



SIMTA Moorebank Intermodal Terminal

Economic Assessment

June 2013

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Executive Summary

STUDY BACKGROUND

This study assesses the potential economic impacts of the Sydney Intermodal Terminal Alliance's (SIMTA) proposal to develop an Intermodal Terminal in Moorebank in South Western Sydney.

It is intended that the Moorebank Intermodal Terminal will provide an integrated transport solution for the movement of freight to, from and within the Sydney metropolitan area.

The site for the proposed intermodal terminal covers an area of 83 hectares and is currently leased to the Federal Government and accommodates the Defence National Storage and Distribution Centre (DNSDC). The site is surrounded by Government-owned land to the South, West and East.

SIMTA's preliminary proposal comprises the following key components:

- A rail link connecting the site to the Southern Sydney Freight Line (SSFL);
- An intermodal terminal adjacent to Moorebank Avenue;
- Warehousing and distribution facilities comprising approximately 300,000 square metres of warehouses with ancillary offices; and
- Ancillary Terminal Facilities of approximately 8,000 square metres of support services such as site management, security offices, driver facilities and convenience retail and business services.

The staged redevelopment of the freight hub is proposed to commence in 2013 (subject to the Planning outcomes) with the first stage of the Intermodal Terminal expected to be operational by late 2014.

SYDNEY'S EXISTING FREIGHT INFRASTRUCTURE

Port Botany is the major port through which freight moves to, from and within Sydney. In 2011, 2.02 million containers passed through Port Botany. This is projected to increase to 3.2 million containers by 2025 (DA limit), albeit forecasts by SAHA estimate that total trade volumes could reach 5% by 2025 on a likely growth scenario, exceeding the current planned capacity.

In addition to Port Botany, commercial shipping activities also occur at the other ports that form part of Sydney Ports Corporation's portfolio, being Sydney Harbour and Glebe Island / White Bay.

Road is currently the dominant mode of transport for moving freight to and from Port Botany, accounting for approximately 77% of containers; rail accounts for the remaining 23% of containers.

There are currently four major intermodal terminals in Sydney, being Villawood, Minto, Yennora and Enfield.

The total capacity of Sydney's four existing intermodal terminals is 700,000 TEUs. This represents 34% of the volume of TEUs handled by Port Botany in 2010-2011. Therefore, additional terminal capacity will be required to accommodate the 3.2 million containers projected to pass through Port Botany by 2025.

STRATEGIC POLICY CONTEXT

Key policy objectives and strategies relating to Sydney's freight infrastructure are noted below:

- Increase rail's share of import and export container freight throughput at Port Botany from 20% to 40% by 2011.
- Increase Sydney's intermodal terminal capacity, in particular through development of the Moorebank Intermodal Terminal

- Ensure that the future freight networks consist of dedicated freight lines to Port Botany
- Ensure that terminals have the capacity to receive, load and unload 600 metre push-pull unit trains for the import/export trades;
- Ensure terminals be of sufficient capacity to load full trains either to or from a single stevedore;
- Ensure terminals be of sufficient size to accommodate on site empty container parks and servicing, on site warehousing development, driver facilities including truck and trailer parking, rest facilities, and AQIS Inspection and Customs bonded areas;
- Ensure terminals be available to operate 24 hours a day, seven days a week to maximise the return on investment in the sites and utilise the rail network to its maximum capacity; and
- Ensure terminals be adequately buffered from residential areas in order to minimise noise and light spill.
- Expand the M5 Corridor to handle growth of existing and potential future employment lands including Moorebank;
- Ensure adequate supplies of strategic employment lands are made available within the South West Subregion to support economic activities, including production and assembly and warehousing, among others

DEMOGRAPHIC & ECONOMIC CONTEXT

Key demographic and economic factors which do not directly relate to freight infrastructure, but which will have implications for future freight infrastructure development in Sydney are summarised below:

- The South West Subregion's population is forecast to increase by more than 414,000 people by 2036. This represents the highest growth rate of all of Sydney's subregions.
- The Government has set a target of 105,000 new jobs in the South West subregion over the period 2006 to 2036. However, we note that the population and job projections that have been set would translate to a fall in the level of job provision in the Region (i.e. a fall in the proportion of jobs to the working population), and as such the job targets should be revised upwards.
- The South West Subregion has a significantly higher proportion of labourers, machinery operators and drivers, and technicians and trade workers compared to the Sydney average. Jobs that would be created by the development of the intermodal terminal at Moorebank would largely fall within these occupation categories, and would therefore match the employment profile of the local population.
- As at 2011 approximately 40% (74,578) of Liverpool LGA's population were employed. Of these working residents, 28% worked within Liverpool LGA.
- As at 2011, 43% of South West Subregion residents were employed. Campbelltown and Liverpool LGAs were the major locations in which residents worked.
- The South West Subregion has 0.72 jobs available per person in the labour force, ranking it 5th out of Sydney's subregions. The Government's priority is to increase the number of jobs closer to home, increasing the percentage of the population living within 30 minutes by public transport of a city or major centre in Metropolitan Sydney. Given its lower rate and expected population growth, the South West subregion requires a significant increase in jobs to meet this objective.

REGIONAL EMPLOYMENT LANDS SUPPLY & DEMAND

There is currently an estimated 2,159ha of zoned employment lands in the South West subregion. Of this total it is estimated that 1,637ha (76%) is developed and some 523ha (24%) is currently vacant.

Within the south-west subregion, the Liverpool LGA contains the largest proportion of zoned employment lands at 916ha. Of this, an estimated 139ha (15%) is vacant, and an additional 70ha is believed to be under investigation.

The Moorebank intermodal terminal site is in close proximity to major employment lands precincts including Ingleburn and Prestons.

The neighbouring north-west subregion contains the largest share of employment lands of all of Sydney's subregions, having a total of 4,732ha of zoned employment lands with an estimated 2,611ha (55%) believed to be developed.

Based on job growth and industry forecasts, between 2011 and 2036 an estimated additional 326 hectares of industrial land will be required in Liverpool LGA. This is equivalent to approximately 42% of existing developed employment land area, and approximately 135% more than current vacant zoned employment lands in Liverpool LGA – indicating that additional land in Liverpool LGA will need to be rezoned to employment lands to accommodate future jobs growth.

SIMTA's Moorebank Intermodal Terminal site (82.9 hectares) accounts for approximately 11% of forecasted future demand for employment land in Liverpool LGA, and 19% of forecasted additional industrial land demand.

ECONOMIC IMPACTS OF MOOREBANK INTERMODAL TERMINAL

The Moorebank Intermodal Terminal facility will provide an integrated solution for the movement of freight to, from and within Sydney and is expected to provide significant benefits to the region and surrounds, as summarised below:

- 850 direct and indirect jobs per annum over the six year construction period, or a total of 5,100 one year full time equivalent jobs over the full six year construction period. ;
- 7,100 ongoing direct and indirect jobs during once the facility is fully operational;
- Reduction in the volumes of heavy vehicle movements along the M5 corridor in the order of 2,700 movements per day.
- Reduction in truck vehicle kilometres travelled of approximately 13 million kilometres per annum across the whole Sydney Metropolitan Network by 2031. This compares to a relatively small gain in train kilometres travelled of approximately 332,000 kilometres in 2026 once SIMTA has reached its estimated capacity of 1 million TEU.
- Net travel time savings of approximately 530,400 hours per annum, resulting in labour cost savings to businesses in the order of \$18.6 million per annum (\$2011). Over a 20 year period, this could generate savings with a net present value in the order of \$213 million (based on a 6% discount rate on an un-escalated basis)
- Net carbon dioxide emissions savings associated with the SIMTA development as opposed to an alternative development on the site consistent with the Liverpool Local Environmental Plan 2008 is estimated at 43,206 tCO₂e per annum. Based on the commencing value of the Federal Government's proposed Carbon Tax at \$23 per tonne (fixed for the first three years), this would result in carbon tax savings to businesses of approximately \$994,000 per annum once the Moorebank Intermodal Terminal reaches full capacity of 1 million TEU. Over a 20 year period on a non-escalated basis (assuming a discount rate of 6% per annum), this saving would result in a net present value of approximately \$11.4 million

Introduction

Sydney Intermodal Terminal Alliance (SIMTA) – a joint venture comprising Qube Logistics and QR National – has proposed to develop an Intermodal Terminal in Moorebank in South Western Sydney.

It is intended that the Moorebank Intermodal Terminal will provide an integrated transport solution for the movement of freight to, from and within the Sydney metropolitan area.

The purpose of this study is to assess the potential economic impacts of the development and operation of the proposed Moorebank Intermodal Terminal.

The assessment provides support for SIMTA's Transitional Part 3A Concept Plan Application for the development.

1 Study Background

1.1 PROPOSED MOOREBANK INTERMODAL TERMINAL

The proposed site of the Intermodal Terminal is located in Moorebank, 27 kilometres South-West of Sydney CBD in the Liverpool Local Government Area (LGA), forming part of the South West Subregion. The site, covering an area of approximately 83 hectares, is currently leased to the Federal Government and accommodates the Defence National Storage and Distribution Centre (DNSDC). The site is surrounded by Government-owned land to the South, West and East. The portion of Government-owned land to the West of the site is occupied by the School of Military Engineering (SME).

The site offers the following key advantages:

- Large size;
- Over 1.3 kilometres in length, thereby allowing it to accommodate port shuttle trains of up to 650 to 1,200 metres in length;
- Proximity to key transport corridors including the proposed South Sydney Freight Line, main interstate rail line, and the M5 and M7 Motorways;
- Proximity to key industrial precincts in Western and South-Western Sydney, including Bankstown, Prestons and Ingleburn.

SIMTA's preliminary proposal comprises the following key components:

- A rail link connecting the site to the Southern Sydney Freight Line;
- An intermodal terminal;
- Warehousing and distribution facilities comprising approximately 300,000 square metres of warehouses with ancillary offices; and
- Ancillary Terminal Facilities of approximately 8,000 square metres of support services such as site management, security offices, driver facilities and convenience retail and business services.

The staged redevelopment of the freight hub is proposed to commence in 2013 (subject to the Planning outcomes) with the first stage of the Intermodal Terminal expected to be operational by late 2014.

The need for an additional intermodal terminal in Sydney has arisen due to the significant growth in the movement of freight to, from and within the Sydney basin.

The terminal facility operations will involve freight being loaded onto trains at Port Botany, directly transporting containers to Moorebank on a dedicated freight line, unloading the containers at Moorebank into warehouses on site or onto trucks for delivery to businesses and warehouses across southwest Sydney. This operation would also work in reverse, taking freight containers to Port Botany.

The expanded freight rail capacity that will be achieved through development of the Moorebank Intermodal Terminal will support the New South Wales Government's target of increasing the share of freight that is transported from Port Botany to Sydney's intermodal facilities by rail to 40% by 2016, from 23% in 2009.

FIGURE 1 – MOOREBANK INTERMODAL TERMINAL SITE LOCATION



1.2 SYDNEY'S EXISTING FREIGHT INFRASTRUCTURE

Port Botany is the major port through which freight moves to and from Sydney. The Port is serviced by over twenty shipping lines going to more than 100 destinations. In addition to Port Botany, commercial shipping activities also occur at the other ports that form part of Sydney Ports Corporation's portfolio, being Sydney Harbour and Glebe Island / White Bay.

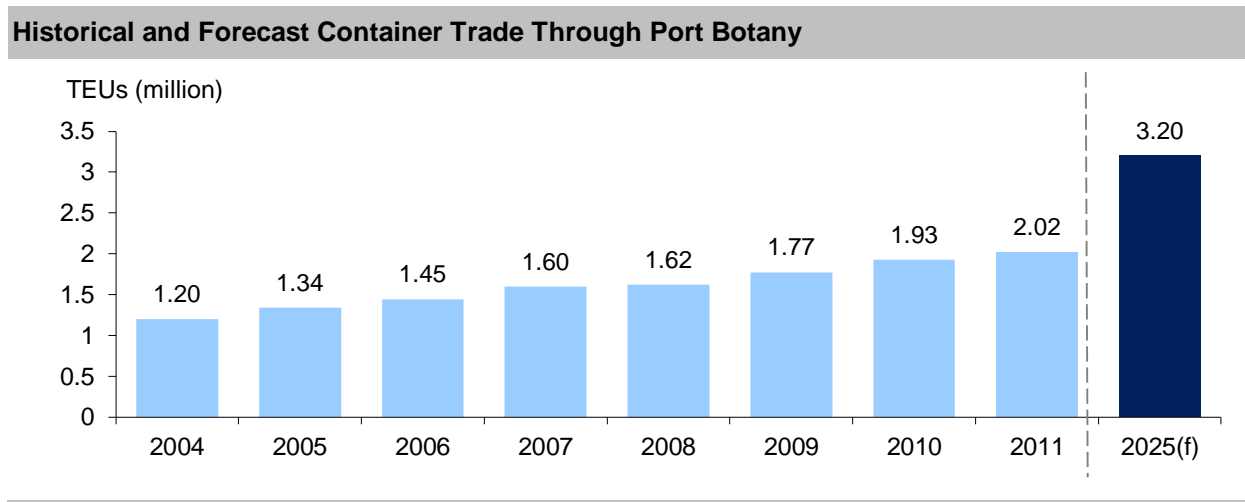
In the seven years to July 2011 Port Botany experienced average annual growth in container throughput of 7.7%, reaching 2.020 million TEUs in 2011. By 2025 container trade through Port Botany is expected to reach 3.2 million TEUs (which is Port Botany's current DA limit), see Figure 2. This would require average growth in the 14 years from 2011 to 2025 to be just 3.3% per annum, well below the historic average of 7% per annum over the 20 years to 2010¹.

We note however that the NSW Container Freight Improvement Strategy Preliminary Economic Evaluation prepared by SAHA forecast that trade growth could follow three growth scenarios based on Sydney Ports Corporation planning assumptions²:

- Low Growth of 4.8% per annum
- Likely Growth of 6.7% per annum
- High Growth of 7.2% per annum

Based on the "likely growth scenario", the level of port trade may reach 5.0 million TEU's by 2025. This is some 1.8 million TEU greater than the current DA capacity at Port Botany and will require either further capacity to be added to Port Botany or additional trade relocated to Port of Newcastle or Port Kembla.

FIGURE 2 HISTORICAL AND FORECAST CONTAINER TRADE THROUGH PORT BOTANY



Source: Sydney Ports Corporation

To handle some of the projected increase in container throughput, significant expansion of Port Botany commenced in 2008. At completion – expected in 2012 – the \$1 billion, 60 hectare expansion will increase the Port's container handling capacity by more than one third.

As Sydney's port freight handling capacity increases, expansion is also required to Sydney's rail, road and freight terminal infrastructure.

¹ Technical Note 2, Needs Assessment for Moorebank Intermodal Terminal Facility, PwC, June 2011

² NSW Government, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, SAHA, August 2010

Sydney's existing network of freight infrastructure is relatively fragmented, with key terminals dispersed throughout South and South-Western Sydney along the M4, M5 and M7 motorways. The network is illustrated in Map 2.

1.2.1 RAIL

Rail freight volumes to and from Port Botany increased dramatically from 310,000 TEUs in 2008, to 353,000 in 2009, representing a 14% increase and accounting for 23% of all containers transported to and from Port Botany.

Sydney's existing freight rail network comprises:

- a 20 kilometre dedicated line between Port Botany and Enfield / Chullora;
- a rail line between the port at White Bay which joins the main Port Botany Freight Link at Wardell Junction in Marrickville;
- A 2.5 kilometre freight line from Chullora to Sefton Junction;
- Sefton Junction to Macarthur freight line;
- A 5 kilometre freight line from Chullora to Flemington Junction, Strathfield and North Strathfield. Beyond this point freight trains use the passenger network on the main North Line to Hornsby via Epping;
- Freight trains travelling from Enfield / Chullora to the west share the passenger rail network on the Main West Line from Lidcombe to Penrith.

Along the metropolitan rail corridors where freight trains share the network with passenger trains, priority is given to passenger services. This represents a significant constraint to rail freight efficiency, particularly during the peak commuter hours and when curfews prevent any activities by freight trains on the metropolitan rail network. Construction of the proposed Southern Sydney Freight Line is intended to enable separation of freight from passenger services from south-west Sydney, and facilitate further growth of rail's share of freight transport to and from Port Botany going forward.

1.2.2 ROAD

Road freight remains the dominate transport mode for moving freight to and from the Port throughout NSW, and particularly within metropolitan Sydney.

Sydney's orbital road network provides direct linkages to industrial areas, warehousing and port related areas at Port Botany, inner and mid-west, south-west and west of Sydney. The orbital network includes the following roads:

- M1 Motorway from Sydney Airport to Sydney CBD.
- M2 Motorway and Lane Cove Tunnel from Seven Hills to Gore Hill Freeway.
- M4 Motorway from Penrith to Strathfield.
- M5 Motorway from Campbelltown to Sydney Airport.
- M7 Motorway from Liverpool to Pennant Hills (crossing the M4 Motorway).
- Cross City Tunnel linking the City West Link to the M1 Motorway.
- Foreshore road, providing direct road access from Port Botany to the Sydney orbital network.

Increases in rail freight volumes that occurred between 2009 and 2010 were matched by a marginal decrease in road freight volumes from 1.3 million TEUs to 1.2 million TEUs over the same period.

Whilst Sydney Ports is working to decrease road's share of freight movements from Port Botany, an increase in road freight volumes, in absolute terms, is anticipated given the expected significant increases in overall trade volumes.

We also noted there is a proposal relating to the existing M4 and M5 that seeks to upgrade both the commuter and freight capacity of 33 kilometres between Sydney's west, the airport and the Port Botany precinct, with construction due to begin in early 2015. This will include specifically an extension of the M4 east at North Strathfield to Taverners Hill in Petersham, a duplication of the M5 East to King Georges Road and a Sydney Airport Access Link between the St Peters area and the M5 East portals.

1.2.3 INTERMODAL TERMINALS

There are four major intermodal terminals in Sydney, being Villawood, Minto, Yennora and Enfield. We note the existence of Cooks River as an empty container storage facility and Chullora which only services the domestic interstate market. We also note that the Camellia site has now closed operations.

The most recent freight facility to be developed is Enfield, comprising an intermodal terminal (12 hectares), empty container storage areas (8 hectares), warehousing (52,500 sq.m.) and industrial / commercial facilities (40,000 sq.m.) and internal road network and a community ecological area. Once operational the facility is expected to handle up to 300,000 TEUs of throughput by rail per annum.

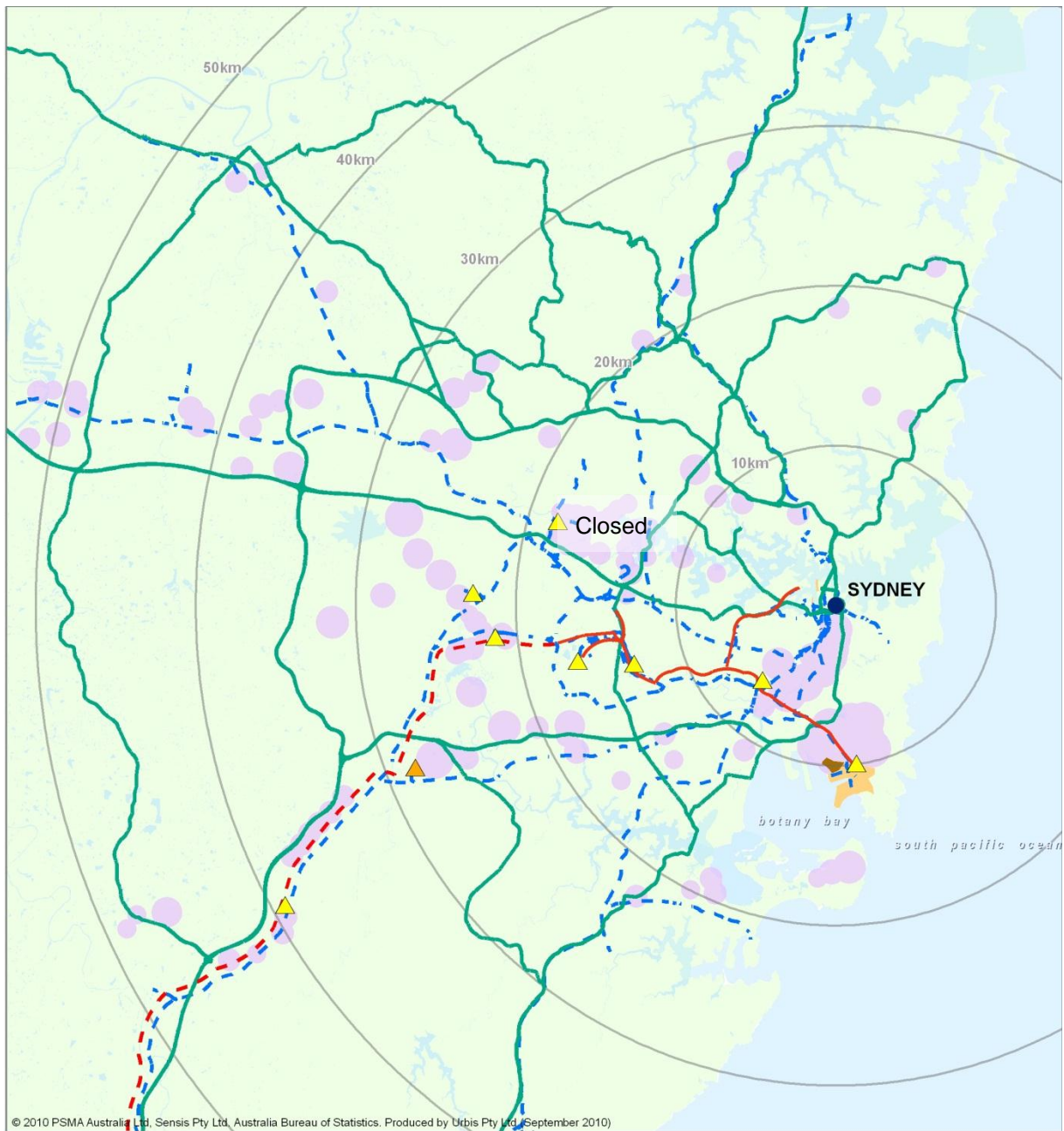
The total capacity of Sydney's four existing intermodal terminals (including Enfield) is 700,000 TEUs. This represents 34% of the volume of TEUs handled by Port Botany in 2010-2011.

TABLE 1 CONTAINER CAPACITY OF SYDNEY'S INTERMODAL TERMINALS

INTERMODAL TERMINAL	ESTIMATED CAPACITY
Villawood	80,000 TEUs
Minto	150,000 TEUs
Yennora	170,000 TEUs
Enfield	300,000 TEUs (forecast)
Total	700,000 TEUs

Source: Hyder, Technical Note 1, Strategic Freight Demand

FIGURE 3 – SYDNEY'S FREIGHT INFRASTRUCTURE NETWORK



- Highway / Freeway
- Dedicated Freight Rail Lines
- Southern Sydney Freight Line (planned)
- Shared Rail Line
- ▲ Moorebank Intermodal Terminal (Proposed)
- ▲ Intermodal Terminals
- Port Botany Development Area
- Port Facilities

REGIONAL CONTEXT

0 2.5 5 10

Kilometres

2 Strategic Policy Context

This section summarises findings and recommendations from key Strategic Policy Documents, which have implications for development of the Moorebank Intermodal Terminal. The key findings and recommendations summarised from the documents relate to jobs growth, employment lands and freight infrastructure in Sydney and the South West Subregion (in which Liverpool LGA falls) specifically.

2.1 RECOMMENDATIONS OF THE PORT FREIGHT ADVISORY BOARD (2005)

In December 2004 the then Minister for Infrastructure & Planning established a Freight Infrastructure Advisory Board to guide the development of Sydney's Port Freight Strategy.

This Advisory Board undertook a comprehensive study of Sydney's Port Freight capacity, focusing on the movement of import and export containers within Sydney. The objective was to develop a strategy to increase rail's share of import and export container freight throughput at Port Botany from 20% to 40% by 2011. Recommendations that emerged from the study which have implications for the development of the Moorebank intermodal terminal are noted below:

It was recommended that the NSW Government:

- *Take all necessary steps to ensure that Sydney has sufficient additional intermodal terminal capacity to meet a rail freight share of 40%;*
- *Treat intermodal terminals as critical infrastructure under NSW planning provisions;*
- *Seek to connect Sydney's future network of intermodal terminal to Port Botany by way of dedicated freight rail lines;*
- *Regard Moorebank as a key component in meeting Sydney's intermodal capacity needs;*
- *Ensure that Moorebank is secured for intermodal terminal development by the private sector and be prepared if necessary, on a transitional basis, to use funds from the Freight Infrastructure Charge for this purpose;*

For new terminals, the following general principles were recommended:

- *Terminals be located adjacent to or close to key distribution and warehousing areas in metropolitan Sydney;*
- *Terminals be located adjacent to, and with good access to, key arterial road corridors, particularly the M4, M5 and M7;*
- *Terminal locations be adjacent to dedicated rail freight lines;*
- *Terminals have the capacity to receive, load and unload 600 metre push-pull unit trains for the import/export trades;*
- *Terminals be of sufficient capacity to load full trains either to or from a single stevedore;*
- *Terminals be of sufficient size to accommodate on site empty container parks and servicing, on site warehousing development, driver facilities including truck and trailer parking, rest facilities, and AQIS Inspection and Customs bonded areas;*
- *Terminals be available to operate 24 hours a day, seven days a week to maximise the return on investment in the sites and utilise the rail network to its maximum capacity; and*
- *Terminals be adequately buffered from residential areas in order to minimise noise and light spill.*

2.2 METROPOLITAN PLAN FOR SYDNEY 2036

In 2010 the NSW Government released the Metropolitan Plan for Sydney 2036 - the key policy document for guiding employment, housing and infrastructure development in Sydney. The 2036 Strategy draws on the previous work undertaken in the 2005 Metropolitan Strategy and the 2010 Metropolitan Transport Plan.

The key findings and policies outlined in the 2036 Metropolitan Plan which have implications for development of the Intermodal Terminal at Moorebank are outlined below:

- The Plan forecasts that the Sydney population is expected to grow by 1.7 million people between 2006 and 2036 to 6 million – an annual average rise of 56,000.
- The South West Subregion will provide 20% of the 770,000 new homes required to accommodate this level of population growth, a total of 155,000 including 83,000 in new release areas.
- By 2036 Western Sydney, comprising the South West, North West and West Central Subregion will account for almost half (45%, 2.69 million people) of Sydney population.
- Job capacity targets outlined in the 2036 Metropolitan Plan are as follows:

TABLE 2 SYDNEY 2036 METROPOLITAN PLAN JOB TARGETS

SUBREGION	ADDITIONAL JOBS 2006-2036
East	31,000
North East	23,000
Inner North	62,000
North	15,000
South	52,000
South West	141,000
North West	145,000
West Central	98,000
Inner West	25,000
City of Sydney	114,000
Total Sydney	706,000

- The Government's priority is to increase the number of jobs closer to home, focusing employment around strategic centres that are easily accessible to large population centres.
- The 2036 Metropolitan Plan outlines continued Government support for planning for freight and logistics from and to Port Botany and Sydney Airport.
- It is worth noting that the current 2036 Metropolitan Plan will be superseded by the new draft Metropolitan Strategy due to be released later in 2013, with the new Subregional Delivery Plans to be completed in 2014.

2.3 DRAFT SOUTH WEST SUBREGIONAL STRATEGY (2007)

The *Draft Subregional Strategy*, released by the Department of Planning in 2007, translates the objectives of the Metropolitan Strategy and State Plan to the local level. Key findings and recommendations presented within the Strategy which are relevant to the development of the Intermodal Terminal at Moorebank are summarised as follows.

The Strategy notes that:

- The South West Subregion is expected to experience the highest level of population growth of all of Sydney's subregions over the next 25 years, accommodating 25% of future housing development expected to occur in Sydney.
- The DoP has set a target of 89,000 new jobs in the South West Subregion over the period 2001 to 2031 (note that the job targets laid out in the Sydney Metropolitan Strategy Review relate to a different time period of 2006 to 2036). The additional jobs are expected to be distributed across LGAs as follows:

TABLE 3 DRAFT SOUTH WEST SUBREGIONAL STRATEGY JOB TARGETS

LGA	ADDITIONAL JOBS 2001-2031
Liverpool	35,000
Campbelltown	26,000
Camden	26,000
Wollondilly	2,000
Total South West Subregion	89,000

- It will be critical to ensure that adequate supplies of strategic employment lands are made available within the South West Subregion to support economic activities, including production and assembly and warehousing, among others;
- The manufacturing and building and construction industries will be key employment industries in the region over the next 25 to 30 years. This is contrary to the outlook for the Sydney Metropolitan area, where these industries are expected to employ a declining share of the workforce. Other prominent employment industries in the South West Subregion will be warehousing, transport and logistics, and healthcare.
- Industrial activities will be drawn to the area by its location advantages and available workforce.
- The State Government regards the proposal for a transport terminal at Moorebank as a key component in meeting Sydney's intermodal capacity needs.

2.4 PORT FREIGHT LOGISTICS PLAN (2008)

The *Port Freight Logistics Plan* is a framework developed by Sydney Ports Corporation aimed at guiding improvements to Sydney's logistics infrastructure and processes. The plan largely focuses on initiatives to increase rail's share of freight movements, and to minimise the impact of truck movements generated by Port Botany. Moreover, the Plan notes that the need to expand the intermodal network within Sydney is a prerequisite for the greater use of rail.

The Plan notes the current limitations in Sydney's freight rail system in terms of freight trains sharing the network with passenger trains, and curfews which prevent any activities by freight trains on the metropolitan rail network. As a consequence of these constraints, reliability significantly decreases.

In light of these constraints, the Plan notes that the planning and development of rail freight corridors including infrastructure design and land preservation, is needed to improve access within the Sydney metropolitan area and linkages north to Brisbane and south to Melbourne.

In terms of the intermodal network the Plan notes and supports the Department of Planning's proposed network of additional facilities in the Central West, South West and West subregions, namely Enfield, Eastern Creek and Moorebank and Macarthur Intermodal Shipping Terminal at Minto. Moorebank is identified in the plan as a long term (2013-2016) development.

2.5 NSW GOVERNMENT SUBMISSION TO INFRASTRUCTURE AUSTRALIA (2010)

In October 2010 the NSW Government made a submission to Infrastructure Australia – the Federal Government body that was established in 2008 to develop a strategic blueprint for future national infrastructure needs, and to work in partnership with state, territory and local governments, and the private sector, to facilitate implementation of major infrastructure projects.

The NSW Government's submission to Infrastructure Australia addresses land use and transport strategies and actions aimed at improving state and national productivity. Strategies and actions relating to the movement of freight to and from New South Wales is a key component of the submission.

With regards to freight movement, the submission makes the following key points:

- The development of additional intermodal terminal facilities in Sydney are endorsed, including Enfield, Moorebank and Eastern Creek, to achieve the objective of increasing rail's share of freight transport to 40% ;
- Expansion of the M5 Corridor is required to handle growth of existing and potential future employment lands including Moorebank;
- The development of the Government-owned Moorebank intermodal terminal (School of Military Engineering (SME) site) will be led by the Australian Government and is supported by NSW. It is likely that development of this SME site will occur between 2010 and 2016. (In addition to the SIMTA site).
- NPV analysis indicates that introducing SIMTA's Moorebank Intermodal Terminal by 2016, rather than the alternative option 2021, delivers a preferable economic outcome.
- Intermodal terminals at Moorebank (including both the SIMTA facility and potential SME site), and the proposed Eastern Creek Intermodal terminal will provide the capacity to meet projected freight demands up to 2036. Additional solutions and further investment in intermodal terminals and connections will be needed beyond this timeframe to keep pace with growing demand.

3 Local Resident Demographic Profile

This section provides a review of the demographic profile of residents in Liverpool LGA and the broader South West Subregion, comprising Liverpool, Campbelltown, Camden and Wollondilly LGAs. The information provides context for considering the economic implications, such as provision of jobs for local residents, of the proposed Intermodal Terminal at Moorebank.

3.1 POPULATION FORECASTS

The South West subregion is expected to experience the highest rate of population growth of all of Sydney’s subregions over the next twenty five years, with population growth expected to range from approximately 12,500 to 18,160 additional persons annually between 2011 and 2036. Liverpool LGA is expected to account for around 31% to 47% of this growth.

TABLE 4 SOUTH WEST SUBREGION POPULATION FORECASTS

South West Subregion Population Forecasts (2006-2036)							
	Estimated Resident Population (No.)						
	Historic		Forecast				
	2006	2011	2016	2021	2026	2031	2036
Liverpool LGA	170,900	188,050	208,234	240,698	271,002	298,607	341,421
SW Subregion	410,400	442,126	504,812	583,783	676,095	766,323	857,123
Average Annual Growth (No.)							
	2006-2011		2011-2016	2016-2021	2021-2026	2026-2031	2031-2036
Liverpool LGA	3,430		4,037	6,493	6,061	5,521	8,563
SW Subregion	6,345		12,537	15,794	18,462	18,046	18,160
Average Annual Growth (%)							
	2006-2011		2011-2016	2016-2021	2021-2026	2026-2031	2031-2036
Liverpool LGA	2.0%		2.1%	3.1%	2.5%	2.0%	2.9%
SW Subregion	1.5%		2.8%	3.1%	3.2%	2.7%	2.4%

Source: ABS, NSW DoP, Urbis

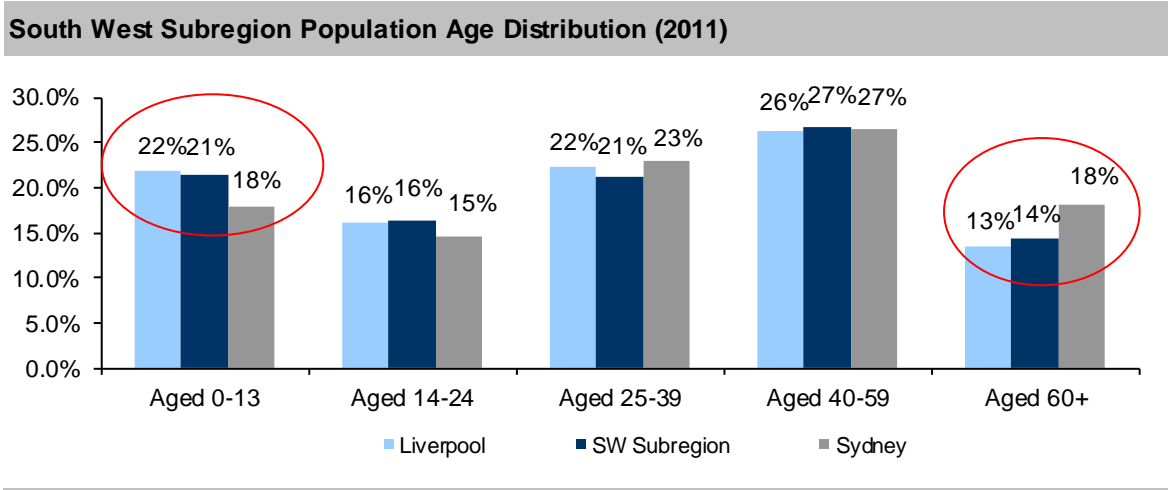
3.2 AGE DISTRIBUTION

Both Liverpool LGA and the broader South West Subregion have higher proportions of children aged 0 to 13 years and significantly lower proportions of people aged over 60 years compared to the entire Sydney Metropolitan Area (GMA).

The proportion of the Liverpool and South West Subregion populations that falls within the key working age group of 20 to 59 years is consistent with the Sydney average of 57%.

The large population of children in the South West subregion will enter the working age group in the coming years, resulting in significant growth in the size of the work force. This will drive the need for provision of new jobs in the region.

FIGURE 4 SOUTH WEST SUBREGION POPULATION AGE DISTRIBUTION

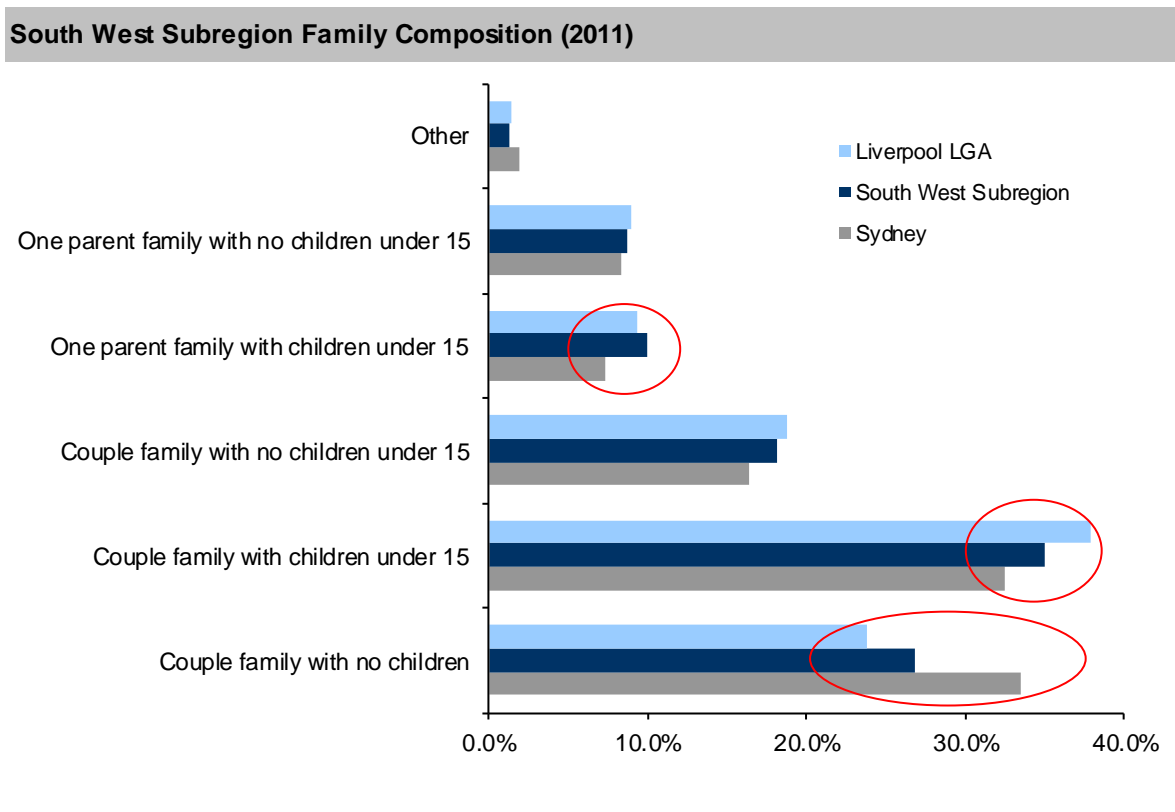


Source: ABS

3.3 FAMILY COMPOSITION

Compared to Sydney, the South West subregion has a much higher proportion of one parent and couple families with children under 15, and a significantly lower proportion of couple families with no children. The lower proportion of couple families with no children reflects the lower proportion of 'empty nesters' aged 60+.

FIGURE 5 SOUTH WEST SUBREGION FAMILY COMPOSITION



Source: ABS

3.4 HOUSEHOLD INCOME

The average income of Liverpool LGA households is lower (12.5%) than the average across Sydney, and slightly below (2.3%) the South West Subregion average. This is despite there being a much higher proportion of people across Sydney aged over 60 who are retired and therefore would not earn a salary.

TABLE 5 SOUTH WEST SUBREGION HOUSEHOLD INCOME DISTRIBUTION

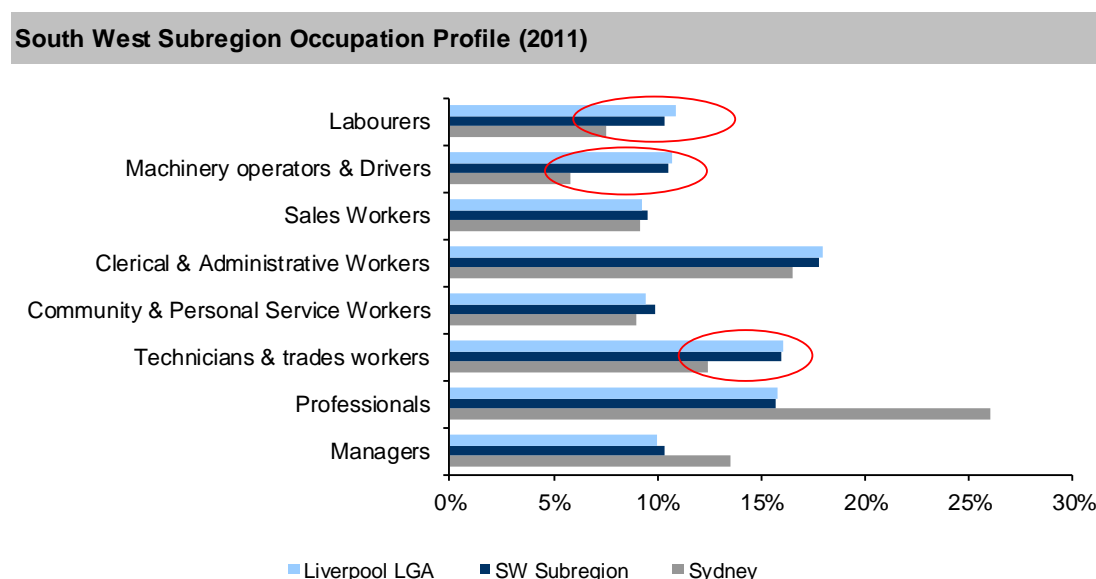
South West Subregion Household Income Distribution (2011)			
	Liverpool LGA	SW Subregion	Sydney
\$Neg/Nil	1%	1%	2%
\$1-\$10,400	2%	2%	2%
\$10,400-\$15,600	3%	3%	3%
\$15,600-\$20,800	6%	6%	6%
\$20,800-\$31,200	9%	9%	8%
\$31,200-\$41,600	9%	9%	8%
\$41,600-\$52,000	8%	8%	8%
\$52,000-\$65,000	10%	9%	8%
\$65,000-\$78,000	9%	9%	8%
\$78,000-\$104,000	14%	14%	13%
\$104,000-\$130,000	11%	12%	9%
\$130,000-\$156,000	8%	8%	11%
\$156,000-\$182,000	5%	5%	6%
\$182,000-\$208,000	2%	3%	3%
\$208,000 plus	3%	3%	6%
Average Household Income	\$82,585	\$84,594	\$94,428

Source: ABS

3.5 RESIDENT OCCUPATION

The South West Subregion has a significantly higher proportion of labourers, machinery operators and drivers, and technicians and trade workers compared to the Sydney average. Jobs that would be created by the development of the intermodal terminal at Moorebank would largely fall within these occupation categories, and would therefore match the employment profile of the local population.

FIGURE 6 SOUTH WEST SUBREGION OCCUPATION PROFILE



Source: ABS

3.6 RESIDENT INDUSTRY OF EMPLOYMENT

The manufacturing and retail trade industries employ the largest shares of Liverpool and South West subregion residents, combined accounting for 25% of resident employment in these locations. In comparison, these industries employ 19% all workers across the entire Sydney metropolitan area.

The construction and transport, postal and warehousing industries also represent a higher proportion of resident employment in the South West Subregion compared to Sydney.

TABLE 6 SOUTH WEST SUBREGION RESIDENT INDUSTRY OF EMPLOYMENT

South West Subregion Resident Industry of Employment (2011)			
	Liverpool LGA	SW Subregion	Sydney
Manufacturing	14%	14%	9%
Retail trade	11%	11%	10%
Health care & social assistance	10%	11%	11%
Construction	9%	9%	7%
Transport, postal & warehousing	8%	8%	5%
Public Administration & safety	7%	7%	6%
Education & training	6%	7%	8%
Wholesale trade	6%	5%	5%
Accommodation & food services	6%	6%	6%
Financial & insurance services	5%	4%	7%
Professional, scientific & technical sei	5%	5%	10%
Other services	4%	4%	4%
Administrative & support services	4%	3%	4%
Information media & telecommunicati	2%	1%	3%
Rental, hiring & real estate services	1%	1%	2%
Arts & recreation services	1%	1%	2%
Electricity, as, water & waste services	1%	1%	1%
Agriculture, forestry & fishing	1%	1%	0%
Mining	0%	0%	0%

Source: ABS

3.7 RESIDENT PLACE OF EMPLOYMENT

As at 2011 approximately 38.4% (72,128) of Liverpool LGA's population were employed. As noted in Table 7, of these working residents, 29% worked within Liverpool LGA. Other Liverpool LGA residents travelled predominately to Fairfield (9%), Sydney City (8%) and Bankstown (6%) LGAs to work. The location distribution of LGA resident employment is illustrated in Map 3.

TABLE 7 PLACE OF EMPLOYMENT OF LIVERPOOL LGA RESIDENTS

Place of Employment of Liverpool LGA Residents (2011)		
	No. of Workers	% of Workers
Liverpool	20,625	29%
Fairfield	6,259	9%
Sydney City	6,105	8%
Bankstown	4,685	6%
Parramatta	3,143	4%
Campbelltown	2,911	4%
Holroyd	2,131	3%
Auburn	1,991	3%
Other	24,278	34%
Total	72,128	100%

Source: TDC, ABS

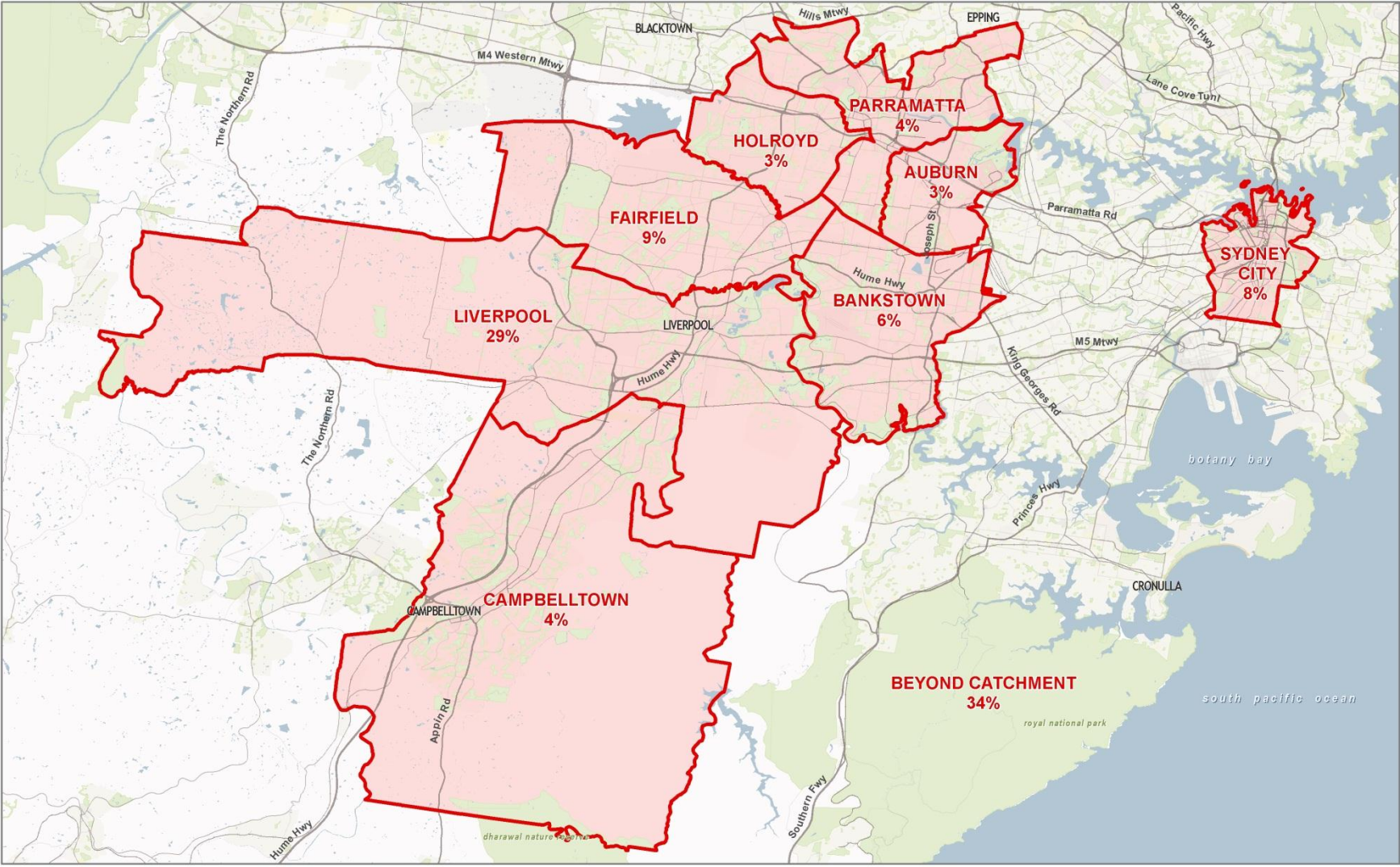
As at 2011, 43.6% of South West Subregion residents were employed. Campbelltown and Liverpool LGAs were the major locations in which residents worked. The balance of residents worked mainly throughout the rest of the subregion as well as Sydney City. The distribution of South West Subregion residents' place of employment is illustrated in Map 4.

TABLE 8 PLACE OF EMPLOYMENT OF SOUTH WEST SUBREGION RESIDENTS

Place of Employment of South West Subregion Residents (2011)		
	No. of Workers	% of Workers
Campbelltown	31,375	16%
Liverpool	30,663	16%
Sydney City	14,742	8%
Camden	14,226	7%
Bankstown	9,673	5%
Fairfield	8,734	5%
Wollondilly	7,087	4%
Parramatta	67,203	35%
Other	9,077	5%
Total	192,780	100%

Source: TDC, ABS

FIGURE 7 –LIVERPOOL LGA RESIDENTS PLACE OF EMPLOYMENT

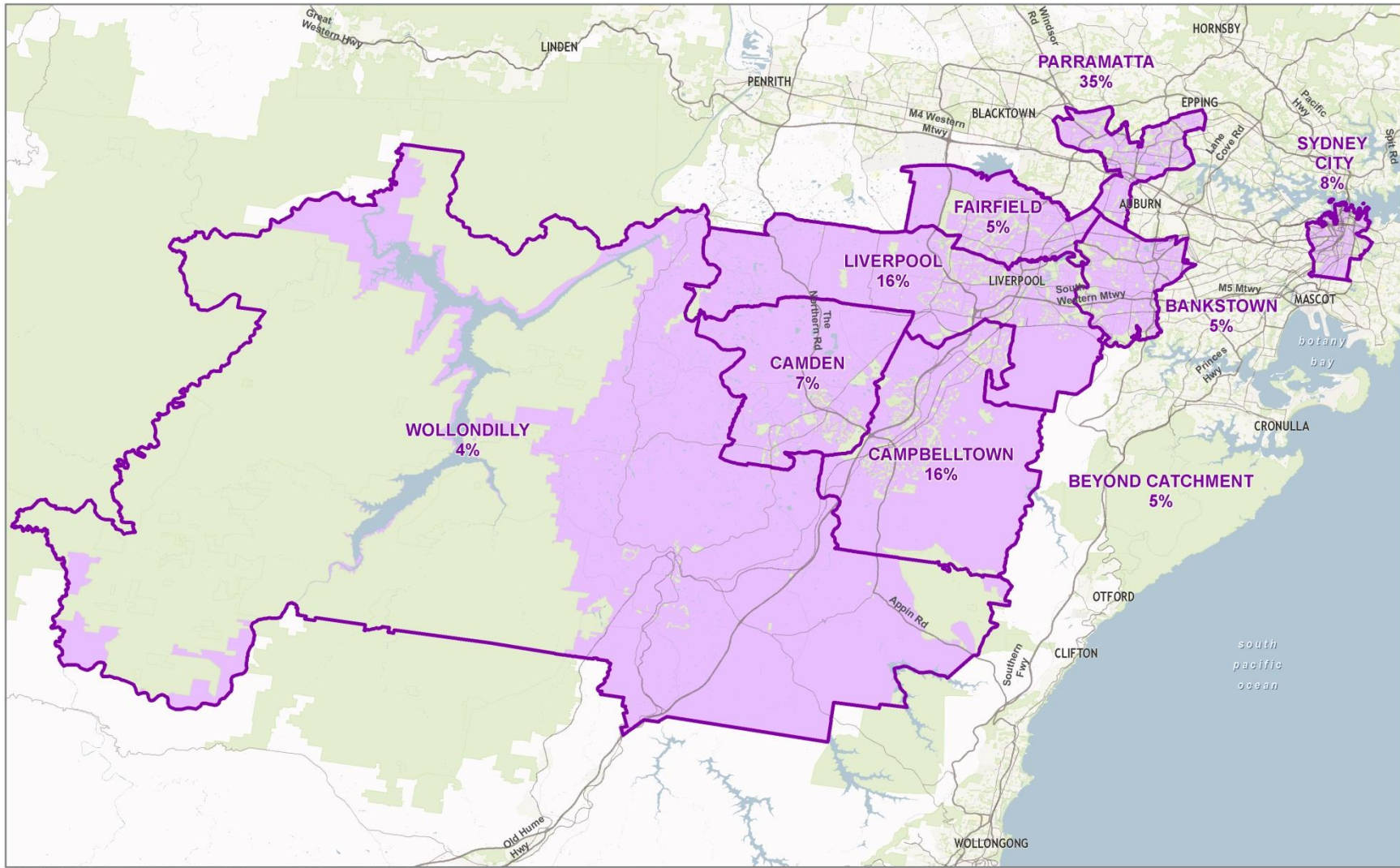


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LIVERPOOL LGA RESIDENTS' PLACE OF EMPLOYMENT



FIGURE 8 –SOUTHWEST SUBREGION RESIDENTS PLACE OF EMPLOYMENT



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SOUTH WEST SUBREGION RESIDENTS' PLACE OF EMPLOYMENT



4 Local Worker Profile

This section assesses the nature of jobs that are located in Liverpool LGA and the broader South West subregion. This provides a basis for considering the appropriateness of the Moorebank Intermodal Terminal in terms of its proximity to other employment uses, and the role that it would play in providing a diverse range of employment opportunities for local residents.

4.1 PROVISION OF JOBS IN THE SOUTH WEST SUBREGION

Table 9 below compares the provision of jobs across Sydney's different subregions. Apart from the North and South Subregions, the South West Subregion has the lowest provision of jobs, with 0.72 jobs being available per person in the labour force. The DoP's objective is to ensure that more jobs are made available in close proximity to people's place of residence, thereby limiting the need to travel long distances to work. To achieve this, significant jobs growth is required in the South West subregion, to overcome the current under provision and to provide for the expected rapid future population increase.

TABLE 9 PROVISION OF JOBS, BY SUBREGION

SUBREGION	JOB OPPORTUNITIES PER PERSON IN THE LABOUR FORCE
South West	0.72
Sydney City	3.85
North West	0.59
Inner West	0.71
West Central	0.87
Inner North	1.28
North	0.51
North East	0.61
East	0.80
South	0.48

Source: TDC, ABS

4.2 WORKER CATCHMENT AREA

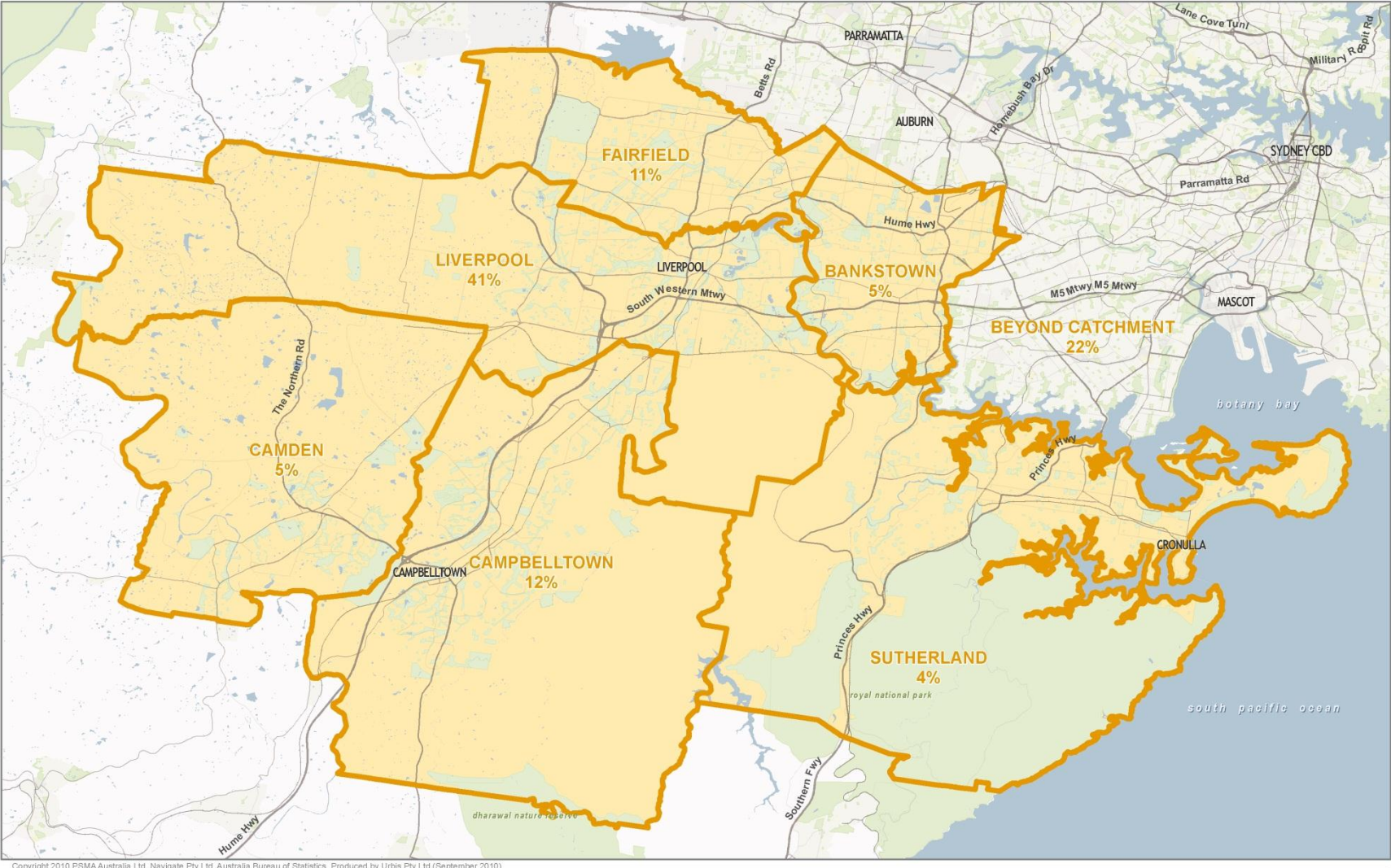
People that work in Liverpool LGA come largely from within Liverpool LGA itself (41%). Other prominent sources of workers in Liverpool LGA are Campbelltown (12%), Fairfield (11%), Camden (5%), Bankstown (4%) and Sutherland (4%). Combined, residents from these 6 LGAs account for 78% of all jobs in Liverpool LGA. The remaining 22% of workers in Liverpool LGA reside in a broad range of locations.

TABLE 10 PLACE OF USUAL RESIDENCE OF LIVERPOOL LGA WORKERS

Place of Usual Residence of Liverpool LGA Workers (2011)		
	No. of Workers	% of Workers
Liverpool	20626	41%
Campbelltown	6178	12%
Fairfield	5578	11%
Camden	2723	5%
Bankstown	2349	5%
Sutherland Shire	2021	4%
Catchment total	39,475	78%
Other	11,059	22%
Total	50,534	100%

Source: TDC, ABS

FIGURE 9 – PLACE OF USUAL RESIDENCE OF LIVERPOOL LGA WORKERS



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LIVERPOOL LGA WORKER CATCHMENT AREA



4.3 LOCAL JOBS BY INDUSTRY

As noted in Table 11 the most prominent industries of employment in Liverpool LGA are manufacturing, health care & social services, retail trade, education & training, public administration & safety, transport, postal & warehousing, construction and wholesale trade. Combined, these eight industries account for 76.6% of all jobs in Liverpool LGA. The jobs profile of the broader South West Subregion is relatively consistent with Liverpool LGA, as outlined in Table 11.

TABLE 11 JOBS IN LIVERPOOL LGA, BY INDUSTRY

Jobs in Liverpool LGA, by Industry (2011)		
	No. of Jobs	% of Jobs
Manufacturing	8142	15.1%
Health Care and Social Assistance	8072	15.0%
Retail Trade	5790	10.8%
Education and Training	4906	9.1%
Public Administration and Safety	4831	9.0%
Wholesale Trade	3235	6.0%
Transport, Postal and Warehousing	3214	6.0%
Construction	3028	5.6%
Accommodation and Food Services	2451	4.6%
Administrative and Support Services	2135	4.0%
Other Services	1822	3.4%
Professional, Scientific and Technical Services	1744	3.2%
Rental, Hiring and Real Estate Services	833	1.5%
Financial and Insurance Services	746	1.4%
Inadequately described	626	1.2%
Electricity, Gas, Water and Waste Services	609	1.1%
Agriculture, Forestry and Fishing	594	1.1%
Arts and Recreation Services	495	0.9%
Information Media and Telecommunications	453	0.8%
Mining	37	0.1%
Total	53,763	100%

Source: TDC, ABS

TABLE 12 JOBS IN THE SOUTH WEST SUBREGION, BY INDUSTRY

Jobs in the South West Subregion, by Industry (2011)		
	No. of Jobs	% of Jobs
Manufacturing	17955	15%
Health Care and Social Assistance	15931	13%
Retail Trade	14317	12%
Education and Training	12206	10%
Construction	7972	7%
Public Administration and Safety	7922	7%
Accommodation and Food Services	6998	6%
Transport, Postal and Warehousing	6618	6%
Wholesale Trade	6058	5%
Other Services	4499	4%
Professional, Scientific and Technical Services	4255	4%
Administrative and Support Services	3666	3%
Rental, Hiring and Real Estate Services	2005	2%
Financial and Insurance Services	1815	2%
Mining	1533	1%
Agriculture, Forestry and Fishing	1485	1%
Arts and Recreation Services	1309	1%
Electricity, Gas, Water and Waste Services	1295	1%
Inadequately described	1260	1%
Information Media and Telecommunications	967	1%
Total	120,066	100%

Source: TDC, ABS

4.4 MODE OF TRANSPORT TO WORK

The large majority of people that work in Liverpool LGA travel to work by car, primarily as the driver. Public transport accounted for just 4.4% of all trips made by people travelling to work in Liverpool LGA. Given the high proportion of people that travel to work by car, traffic congestion is a major issue for the residents and workers in the South West subregion, and therefore a key issue in planning for the development of the Moorebank Intermodal Terminal.

TABLE 13 MODE OF TRANSPORT TO WORK IN LIVERPOOL LGA

Mode of Transport to Work in Liverpool (2011)		
	No. of Trips	% of Trips
Car, as driver	37,473	70.4%
Did not go to work	4,384	8.2%
Car, as passenger	3,288	6.2%
Worked at home	1,740	3.3%
Walked only	1,603	3.0%
Train	1,067	2.0%
Bus	885	1.7%
Truck	795	1.5%
Train, bus	397	0.7%
Bicycle	224	0.4%
Motorbike/scooter	220	0.4%
Other	1,140	2.1%
Total Trips	53,216	100%

Source: TDC, ABS

4.5 LOCAL JOB FORECASTS

Table 14 below presents job forecasts for Liverpool LGA and the South West Subregion from 2006 to 2036, as prepared by the Transport Data Centre (TDC) in 2012.

From 2006 to 2036 approximately 101,000 new jobs are expected to be created in the whole South West Subregion. Of these, approximately 42,000 (42%) are expected to be located in Liverpool LGA.

Over the same period, the South West Subregion's population is expected to grow by around 415,000 people, of which 153,000 will be located in Liverpool LGA. If we apply 2011 labour force ratios to these forecasts, the number of additional people in the workforce by 2036 would be approximately 65,000 in Liverpool LGA and 190,000 in the entire South West Subregion. If the jobs targets and population forecasts are realised, the ratio of additional jobs to additional persons will be 0.62 for Liverpool LGA and 0.54 for the South West Subregion. Note that these ratios are below the existing jobs to persons ratio for the South West subregion, meaning that the population and job projections that have been set would translate to a fall in the level of job provision in the Region.

TABLE 14 SOUTH WEST SUBREGION JOB GROWTH FORECASTS

South West Subregion Job Growth Forecasts (2006-2036)						
Cumulative Jobs Growth	2006-2011	2006-2016	2006-2021	2006-2026	2006-2031	2006-2036
Liverpool LGA	4,853	12,535	19,686	25,687	33,518	41,792
Total SW Subregion	9,837	26,736	43,941	61,532	81,923	101,149

Source: ABS 2006 and 2011 Census; Transport Data Centre (2012)

5 Regional Employment Land Supply

The following section provides an overview of the primary employment lands regions located throughout the Sydney Metropolitan area. Most are within the south-west and north-west Sydney subregions. The proposed site for the Moorebank Intermodal Terminal falls within the south-west subregion adjacent to the subregional city centre of Liverpool. An overview of the north-west subregion is provided to establish the broader context of the site, in terms of its size and location relative to other major employment land areas.

Our employment lands assessment is based largely on the NSW Government's *Metropolitan Plan for Sydney 2036* and the Employment Lands Development Program (EDLP) 2012 update, which outline the initiatives and procedures which facilitate the supply of Employment Lands in Sydney. According to this publication, Employment Lands are defined as industrial areas and business and technology parks.

A high level review has been undertaken to identify existing and proposed employment land supplies throughout locations surrounding the proposed Moorebank Intermodal Terminal. The site identified to house the Intermodal Terminal Facility is located in the south western corridor with local access via the M5 Motorway and the proposed Southern Sydney Freight Line. These infrastructure links will provide access to the Western Sydney Employment Hub and west to link with the M7 Motorway.

The following section outlines the existing and proposed employment lands and profiles the key fundamentals of employment lands in the region.

5.1 EXISTING ZONED EMPLOYMENT LANDS

A review of the current employment lands within the south-west and north-west subregions has been undertaken and summarised in Table 15 overleaf. Our investigation of the south-west subregion shows an estimated total of 2,159ha of zoned employment lands at present. Of this total it is believed that 1,637ha (76%) is developed and some 523 ha (24%) is currently vacant.

Within the south-west subregion, the Liverpool LGA contains the largest proportion of zoned employment lands at 916ha. Of this, an estimated 139ha (15%) is vacant, and an additional 70ha is believed to be under investigation. Similarly, Campbelltown has a considerable amount of zoned employment lands, a total of 601ha of which 736ha (82%) is believed to have been developed.

The neighbouring north-west subregion contains the largest share of employment lands of all of Sydney's subregions, having a total of 4,732ha of zoned employment lands with an estimated 2,513ha (53%) believed to be developed. It is noted that the proportion of developed and vacant land within this region is an estimate only due to limited availability of data.

Within the north-west subregion, Blacktown contains the largest amount of zoned employment land, a total of 2,533ha of which 1,217ha (48%) is believed to have been developed, leaving 1,316ha (52%) of vacant zoned employment lands for future development. A significant component of this land is located within the Western Sydney Employment Hub.

Therefore, in the south-west and north-west subregions combined, the total supply of land that is vacant and zoned for employment and therefore available for future development is estimated to be in the order of 2,743ha.

In addition to existing vacant zoned employment lands a number of proposed / investigation areas have been identified throughout the south-west and north-west subregions. Detail in relation to the majority of these precincts is limited with data of specific land areas unavailable. Quantifiable information suggests that 170ha is proposed for the south-west subregion and some 1,047ha is proposed for the north-west subregion. In addition employment lands are proposed for Kemps Creek, Austral, Rossmore, Lowes Creek, Catherine Fields, Catherine Fields North, Marylands and Turner Road which do not have clear area estimates of land identified at this time.

TABLE 15 EMPLOYMENT LANDS SUPPLY – SOUTH WEST & NORTH WEST SUBREGIONS

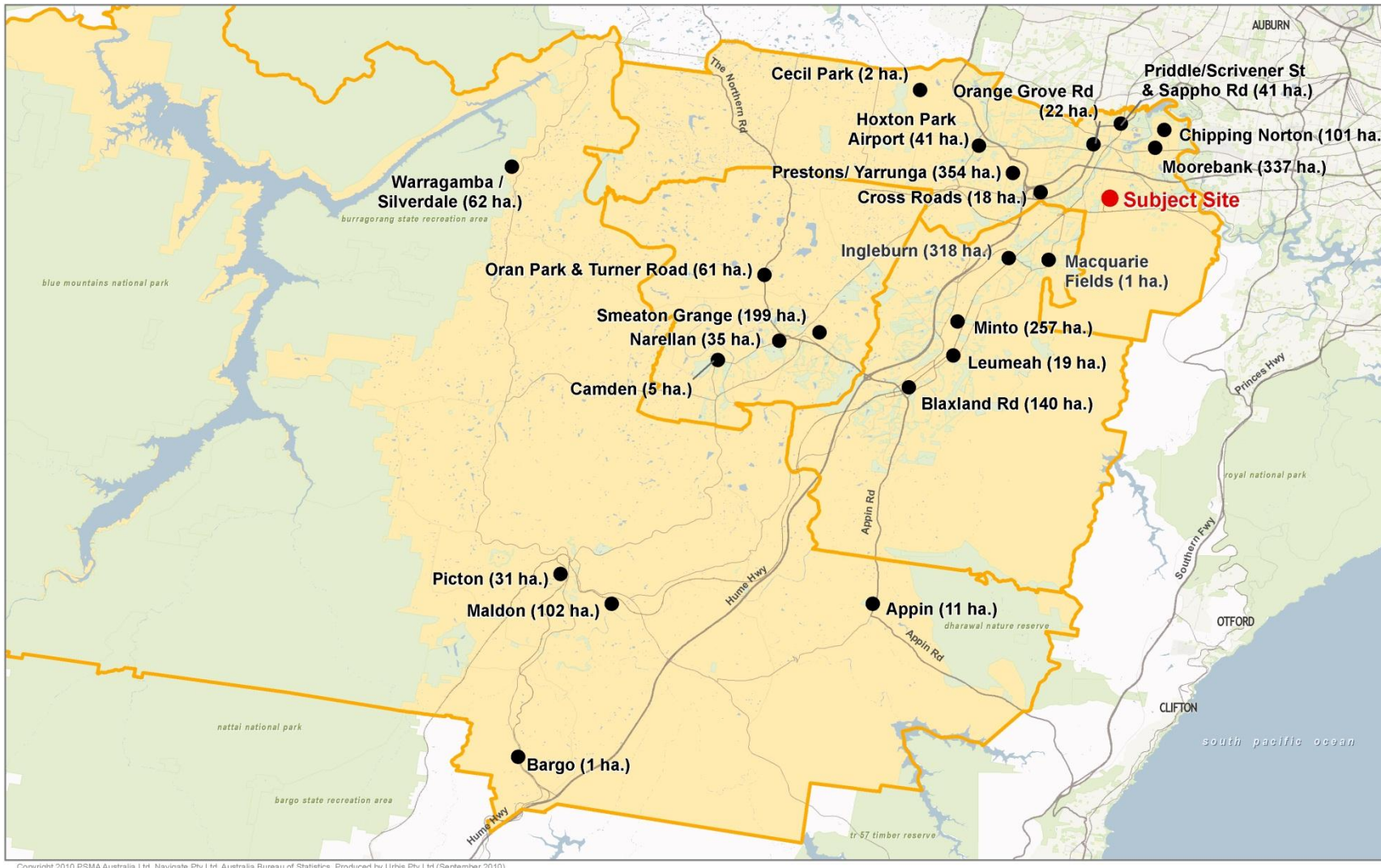
Employment Lands Supply					
Location by LGA	Developed (ha)	Vacant (ha)¹	Zoned Sub- Total (ha)	Proposed / Investigation Areas	Total Area (ha)
South West Subregion					
Liverpool	777	139	916	70	986
Campbelltown	601	135	736	-	736
Camden	144	156	300	100	400
Wollondilly	115	92	207	-	207
Total	1,637	523	2,159	170	2,329
North West Subregion					
Baulkham Hills	235	73	308	200	508
Blacktown	1,217	1,316	2,533	787	3,320
Blue Mountains	64	39	102	-	122
Hawkesbury	160	41	202	-	211
Penrith	837	751	1,588	60	1,648
Total	2,513	2,220	4,732	1,047	5,809

Note: A number of locations identified as investigation and future areas are still at preliminary stages and quantifiable land area estimates have not been assessed by the NSW Government

Source: NSW Government's Metropolitan Strategy; Sydney Industrial Property 2006-2016 BIS Shrapnel; Blacktown Council; ELDP 2012; Urbis

As the proposed Moorebank Intermodal Terminal is located within the south-west subregion, the existing zoned employment lands have been mapped. As illustrated, Moorebank is in close proximity to major employment lands precincts including Ingleburn and Prestons.

FIGURE 10 – SOUTH WEST SUBREGION EXISTING ZONED EMPLOYMENT LANDS



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SOUTH WEST SUBREGION EMPLOYMENT LAND



5.2 PROFILE OF SIGNIFICANT EXISTING EMPLOYMENT LAND ZONES

Employment lands in the south-west and north-west subregions provide the following key benefits:

1. Good Access – Extension of M5 Motorway to Sydney Airport & Eastern Distributor providing good road access and is appealing to manufacturing, logistics, distribution and other industries;
2. Affordability – Ability to provide larger parcels of land which support differing industrial requirements at more affordable prices. Lower land prices also enable developers to provide very competitive rental offerings by way of design and construction pre-lease arrangements;
3. Employment Opportunities – region provides for manufacturing, building and construction trades as well as residential and commercial development;
4. Labour Force – The region supports a high proportion of blue collar workers compared to professionals and accordingly employs labourers, production and transport workers.

5.3 SUMMARY

The region provides good access to major transport corridors which is likely to enable further re-zoning and creation of employment lands within the area. Between newly zoned/proposed areas and existing vacancies, a considerable amount of employment lands exists at present. Moreover, the high proportion of blue collar workers is likely to contribute to the push for further re-zoning within the region.

6 Employment Land Demand

In this section we assess the nature of projected jobs growth and the associated level of demand for employment lands in Liverpool LGA. This provides a basis for considering the role that the proposed Moorebank Intermodal Terminal could play in accommodating new jobs.

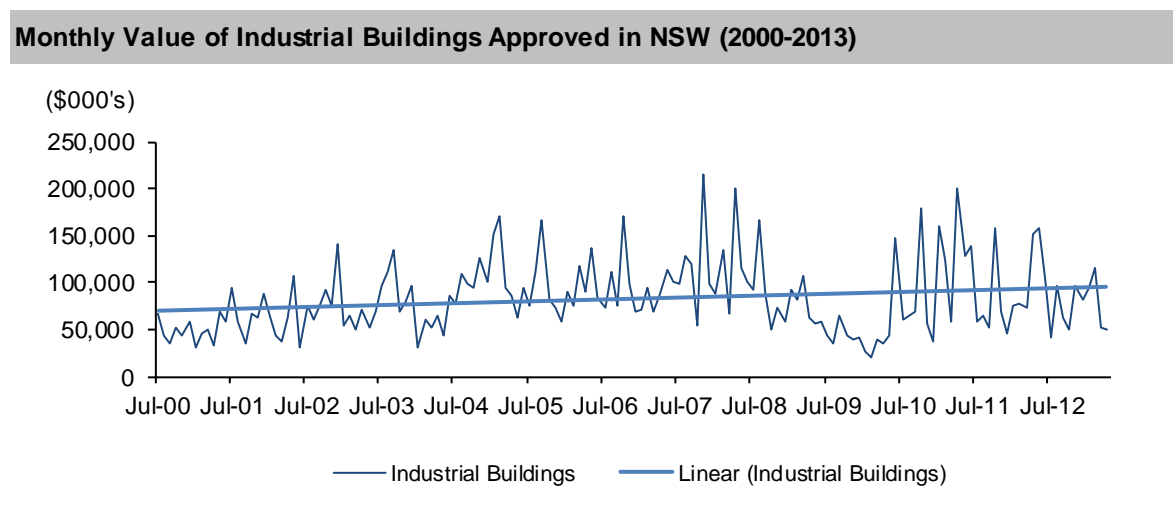
6.1 MACROECONOMIC DRIVERS & INDICATORS OF EMPLOYMENT LAND DEMAND

6.1.1 INDUSTRIAL BUILDING APPROVALS

Industrial building approvals are an indicator of the extent of demand for industrial (employment) lands. As illustrated in Figure 11, the value of industrial building approvals in New South Wales over the period 2000 to 2013 has fluctuated on a monthly basis, however in long term trend terms the value has been relatively flat.

Flat growth in industrial sector activity can be attributed to two binary factors: increasing competition in the global manufacturing sector has driven a shift away from manufacturing activities at the national level, particularly heavy manufacturing; this has been offset by growth in the warehousing, transport and logistics industries which has been largely driven by strong population growth.

FIGURE 11 MONTHLY VALUE OF NSW INDUSTRIAL BUILDING APPROVALS



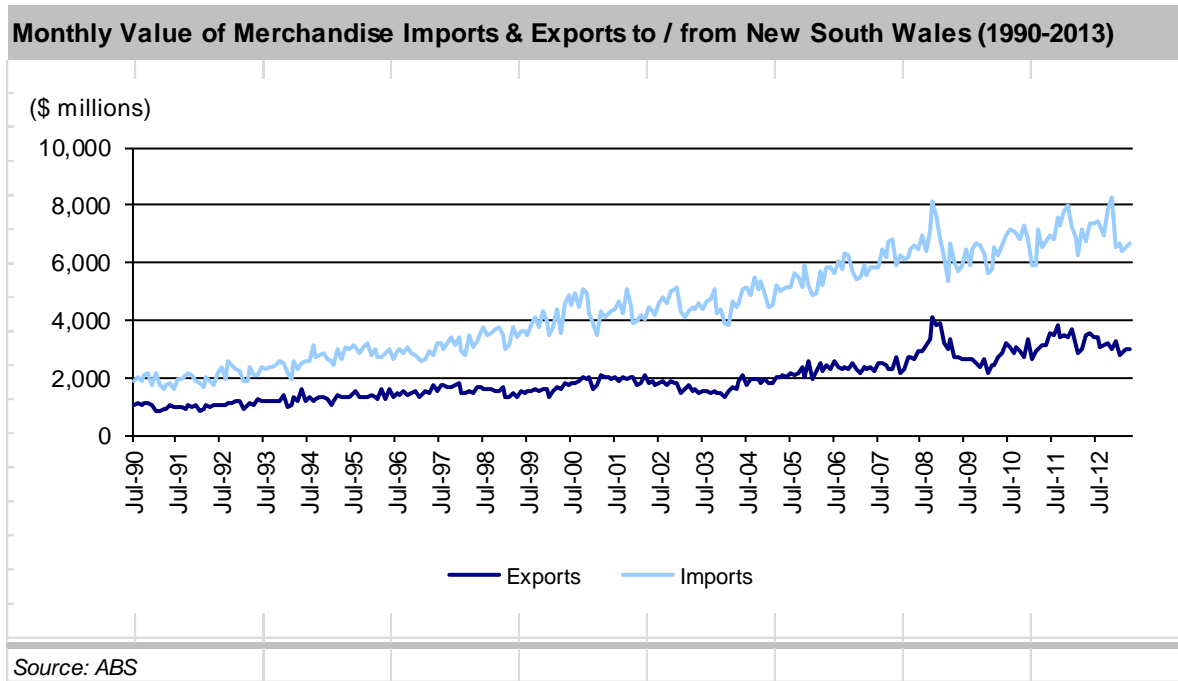
Source: ABS

6.1.2 IMPORTS & EXPORTS

Goods that are exported from Australia are produced by the manufacturing, mining and agricultural industries and therefore are an indicator of the combined performance of these industries. Given that these industries require industrial land for their operations, growth in the production of exports necessitates more industrial land.

The value of exports from New South Wales to overseas, as well as the value of imports from overseas to New South Wales, are an indicator of the level of Port Activities in New South Wales. These are illustrated in Figure 12. As shown, there has been some growth in the value of goods imported and exported, however growth in import values has exceeded growth in export values, suggesting that demand for employment lands is being driven mainly by growth in port / freight / transport / logistics activities relating to import activities, rather than by export producing activities including manufacturing, mining and agriculture.

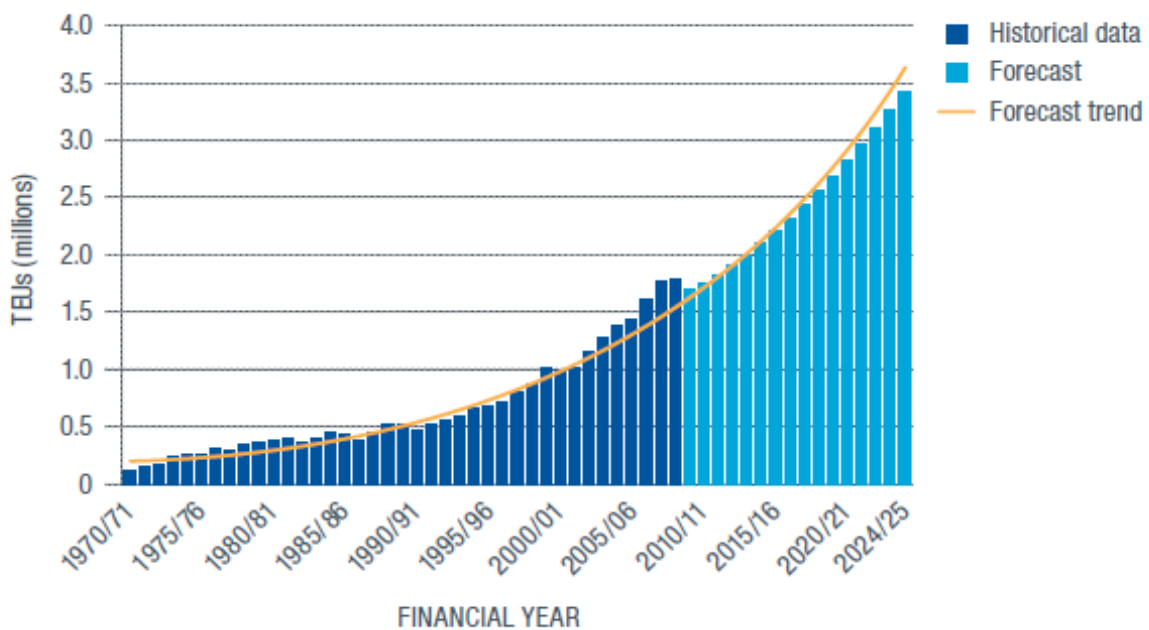
FIGURE 12 MONTHLY VALUE OF MERCHANDISE IMPORTS & EXPORTS TO / FROM NEW SOUTH WALES



6.1.3 CONTAINER TRADE THROUGH SYDNEY’S PORTS

Figure 7 (extracted directly from Sydney Ports Corporation’s 2008/09 Logistics Review) illustrates the volume of container trade through Sydney’s Ports since 1970, and projected into the future to 2025. As illustrated, container trade volumes have grown rapidly over the period, from approximately 0.3 million TEUs in 1970 to 1.78 million TEUs in 2010. By 2025 container trade through Sydney’s Ports is expected to reach almost 3.5 million TEUs – representing an annual forecast growth rate of approximately 6.5%. This growth will drive demand for employment lands to accommodate further development of Sydney’s freight and logistics infrastructure.

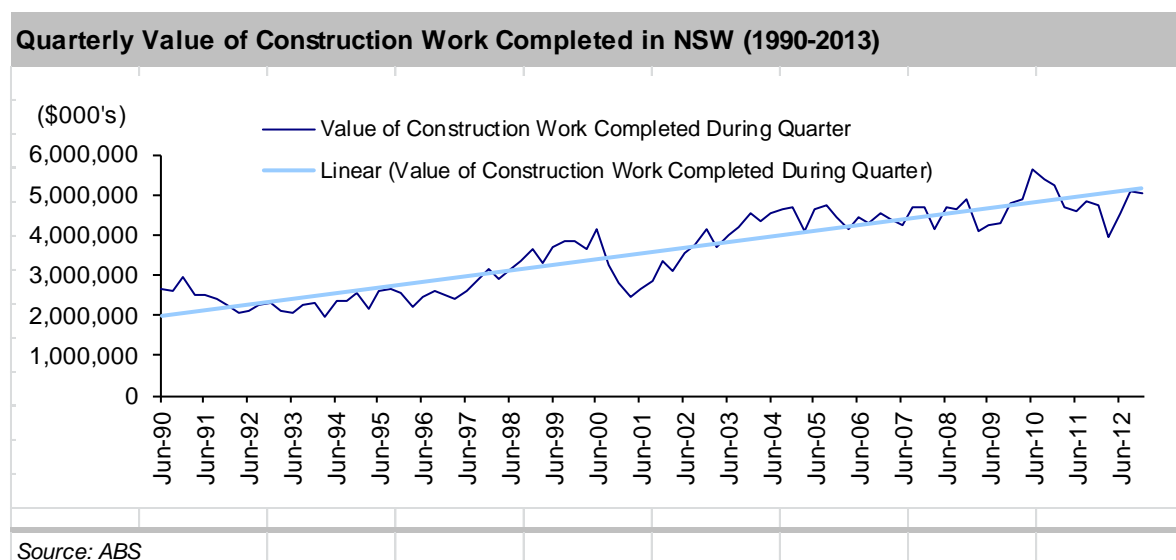
FIGURE 13 HISTORICAL & FORECAST CONTAINER TRADE SYDNEY’S PORTS



6.1.4 CONSTRUCTION SECTOR ACTIVITY

Growth in the building and construction sector is a key driver of employment land demand, since building and construction companies largely occupy spaces located in employment land precincts. As illustrated in Figure 8, the value of building and construction work (comprising residential and non-residential) completed in NSW has grown strongly since 1990. The sector is expected to continue to grow strongly, driven largely by strong population growth.

FIGURE 14 QUARTERLY VALUE OF CONSTRUCTION WORK COMPLETED IN NSW



6.2 EMPLOYMENT LAND DEMAND FORECASTS

In this section we forecast the demand for employment land in Liverpool LGA. This involves the following:

1. Forecasting total jobs growth in Liverpool LGA based on population projections
2. Forecasting jobs per industry in Liverpool LGA, based on industry growth forecasts
3. Converting jobs growth per industry into jobs growth by land use

6.2.1 PROJECTED JOBS GROWTH

In 2006 there were approximately 48,900 jobs located in Liverpool LGA. By 2036 the BTS expects that this will increase to 90,700 equating to a total increase of 41,792 jobs.

TABLE 16 LIVERPOOL LGA JOB PROJECTIONS

Liverpool LGA Job Projections (2006-2036)							
	2006	2011	2016	2021	2026	2031	2036
Jobs in Liverpool	48,910	53,763	61,445	68,596	74,597	82,428	90,702

Note: TDC forecasts overstate jobs compared to ABS Data. Therefore, TDC forecasts have been rebased to 2011 ABS Jobs Data.

Source: TDC (2012)

6.2.2 PROJECTED JOBS GROWTH BY INDUSTRY

The following Table presents the forecasted share of jobs by industry for the entire Sydney Greater Metropolitan Area (GMA), as prepared by TDC. Whilst Liverpool LGA will experience a different rate of jobs growth across different industries, and the share of jobs by industry will be different, the assessment none-the-less provides some context for forecasting jobs across industries within Liverpool LGA.

Across the Sydney GMA the industries that are expected to become increasingly prevalent in terms of employment are retail trade, accommodation and food services, professional, scientific and technical services, and healthcare and social assistance services. The manufacturing sector is expected to experience the greatest loss in share of total jobs.

TABLE 17 HISTORIC AND FORECAST SHARE OF JOBS IN SYDNEY GMA, BY INDUSTRY

Historic and Forecast Share of Jobs in Sydney GMA, by Industry (2006-2036)								
	2006	2011	2016	2021	2026	2031	2036	↑ ↓
Agriculture, Forestry and Fishing	1%	0%	0%	0%	0%	0%	0%	-
Mining	0.4%	0.7%	0.9%	0.9%	0.9%	0.9%	0.9%	-0.1%
Manufacturing	10%	9%	8%	7%	6%	6%	6%	-2%
Electricity, Gas, Water, Waste	1%	1%	1%	1%	1%	1%	1%	-
Construction	8%	8%	8%	8%	8%	7%	7%	-1%
Wholesale Trade	5%	5%	5%	5%	5%	5%	5%	-1%
Retail Trade	11%	11%	12%	12%	12%	12%	12%	+2%
Accomm. & Food Services	6%	8%	7%	7%	7%	7%	7%	+2%
Transport, Postal & Warehousing	6%	6%	6%	6%	5%	6%	6%	-
Information Media & Telecomms	3%	2%	2%	2%	2%	2%	2%	-1%
Finance & Insurance Services	6%	6%	7%	7%	7%	7%	7%	-1%
Rental, Hiring & Real Estate Services	2%	2%	2%	2%	2%	2%	2%	-
Professional, Scientific, Tech Services	9%	10%	11%	11%	12%	12%	13%	+1%
Admin & Support Services	3%	4%	4%	4%	4%	4%	4%	-1%
Public Admin & Safety	6%	6%	7%	7%	7%	7%	7%	-
Education and Training	8%	8%	8%	8%	9%	9%	9%	-
Health Care & Social Assistance	11%	12%	13%	14%	15%	15%	15%	+1%
Arts and Recreation Services	1%	2%	2%	2%	2%	2%	2%	-
Other Services	4%	4%	4%	4%	4%	4%	4%	-
Unclassified	3%	3%	3%	3%	3%	3%	3%	-
Total	100%	100%	100%	100%	100%	100%	100%	-

Source: TDC (2012)

As noted in the Draft South West Subregional Strategy, the South West is one of two subregions with strongly growing industrial activity. The extension of the M5 Motorway to Sydney Airport and the Eastern Distributor—providing good road access to the Global Economic Corridor—have made this a prime area for the relocation of manufacturing and other industry from established industrial areas. Industrial activity in the region is expected to expand in response to further planned improvements to freight rail links.

The Draft South West Subregional Strategy notes that the subregion will continue to provide significant employment opportunities in the manufacturing, building and construction, and transport, postal and warehousing industries over the next 25 years, albeit that the share of total jobs in some of these industries may still decline, in line with the forecasted trend for the Sydney GMA.

Strong jobs growth is also expected in key services industries including health and education as a result of strong population growth. Employment in primary industries is expected to decline as productive rural land is withdrawn from its agricultural use.

TABLE 18 HISTORIC AND FORECAST SHARE OF JOBS IN LIVERPOOL LGA, BY INDUSTRY

Liverpool LGA Proportion of Jobs by Industry (2006-2036)							
	Actual		Forecast				
	2006	2011	2016	2021	2026	2031	2036
Agriculture, forestry & fishing	1.2%	1.2%	0.9%	0.8%	0.7%	0.6%	0.5%
Mining	0.0%	0.0%	0%	0.0%	0.0%	0.0%	0.0%
Manufacturing	16.5%	15.0%	14.0%	13.7%	13.4%	13.1%	12.7%
Elec., gas, water & waste services	1.2%	1.1%	1.5%	1.5%	1.5%	1.5%	1.5%
Construction	6.3%	6.6%	5.9%	5.8%	5.7%	5.6%	5.5%
Wholesale trade	5.3%	5.0%	4.7%	4.4%	4.1%	3.8%	3.5%
Retail trade	12.0%	11.9%	11.4%	11.3%	11.2%	11.1%	11.0%
Accommodation & food services	4.1%	5.8%	4.9%	5.3%	5.7%	6.0%	6.3%
Transport, postal & warehousing	6.5%	5.5%	6.5%	7.5%	8.5%	9.5%	10.5%
Information media & telecomm.	1.2%	0.8%	1.2%	1.2%	1.2%	1.2%	1.2%
Financial & insurance services	1.7%	1.5%	1.3%	1.2%	1.1%	1.0%	1.0%
Rental, hiring & real estate services	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
Prof., scientific & tech. services	3.2%	3.5%	2.4%	2.3%	2.2%	2.1%	2.0%
Administrative & support services	3.9%	3.1%	3.9%	3.9%	3.9%	3.9%	3.9%
Public administration & safety	7.8%	6.6%	7.4%	7.3%	7.2%	7.1%	7.0%
Education & training	8.6%	10.2%	9.5%	10.0%	10.5%	11.0%	11.5%
Health care & social assistance	14.0%	13.3%	15.8%	16.5%	17.0%	17.3%	17.4%
Arts & recreation services	0.9%	1.1%	0.9%	0.9%	0.9%	0.9%	0.9%
Other	3.9%	6.1%	6.1%	4.7%	3.5%	2.6%	1.9%
TOTAL	100%	100%	100%	100%	100%	100%	100%

Source: 2006 and 2011 ABS Census; NSW DoP, Urbis

6.2.3 PROJECTED JOBS GROWTH BY LAND USE

Upon converting the projected jobs growth across industries into the types of land uses that those industries occupy we see that over almost one quarter of new jobs that are expected to be created in Liverpool LGA between 2006 and 2036 will be located within industrial zones. Large shares will also be located in office, health and education zones.

TABLE 19 HISTORIC AND PROJECTED JOBS GROWTH IN LIVERPOOL LGA, BY LAND USE

Job Growth by Land Use, Liverpool LGA (2006-2036)								
	2006	2011	2016	2021	2026	2031	2036	Increase / Decrease
Industrial	13,925	13,891	15,748	17,677	19,328	21,473	23,664	9,739
Office	10,098	10,041	11,912	13,164	14,155	15,446	16,853	6,755
Retail	6,664	7,749	8,384	9,134	9,716	10,526	11,388	4,723
Education	4,002	5,192	5,545	6,517	7,441	8,614	9,909	5,908
Health	6,160	6,420	8,738	10,186	11,413	12,834	14,204	8,044
Other	2,568	3,687	3,782	4,277	4,733	5,296	5,927	3,359
Off-site	4,242	5,220	5,776	6,105	6,341	6,800	7,347	3,105
Home	1,227	1,563	1,559	1,536	1,470	1,439	1,410	182
Total	48,887	53,763	61,445	68,596	74,597	82,428	90,702	41,815

Source: Urbis

6.2.4 PROJECTED LAND DEMAND

By applying jobs growth and average employment densities across land uses, we have estimated the likely future demand for the various land uses. As noted in Table 20, we estimate that between 2011 and 2036 an additional 326 hectares of industrial land will be required in Liverpool LGA. This is equivalent to approximately 42.0% of existing developed employment land area, and approximately 135% more than current vacant zoned employment lands in Liverpool LGA – indicating that additional land in Liverpool LGA will need to be rezoned to employment lands to accommodate future jobs growth.

SIMTA's Moorebank Intermodal Terminal site (82.9 hectares) accounts for approximately 11% of forecasted future demand for employment land in Liverpool LGA, and 19% of forecasted additional industrial land demand.

TABLE 20 PROJECTED DEMAND FOR EMPLOYMENT LANDS IN LIVERPOOL LGA

Land Use Demand Ha, Liverpool LGA (2011-2036)							
	2011	2016	2021	2026	2031	2036	Increase / Decrease
Industrial	463	525	589	644	716	789	326
Office	77	92	101	109	119	130	52
Retail	97	105	114	121	132	142	45
Education	94	101	118	135	157	180	86
Health	71	97	113	127	143	158	86
Other	53	54	61	68	76	85	32
Off-site	-	-	-	-	-	-	-
Home	-	-	-	-	-	-	-
Total	856	973	1,097	1,204	1,341	1,483	628

Source: Urbis

7 Economic Impacts of Moorebank Intermodal Freight Terminal

The Moorebank Intermodal Terminal facility will provide an integrated solution for the movement of freight to, from and within Sydney and is expected to provide benefits to the region and surrounds, including:

- Jobs generation;
- Reduction in heavy vehicle traffic on Sydney's roads;
- Improved import and export speed efficiency to boost Australia's productivity and economic performance by rail;
- Long term improved air quality, decreased greenhouse gas emissions and motor vehicle accident rates; and
- Better promotion of industry development, investment and jobs in south western Sydney.

7.1 EMPLOYMENT GENERATION

The proposed SIMTA Moorebank Intermodal Terminal will provide significant direct employment generation during construction and operation of the facility. PricewaterhouseCoopers (PwC) have prepared an employment study that estimates both direct and indirect employment opportunities generated by the proposal.

The PwC report addressing employment potential of the SIMTA Moorebank Intermodal Terminal was prepared in June 2010 based on the proposed design and layout on the basis that the facility will accommodate up to 1 million TEU per annum³.

7.1.1 CONSTRUCTION GENERATED EMPLOYMENT

PwC have based their employment calculations on an estimated construction cost of \$510 million over a 6 year period (average of \$85 million per annum).

PwC have adopted a direct construction jobs multiplier of approximately 4 jobs per \$1 million in construction costs. On this basis, annual employment equates to 340 jobs per annum, with a total of 2,040 construction jobs being created over the six year construction period.

In addition to direct jobs, PwC have also calculated indirect jobs that will flow from the construction of the SIMTA facility. Indirect jobs are jobs that are created in other parts of the Australian economy as a result of economic activity that flows from the construction of the SIMTA facility. Whilst these jobs will be spread throughout the Australian economy, the majority will be captured within the NSW economy.

PwC have adopted an indirect jobs multiplier of 1.5. That is, 1.5 indirect jobs created for every direct job associated with the construction of the SIMTA Moorebank Intermodal Terminal. On this basis, indirect employment would equate to 510 indirect jobs per annum or 3,060 indirect jobs over the full estimated construction period.

Total construction related employment, combining both direct and indirect employment therefore equates to 850 jobs per annum or a total of 5,100 jobs over the full six year construction period.

The assumptions adopted within the PwC report appear to be reasonable based on our analysis of appropriate industry benchmarks and multipliers.

³ PwC, 'Employment Forecasts for the SIMTA Moorebank Intermodal Terminal', June 2010

7.1.2 ONGOING EMPLOYMENT

Ongoing employment has been calculated by PwC to estimate the number of jobs that will be accommodated on the SIMTA Moorebank Intermodal Terminal. Ongoing employment has been calculated by applying employment densities to the accommodation proposed for the SIMTA site. Employment densities have been adopted for the various component of the development:

- Warehouse – 1 employee per 160 sq.m
- Office – 1 employee per 18 sq.m
- Retail – 1 employee per 20 sq.m

These adopted densities appear to be reasonable considering the function of the facility. We do not think that warehouse and transport employment densities can be as high as 1 employee to 250 sq.m, however the nature of the facility will result in a higher workforce density being achieved due to the number of staff that will work in the open hardstand areas loading and unloading trains and trucks and the higher workforce densities in the pack / unpack portions of the estate that will increase employment activity on the site.

Based on these assumptions, PwC have estimated that the SIMTA facility will generate 2,840 direct ongoing jobs once the facility reaches its capacity of 1 million TEU per annum.

Indirect jobs have been calculated utilising a multiplier of 1.5 indirect jobs to every direct job. This results in total indirect jobs of 4,260. We note that multipliers for industrial jobs can be as high as 2.1 indirect jobs for each direct job, therefore the PwC estimate is considered to be appropriate, albeit somewhat conservative.

On this basis total direct and indirect jobs for SIMTA have been estimated at 7,100 for the ongoing operation once fully established.

The estimated ongoing employment generated on the site will slightly exceed the targeted density of 30 jobs per hectare based on the NSW Department of Planning Metro Strategy Targets. Utilising this target, PwC have calculated that the target for the SIMTA site could be 6,225 direct and indirect ongoing jobs.

The direct employment provided by SIMTA as estimated by PwC will contribute to the overall requirement for new employment within the Liverpool LGA. As discussed in Section 6, by 2036 the Liverpool LGA will require the additional provision of approximately 44,400 jobs, of which approximately 10,400 jobs will be within the industrial sector. As such direct ongoing employment created at the SIMTA Moorebank Intermodal Terminal will provide for approximately 6.4% of the total Liverpool employment requirement by 2036 and approximately 27.3% of the industrial based employment.

Importantly, this project will provide for jobs that are suitable for locally generated employment demand, which will assist in retaining local employment and reducing commuting times for workers. This can have benefits such as reduced regional traffic congestion due to higher potential for local trips, reduced cost of transport to workers and improved quality of life due to the potential for reduced travel times.

7.2 TRAFFIC IMPACTS

The Moorebank Intermodal Terminal will have the effect of reducing the number of truck movements between Port Botany and Moorebank. This is an important outcome of the project that will attract a number of economic and social benefits.

In a recent study undertaken by Hyder Consulting, the capacity of the existing road network, including the M5 Motorway, was assessed to establish the base line operating environment. The current capacity constraints of the M5 in particular highlighted the potential benefits of the SIMTA proposal. A good example is the M5 westbound between Henry Lawson Drive and Heathcote Road. Based on 2006 peak

period modelled traffic flows this four-lane (two lanes each direction) section of the M5 operates at capacity, with significant level of service delays and a volume/capacity ratio of 0.94⁴.

The demands on the M5 are likely to continue to grow, particularly due to the population growth that has been planned for the South West Growth Centres. As such the built capacity of the M5 will continue to be exceeded, which will further contribute to increasing travel times, congestion and potentially the rate of accidents, all of which contribute to losses in productivity. We note that the RTA is proposing to upgrade the entire section of the M5 South West Motorway to 3 lanes in each direction to help address this capacity issue.⁵

Modelling produced by Hyder Consulting suggests that the operation of SIMTA at Moorebank would have the potential to reduce the volumes of heavy vehicles movements along the M5 corridor in the order of 2,700 movements per day. These heavy vehicle movements would be primarily redistributed to the west of M5/Moorebank interchange in Liverpool, part of South West and Industrial West of Sydney. Beyond the core area, where the SIMTA heavy vehicle volume increases, it is generally by a small margin.⁶

Hyder Consulting has estimated 2010 traffic volumes on the M5, east of Moorebank Avenue, at 110,000 vehicles per day, of which 10% are heavy vehicles. A reduction of 2,700 truck movements per day on the M5 is expected as a result of the SIMTA Moorebank Intermodal Terminal.

This is an important gain in capacity for the M5, which is already considered to be operating at capacity, with some time likely to pass before any capacity increases are realised.

7.3 PRODUCTIVITY GAINS

The development of the SIMTA Moorebank Intermodal Terminal will result in productivity gains as a result of overall efficiency gains through the conversion of road freight to rail freight. This efficiency is primarily driven by lower labour requirements for rail transport, for example one 600 metre long port train can replace up to 60 heavy vehicles. As such, one train with up to two drivers can replace 60 drivers under a road freight strategy. This has direct cost benefits that can be passed onto consumers in the form of lower costs and to businesses through improved operating margins.

Based on calculations prepared by Hyder Consulting, Tables 21 and 22 demonstrated that truck vehicle kilometres travelled will fall by approximately 13 million kilometres per annum across the whole Sydney Metropolitan Network by 2031. This compares to a relatively small gain in train kilometres travelled of approximately 332,000 kilometres in 2026 once SIMTA has reached its estimated capacity of 1 million TEU.

TABLE 21 – ANNUAL TRUCK VEHICLE KILOMETRES TRAVELLED WITH AND WITHOUT SIMTA

ANNUAL TRUCK VEHICLE KILOMETRES TRAVELLED WITH AND WITHOUT SIMTA		
Without SIMTA	With SIMTA	Saving
1,979,579,000 kms	1,966,579,000 kms	13,000,000 kms
<ul style="list-style-type: none"> ▪ Note 1. With SIMTA, full 1 million TEU ▪ Note 2. The truck VKT data represent 2031 forecast for the entire Sydney metropolitan network 		

⁴ Hyder Consulting, Technical Note 4, Existing Road Network Capacity Issues, Page 24
⁵ Halcrow, M5 West Widening Project Traffic and Transport Report, September 2010
⁶ Hyder Consulting - Moorebank Intermodal Terminal Facility (MITF)—Traffic and Transport, Page 128

TABLE 22 – ANNUAL TRAIN VEHICLE KILOMETRES TRAVELLED WITH AND WITHOUT SIMTA

ANNUAL TRAIN VEHICLE KILOMETRES TRAVELLED WITH AND WITHOUT SIMTA		
Without SIMTA	With SIMTA	Gain
1,377,119 kms	1,709,048 kms	331,929 kms
Note 1. With SIMTA, full 1 million TEU		

This could result in truck vehicle travel time savings of approximately 223,000 hours per annum based on modelling completed by Hyder Consulting as outlined in Table 23. Based on an assumed average labour cost of \$35 per hour, this equates to an annual saving of \$7,805,000 per annum (\$2011).

TABLE 23 – ANNUAL TRUCK VEHICLE HOURS WITH AND WITHOUT SIMTA

ANNUAL TRUCK VEHICLE HOURS WITH AND WITHOUT SIMTA		
Without SIMTA	With SIMTA	Saving
59,514,000 hours	59,291,000 hours	223,000 hours
Note 1. With SIMTA, full 1 million TEU		

In contrast the increase in train labour time would only be approximately 12,600 hours, assuming two locomotives per train. This would result in an increase in potential labour costs of approximately \$441,000 per annum (\$2011).

TABLE 24 – ANNUAL TRAIN VEHICLE HOURS (2 LOCOMOTIVES) WITH AND WITHOUT SIMTA

ANNUAL TRAIN VEHICLE HOURS (2 LOCOMOTIVES) WITH AND WITHOUT SIMTA		
Without SIMTA	With SIMTA	Gain
51,844 hours	64,444 hours	12,600 hours
Note 1. With SIMTA, full 1 million TEU		

The proposal will also provide benefits in the reduction of handling time for containers. Hyder Consulting have also considered the loading/unloading times within the overall cost model used to develop the SIMTA customer catchment analysis. The assumptions for this analysis include:

- Train loading/unloading takes 1 hour at port and at IMT.
- Truck loading/unloading at port 2 hours including queuing
- Truck loading/unloading at IMT 1.25 hours including queuing.

The overall time per TEU spent in loading/unloading activities at either port (to truck or train) and IMT to/from train and to/from truck nets the following annual estimates of waiting hours:

TABLE 25 – ANNUAL CONTAINER HANDELLING HOURS WITH AND WITHOUT SIMTA

ANNUAL CONTAINER HANDELLING HOURS WITH AND WITHOUT SIMTA

Without SIMTA	With SIMTA	Saving
5,340,000 hours	5,020,000 hours	320,000 hours
Note 1. With SIMTA, full 1 million TEU		

As outlined in Table 25, the total annual saving in container handling hours would be approximately 320,000 hours. Based on an average labour cost of \$35 per hour, this would equate to a saving of \$11,200,000 per annum (\$2011).

Considering transport and handling labour costs only, this could generate annual savings in the order of \$18,564,000 per annum. Over a 20 year period, this could generate a net present value in the order of \$213,000,000 (based on a 6% discount rate on an un-escalated basis) based on labour efficiencies generated by SIMTA at Moorebank.

7.4 CARBON (CO₂) EMISSIONS

As discussed in Sections 7.2 and 7.3, the SIMTA development will have a significant impact on the transfer of freight from road to rail, reducing truck travel by approximately 13,000,000 kilometres per annum once fully established and remove approximately 2,700 vehicles per day from the M5 motorway. The shift from road to a higher level of rail freight will have benefits in the form of reduced carbon emissions.

Hyder Consulting have prepared a Greenhouse Gas Assessment (August 2011) that outlines the impact of the SIMTA Moorebank Intermodal Terminal. This assessment considers Co₂ emissions of the site during construction and operation and also the savings generated through the shift from road toward a higher proportion of rail transport.

We have focused our assessment on the saving in Co₂ emissions compared to an alternative scenario that the SIMTA site was not developed as freight intermodal terminal. The alternative scenario was developed by Hyder Consulting using the Liverpool Local Environmental Plan 2008 and the projected freight demand in the area. A comparison between the SIMTA proposal and the alternative scenario showed that there was an annual GHG saving of 43,206 tonnes carbon dioxide equivalent (tCO₂e) per annum which can be achieved through operational and transport efficiencies through the implementation of the SIMTA proposal.

Based on the commencing value of the Federal Government's proposed Carbon Tax at \$23 per tonne (fixed for the first three years), we can estimate the value of this reduction in Co₂ emissions. As such, it is estimated that the annual dollar saving as a result of a shift from road to rail will equate to approximately \$994,000 per annum as a result of the SIMTA Moorebank Intermodal Terminal once it achieves its full capacity of 1 million TEU.

Over a 20 year period on a non-escalated basis (assuming a discount rate of 6% per annum), this saving would result in a net present value of approximately \$11,400,000.

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