

AN ECONOMIC ASSESSMENT OF THE EAST–WEST LINK STUDY AREA

For the strategic assessment and
programme business case:

Covering Report

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Auckland Transport

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1 Summary

1.1 Findings

The East-West Link (EWL) economic study area extends from Onehunga and the Airport to Highbrook and East Tamaki. The area forms the main industrial, transport and distribution location within Auckland and is also significant in an Upper North Island context.

The area provides the most important interface between road and rail freight in Auckland. It contains the MetroPort inland port serving the Port of Tauranga, the adjacent Southdown KiwiRail and Toll Freight terminal and is increasingly acting as a rail served inland port for the Ports of Auckland. In addition to these intermodal activities, the area accommodates a large number of other major distribution and logistics facilities serving the Auckland region, taking advantage of proximity to key markets and suppliers and the access to the strategic road network. Supporting these activities and the supply chains that they underpin is clearly important to the economic prosperity of the region and the potential for future growth.

The area is a major manufacturing hub containing almost 40 per cent of Auckland's manufacturing employment. While employment in this sector has fallen from 2001, the decline has been much smaller in this area than for the Region as a whole.

The area's economic structure is also evolving, becoming more service oriented in parts, where an employment profile more reflective of the region in general is emerging. While the continuing trend is that the economy of the EWL area may to some extent transform from manufacturing to business services, the Draft Auckland Unitary Plan has made a concerted effort through its zoning and planning provisions to protect this area for industries such as manufacturing and distribution and prohibit any further business service activities (via non-complying activity status).

A survey of firms carried out as part of this study highlighted a number of advantages of the EWL area which may influence future patterns of development and consequentially transport patterns. The main benefits were seen to be; its central location in relation to the main industrial areas of the City, proximity to customers and suppliers, proximity to good transport links and the availability of greenfield development sites in East Tamaki and around the airport. As the number of businesses within this area has grown, the comparative advantages of the EWL study area have increased and the linkages between businesses, and their suppliers and customers have grown in importance.

The main insights identified by our analysis which could be used to inform the further investigation of option are set out below:

- The Neilson Street/Church Street corridor route primarily serves the local access needs of the industries located within the corridor. However, it does act as a through route for both freight and general vehicles with 20-30 percent of all movements on the corridor being through traffic.
- There are significant congestion problems at both the eastern and western ends of the Neilson Church Street corridor now, particularly on the approaches to State

Highway 1 and SH20. Travel time variability is a problem throughout much of the day for eastbound traffic and in the later part of the day for westbound movements.

- This problem is compounded for traffic travelling to and from SH1 south due to a convoluted route and a number of traffic signals.
- The high traffic flows on Neilson St make turning movements across the corridor difficult and create delays for traffic flows in and out of major access points, like MetroPort.
- The growth in many of these operations has compounded the problem. For example, MetroPort opened in 1999 and by 2012 generated 2000-2500 heavy vehicle trips per day and around 200,000 TEU movements per year. Network development has not kept pace with growth leading to less efficient supply chains.
- The EWL Investment Logic Map expresses a desire to respond to changes in supply chain strategies to improve the efficiency of asset use and travel time predictability. The benefits of investment in better road access along Neilson St may need to be enhanced through complementary investment in rail freight capacity allowing, for example, more and lower cost freight movements by rail, arrival and departure times that better meet customer needs and reduced loading/unloading times for trains. This is worthy of further consideration when assessing investment options.
- To the south of the Manukau Inlet there are congestion problems and/or convoluted routes for getting between SH1 and SH20. Firms interviewed generally used either Massey Rd or Favona Road or the SH1/SH20 connection to get between the airport and East Tamaki and Mount Wellington. The SH20-SH1 was generally perceived to be the more reliable choice. Traffic surveys identified the SH1/SH20 connection at Manukau as a pinch point in the network which is often congested in the afternoon peak. A frequently expressed concern was the inefficient nature of this connection for traffic wishing to head from SH20 to SH1 southbound.

Transport pressures are likely to grow due to economic expansion in the area. Employment growth will be likely to lead to an increase in the number of car based commuters, as the area has a high proportion of industries with low employment density and a reliance on shift work. Even when employees live within close proximity to work public transport options are generally perceived to be inadequate and this is recognised by employers with the provision of extensive car parking facilities. Because of the high and increasing volume of commuter traffic in the area and growing conflicts between commuter and business traffic, providing good public transport links along routes serving the main employment areas where employment densities are higher will become more important in the future.

Economic growth is also likely to generate an increase in transport demand as the volume of inputs and outputs increases. It may also result in more transport operators considering the East Tamaki, Airport and Mangere Bridge areas as an attractive business location.

Increasing distribution activity will be a function of both economic and population growth within the region. This will be particularly significant around the Airport, in East Tamaki and on the connections between and will lead to greater movements of heavy vehicles through the area. In addition, transport and distribution companies may begin to employ more hub and spoke operations with shuttle vehicles, to work around increased congestion. In our

view, with the growth in transport and distribution will more than offset any effects of a decline in manufacturing,

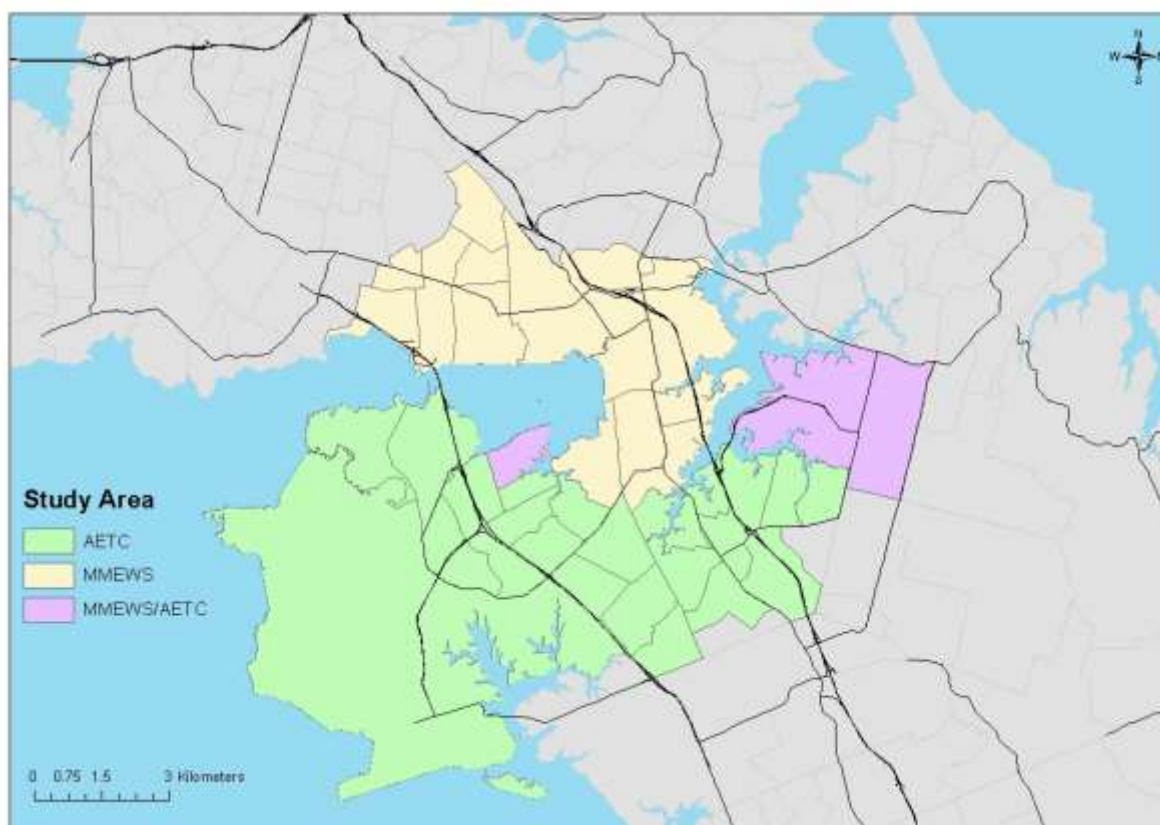
Overall there appears to be both compromised local access and poor east-west connectivity in the EWL area and this does have an impact on the productive potential of the area's economy, particularly because of the additional cost and travel time incurred by businesses. Reductions in congestion in the EWL area would generally result in businesses becoming more efficient through faster travel times, reduced cost and overall increased competitiveness. This indicates that improving connectivity and reducing congestion for these businesses will increase the productive potential for the area.

2 Introduction

2.1 Background

The East-West Link (EWL)¹ study is a response to a critical gap in Auckland's transport network. This gap is identified in the Auckland Plan as the area roughly bounded by Onehunga, Penrose, East Tamaki and Auckland International Airport. The core of this area is highlighted on the map below, and is known as the EWL Economic Study Area. Key areas within the economic study area, such as Auckland International Airport and MetroPort, will influence growth and development in the study area.

Figure 1: East-West Link – Economic study area



The Auckland Plan has specifically indicated a need for greater efficiency of freight movements between the industrial areas within the project area and the surrounding ports. There are also concerns around the levels of provision of public transport, walking and cycling facilities.

¹ Formally known as the Multi Modal East-West Study (MMEWS).

2.2 Purpose of the study

This report examines the need for, and opportunities associated with, better transport connections in the EWL area from an economic perspective. It develops a picture of the local economy and its role within the wider Auckland economy, and identifies the potential economic benefits that might arise from an improvement in the area's accessibility.

This report is informed by the findings of two earlier research reports that assessed the economic and transport characteristics of the areas directly served by the proposed EWL. These reports look separately at the areas north and south of the Manukau Harbour.

The first report assessed what was then referred to as the Multi-Modal East-West Study (MMEWS) economic study area. This encompasses the main southern Auckland industrial areas of Onehunga-Penrose-Southdown, Mount Wellington, East Tamaki, and Otahuhu. Approximately 40 percent of people employed in the manufacturing, warehouse and distribution sectors in the Auckland Region are employed in this area, and the area contributed to approximately 11 percent to Auckland's GDP in 2012. Currently, 26 percent of all industrial land in Auckland is in the MMEWS economic study area, but a structural change is taking place in the area. Service activity is growing at a faster rate than transport-intensive activities such as manufacturing. This can be witnessed in GDP growth, which has mainly come from the business services and finance sectors over the last 10 years.

The second report assessed the Airport to East Tamaki corridor (AETC) economic study area. This encompasses the residential areas of Otahuhu, Papatoetoe and Favona with the industrial areas of Mangere, East Tamaki and the Airport. The AETC economic study area has quite a different profile than MMEWS, with a larger residential population and an economic structure that is less industrial and more service orientated. Approximately 18 percent of all industrial land in Auckland is in AETC. This land use has increased markedly over the last 10 years with greenfields developments in this area. These developments are reflected in employment and GDP growth. Approximately 8 percent of the share of Auckland regional GDP came from this area in 2012, while 71,145 people were in employment.

2.3 Economic context of the study

Overall, this summary report highlights the importance of the EWL area to the Auckland regional economy, in terms of employment and share of GDP.

In 2012, approximately 135,400 people were employed in the EWL study area, with the largest concentration of employees in the Airport and East Tamaki sub-areas. Together, these sub-areas accounted for approximately 35 percent of all the employees in the EWL study area. Key sectors in terms of employment are manufacturing, wholesale trade, storage and transport. However, the business services and finance sector is growing in importance in this area.

In 2012, GDP for the EWL study area was estimated at \$10.22 billion. This is equivalent to approximately 16 percent of Auckland's total GDP.² The economy of the EWL study area is therefore a similar size of that of the Bay of Plenty, Manawatu-Whanganui, and Otago regional economies. Further, if the EWL study area was a separate regional economy within New Zealand, it would rank sixth in terms of GDP. This emphasises the importance and scale of contribution the EWL economic study area makes to the Auckland economy.

2.4 Scope of the study

The study addresses a set of key research questions, initially agreed between the Project Team and key stakeholders representing Auckland Transport, Auckland Council and New Zealand Transport Agency (NZTA).³ The questions are:

- What is the role of the area in Auckland's economy and how has this changed over time?
- What is the GDP contribution of this area?
- What is the potential of this area to further contribute to GDP growth?
- What does the economic picture look like at a disaggregated level (industry sub-sectors) and over time? What type of activities are growing or declining in the area and how does this compare to the broader economy?
- How much does this area contribute to the export economy?
- How is the economic function of the project area influenced by the transport system? How might this change with changes to the transport system and growth in Auckland?
- How will improving travel times for freight help businesses to lower their cost of business, achieve higher productivity, increase their output, or enable business growth in the area?
- How important is improved connectivity between specific locations in the area to business productivity?
- Is freight travel time critical in this area, and if so, how does this relate to increases in productivity or output?
- How will increased accessibility affect land values and encourage land use change?
- What are the capacity constraints for the inland port? What ability is there for the inland port to grow? Is growth constrained by transport infrastructure?
- How do the separate business areas in the study area relate to each other (now and in the future)?

² GDP in the EWL area includes Highbrook as defined in AETC Report.

³ Subsequent to the initial agreement on the scope of the research questions, the geographical scope of the study was broadened from the initial MMEWS area to the whole EWL area. The questions now reflect the focus on this larger geographical area.

2.5 Approach

To address the research questions the study was undertaken in four steps.

2.5.1 Step 1: Establish baseline profile of the area.

We used existing economic information and previous studies that relate to the project area to create a baseline profile. This is a snapshot of the structure, employment, and output of the EWL area in 2012 and the patterns of recent development. Data was sourced from the most current Statistics New Zealand Census of Population and Dwellings and the Business Demography Database, Quotable Value, BERL's Regional Database, and previous studies.

2.5.2 Step 2: Identify the scale and scope of the problems/issues

We interviewed 30 firms within the study area to identify the scale and scope of the problems/issues created by current levels of accessibility. These firms were selected to reflect the geographic spread and nature of economic activity in the main nodes.⁴ The surveys provide a contextual understanding of the ways in which the current level of transport provision influences the economic performance of the project area and how a lack of transport investment might impact on the economic performance of businesses in the area. We use this information to inform the analysis of the statistical information.

2.5.3 Step 3: Identify the scale and scope of opportunities

We assessed the effects of the responsiveness of firms to future accessibility improvements in terms of:

- Impact on present and immediate future economic production and productivity;
- The impact of improved accessibility on economic structure, land use change, land values, urban density and other drivers of economic development;

The surveys assist in determining how output, employment and development may be influenced by accessibility changes.

2.5.4 Step 4: Drawing conclusions from the study

By pulling together the three steps, in conjunction with the key questions, we have identified potential integrated transport and urban development scenarios that could realistically arise from transport investment in the EWL area.

⁴ A list of the interviewed firms is in Appendix A

3 Study area

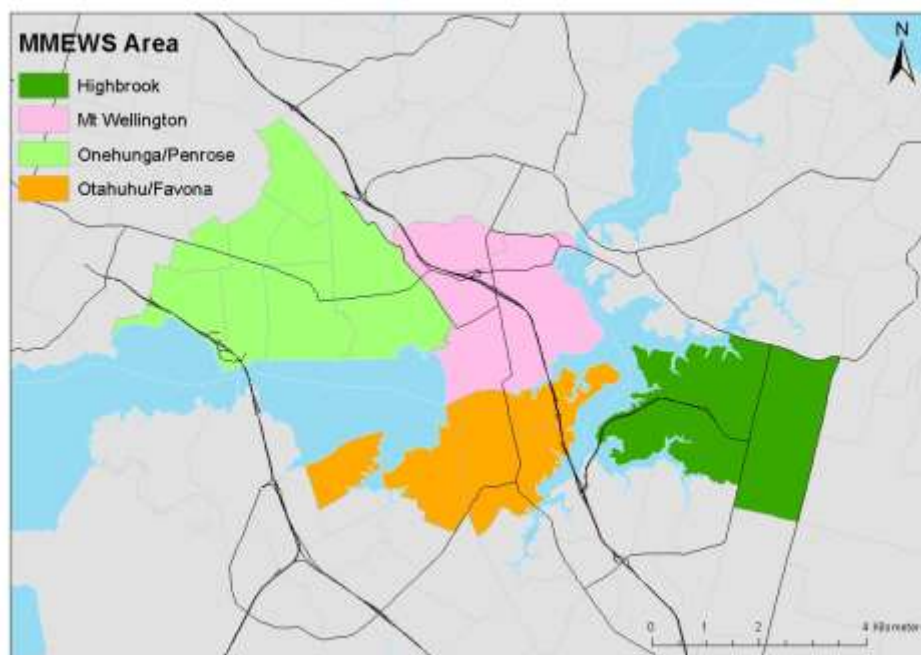
The EWL economic study area, as defined for this report, encompasses the main southern Auckland industrial areas of Onehunga-Penrose-Southdown, Mount Wellington, East Tamaki, and Otahuhu as well as the corridor between East Tamaki and Auckland International Airport.

Our analysis was undertaken in two stages. We firstly looked at what was then defined as the MMEWS project area, which covers the main southern Auckland industrial areas of Onehunga-Penrose-Southdown, Mount Wellington, East Tamaki, and Otahuhu, and then assessed the Airport to East Tamaki corridor. In both of these preceding technical reports we broke the areas into sub-areas reflecting patterns of economic activity. The project areas overlapped in East Tamaki, and the findings have been included for both areas.

3.1 MMEWS area and Sub Areas

The four sub-areas of the MMEWS study area are Onehunga/ Penrose, Mt Wellington, Highbrook (and East Tamaki) and Otahuhu/Favona. These are the main areas of industrial activity within the MMEWS area.

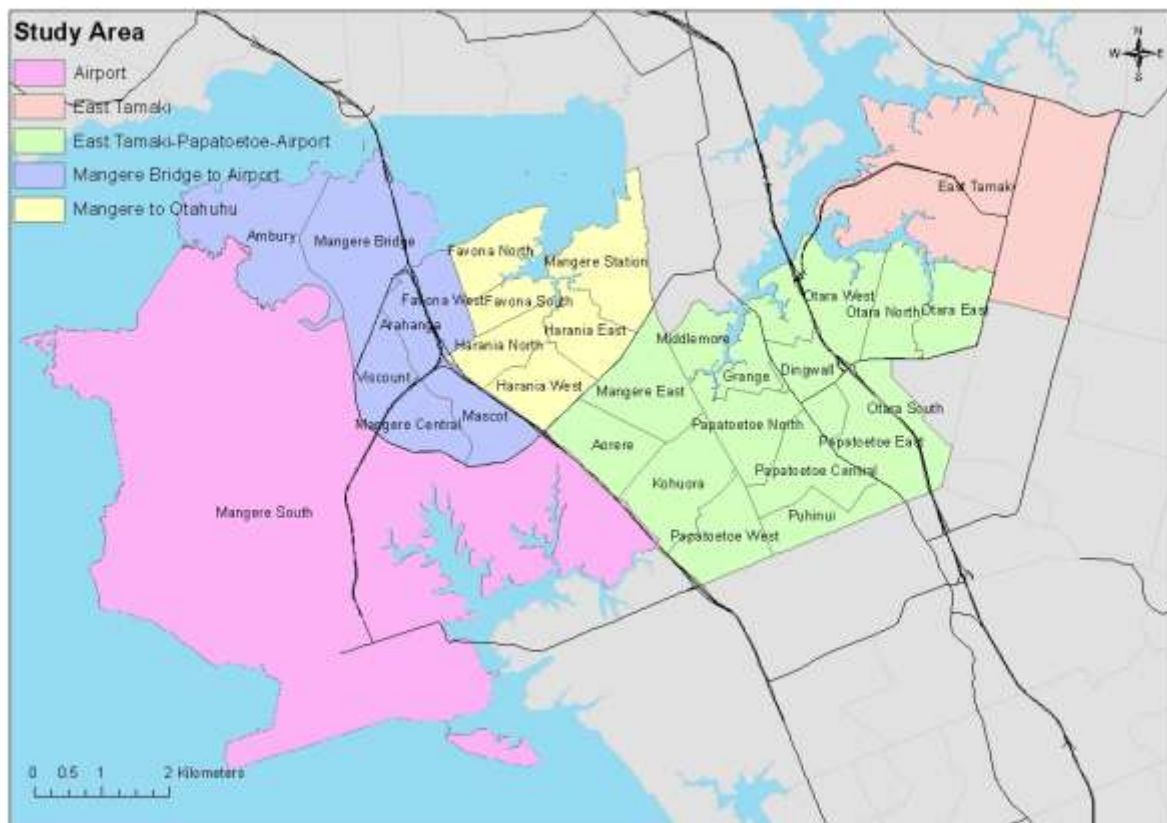
Figure 3.1: MMEWS economic study area



3.2 AETC area and Sub Areas

Areas within the AETC study area can be divided into those that are predominantly residential, and those that are predominantly commercial. Reflecting this split the AETC study area has five broad sub-areas. These are the Airport, East Tamaki, East Tamaki-Papatoetoe-Airport, Mangere Bridge to Airport, and Mangere to Otahuhu and are set out in Figure 3.2. East Tamaki is therefore considered to be a sub-area of both of the main study areas.

Figure 3.2: AETC economic study area



4 Baseline Profile

4.1 Population of EWL and sub-areas

In 2012 an estimated 186,200 people lived in the EWL area. Of this number, approximately two thirds (124,950 people) lived in the AETC area and one third (66,450) lived in the MMEWS area.⁵ Within the AETC area, this population is heavily concentrated in the central sub-areas of Papatoetoe, Mangere and Otahuhu, with relatively few residents in the Airport and East Tamaki sub-areas.

Table 4.1: EWL population by CAU⁶

Area	Census Area Unit	Population (2012 estimate)
EWL area		186,176
MMEWS Grouping		
MMEWS		66,450
	Mt Wellington	11,920
	Penrose/Onehunga	31,080
	Otahuhu/Favona	17,950
	Highbrook/East Tamaki	5,500
AETC		124,947
	Airport	7,980
	Mangere Bridge to Airport	25,899
	Mangere to Otahuhu	20,959
	East Tamaki-Papatoetoe-Airport	64,889
	Highbrook/East Tamaki	5,500

Note Highbrook/East Tamaki is in the totals for the MMEWS and AETC areas but only included once in the overall totals.

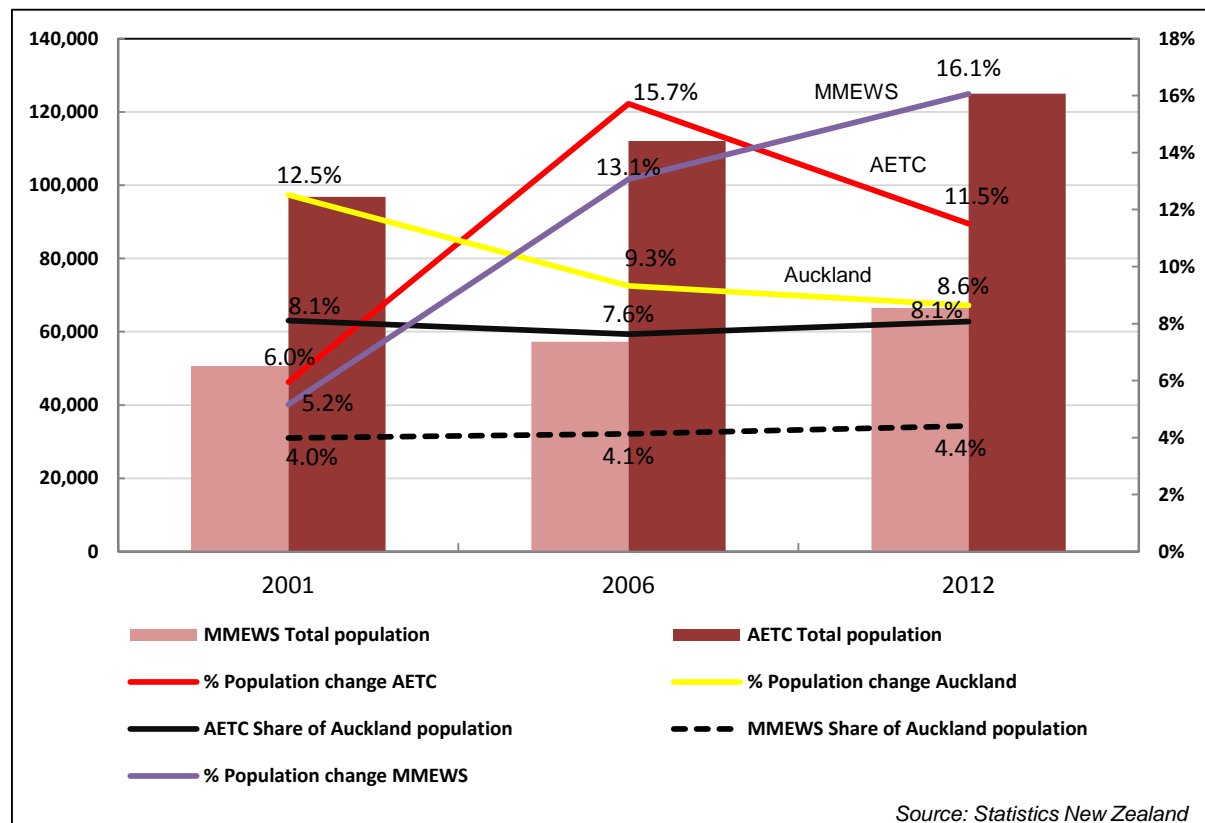
Population growth

Between 2001 and 2012, the population of the EWL area grew strongly, from 144,000 to 186,200 residents. Population growth during this period was higher in the EWL area than for the Auckland Region as a whole, amounting to 29 percent compared to the regional figure of 19 percent. The following figure shows the individual growth rates for the MMEWS and AETC areas compared to the region as a whole from 2001 to 2012.

⁵ This population count for each sub-area includes the Highbrook/East Tamaki area.

⁶ CAU data from the 2013 Census of Population and Dwellings is now available for the EWL economic study area. However, this study was undertaken prior to this data release and uses 2012 estimates.

Figure 4.1 Population growth, AETC, MMEWS and Auckland, 2001-2012⁷



The usually resident population of the AETC area grew by 29 percent between 2001 and 2012, from 97,000 to 124,950 people. Over the same period, the usually resident population of the MMEWS area grew at a faster rate (32 percent), rising from 50,000 to 66,450, but with a lower absolute increase of 16,000 people. During this same period, the usually resident population of the Auckland Region grew at a lower rate than both the MMEWS and AETC areas (19 percent), rising from 1.27 to 1.51 million people.

Coming off a low base, the resident population of the MMEWS area grew to be 4.4 percent of Auckland’s total population in 2012 while that of the AETC remained fairly stable between 2001 and 2012, at 8.1 percent.

⁷ 2012 data is sourced from Statistics New Zealand’s population estimates as at 30 June 2012. Data for 2001 and 2006 is from the Statistics New Zealand Census of Population and Dwellings.

4.2 GDP profile for the EWL area⁸

4.2.1 GDP trends and locational changes

In 2012, the estimated GDP for the EWL area⁹ was \$10.22 billion. This was equivalent to 16.3 percent of Auckland's GDP. . If the EWL was a separate regional economy within New Zealand it would rank sixth in terms of GDP. It is a similar size to the Bay of Plenty, Manawatu-Whanganui, and Otago regional economies, with each of these regions generating between \$9 billion and \$11.4 billion in GDP in 2012. This emphasises the importance and scale of contribution the EWL area makes to the Auckland economy.

Table 4.2 GDP EWL versus Auckland 2001-2012 (2012 \$)¹⁰

Year	EWL GDP		Auckland GDP		Share (%)
	\$ Million	Change (%)	\$ Million	Change (%)	
2001	\$7,755		\$46,300		16.7%
2006	\$9,226	19%	\$56,529	22%	16.3%
2012 (Provisional)	\$10,225	11%	\$62,789	11%	16.3%
Change 2001-2012	\$2,470	32%	\$16,489	36%	15.0%

Source: BERL Regional Database

GDP estimates across the EWL sub-areas are set out in Table 4.3. showing a number of economic changes that have occurred within the AETC and MMEWS areas between 2001 and 2012 with the strongest economic growth is taking place in the east and south.

Table 4.3 GDP within the EWL Area, 2001 to 2012 (NZ\$2012)

Area	2001		2006		2012 (Provisional)		Growth 2001-2012 %
	\$ Million	Share (%)	\$ Million	Share (%)	\$ Million	Share (%)	
Airport	1,033	13%	1,458	16%	1,846	18%	79%
East Tamaki -Papatoetoe-Airport	707	9%	713	8%	791	8%	12%
Mangere Bridge to Airport	294	4%	283	3%	282	3%	-4%
Mangere to Otahuhu	201	3%	282	3%	356	3%	77%
Highbrook/East Tamaki	1,172	15%	1,729	19%	1,935	19%	65%
Mt Wellington	1,506	19%	1,578	17%	1,843	18%	22%
Penrose/Onehunga	2,219	29%	2,421	26%	2,298	22%	4%
Otahuhu	470	6%	532	6%	549	5%	17%
Favona	151	2%	228	2%	321	3%	113%
Total	7,753	100%	9,225	100%	10,221	100%	37%

Source: BERL Regional Database

⁸ The GDP figures in this section are all in 2012 New Zealand dollars.

⁹ GDP in the EWL area includes Highbrook as defined in AETC Report.

¹⁰ We use the growth ratio in Business Demographics Database to estimate the provisional GDP in 2011. The GDP figures do not include owner-occupied dwellings and property operators.

The areas with the highest absolute GDP growth are the Airport and East Tamaki areas. These areas also offer the most opportunity for greenfield developments, located at the edges of the study area. These developments are already well underway, as illustrated by the increase in the share of the contribution to GDP that the Airport sub-area has made, growing from 13 to 18 percent between 2001 and 2012 and Highbrook/East Tamaki, increasing its contribution from 15 to 19 percent.

The more established areas of Penrose/Onehunga and Mt Wellington have also grown, however, at a lower rate that has not been sufficient for them to increase their share of the total regional economic activity. For example, the largest area Penrose/Onehunga witnessed a fall from 29 percent of regional GDP, to 22 percent, while Mt Wellington has fallen from 19 percent, to 18 percent.

The area's economy is also changing structurally as it transforms into a more service-orientated pattern of activity, as the following table on changes in workplace GDP by industry shows.

Table 4.4 Workplace GDP by industry for EWL, 2001-2012 (NZ\$2012)¹¹

Industries	2001		2006		2012 (Provisional)		Auckland 2012 (Provisional)
	\$ Million	Share (%)	\$ Million	Share (%)	\$ Million	Share (%)	Share (%)
Manufacturing	\$2,369	31%	\$2,747	30%	\$2,573	25%) 22%
Construction	\$767	10%	\$415	5%	\$445	4%)
Electricity and Communications	\$534	7%	\$768	8%	\$744	7%) 18%
Wholesale	\$1,317	17%	\$1,566	17%	\$1,748	17%) 19%
Storage and Transport	\$876	11%	\$1,123	12%	\$1,261	12%)
Retail	\$304	4%	\$418	5%	\$595	6%) 7%
Business Services and Finance	\$796	10%	\$1,310	14%	\$1,813	18%) 17%
Government	\$68	1%	\$74	1%	\$97	1%)
Health and Education	\$477	6%	\$545	6%	\$771	8%) 11%
Private Services	\$74	1%	\$97	1%	\$101	1%) 1%
All Other	\$173	2%	\$161	2%	\$76	1%) 6%
EWL Area Total	\$7,755	100%	\$9,226	100%	\$10,225	100%	100%

Source: BERL Regional Database, BDD Stats NZ

Manufacturing remained the largest sector in 2012 but it has contracted since 2006, with workplace GDP by industry showing that this sector has decreased in relative size, from 31 percent of activity in 2001, to 25 percent in 2012.

During the same period the storage and transport sector has grown, increasing its contribution to GDP by around 44 percent. However, this growth has only maintained its share of overall activity. The wholesaling sector also maintained its share. Together, these sectors contributed about 54 per cent of workplace GDP in the area, but that was down from the 59 percent contribution in 2001.

By way of contrast, the business services and finance sector is growing strongly, doubling its GDP contribution between 2001 and 2012 and increasing its share of economic activity in the area from 10 to 18 percent. The area's retail sector is relatively small but it has almost doubled in terms of GDP increasing its share of activity to 6 percent.

¹¹ Because of the way in which East Tamaki has been treated the these are slightly different to those derived from Table 4.2

While the wholesaling, transport and manufacturing sectors remain an important part of the EWL economy, over time the area is resembling more closely the service oriented structure of the Auckland economy as a whole.

4.2.2 GDP trends with the sub-areas

Although the EWL area has grown quicker than the region's economy, there are local differences in economic growth patterns within this area.

Table 4.4 GDP MMEWS versus Auckland 2001-2012 (2012 \$)¹²

Year	MMEWS GDP		Auckland GDP		Share (%)
	\$ Million	Change (%)	\$ Million	Change (%)	
2001	\$5,518		\$46,300		11.9%
2006	\$6,489	18%	\$56,529	22%	11.5%
2012 (Provisional)	\$6,946	7%	\$62,789	11%	11.1%
Change 2001-2012	\$1,428	26%	\$16,489	36%	8.7%

Source: BERL Regional Database

Between 2001 and 2012, GDP in the MMEWS area grew by 26 percent. This growth mainly occurred between 2001 and 2006, when GDP increased by 18 percent compared with a regional increase of 22 percent.

Growth slowed significantly, to 7 percent over the period 2006 to 2012, reflecting the recession and generally stringent economic conditions during this period. These conditions particularly affected manufacturing and wholesaling activities in the MMEWS area.

In contrast firms in the AETC area have slightly increased their economic share in Auckland over the last decade. In 2012, the area contributed 8.3 percent of Auckland's GDP, compared to 7.4 percent in 2001. This is illustrated in Table 4.5.

¹² We use the growth ratio in Business Demographics Database to estimate the provisional GDP in 2011. The GDP figures do not include owner-occupied dwellings and property operators.

Table 4.5 Workplace GDP AETC vs. Auckland, 2001-2012 (NZ\$2012)

Year	AETC GDP		Auckland GDP		Share (%)
	\$ Million	Change (%)	\$ Million	Change (%)	
2001	\$3,407		\$46,300		7.4%
2006	\$4,465	31%	\$56,529	22%	7.9%
2012 (Provisional)	\$5,209	17%	\$62,789	11%	8.3%
Change 2001-2012	\$1,802	53%	\$16,489	36%	10.9%

Source: BERL Regional Database

Between 2001 and 2012, workplace GDP in the AETC area grew by 53 percent. Again, this growth mainly occurred between 2001 and 2006, with a 31 percent increase, as the area experienced rapid greenfield development in both East Tamaki and the Airport sub-areas, as well improvements to SH20 and the opening Highbrook Drive connecting East Tamaki directly to SH1. GDP growth slowed to 17 percent over the period 2006 to 2012, but in both periods growth was greater than regional GDP, with an overall increase of 52 per cent compared to the region's 36 percent growth, indicating a high level of resilience to the economic conditions arising as a consequence of the global financial crisis.

The changing economic composition of the two areas can be partly shown through changes in workplace-based GDP. Looking firstly at the MMEWS area, three sectors dominate: manufacturing, wholesale, and business services and finance. In 2012, these sectors constituted 69 per cent of the total GDP generated by firms in the MMEWS area.

Table 4.7a MMEWS Area Workplace GDP by industry 2001-2012 (2012 \$)

Industries	2001		2006		2012 (Provisional)	
	\$ Million	Share (%)	\$ Million	Share (%)	\$ Million	Share (%)
Manufacturing	\$2,002	36%	\$2,303	35%	\$2,151	31%
Construction	\$699	13%	\$342	5%	\$375	5%
Electricity and Communications	\$355	6%	\$504	8%	\$370	5%
Wholesale	\$1,161	21%	\$1,378	21%	\$1,485	21%
Storage and Transport	\$288	5%	\$381	6%	\$438	6%
Retail	\$186	3%	\$274	4%	\$435	6%
Business Services and Finance	\$565	10%	\$909	14%	\$1,184	17%
Government	\$16	0%	\$19	0%	\$25	0%
Health and Education	\$121	2%	\$196	3%	\$288	4%
Private Services	\$46	1%	\$59	1%	\$60	1%
All Other	\$80	1%	\$124	2%	\$135	2%
MMEWS Area Total	\$5,518	100%	\$6,489	100%	\$6,946	100%

Source: BERL Regional Database, BDD Stats NZ

The main observations based on this data are that:

- The largest sector in the MMEWS area, *manufacturing*, has dropped its share over the period 2001 to 2012 from 36 to 31 per cent
- The next largest sector, wholesale, has maintained its share over the period 2001 to 2012 with 21 percent, with an increase in absolute GDP of \$324 million.

- Manufacturing GDP rose by \$149 million or 7.4 percent between 2001 and 2012. The amount of GDP generated by the wholesale sector rose by \$324 million, a growth of 27.9 per cent over the period.
- The third largest sector, *business services and finance* has significantly increased its share from 10 percent to 17 percent. The total increase by this industry from 2001 to 2012 was \$619 million (110 percent). This accounted for 43 percent of the total increase in GDP of \$1,428 million over the period.

For the AETC area, the manufacturing, distribution and transport, and wholesale sectors are large. In 2012, these sectors accounted for 55 percent of the total GDP generated by firms in the area, a somewhat smaller share than the 62 per cent achieved in 2001. This is illustrated in Table 4.7b.

Table 4.7b Workplace GDP by industry for AETC, 2001-2012 (NZ\$2012)

Industries	2001		2006		2012 (Provisional)	
	\$ Million	Share (%)	\$ Million	Share (%)	\$ Million	Share (%)
Manufacturing	\$1,012	30%	\$1,329	30%	\$1,244	24%
Construction	\$116	3%	\$159	4%	\$192	4%
Electricity and Communications	\$191	6%	\$295	7%	\$406	8%
Wholesale	\$441	13%	\$527	12%	\$669	13%
Storage and Transport	\$635	19%	\$816	18%	\$946	18%
Retail	\$156	5%	\$199	4%	\$225	4%
Business Services and Finance	\$284	8%	\$523	12%	\$766	15%
Government	\$55	2%	\$62	1%	\$79	2%
Health and Education	\$361	11%	\$355	8%	\$490	9%
Private Services	\$33	1%	\$56	1%	\$59	1%
All Other	\$124	4%	\$144	3%	\$132	3%
AETC Area Total	\$3,407	100%	\$4,465	100%	\$5,209	100%

Source: BERL Regional Database, BDD Stats NZ

The manufacturing sector is the single largest in the AETC area in terms of GDP generation and employment. Firms in this sector accounted for 24 percent of the GDP generated in AETC in 2012, and 20 percent of employment. This demonstrates the relatively high value added in this sector. However, this sector contracted between 2006 and 2012. Conversely, the business services and finance sector is growing in importance, as discussed further below.

The main observations based on this data are that between 2001 and 2012:

- The business services and finance sector accounted for 27 percent of the total increase in GDP of \$1,802 million, a position similar to that identified for the MMEWS area. In addition, this sector increased its contribution to GDP from 8 to 15 percent.
- The manufacturing sector decreased its share of GDP, from 30 percent to 24 percent.
- The wholesale sector, and the storage and transport sector each broadly maintained their share of GDP at 13 percent and 18-19 percent respectively, with increases of \$228 million and \$311 million respectively.

In summary, as a proportion of the total level of activity the manufacturing sector has declined while the wholesaling and transport sectors have remained broadly constant, and

the business services sector has grown. The growth of the AETC area has taken place in an environment of rapid greenfield development supported by accessibility improvements to major transport corridors.

4.3 Employment

Deriving an employment profile of the EWL area is another helpful way of describing the economic structure of the area and illustrating the extent of any structural changes that may have taken place. Employment changes in the area between 2001 and 2012 have generally been reflected in changes in business numbers in the different industries. In 2012, there were approximately 135,440 people employed in the EWL area. The distribution of this employment is shown in table 4.8.

Table 4.8: Employment in EWL area, 2012¹³

	MMEWS (ex ET)	East Tamaki	Airport	Rest of AET
Area Employment	64,205	25,240	22,310	23,685
Total MMEWS (inc ET)	89,445			
Total AET (inc ET)			71,235	
Total EWL	135,440			

Source: Statistics New Zealand

The Airport and East Tamaki sub-areas had the large concentrations of employees with an estimated 22,310 and 25,240 employees in 2012. These two sub-areas also accounted for approximately 35 percent of all the employees in the EWL study area in 2012, and 67 percent of employment in the AETC area. As a consequence, the AETC area is characterised by having two large employment areas located at either end with a well-developed residential area between. In contrast, MMEWS employment is more evenly dispersed throughout the study area.

Following the patterns of GDP described above, the majority of employment growth in EWL occurred between 2001 and 2006, with growth slowing between 2006 and 2012. This trend is consistent with overall employment trends occurring in the Auckland Region and New Zealand as a whole during this period.

In terms of the areas within EWL:

- Employment in the MMEWS area grew strongly between 2001 and 2006, by 19 percent, then only increased by 4 percent between 2006 and 2012. This means that between 2001 and 2012 employment grew by an estimated 24 percent.
- Workplace employment changes in the AETC area have been larger than the rest of Auckland. This has particularly been the case in the latest period, 2006 to 2012, where employment grew by 10 percent as opposed to 4 percent for the region as a whole.

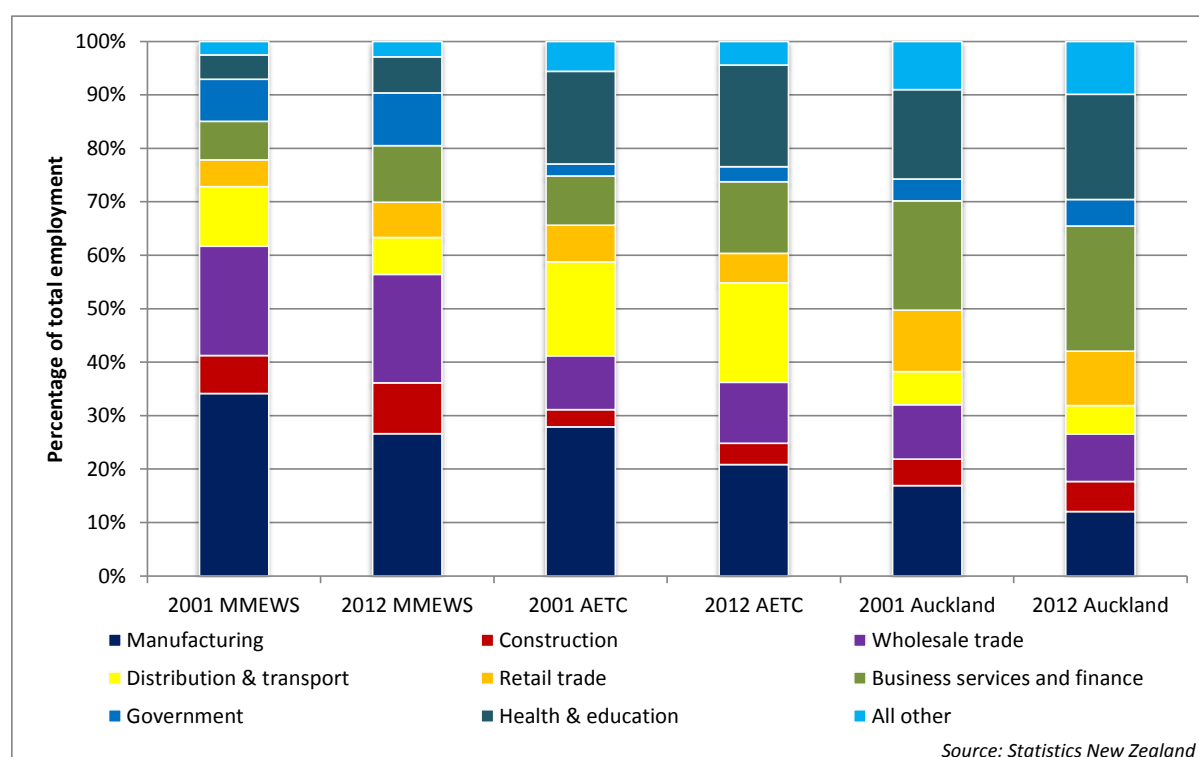
¹³ This employment data is derived from the BERL regional database 2013 and Statistics New Zealand Business Demographic Data for 2012. As noted in the table, the MMEWS study area includes East Tamaki and the AETC study area also includes East Tamaki.

- Employment in Auckland grew by 18 percent between 2001 and 2006, with a much lower growth rate of 4 percent from 2006 to 2012. This gives a total of 23 percent growth in employment over the period, slightly less than that achieved in the MMEWS area.

4.3.1 Employment breakdown by industry

The patterns of employment very much mirror the patterns of GDP generation described above and these are summarised in Figures 4.3 and 4.3

Figure 4.2 Employment by industry, MMEWS and AETC vs. Auckland, 2001-2012



Workplaces in the MMEWS area are important for the manufacturing and construction, and distribution and transport sectors, and increasingly for business services, possibly to support the firms in the MMEWS area as well as Auckland and New Zealand.

Workplaces in the AETC area are also specialised in manufacturing, distribution and transport. However, the employment data confirms that this area is also transforming into a pattern of activity that is closer to the regional average, particularly in business services. In this respect, the important dynamic within both the MMEWS and AETC areas is the significant growth in employment within the business services and finance sector.

Comparing industry employment patterns of the AETC area with the region as a whole reveals some interesting observations.

The East Tamaki sub-area

Between 2006 and 2012, employment in the East Tamaki sub-area grew by approximately six percent. During this period, employment in the manufacturing sector in the East Tamaki sub-area declined by 9.5 percent, from 9,990 in 2006, to 9,040 people in 2012. Employment in the electricity and communications sector also declined during this period by 18 percent, from an estimated 730 people in 2006, to 600 people in 2006. These employment declines may reflect wider industry trends and the economic conditions that these businesses were operating in, as well as changes in business location and land use.

Table 4.9: Employment in East Tamaki sub-area, 2006-2012

Industries	2006	2012	% change 2006-2012	2012 % share of employment
Manufacturing	9,990	9,040	-9.5%	35.8%
Construction	1,140	1,720	50.9%	6.8%
Electricity and Communications	732	600	-18.0%	2.4%
Wholesale	4,270	4,940	15.7%	19.6%
Storage and Transport	900	1,380	53.3%	5.5%
Retail	1,060	1,120	5.7%	4.4%
Business Services and Finance	4,680	5,270	12.6%	20.9%
Government	40	179	347.5%	0.7%
Health and Education	281	287	2.1%	1.1%
Private Services	350	400	14.3%	1.6%
All Other	377	304	-19.4%	1.2%
East Tamaki sub-area	23,820	25,240	6.0%	100.0%

Source: BERL Regional Database, BDD Stats NZ

In contrast, the wholesale sector and the storage and transport sector increased their employment share with an additional 1,150 people employed in these sectors in the East Tamaki sub-area in 2012. This growth may reflect the attractiveness of this area to businesses within this sector. This attractiveness could include the ability to lease a large, purpose-built facility that is within a close proximity to customers and suppliers, and access to transport connections

The Airport sub-area

In 2012, an estimated 22,310 people worked in the Airport sub-area. Approximately 47 percent of people working in the Airport sub-area are employed in the storage and transport sectors. The second largest area of employment is the manufacturing sector, with 2,820 people (13 percent), followed by the business services and finance sector with 1,850 (eight percent), and the retail trade sector with 1,180 people (five percent).

Table 4.10: Employment in Airport sub-area, 2006-2012

Industries	2006	2012	% change 2006-2012	2012 % share of employment
Manufacturing	2,900	2,820	-2.8%	12.6%
Construction	220	360	63.6%	1.6%
Electricity and Communications	662	827	24.9%	3.7%
Wholesale	1,150	1,600	39.1%	7.2%
Storage and Transport	9,530	10,420	9.3%	46.7%
Retail	1,200	1,180	-1.7%	5.3%
Business Services and Finance	1,045	1,850	77.0%	8.3%
Government	1,140	1,110	-2.6%	5.0%
Health and Education	200	415	107.5%	1.9%
Private Services	330	490	48.5%	2.2%
All Other	1,213	1,238	2.1%	5.5%
Airport sub-area	19,590	22,310	13.9%	100.0%

Source: BERL Regional Database, BDD Stats NZ

The large number of people employed in the manufacturing sector reflects the size of this CAU, and the diverse number of businesses that operate in and around the Airport. Between 2006 and 2012, the Airport sub-area has attracted a greater number of employees in the storage and transport sectors. This sector has grown from 9,530 employees in 2006 to 10,420 employees in 2012.

Looking ahead, this employment growth could continue, supported by further land developments to be undertaken by Auckland International Airport Limited and other major landowners such as Goodman Property Trust, who are the major landowner around the airport. The undeveloped land in the Airport sub-area may become more attractive to warehouse, and transport and logistics companies which anticipate their business will benefit from the road access to the area, growth at the Airport. It is possible that commercial mixed-used may also grow to support this and the airport environs.

The Onehunga-Penrose sub-area

In 2012, an estimated 31,315 people worked in the Onehunga-Penrose sub-area. Approximately 20 percent of people working in this sub-area are employed in the manufacturing sector. The second largest area of employment is the business services sectors, with 5,170 people (18 percent), followed by the wholesale sector with 4,640 people (16 percent).

Table 4.11: Employment in Onehunga-Penrose sub-area, 2006-2012

Industries	2006	2012	% change 2006-2012	2012 % share of employment
Manufacturing	7,148	5,871	-17.9%	20.1%
Construction	3,212	2,976	-7.3%	10.2%
Electricity and Communications	957	411	-57.1%	1.4%
Wholesale	4,901	4,638	-5.4%	15.9%
Storage and Transport	3,024	2,456	-18.8%	8.4%
Retail	1,637	1,718	4.9%	5.9%
Business Services and Finance	5,338	5,171	-3.1%	17.7%
Government	329	470	42.9%	1.6%
Health and Education	1,559	2,802	79.7%	9.6%
Private Services	1,401	1,714	22.3%	5.9%
All Other	1,809	963	-46.8%	3.3%
Onehunga-Penrose sub-area	31,315	29,190	-6.8%	100.0%

Source: BERL Regional Database, BDD Stats NZ

The main benefit of the MMEWS area is seen to be its central location in relation to the main industrial areas in the City and its proximity to good transport links, including two State Highways, rail, MetroPort and Ports of Auckland. In short it has been described as “the place to be” by manufacturing, and wholesale, storage and transport firms.

4.4 GDP generation and patterns of commuting

The difference between workplace based GDP and residence based GDP provides an insight into commuting patterns into an area. The GDP estimates are based upon the employment by industry of residents on the one hand, and the workplace of employees on the other. Each is then multiplied by the national average GDP generated per employee.

A significant difference exists between workplace based GDP and residence based GDP for the MMEWS area.

Table 4.9 MMEWS GDP 2001-2006 (2012 \$)

Year	GDP from workplaces	GDP by residents	Difference	
	\$ Million	\$ Million	\$ Million	%
2001	\$5,518	\$2,057	\$3,461	168%
2006	\$6,489	\$2,375	\$4,114	173%

Source: BERL Regional Database

In 2006, workplace based GDP was 2.7 times as high as residence based GDP. This difference increased to \$4.1 billion in 2006, compared to \$3.5 billion in 2001.¹⁴ This

¹⁴ This information is only available in robust form from the Census, and so more recent comparisons are not possible.

suggests that firms in the area rely heavily on employees commuting from other parts of the Region. For the region as a whole GDP from workplaces should be close to equal to GDP from residents. The data indicates that the MMEWS area is predominantly one of productive activity rather than residential land use.

This finding is supported by Travel to Work data from the Census. This data indicates that of the 60,000 people working in the MMEWS area, only 7,800 lived and worked in the area while 53,000 commuted from all over the Auckland Region. In addition, approximately 46,600 cars were driven to and from workplaces in this area, and the concentration of commuter flows is shown in more detail in our companion report. This data on commuting is also supported by firm interviews, which indicate the large number of employees who drive and park on-site.

For the AETC area, workplace-based GDP was 19 percent higher than residence-based GDP in 2006. The difference increased to \$726 million in 2006, compared to \$522 million in 2001.¹⁵

Table 4.10 AETC GDP, 2001-2006 (NZ\$2012)

Year	GDP from workplaces	GDP by residents	Difference	
	\$ Million	\$ Million	\$ Million	%
2001	\$3,407	\$2,886	\$522	18.1%
2006	\$4,465	\$3,739	\$726	19.4%

Source: BERL Regional Database

The Airport and East Tamaki are major areas of employment within AETC, but only a limited number of workers from the study area are drawn to work at these two locations. This suggests that firms in the area rely heavily on employees commuting from within the AETC area, and from other parts of the Region. Again, this indicates the considerable impact on the transport corridors within this area due to the magnitude of commuting to workplaces.

The five areas of the AETC can be split into two groups: those areas that rely heavily on workers travelling to the area to generate GDP, and those areas where the usual resident population generates GDP through travelling to other areas for work. The Airport and East Tamaki areas fit into the first group, and the East Tamaki-Papatoetoe-Airport, Mangere Bridge to Airport, and Mangere to Otahuhu areas fit into the second group. At a simple level, the first group has more jobs than workers, and the second group has more workers than jobs.

- The GDP generated from workplaces in the Airport and East Tamaki areas is around seven times greater than the GDP generated by the usual residents.
- This indicates that the Airport and East Tamaki areas do not have a resident population large enough to supply a local workforce to firms, and that most workers who work in these areas travel to these areas.

¹⁵ This information is only available in robust form from the Census, and so more recent comparisons are not possible.

- The GDP generated by usual residents in the East Tamaki-Papatoetoe-Airport, Mangere Bridge to Airport, and Mangere to Otahuhu areas is almost half the GDP generated by workplaces in these areas.
- This indicates that residents in these areas travel to other areas for work.

4.5 Interpretations of industry and employment changes and transport needs

The observed changes in industry and employment structure are important from a transport perspective, and particularly so if these trends continue. The changing nature of the industry mix in the EWL area could lead to an associated change in the range of firms' transport needs, commuting patterns and residential development. This may require subsequent changes to the transport system to cater for changing transport needs. It is therefore important to consider how anticipated changes in industry structure at the MMEWS and AETC area levels could impact on transport needs.

Within the MMEWS area, the growth of the business services, finance and government sector is reshaping the economic and spatial structure of parts of this area.

- The growth of this sector is not evenly distributed, with locations such as Highbrook, One Tree Hill East, Onehunga North West and Mt Wellington South around the periphery of the area having significantly increased business services activities supporting the industrial and distribution activities in more core locations.

The expansion of business services in an area is typically associated with a higher number of employees per hectare than the goods-producing and distribution industries.

- Expansion of business services, not accompanied by the provision of a higher level of access to public transport and/or active modes, can be expected to exacerbate the congestion of an area. This is particularly an issue during commuting peak times, and although it is likely to occur at peripheral locations, it may impinge on movements to the central core. It may also limit development potential.

For the AETC area, the growth of the wholesale, storage and transport sectors is clearly reshaping the economic and spatial structure.

- The growth of these sectors is not evenly distributed, with East Tamaki and the Airport, having significantly increased their distribution and logistics activities supporting the industrial activities in their areas, as well as the rest of Auckland.

However, as with the MMEWS area, it is in business services where the greatest change is taking place.

- Firms in the business services and finance sector are moving into these areas as purpose built premises are being developed, and as office space is becoming more readily available.

This may require changes to the transport system to cater for changing transport needs. For example, East Tamaki draws only a limited number of workers from the study area.

- People commute from a wide range of areas into East-Tamaki with the major sources of workers coming from Howick/Manukau North and Manukau East. Given that over 21 percent of people employed in the East-Tamaki sub-area work in the business services and finance sectors, further growth in this sector can be expected to lead to an associated change in commuting patterns and transport demands.

People employed in the business services and finance sector generally commute to and from work during peak periods, and may be required to meet with customers and suppliers at various locations within the AETC study area and Auckland Region.

- Their transport needs may make it difficult to avoid peak periods. This illustrates that the changing nature of the industry mix in the AETC area may therefore require changes to the transport system to cater for changing transport needs.

Overall, we see that there are three key themes arising from the data which will need to be considered when making transport related decisions for the area:

- **More freight traffic:** Employment in transport intensive activities is growing strongly in the area, due to outside factors, such as population growth increasing demand for consumer goods, and the presence within the area of a concentration of key intermodal transfer points and major distribution centres. A result of this will be an increase in freight trips within and through the area. A related consequence may well be increasing demand for supporting freight rail services, as transport and logistics operations become more multimodal.
- **More private vehicles:** As employment increases generally within the area, there will be a corresponding increase in commuting trips. The area is poorly served by passenger transport and many workplaces are low density and located too far from main roads to make walking from bus routes practical. The result is that increased commuting to the areas with low employment density will primarily be reflected in increased numbers of private vehicles.
- **More congestion in peaks:** The structural change in economic activity taking place in parts of the EWL area as service activity grows at a faster rate than manufacturing will generate increasing pressures on the transport system, but these may be felt unevenly across the area because of the location of particular types of activity and through the relative transport and labour intensity of different activities. For example, as employment in the business and financial services sector grows access for workers around peak hours will become a more pressing issue with increasing conflicts during these times between commuter and business trips a likely result.

4.6 Summary

The economy of the EWL area is growing, but it is also evolving. Manufacturing, is a large and important sector in this area but the business services sector is becoming increasingly important. The warehouse, distribution and transport sector continues to grow and play a dominant role in the area's economy. A number of observations indicate that between 2001 and 2012 the AETC area made a greater contribution to the Region's economic growth than the MMEWS area. This is strongly related to the greenfield nature of the area and access to transport connections:

- The two areas have broadly similar levels of employment, but the AETC area has a significantly higher residential population, with distinct commercial and residential sub-areas, whereas the MMEWS area is predominantly commercial and industrial.
- Economic growth has been strongest in parts of the AETC area – predominantly at either end: Auckland Airport and East Tamaki. Between 2001 and 2012, workplace-based GDP grew by 53 percent in the area. In addition, the contribution of East Tamaki to GDP has grown during this period while that of Mt Wellington, Otahuhu and Favona have remained stable.
- GDP generated per employee in each industry indicate that East Tamaki and the Airport areas generated approximately 73 percent of the total GDP from the AETC area in 2012. This is higher than their employment share and reflects the higher value added occupations that are located in these areas. The share of workplace-based GDP of the Airport sub-area has grown from 30 percent of the AETC total in 2001 to 35 percent in 2012.
- Workplace employment grew by 10 percent in the AETC area between 2006 and 2012, this is considerably higher than the 4 percent achieved in the MMEWS area and in the Auckland area in general.

From a transport perspective there are a number of themes which need to be taken into consideration when planning for future transport investments in the area:

- Transport pressures are likely to increase with continuing economic growth in the area. These pressures will come from businesses (freight), commuters and increasing numbers of air passengers.
- Employment growth in the EWL area will lead to a further increase in the number of car commuters, as this area has a high proportion of industries such as manufacturing, distribution and warehousing, and transport that have low employment density and employ people on shifts. We expect that additional employment will be accompanied by additional economic activity. This is likely to generate an increase in transport demand as the volume of inputs and outputs increases. It may also result in more transport operators considering the East Tamaki, Airport and Mangere Bridge areas as an attractive business location.
- An increase in distribution activity, particularly around the MetroPort, the Airport and in East Tamaki is likely to lead to greater movements of heavy vehicles into and out of the area. In addition, transport and distribution companies may begin to increase their use of hub and spoke business processes, such as the use of shuttle vehicles to work around the increase in traffic congestion.
- We see a structural change underway, as service activity grows at a faster rate. However, the more transport intensive activities are growing too (with distribution compensating for the decline in manufacturing) and so the overall picture is one where conflicting transport pressures are going to continue to increase, due to the broad economic expansion within the area.

5 Transport and the economy of the EWL area: Understanding the Issues

In this section we use survey information, data analysis and interpretation to summarise the relationships between transport and the economy in the EWL area. This summary illustrates how the consequences of a lack of transport investment might impact on the future economic performance of the area. The focus is on the key locations and specific transport issues. Substantially more detail is provided in the two companion reports.

5.1 Freight Issues

5.1.1 Freight Patterns on Neilson Street/Church Street

The Neilson Street/Church Street corridor connects SH20 and SH1/Great South Road and links with SEART in the east and is the key east west transport route in the study area. This is one of the major freight routes in Auckland, with heavy vehicle flows typically lying between 4,000 and 6,000 vehicles over the 12 hours between 0630 and 1830, with an extra 20 per cent over the rest of the average weekday. These flows are some of the highest in the country.

Table 5.1 Traffic Counts at Selected Locations November 2012 (12 hour counts)

Location	Heavy Vehicles	Total vehicles	Heavy Vehicle Proportion
Neilson Street East of Victoria Street	4100	22900	18%
Neilson Street East of Angle Street	3700	18200	20%
Church Street West of Neilson Street	1700	16200	11%
Church Street West of Great South Road	6200	38500	16%
SEART On Ramps to SH1	1600	15300	10%
SEART through traffic at SH1	2400	22300	11%
SEART West of Waipuna Road	1800	38200	5%

Source November 2012 Surveys

As a proportion of the overall flows of traffic, these freight flows would amount to about 15 to 20 percent of the total traffic mix. This compares with an average for the network in the Auckland region as a whole of 5 to 7 percent and shows the importance of freight in the core EWL area.

Away from the Neilson Street/Church Street corridor freight flows on the east-west axis decline in total and as a proportion of the total traffic flow. On SEART at Waipuna Road freight traffic accounts for about 5 per cent of the total traffic flow with around 1,800 heavy vehicles over the 12 hours between 0630 and 1830.

The freight traffic along the Neilson Street/Church Street corridor consists of a combination of through traffic and traffic to or from origins or destinations within the corridor. From the

Automatic Number Plate Recognition (ANPR) surveys¹⁶, flows of freight traffic not having a origin/destination along the corridor are estimated to amount to about 1300 per day for the 12 hr. period between 0630 and 1830 or about 1500-1600 over a 24 hour weekday. This represents about 20 per cent of traffic at the eastern end of the corridor just to the west of Great South Road and about 30 per cent of the total freight traffic at the western end of the route just to the east of Onehunga. Therefore, about 70-80 per cent of freight trips along the route are starting or finishing their journeys in the area.

Key observation 1:

The Neilson Street/Church Street corridor route serves the local access needs of the industries located within the corridor. However it also acts as a through route for both freight and general vehicles with 20-30% of all movements on the corridor being through traffic.

The activities located here in this part of the MMEWS area include a large number of manufacturing and distribution activities including the MetroPort inland port, the Southdown rail yard, the distribution centres on The Gate industrial park and other distribution centres particularly to the south of Neilson Street. The area is also an important manufacturing area, again potentially generating large volumes of freight traffic.

5.1.2 Traffic conditions in Neilson St and the MMEWS area

Congestion is at the heart of the transport issues facing the EWL area. The activities of the freight sector are very much affected by and contribute to the conditions and levels of congestion on the road network not only in the Neilson Street corridor and wider EWL area, but also on routes outside the area particularly the State Highway network.

Impacts of Congestion and Variability in Travel times

Freight operators are affected both by slow travel times caused by congestion and a common statement is that the numbers of vehicles required to service a particular transport task has increased by 10 per cent over recent years. This results in increased costs to freight operators through additional vehicles and drivers, costs which are typically passed onto their customers.

In addition travel time variability can be a problem. If deliveries are required in a particular time window, operators have to recognise travel time variability and vehicles may arrive at their destination too early which results in the vehicle being idle while they wait for their allotted slot. Being late for a delivery window may result in a penalty to the transport operator and in addition because the goods are not available when required may cause

¹⁶The ANPR survey matched the number plates of vehicles at different locations within the study area to the north of the Mangere Inlet and as far east as Highbrook enabling the patterns of traffic to be determined.

problems and a loss of productivity for the customer receiving the goods. Even where delivery windows are not specified, erratic delivery times may require customers to hold excess stock, have problems with their manufacturing processes or may result in a loss of custom, all of which detract from their productivity.

Travel Times

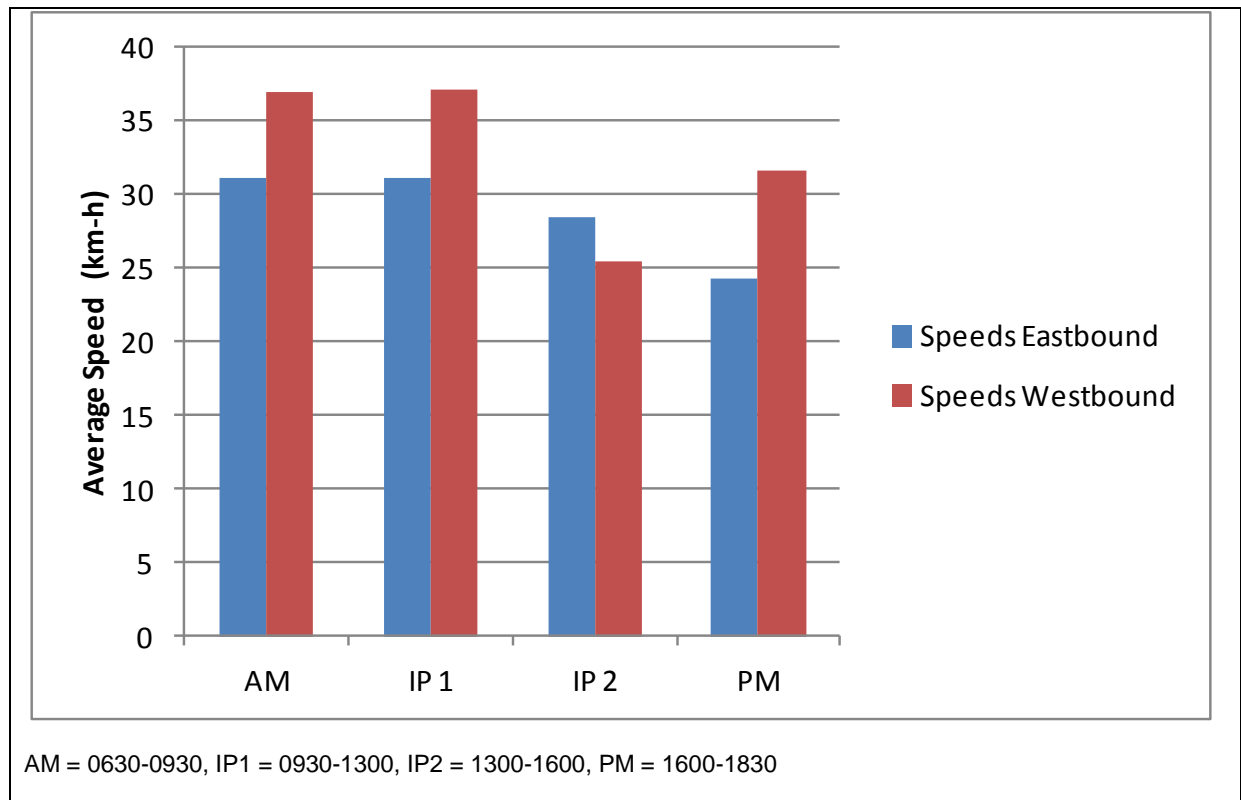
The results of the recent GPS surveys undertaken as part of this Study have indicated that travel speeds along the route between Great South Road and Onehunga average about 30 km-h across the working day. They fall lower, particularly in the evening peak period as can be seen in Table 5.2 and Figure 5.1:

Table 5.2 Travel Times between Great South Road and Onehunga

Route	Time Period	Avg Speed	Avg Travel Time
Onehunga-Great South Road	0630-0930	31.1	7.3
	0930-1300	31.1	7.3
	1300-1600	28.5	8.0
	1600-1830	24.3	9.4
	Average 0630-1830	29.2	7.9
Great South Road to Onehunga	0630-0930	36.9	6.2
	0930-1300	37.2	6.1
	1300-1600	25.5	9.0
	1600-1830	31.6	7.2
	Average 0630-1830	32.6	7.0
Average both directions	Average 0630-1830	30.8	7.4

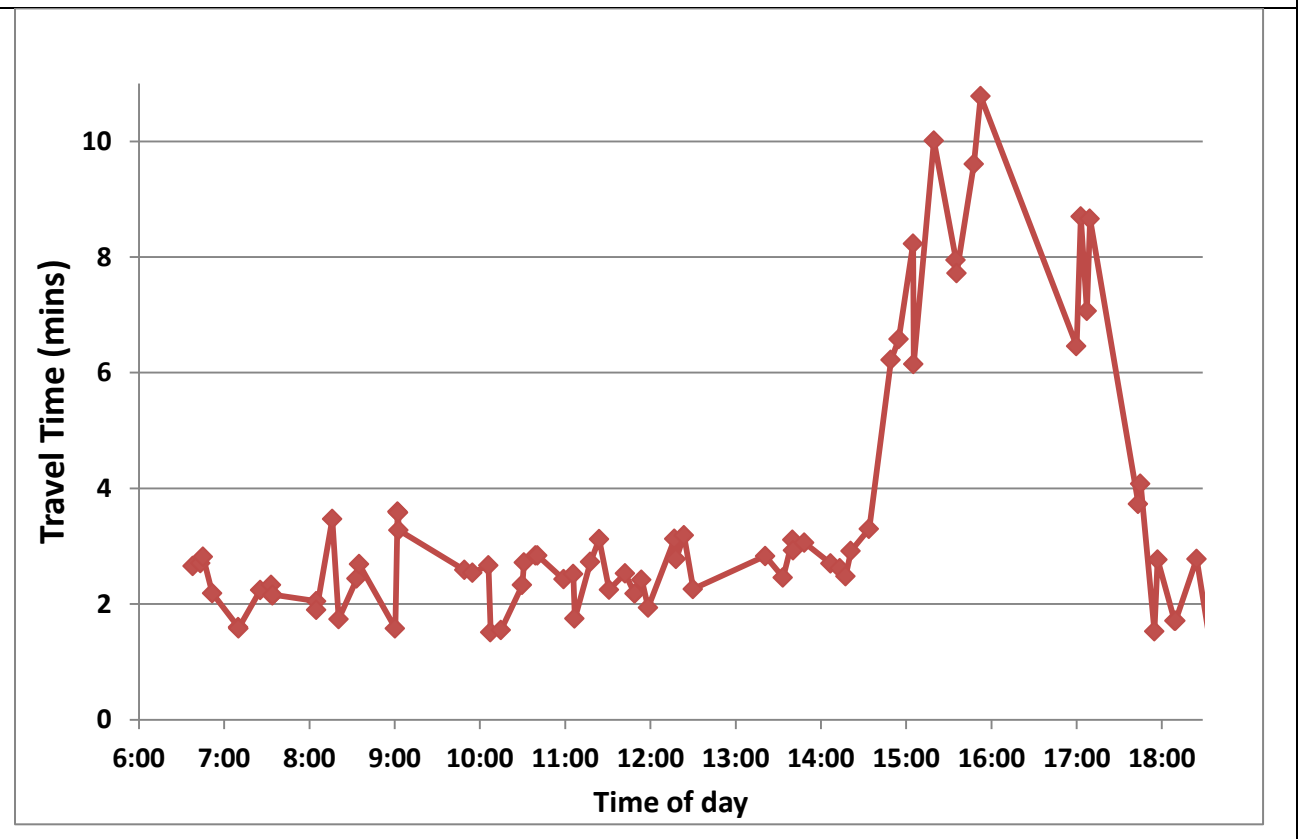
Source: GPS surveys

Figure 5.1 Average Speeds Church Street/Neilson St Corridor by Time of day



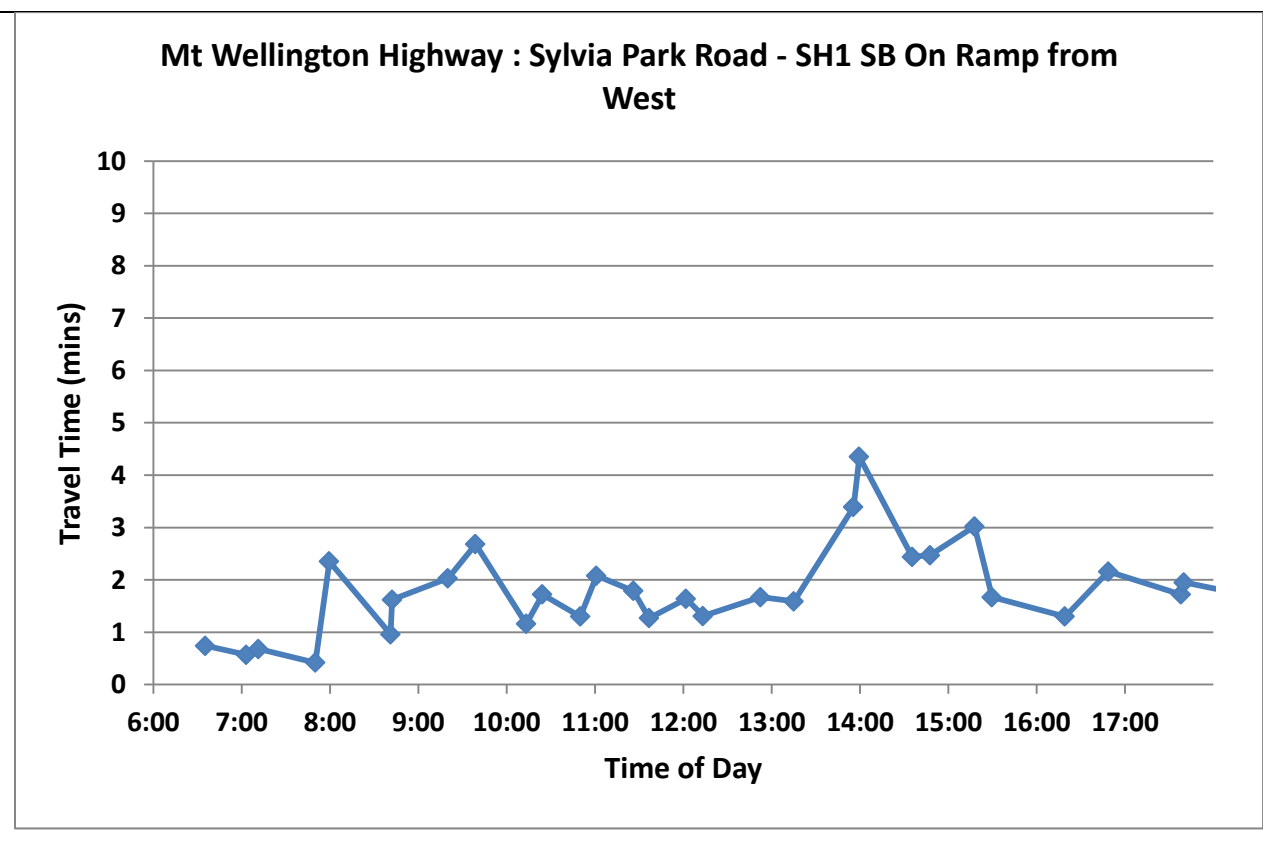
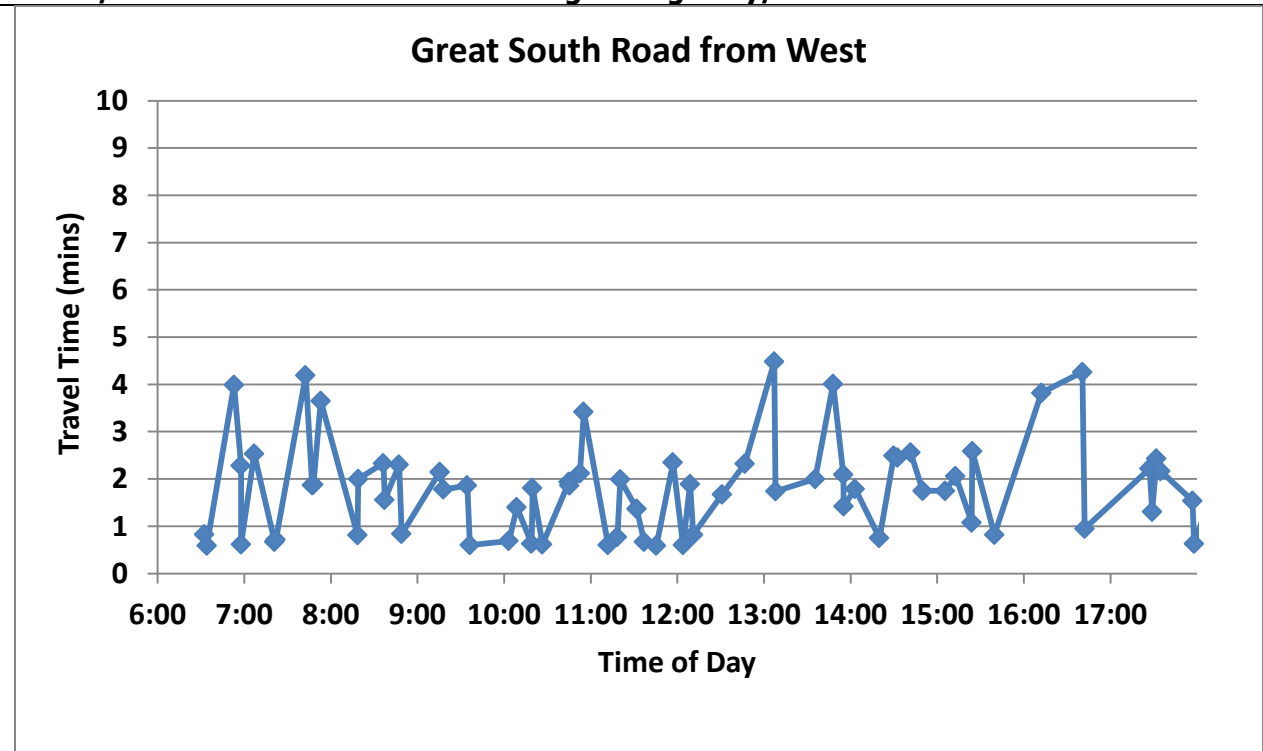
The information available also allows an assessment to be made of conditions at specific locations. A key issue with the corridor is the difficulty of accessing the motorways at either end, reflecting congestion at Onehunga Mall to the west and at the eastern end of the corridor the convoluted route required to access SH1 to the south. The scale of the delays at Onehunga Mall throughout the day are set out in Figure 5.2 and at the Church Street /Great South Road Intersection and Mt Wellington Highway/SH1 in Figure 5.3.

Figure 5.2 Observed Delays for Neilson Street Traffic Approaching Onehunga Mall by Time of Day



Delays at Onehunga Mall start building up quickly in the early afternoon exceeding 6 minutes or more over a three hour period, and exceeding 8 minutes for much of this.

Figure 5.3 Observed Delays for Traffic from Church Street to SH1 South at the Church Street/Great South Road and Mt Wellington Highway/SH1 Intersections



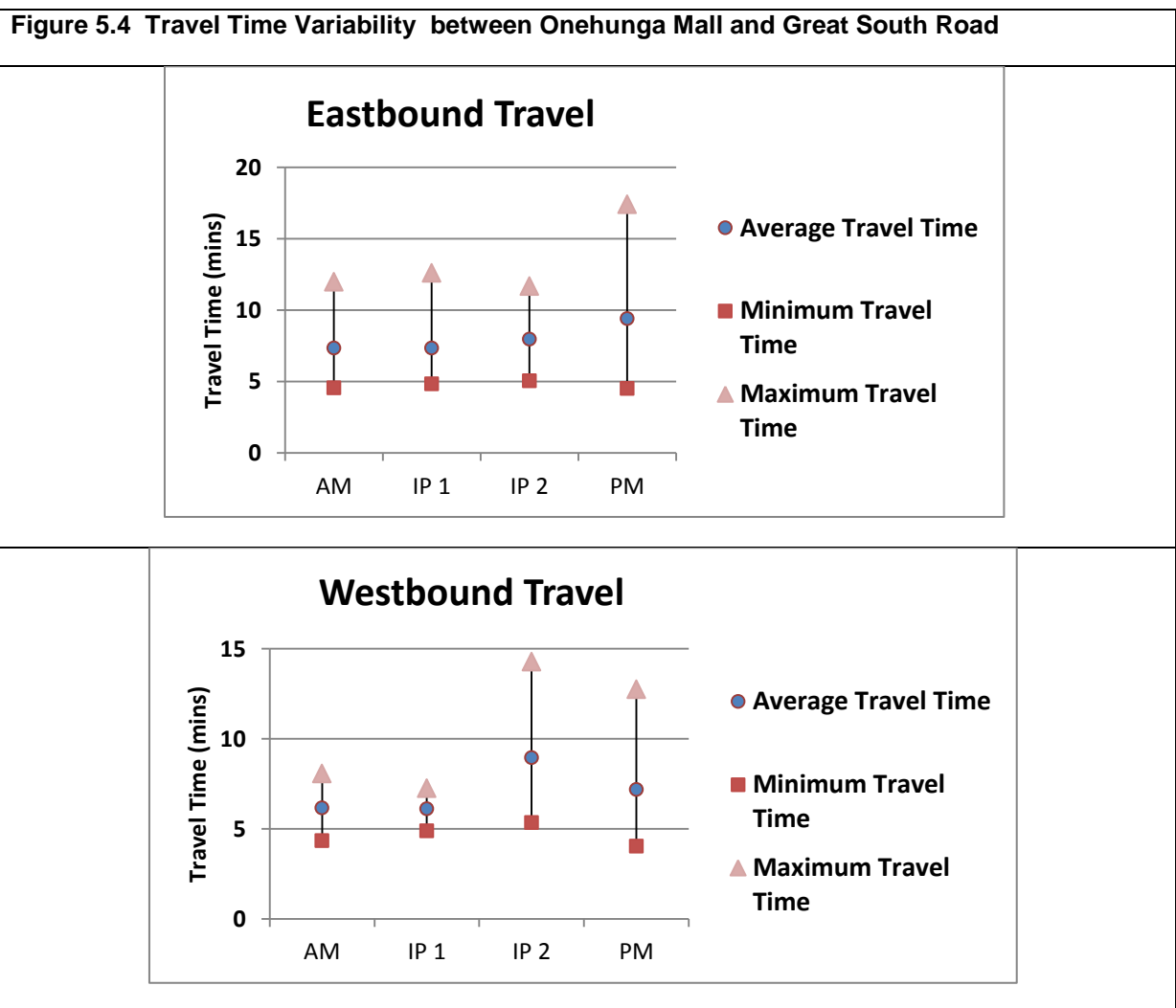
For two of the key junctions between Church Street and SH1 to the south delays exist throughout much of the day.

Key observation 2:

There are significant congestion problems at both the eastern and western ends of the Neilson Church Street corridor particularly on the approaches to State Highway 1 and SH20.

Travel Time Variability

The information set out in the figures also illustrates the variability of travel times and more information on this is set out in Figure 5.4.



Travel time variability is substantial throughout the day for eastbound traffic although highest in the evening peak reflecting the issues with the junction with Great South Road with traffic

backing up over the junctions further east. For westbound traffic they are fairly small in the morning and early interpeak, but increase substantially later during the day reflecting the conditions at Onehunga Mall.

Key Observation 3

Travel time variability is a problem throughout much of the day for eastbound traffic and in the later part of the day for westbound movements

5.1.3 Access to and from Neilson St for businesses located along the corridor

The conflict between through traffic and local access traffic along the mid block section of the Neilson St corridor is creating difficulty in turning onto and off Neilson Street particularly into the rights of way to the south which give access to MetroPort, Southdown Rail Terminal and other major distribution centres. This impacts on the operations of a number of major logistics firms include Toll and Tappers. Traffic flows into and out of these access points are substantial with for example the flow in and out of MetroPort amounting to over 2000 heavy goods vehicles over a 12 hour day (and probably about 2500 over the day as whole. The volumes of containers handled through Metro port represent about 25 per cent of the totals handled by Port of Tauranga and Ports of Auckland. These flows along the access routes are expected to increase substantially with the proposed expansion by Metro port, Toll and other operators in the area.

Key observation 4:

The conditions along Neilson St make turning movements difficult and create delays for traffic flows into and out of major access points, like MetroPort.

The EWL Investment Logic Map expresses a desire to respond to changes in supply chain strategies in order to improve the efficiency of asset use and improve travel time predictability. A relevant consideration linked to improvements to access around Metro Port is that based on the interviews with a number of transport firms, there is a clear opportunity to support the growth of intermodal freight, primarily the use of road and rail. Rail is viable when providing the long distance mode with trucks being used for local collection and distribution. One of the potential major drivers of increasing truck movements in the Neilson St corridor in the future will be the growth in intermodal freight. Metro port is forecasting growth from 6 freight trains a day up to 15 freight trains a day.

Therefore, the benefits of investment in better road access to and from MetroPort might potentially be enhanced through complimentary investment in rail capacity. This could allow, for example, for more freight movements by rail, arrival and departure times that

better meet customer needs and reduced loading/unloading times for trains, making the road-rail option more cost effective and better aligned with changing customer demands.

5.1.4 Wider freight Issues – East Tamaki and the Airport

Employment in East Tamaki is dominated by manufacturing and wholesale trade. Both of these activities generate high freight flows. Overall employment in potentially freight generating activities represents about 60 percent of the total for the area, but much of this is in the production and selling of goods rather than in their distribution, although both generate freight activity. The airport area in contrast has a lower share of employment in manufacturing and in wholesale trade but is dominated by transport (47 percent of the total). However, because of the presence of the airport itself only about half of this is related to the movement of freight giving a total of about 40 percent of employment in freight related activities.

An important factor to bear in mind when considering these proportions, particularly for the logistics centres round the airport, is that the volumes of freight generated are not necessarily related to the numbers employed and many of the logistics centres being developed particularly round the airport may, because of their use of advanced handling systems, have high throughputs and generate high freight volumes with relatively low staffing levels.

A simple analysis of the employment figures may therefore underestimate the level of freight movements. A particular example of this, although not at the airport, would be the Courier Post centre in East Tamaki. Here the use of very advanced sorting equipment means that employment is relatively low in relation to the volume of vehicle movements to and from the centre and this is likely to be an increased feature of advanced logistics sites of the types concentrating at the airport.

Key observation 5

With the development of advanced handling techniques the relationship between employment and freight volumes is likely to change with increases in freight volumes being achieved without any increases in employment.

5.1.5 Wider freight Issues – Developments around the Airport

The areas available for development around the Airport, coupled with the reasonably high quality transport links to other regional markets to the north and south means that the expansion of warehousing and logistics in this area has been rapid. Examples of logistics activities include firms such as Linfox, Mainfreight, Toll, CEVA and Mondial and interviews with a selection of these have confirmed the desirability of the location.

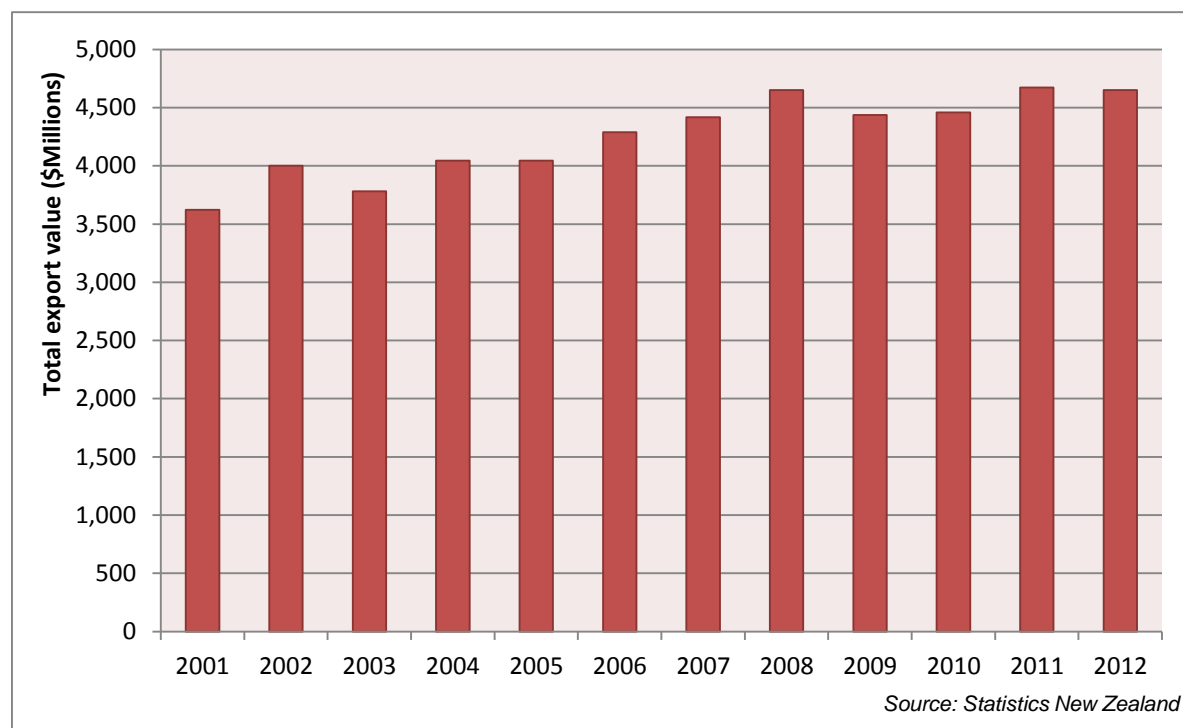
With the construction of the Waterview Connection and the completion of the Western Ring Route, the advantages of the area for road-based logistics activities will potentially increase with the new connection giving better access to the areas to the west and north. It is therefore likely that there will be pressure for more logistics type activities in the airport

environs, with consequent increases in the levels of freight traffic on the key links serving the area, especially on SH20 and the SH20A and SH20B routes serving the airport. These increasing freight demands will however be competing with other traffic flows associated with the expansion of services and passenger movements through the airport, and also with the growth of the commercial type employment proposed by the airport.

5.1.6 Wider freight Issues – Expected growth in exports from Auckland Airport

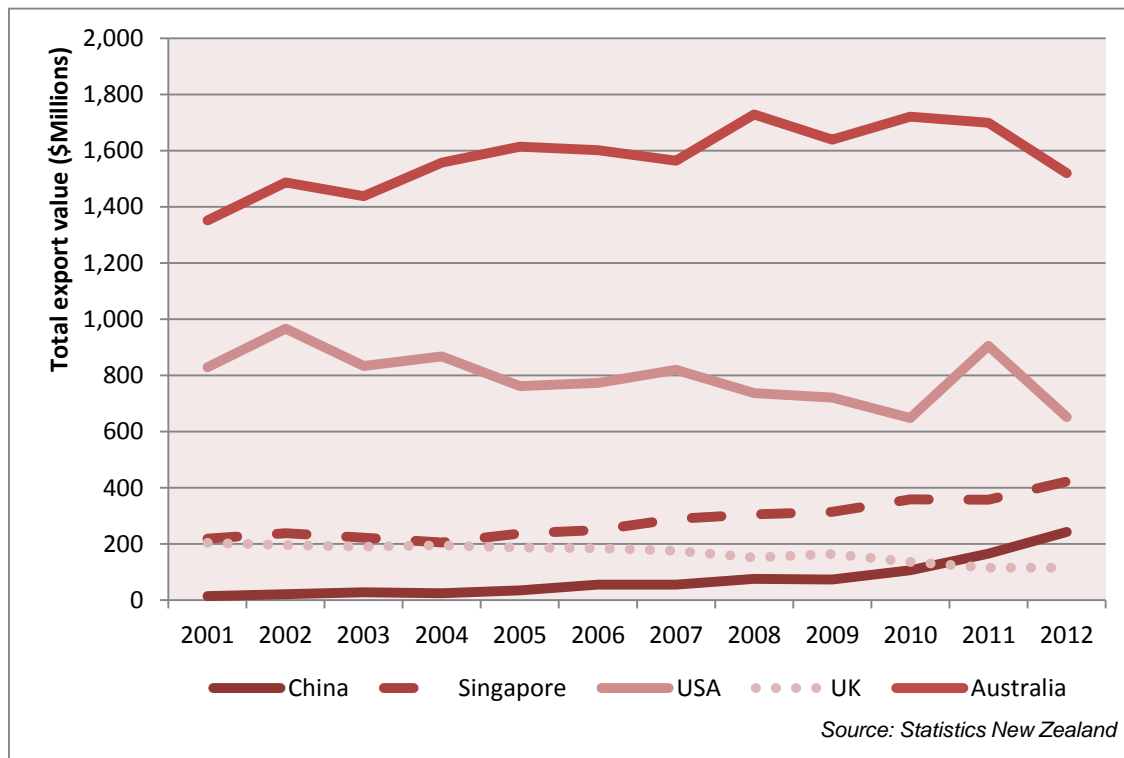
In 2012, just over \$4,600 million worth of goods was exported from Auckland International Airport. The value of goods exported from the Airport has grown by 2.5 percent per annum since 2001, when \$3,600 million worth of goods were exported, although in recent years with the global financial crisis and more competition from sea-freight this growth has levelled off.

Figure 5.5 Total value of goods exported from Auckland Airport, 2001-2012



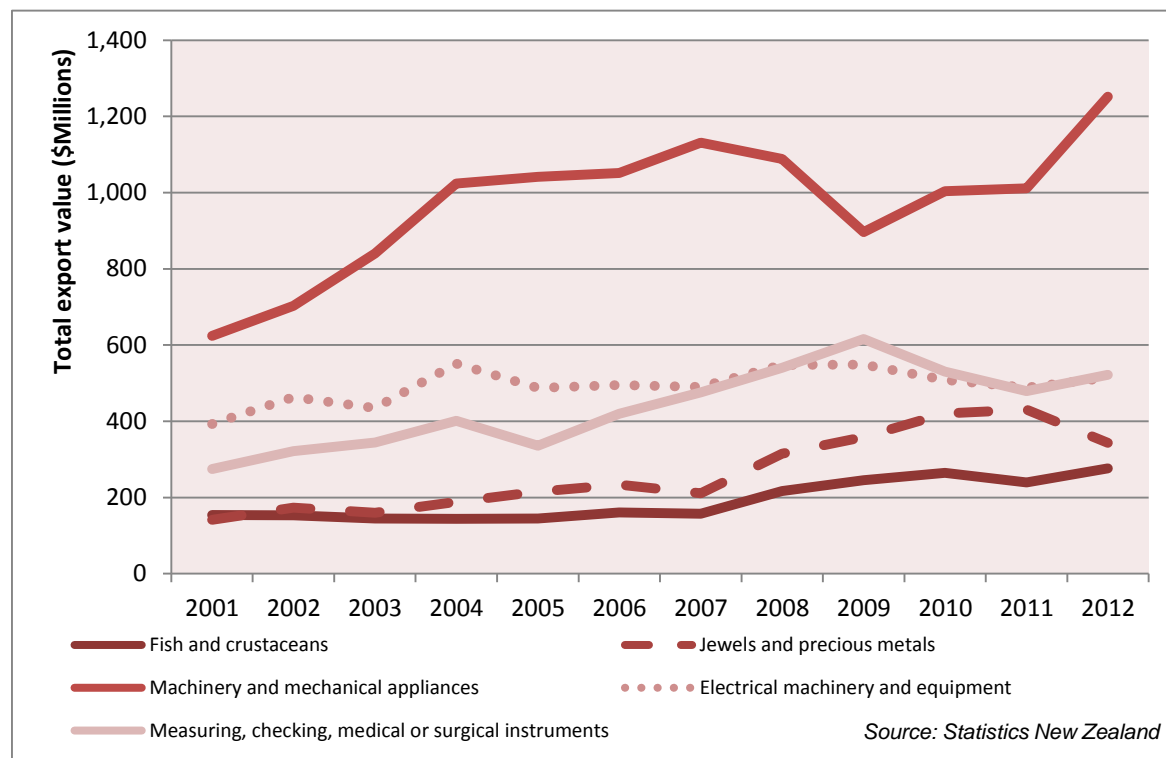
The growth in export values for Auckland Airport have been helped by recent Free Trade Agreements (FTAs) signed between New Zealand and China, and between New Zealand and Singapore. The impact of these FTA's on exports out of Auckland Airport can be seen in the figure below, which shows a large increase in exports to China since 2009 and to Singapore since 2004. At the same time the value of exports to tradition large New Zealand trading partners the United Kingdom, and the United States of America have seen declines since 2001.

Figure 5.1 Main destinations for goods exported from Auckland Airport, 2001-2012



Australia remains the largest destination of export goods by value leaving Auckland International Airport with just over \$1,500 million worth of goods in 2012 (this is one third of the total value of exported goods). While generally the value of exported goods to Australia has increased since 2001, there was a large decline in the value of exported goods in 2012.

Figure 5.6 Total value of the top five exported goods from Auckland Airport, 2001-2012



In 2012, the five largest export by value from Auckland International Airport were machinery and mechanical appliances; measuring, checking, medical or surgical instruments; electrical machinery and equipment; jewels and precious metals; and fresh fish and crustaceans. In 2012, these five commodities exported through Auckland International Airport represented between \$280 million and \$1,250 million worth of goods, and combined were responsible for 63 percent of total export value. In 2001 these five commodities were responsible for just 44 percent of total export value departing through Auckland Airport. As shown above, the bulk of these increase in share come from the doubling in export value of machinery and mechanical appliance exports.

Important observations relevant to freight movements in and between the airport and East Tamaki include:

- The main freight connections into the area are the SH20 Manukau Harbour Crossing which provides the connection between the airport area and the north, especially the Onehunga/Penrose area where connections appear to be strong and SH20 to the south. Other important linkages are with the Mt Wellington area and locations further north particularly accessed by Great South Road.
- East-west connections through the area are limited and do not provide particularly high quality routes, being either somewhat convoluted or passing through sensitive areas.
- Interview respondents identified that the key freight transport issues include a lack of a good east-west connection, and increasing congestion on the road network at particular pinch points. A frequently mentioned pinch point was the connection

between SH20 and SH1 in Manukau, which was seen to make journey times slow and unreliable.

- The Airport is an important international gateway for freight as well as passengers and in value terms ranks as the third largest port in New Zealand. According to Statistics NZ data, in 2012 for New Zealand as a whole air freight catered for 1 percent of exports by weight but 15% by value. Therefore providing reliable links to service time-sensitive high value freight traffic is important.

Key Observation 6:

To the south of the Mangere Inlet there are also significant congestion problems and/or convoluted routes for getting between SH1 and SH20. Firms interviewed generally used either the SH1/SH20 connection, Massey Rd or Favona Road or. The SH1/SH20 connection at Manukau was singled out as a pinch point in the network often congested in the afternoon peak.

5.1.7 Corridor versus network flows and conditions

The survey responses confirmed that effects of congestion on the wider network, and specifically the Auckland Harbour Bridge act as a particular constraint on a firm's operation. There is a general acceptance that congested conditions across the network are constraining EWL area firms' operations. For example, one firm stated that "there is no point in going out after 2pm", meaning going out onto the network generally. Firms also stated in their survey responses that the high levels of congestion across Auckland have required them to increase the numbers of vehicles required to undertake particular tasks, particularly where service is required throughout the day, as for example would be the case for courier firms working to fixed collection and delivery schedules.

One respondent told us that traffic congestion adds 15 to 20 per cent to the cost of running their business. This cost is due to people sitting in traffic and being unproductive due to traffic delays. This cost is also due to customer deliveries – they could do more deliveries if there was less traffic congestion, therefore service a greater number of customers and potentially increase their customer base. Although the cost of the delay to their business is not measured the respondent felt "they are conditioned to work with the traffic and always take it into account when planning deliveries and providing customers with delivery times."

Some firms appear not to have taken steps to modify business practises to offset congestion costs, for example, service staff employed by McAlpine Hussmann. Nevertheless, the firm told us that "the biggest potential cost of delay caused by traffic congestion is employee productivity". Improvements in access to the motorway and a decrease in traffic congestion would make a big different to productivity. The respondent believes "it would increase employee productivity and their customer service. Service vehicles would be able to get to customers quicker, and they would spend less downtime sitting in vehicles trying to travel to and from a site." This is particularly a problem when McAlpine is working on sites in the CBD area as a sub-contractor. Overall, traffic congestion does not appear to place any

significant restrictions on the patterns of the movement of goods and services for this company, however, it is understood that getting to customers to undertake servicing requirements is problematic.

Of the businesses spoken to, traffic congestion is a problem or has a potential cost to the business in situations where the nature of the work is time-sensitive, or work hours are unable to be changed and employee productivity decreases due to traffic delays. Congestion was seen to be a network-wide issue and not just a locally specific concern.

Key Observation 7:

While there is localised congestion in the EWL area, particularly within the Neilson Street corridor where this accesses SH1 and SH20, the congested conditions across the wider Auckland transport network are also impacting on the activity patterns of firms located in the EWL area.

5.1.8 Traffic congestion and business practice in EWL

The firms operating in the different parts of the EWL area have adapted to the levels of congestion on both the local road network and more importantly across the Auckland road network as a whole by a combination of:-

- Adjusting their patterns of operations as far as possible to avoid the worst periods of congestion, starting early in the morning and finishing before the main evening peak, Transport firms typically undertake their longer deliveries in the early morning when traffic flows and congestion are relatively low and switch to more local movements in the middle of the day when traffic flows are higher,
- Increasing the level of resources required to meet their transport needs. This results in increases in costs and reductions in both employee and vehicle productivity but this is seen as the price to be paid for operating within a busy urban area.

Overall poor east west connectivity has an impact on the productive potential of the economy particularly because of the additional cost and travel time incurred on businesses.

Reductions in congestion in the EWL area would generally result in businesses becoming more efficient through faster travel times, reduced cost and overall increased competitiveness. This indicates that improving connectivity and reducing congestion for these businesses will increase the productive potential for the area.

Key Observation 8:

From the firms interviewed the majority indicated that reductions in congestion would increase their efficiency and reduce their costs of business, allowing them to undertake the same freight task with reduced resources.

5.2 Commuting Patterns and Issues

As discussed earlier in relation to GDP generated by workplaces and residents, the MMEWS area attracts significant inbound commuting. Of the 60,000 people working in MMEWS workplaces in 2006, 53,000 or 88 percent came from outside the area. Of this number, an estimated 16,300 people commuted from areas south of MMEWS, while approximately 13,700 commuted from Central and Eastern Auckland to workplaces in Penrose/ Onehunga and Mt Wellington.

Similarly, commuting patterns in the AETC area are dispersed, with local residents not well represented in the key employment areas of the Airport or East Tamaki. Auckland International Airport is a significant employer and attracts workers from a wide area, with a significant proportion of people from Rodney and the North Shore, Waitakere and Isthmus West, the rest of the Auckland Isthmus, and Manukau North and East, and Manukau South. Drawing workers from a large labour pool may partly reflect the specialised nature of employment at the Airport, a mismatch between the skills required and available in the local workforce and the limited public transport options in 2006.

Similar to the Airport, East Tamaki draws only a limited number of workers from the study area, again reflecting potential difficulties associated with transport access and the lack of appropriate skills in the study area workforce. The major source of workers for East Tamaki is Manukau North and East, which provide over 40 percent of the total. This illustrates that if there is further growth in employment, output and GDP in the East Tamaki area, and most of the workers are commuting from outside of the area, then improving transport options may have a significant benefit.

Our analysis indicates that if more services were directed towards user needs then the share of commuters using public transport in the EWL area could increase. For example, there are substantial commuter flows to and from specific locations, such as the approximately 14,500 commuters who travel daily to and from the Howick/Pakuranga area to work in Highbrook, Penrose/ Onehunga and Mt Wellington. Overall, because of the high volumes of commuter traffic, good public transport links along the routes connecting these areas are important. In addition given the relatively low numbers of workers commuting into East Tamaki from the study area, there may be the potential to develop new services to broaden the opportunities for employment for those living in locations within it.

Key Observation 9:

Although considerable focus is placed on freight movements in the EWL area, commuting traffic impacts significantly on the capacity of the transport

corridors into and out of the area. Overall, because of the high volumes of commuter traffic, providing good public transport links along the routes connecting these areas may help to increase the effective capacity of these routes and would provide better access to the employment opportunities available.

5.3 Summary of responses to study question

The main responses to key questions relevant to this section have been derived from the insights set out in the background reports. This is a summary:

- How is the economic function of the project area influenced by the transport system?

The area's strong focus on manufacturing, wholesaling and transport and distribution is a function of its high level of accessibility and central location. This is particularly the case for transport and logistics activities, which represent a significant part of the total employment in this sector in Auckland and which benefit from the access to both rail and the strategic transport network. Business services are also attracted by the accessibility to regional labour markets. Increasing congestion which reduces general accessibility to the area may therefore serve to limit the growth in more specialised and productive business service activities, which requires good access to deep labour markets.

- How will improving travel times for freight businesses help to lower their cost of business, or to achieve higher productivity or to increase their output or to enable business growth in this area?

From the interviews undertaken, the main impact of reducing transport costs for freight firms would be to allow firms to operate more efficiently, reducing their costs rather than increasing the volume of activity that they would undertake. In only one or two instances was the possibility of expanding output seen as a possible response to improved travel conditions. For time sensitive firms, the opportunities would be greater.

- How important is improved connectivity between specific locations e.g. Onehunga and East Tamaki to business productivity?

Seventeen percent (17%) of freight trips along Neilson/Church are crossing the Tamaki River – despite the convoluted connections between East Tamaki and Onehunga/Penrose. Improving connectivity would reduce transport costs for firms travelling between these two areas. As an example Seamount transport bottles between their warehouse in Captain Springs Road and Ormiston Road in East Tamaki, a distance of 15kms with a travel time of 20-25 minutes in off-peak conditions. Providing a direct route could probably halve the travel time and reduce the distance by 20 per cent giving a substantial boost to productivity for this operation. Interview respondents identified that the key freight transport issues include a lack of a good east-west connection, and increasing congestion on the road network at particular pinch points. Frequently mentioned pinch point were the east and west ends of the Neilson St corridor and the connection between SH20 and SH1 in Manukau, which was seen to make journey times slow and unreliable

- How much freight is time-critical in this area, and if so how does this relate to increases in productivity or output?

For a number of firms, freight activities were time critical and demands for time critical services may be placed on transport firms by customers at peak times. For example, Courier Post specialise in time sensitive deliveries with an overnight service and next day delivery being one of their key products. This requires reliable access between the airport and their East Tamaki facility in order to meet customer needs (late pick up and early delivery) and to fit in with flight schedules. In some cases strategies had been developed to manage the effects of the level of service offered by the transport network taking into account local constraints as well as those posed by the Auckland transport network in general. However often the customer expects deliveries during the peaks and therefore there is little alternative for the firms involved but to deal with the unreliable travel times put in front of them. Many of those interviewed suggested that better connections and reduced congestion would lead to travel time savings, reduced costs and in this regard improved productivity.

- How will increased accessibility affect land values and encourage land use change?

Evidence clearly indicates that accessibility and land values are positively related and that a gradual transformation towards higher value activities will take place as land values increase in commercial and industrial areas. The key consideration for the MMEWS area is to understand the development potential of areas and the transport intervention(s) most likely to support desired land use change. For the greenfield areas in East Tamaki and the Airport generally lower values reflect the availability of land for development. Although increased accessibility will drive land values up the bigger driver will be a gradual reduction in the availability of clear, greenfield development sites.

- What are the capacity constraints for the inland port? What ability is there for the inland port to grow? Is growth constrained by transport infrastructure?

According to a recent study “the experiences MetroPort and Wiri Inland Port suggest that inland ports will be slow to reach capacity – MetroPort reached 55 percent utilization in 2011, more than a decade after opening, while Wiri continues to struggle to achieve significant volume.”¹⁷ However, MetroPort’s annual throughput has increased from 32,000 TEUs in its first year of operation (1999) to 155,000 TEUs in the year ending June 2011, an average growth of around 12,000 TEU per annum. By 2011 23 percent of POT’s container throughput was being routed through MetroPort.¹⁸ The slow growth at Wiri was attributed to location not being able to allow rail to match the convenience, speed and cost of competing road transport. MetroPort clearly provides an offering which does meet the needs of Auckland importers and exporters, in part because of its location close to the major manufacturing and distribution centres in Auckland and in part because of the differential pricing policy of the two terminals with the costs of movement to Wiri being directly to the cost of the shipper, whereas the costs of movement between Tauranga and MetroPort are met by Port of Tauranga.

¹⁷ PWC, 2012, *Upper North Island Ports Study*. Report to Auckland Council. p40.

¹⁸ PWC, *Ibid.* p80.

An important observation from the PWC report, which supports the view that the growth of MetroPort will continue was that rail provides increasing returns to scale for large volumes of freight and that “consolidating freight volumes on rail may increase the cost-effectiveness of moving freight domestically.”¹⁹ Castalia (2000) similarly found that a significant reduction in per-container rail costs would arise as a consequence of increasing volumes and two-way utilisation of capacity.²⁰ Consequently, PWC concluded that “inland ports or other means of consolidating freight from high-volume shippers may reduce the costs to distance significantly”. This is clearly evident in the case of MetroPort, enabling POT to successfully compete for freight in the Auckland market.

Port of Tauranga has expressed ambitious plans to increase the volume of freight through MetroPort. There is available capacity and space for the inland port to expand by making more intensive use of the existing land and plans are underway to allow this expansion to take place. There are also intentions to introduce longer trains and additional services.

A key element of the efficiency of the inland port is good access by road. Increasing congestion on Neilson Street would raise the risk that the inland port will become less favourable, limiting potential for growth in rail freight and the resulting cost savings to all users. Providing better access to Neilson Street and increasing the capacity of the connection would improve the flow into and out of the inland port.

Capacity on the rail network may become an issue, with the timing of the section of the southern third freight line from Southdown an important consideration as well as steps to upgrade the capacity of the ECMT between Hamilton and Tauranga.

The overall conclusion is that to maximise the potential of the inland port will require a balance to be achieved between road access, rail capacity and land development. It would be sub-optimal to over invest in one of these elements where constraints existed in others. This should be taken into account when assessing investment options.

- How do the separate business areas in the study area relate to each other (now and in the future) i.e. the business/economic relationship between Onehunga area / Penrose area / Ellerslie-Greenlane/ Mt Wellington- Sylvia Park / East Tamaki/ Otahuhu / airport area.

There are some linkages between the different business areas as evidenced by the movements of heavy goods vehicles between East Tamaki and the Onehunga/Penrose area, with in many cases the facilities in Neilson Street acting as consolidation /deconsolidation hubs for commodities moving on longer journeys. In addition there appear to be strong links between the Airport and the Onehunga-Penrose area and to a lesser extent between the Airport and Mt Wellington and the Airport and East Tamaki.

Businesses spoken to as part of this study emphasise that the roading system provides a link between their business and their customers and suppliers. This link allows them to move goods and services to and from their national and international customers, and access

¹⁹ PWC, 2012, Ibid. p77.

²⁰ Castalia, 2010, *Ruakura Intermodal Terminal*. Report to Tainui Holdings Ltd

key freight hubs such as the Ports of Auckland, the Auckland International Airport, and now the Inland port. Linkages to these freight hubs are important, but equally important are linkages between the businesses in the study area and their Auckland-based customers and suppliers.

5.4 Linking commuting data to survey responses

Firm behaviour

The key link to the survey responses comes from the observation that business location does not appear to be linked to access to labour. At their Auckland site, McAlpine Hussmann employs 170 people, including 50 service staff. The business installs, services and maintains refrigeration and air-conditioning systems in commercial buildings, and does design and engineering work. The majority of their employees live further than five kilometres from their place of employment and travel to work by car. McAlpine Hussmann operate 24/7, 365 days a year, but their business hours are generally Monday to Friday, 8am to 5pm. Their staff travel from CAUs throughout the Auckland Region to work in Penrose, where they have access to off-street parking. Similar to other businesses spoken to as part of this study, McAlpine Hussmann did not identify traffic congestion or access to public transport as a barrier to recruitment.

The travel to work patterns of McAlpine Hussmann employees and the other businesses spoken to are supported in our analysis of census data, supporting the argument that the majority of people who work within the MMEWS study area travel to work by private motor vehicle from a variety of locations throughout the Auckland Region.

Modifications to the movement of employees

An important question is to what extent have businesses modified their work practises to deal with traffic congestion experienced by employees?

Firstly, traffic congestion is a problem, from the point of view of getting employees to and from work in the MMEWS area, as the majority of employees live further than five kilometres from their workplace and they drive. Public transport, active modes, and car pooling were not modes of transport used by these employees. Off-street parking was provided by many companies, and for those companies that do not provide parking on-site, there was relatively easy access to free car parking on the street. There is currently little or no incentive for these employees to use public transport or active modes.

To address commuting problems experienced by workers, many businesses spoken to as part of this study have adopted flexible work practises where possible, including employees starting from home and going to client visits first rather than the office or work premises; employees working from home and using broadband to remote access work documents and email; or employees working flexible hours such as 7am to 4pm or 10am to 6pm. In another example, 80 employees work at the Spicer Papers Highbrook site. Their hours of operation are generally 8.30am to 5pm, but staff have adjusted their work hours to take account of traffic congestion. People in office roles generally work flexible hours where they start as early as 6am and leave in the early afternoon, while their distribution and warehouse staff work split shifts that finish at 6.30pm. Some staff also work from home using remote access. However, in a lot of cases businesses have to operate within working hours of 7am to 7pm

to match customer expectations and provide customer relationship/interface opportunities which are considered extremely important by most firms surveyed.

Public Transport Use

The interview respondents expressed a range of views but in general public transport was considered to be unreliable, expensive, time-consuming (it takes too long), and inflexible by firms in the EWL area.

Employers indicated that as would be expected given the perception of public transport, the majority of their employees drive to work. This is further facilitated by the generous supply of free onsite parking for staff in most workplaces. Those employees who do not drive are most likely to be dropped off by family members and/or friends, rather than using public transport. Shift work, including 24-hour business operations makes it difficult for employees to use public transport and active modes in this area. This is particularly the case in sectors such as transport and logistics, storage, hospitality and manufacturing. It was felt by respondents that public transport would need to be cheap, easily available, reliable and convenient for people in the study area to use if it was to become a viable alternative to the private car.

5.5 Key findings

Overall the position that emerges from the different sources of information, including our discussions with the firms operating in the area, is that there are a number of transport issues affecting firms in the EWL area. These are the key insights identified by this section:

- The Neilson Street/Church Street corridor route serves the local access needs of the industries located within the corridor. However it also acts as a through route for both freight and general vehicles with 20-30% of all movements on the corridor being through traffic.
- There are significant congestion problems at both the eastern and western ends of the Neilson Church Street corridor particularly on the approaches to State Highway 1 and SH20. Travel time variability is a problem throughout much of the day for eastbound traffic and in the later part of the day for westbound movements
- The conditions along Neilson St make turning movements difficult and create delays for traffic flows into and out of major access points, like MetroPort.
- With the development of advanced handling techniques the relationship between employment and freight volumes is likely to change with increases in freight volumes being achieved relatively lower increases in employment.
- To the south of the Mangere Inlet there are also significant congestion problems and/or convoluted routes for getting between SH1 and SH20. Firms interviewed generally used either the SH1/SH20 connection, Massey Rd or Favona Road or. The SH1/SH20 connection at Manukau was singled out as a pinch point in the network often congested in the afternoon peak.
- While there is localised congestion in the EWL area, particularly within the Neilson Street corridor where this accesses SH1 and SH20, the congested conditions across

the wider Auckland transport network are also impacting on the activity patterns of firms located in the EWL area.

- From the firms interviewed the majority indicated that reductions in congestion would increase their efficiency and reduce their costs of business, allowing them to undertake the same freight task with reduced resources
- Although considerable focus is placed on freight movements in the EWL area, commuting traffic impacts significantly on the capacity of the transport corridors into and out of the area, particularly during peak times. Overall, because of the high volumes of commuter traffic, providing good public transport links along the routes connecting these areas may help to increase the effective capacity of these routes and would provide better access to the employment opportunities available.
- Finally, the EWL Investment Logic Map expresses a desire to respond to changes in supply chain strategies in order to improve the efficiency of asset use and improve travel time predictability. Based on the interviews with a number of transport firms, there is a clear opportunity to support the growth of intermodal freight, primarily the use of road and rail. For example, the benefits of investment in better road access along Neilson St might potentially be enhanced through complimentary investment in rail capacity. This could allow, for example, for more freight movements by rail, arrival and departure times that better meet customer needs and reduced loading/unloading times for trains, making the road-rail option more cost effective and better aligned with changing customer demands

6 Defining the Opportunities

Information from a survey of firms in the EWL area was combined with the data and baseline profile information to define the economic opportunities of the EWL area. These opportunities consider the likely responsiveness of firms to future accessibility improvements in the area and the consequent impacts of this behaviour. In particular the impact of improved accessibility on:

- Output and productivity.
- Economic structure, land use change, land values, urban density and other drivers of economic development.

6.1 Advantages of EWL as a business location

The survey of firms highlighted a number of advantages of the EWL area. The main benefit of the MMEWS area was seen to be its central location in relation to the main industrial areas in the city and its proximity to good transport links, including two State Highways, rail, MetroPort and Ports of Auckland. In short it has been described as “the place to be”.

The AETC area is advantaged by its proximity to transport including the Airport and the two State Highways and the availability of greenfield development sites at advantageous prices, although land prices and rental values around the airport are reported to have been rising recently, reflecting strong demand for this location.

Key observation 10:

Proximity to customers and suppliers, to the transport network and potential for development on greenfield sites are the key comparative advantages of operating a business within the EWL study area.

As the number of businesses within this area has grown, the comparative advantages of the EWL study area have increased, and the linkages between businesses, and their suppliers and customers have grown in importance.

McAlpine Hussmann, for example, has been at their Penrose site since 1966. This site was originally selected due to the amount of space that was available to operate the business, and because it gave the business relatively easy access to the wider Auckland area. These advantages have increased over time, as more businesses have moved to this location and the number of suppliers within a five kilometre radius has increased. However, ease of access to the wider Auckland area has declined with an increase in traffic congestion.

6.2 Future Development Potential

6.2.1 Business development opportunities

In terms of the future development of the area, it is useful to distinguish between firms that are reasonably footloose and those that are less flexible. Firms can be reasonably footloose if they occupy a small area or if they undertake activities for which there is a ready supply of appropriately zoned, affordable land in good proximity to markets, suppliers and /or workers. In contrast, those that are less flexible tend to be in this position because they benefit from the advantages of a particular area or have few viable options for relocation. These advantages can be good transport accessibility by road and rail, good access to the ports, and good access to markets, suppliers and customers in and around Auckland. A lack of options may be due to the nature of the activity which is perceived as undesirable for many potential locations.

One activity that is currently important in the MMEWS area, that occupies a reasonable amount of land and that may appear to be relatively footloose, is recycling. There are a number of firms located in the Onehunga-Penrose area such as CMA, Reclaim and a range of others that are not as dependent on the strategic connections available. However, many of these firms have been in the area for a considerable period and may own their own properties. These businesses benefit from being close to the areas where the recycling is generated, and particularly with a low value product, distance from the supplier or source may be critical. There might also be constraints around the availability of land zoned for this type of activity within such close proximity to the source of their raw materials. Therefore, they may not be particularly footloose to move to the nearest available alternative site.

In contrast, there are a number of smaller industries that appear to be not so critically dependent on a location in the Onehunga-Penrose area. These industries may be prepared to relocate if land prices increase. What is not clear however, is the extent to which these businesses will be replaced by existing firms who benefit from either, the area expanding or, new activities such as business services.

Also, growth in warehousing and logistics may be an option which could take advantage of the accessibility of the area and this would be in keeping with the general urban environment.

Transport firms in the Onehunga-Penrose area regard it as the best place to be. The area offers good accessibility to customers in the main manufacturing belt in the region, the strategic road network, the port and rail, which is becoming more important. This could lead to the redevelopment of brownfield sites in the area.

As an example Linfox, who have chosen to locate close to the airport in preference to Highbrook due to land costs are now seeking to establish a facility along Neilson Street or elsewhere which would allow them to offer a good rail connection for their clients, who see advantages for rail both in terms of transport costs and in terms of the environmental sustainability of their operations. This is a sign of increasing specialisation within the transport sector, with operators taking advantage of specific locational advantages.

MetroPort are also looking to expand their site to allow increases in throughput and this is being pursued by a rationalisation of the land holdings in the area, which would also provide opportunities for other operators to take advantage of the rail connections in the area.

6.2.2 Land availability, values and reverse sensitivity

Land availability has been a significant driving force behind the growth of East Tamaki and the area around the Airport. Both locations have large, flexible and relatively well priced development sites, and this is proving to be an attractive proposition for firms looking to move into new premises. Land availability in the EWL area was not mentioned as an issue and it was not generally regarded as a constraint. For areas such as the Airport, East Tamaki, and Penrose-Onehunga land availability was noted by some firms as an opportunity.

The areas available for development around the Airport, coupled with the reasonably high quality transport links to other regional markets to the north and south means that the expansion of warehousing and logistics in this area has been rapid. Examples of logistics activities include firms such as Linfox, Mainfreight, Toll, CEVA and Mondial and interviews with a selection of these have confirmed the desirability of the location, although it was noted that affordability is reducing as strong demand pushes rental values higher. This is causing some firms to reconsider options for the future.

On the other hand, the availability of development land at the Airport may also provide opportunities for transport firms that are located in areas where there is growing competition from commercial type activities to shift to the area. There is evidence that this is occurring elsewhere, with growth in storage and logistics activities in Savill Drive in Otahuhu for example.

In the Penrose-Onehunga area Seamount built a new facility approximately 8 years ago at the southern end of Captain Springs Road and are extending this to cater for increased throughput through their warehouse. In addition, the Car Distribution Group recently moved to Pikes Point when it became available and remarked on the availability of such a site in a good location. The transport operator Toll are also significantly expanding their activities at Southdown whilst also vacating the current site adjacent to MetroPort to enable the expansion of this facility by Ports of Tauranga.

However, large manufacturers such as Hubbard Foods, Allied Concrete, Temperzone and Pacific Steel Group raised concerns about zoning in their areas. Both companies have enough space that they can expand or change their current business operations or production. However, they are aware of their neighbours – retail and residential – and how their business can impact on them and vice-versa.

6.2.3 Accessibility: Freight and passenger transport opportunities

The advantages of the EWL area to road-based logistics companies are likely to increase with the completion of Waterview and this could increase the amount of logistics activities in the airport environs, leading to a consequent increase in the level of freight traffic on the key links serving the EWL area, especially on SH20, and the SH20A and SH20B routes serving the Airport.

This increase in freight traffic could also be competing with other traffic flows associated with the expansion of services and passenger movements through the Airport, and with the growth in the commercial-type employment proposed by the Airport.

Auckland Airport is New Zealand's main international gateway for passengers and air freight, with more than 20 international airlines using it as a minor hub or stopping point. For example, approximately 90 percent of travellers to/from Asia or the Americas travel through Auckland Airport.

As part of their strategic planning Auckland International Airport Limited (AIAL) is attempting to build stronger commercial relationships with airlines and business partners. These relationships will be likely to positively influence passenger and freight volumes in the future.

AIAL believes that a range of airport-focused and supporting businesses have co-located around the Airport in recent years in order to benefit from proximity and agglomeration effects and sees this as a likely area of future growth.

Auckland Airport also has a significant role in facilitating the flow of relatively high-value domestic and international freight, as discussed by our interview respondents and supported in our data analysis. Air freight movements through the Airport have, in general, been stable over recent years. This probably reflects the effects of the recent recession and competition from shipping services. Looking ahead, however, AIAL is aiming to implement three strategies that they feel will drive future developments and that may also impact on air freight movements. These are:

- to be the location of choice,
- to have customer-aligned developments, and
- to attract magnet activities to stimulate demand.

This is in addition to marketing strategies and activities aimed at increasing the number of carriers using Auckland International Airport as a hub or stopping point.

In the coming years the bulk of the growth in exports from Auckland International Airport are expected to be products to Asia. This is because of the Airport's role as the major point of export for time critical and high value low weight exports, such as fresh fish, oysters, electrical machinery, measuring machinery, and precious metals and jewels. This growth should be assisted by Free Trade Agreements with China, Singapore, Thailand, Malaysia and the Association of Southeast Asian Nations (ASEAN). For example, Boeing forecasts that over the next 20 years air freight in the Oceania region will be likely to increase at about twice the rate of GDP growth, suggesting a growing importance of this mode of freight transport.²¹

The result is likely to be an increase in the number of companies operating in the vicinity of the Airport that will use air freight, an increase in the volume of freight, and potentially increasing congestion on the key links serving this area.

The potential for expansion in the business services sector in the EWL area needs to be viewed against a number of factors. These include the assumption of Auckland Council that

²¹ Boeing, 2013, Air Cargo Market data.

a large part of the growth in this sector will ideally take place in the CBD (as well as in other centres), the preferences of firms in this sector who tend to value highly locations providing good access to a deep labour market and therefore the relative accessibility to the area for skilled workers.

Providing better access for workers to the airport environs will be a key part of any strategy to maximise the opportunities associated with the growth in labour intensive activities like business and financial services. Some airport-based employers suggested that an airport staff bus could be put in place. There are a large number of people that work shifts at the Airport, and a dedicated staff bus could collect people from key residential areas such as Manukau across to Royal Oak and Mount Eden. This may ease congestion in terms of staff getting to and from work, and provide a public transport option for shift workers.

In the longer-term providing good access for workers will be a core requirement of any move to develop the airport environs as a viable location for high value-added business service activities.

6.3 Changes over time

As discussed above, the EWL area has developed and transformed rapidly over the past 10-15 years due to the combination of road access, land availability and proximity to the other transport modes of air, rail and sea (via rail). The opening of MetroPort, growth at the airport and the opening up of East Tamaki have significantly reshaped this area. The future could be equally dynamic, given the unique transport attributes of this area. However, ensuring transport network improvements keep pace with supply-chain developments will be critically important if the area's potential is to be fully exploited.

Changes over the short term

Over the short-term there are a number of transport related developments underway, which will affect the future patterns of activity in the area. These include:

- The construction of the Waterview Connection which will improve access to and from north and west and hence make the area more attractive for distribution activities serving an Auckland wide market.
- The expansion of the activities at MetroPort and possibly at the inland port at Wiri to the south will also provide opportunities for activities linking in with these as part of longer supply chains.

In the Penrose-Onehunga area, access to rail is becoming increasingly important, and a number of transport and logistics firms are planning to expand their activities in this area to take advantage of this. The expansion of the activities of MetroPort and Toll, and possibly Linfox, are examples of this.

The general advantages of the area in relation to the strategic road network, and location to customers within the main industrial belt of the Region, are likely to stimulate other developments in storage and distribution that may not be related to rail. This would be supported by land values and availability within the area and may form a particular focus building on existing development round the Airport. For the Mt Wellington area, a wider level

of complementary activities make this a particularly attractive location for the development of business services, particularly to serve the growing needs of the industries there and possibly further west. Historic growth in this sector has been strong, and this is likely to continue over the short-term at least; although, limited space for expansion may constrain this. The availability of better public transport links, with the electrification of the rail network and other public transport upgrading as part of AMETI, will also make this an attractive location for businesses and employees.

East Tamaki/Highbrook has also experienced strong growth in business services with the rapid growth of the area, and again the high level of amenity offered by Botany Town Centre would provide encouragement for this. With space available for further industrial and warehousing development, some growth is likely in these sectors especially as some of these activities relocate from more central and expensive locations.

Otahuhu/Favona also benefits from access to rail and reasonable access to the strategic highway network. This has resulted in strong growth in wholesaling and transport, with firms like Mainfreight and Toll growing and taking advantage of the connections to rail in this area. Offsetting this has been a decline in business services over the period from 2000, indicating a shift in emphasis of the local economy.

The wider airport area has been successful in attracting businesses that support its operations such as logistics, airlines, and border agencies. In the future, Auckland International Airport Limited would like to encourage tenants that either attract other businesses to cluster on Airport land, consistent with the aerotropolis concept, or encourage Airport users to spend more time in Airport facilities.

The ways in which to 'unlock' these opportunities include:

- For the airport environs, prioritising customer-aligned developments that focus on attracting or retaining existing and potential customers who are key players in their markets and have critical mass. This will mean ensuring, for example, that they have sufficient space, or that their growing space requirements will be met.
- For airport-related businesses, identifying ways to leverage better the proximity and operations of the Airport. Also, leveraging Auckland International Airport as a comprehensively planned and managed estate, with superior attributes such as zoning, services, security, and recreational amenities.

Possible Longer Term Changes

A key insight from the study is that over the last decade the economy of the EWL area has changed. The business services sector has become increasingly important in parts of the area as manufacturing declined. However the transport sector continues to grow in the area, particularly taking advantage of the opportunities that are offered for the intermodal transfer of freight between road and rail. Given the shortage of this unique type of land use so close to the city centre, the Draft Auckland Unitary Plan seeks to prevent any further loss of industrial land to the other sectors such as business service and retail. Even with these planning aspirations, the economic function of the EWL area as a whole may still evolve with the growth of service type activities. However, the EWL area is likely to continue to have an

important role as a transport and distribution centre given its location and the accessibility provided by both road and rail networks as well as the airport.

Key Observation 11:

Careful thought is required to ensure that transport improvements are targeted to support the desired economic development patterns within the EWL sub-areas, and that land-use planning is fully integrated with transport provision. If not, the lessons from other parts of Auckland show that the resulting economic structure of the EWL sub-areas may not be consistent with planning aspirations.

6.4 Summary of Answers to Key Questions

The key questions which relate to this section of the report are:

- How might the economic function of the project area change with changes to the transport system and growth in Auckland?

The economic function of the EWL area as a whole may change with the growth of service type activities. However, the Onehunga/Penrose area is likely to continue to have an important role as a transport and distribution centre given its location and the accessibility provided by both road and rail networks. A number of surveyed firms in the transport and distribution sector were seeking to expand their operations in the area, and were planning to invest in their current facilities.

It is likely that there will be pressure for more logistics type activities in the airport environs, with consequent increases in the level of freight traffic on the key links serving the area, especially on SH20 and the SH20A and SH20B routes serving the Airport. These increasing freight demands will be competing with other traffic flows associated with the expansion of business services and passenger movements through the Airport, and with the growth of commercial-type employment proposed by the Airport. Without the capacity to meet transport demand, the growth of economic activity around the Airport may be compromised. Providing better access for workers to the airport environs will be a key part of any strategy to maximise the opportunities associated with the growth in productive, labour intensive activities like business and financial services.

- How will improving travel times for freight help businesses to lower their cost of business, or to achieve higher productivity or to increase their output or to enable business growth in this area?

The firms we have interviewed have mainly indicated that they see improvements in freight travel times being translated into lower costs for handling the same volumes, rather than being translated into higher levels of output. This reflects the fact that freight transport is a derived demand, responding to the volume of freight and that a change in the price of transport may not immediately lead to a change in freight volumes. However, a reduction in the cost of transport will improve margins for others in the supply chain, which could lead to reduced prices and increased demand over time, which would increase freight volumes.

- How will increased accessibility affect land values and encourage land use change?

Increased accessibility will make sites more valuable and will inevitably result in the relocation of certain lower value activities in the area or activities that are not so closely tied to the strategic advantages offered by the area. These are businesses that may be relatively footloose and are able to relocate. It is however uncertain as to whether the space vacated in existing areas of development will be taken up by an expansion of the distribution and logistics activities for which parts of the EWL area has particular advantages or whether it will encourage new types of activities, possibly supporting those already in the area to move in.

A possible example of this is the pattern of development in Ellerslie, an important regional centre, which appears to have a strong focus in serving the industrial activities in its vicinity. Here, strong growth in business service activity has been built around an accessible location with a good supply of well priced land for development. However, other comparable areas, such as Wairau Park on the North Shore, have seen rising land values being accompanied by a shift from industrial to retail activity. Here accessibility has not been improved. A potential concern here is that this land use pattern may be acceptable in the short-term but less desirable in the longer-term, however, once in place it may be hard to effect further transformation.

Land availability has been a significant driving force of recent development around the airport, with large, flexible and relatively well priced development sites proving to be an attractive proposition for firms looking to move into new premises. Increasing accessibility may place upward pressure on the value of certain sites but a more important consideration will be the eventual effect of the supply of available development sites being exhausted.

Key observation: 12

The course of land use change will be the product of many influences but changes in transport accessibility will strongly influence the attractiveness of an area for new development and resultant land values.

7 Summary and Conclusions

7.1 Economic structure and development

This study confirms that the EWL area performs an important function within Auckland's economy. The area remains a stronghold of regional activity in the manufacturing, and warehouse and distribution sectors, employing approximately 40 per cent of all people employed in these sectors in the Auckland Region. For the purpose of this study we have divided the area as a whole into a number of sub-areas, each of which has its own characteristics.

- Onehunga/Penrose – Traditional manufacturing and wholesaling area – good freight transport accessibility with links to SH and rail - employment growth over recent years has been limited, possibly as the large transport and logistics firms have moved to less labour-intensive patterns of operation.
- Mt Wellington – this is important manufacturing and distribution area but with a growing retail and business services sector.
- Highbrook- this is a new development area with very high growth as the industrial and commercial area expands. Because of the availability of large sites for development there have been a number of high profile relocations from more central locations with examples such as Lion Nathan Breweries moving from their site in Newmarket.
- Otahuhu and Favona – this is a smaller industrial area with growing importance in transport and distribution, to some extent taking advantage of the access to rail and the strategic highway network, but at the expense of manufacturing and to some extent business services.
- The Airport is a rapidly growing transport, logistics, business services and manufacturing area that is advantaged with good transport connections and good availability of large, greenfield development sites.
- East Tamaki-Papatoetoe-Airport, Mangere Bridge to Airport, and Mangere to Otahuhu are the main residential areas within the EWL area, with the East Tamaki-Papatoetoe-Airport accommodating almost 65,000 residents.

Importantly, the EWL area has evolved into a more complex economic structure. The shares of output generated by the manufacturing sector has declined, whilst business services are becoming increasingly important and increasing their combined share of total GDP. Wholesaling and transport sector has continued to grow and will continue to play a significant role moving forward regardless of whether manufacturing and or business services grow.

The changes in the economic structure of the EWL area have not been uniform, and each of the sub-areas has displayed a different growth path. There has been strong growth in Mt Wellington, the Airport and Highbrook sub-areas, and less change in the Penrose-Onehunga

and Otahuhu-Favona areas, and the residential parts of Papatoetoe, Mangere Bridge and Mangere.

7.2 Area profiles and patterns of development

The MMEWS and AETC areas have broadly similar levels of employment. In 2012, there were approximately 71,235 people employed in the AETC area, compared to 89,455 people in the MMEWS area. Further, the AETC area has a significantly higher residential population, with two distinct commercial sub-areas and three residential sub-areas, whereas the MMEWS area is predominantly commercial and industrial.

- Economic growth has been strongest in parts of the AETC area. Between 2001 and 2012, workplace-based GDP grew by 53 percent, compared to 26 percent in MMEWS area.
- Estimates indicate that East Tamaki and the Airport areas both generated approximately 36 percent of the total GDP from the AETC area in 2012, demonstrating the high rate of growth in these areas.
- In addition, the share of GDP in these areas is higher than their employment share. This reflects the location of higher value-added occupations in these areas.
- Workplace employment growth in the AETC area of 10 percent between 2006 and 2012 is considerably higher than the 4 percent achieved in the MMEWS area. It is also noticeably above the rest of Auckland and New Zealand, which achieved 4 and 2 percent growth respectively.

The manufacturing sector dominates both the MMEWS and AETC areas in terms of GDP generation and employment. In AETC firms in this sector accounted for 24 percent of the GDP generated in 2012, and 20 percent of employment. In the MMEWS area the share of GDP accounted for by manufacturing was even higher at 31 percent

Whilst the growth of the wholesale, storage and transport sectors is helping reshape the economic and spatial structure of this area overall, it is business services where the greatest change is taking place. The largest sub-area of employment for business services is East Tamaki (5,270) followed by the Airport (1,850). Just over 8 percent of all people employed in the Airport sub-area are employed in the business services and finance sector, while almost 21 percent of those employed in the East-Tamaki sub-area work in this sector.

Firms within the business services and finance sector are moving into these areas as purpose-built premises are being developed, and as office space is becoming more available. Factors such as proximity to customers and suppliers, and the increase in land-use changes such as new retail centres, hospitality businesses, and medical centres are adding to the area's attractiveness. This is supported by our observations in our two companion reports that the biggest land use changes in the AETC area have taken place in the commercial mixed-used sector. Between 1996 and 2012, the use of land for this purpose increased from 7 hectares to 612 hectares.

A number of observations also suggest that the AETC area made a greater contribution to the Region's economic growth between 2001 and 2012 than the MMEWS area. This is

strongly related to the higher proportion of greenfield sites in the AETC area, combined with good transport access, and proximity to key markets, labour and suppliers.

- In 1996, the AETC area accounted for just 8.3 percent of Auckland's commercial land, but in 2012 this proportion had grown to 18 percent.
- Over this period the Auckland Region added 2,888 hectares of new land for commercial purposes. The AETC area accounted for 1,712 hectares or 52 percent of this commercial land.

The study has demonstrated the economic diversity of the EWL area, with concentrations of types of activities in distinct sub-areas. The implications for development can partly arise from the interplay between the nature of the transport intervention and likely response from transport users. For example, providing better road access for freight might also encourage private car use whilst achieving high density business service centres will eventually require more than just private vehicle access.

In the future the economic function of the area as a whole is likely to continue to change, for example, with the continued growth of service activities. However, Onehunga/Penrose is likely to remain as an important location for transport and distribution activity, given its high level of accessibility by both road and rail and proximity to central Auckland. Increased accessibility will also result in the relocation of certain lower value activities away from the area. It is, however, uncertain as to whether this will support an expansion of the existing distribution and logistics activities or whether it will encourage new types of activities.

7.3 Transport themes

From a transport perspective the key themes arising from our interpretations of economic data analysed are:

- Increasing growth in transport warehouse and distribution will lead to increasing pressure on freight trips to and from and within the EWL area
- Increasing employment within the EWL area will lead to increasing pressure on the transport system at peak hours as commuting trips increase.
- We expect that additional employment will lead to additional economic activity. This is likely to generate an increase in transport demand as the volume of inputs and outputs increases. It may also result in more transport operators considering the East Tamaki, Airport and Mangere Bridge areas as an attractive business location to serve these growing activities.
- This increasing economic activity will place location specific pressures on the transport network within the EWL area. For example, the increasing appeal of the area for warehousing and distribution can be expected to lead to greater movements of heavy vehicles, in and around Penrose/ Onehunga, Highbrook and the Airport. The transport intensive nature of this sector suggests that to meet customer needs these increased movements will occur both within the peak periods and throughout

the working day, which for this sector may extend beyond 12 hours per day. Interestingly, this sector is capital rather than labour intensive and so growth in activity may not lead to as significant an increase in commuter trips.

- An increase in distribution activity within the area is likely to lead to greater movements of heavy vehicles in and out of the area. This may lead to increasing conflict between freight, air passenger and commuter traffic. Increased air passenger movements will be expected to add to traffic pressures throughout the day. In addition, transport and distribution companies may begin to employ hub and spoke business processes, and the use of shuttle vehicles to work around the increase in traffic congestion. Courier Post at Highbrook and their hub at the Airport is an example of this. Their vehicles may move between key transport hubs such as the Auckland, East Tamaki and Mangere Bridge areas several times a day at regular intervals.
- We have seen a process of structural change taking place in parts of the EWL area over the last decade as service activity grew whilst manufacturing struggled. The Draft Unitary Plan seeks to temper any further growth in business service by making these activities a non-complying activity in the EWL area generally.
- Commuting patterns are already quite dispersed with local residents not well represented in employment in either East Tamaki or the Airport, whilst people commute from a wide range of areas into these areas. Reasons might be either poor linkages between people and jobs, or the wrong balance of skills between residents and jobs.
- A further consideration is the role of improved accessibility in promoting change in the economic structure within the area. This is important, as retaining the Neilson St corridor's attractiveness for industrial activity, taking advantage of the particular transport characteristics of the area, is a stated aim of the Unitary Plan Without this there is a risk of industrial activity being priced out of an area by other competing uses, either retail or service related, due to accessibility changes rendering the area more attractive for these types of activity.
- Within the EWL area we observe differences in economic structure and functions at the local level, suggesting the patterns we discuss above will be unevenly distributed within the area but will overlap with one another given the nature of the transport system.

Our assessment of the economic structure and performance of the area reveals an important observation from a planning perspective. Irrespective of planning intentions for the area, left unchecked the desirability of certain locations as centres for business service activity will inevitably be reflected in rising land values. Without intervention, the result will be a gradual transformation of these areas, from low value industrial based activity to higher value activities including more advanced logistics and distribution and business services.

7.4 Economic linkages within the area.

There are linkages between different business areas, as evidenced by the movements of heavy goods vehicles between East Tamaki and the Onehunga/Penrose area, with in many cases the facilities in Neilson Street acting as consolidation /deconsolidation hubs for commodities moving on longer journeys. In addition there are strong linkages between the Airport and Onehunga/Penrose. The hubs have a regional function not just a local one. There is also a degree of interconnection between East Tamaki and Onehunga/Penrose, although this tends to be smaller volume higher value product associated with air freight.

Overall better connectivity between these areas will result in better business productivity through greater efficiency, faster travel times and reduced costs to business.

East-west connections through the area are limited and do not provide particularly high quality routes, being either somewhat convoluted or passing through sensitive areas. Interview respondents identified that the key freight transport issues include a lack of a good east-west connection, and increasing congestion on the road network at particular pinch points. A frequently mentioned pinch point was the connection between SH20 and SH1 in Manukau, which was seen to make journey times slow and unreliable.

There is the opportunity and space for the inland port to grow. Over the longer term train capacity on the rail network may become an issue if the growth forecast by MetroPort from 6 freight trains a day up to 15 freight trains a day is realised. To maximise the potential of the inland port will require a balance to be achieved between road access, rail capacity and land development. It would be sub-optimal to over invest in one of these elements where constraints existed in others. This should be taken into account when assessing investment options.

For a number of firms in the area, freight activities are time critical and firms are unable to work outside the congested times given customer expectations and the need to develop good relationships with customers. The Airport is an important international gateway for time critical freight as well as passengers and in value terms ranks as the third largest port in New Zealand. Providing reliable links to service this time-sensitive traffic is therefore important.

7.5 Insights to assist with further investigations

The main insights identified by our analysis which could be used to inform the further investigation of option are as follows:

- The Neilson Street/Church Street corridor route primarily serves the local access needs of the industries located within the corridor. It also acts as a through route for

both freight and general vehicles with 20-30 percent of all movements on the corridor being through traffic.

- There are significant congestion problems at both the eastern and western ends of the Neilson Church Street corridor now, particularly on the approaches to State Highway 1 and SH20. Travel time variability is a problem throughout much of the day for eastbound traffic and in the later part of the day for westbound movements.
- The conditions along Neilson St make turning movements difficult and create delays for traffic flows into and out of major access points, like MetroPort.
- The EWL Investment Logic Map expresses a desire to respond to changes in supply chain strategies to improve the efficiency of asset use and travel time predictability. The benefits of investment in better road access along Neilson St may need to be enhanced through complementary investment in rail freight capacity. This is worthy of further consideration when assessing investment options.
- With the development of advanced handling techniques the relationship between employment and freight volumes is likely to change with increases in freight volumes being achieved without any increases in employment.
- To the south of the Mangere Inlet there are also significant congestion problems and/or convoluted routes for getting between SH1 and SH20. Firms interviewed generally used either the SH1/SH20 connection, Massey Rd or Favona Road or. The SH1/SH20 connection at Manukau was singled out as a pinch point in the network often congested in the afternoon peak.
- While there is localised congestion in the EWL area, particularly within the Neilson Street corridor where this accesses SH1 and SH20, the congested conditions across the wider Auckland transport network are also impacting on the activity patterns of firms located in the EWL area.
- From the firms interviewed the majority indicated that reductions in congestion would increase their efficiency and reduce their costs of business, allowing them to undertake the same freight task with reduced resources
- Although considerable focus is placed on freight movements in the EWL area, commuting traffic impacts significantly on the capacity of the transport corridors into and out of the area. Overall, because of the high volumes of commuter traffic, providing good public transport links along the routes connecting these areas may help to increase the effective capacity of these routes and would provide better access to the employment opportunities available.

8 Appendix A: Interviewed firms

1. Accor Hotels
2. Allied Concrete
3. Amway
4. Auckland International Airport Limited
5. Bakels NZ Ltd
6. BOC Gases
7. Car Distribution Group
8. CHH Penrose Mill
9. Charta Packaging
10. Coca-Cola Amatil (NZ) Ltd
11. Courier Post
12. Cromptons
13. Doorways
14. Electrix
15. Fisher and Paykell
16. HMS Host
17. Hubbard Foods
18. Laminex Group Ltd
19. Linfox
20. LSG SkyChef
21. McAlpinne Hussmann
22. MetroPort
23. Mico Metals
24. Pacific Flight Catering Limited
25. Pacific Steel Group Limited
26. Reclaim
27. Seamount
28. Spicer Papers
29. Tanker Engineering Limited
30. Temperzone
31. Tip Top Ltd
32. Toll
33. Yates NZ

