply that weekend traffic volumes are growing faster than those on the weekday. In fact:

- AWT traffic for the Northern Portal has grown on average by 0.8%p.a., whilst the ADT has grown by 1.0%p.a, consistent with the theory of faster growth in traffic volumes on the weekend.
- However, AWT for the Southern Portal has declined on average by 1.0%p.a., whilst ADT has declined by 0.9%p.a.
- Similarly to the Southern Portal, Story Bridge AWT has declined by on average 1.1%p.a., with ADT declining at 0.8%p.a.

The growth in annualisation factors is thus due to declining AWT volumes and less with increases in ADT.

Figure 2-25: RiverCity Counts: Annualisation Factors



Source: RCM data

2.3 Journey Times

Figure 2-26 shows the paths four journey time routes in the corridor. Each of these routes would serve as a competing route to use of the Clem7 so changes in travel time along them could provide useful insight into the future travel time savings offered by the Clem7.

Journey time surveys were conducted in June 2005, March 2007, March 2009 and September 2009. Each time each of the routes was surveyed several times over numerous days to provide an assessment of the entire AM peak period.

Figure 2-26: Travel Time Routes

Source: GoogleMaps

Table 2-8 shows a comparison of journey times along the four routes by direction. **Figure 2-27** through **Figure 2-30** show the comparison of travel time by year. The analysis shows that:

- Most routes have seen travel times increase over the last four years
- the variability in travel time has also increased over the last four years
- the largest increase in average travel time is on Route 2 NB, where it now takes an additional 7.5 minutes to travel between Cornwall St and KSD via Story Bridge.
- The largest decrease in average travel time is on Route 3 SB, where it now takes 0.5 minutes less to travel between Lutwyche Rd and Cornwall St via ICB.

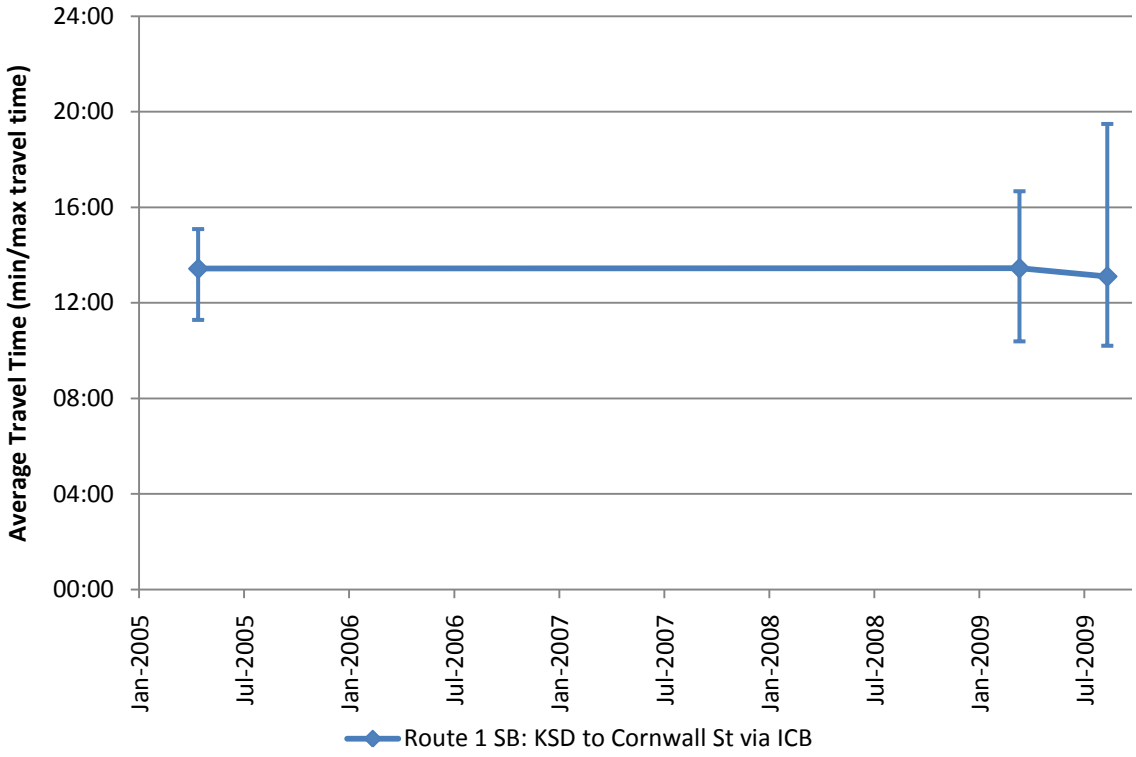
The analysis provides evidence that traffic congestion inside the corridor has increased during the last four years. As traffic volumes are steady or declining, the increase in travel times and travel time variability would be a counter-intuitive result, if available road capacity were unchanged. The travel time surveys support a conclusion that traffic growth in the Inner City is constrained by network capacity and that roadworks have adversely affected traffic patterns.

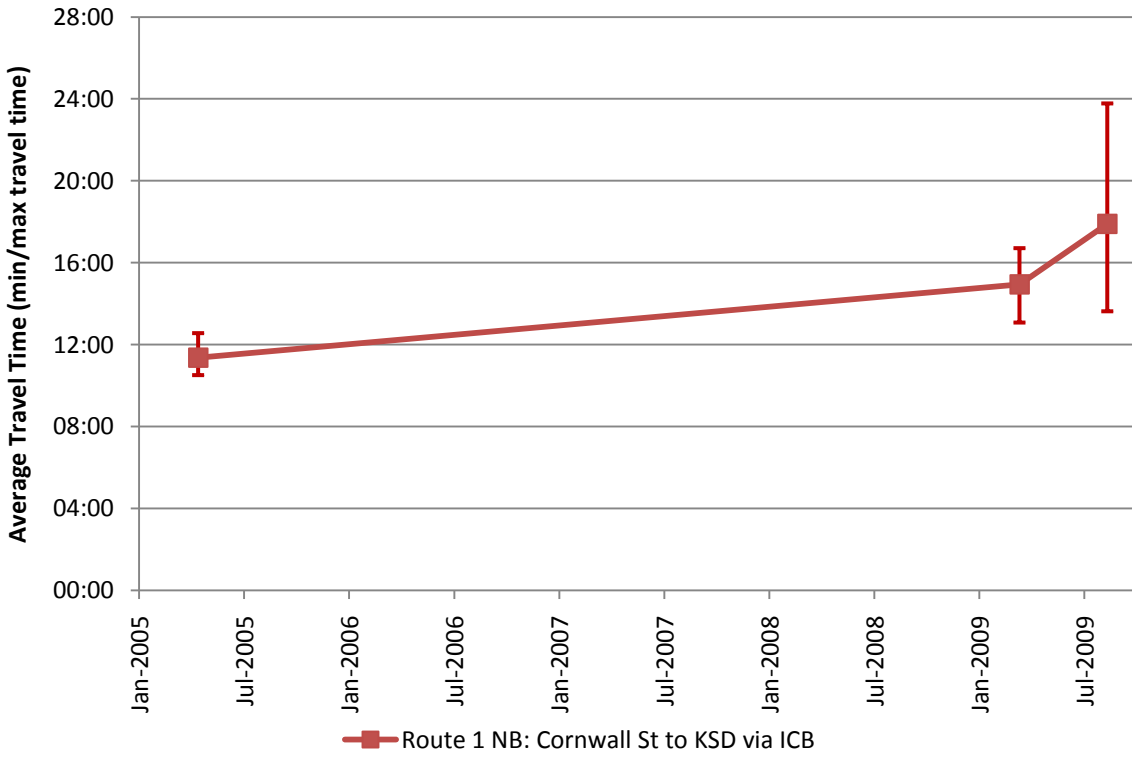
Table 2-8: Travel Time Comparison 2005 - 2009

Route	Type	May 2005	March 2007	April 2009	September 2009	% Growth p.a. from 2005
Route 1 SB: KSD to Cornwall St via ICB	maximum	01:39		03:13	06:23	
	average	13:26		13:27	13:06	-0.6%
	minimum	02:09		03:04	02:54	
Route 1 NB: Cornwall St to KSD via ICB	maximum	01:12		01:47	05:53	
	average	11:22		14:56	17:54	11.1%
	minimum	00:51		01:51	04:16	
Route 2 SB: KSD to Cornwall St via Story Br	maximum	02:20	02:54	04:55	02:27	
	average	13:05	14:40	15:30	14:01	1.6%
	minimum	02:18	02:45	02:34	01:48	
Route 2 NB: Cornwall St to KSD via Story Br	maximum	03:03	07:28	05:56	12:02	
	average	17:05	24:05	22:51	24:35	8.8%
	minimum	03:09	06:26	06:32	07:22	
Route 3 SB: Lutwyche Rd to Cornwall St via ICB	maximum	02:27	04:42	04:57	08:02	
	average	13:42	14:39	13:49	13:18	-0.7%
	minimum	02:52	03:21	03:22	03:23	
Route 3 NB: Cornwall St to Lutwyche Rd via ICB	maximum	05:35	07:02	01:53	07:49	
	average	16:09	18:09	15:34	16:37	0.7%
	minimum	04:26	04:48	01:53	03:44	
Route 4 SB: Lutwyche Rd to Cornwall St via Story Br	maximum	03:33		08:02	04:22	
	average	16:05		18:03	17:02	1.3%
	minimum	04:58		02:27	01:58	
Route 4 NB: Cornwall St to Lutwyche Rd via Story Br	maximum	03:56		07:41	11:11	
	average	22:08		24:00	26:34	4.3%
	minimum	04:30		07:05	06:30	

Source: RCM surveys

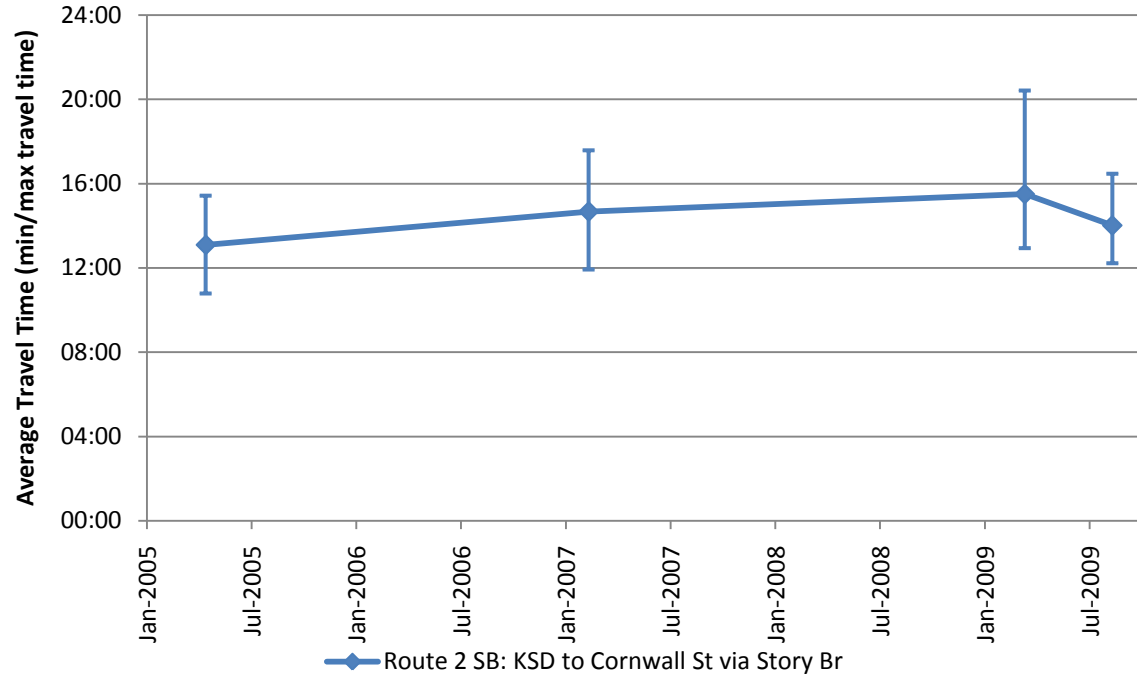
Figure 2-27: Route 1 Travel Time Comparison 2005 – 2009

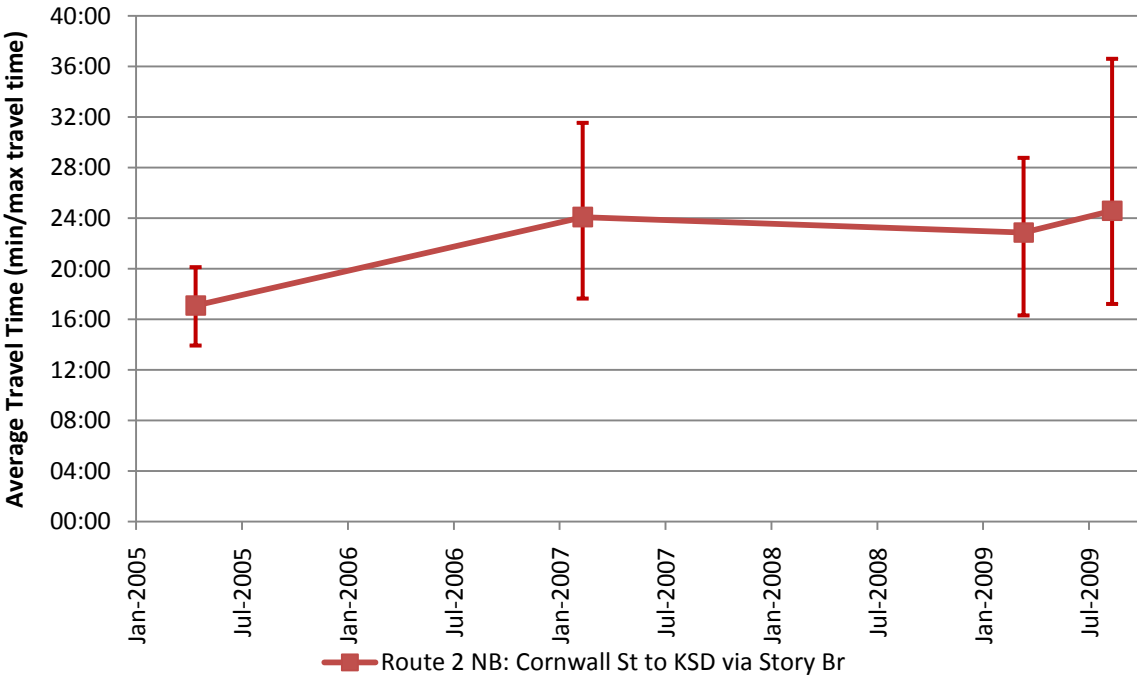




Source: RCM surveys

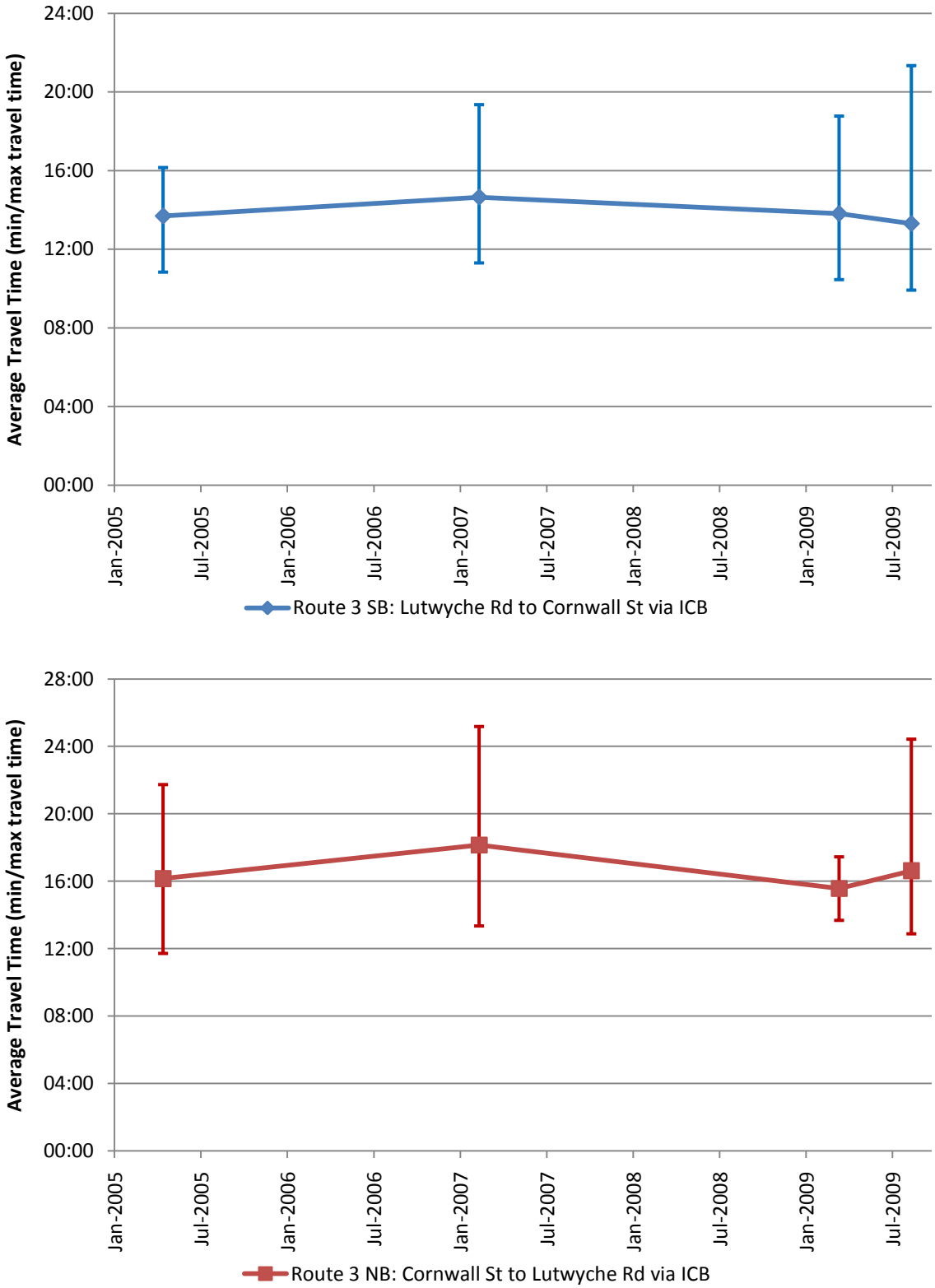
Figure 2-28: Route 2 Travel Time Comparison 2005 – 2009





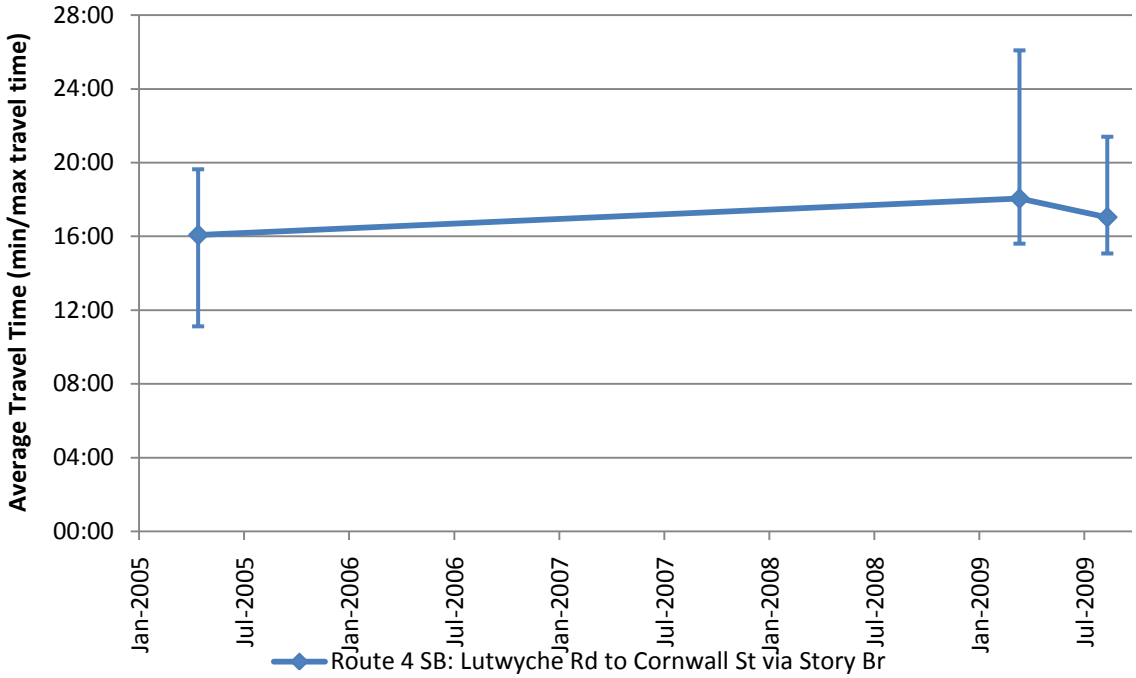
Source: RCM surveys

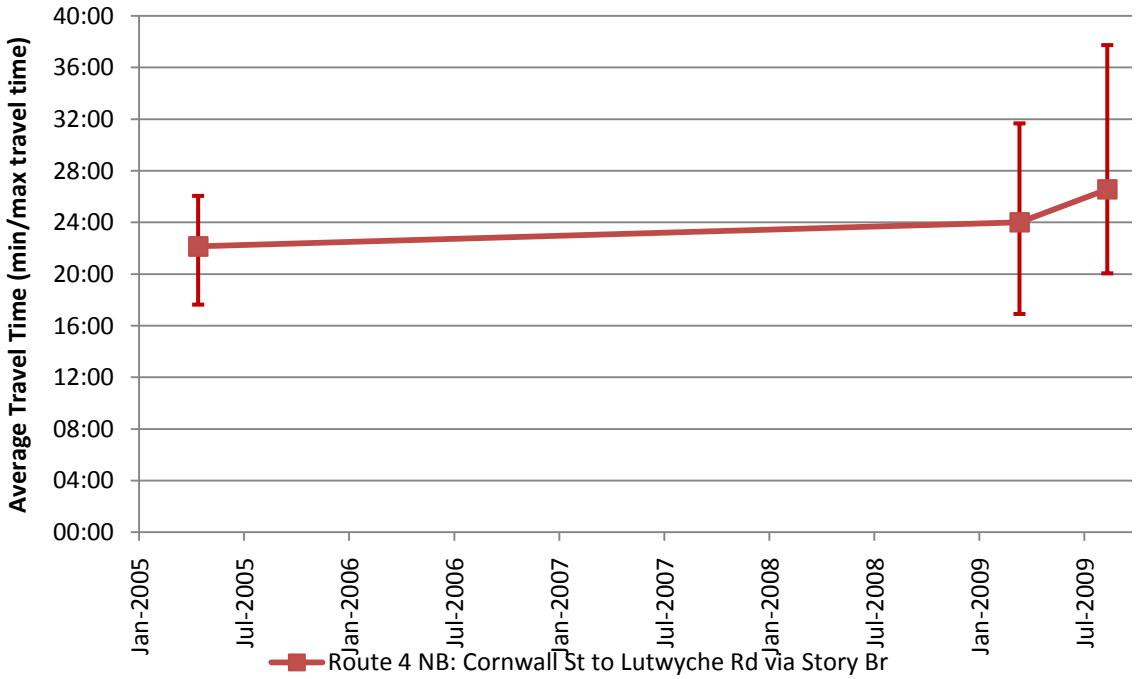
Figure 2-29: Route 3 Travel Time Comparison 2005 – 2009



Source: RCM surveys

Figure 2-30: Route 4 Travel Time Comparison 2005 - 2009





Source: RCM surveys

2.4 Summary of Traffic Count and Journey Time Analysis

The traffic count and journey time analysis shows:

Long Term (1999 to 2008)

- Traffic growth has been strongest on routes serving rapidly developing areas, including the outer suburban areas, and especially on freeway/motorway-standard roads in outer areas.
- There is relatively little growth in peak-direction traffic flows on major routes in inner areas, reflecting the congestion experienced on these routes during peak periods.
- There is, however, traffic growth on major routes in inner areas in the counter-peak directions during peak periods and in both directions during the inter-peak period, particularly in the period before 0700.

Recent Trends (2005 to 2009)

- Between 2006 and 2007 there is positive growth on the majority of TMR monitored sites during the peak periods, and on most sites at a daily level;
- Between 2007 and 2008, there is decline in peak and counter peak direction traffic flows on the majority of routes in inner suburban area;
- However, there is positive though moderate growth on the majority of freeways /motorways in outer suburban areas, in line with their long term growth trend;
- Average travel times through the corridor have deteriorated since 2005, taking longer and becoming increasingly more variable.

3.1 Economic Factors

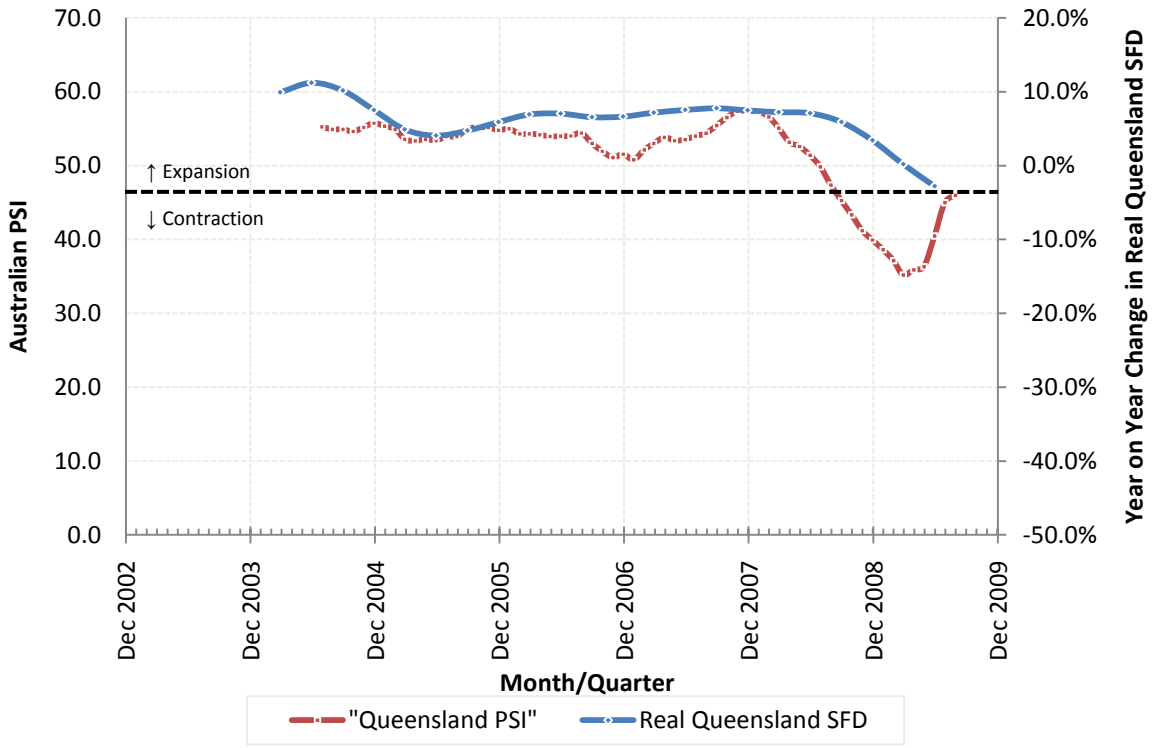
3.1.1 Queensland Economic Activity

Figure 3-1 shows Queensland State Final Demand and PSI between 2002 and 2009. State Final Demand measures domestic economic activity i.e. household consumption, business investment and government expenditure. The figure shows that growth in State Final Demand has been strong until mid-2008 whereby the effects of the Global Financial Crisis began to permeate into the wider economy.

The Queensland Professional Services Index (PSI) is a measure of monthly business activity across a range of service businesses. PSI values of less than 50 indicate a contraction in business activity whilst values over 50 indicate an expansion in business activity. The figure shows that the fall in Queensland PSI predates the downturn in general economic activity, as businesses were more exposed to the effects of the Global Financial Crisis. Since early 2008, the Queensland PSI has been below 50, affected by rising debt premiums and a tightening of credit.

Since reaching a low in February 2009, Queensland PSI has recovered dramatically, albeit that it has not yet recovered sufficiently to indicate a broad expansion in business activity.

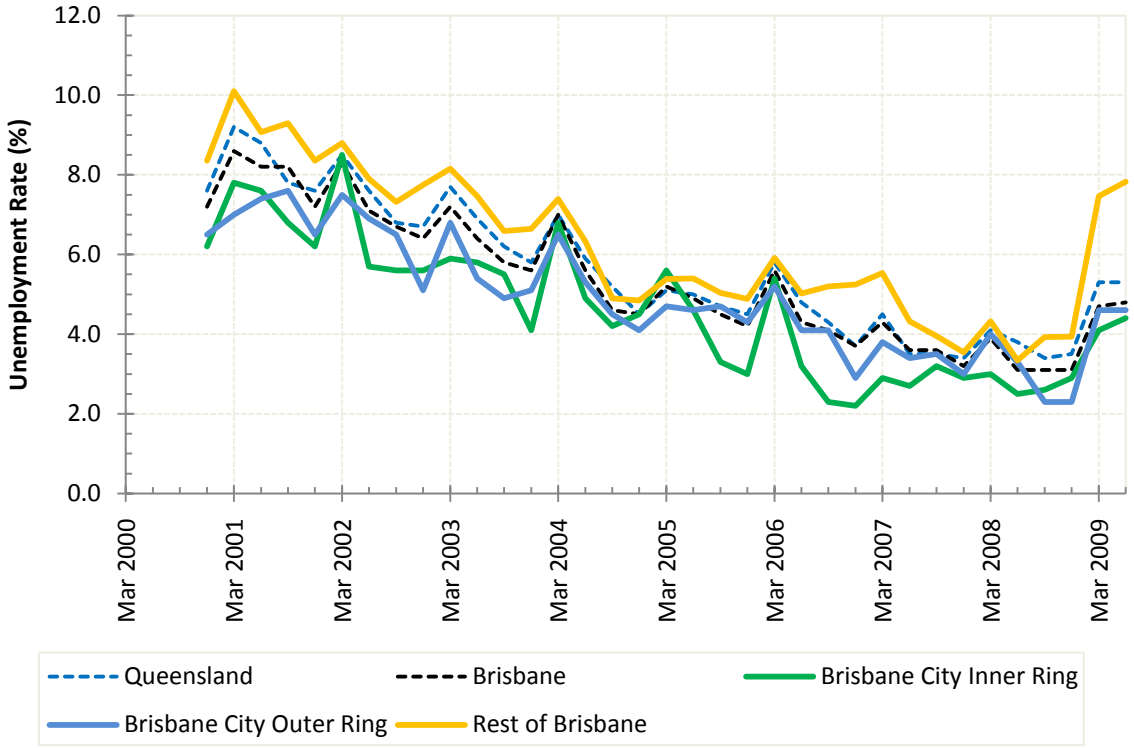
Figure 3-1: Queensland State Final Demand and Queensland PSI



3.1.2 Brisbane Unemployment

Figure 3-2 shows Brisbane unemployment rates by region (not seasonally adjusted) for the last ten years. The figure shows that reflecting buoyant economic conditions, unemployment in Brisbane continued to fall until 2009, whereby unemployment increased across all Brisbane regions.

Figure 3-2: Brisbane Unemployment Rates by Region (Not Seasonally Adjusted)



As these rates are not seasonally adjusted, a relatively large increase in unemployment is always apparent in March of each year

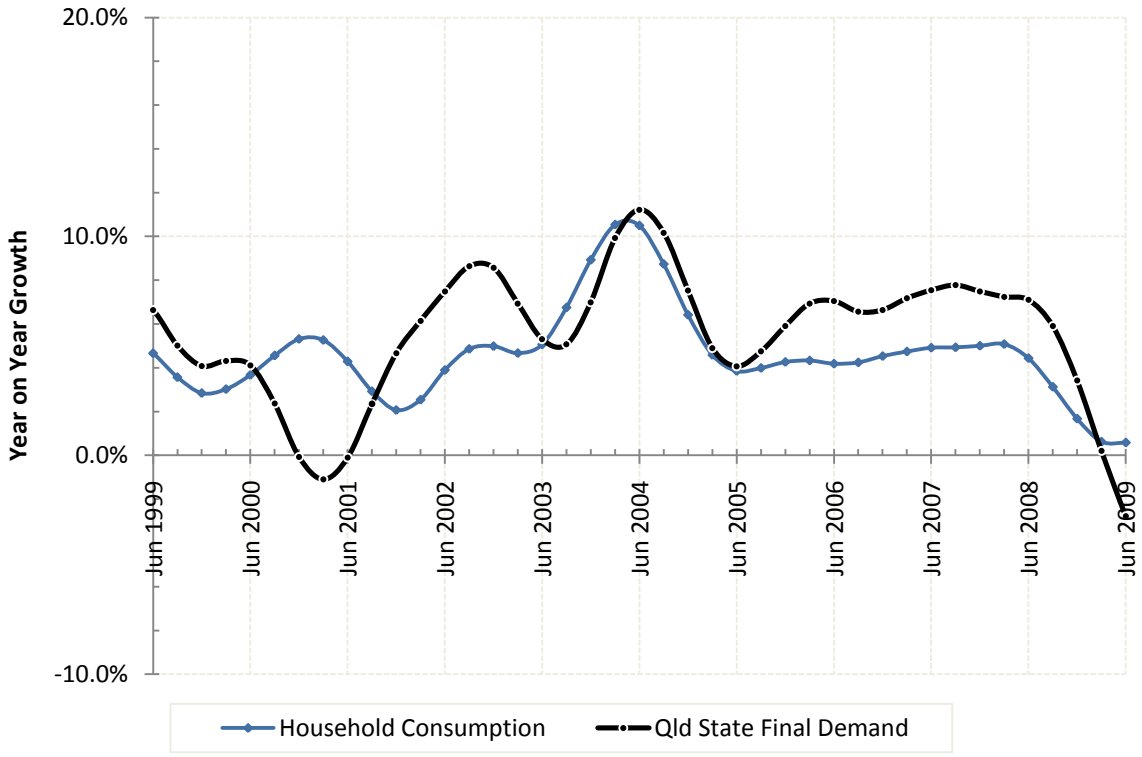
Source: DEEWR.

3.1.3 Household Consumption

Figure 3-3 shows Queensland real household consumption for the last ten years. A key component of economic activity is household consumption. Generally, long run movements in State Final Demand reflect long run movements in household consumption.

The figure shows that between 1995 and 2005, Queensland household consumption more or less grew at the same rate as State Final demand. For the 10 years to 2005, real consumer spending increased at an average rate of 4.7 percent per annum. Over the same period, real State Final Demand increased by 5.0 percent.

Figure 3-3: Queensland Real Household Consumption



Source: ABS

Since 2005, household consumption has grown slower (3.1% p.a.) than State Final Demand (3.8% p.a.). The slowdown in household consumption growth may have implications for traffic growth as travel demand is derived from demand for other goods and services (e.g. shopping and leisure trips).

Figure 3-4 shows Australian household savings ratio (seasonally adjusted) for the last ten yeas. The figure shows that the slowdown in household consumption growth is largely consistent with a *reversal* in the decline in household savings ratio observed at a national level.

Figure 3-4: Australian Household Savings Ratio (Seasonally Adjusted)

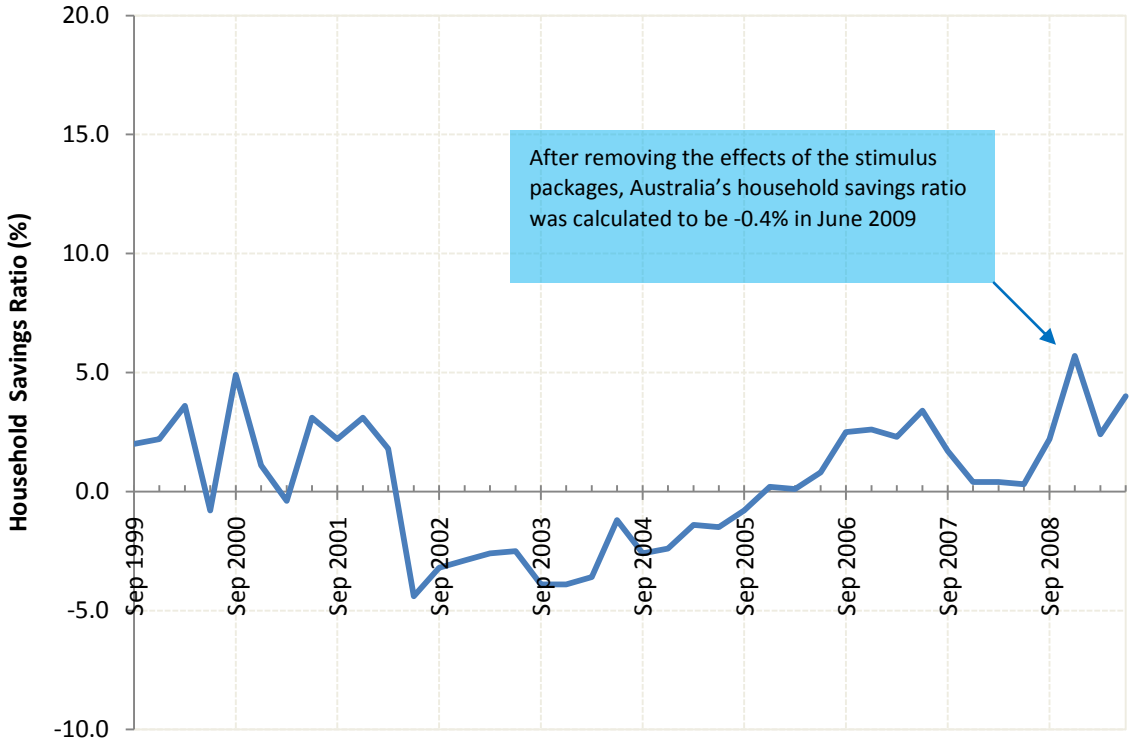
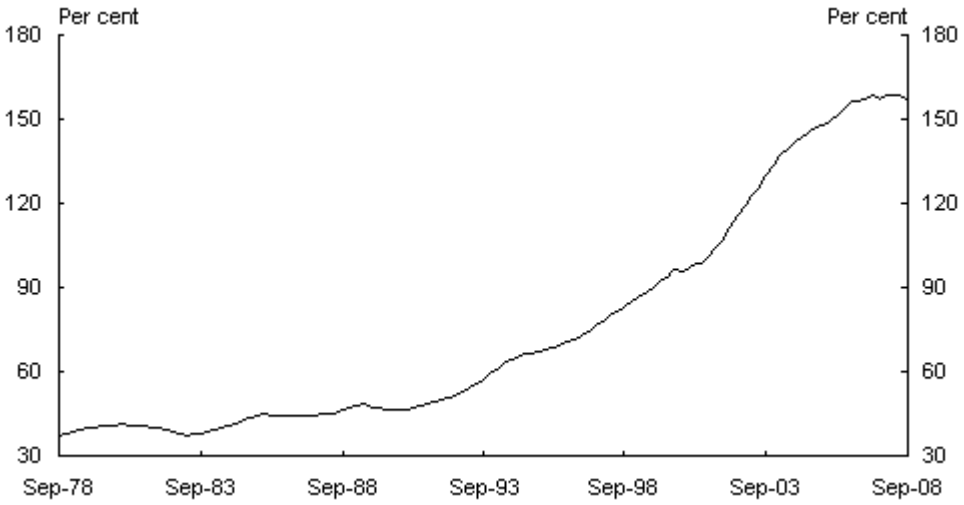


Figure 3-5 shows household debt to income rates for the last thirty years. Treasury analysis[1] suggests along with improvements in export receipts, tax, increasing interest rates and capital gains, households may have been engaging in precautionary savings as household debt to income ratios have reached unprecedented levels.

Figure 3-5: Household Debt to Income Rates



Source: RBA

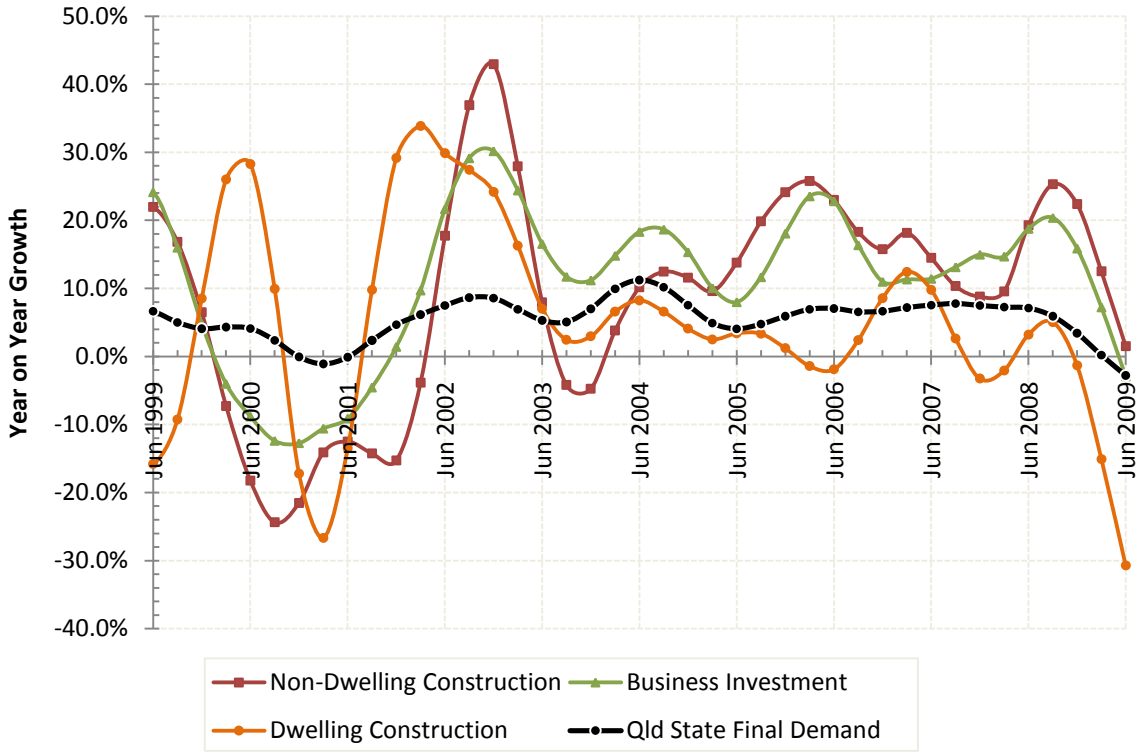
[1] http://www.treasury.gov.au/documents/1451/HTML/docshell.asp?URL=06%20Household%20saving%20in%20Australia.htm

If households are seeking to increase savings, this may directly impact adversely on their willingness to pay for tolls. Indirect impacts on trip generation may also be felt if disposable incomes are diverted from consumption towards savings.

3.1.4 Construction Activity

Figure 3-6 shows Queensland economic and construction activity for the last ten years. Since 2005, business investment and non-dwelling construction continued to grow strongly. The downturn in business investment and non-dwelling construction became apparent only during the June 2009 quarter.

Figure 3-6: Queensland Economic and Construction Activity



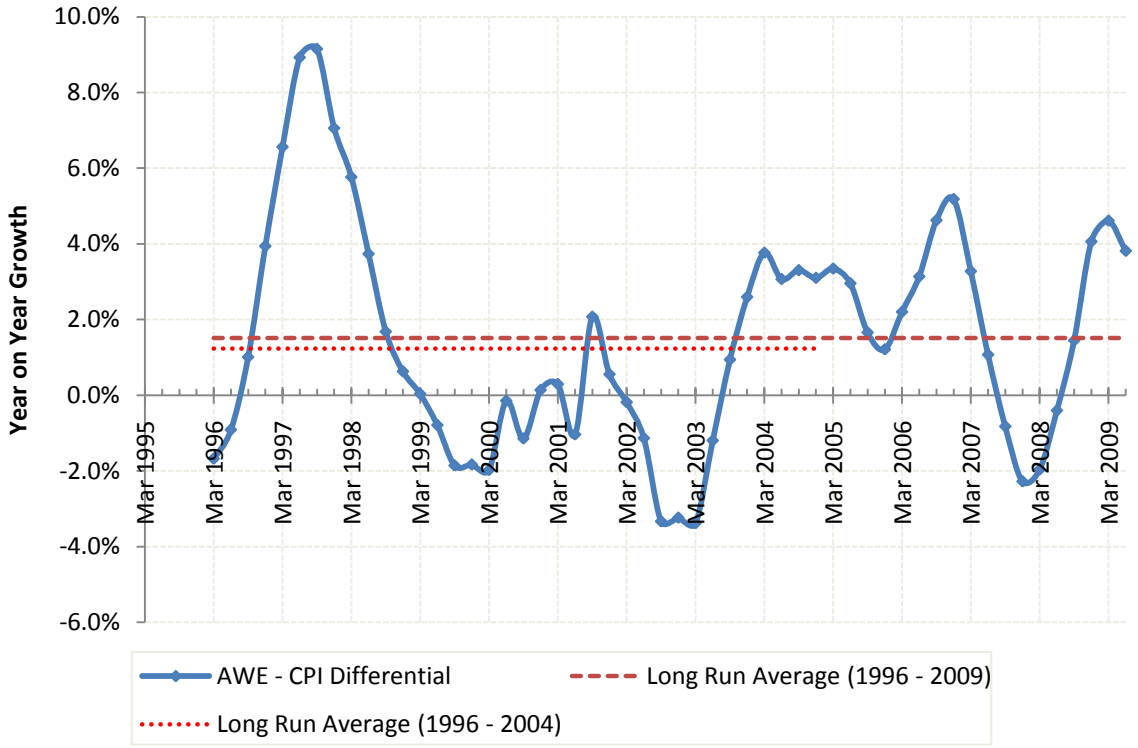
Source: ABS

On the other hand, dwelling construction has fallen significantly. During the June 2009 quarter, dwelling construction has fallen by 30 percent on a year on year basis. This is despite record low interest rates and higher government grants for first home buyers. This may affect the future population growth as the level of spare housing capacity will be lower than expected.

3.1.5 Earning Power

Figure 3-7 shows Queensland earning power for the last fifteen years. Real earnings power, as measured by taking the differential between average weekly earnings and inflation, has grown faster than expected at a rate of 2.0 percent since 2005. This increase in earning power reduces the real value of tolls.

Figure 3-7: Queensland Earning Power



3.1.6 Comparison against NIEIR Assumptions

Table 3-1 summaries the economic factors assumed by NIEIR at the time of the bid, compared with published data. The table shows that NIEIR over stated GDP growth at the Australian level, but understated Queensland GSP growth. Further, the table also shows that NIEIR assumptions regarding CPI were slightly higher than those actually recorded. With regards to the difference between AWE and CPI, NIEIR assumptions have proven to be conservative.

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Table 3-1: Economic Indicator Summary Actual vs NIEIR Assumed

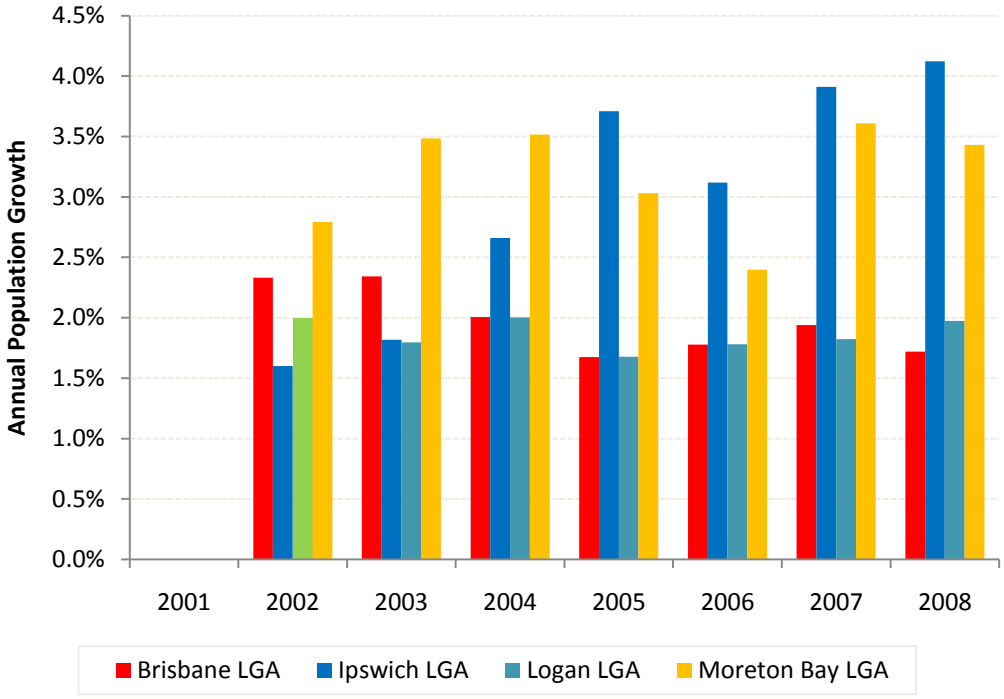
Indicator	Actual	NIEIR BID LOW Scenario	NIEIR BID High Scenario
Australian GDP Growth	Jan 2004 – June 2009: 2.4% p.a.	2004-11 2.9% p.a.	2004-11 3.8% p.a.
Qld GSP Growth	Jan 2004 – June 2009: 4.7% p.a.	2004-11 3.8% p.a. 2011-21 3.6% p.a. From 2021 3.4% p.a. Text notes a strong contribution to the difference between nation GDP and state GSP from construction	2004-11 4.6% p.a. 2011-21 4.3% p.a. From 2021 3.9% p.a.
CPI (all capitals)	Jan 2004 – June 2009: 2.7% p.a.	CPI 2005-10 2.9% p.a. From 2010 2.8% p.a.	2005-2010 2.85% p.a. From 2010 2.75% p.a.
CPI (Brisbane)	Jan 2004 – June 2009: 3.1% p.a.	Not stated	
Difference between average weekly earnings AWE and CPI	Jan 2004 – June 2009: 2.0% p.a.	1.2% p.a.	1.4% p.a.

3.1.7 Population Growth

The ABS provides a series of population estimates known as the Estimated Residential Population series. These estimates can be disaggregated to an SLA level. Population estimates for inter-censual years are estimated using the ABS' mathematical model which uses data sources such as driver licence and vehicle registrations, Medicare records, utility bills and school enrolments.

Figure 3-8 shows population growth for Brisbane between 2001 and 2008. The figure shows that population growth within Brisbane LGA post-2005 has been slower than in previous years. Fastest levels of growth have occurred outside the Brisbane area, in particular Ipswich and the Moreton Bay areas.

Figure 3-8: Population Growth for Brisbane (2001 to 2008)

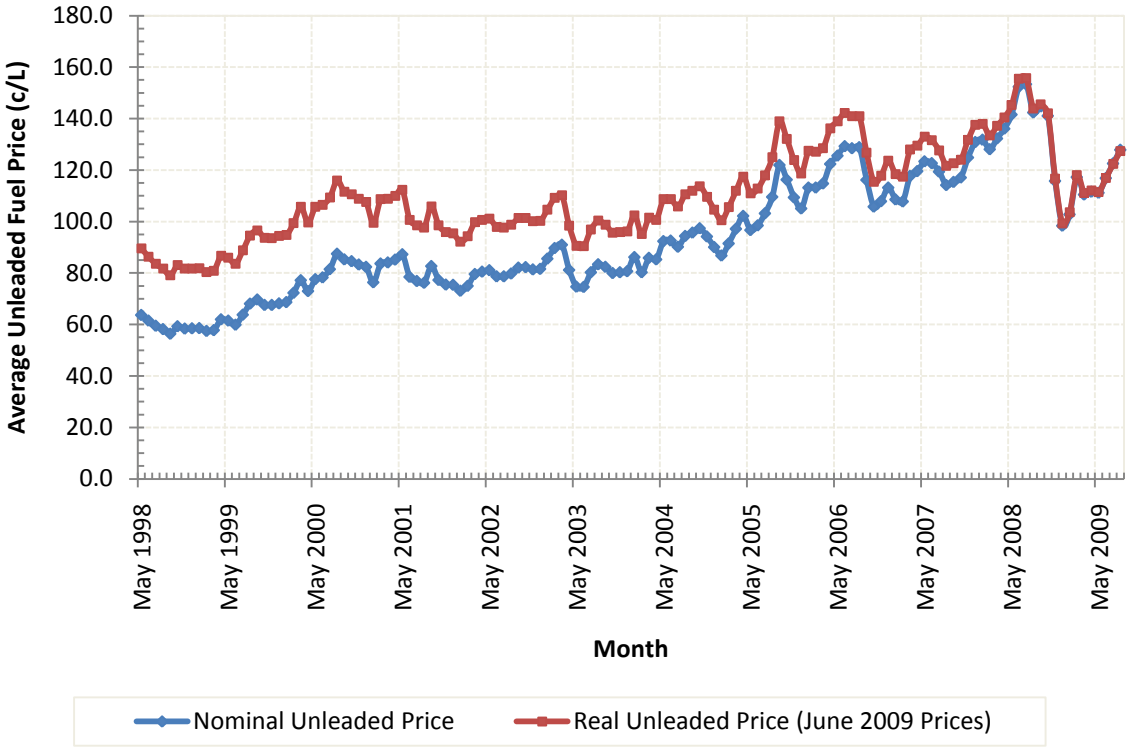


Source: ABS

3.1.8 Fuel Prices

Figure 3-9 shows nominal average fuel prices (unleaded 95) from 1998 until 2009. The figure shows that between 2005 and 2008, fuel prices have grown strongly, with prices peaking at over $1.50 a litre. Since the GFC, fuel prices dropped sharply back to pre-2005 levels but have continued to increase since. Of importance is that the Bligh Government removed the 8 cents/L petrol subsidy in July 2009.

Figure 3-9: Fuel Price (Unleaded 95)

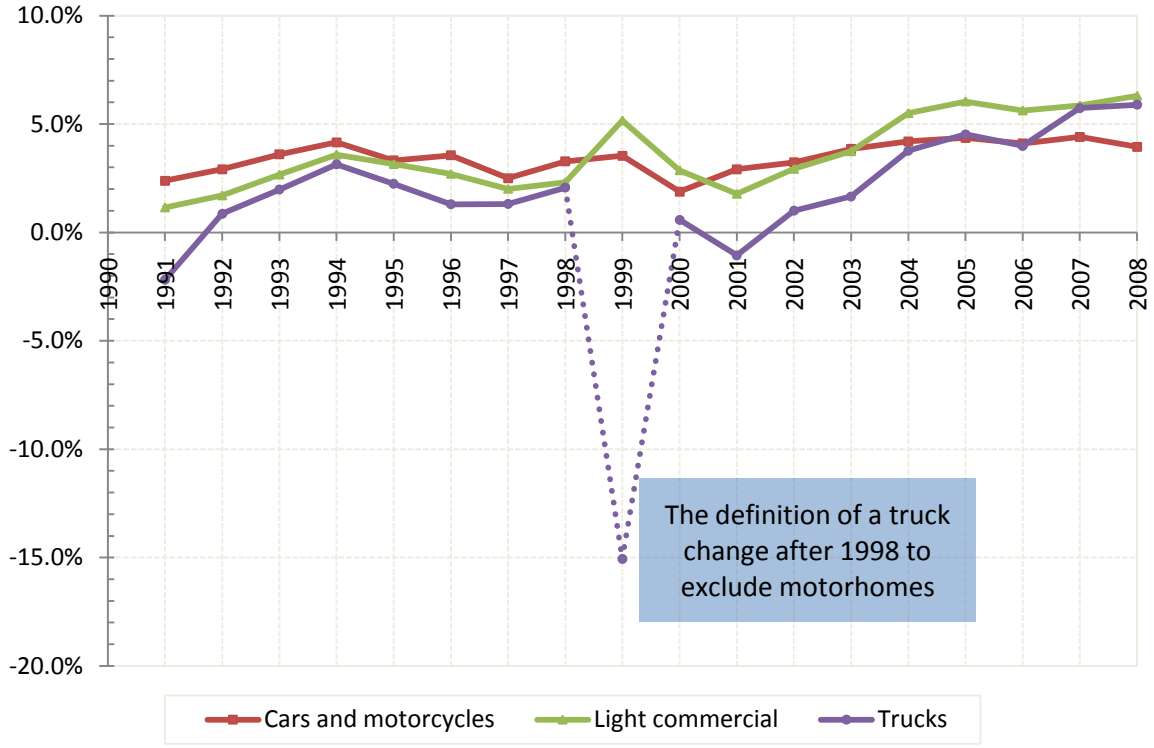


Source: Fueltrac, ABS

3.1.9 Vehicle Registrations

Figure 3-10 shows Queensland vehicle registrations since 1991. The figure shows that car registrations have increased at circa 4%p.a. since 2005 with no discernable slowdown in growth.

Figure 3-10: QLD Vehicle Registrations



Source: Queensland Transport

3.2 Summary of Economic Factors

The Queensland economy has experienced a boom in the last decade with State Final Demand growing at 5-8%p.a.and unemployment at record lows. Population in Brisbane over this time grew, but growth was higher in outer regions.

More recent economic indicators have been dominated by the impact of the Global Financial Crisis. The GFC led to an increase in household saving and decrease in construction activity as concern over the economy raised fears of recession. Since mid 2009, there have been signs that the economy is beginning to grow once more.

Appendix A

List of Count Locations

Appendix A List of Count Locations

Table 3-2: Traffic Count Data Locations

Location	Count Source	2000 - 2008 Permanent	May - June 2005	September 2006	September 2007	March - April 2008	August - September 2008	March - April 2009	September - October 2009
River Crossings									
Centenary Bridge, Centenary Highway	TMR	✓	-	-			✓		
William Jolly Bridge	RCM		-	-	-	✓	✓	✓	✓
Victoria Bridge	RCM		-	-	-	✓	✓	✓	✓
Captain Cook Bridge, Pacific Motorway	TMR	✓	-	-			✓		
Story Bridge	RCM		✓	✓	✓	✓	✓	✓	✓
Gateway Bridge[2]	RCM		-	✓	-	-	-	-	-
North Portal Screenline									
Coronation Drive	RCM		✓	-	-	-	-	-	-
Milton Road	RCM		✓	-	-	-	-	-	-
Caxton Street	RCM		✓	-	-	-	-	-	-
Musgrave Road	RCM		✓	-	-	-	-	-	-
Kelvin Grove Road	RCM		✓	-	✓	-	✓	-	-
Lutwyche Road	RCM		✓	✓	✓	✓	✓	✓	✓
Abbotsford Road	RCM		✓	✓	✓	✓	✓	✓	✓
Breakfast Creek Road	RCM		✓	✓	✓	-	-	-	-
South Portal Screenline									
Vulture Street	RCM		✓	-	-	-	-	-	-
Stephens Road	RCM		✓	-	-	-	-	-	-
Annerley Road	RCM		✓	-	-	-	-	-	-
Ipswich Road	RCM		✓	✓	✓	✓	✓	✓	✓
Stanley Street East	RCM		✓	✓	✓	-	-	-	-
Logan Road	RCM		✓	-	-	-	-	-	-
Deshon Street	RCM		✓	-	-	-	-	-	-
Wynnum Road	RCM		✓	✓	✓	✓	✓	✓	✓
Kedron Brook Screenline									
Gateway Motorway, s of Airport Drive	TMR	✓							
Nudgee Road	RCM		-	✓	-	-	-	-	✓
Sandgate Road	RCM		-	✓	-	-	-	-	✓
Shaw Road	RCM		-	✓	-	-	-	-	✓
Gympie Road	RCM		-	✓	-	-	-	-	✓
Freeways/motorways in inner/middle suburban areas									

[2] Gateway Bridge count calculated from approaches and ramps

Location	Count Source	2000 - 2008 Permanent	May - June 2005	September 2006	September 2007	March - April 2008	August - September 2008	March - April 2009	September - October 2009
Gateway Motorway south of Airport Drive	TMR	✓							
Pacific Motorway, Holland Park West	TMR	✓							
Pacific Motorway, north of Gateway Motorway	TMR	✓							
Ipswich Motorway, Rocklea	TMR	✓							
Arterial and sub-arterial roads in North inner/middle suburban areas									
Stafford Road, Gordon Park	TMR	✓							
Wardell Street, Dorrington	TMR	✓							
Beaudesert Road, Coopers Plains	TMR	✓							
Riawena Road, Coopers Plains	TMR	✓							
Logan Road, Upper Mt Gravatt	TMR	✓							
Inner City Bypass	RCM		-	✓	✓	-	✓	✓	✓
Pacific Motorway	RCM		-	-	-	✓	✓	✓	✓
ICB Herston Road Exit	RCM		-	-	-	-	✓	✓	✓
Kingsford Smith Drive	RCM		-	-	-	-	✓	✓	✓
Freeways/motorways in outer suburban areas									
Bruce Highway, Griffin	TMR	✓							
Gateway Motorway, Bracken Ridge	TMR	✓							
Centenary Highway at Centenary Bridge	TMR	✓							
Ipswich Motorway, Goodna	TMR	✓							
Gateway Motorway, Mackenzie	TMR	✓							
Pacific Motorway, Slacks Creek	TMR	✓							
Arterial and sub-arterial roads in outer suburban areas									
Gympie Road, Lawnton	TMR	✓							
Houghton Highway, Clontarf-Brighton	TMR	✓							
Old Northern Road, Albany Creek	TMR	✓							
Gympie Road, Aspley	TMR	✓							
Sandgate Road, Virginia	TMR	✓							
Samford Road, Keperra	TMR	✓							
Moggill Road, Kenmore	TMR	✓							
Mt Cotton Road, Burbank	TMR	✓							
Finucane Road, Alexandra Hills	TMR	✓							
Kingston Road, Underwood	TMR	✓							